<R42-115-0>

Service Manual

STEREO TURNTABLE

PL-50/PV

<70K01Y81U>

PIONEER®

1. SPECIFICATIONS

- **Motor and turntable**
  1. Motor: 4-pole synchronous.
  2. Turntable drive: Belt-driven.
  3. Speed: Two speeds, 33 1/3 and 45 rpm.
  4. Wow and flutter: 0.08% (WRMS) or less.
  5. S/N: 50 dB or more.
  6. Turntable platter: 12" (30 cm) diameter aluminum alloy.
- **Tonearm**
  1. Tonearm: Static balance type, Pipe arm.
  2. Effective arm length: 224 mm.
  3. Tracking force range: 0.8g ~ 9g.
  4. Furnished cartridge: PC-35 (Induced Magnet Type).
- **Sub functions**
  1. Automatic return.
  2. Anti-skating force control.
  3. Lateral balance control.
  4. Overhang index stand.
  5. Arm elevator.
- **Miscellaneous**
  1. Power requirement: AC 220 ~ 240, 110 ~ 130, 60 Hz, 50 Hz.
  2. Power consumption: 25VA (17W) MAX.
  3. Dimensions: 7 3/4"(H) x 19 19/32"(W) x 16 13/16"(D)
     197(H) x 498(W) x 427(D) mm.
  4. Weight: 22 lb. (10 kg.).

PC-35 SPECIFICATIONS

1. Type: Induced magnet type.
2. Frequency response: 10 Hz to 25,000 Hz.
3. Channel separation: Better than 25 dB at 1,000 Hz.
4. Output: 3.5 mV at 1,000 Hz (50 mm/sec or 2 inches persecond).
5. Load resistance: 30 kΩ to 100 kΩ.
6. Stylus: 0.5 mil diamond (PN-35).
7. Compliance: 10×10^{-6} cm/dyn at 100 Hz.
8. Requirement stylus pressure: 2 to 3 grams.
9. Weight: 1/4 oz. 7.2 grams.
10. Overall dimensions: 1 3/8"(L) x 5/8"(W) x 23/32"(H)
    35(L) x 16(W) x 18(H) mm.
11. Mounting: Conforms the EIA standards.
    The mounting hole pitch 1/2" (12.7 mm).

Note: Specifications and the design subject to possible modification without notice due to improvements.

2. OPERATION

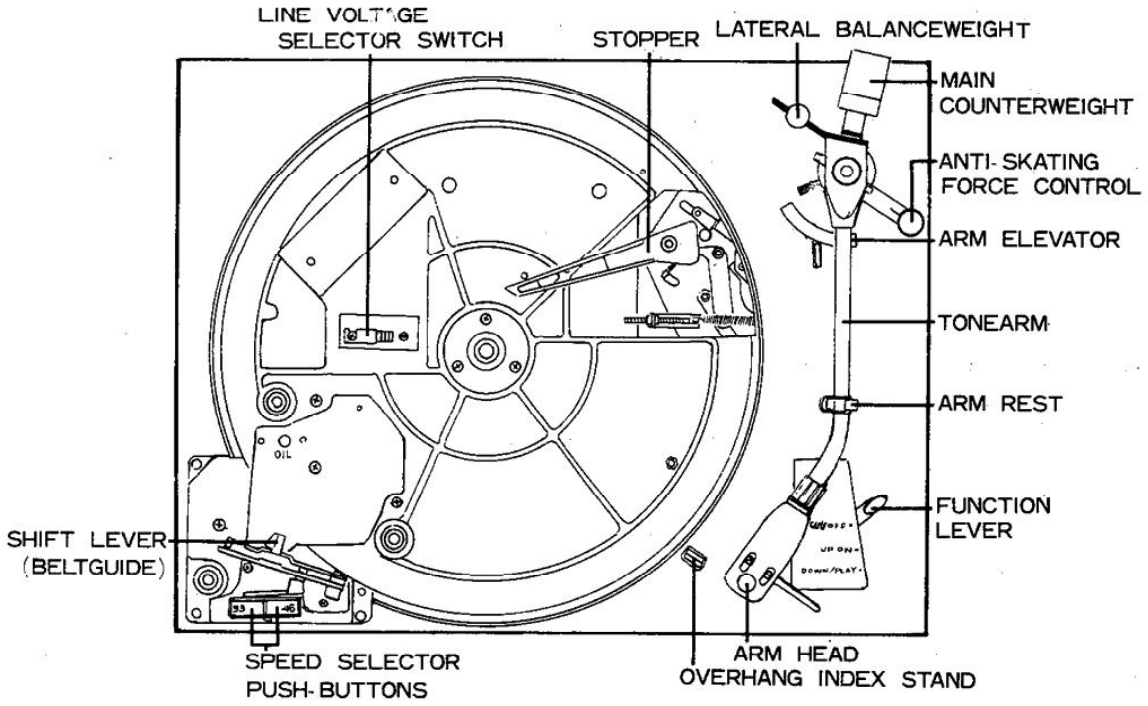


Fig. 1

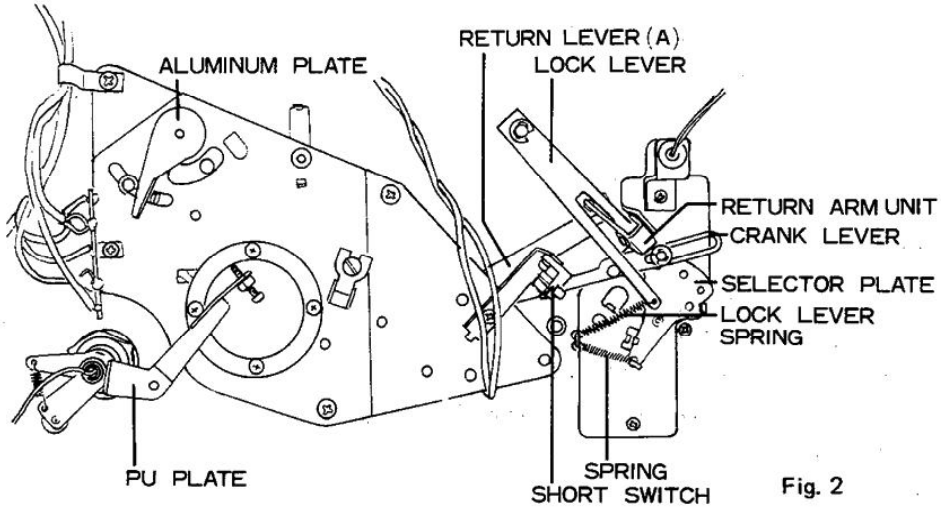


Fig. 2

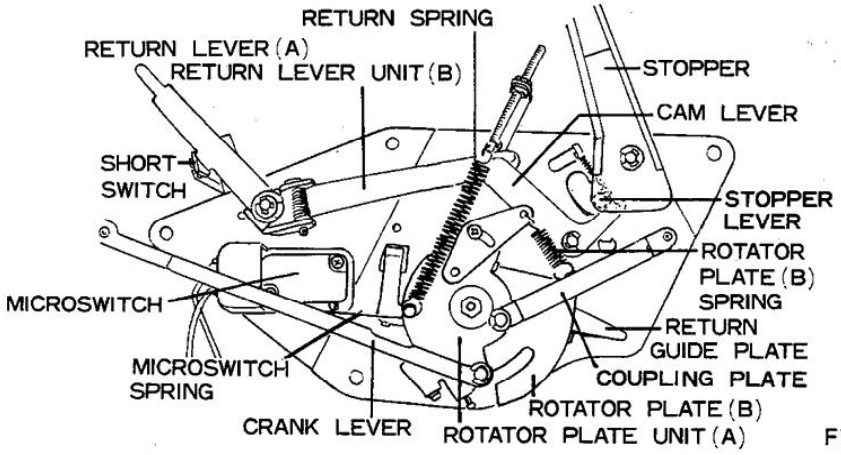
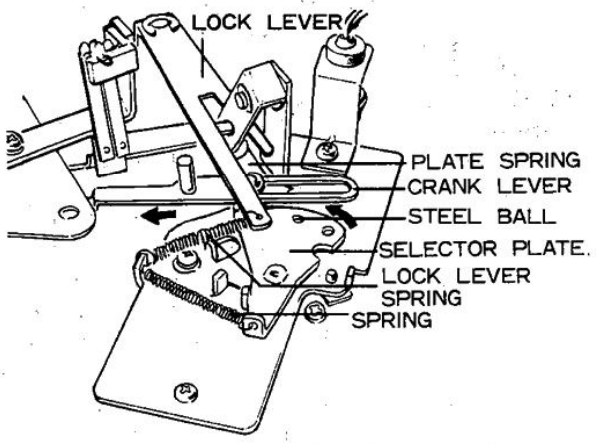


Fig. 3

1. With the FUNCTION LEVER set to UP/ON after bringing the tonearm over the cueing point of the record manually, the SELECTOR PLATE moves and the STEEL BALL held by the PLATE SPRING fits into the second hole of the three holes provided on the SELECTOR PLATE. With the STEEL BALL fitted in the hole, the SELECTOR PLATE is held tightly.
   By the motion of the SELECTOR PLATE, the CRANK LEVER connected with the SELECTOR PLATE moves, causing the ROTATOR PLATE UNIT (A) to move counterclockwise. The moment the STEEL BALL fits into the hole, the ROTATOR PLATE UNIT (A) stops with the RETURN SPRING pulled. With the ROTATOR PLATE UNIT (A) moved, the MICROSWITCH SPRING is pushed off the contact of the MICROSWITCH, thus providing the power to the phono motor. With the phono motor activated, the turntable platter starts revolving.
   Along with the motion of the ROTATOR PLATE UNIT (A), the ROTATOR PLATE (B) is pulled by the ROTATOR PLATE (B) SPRING and moves slowly being controlled by the oil damper provided at the back of the ROTATOR PLATE (B).
2. When the FUNCTION LEVER is brought to DOWN/PLAY the SELECTOR PLATE moves and the STEEL BALL fits into the hole corresponding to the DOWN/PLAY position. With the STEEL BALL fitted in the hole, the SELECTOR PLATE is held tightly. The ROTATOR PLATE (B) which moved a little when the FUNCTION LEVER was set to UP/ON moves farther with the FUNCTION LEVER set to DOWN/PLAY, and the ELEVATOR SHAFT lowers along the slope on the ROTATOR PLATE (B). This means that the tonearm comes down on the record face. In this condition, the SPRING connected with the SELECTOR PLATE is held expanded.



"UP/ON" POSITION

Fig. 4

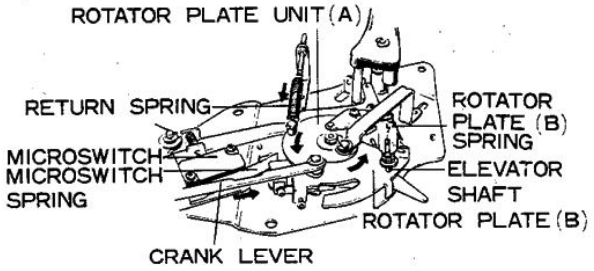
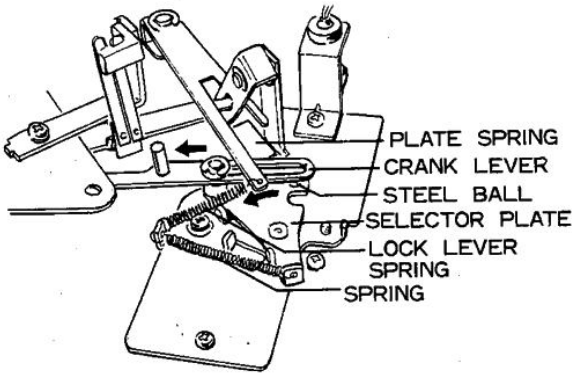


Fig. 5



"DOWN/PLAY" POSITION

Fig. 6

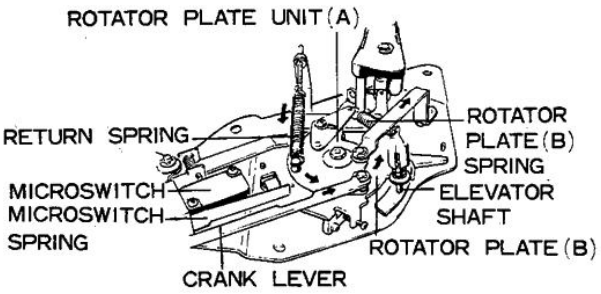


Fig. 7

3. When the tonearm comes closer to the center shaft, the PIN provided at the back of the platter starts hitting the tip of the STOPPER.
   While the cartridge traces the "sound groove", the STOPPER moves back and then advances a little, and repeats this back and forth movement until the tonearm moves toward the center shaft when the "sound groove" has finished. Next, when the tonearm comes in "inner guide groove ", the PU PLATE makes a larger movement and hits the ALUMINIUM PLATE causing the STOPPER to engage the PIN. Then, the PIN pushes the STOPPER counterclockwise.
4. When the STOPPER is pushed counterclockwise, the STOPPER LEVER pushed the CAM LEVER, which in turn pushes the RETURN LEVER UNIT (B).
5. By the motion of the RETURN LEVER UNIT (B), the RETURN LEVER (A) which is connected with the RETURN LEVER UNIT (B) moves in the direction indicated by the arrow in the figure 11. Along with the motion of the RETURN LEVER (A), the RETURN ARM UNIT moves and is locked by the LOCK LEVER which has been kept pulled by the LOCK LEVER SPRING.
6. When the RETURN ARM UNIT is locked, the COLLAR at the tip of the RETURN ARM UNIT pushes the PLATE SPRING up, releasing the STEEL BALL from the pressure of the PLATE SPRING. With the STEEL BALL made free, the SELECTOR PLATE is also made free to move. Thus, the SPRING connected to the FUNCTION LEVER UNIT pulls the SELECTOR PLATE, bringing the FUNCTION LEVER from DOWN/PLAY to CUT/OFF.
7. With the FUNCTION LEVER brought to CUT/OFF, the CRANK LEVER is moved, and the pin calked on the CRANK LEVER disengages the LOCK LEVER, bringing the RETURN ARM UNIT to an unlocked condition.
8. The ROTATOR PLATE UNIT (A) and the ROTATOR PLATE (B) turn slowly clockwise and the ELEVATOR SHAFT is pushed up by the raised portion of the ROTATOR PLATE (B), thus the tonearm rises off the record face.
   The RETURN GUIDE PLATE connected to both the ROTATOR PLATE (B) and the PLATE SPRING pushes the PU PLATE counterclockwise, allowing the tonearm connected to the PU PLATE to return to the arm rest.

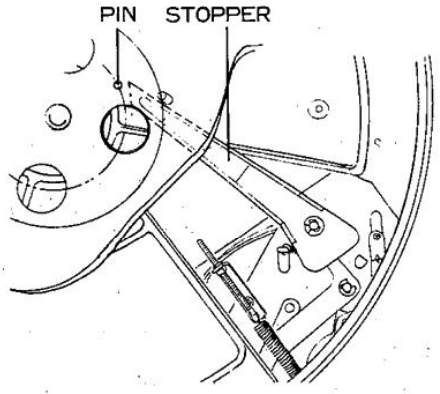


Fig. 8

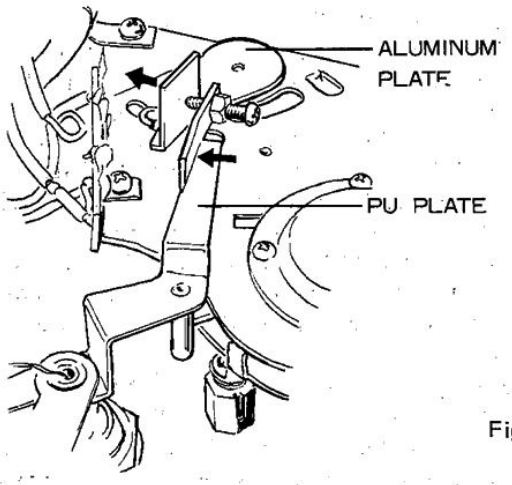


Fig. 9

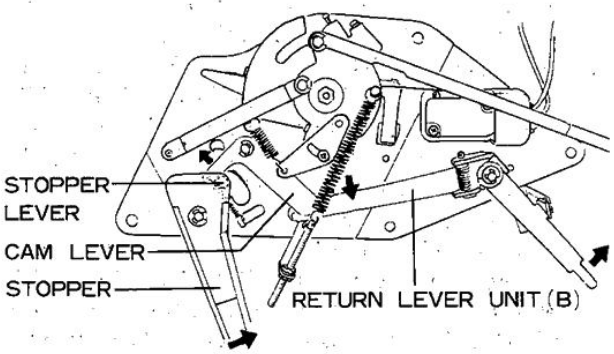


Fig. 10

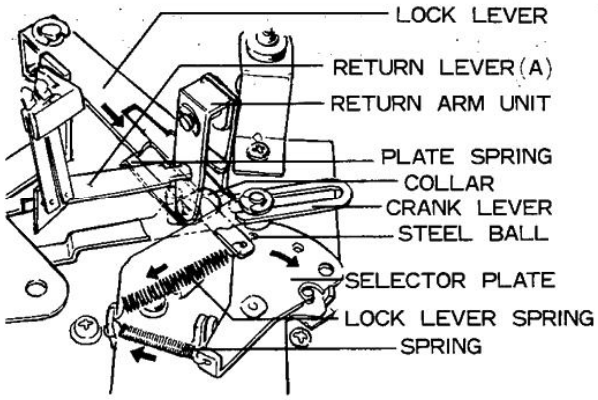


Fig. 11

9. The ROTATOR PLATE UNIT (A) moves the COUPLING PLATE back to its set position, permitting the ALUMINIUM PLATE to bring itself back to the position where it was before pushed by the PU PLATE. At the same time, the ROTATOR PLATE (B) pushes the MICROSWITCH SPRING onto the contact of the MICROSWITCH immediately before it stops moving.
With the MICROSWITCH SRING pushed on the contact of the MICROSWITCH, the power supply to the phono motor is cut off, thus the turntable platter comes to a halt.

WHEN PLAY IS STOPPED BEFORE THE RECORD HAS FINISHED

When the FUNCTION LEVER is brought from DOWN/PLAY to CUT/OFF, the SELECTOR PLATE moves and the STEEL BALL fits into the hole corresponding to the CUT/OFF position. When the FUNCTION LEVER is set to CUT/OFF, the CRANK LEVER moves and causes the ROTATOR PLATE UNIT (A) and the ROTATOR PLATE (B) to turn clockwise. Along with the motion of the ROTATOR PLATE (B), the ELEVATOR SHAFT is pushed up by the raised portion of the ROTATOR PLATE (B). With the ELEVATOR SHAFT pushed up, the RETURN GUIDE PLATE pushed the PU PLATE, bringing the tonearm back to the arm rest.

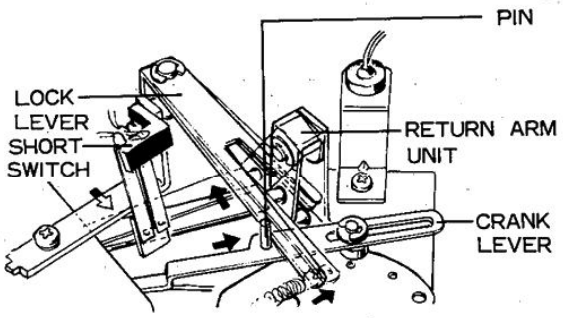
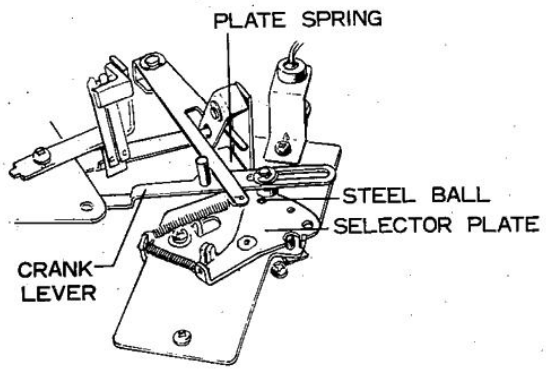


Fig. 12



"CUT/OFF" POSITION

Fig. 13

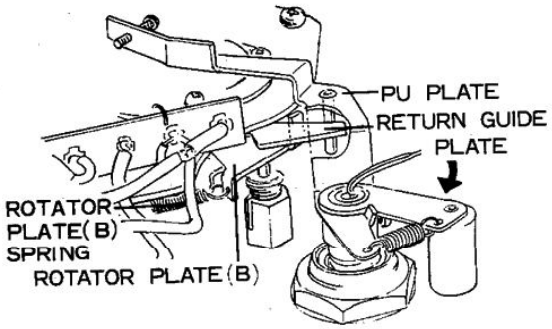


Fig. 14

3. ADJUSTMENT

I. ADJUSTMENT OF AUTO RETURN MECHANISM

1. TONEARM WILL NOT RETURN TO THE ARM REST

If the PIN at the back of the turntable platter is not (or incorrectly) engaged with the STOPPER the tonearm will not return to the arm rest. The probable causes of the trouble are as follows.

(a) The tip of the STOPPER is curved.
(b) The PIN is bent.
(c) The PU PLATE is incorrectly mounted.

In case (a) or (b) is responsible for the trouble, correct the curve of the STOPPER or the bend of the PIN. If necessary, replace the STOPPER or the PIN as the case may be.

In case (c) is the cause of the trouble, adjust the screw provided at the tip of the PU PLATE so that the PU PLATE will push the ALUMINIUM PLATE when the head of the tonearm reaches the point of 130ϕ from the center of the turntable platter.(Fig. 15)

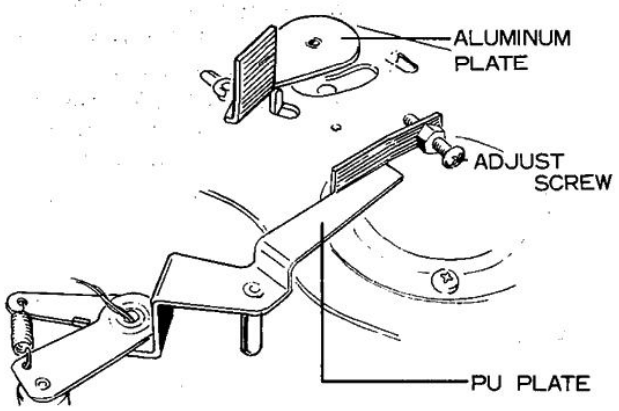


Fig. 15

2. TONEARM RETURNS TO THE ARM REST BEFORE THE RECORD FINISHES

The PU PLATE is incorrectly mounted. The best solution for this trouble is to replace the STOPPER. This trouble also occurs when the STOPPER fails to move smoothly. Oil the auto return mechanism.

3. TONEARM STOPS BEFORE IT REACHES THE ARM REST

This trouble occurs when the ROTATOR PLATE UNIT (A) and the ROTATOR PLATE (B) fail to move smoothly. Oil the ROTATOR PLATE UNIT (A) and ROTATOR PLATE (B) first and see if they move smoothly.
If not, replace them.

4. TONEARM WILL NOT RETURN AT A CORRECT SPEED

Adjust the tension of the RETURN SPRING. With the LOCK NUT tightened, the speed increases; with the LOCK NUT loosened, the speed decreases. (Fig. 16)

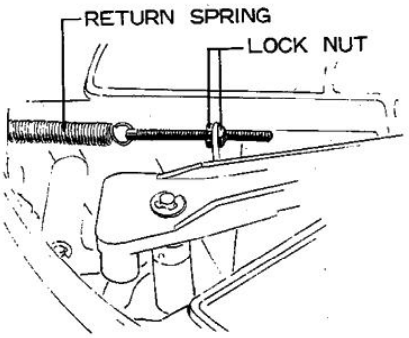


Fig. 16

5. TONEARM HITS THE INSIDE OF THE ARM REST

See if the head of the tonearm rises 5 ~ 10mm off the turntable platter with the FUNCTION LEVER set to CUT/OFF. If the tonearm rises correctly, adjust the height of the arm rest by means of the screw provided on the ARM-REST BASE; if not, adjust the height of the ELEVATOR RUBBER by means of the adjust screw on the elevator arm shaft. (Figs. 17, 18)

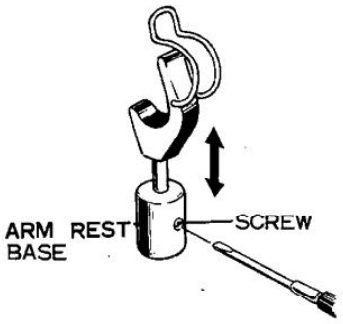


Fig. 17

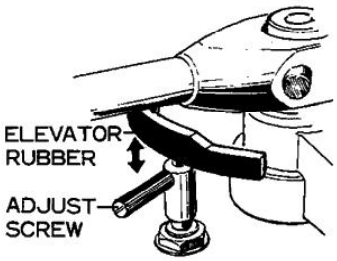


Fig. 18

6. TONEARM BOUNDS IN THE ARM REST

The tonearm hits the inside of the arm rest and bounds. The tonearm moves too fast, correct the speed in the manner described in 4.

7. ELEVATOR ARM WILL NOT MOVE AT A CORRECT SPEED

Adjust the tension of the spring attached to the ROTATOR PLATE (B). Turning the screw clockwise will make the ROTATOR PLATE (B) move slowly: turning it counterclockwise will make the ROTATOR PLATE (B) moves fast. (Fig. 19)

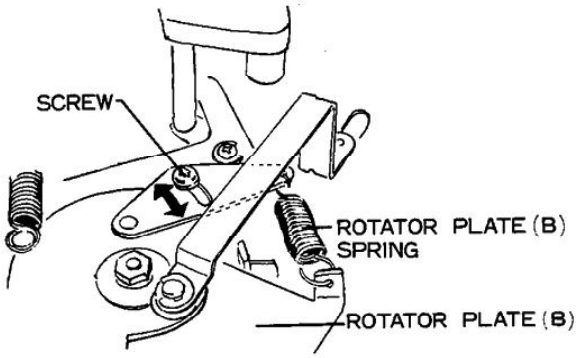


Fig. 19

8. TURNTABLE PLATTER WILL NOT TURN OR STOP

This trouble indicates that the MICROSWITCH is not functioning correctly. Repeats automatic return cycle several times and adjust the MICROSWITCH SPRING so that it performs ON/OFF action correctly. (Fig. 20)

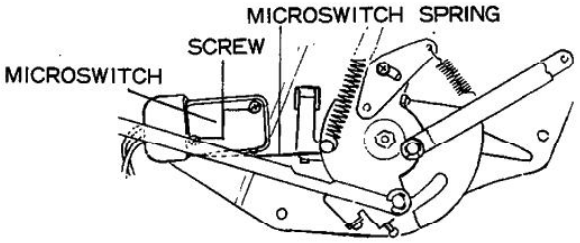
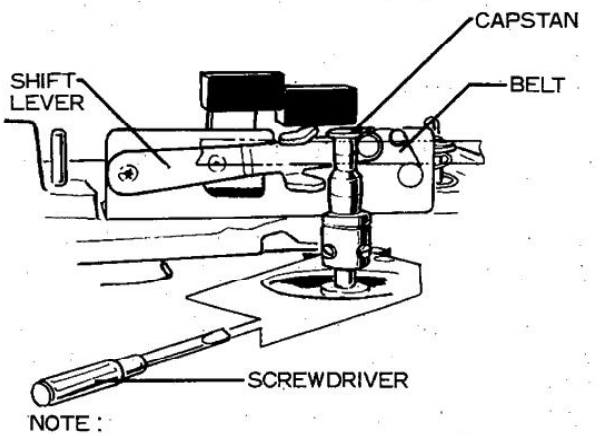


Fig. 20

II. ADJUSTMENT OF THE HEIGHT OF THE CAPSTAN

If the height of the capstan is not proper, the drive belt may twist or may not shift correctly; sometimes it will be responsible for irregularity of turntable revolution.
Determine the height of the capstan by the following steps;
Secure the capstan onto the motor shaft temporarily. Set the drive belt on the capstan. Turn the turntable platter several times by hand and see if the belt passes through center of shift lever correctly. If it does, secure the capstan tightly to the motor shaft. (Fig. 21)



NOTE :
Set the speed selector switch to $33\frac{1}{3}$ position.

Fig. 21

III. ADJUSTMENT OF THE SHORT SWITCH CONTACTS

If the SHORT SWITCH does not contact at the very moment the tonearm starts returning, a pulse noise may be reproduced through the speakers. To solve this problem, adjust the position of the SHORT SWITCH with the screw so that the RETURN LEVER (A) makes the SHORT SWITCH contact a little before the RETURN ARM UNIT is locked by the LOCK LEVER. (Fig. 22)

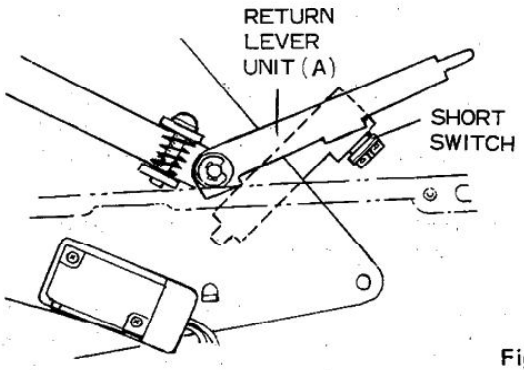


Fig. 22

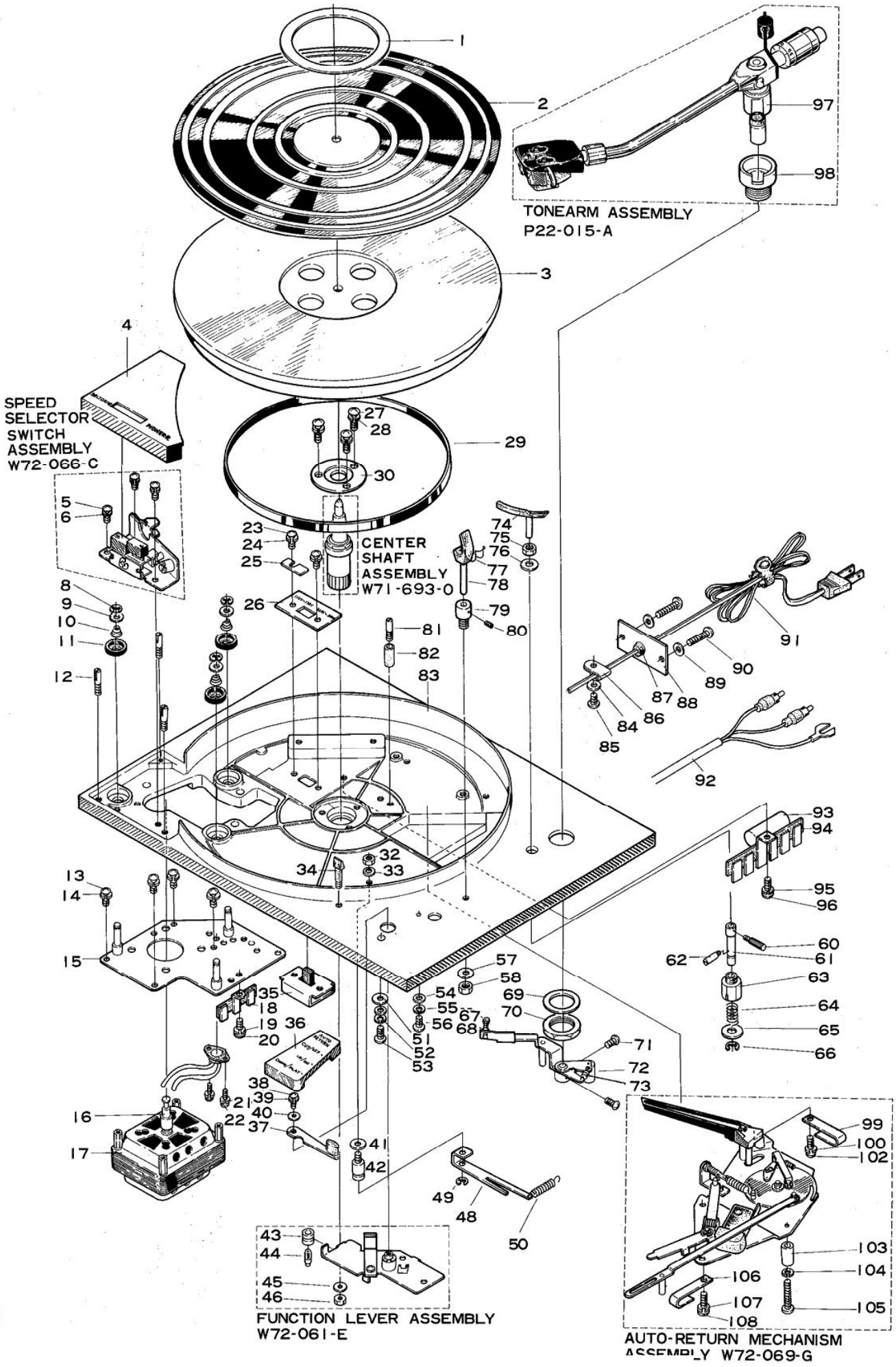
4. EXPLOSION PARTS LIST

KEY NO.	DESCRIPTION	PART NO.	
1	Rubber mat ring	A61-224-0	
2	Rubber mat	E31-163-A	
3	Turntable platter	W71-692-A	
4	Belt cover	N81-007-A	
5	⊕ M3 x 6 Machine screw		
6	3ϕ Spring washer		
7			
8	Retaining washer E-type (E-4)		
9	6ϕ Flat washer		
10	Spring	B31-700-0	
11	Rubber washer	E31-701-0	
12	Pin(A)	N51-083-0	
13	+ M4 x 8 Machine screw		
14	4ϕ Spring washer		
15	Motor panel unit	W72-681-A	
16	Capstan 60Hz	N51-730-B	
	50Hz	N51-729-B	
17	Motor	N11-005-A	
18	Terminal strip lug-type 1L2P		
19	3ϕ Spring washer		
20	⊕ M3 x 5 Machine screw		
21	2.6 ϕ Spring washer		
22	⊕ M2.6 x 6 Machine screw		
23	⊕ M3 x 12 Machine screw		
24	3ϕ Spring washer		
25	Panel	M46-687-0	
26	Line voltage nameplate	A42-607-0	
27	+ M4 x 12 Machine screw		
28	4 ϕ Spring washer		
29	Belt	E31-700-0	
30	Ring plate	N62-651-0	

KEY NO.	DESCRIPTION	PART NO.	
31			
32	M3 Nut		
33	3 ϕ Spring washer		
34	Overhang index stand	N93-054-B	
35	Slide switch	S41-609-A	
36	Function lever cover	N81-006-A	
37	Function lever unit	W72-083-0	
38	⊕ M3 x 6 Machine screw		
39	3 ϕ Spring washer		
40	3 ϕ Flat washer		
41	3 ϕ Flat washer		
42	Lock lever shaft	N54-069-0	
43	Rubber grommet (B)	E31-750-0	
44	Lamp	E22-609-A	
45	5 ϕ Flat washer		
46	Nut M5		
47			
48	Lock lever	N61-089-A	
49	Retaining washer E-type (E-4)		
50	Spring	B31-036-A	
51	3 ϕ Flat washer		
52	3 ϕ Spring washer		
53	⊕ M3 x 12 Machine screw		
54	3 ϕ Flat washer		
55	3 ϕ Spring washer		
56	⊕ M3 x 8 Machine screw		
57	6 ϕ Flat washer		
58	M6 Nut		
59			
60	Fixed screw	N51-076-A	

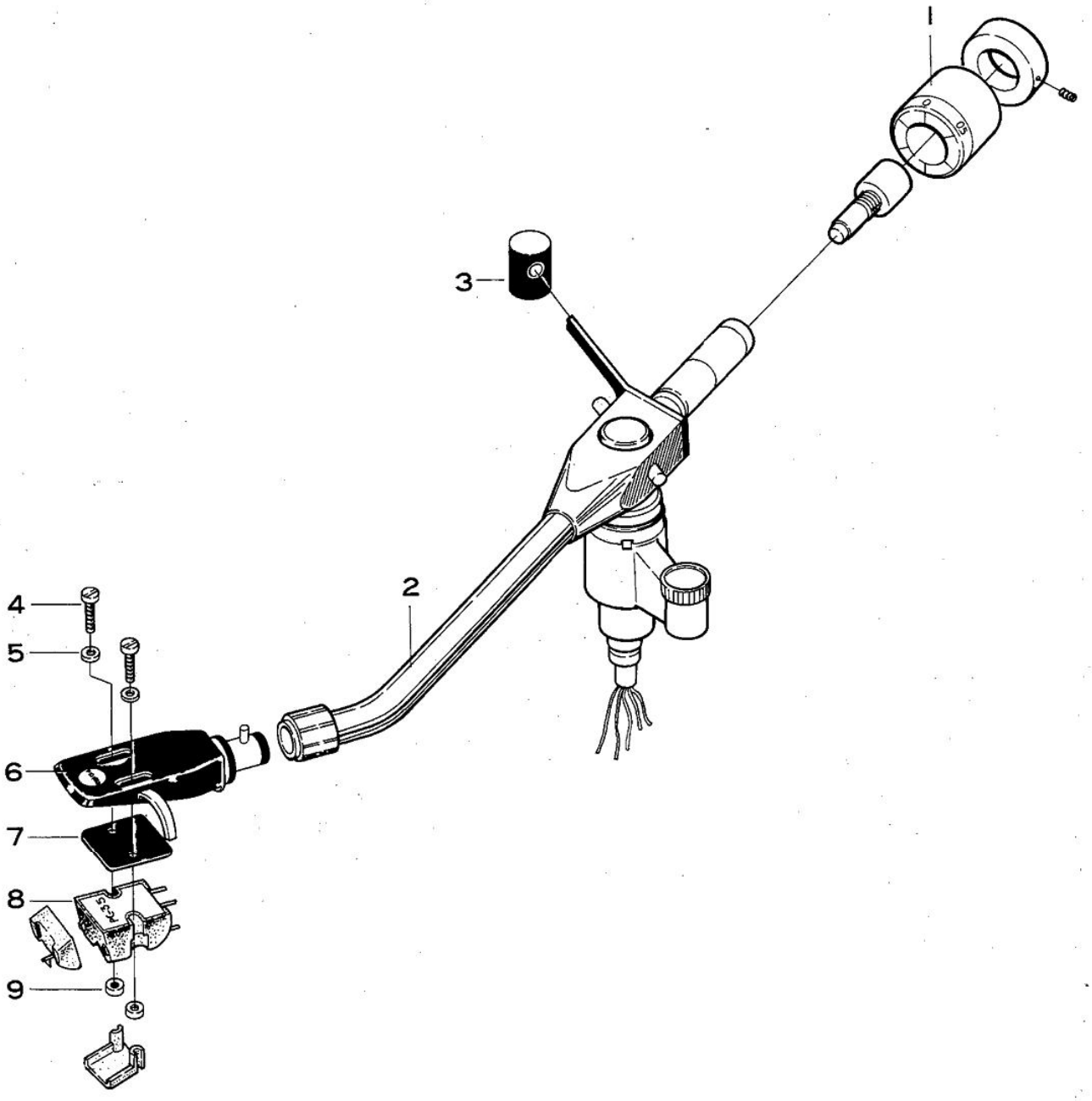
KEY NO.	DESCRIPTION	PART NO.	
61	Elevator shaft	N51-082-0	
62	Guide pin	N51-721-A	
63	Elevator shaft base	N51-719-0	
64	Spring	B31-696-0	
65	4 φ Flat washer		
66	Retaining washer E-type (E-3)		
67	⊕ M2.6 x 12 Machine screw		
68	Nut M2.6		
69	Washer	B22-646-0	
70	Nut	B71-646-0	
71	Screw	B11-037-0	
72	PU linking plate assembly	W72-085-A	
73	Spring	B31-042-0	
74	Elevator rubber	N93-067-0	
75	Nut	B71-619-0	
76	Washer	B22-632-0	
77	Arm rest spring	B32-044-0	
78	Arm rest	N93-070-0	
79	Arm rest base		
80	⊕ M2.6 x 3 Machine screw (Slotted type)		
81	Pin (B)	N54-068-0	
82	Vinyl cover	M11-158-A	
83	Main panel		
84	3 φ Flat washer		
85	⊕M3 x 6 Machine screw		
86	Cable cramp	M16-610-0	
87	Rubber grommet	N93-679-0	
88	Sub plate	M44-621-B	
89	3 φ Flat washer		
90	⊕M3 x 20 Machine screw		

KEY NO.	DESCRIPTION	PART NO.	
91	Power cable	D54-009-0	
92	Output cable	D54-613-B	
93	Capacitor 0.1 μ F 1,000WV		
94	Terminal strip lug-type IL5P		
95	3 φ Spring washer		
96	⊕M3 x 5 Machine screw		
97	Tonearm assembly	P22-015-A	
98	Tonearm base	N55-612-A	
99	Output cable fixed	M16-608-0	
100	4 φ Spring washer		
101			
102	⊕M4 x 10 Machine screw		
103	Spacing post	N54-755-0	
104	4 φ Spring washer		
105	⊕M4 x 30 Machine screw		
106	Output cable fixer	M16-608-0	
107	4 φ Spring washer		
108	⊕M4 x 10 Machine screw		
109	Spring	B31-701-0	



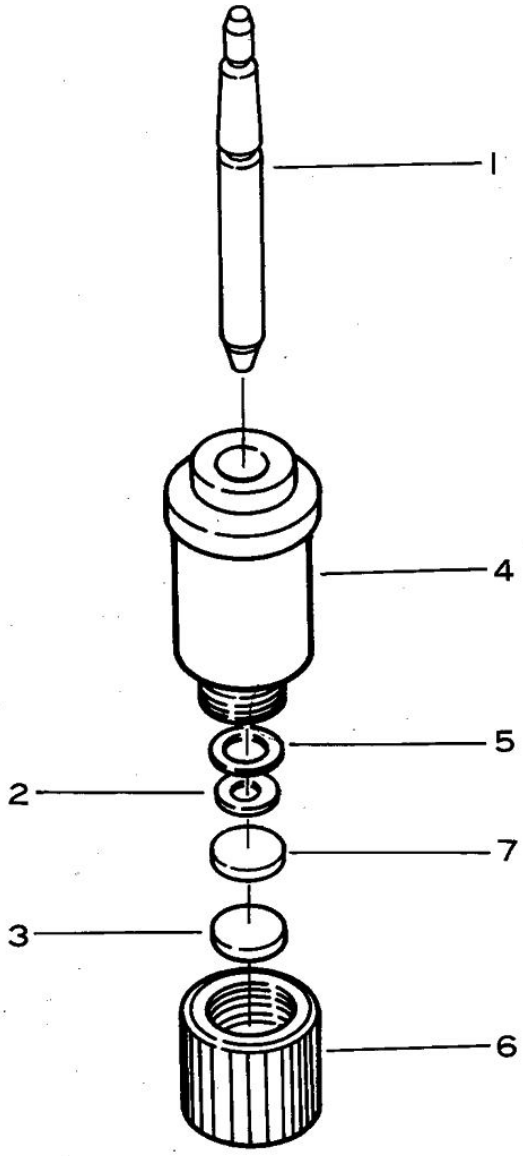
I. TONEARM ASSEMBLY (P22-015-A)

KEY NO.	DESCRIPTION	PART NO.	
1	Main counter weight	W73-667-A	
2	Tonearm assembly	P22-015-A	
3	Lateral balanceweight assembly	W73-666-0	
4	Screw	B11-657-A	
5	Washer	B23-642-A	
6	Arm head	P21-613-C	
7	Weight plate	N64-698-0	
8	Cartridge PC-35		
9	Nut	B71-653-A	



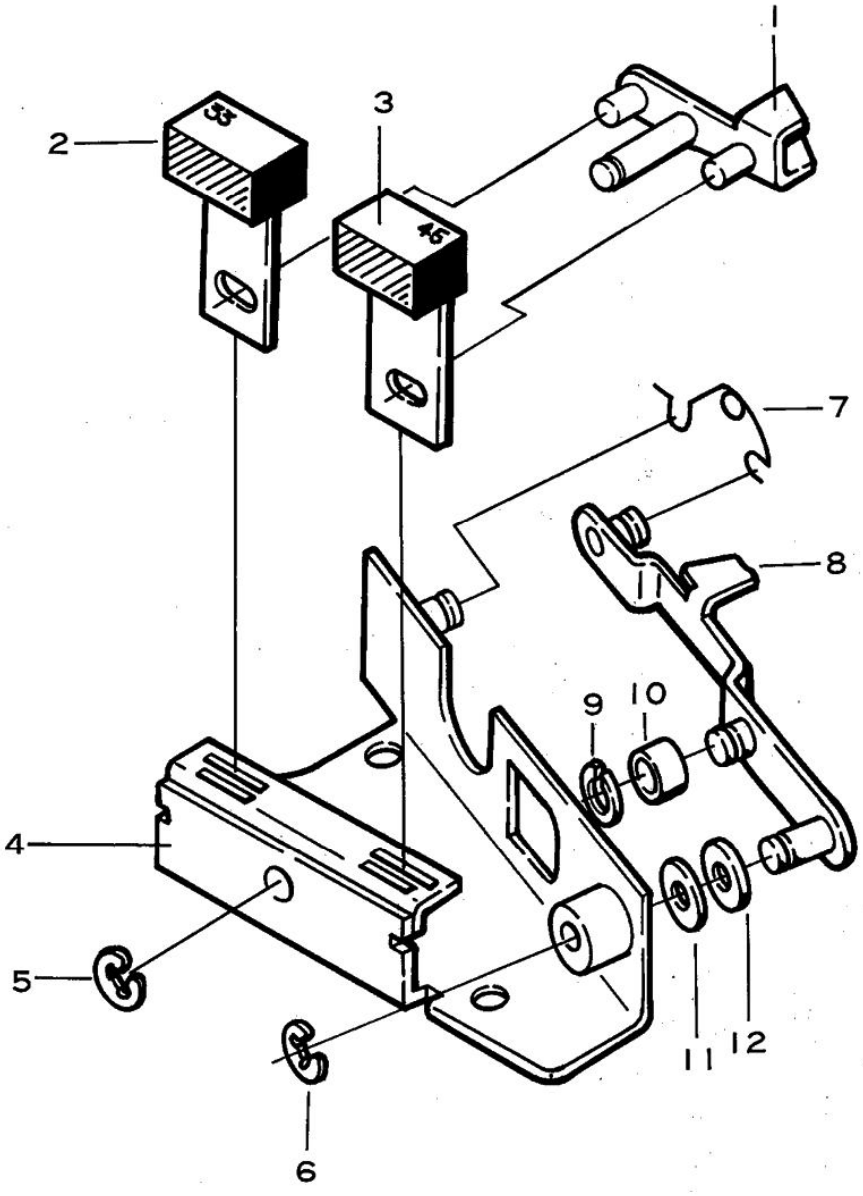
II. CENTER SHAFT ASSEMBLY (W71-693-0)

KEY NO.	DESCRIPTION	PART NO.	
1	Center shaft	N54-747-0	
2	Ring	B31-698-0	
3	Rubber mat	N62-650-0	
4	Center shaft base	N51-723-0	
5	Rubber ring	E31-699-0	
6	Shaft cap	N54-748-0	
7	Shaft rubber	E31-698-0	



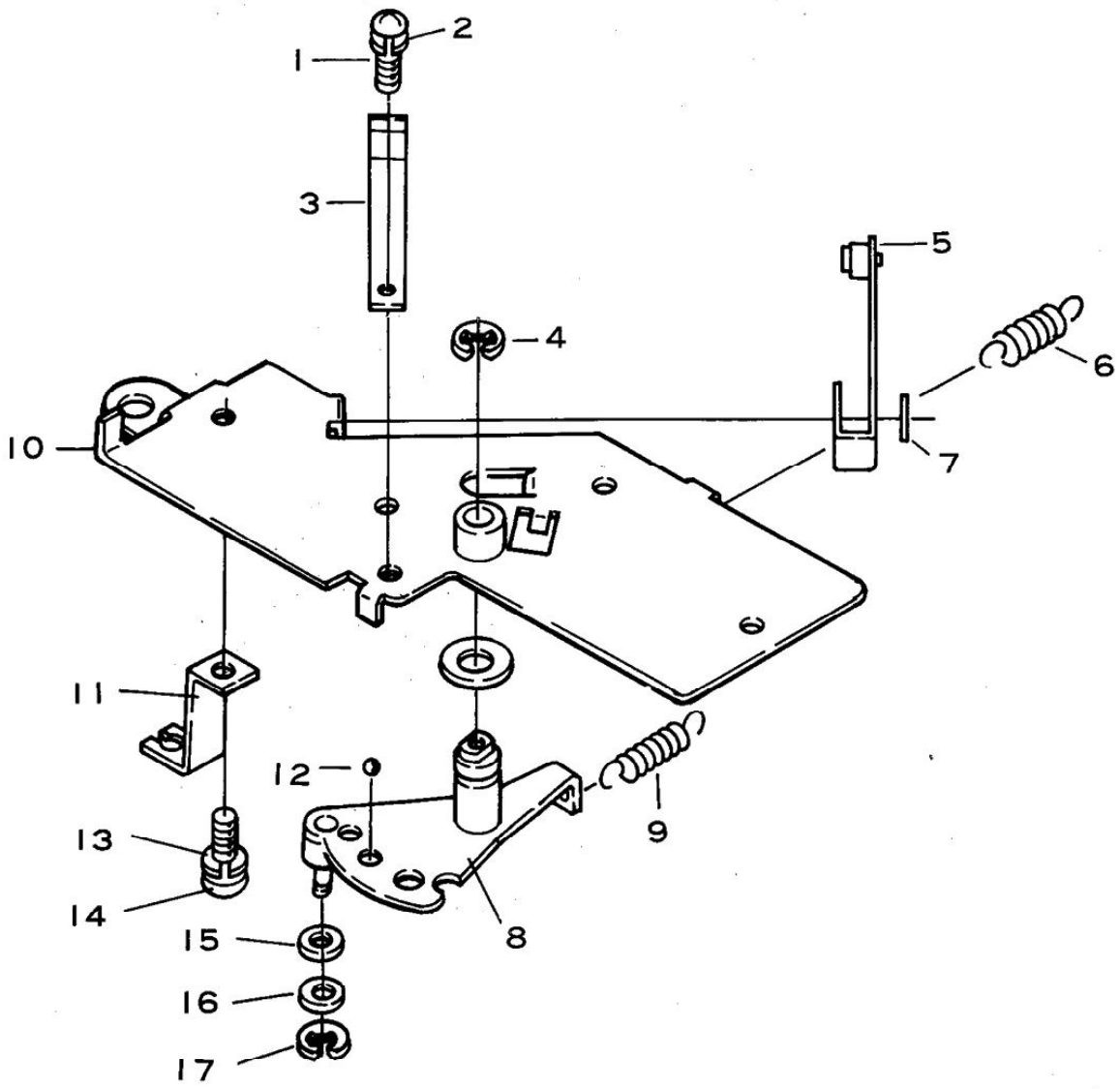
III. SPEED SELECTOR SWITCH ASSEMBLY (W72-066-C)

KEY NO.	DESCRIPTION	PART NO.	
1	Shift guide unit	W73-022-0	
2	Speed selector knob (A)	N93-052-B	
3	Speed selector knob (B)	N93-053-A	
4	Speed selector base unit	W72-067-0	
5	Retaining washer E-type (E-3)		
6	Retaining washer E-type (E-4)		
7	Spring	B31-035-0	
8	Shift lever unit	W73-023-A	
9	Retaining washer E-type (E-4)		
10	Collar vinyl 5 ϕ		
11	Washer	B23-615-0	
12	Washer	B23-614-0	



Ⅳ. FUNCTION LEVER ASSEMBLY (W72-061-E)

KEY NO.	DESCRIPTION	PART NO.	
1	⊕M3 x 6 Machine screw		
2	3 ϕ spring washer		
3	Spring (plate)	B32-010-C	
4	Retaining washer E-type (E-5)		
5	Return arm unit	W72-063-0	
6	Spring	B31-036-A	
7	Retaining washer E-type (E-3)		
8	Selector plate unti	W-73-020-C	
9	Spring	B31-036-A	
10	Function lever base unit	W72-062-D	
11	Lamp bracket	N61-086-0	
12	Steel ball 5/32"		
13	3 ϕ spring washer		
14	⊕M3 x 5 Machine screw		
15	4 ϕ washer		
16	4 ϕ washer		
17	Retaining washer E-type (E-3)		

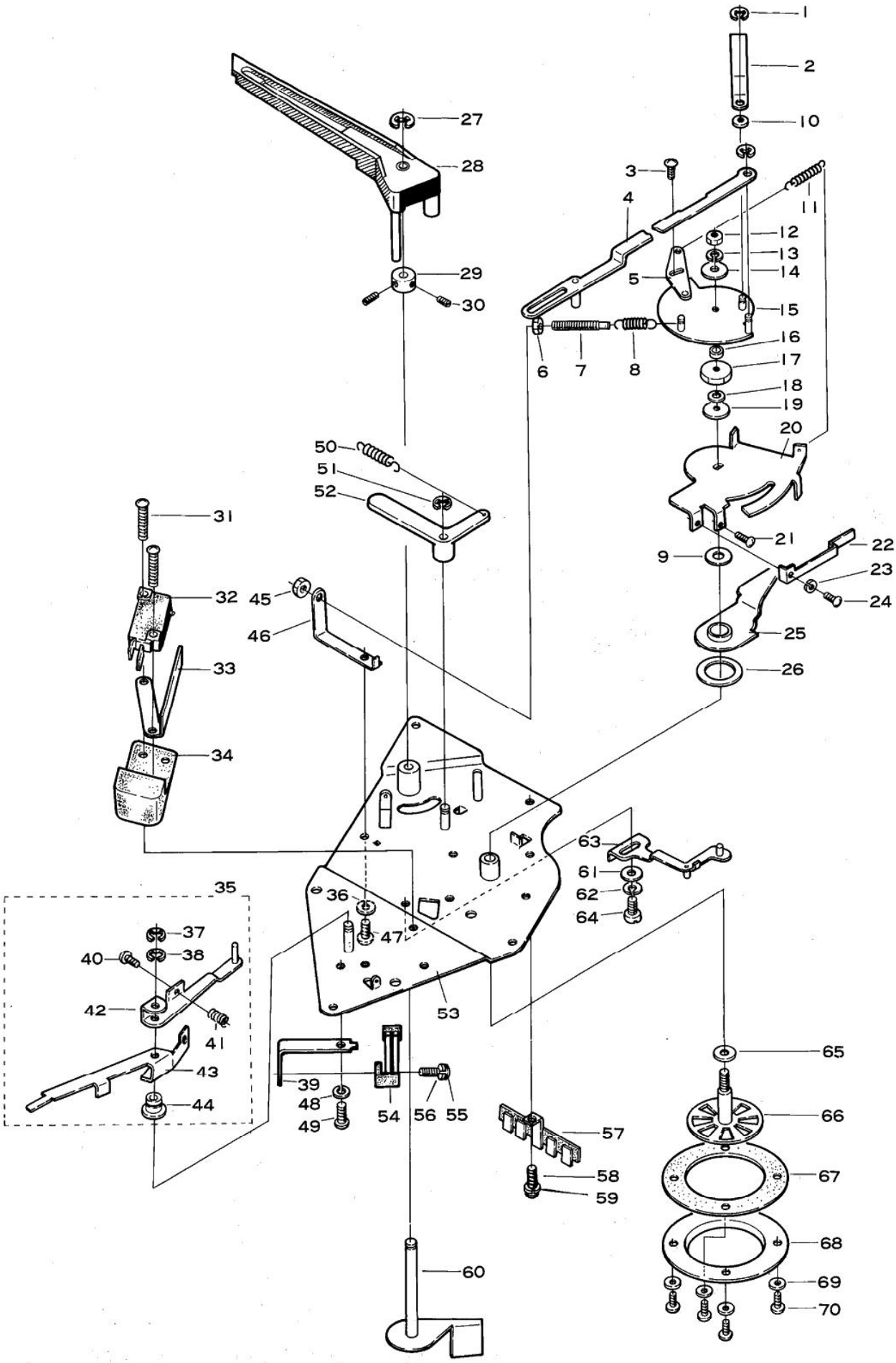


V. AUTO-RETURN MECHANISM ASSEMBLY (W72-069-G)

KEY NO.	DESCRIPTION	PART NO.	
1	Retaining washer E-type (E-3)		
2	Coupling plate	W72-604-0	
3	⊕ M2.6 x 4 Machine screw		
4	Crank lever	W71-082-0	
5	Spring fixed plate	N61-623-0	
6	Nut M3		
7	Screw	B13-601-0	
8	Spring (Return spring)	B31-613-A	
9	Washer (C)	B23-601-0	
10	Washer		
11	Spring	B31-607-A	
12	Nut M3		
13	3 ϕ Spring washer		
14	Washer (A)	B22-602-0	
15	Rotator plate unit (A)	W72-602-0	
16	Rotator plate (A) collar	N51-607-0	
17	Nut	B71-602-0	
18	3 ϕ Spring washer		
19	Washer (B)	B22-603-0	
20	Rotator plate unit (B)	N61-622-A	
21	⊕ M2 x 14 Machine screw		
22	Return guide plate holder	B32-605-0	
23	2 ϕ Spring washer		
24	⊕ M2 x 4 Machine screw		
25	Return guide plate unit	W71-603-A	
26	Washer teflon		
27	Retaining washer E-type (E-3)		
28	Stopper	W71-011-0	
29	Retaining collar	N51-609-0	
30	⊕ M2 x 3 Machine screw (Slotted type)		

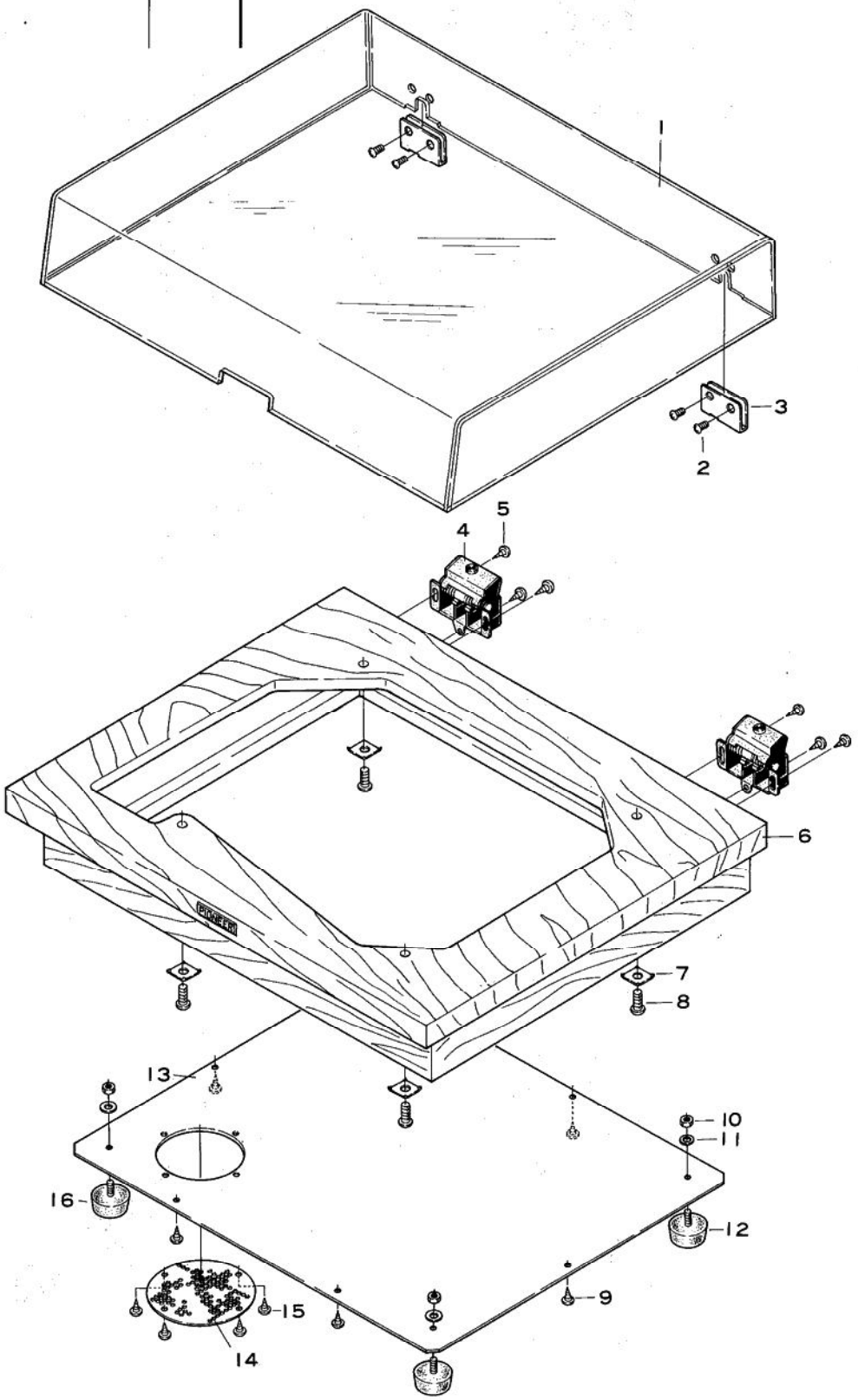
KEY NO.	DESCRIPTION	PART NO.	
31	⊕ M2.6 x 14 Machine screw		
32	Microswitch	KSF-001-0	
33	Microswitch spring	N64-605-0	
34	Microswitch cover	N93-742-A	
35	Return lever unit	W72-072-D	
36	3 ϕ Spring washer		
37	Retaining washer E-type (E-3)		
38	Retaining wahser E-type (E-4)		
39	Plate	N61-087-A	
40	⊕ M3 x 20 Flat screw		
41	Return lever spring	B31-034-A	
42	Return lever (B) unit	W72-071-C	
43	Return lever (A)	N61-068-B	
44	Return lever collar	N51-080-A	
45	M3 Nut		
46	Spring hanger	KNA-006-0	
47	⊕ M3 x 5 Machine screw		
48	3 ϕ Spring washer		
49	⊕ M3 x 5 Machine screw		
50	Lever spring	B31-612-0	
51	Retaining washer E-Type (E-3)		
52	Cam lever	N93-051-A	
53	Auto-return mechanism unit	W72-068-B	
54	Switch (c)	S48-625-B	
55	⊕ M3 x 5 Machine screw		
56	3 ϕ Spring washer		
57	Terminal strip lug-type 1L4P		
58	⊕ M3 x 5 Machine screw		
59	3 ϕ Spring washer		
60	Aluminium plate	W71-602-0	

KEY NO.	DESCRIPTION	PART NO.	
61	3 ϕ Flat washer		
62	3 ϕ Spring washer		
63	Adjust lever unit	W72-697-0	
64	⊕M3 x 5 Flat screw		
65	Washer (D)	B23-602-0	
66	Rotator plate (C)	W72-603-0	
67	Packing (rubber)	E31-604-0	
68	Rotator plate (C) cover	N61-625-0	
69	2.6 ϕ Spring washer		
70	⊕ M2.6 x 4 Machine screw		



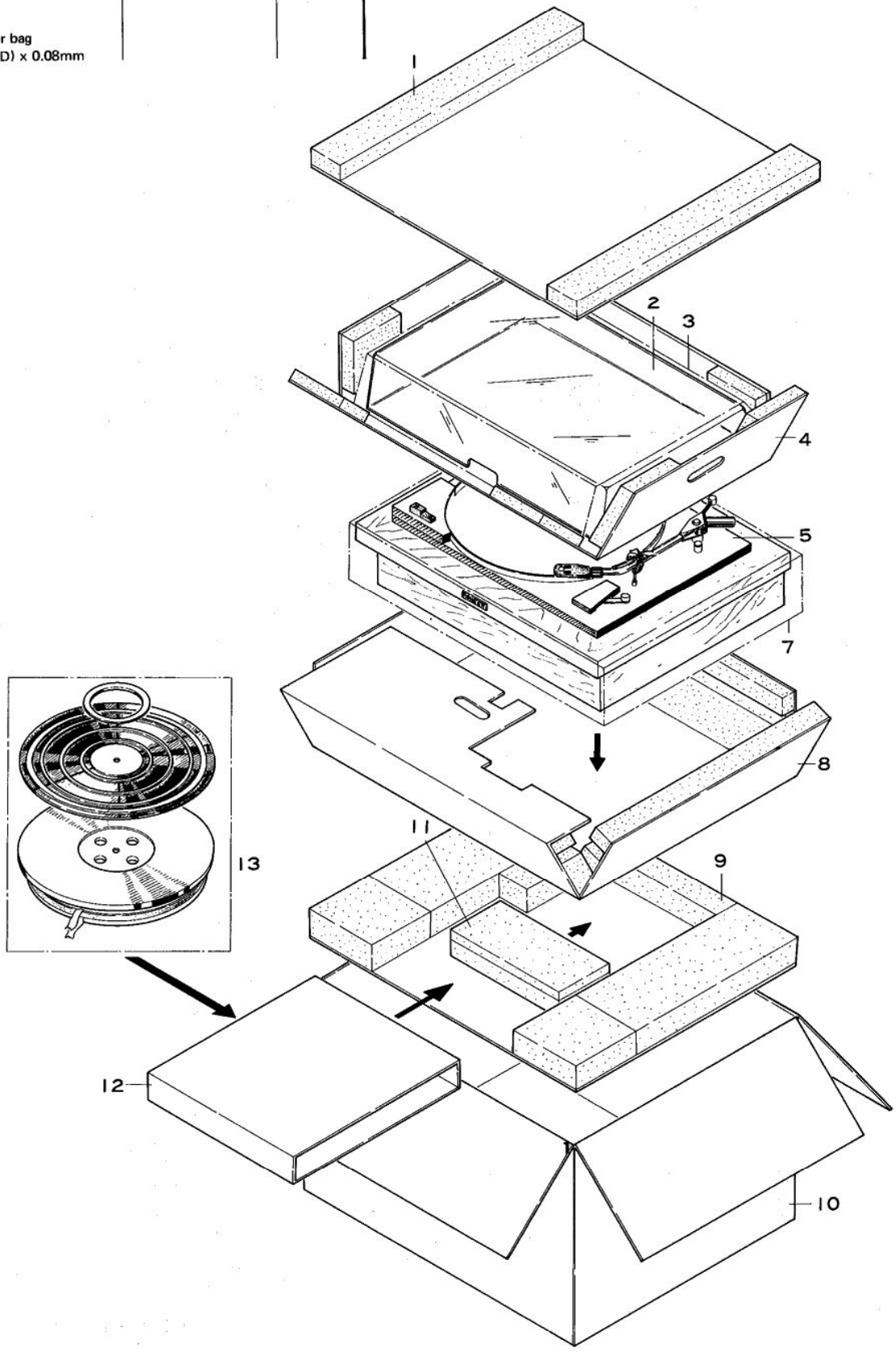
5. BASE ASSEMBLY AND PARTS LIST

KEY NO.	DESCRIPTION	PART NO.	
1	Dust cover	M63-042-C	
2	⊕M4 x 8 Flat screw		
3	Lock plate	N61-084-0	
4	Spring hinge	W72-080-0	
5	⊕3.1 ϕ x 16 Wood screw		
6	Wooden base	M53-021-D	
7	Washer	M52-010-0	
8	⊕M5 x 30 Machine screw		
9	⊕3.1 ϕ x 13 Wood screw		
10	M4 Nut		
11	4 ϕ Flat washer		
12	Rubber foot (A)	E31-775-0	
13	Bottom cover	M64-621-A	
14	Punching metal	N91-602-0	
15	⊕2.4ϕx 6 Wood screw		
16	Rubber foot (B)	E31-776-0	



6. UNPACKING AND PARTS LIST

KEY NO.	DESCRIPTION	PART NO.	
1	Top packing	H55-002-B	
2	Dust cover	M63-042-C	
3	Dust cover bag 500(W) x 600(D) x 0.08mm		
4	Dust cover packing	H55-002-B	
5	PL-50/PV		
6			
7	Turntable cover bag 650(W) x 580(D) x 0.08mm		
8	Packing	H55-002-B	
9	Under packing	H55-002-B	
10	Carton	H55-002-B	
11	Miscellaneous parts box	KHX-001-0	
12	Turntable platter packing	H55-002-B	
13	Turntable platter cover bag 370 (W) x 400(D) x 0.08 mm		



I. MISCELLANEOUS PARTS LIST

KEY NO.	DESCRIPTION	PART NO.	
1	Miscellaneous parts box	KHX-001-0	
2	Lubricator	N93-644-0	
3	Capstan		
4	Weight plate	N64-698-0	
5	Screw	B11-657-0	
6	Washer	B23-642-0	
7	⊖ Screwdriver	P25-607-0	
8	Arm head	P21-613-A	
9	Nut	B71-653-0	
10	Miscellaneous parts box	KHX-001-0	
11	Auxiliary weight (B)	N52-603-0	
12	Auxiliary weight (A)	N52-602-0	
13	Main counterweight	W73-667-A	
14	EP adaptor	N93-641-0