

# SERVICE MANUAL

AUTOMATIC 4-CHANNEL/2-CHANNEL TURNTABLE

## SANSUI FR-5080S



*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-5080S 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, direct-drive  
automatic turntable  
SPEEDS .....33- $\frac{1}{3}$  and 45 rpm  
FINE SPEED ADJUSTMENT  
RANGE ..... $\pm 3.5\%$   
PLATTER .....Aluminum alloy die-cast  
31 cm (12- $\frac{1}{4}$ " diameter, 1.4kg  
(3.1 lbs.)  
MOTOR .....20-pole  
brushless DC servo-type  
WOW AND FLUTTER .. less than 0.03% (W.R.M.S)  
S/N .....better than 62dB (IEC-B)  
RUMBLE .....better than 70dB (DIN-B)  
TONEARM .....Statically-balanced S-shaped  
tubular type  
TONEARM LENGTH ....220 mm (8- $\frac{11}{16}$ "  
OVERHANG .....15 mm ( $\frac{5}{8}$ "  
APPLICABLE CARTRIDGE  
WEIGHT .....4 to 10g

CARTRIDGE .....SV-43  
FREQUENCY RESPONSE  
.....10~20,000Hz  
OUTPUT VOLTAGE ....3.3 mV per channel (1,000Hz  
50 mm/sec)  
LOAD IMPEDANCE ....47 k $\Omega$   
TRAKING FORCE .....2.0 g  
STYLUS.....diamond (SN-43)  
DIMENSIONS .....470 mm (18- $\frac{9}{16}$ " W  
154 mm (6- $\frac{1}{8}$ " H  
375 mm (14- $\frac{15}{16}$ " D  
WEIGHT .....12.8 kg (28.2 lbs) net  
15.0 kg (33.1 lbs) packed  
POWER CONSUMPTION..6W

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

# 2. PARTS LOCATION AND PARTS LISTS

## 2-1. Auto Circuit Board Ass'y (Stock No. 7501830) (Stock No. 7502010 U.S.A & CANADA Only)

### Parts List

Parts No.	Stock No.	Description	Position
C104	0635107	0.01 $\mu$ F 1000V Mylar Capacitor	
	0605107	0.01 $\mu$ F 125V Mylar Capacitor (in U.S.A & CANADA Only)	
C105	0635226	0.0022 $\mu$ F 1400V Ceramic Capacitor	
	0659803	0.0022 $\mu$ F 125V Ceramic Capacitor (in U.S.A & CANADA Only)	

Parts No.	Stock No.	Description	Position
R104	0114101	100 $\Omega$ $\frac{1}{2}$ W C.R.	
F104	0430800.1	0.3A Fuse	

## 2-2. Power Supply Circuit Board Ass'y (Stock No. 7501840) (Stock No. 7502020 U.S.A & CANADA Only)

### Parts List

Parts No.	Stock No.	Description	Position
TR101	0308392	2SD313 Transistor	
	5932020	RADIATOR (For Transistor)	
D101	0311520	SIRBA10	Diode
D102	0315360	RD-19AK	
D103	0310340	10D-1	
D104	0316380	XZ-051	
C101	0515471	470 $\mu$ F 50V	E.C.
C102	0513101	100 $\mu$ F 25V	
C103	0511221	220 $\mu$ F 10V	

Parts No.	Stock No.	Description	Position
R101	0107222	2.2k $\Omega$ $\frac{1}{4}$ W	C.R.
R102	0114561	560 $\Omega$ $\frac{1}{2}$ W	
R103	0104123	12k $\Omega$ 1W	
S101	1190400	Voltage Selector (Not included in the unit sold in U.S.A & CANADA Only)	
	0410110	Neon Lamp	
	3800230	Power Cord	

### 3. OPERATION OF MECHANISM

#### 3-1. Operation of Auto Mechanism (See Fig. 3-1)

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/STOP 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. 3-1) 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 Reed switch and turns this Reed switch ON. When the Reed 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.

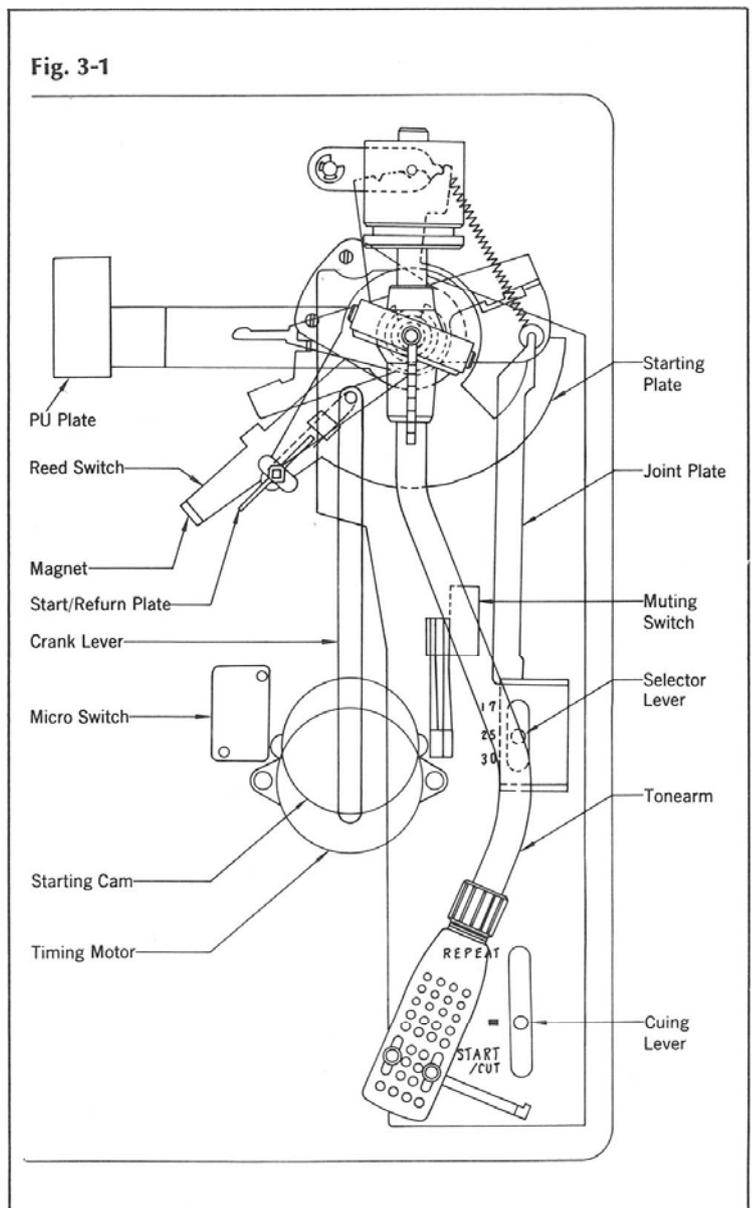
Thus, the starting cam will be turned in one revolution and the micro switch (SW1) will be turned OFF.

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.

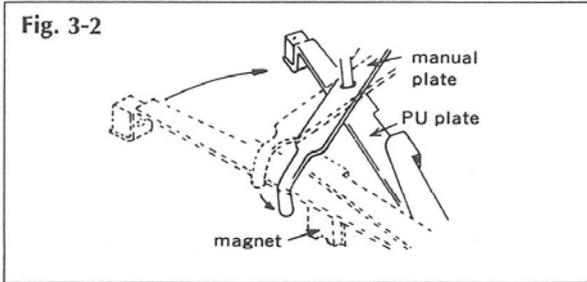
Fig. 3-1



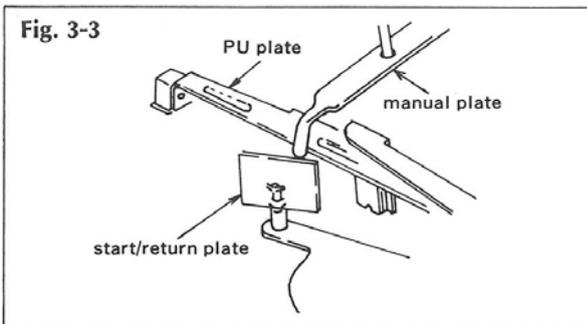
### 3-2. Operation of Manual Mechanism

\*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. 3-2 when tonearm is put on desirable position of disk.

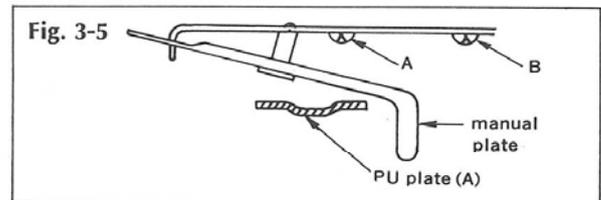
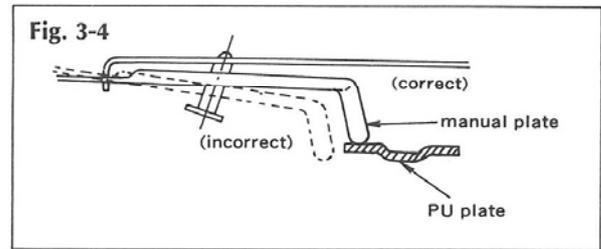


- 2) After moving tonearm to the desirable position of disk (it does not completely comes down on the groove), pull the cuing lever to "START/RETURN" plate (See Fig. 3-3). The START/RETURN plate makes one quarter turns ( $\frac{1}{4}$  turns) by touching manual plate when the tonearm returns to arm-rest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

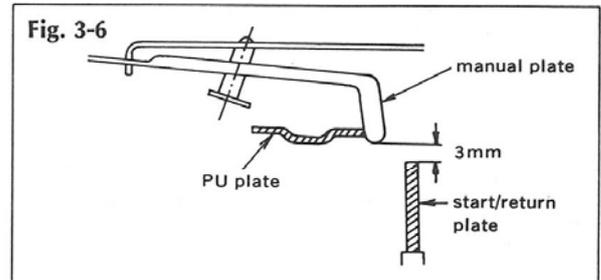


### 3-3. Caution for Manual Plate Replacement

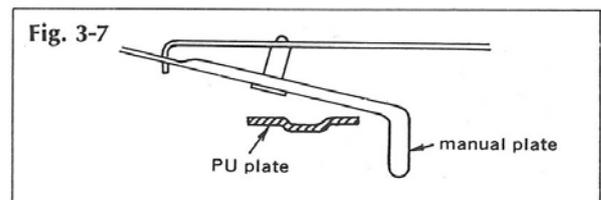
- 1) The manual plate must not get off from the PU plate when the tonearm is pulled in the outmost right side direction. (See Fig. 3-4)
- 2) When loosening screw **A** and **B** (See Fig. 3-5) for replacing the plate, refer to the following adjustment.
  - ① Move the tonearm about 10mm to 15mm inside from the arm-rest.



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



- 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. 3-7).

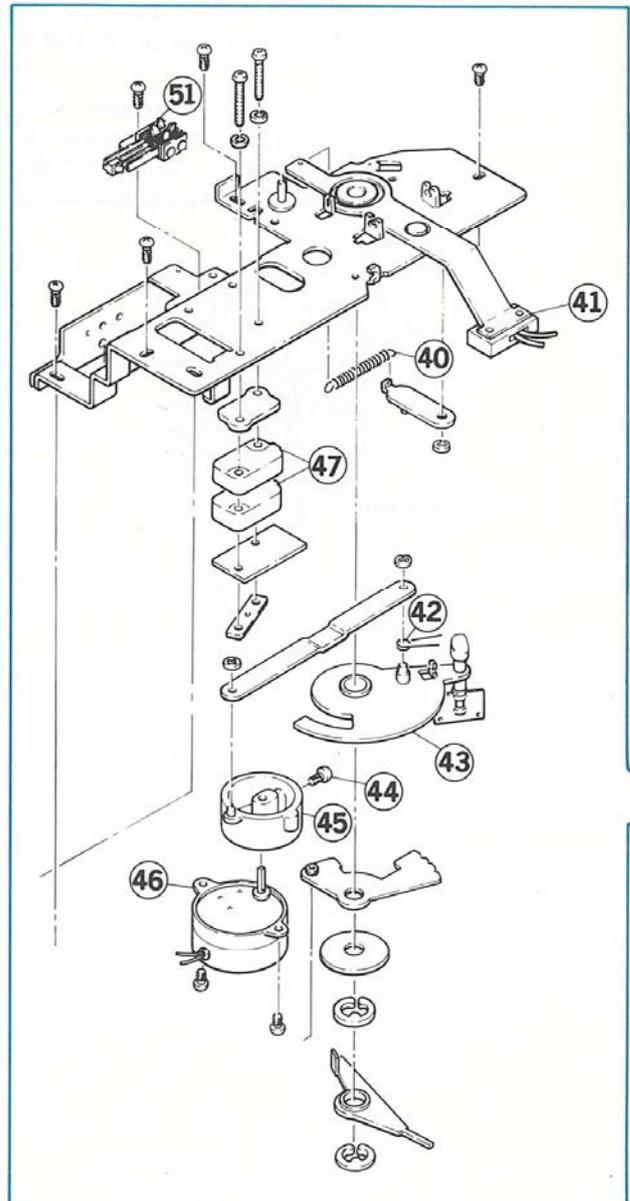


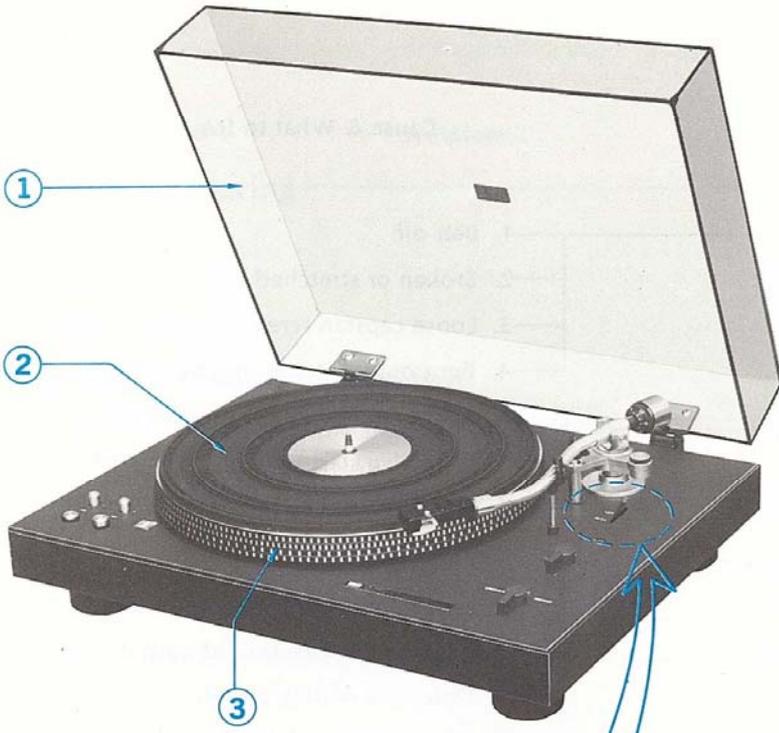
## 4. DISASSEMBLY WITH EXPLODED VIEWS, PARTS LOCATION AND PARTS LIST

### Parts List

Parts No.	Stock No.	Description
1	7012060	Dust Cover Ass'y
	5362401	Name Plate, dust cover
	6922250	Lock Plate
	5109563	Oval Countersunk Head Screw, M4 × 10
	5502490	Rubber Cushion
2	7292110	Rubber Mat, turntable
3	6112120	Turntable (Platter)
4	7062260	PU Plate Ass'y
5	5103025	P Type Screw, M2.6 × 8
6	5103074	P Type Screw, M4 × 32
7	6912141	Arm Balancer
8	5106624	F Type Screw, M2.6 × 8 (Polycarbonate)
9	5992010	Magnet (A)
10	5162500	Adjusting Screw (B)
11	5162490	Adjusting Screw (A)
12	5103044	P Type Screw, M3 × 8
13	5101021	B Type Screw, M2.6 × 4
14	5992110	Magnet (B)
15	6902330	Spring, PU plate ass'y
16	7062280	Manual Plate Ass'y
17	7092480	Tonearm Ass'y
	6912430	Main Weight
	7082250	Tonearm Base Ass'y
	7082240	Tonearm Guide
	6912440	I.F.C Ass'y
18	7092470	Arm Rest Ass'y
19	5372110	Knob, manual lifter
20	7082230	Manual Lifter Ass'y
	6012320	Lifter Cam
21	5312250	Knob, selector
	6012300	Selector Cam
22	5312250	Knob, cuing
23	4320450	Motor
24	5422020	Strobo Lens
	0410110	Neon Lamp
	5612030	Lamp Case
25	5326500	Push Button, speed selector
26	5312240	Knob, speed control volume
27	1190400	Voltage Selector (Not included in the unit sold in U.S.A & CANADA)
28	3800230	Power Cord
29	7172160	Cabinet Ass'y
	5332041	Sansui Badge
	5422020	Strobo Lens
	6922240	Auto Hinge
	5362540	Name Plate, model name
30	2200390	Terminal Board Ass'y
31	4002490	Transformer
	4002492	Transformer (in U.S.A & CANADA Only)
32	7501830	Auto Circuit Board Ass'y
	7502010	Auto Circuit Board Ass'y (in U.S.A & CANADA Only)
33	1005250	3kΩ (B) Volume
34	1005240	2kΩ (B) Volume
35	1131330	Push Switch (2 Stage)
36	5612030	Lamp Case
37	7501840	Power Supply Circuit Board Ass'y
	7502020	Power Supply Circuit Board Ass'y (in U.S.A & CANADA Only)
38	6012310	Cuing Cam
39	1160190	Micro Switch
40	6902330	Spring, position detector
41	1190390	Reed Switch

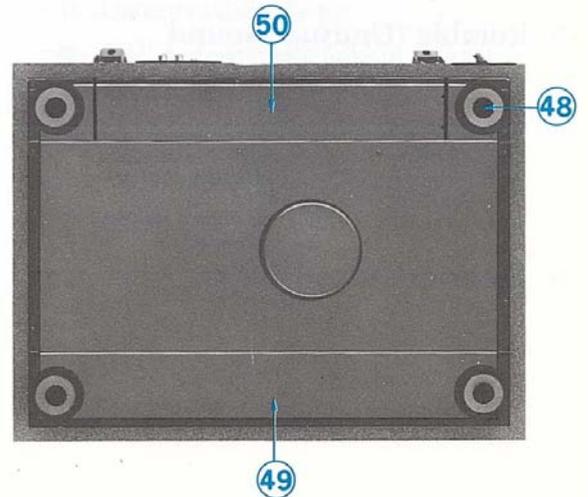
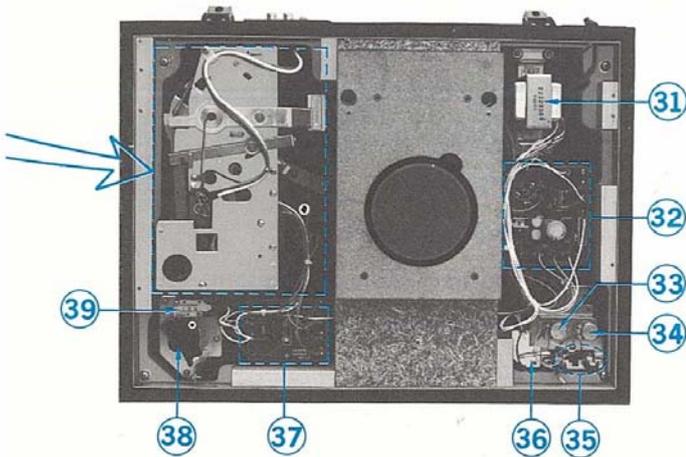
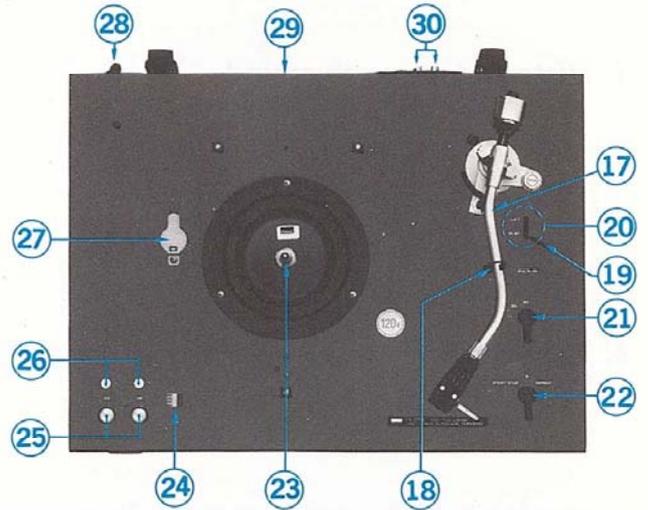
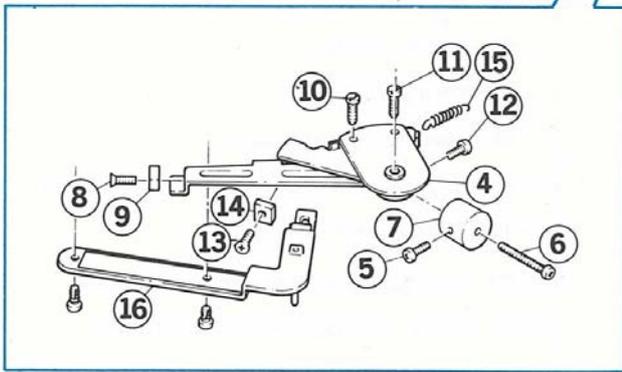
Parts No.	Stock No.	Description
42	6902360	Spring, starting plate
43	7062270	Starting Plate Ass'y
44	5103541	PT Type Screw, M3 × 6
45	6012240	Starting Cam
46	4320110	Timing Motor
47	1160140	Micro Switch
48	5502520	Insulator
49	5022080	Bottom Cover (A)
50	5022090	Bottom Cover (B)
51	1190140	Mute Switch





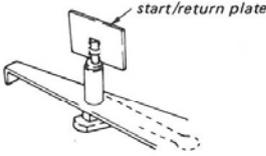
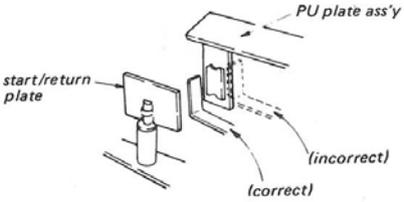
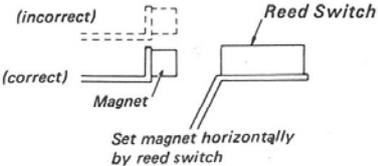
**Abbreviations**

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



## 5. TROUBLESHOOTING

Symptom-1	Symptom-2	Cause & What to Do
<b>1. Turntable not rotating</b>	1-1. Turntable not rotating	1. Belt off 2. Broken or stretched belt 3. Loose capstan screw (Capstan racing) 4. Burn out turntable spindle
	1-2. Motor not rotating	5. Loose connection of power cord 6. Defective start switch (Leaf switch) 7. Defective timing motor
<b>2. No sound</b>		8. Cartridge open 9. Loose connection of output cord 10. Improper connection of output cord 11. Defective muting switch 12. Improper operation of amplifier 13. Imperfect contact of tonearm and shell
<b>3. Distorted or weak sound</b>		14. Improper setting of stylus 15. Worn out stylus 16. Dusty stylus 17. Loose pivot of tonarm 18. Improper connection of cartridge leads 19. Poor record cutting
<b>4. Hum</b>		20. Cartridge leads (ground side) open 21. Loose connection of output cord 22. Improper connection of output cord 23. Imperfect contact of muting switch 24. Imperfect contact of tonearm and shell
<b>5. Rumble (Unusual) sound</b>	5-1. Due to motor	25. Defective motor 26. Shipping bolts not unscrewed
	5-2. Other than motor	27. Defective turntable spindle 28. Dirty capstan
<b>6. Incorrect speed</b>		29. Improper capstan 30. Improper setting of capstan 31. Dirty capstan 32. Stretched belt

Symptom-1	Symptom-2	Cause & What to Do
<b>7. Improper tracing</b>		33. Defective tonearm
		34. Dirty stylus
		35. Defective stylus
		36. Improper stylus pressure (too light)
<b>8. Trouble of Auto mechanism</b>	8-1. Auto mechanism not operative	37. Defective start switch (Leaf switch)
		38. Defective micro switch, SW1
		39. Defective micro switch, SW2
	40. Broken crank lever	
	41. Defective timing motor	
8-2. Trouble of Auto-in		42. Loose adjustments (Refer to 3 adjustments)
		43. Defective START/RETURN plate.
		 <p>A diagram showing a start/return plate mounted on a shaft. The plate is tilted upwards. A dashed line indicates the correct horizontal position.</p>
		44. Improper setting of selector arm B
		 <p>A diagram showing the selector arm B and the start/return plate. The PU plate assembly is shown above. The selector arm B is shown in two positions: (incorrect) where it is tilted and (correct) where it is horizontal.</p>
8-3. Trouble of Auto-return		45. Loose adjustments (Refer to 3 adjustments)
		46. Defective Reed switch
		47. Declined magnetic field of magnet
		48. Improper setting of magnet
		 <p>A diagram showing a magnet and a reed switch. The magnet is shown in two positions: (incorrect) where it is tilted and (correct) where it is horizontal. The reed switch is shown below the magnet. The text says: 'Set magnet horizontally by reed switch'.</p>

## 6. ADJUSTMENTS (See Fig. 6-1, 6-2 and 6-3)

Before adjusting AUTO-RETURN and AUTO-IN, please proceed the followings in numerical order.

- 1) Mount the cartridge-equipped headshell to the tonearm.
- 2) Overhang adjustment (See page 6 of the Operating Instructions).
- 3) Tonearm horizontal balance adjustment (See page 8 of the Instructions).
- 4) Tracking-force adjustment (See page 10 of the Instructions).
- 5) Anti-skating device adjustment (See page 10 of the Instructions).
- 6) The adjusting screw "A" in Fig. 6-1 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. 6-1 is the one to adjust the position of AUTO-RETURN (position which tonearm lifts up from the surface of disk).
- 7) 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.
- 8) 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. 6-1

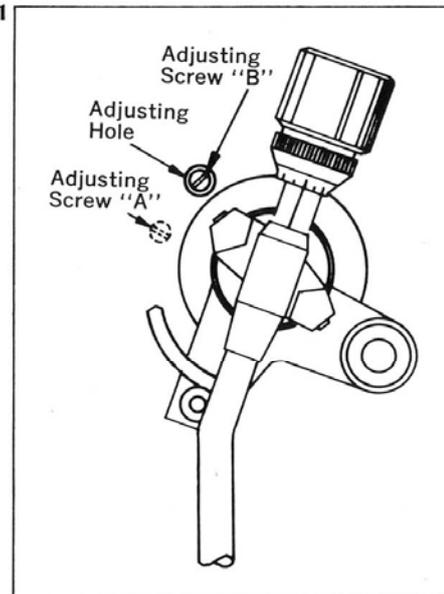


Fig. 6-2

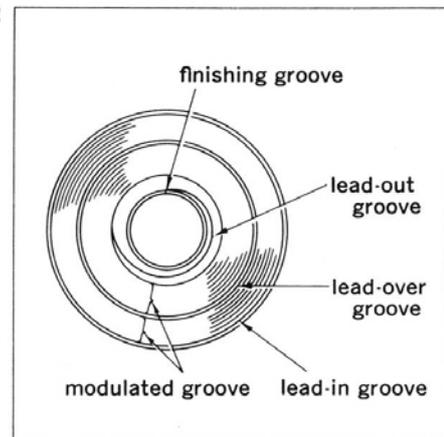
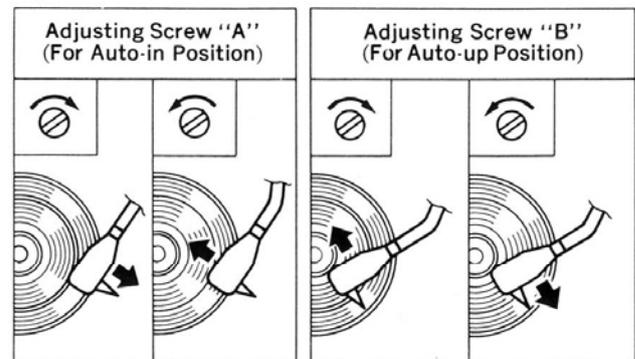
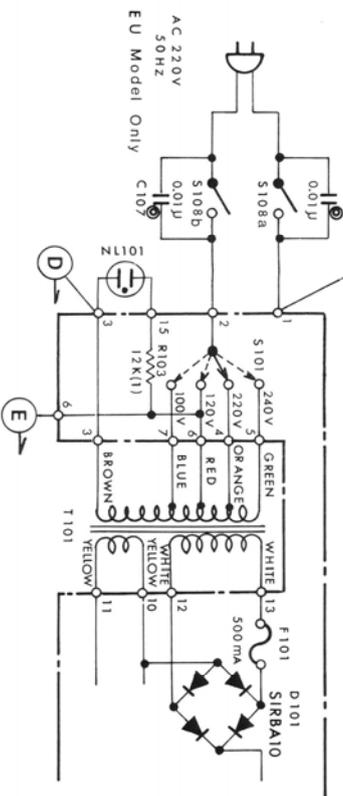
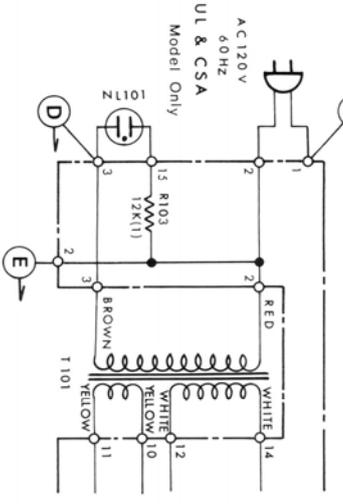
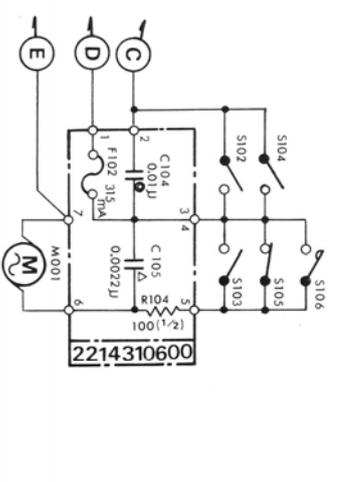
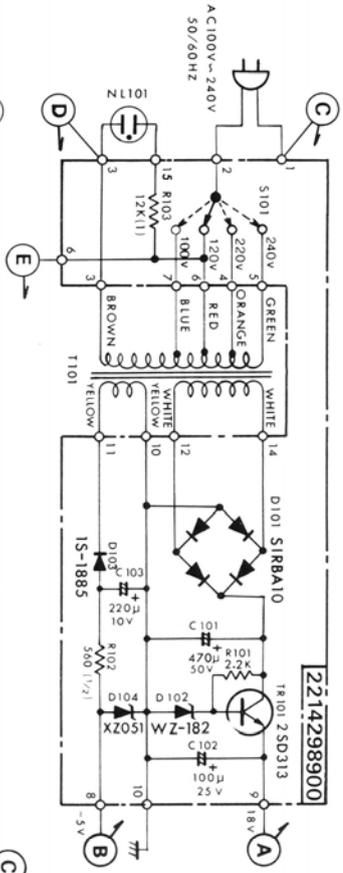
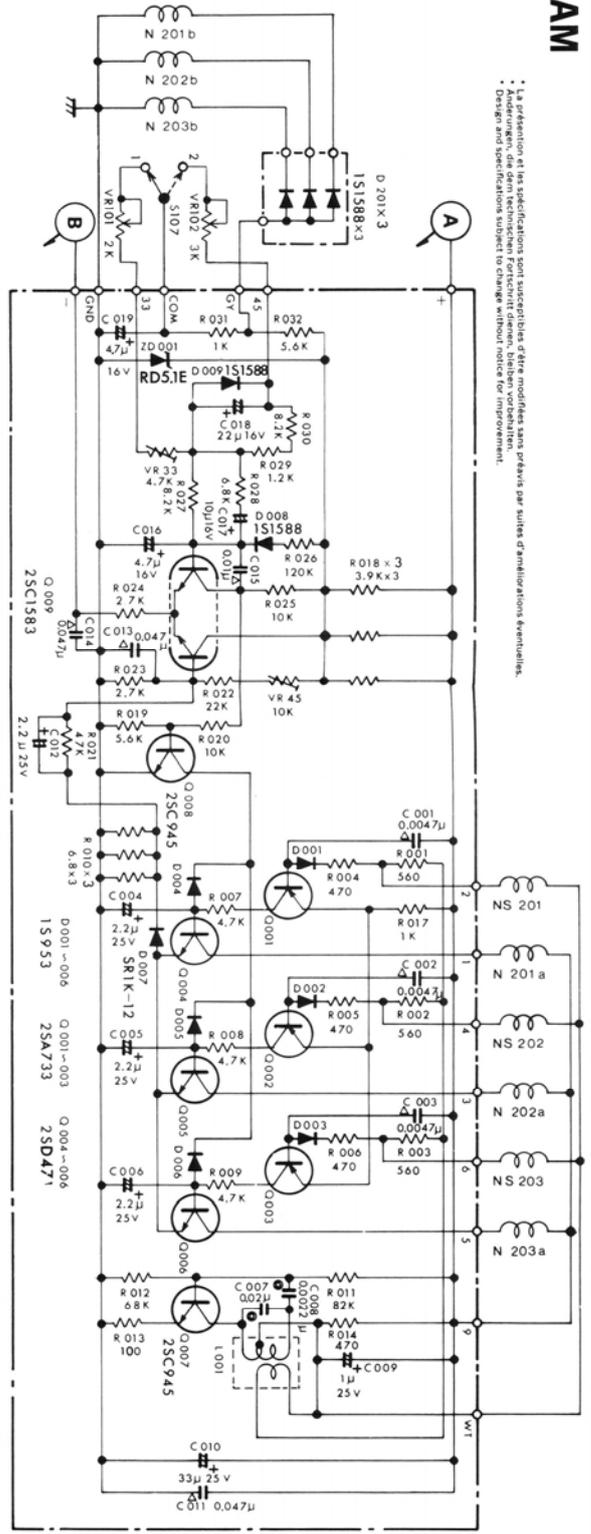


Fig. 6-3



# 7. SCHEMATIC DIAGRAM

• La représentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.  
 • Änderungen, die dem technischen Fortschritt dienen, können vorbehalten.  
 • Design and specifications subject to change without notice for improvement.

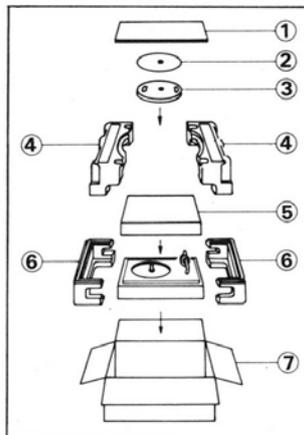


- S101 VOLTAGE SELECTOR SW
  - S107 SPEED SELECTOR SW
  - 1. 33
  - 2. 45
  - VR101 33 SPEED ADJ.
  - VR102 45 SPEED ADJ.
- CAPACITOR  
 @ MYLAR  
 Δ CERAMIC
- RESISTOR: ALL RESISTORS 1/4 WATT'S  
 UNLESS OTHERWISE NOTED

S108(a, b) POWER SW

## 8. PACKING LIST

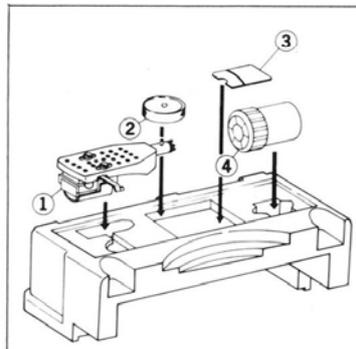
Parts No.	Stock No.	Description
1	9022590	Inner Packing
2	7292110	Rubber Mat Ass'y
3	6112120	Turntable (Platter)
	9112150	Vinyl Cover (For Rubber Mat Ass'y and Turntable)
4	9022580	Stylofoam Packing
5	7012060	Dust Cover Ass'y
	9122012	Polyethylene Sheet (For Dust Cover)
6	9022570	Stylofoam Packing
7	9002560	Carton Case
	5996080	Curl Stopper
	3810230	PU Output Cord
	9209690	Operating Instructions



## 9. ACCESSORY PARTS LIST

\* With units, Sold in certain countries, no cortridge is provied.

Parts No.	Stock No.	Description
1		Head Shell Ass'y
	6642190	Head Shell
	4310340	Cartridge (SV-43)
	4940220	Stylus (SN-43)
2	6172040	45 r.p.m. Adaptor
3	9412010	Overhang Gauge
4	6912430	Main Weight



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The Sansui logo consists of the word "Sansui" in a white, italicized serif font, set against a solid black rectangular background.

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