

# SERVICE MANUAL

AUTOMATIC 4-CHANNEL/2-CHANNEL TURNTABLE

**SANSUI FR-3080**



*Sansui*

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the FR-3080 correctly. When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts Lists. For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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# 1. SPECIFICATIONS

TYPE .....	two-speed belt-drive automatic turntable
AUTOMATIC OPERATION .....	automatic lead-in, return, cut and repeat by 4 r.p.m synchronous motor
PLATTER .....	aluminum alloy die-cast, 300mm (11 <sup>13</sup> / <sub>16</sub> " ) diameter, weight 0.8kg (1.76 lbs)
MOTOR .....	4-pole synchronous
WOW & FLUTTER .....	better than 0.07 % (W.R.M.S.)
S/N RATIO .....	less than 45dB
SPEED .....	33 <sup>1</sup> / <sub>3</sub> r.p.m, 45 r.p.m
TONARM .....	statically balanced S-shaped tubular
TONARM LENGTH .....	220mm (8 <sup>11</sup> / <sub>16</sub> " )
OVERHANG .....	15mm (5 <sup>1</sup> / <sub>8</sub> " )
STYLUS PRESSURE .....	adjustable within 0~4g
OPTIMUM STYLUS PRESSURE .....	2~2.5g
SUITABLE CARTRIDGE WEIGHT .....	4~10g
CARTRIDGE .....	SV-40X (VM type) for 4-channel
FREQUENCY RESPONCE ..	10~50,000Hz
OUTPUT VOLTAGE .....	2.2mV
LOAD IMPEDANCE .....	50kΩ~100kΩ
STYLUS.....	diamond (SN-40X)
POWER REQUIREMENTS....	120V or 240V, 50Hz or 60Hz
POWER CONSUMPTION....	15W
DIMENSIONS .....	445mm (17 <sup>9</sup> / <sub>16</sub> " ) W, 169mm (6 <sup>11</sup> / <sub>16</sub> " ) H, 370.5mm (14 <sup>5</sup> / <sub>8</sub> " ) D
WEIGHT .....	9.5kg (20.94 lbs)

\* Design and specifications subject to change without notice for improvements.

## 2. OPERATION OF MECHANISM

### 2-1. Operation of Auto Mechanism (See Fig. 2-1)

1. At the condition of STOP, the micro switch (SW1) and start switch (leaf switch) are OFF, on the other hand, the micro switch (SW2) and muting switch are ON. (cartridge at shortcircuiting condition).

2. When the cuing lever is placed at START/CUT position, start switch becomes ON and timing motor starts running.

The timing motor is coupled with starting cam and the starting cam controls the micro switch. When the timing motor starts running, the starting cam starts moving together and the micro switch (SW1) becomes ON from OFF. (Therefore, as for the start switch, the switch is turned ON temporarily).

Simultaneously with it, the main motor will start operating.

3. When the starting cam makes in half revolution, the starting plate will turn up to a certain angle. Meanwhile, if the cam does in another half revolution, the plate will reversely revolves in its function. Namely, when the starting cam carries out in one revolution, the starting plate makes one cycle movement.

4. When the timing motor, starting cam and starting plate are operated, the START/RETURN plate located at tip end of the starting plate will push the PU plate located at the lower part of the tone arm and it will keep pushing the tone arm until it reaches to the position of the lead-in groove of disk.

When it comes to this position, the select arm (B) (See Fig. 2-1) will serve as stopper and the START/RETURN plate which pushes PU plate so far will be turned over and it does not push the PU plate anymore.

Then, it is at AUTO-IN position.

5. When the tonearm comes to the AUTO-IN position, the starting cam will be made in half revolution. The micro switch (SW2) which is so far ON will be turned OFF, and the timing motor will stop. Simultaneously with it, the muting switch is turned OFF (cartridge at open condition) from ON (cartridge at shortcircuiting condition), and performance starts as a result.

6. While playing disk, the micro switch (SW1) is ON, the micro switch (SW2) and muting switch are OFF. When performance proceeds and the stylus tip traces up to the lead-out groove, the magnet located at tip end of PU plate ass'y comes at side of Lead switch and turns this Lead switch ON. When the Lead switch is turned ON, the timing motor will start running and the micro switch (SW2) will be turned ON.

7. When the timing motor starts operation once again, the starting cam will start next half revolution.

Then, the starting plate revolves contrary to that at the time of AUTO-IN. And, the START/RETURN plate pushes the PU plate from the reverse direction and makes tonearm return. However, when it comes to the position of arm rest, the tonearm is stopped by the

stopper located on the arm base and the START/RETURN plate is turned over and the tonearm will land on the arm rest.

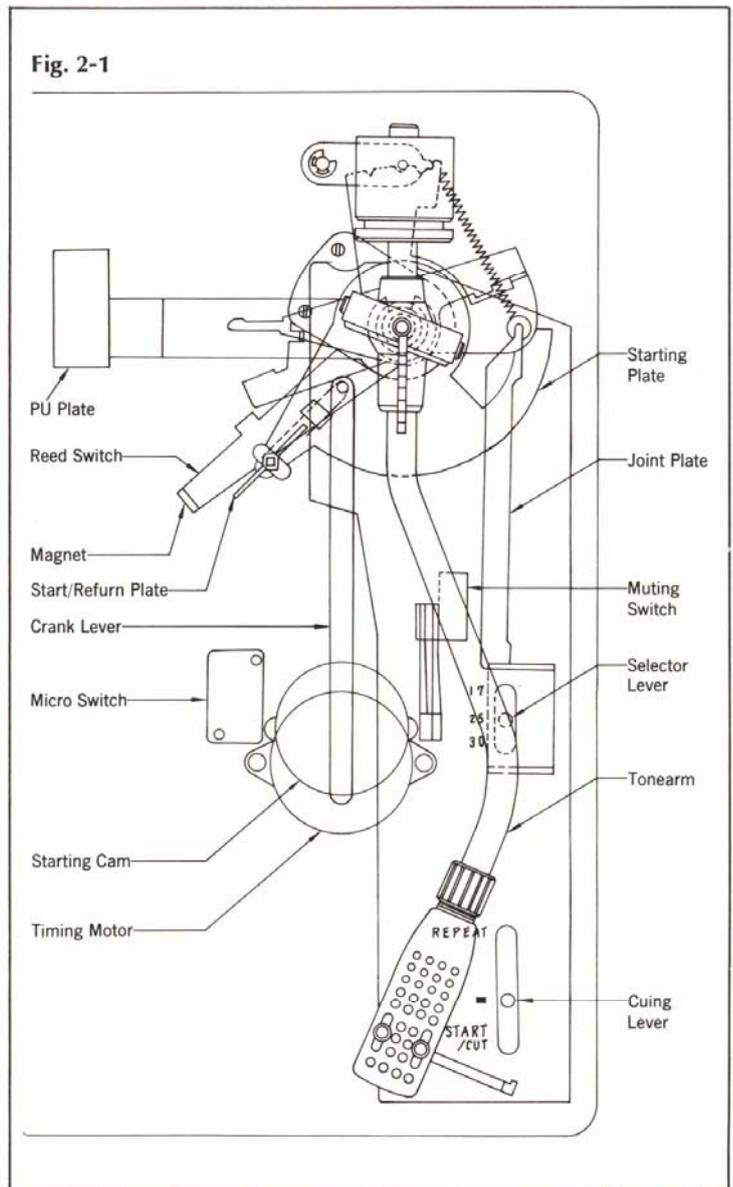
Thus, the starting cam will be turned in one revolution and the micro switch (SW1) will be turned OFF.

Thus, the motor and timing motor will stop their operation and they will return to the original stop condition.

8. When the auto lever is placed at position of REPEAT, the timing motor starts again because the start switch is ON even if the performance finished and the micro switch (SW1) becomes OFF.

Accordingly, as the micro switch (SW1) which was turned OFF is turned ON, REPEAT performance will be made.

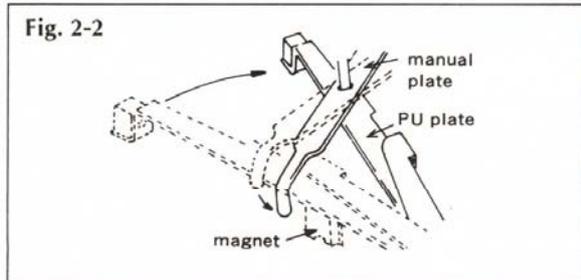
Fig. 2-1



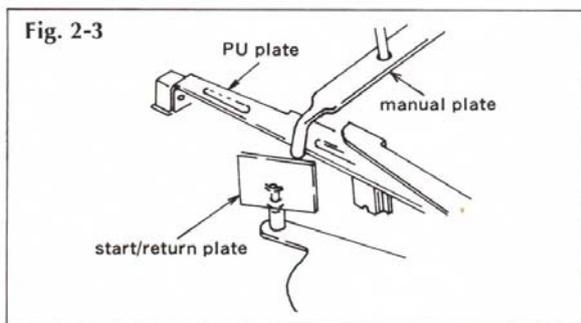
## 2-2. Operation of Manual Mechanism

\*The mechanism of manual plate is for preventing extra motion of tonearm and also for moving it smoothly when is set on desirable position of disk.

- 1) The manual plate moves as shown in Fig. 2-2 when tonearm is put on desirable position of disk.



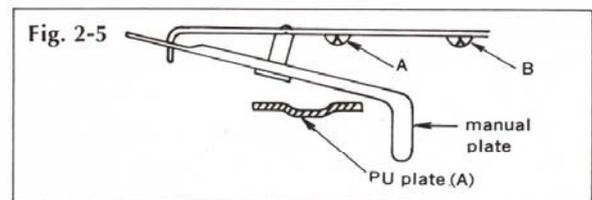
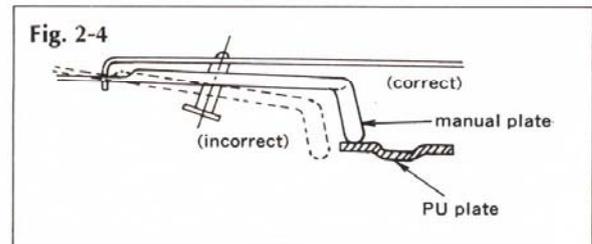
- 2) After moving tonearm to the desirable position of disk (it does not completely comes down on the groove), pull the cuing lever to "START/RETURN" plate (See Fig. 2-3). The START/RETURN plate makes one quarter turns ( $\frac{1}{4}$  turns) by touching manual plate when the tonearm returns to arm-rest in AUTO-RETURN operation then, the tonearm will slowly descend to the record surface.



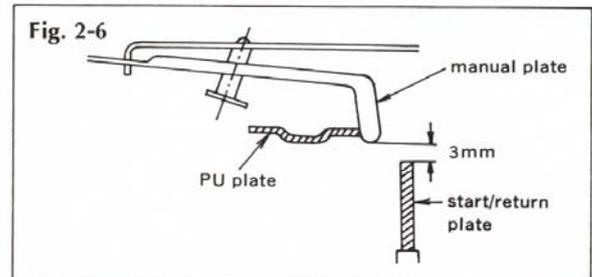
## 2-3. Caution for Manual Plate Replacement

- 1) The manual plate must not get off from the PU plate when the tonearm is pulled in the outmost right side direction. (See Fig. 2-4)
- 2) When loosening screw (A) and (B) (See. Fig. 2-5) for replacing the plate, refer to the following adjustment.

- ① Move the tonearm about 10mm to 15mm inside from the arm-rest.

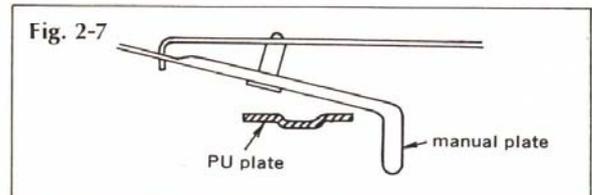


- ② The clearance between the manual plate and START/RETURN plate must be 2mm to 3mm as shown in Fig. 2-6.



- ③ After above steps ①, and ②, screw them (A) & (B) up.

- 3) While the stylus tip traces on the first point of modulated groove nearest to lead-in groove of LP record (30cm), the manual plate must not touch on the PU plate (See Fig. 2-7).



### 3. ADJUSTMENTS

(See Fig. 3-1, 3-2 and 3-3)

- 1) The adjusting screw "A" in Fig. 3-1 is one to adjust the position of AUTO-IN (position which tonearm put down on the surface of disk).  
The adjusting screw "B" in Fig. 3-1 is the one to adjust the position of AUTO-RETURN (position which tonearm lifts up from the surface of disk).
- 2) When the screw "A" is turned counter-clockwise, the timing of AUTO-IN will become sooner. To the contrary, when it is turned clockwise, the timing of AUTO-IN will become later.  
Make adjustment of the screw in such a way that the tip of the stylus will touch the middle way of the lead-in groove.
- 3) When the screw "B" is turned counterclockwise, the timing of AUTO-RETURN will become later. To the contrary, when it is turned clockwise, the timing of AUTO-RETURN will become sooner.  
Make adjustment of the screw in such a way that AUTO-RETURN operation is carried out at the middle way of the lead-out groove.

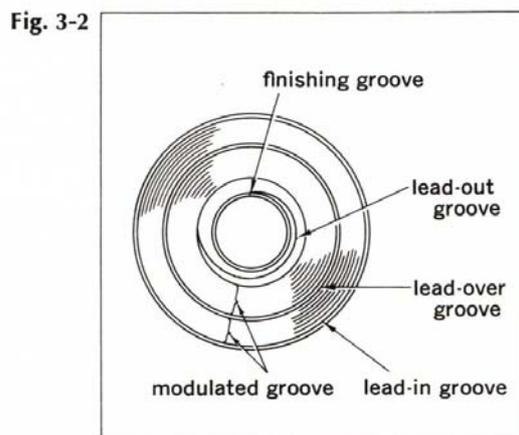
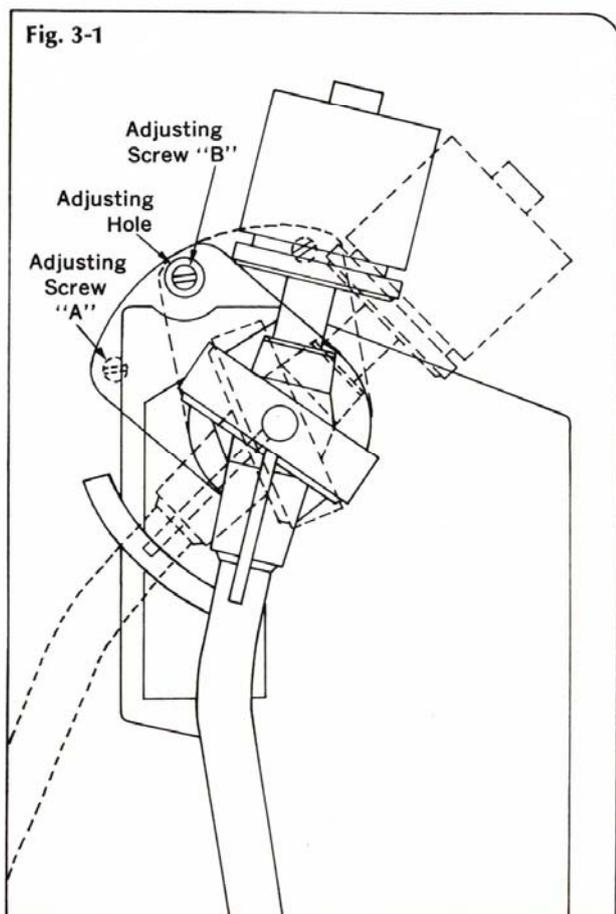
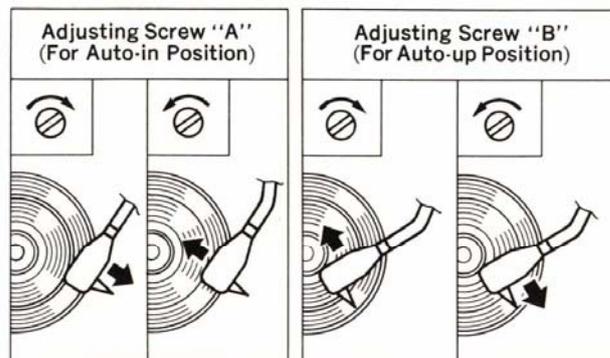


Fig. 3-3



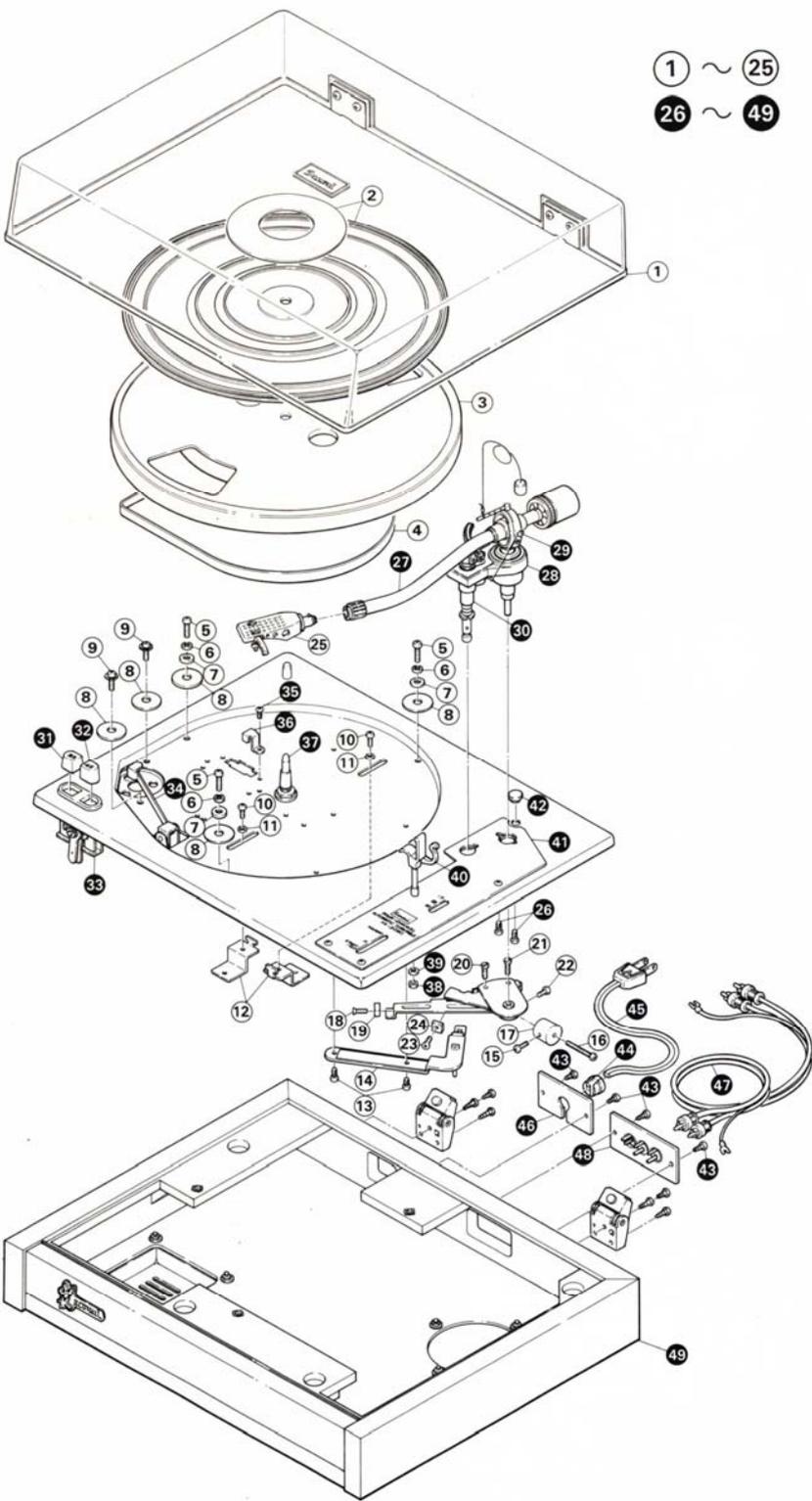
# 4. DISASSEMBLY WITH EXPLODED VIEWS, PARTS LOCATIONS AND PARTS LIST

## 4-1. Top View

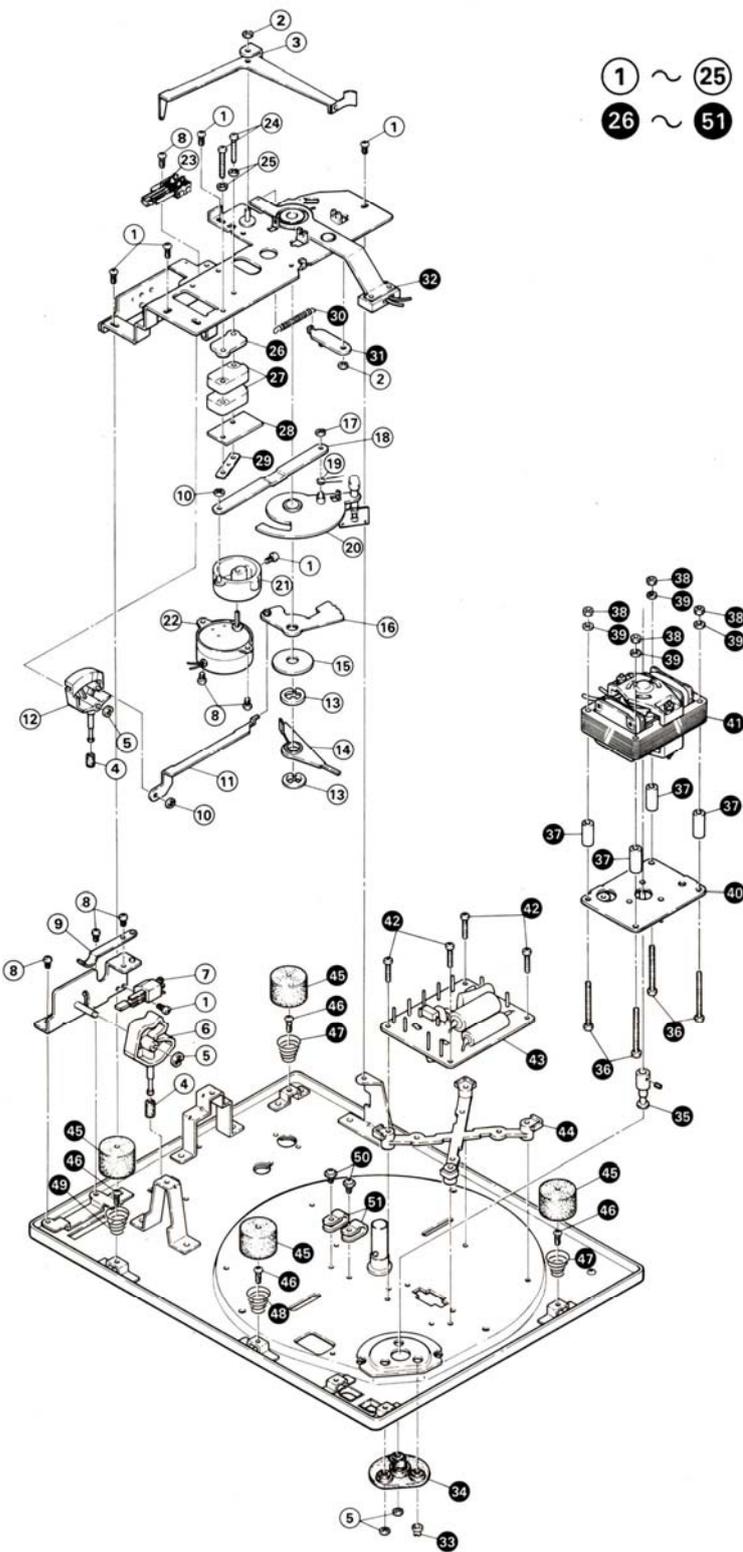
Parts No.	Stock No.	Description
1	7012070	Dust Cover Ass'y
	5362440	Home Plate
	6922270	Lock Plate A
	5104263	RF Type Screw, M4 × 10
2	7292140	Rubber Mat Ass'y
	5392050	Turnable Ring
	5502110	Rubber Mat, turnable
3	6112080	Turnable (Printer)
4	6032160	Belt
5	5103080	P Type Screw, M5 × 16
6	5121380	S Type Washer, 5 $\frac{1}{2}$
7	5120180	P Type Washer, 5 $\frac{1}{2}$
8	9392890	Caution Label
9	5107963	PSF Type Screw, M4 × 12
10	5103062	P Type Screw, M4 × 8
11	5120160	P Type Washer, 4 $\frac{1}{2}$
12		Lock Plate B
13	5103541	PT Type Screw, M3 × 8
14	7062250	Manual Plate
	7062260	PU Plate Ass'y
15	5103023	P Type Screw, M2.6 × 8
16	5103074	P Type Screw, M4 × 32
17	6912141	Arm Balancer
18	5106624	F Type Screw, M2.6 × 8 (Polycarbonate)
19	5992010	Magnet A
20	5162500	Adjusting Screw (B)
21	5162490	Adjusting Screw (A)
22	5103044	P Type Screw, M3 × 8
23	5101021	B Type Screw, M2.6 × 4
24	5992110	Magnet B
25	6642150	Head Shell Sub Ass'y
	5162190	ES Type Screw, M2.6 × 15
	5172270	P Type Washer, 3 $\frac{1}{2}$
	5120140	Nut
26	5103543	PT Type Screw, M3 × 10
27	7092390	Toneram Ass'y
	6912420	Main Weight
	6912410	Bias Weight
28	5252140	Arm Base
29	5252130	I.F.C. Stand
30	7082160	Arm Lifter Ass'y
	6202530	Toneram Guide
	5103521	Short, arm lifter
		Slot Type Set Screw, M2.6 × 4
		Lifter Spring
		Lifter pin
	5151004	E Type Washer, 3 $\frac{1}{2}$
31	5322020	Push Button (33 r.p.m)
32	5322010	Push Button (45 r.p.m)
33	7062200	Speed Selector Base Ass'y
34	6502280	Belt Guide
35	5103541	PT Type Screw, M3 × 6
36		Angle, Seesaw Switch
37	7042070	Turnable Spindle Ass'y
		Turnable Shaft
		Turnable Bearing
		Ball Bearing
38	5110241	Hex. Nut, M3
39	5121340	S Type Washer, 3 $\frac{1}{2}$

Parts No.	Stock No.	Description
40	6622170	Arm Rest Ass'y
41	5362450	Control Base
42	5372070	Rubber Plug
43	5140226	RH Type Screw, M3.1 × 13
44	3910560	Cord Stopper
45	3800230	Power Cord
46		Rear Panel
47	3810230	PU Output Cord
48	2200390	2P Output Terminal
49	5140227	Cabinet Ass'y
	6922260	RH Type Screw, M3.1 × 16
	5392011	Auto Hinge Insulator

Parts No.	Stock No.	Description
5332041		Badge
5110241		Hex. Nut, M3
5120140		P Type Washer, 3 $\frac{1}{2}$
5103066		P Type Screw, M4 × 16
		Motor Cover
		Hole Cover Plate
		Decoration Plate
5103125		P Type Screw, M2.6 × 10
5110620		Hex. Nut, M2.6
9342310		Model Name Plate
9310010		Frequency Label (50Hz)
9310020		Frequency Label (60Hz)
9390021		Pass Label



4-2. Bottom View



Abbreviations

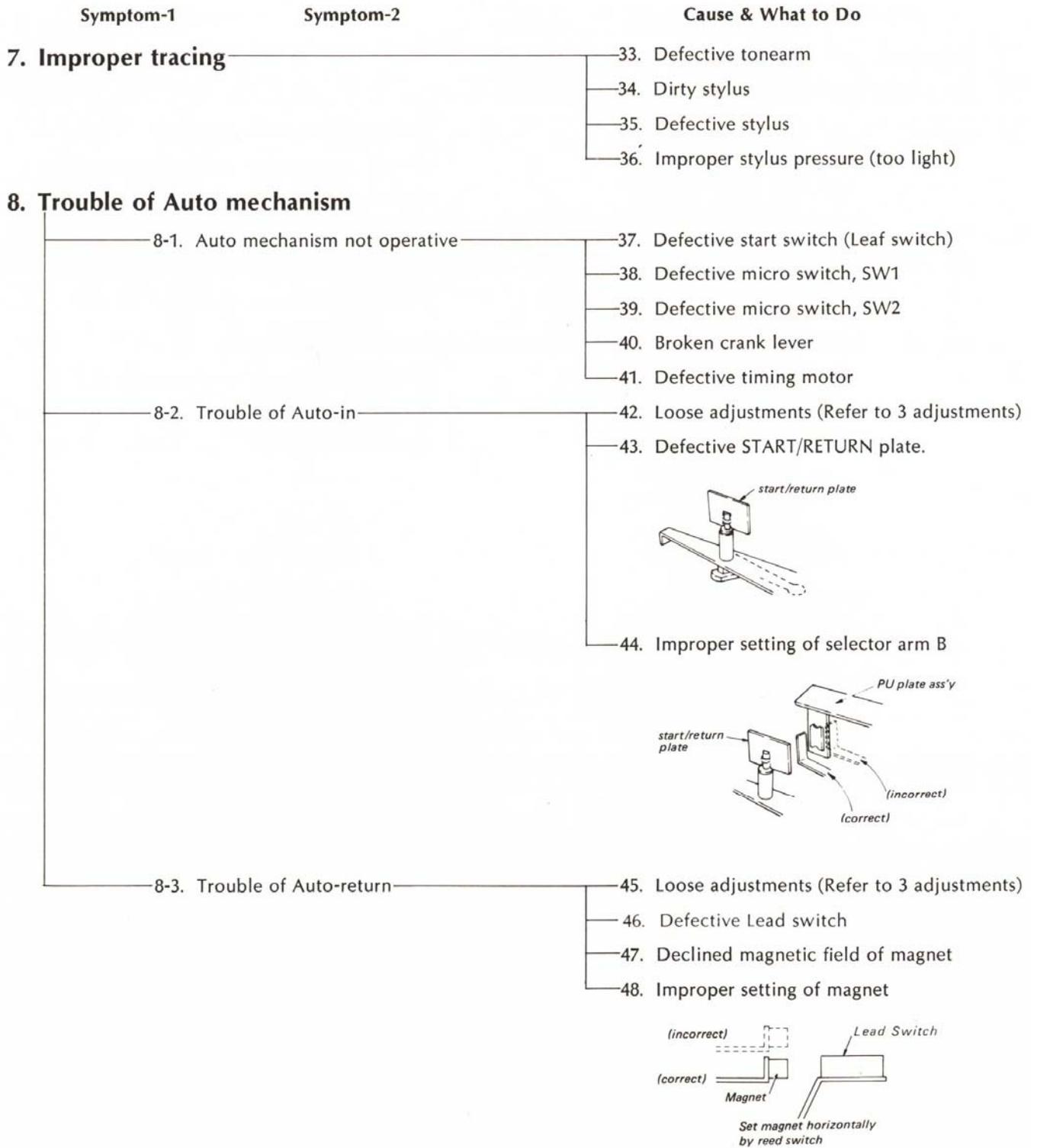
- 1. Pan Head Screw .....P
- 2. Binding Head Screw .....B
- 3. Flat Countersunk Head Screw.....F
- 4. Oval Countersunk Head Screw .....O
- 5. Flat Fillerist Screw .....FS
- 6. Pan Head SEMS Screw(F-Type).....PSF
- 7. Pan Head Tapping Screw.....PT
- 8. Round Head Wood Screw .....RH
- 9. Retaining Ring (E Washer).....E
- 10. Plain Washer.....P
- 11. Spring Washer.....S

Parts List

Parts No.	Stock No.	Description
1	5103542	PT Type Screw, M3×8
2	5151004	E Type Washer, 3φ
3		Switch Lever
4		Rubber Bushing
5	5151005	E Type Washer, 4φ
6	6012090	Cuing Cam
7	1190120	Start Switch
8	5103541	PT Type Screw, M3×6
9	6902370	Plate Spring
10	5182290	Circular External Ring, 3φ
11		Joint Plate
12	6012250	Selector Cam
13	5151010	E Type Washer, 10φ
14		Selector Plate B
15		Thrust Washer
16		Selector Plate A
17	5151002	E Type Washer, 2φ
18		Crank Lever
19	6902360	Starting Plate Spring
20	7062090	Starting Plate Assy
21	6012240	Starting Cam
22	4320110	Timing Motor
23	1190140	Mute Switch
24	5103052	P Type Screw, M3×30
25	5121340	S Type Washer, 3φ
26		Shield Plate A
27	1160140	Micro Switch
28		Shield Plate B
29		Plate Nut
30		Setting Plate Spring
31		Setting Plate
32		Lead Switch
33	5172270	Special Nut
34		Rubber Cushion
35	{ 6142270	Motor Pulley (50Hz)
	{ 6142280	Motor Pulley (60Hz)
36	5103075	P Type Screw, M4×47
37		Motor Spacer
38	5110261	Hex. Nut, M4
39	5121360	S Type Washer, 4φ
40	5242172	Motor Sheet
41	4320280	Motor
42	5103546	PT Type Screw, M3×20
43	7501420	Power Supply Circuit Board Assy (1S-2)
44	5612020	P.-C.-B Holder
45		Turntable Cushion
46	5162480	Special Screw, M3×12
47	6902910	Panel Spring (Not Colored)
48	6902900	Panel Spring (Black)
49	6902920	Panel Spring (Red)
50	5166460	Washer Head Tapping Screw, M3×8
51		Lead Clip

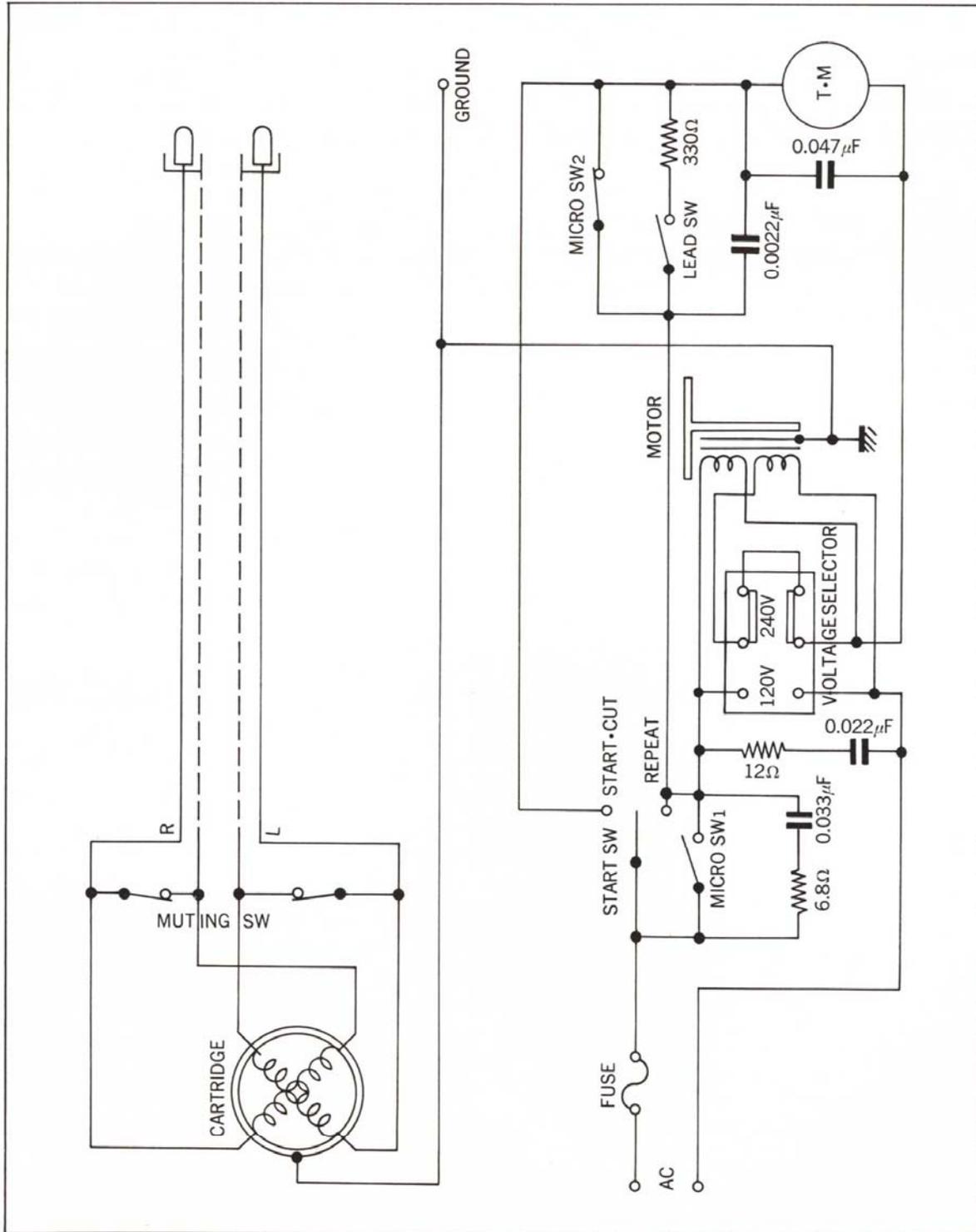
# 5. TROUBLESHOOTING

Symptom-1	Symptom-2	Cause & What to Do
<b>1. Turntable not rotating</b>		
	1-1. Turntable not rotating	<ul style="list-style-type: none"> <li>1. Belt off</li> <li>2. Broken or stretched belt</li> <li>3. Loose capstan screw (Capstan racing)</li> <li>4. Burn out turntable spindle</li> </ul>
	1-2. Motor not rotating	<ul style="list-style-type: none"> <li>5. Loose connection of power cord</li> <li>6. Defective start switch (Leaf switch)</li> <li>7. Defective timing motor</li> </ul>
<b>2. No sound</b>		<ul style="list-style-type: none"> <li>8. Cartridge open</li> <li>9. Loose connection of output cord</li> <li>10. Improper connection of output cord</li> <li>11. Defective muting switch</li> <li>12. Improper operation of amplifier</li> <li>13. Imperfect contact of tonearm and shell</li> </ul>
<b>3. Distorted or weak sound</b>		<ul style="list-style-type: none"> <li>14. Improper setting of stylus</li> <li>15. Worn out stylus</li> <li>16. Dusty stylus</li> <li>17. Loose pivot of tonearm</li> <li>18. Improper connection of cartridge leads</li> <li>19. Poor record cutting</li> </ul>
<b>4. Hum</b>		<ul style="list-style-type: none"> <li>20. Cartridge leads (ground side) open</li> <li>21. Loose connection of output cord</li> <li>22. Improper connection of output cord</li> <li>23. Imperfect contact of muting switch</li> <li>24. Imperfect contact of tonearm and shell</li> </ul>
<b>5. Rumble (Unusual) sound</b>		
	5-1. Due to motor	<ul style="list-style-type: none"> <li>25. Defective motor</li> <li>26. Shipping bolts not unscrewed</li> </ul>
	5-2. Other than motor	<ul style="list-style-type: none"> <li>27. Defective turntable spindle</li> <li>28. Dirty capstan</li> </ul>
<b>6. Incorrect speed</b>		<ul style="list-style-type: none"> <li>29. Improper capstan</li> <li>30. Improper setting of capstan</li> <li>31. Dirty capstan</li> <li>32. Stretched belt</li> </ul>



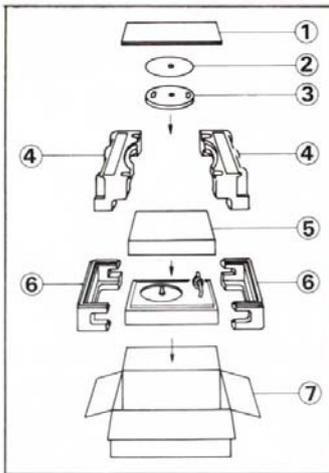
# 6. SCHEMATIC DIAGRAM

\* Design and specifications subject to change without notice for improvements.



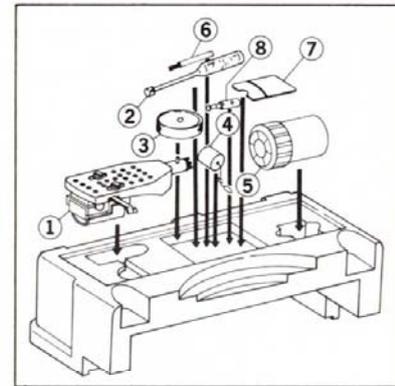
## 7. PACKING LIST

Parts No.	Stock No.	Description
1		Inner Packing
2	7292140	Rubber Mat Ass'y
	{ 5392110	Turntable Rubber Mat
	{ 5392050	Turntable Ring
3	{ 6112080	Turntable (Platter)
	{ 6032160	Belt
4	9022470	Stylofoam Packing
5	7012070	Dust Cover Ass'y
6	9022460	Stylofoam Packing
7	{ 9002450	Carton Case
	{ 5996080	Curl Stopper



## 8. ACCESSORY PARTS LIST

Parts No.	Stock No.	Description
1		Head Shell Ass'y
	{ 6642150	Head Shell Sub Ass'y
	{ 4310230	Cartridge (SV-40X)
	{ 4940140	Stylus (SN-40X)
		Stylus Cover
2	9432010	Oil Feeder
3	6172060	45 Adaptor
4	6912140	Bias Weight
5	6912420	Main Weight
6	9499010	Cleaning Brush
7	9412010	Over Hang Gauge
8	{ 6142270	Spair Capstan (50Hz)
	or	or
	{ 6142280	Spair Capstan (60Hz)
	9202260	Operating Instructions



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