ORDER NO. SD82032146C1

Service Manual

Turntable System

SL-B30

[M], [MC]

SL-B30A

[M]

Areas

* [M] is available in U.S.A.
* [MC] is available in Canada.

Specifications

Specifications are subject to change without notice for further improvement.
Weight and dimensions shown are approximate.

■ General

Power supply: 120 V AC, 60 Hz
Power consumption: 3 W
Dimensions:
(W×H×D) 43×11×37.5 cm
(16-15/16"×4-11/32"×14-3/4")
Maximum height when top (dust cover) is open.
43×37×42.5 cm
(16-15/16"×14-9/16"×16-23/32")
Weight: 4.2 kg (9.3 lb.)

■ Turntable section

Type: Fully automatic turntable
Auto start
Auto return
Auto stop
Repeat play
Manual play
Drive method: Belt drive
Motor: DC motor
Drive control method: F·G servo control
Turntable platter: Aluminum die-cast
Diameter 30.4 cm (12 inches)
Turntable speeds: 33-1/3 rpm and 45 rpm
Pitch control: 6% adjustment range
Wow and flutter: 0.045% WRMS (JIS C5521)
±0.06% peak
(IEC 98A Weighted)
Rumble: −70 dB (IEC 98A Weighted)

■ Tonearm section

Type: Statically-balanced straight tonearm
Plug-in connector cartridge system
Effective length: 230 mm (9-1/16")
Overhang: 15 mm (19/32")
Tracking error angle: Within 2°32′ at the outer groove of 30 cm (12") record
Within 0°32′ at the inner groove of 30 cm (12") record
Effective mass: 7.5 g (without cartridge)
Stylus pressure adjustment range: 1.25±0.25 g
Applicable cartridge weight range: 6 g
Phono cable capacitance: 100 pF

■ Cartridge section (For SL–B30A)

Type: Moving magnet stereo cartridge
Magnetic circuit: All laminated core
Frequency response: 10 Hz~30 kHz
20 Hz~10 kHz ±1 dB
Output voltage: 2.5 mV at 1 kHz 5 cm/s. zero to peak lateral velocity
(7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation: 22 dB at 1 kHz
Channel balance: Within 2 dB at 1 kHz
Recommended load impedance: 47 kΩ~100 kΩ
Compliance (dynamic): 12×10^{-6} cm/dyne at 100 Hz
Stylus pressure range: 1.25±0.25 g (12.5±2.5 mN)
Weight: 6 g (cartridge only)
Replacement stylus: EPS-28ES

Technics

Panasonic Company
Division of Matsushita Electric Corporation of America
One Panasonic Way, Secaucus, New Jersey 07094

Panasonic Hawaii, Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Panasonic Canada
Division of Matsushita Electric of Canada Limited
5770 Ambler Drive, Mississauga, Ontario, L4W 2T3

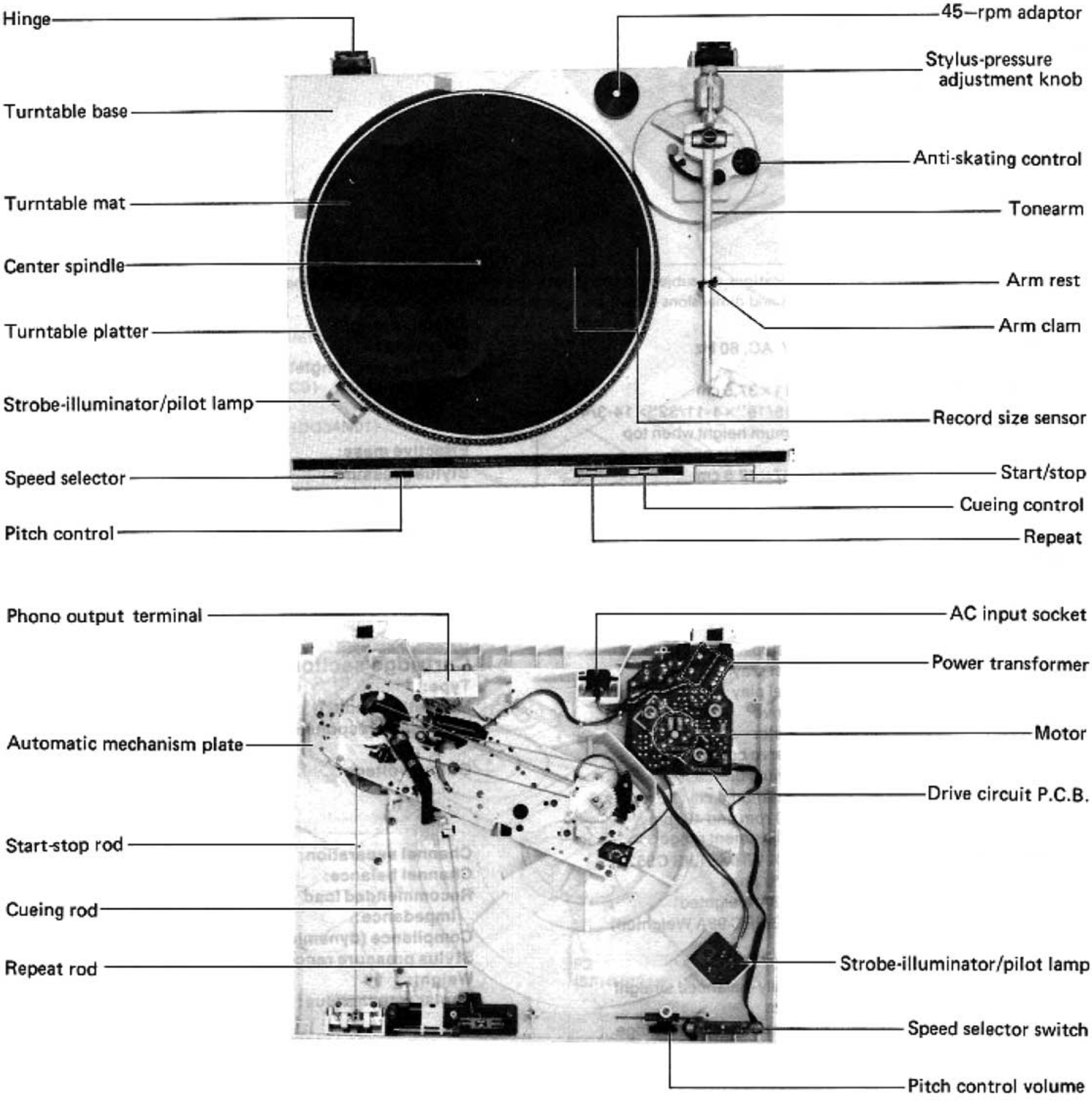
Panasonic Salee Companay, Division of Matsushita Electric of Puerto Rico, Inc.
Ave, 65 De Intanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

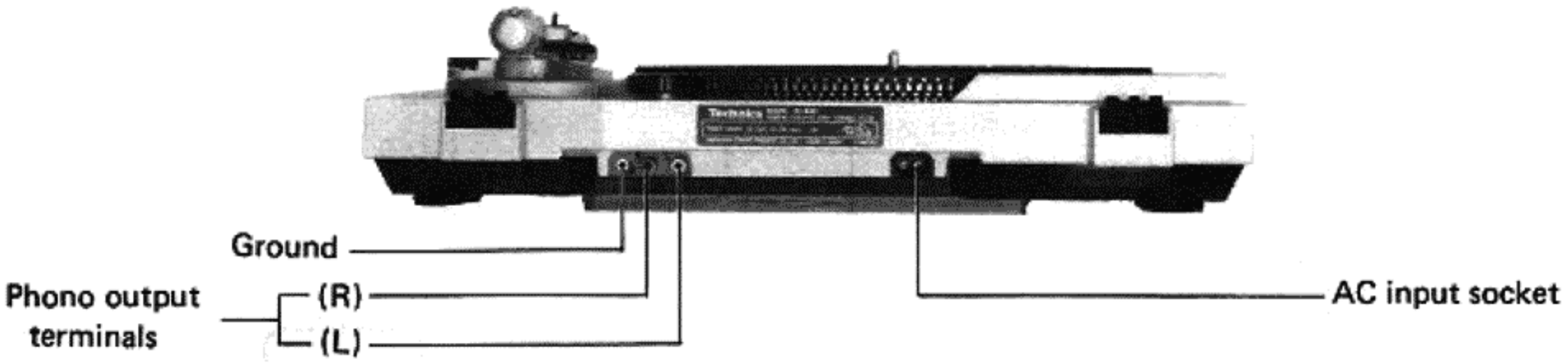
■ CONTENTS

	Page
LOCATION OF CONTROLS	2
DISASSEMBLY INSTRUCTIONS	3
HOW TO APPLY SILICON OIL (CUEING)	4
EXCHANGE OF HALL IC	4
SCHEMATIC DIAGRAM	5
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM	6
MEASUREMENTS AND ADJUSTMENTS	7
REPLACEMENT PARTS LIST	8
EXPLODED VIEWS	9
PACKINGS	12

■ LOCATION OF CONTROLS

* SL–B30 is not provided with cartridge.
SL–B30A is provided with cartridge.





■ DISASSEMBLY INSTRUCTIONS

• How to remove the bottom board

1. Fix the tonearm on the rest.
2. Remove the turntable.
3. Close the dust cover, and turn over the unit, taking care not to scratch it.
4. Remove the 6 setscrews (Fig.1 : ❶~❻)on the bottom board.

• How to remove the drive circuit P.C.B. and motor

1. Remove the bottom board.
2. Remove the 3 setscrews (Fig.2 : ❼~ ❾). Then the drive circuit P.C.B. can be detached.
3. Disengage the motor bracket fitting screws ❿, ⓫ and disconnect the soldered motor terminals ⓬, ⓭ then the motor can be detached. (See Fig.3)

• How to remove the automatic mechanism plate

1. Remove the bottom board.
2. Remove the 7 setscrews (⓮~⓴) of the automatic mechanism plate, the setscrew ㉑ of the output terminal shielding plate, the setscrew ㉒ of the earth terminal, and ㉓ of the earth circuit P.C.B. (Fig. 4).
3. Remove the start/stop rod and lift the mechanism plate.
4. When mounting the mechanism plate, check the following points.
   (1) Turn the shaft to rotate the main gear until no remaining of the gear.
   (2) The brake lever boss of the lift base should be inside the brake plate (cueing up). (Fig. 5)

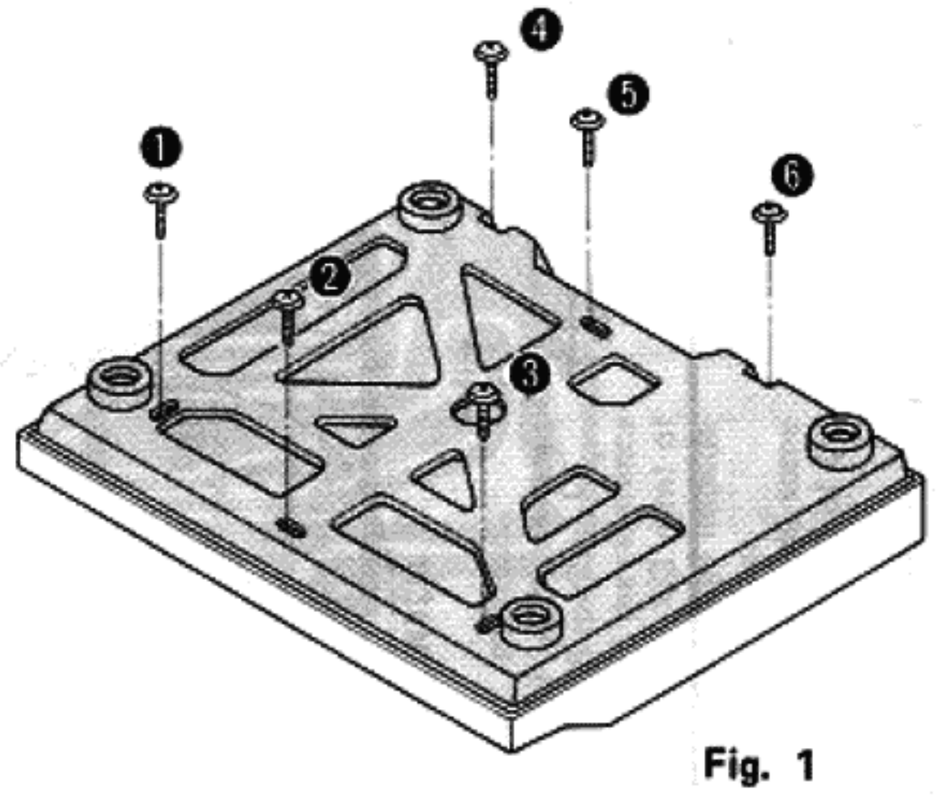


Fig. 1

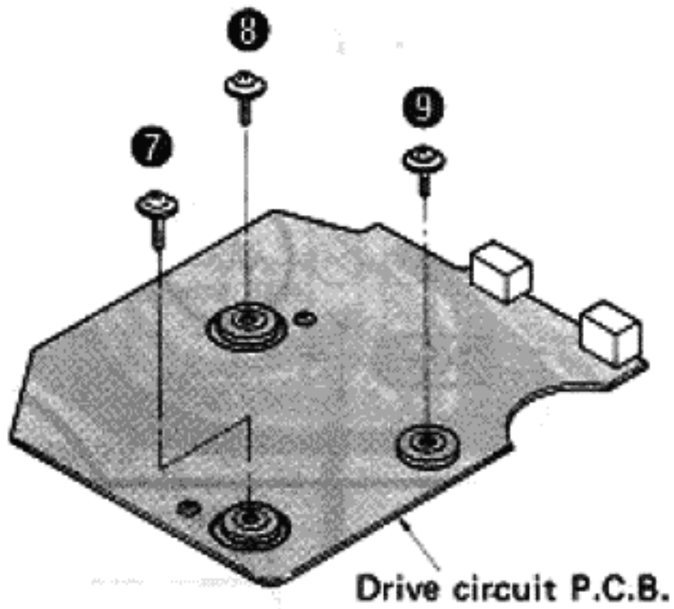


Fig. 2

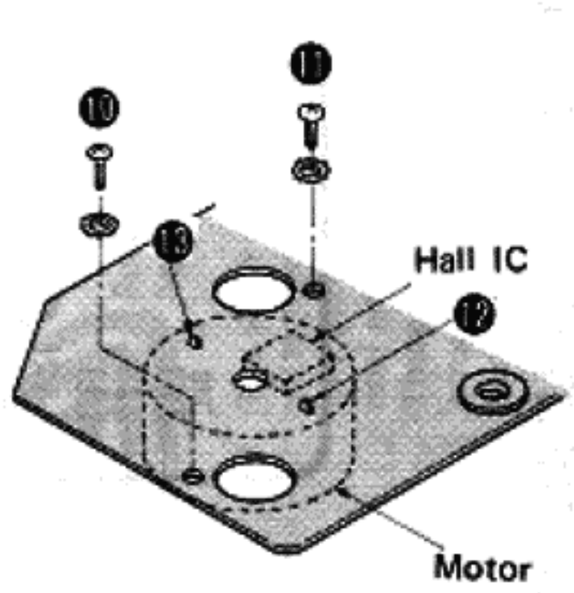


Fig. 3

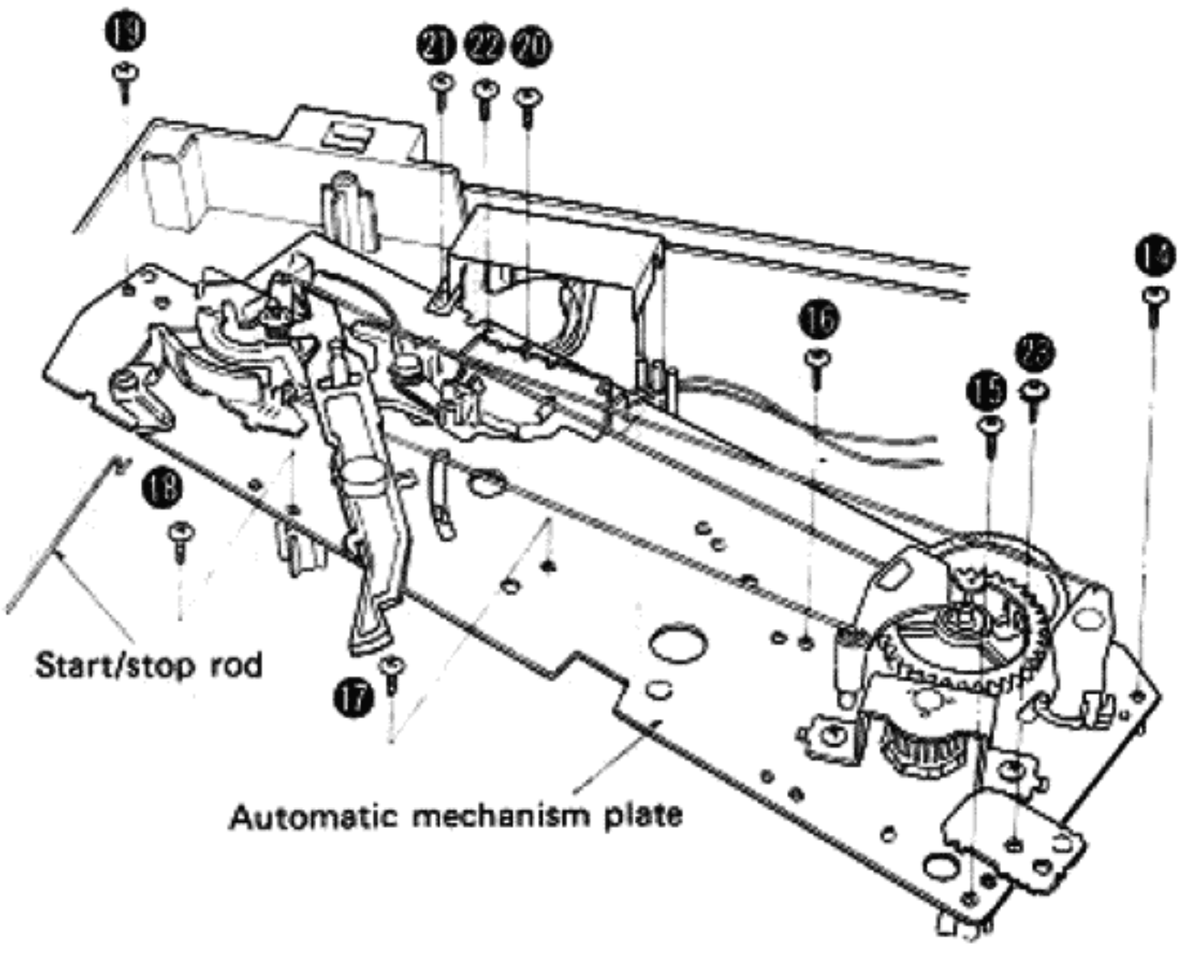


Fig. 4

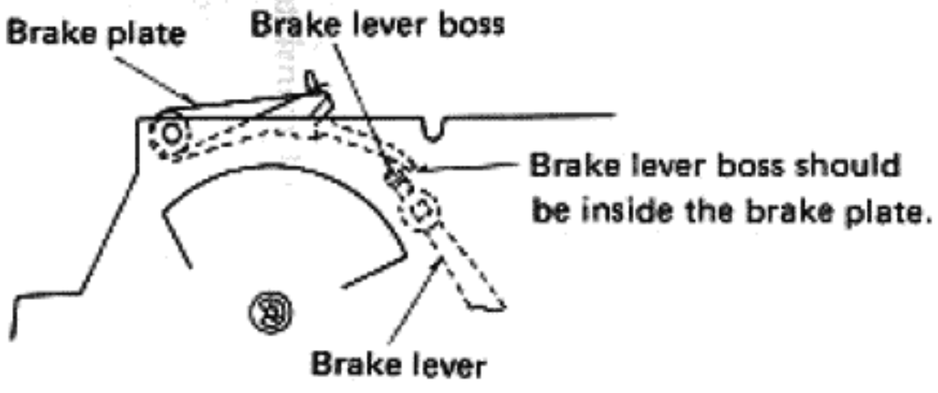


Fig. 5

• How to remove the PU fixing plate

1. Remove the bottom board and automatic mechanism plate.
2. Remove the canceller spring from the PU fixing plate, and loosen the screw ㉔ with a hexagonal wrench. (Fig. 6)
3. When fitting the PU fixing plate, match the PU fixing plate with the projection of the cabinet and tighten the screw ㉔ . (Fig. 7)
4. After fitting the canceller spring, set the anti-skating control knob to zero and shift the tonearm to the innermost periphery. Then make sure that the clearance between the cancelle spring and canceller operation plate is 0~0.3 mm. (Fig. 7)

• How to remove the tonearm

1. Remove the anti-skating control knob. (Fig. 8)
2. Remove the PU fixing plate.
3. Unsolder the 5 lead wires of output terminals.
4. Remove the PU lead wire arranging plate setscrew (Fig. 6: ㉕) and stopper (Fig. 6: ㉖). Then the tonearm can be removed.

• How to remove the lift base

1. Remove the arm lift setscrew and springs (Fig. 9: ㉗, ㉘) to detach the arm lift.
2. Remove the anti-skating control knob.
3. Remove the PU fixing plate.
4. Remove the 3 setscrews (Fig. 6: ㉜~㉞) of the lift base.

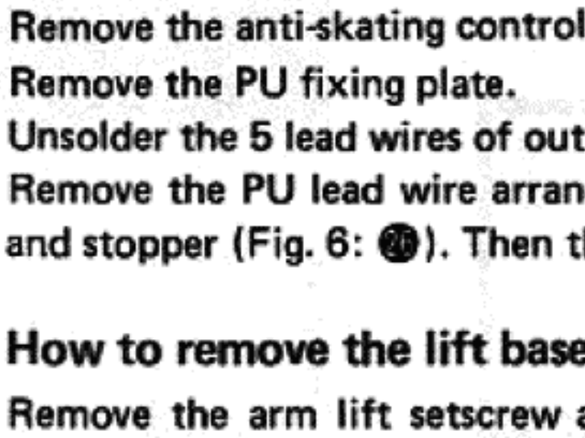


Fig. 8

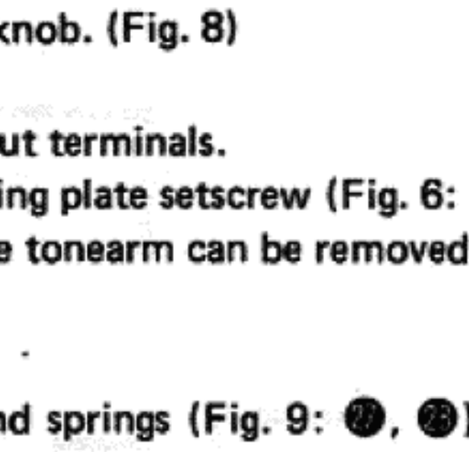


Fig. 9

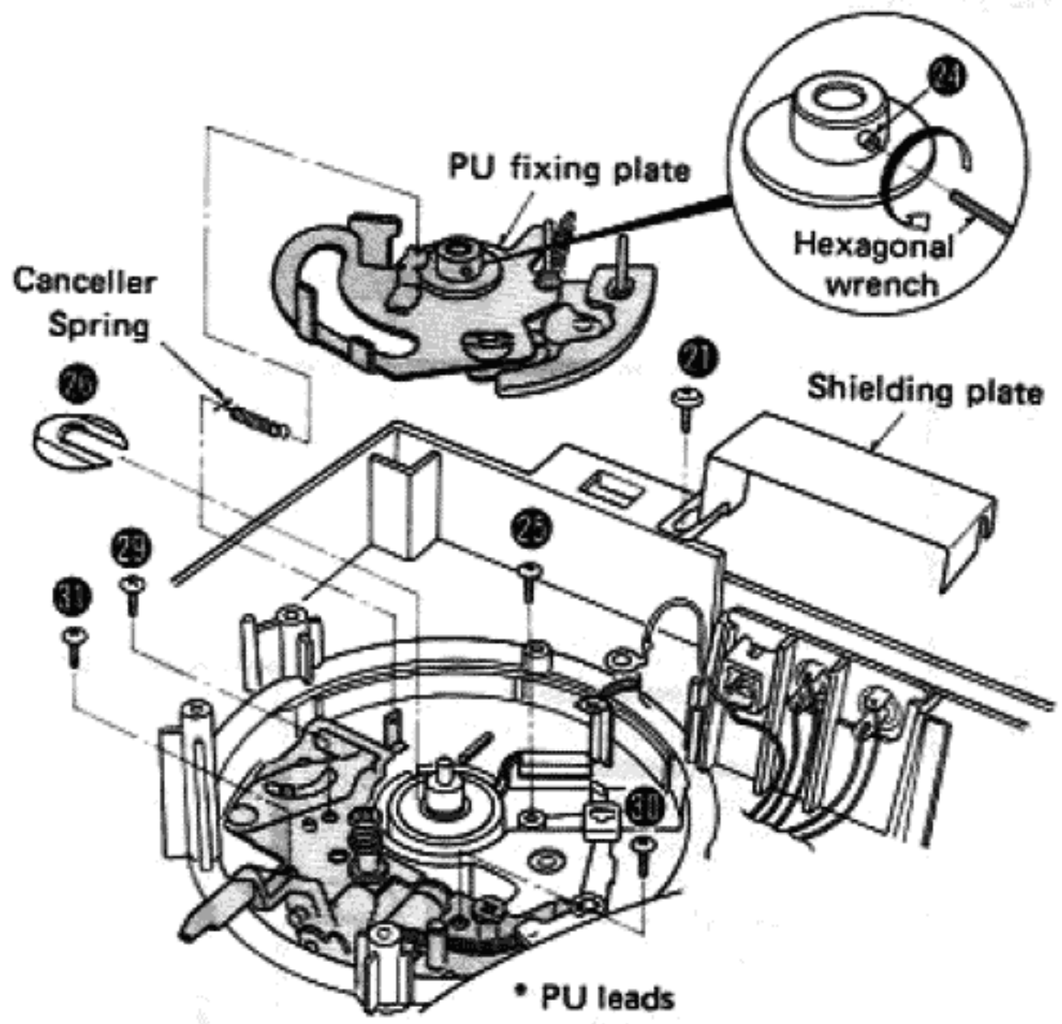


Fig. 6

• PU leads

White	:	L-channel terminal (+)
Blue	:	L-channel earth terminal
Red	:	R-channel terminal (+)
Green	:	R-channel earth terminal
Black	:	Earth terminal

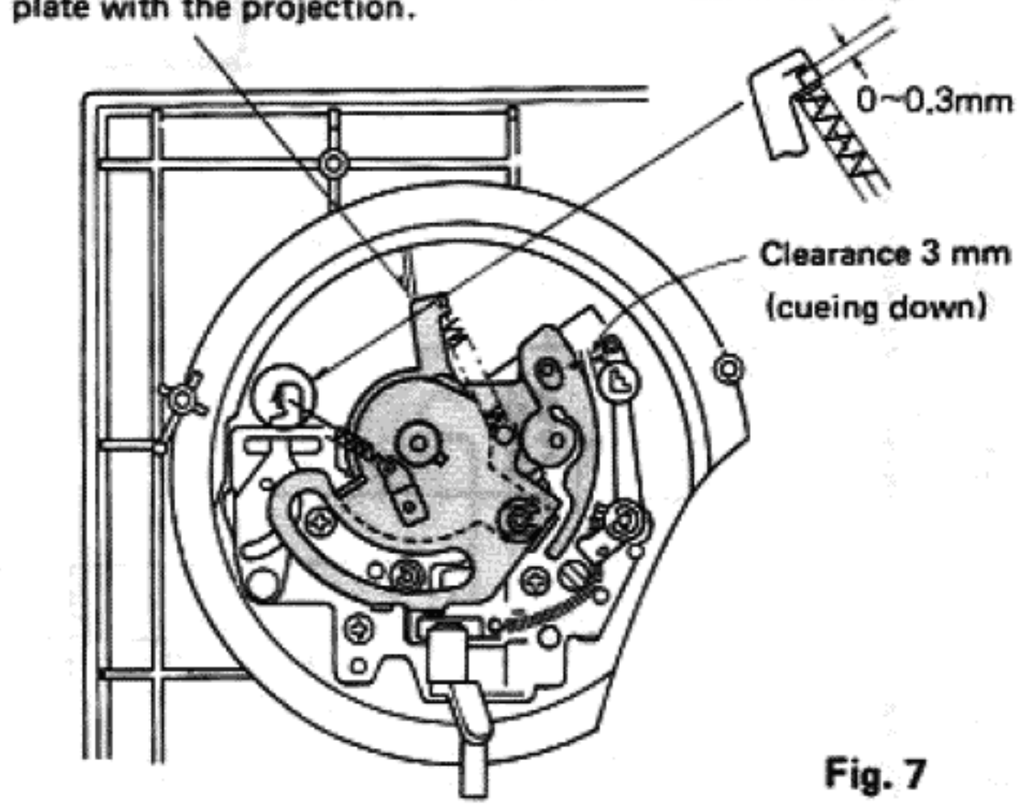


Fig. 7

■ HOW TO APPLY SILICONOIL (CUEING)

1. Remove the lift base.
2. Remove the brake cam spring (Fig.10), pressing it in the direction of the arrow.
3. Move the brake cam in the direction of the arrow A. (Fig. 11)
4. Apply silicon oil (SH097) to the outer surface and groove of the brake cam shaft. (Fig. 11)
5. Apply grease (Grease 320, Part No. Grease 1) to the lift rod.

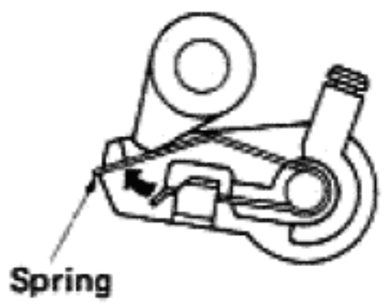


Fig. 10

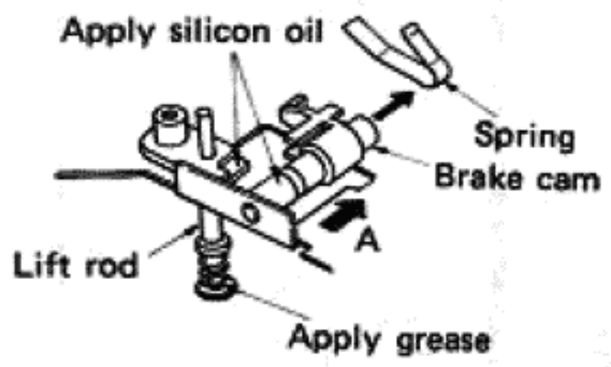


Fig. 11

■ EXCHANGE OF HALL IC

In exchanging the hall IC, be sure to check that the spacer is placed under the IC and to solder the IC exactly since the mounting height of hall IC is limited. **(See Fig. 12)**

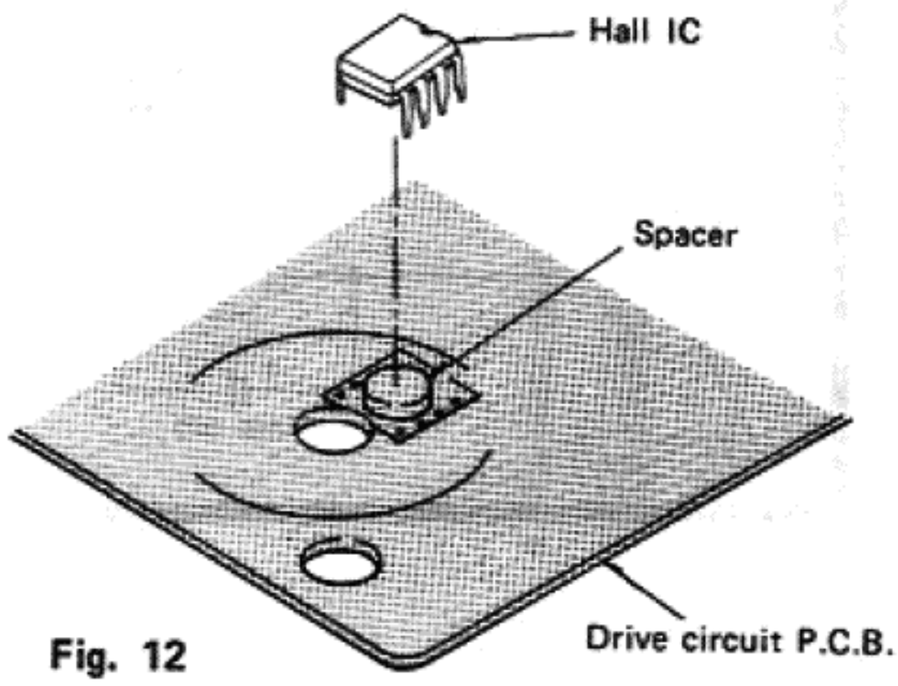
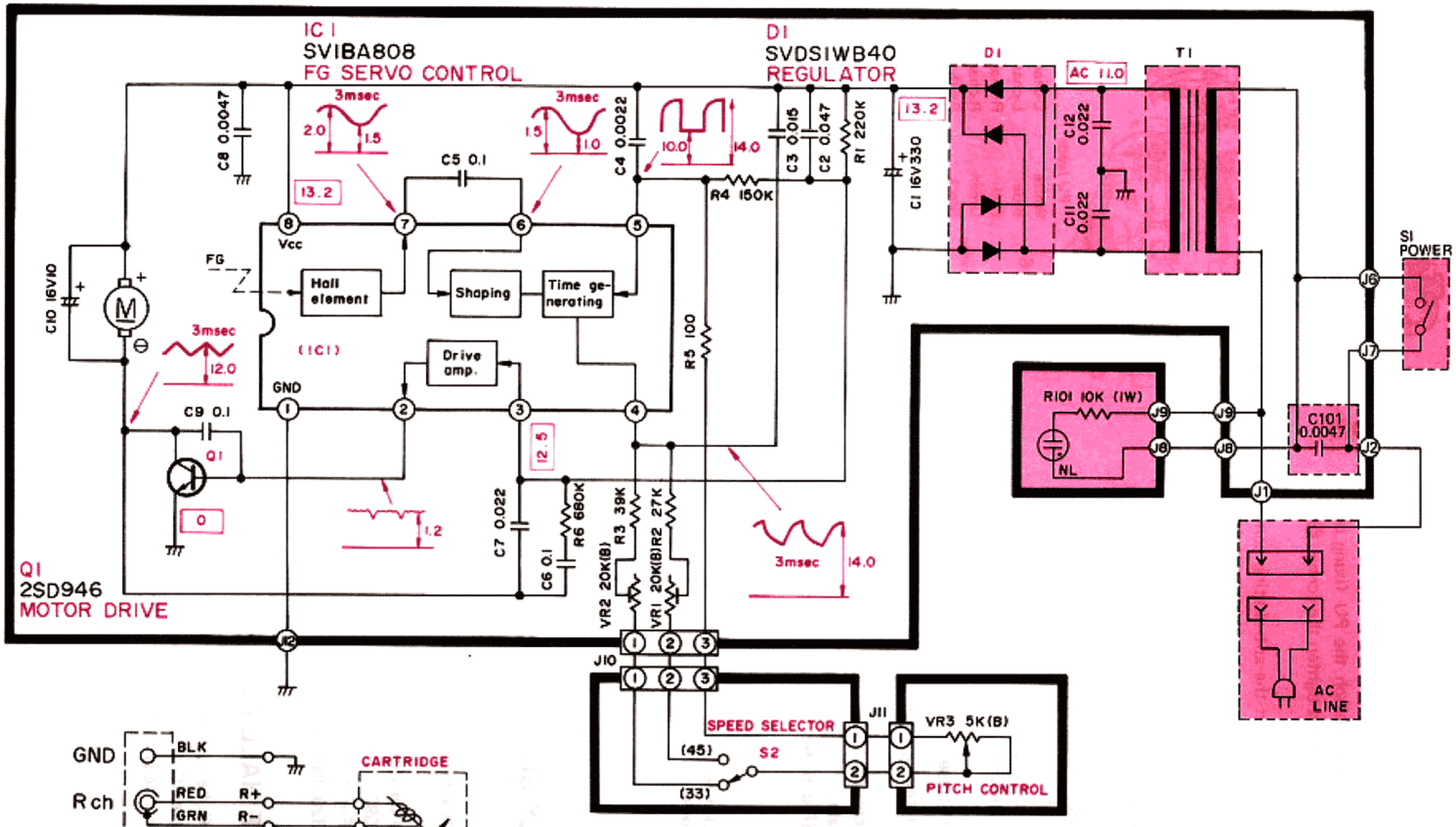


Fig. 12

■ SCHEMATIC DIAGRAM (This schematic diagram may be modified at any time with the development of new technology.)



Notes:

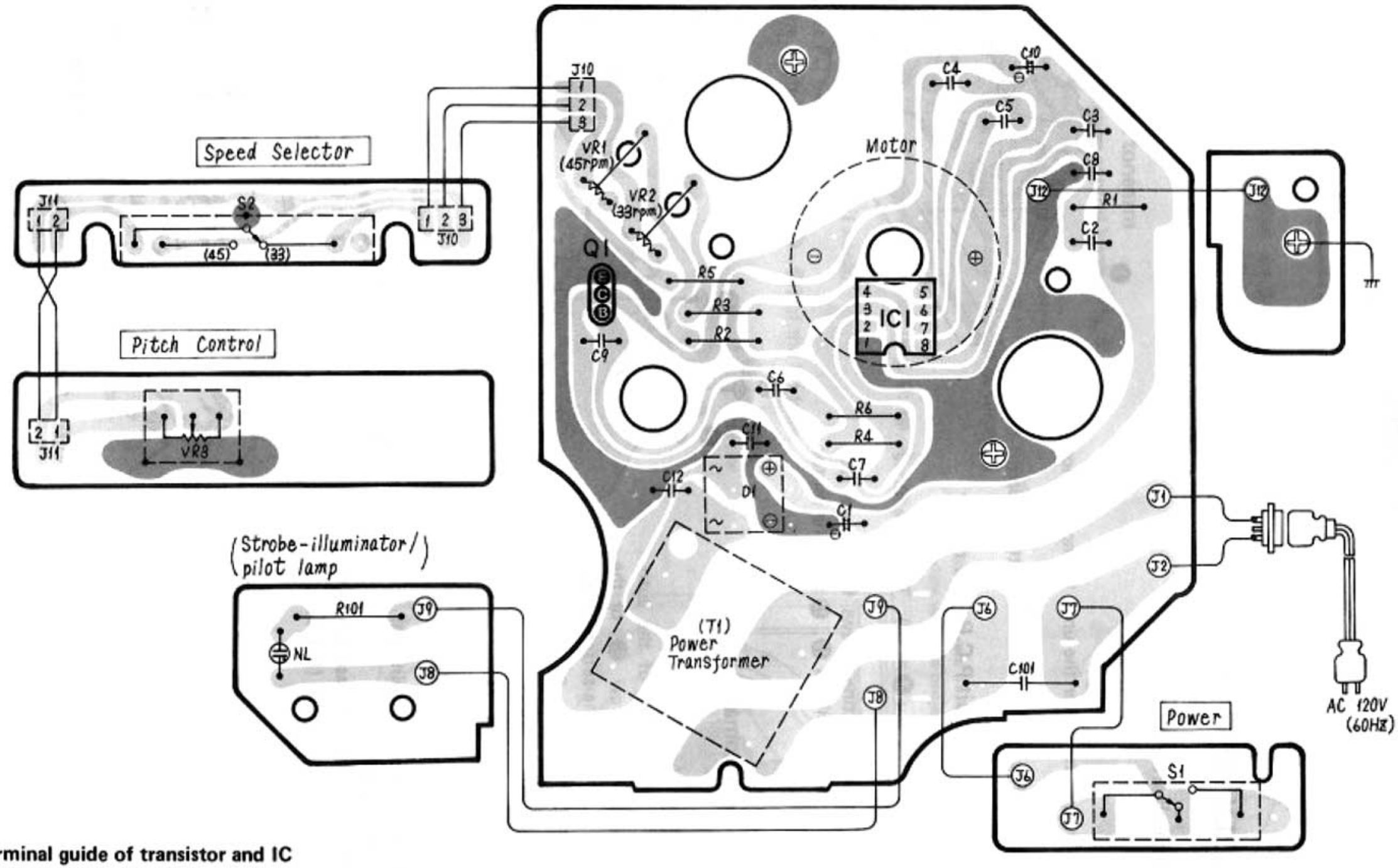
1. **S1** : Power (Arm) switch in **"on.. position.**
2. **S2** : Speed selector switch in **"33-1/3 rpm"** position
   33-1/3 rpm ⇔ 45 rpm
3. The value and waveform in ▭ are of the reference voltage for the turntable rotation (33-1/3 rpm) of this unit, measured by DC voltmeter (high impedance) and osilloscope on the basis of chassis.
   Therefore the measured value may include some error depending on the internal impedance of DC circuit tester and other conditions.

IMPORTANT SAFETY NOTICE

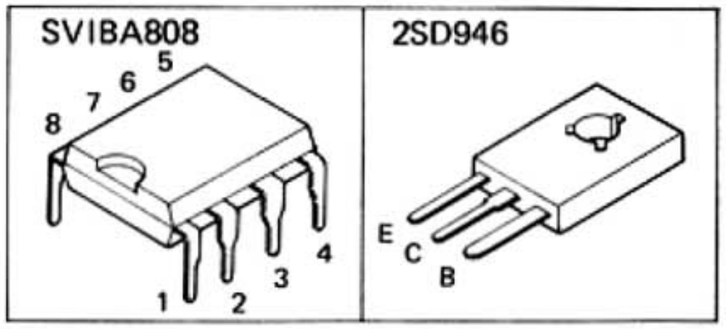
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

Ground (Earth Lines)



- **Terminal guide of transistor and IC**



■ MEASUREMENTS AND ADJUSTMENTS

• Arm-lift height adjustment

The arm-lift height (distance between the stylus tip and the record surface when the cueing control is at the "▼" position) has been adjusted at the factory to approximately 5 to 8 mm (3/16"~5/16"). **(Fig. 13)**

If the clearance is too narrow or too wide, turn the adjustment screw clockwise or counterclockwise. **(Fig. 14)**

Clockwise rotation

—distance between the record and stylus tip is decreased.

Counterclockwise rotation

—distance between the record and stylus tip is increased.

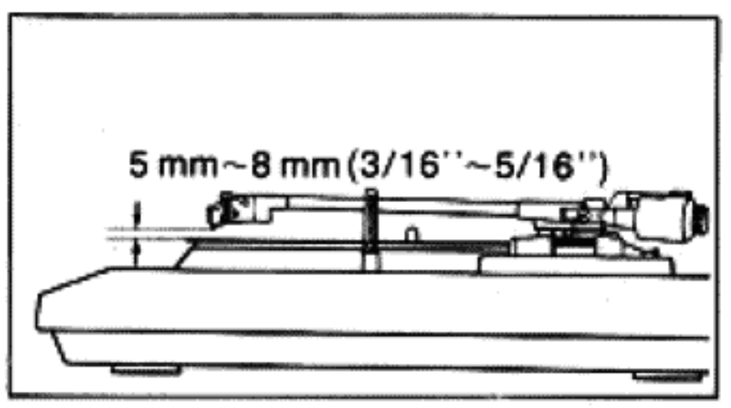


Fig. 13

• Adjustment of automatic start position

Note:

The auto-start and auto-return adjustment screws are located together.

When the tonearm is in or near the arm rest the auto-start adjustment screw is visible **(Fig. 15)**; when the tonearm is near the center of a record, the auto-return adjustment screw is visible. **(Fig. 16)**

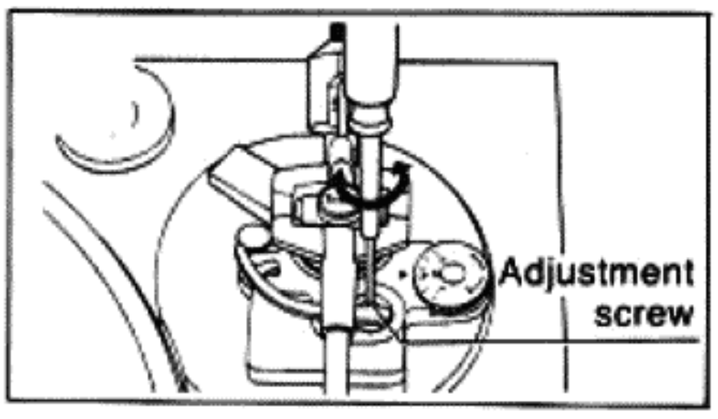


Fig. 14

If the stylus does not land in the lead-in groove, adjust as follows.

1. Clamp the tonearm to the arm rest.
2. Remove the rubber cap. **(Fig. 15)**
3. Turn the screw with a screwdriver, clockwise or counterclockwise as necessary.

If the stylus tip sets down too far in the recorded groove,

—turn counterclockwise.

If the stylus tip sets down outside of the record,

—turn clockwise.

Adjust so the stylus tip lands 1~2 mm in from the edge of the record.

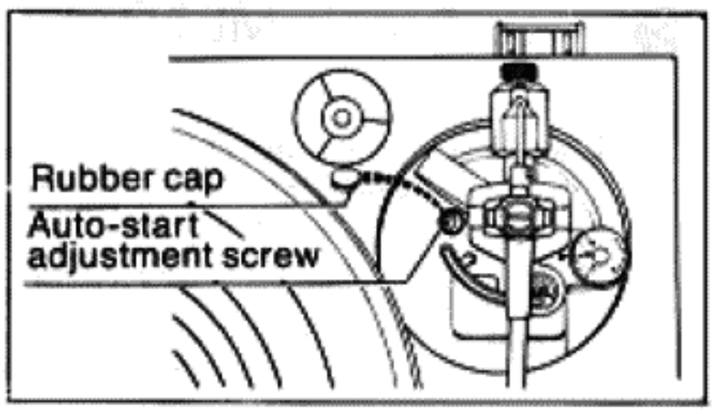


Fig. 15

• Adjustment of automatic return position (Fig. 16)

(Remove the rubber cap.)

1. Put the stylus protector on the cartridge.
2. Move the tonearm toward the center of the record. The auto-return adjustment screw will appear.

If the tonearm tends to return to the arm rest before the play has finished.

—turn counterclockwise.

If the tonearm fails to return after the final groove.

—turn clockwise.

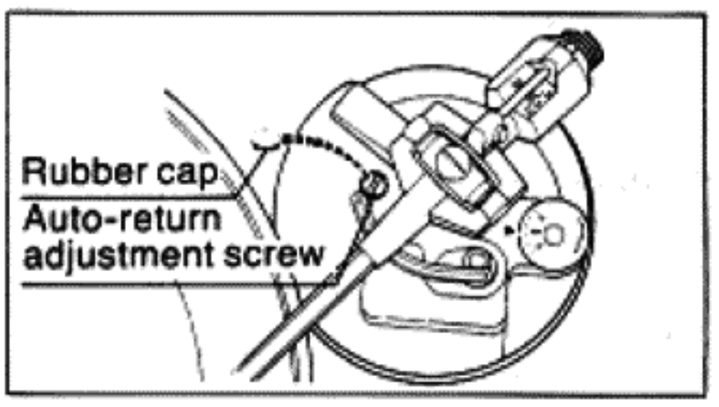


Fig. 16

• Speed adjustment (pitch control) (Fig. 17)

There are strobe-lines cut on this turntable platter to indicate correct rotational speed.

If the strobe-line appears to be moving as the turntable rotates, adjust while playing a record.

1. Set the speed selector to the speed to be adjusted.
2. Watch the dot pattern on the side of the platter. Turn the pitch control one way or the other until the dots appear to stand still. This is the correct speed.
3. Turning the pitch control in the "+" direction increases the speed.
4. Turning the pitch control in the "—" direction decreases the speed.

Note:

Strobe dot pattern

This unit's strobe illuminator operates at the AC line frequency which generally has a 0.2% fluctuation.

This fluctuation, when present, may make the strobe pattern appear to change. However, actual turntable speed does not change, because the DC motor is not affected by AC power line frequency.

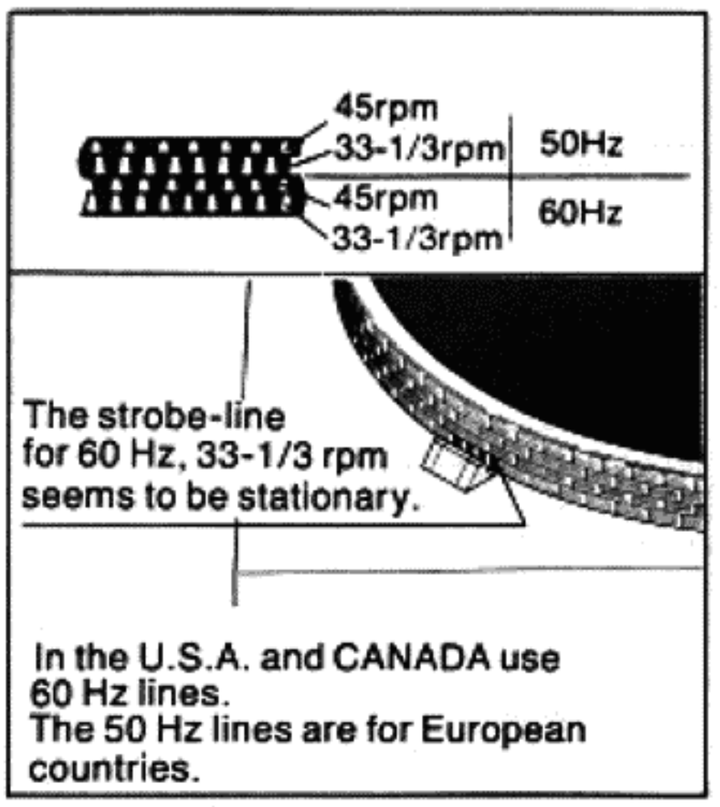


Fig. 17

• Adjustment of rotational speed

When the hall IC (IC101) or the variable resistors (VR1, 2) are changed, or if the rated rotation is not reached even when the pitch control knob is turned, adjust the rotational speed in the following procedure.

1. Place the set on a player repair bench.
2. Turn the pitch control knob to the center position, and put on a record disc for playing.
3. Set the speed selector to the "33" position.
4. Turn the VR2 with a screw driver from the lower part of the set to the rated rotation (33–1/3 r.p.m.) and check the rotation with a strobe while adjusting the speed. **(See Fig. 18)**
5. Set the speed selector to the "45" position.
6. Turn the VR1 with a screw driver from the lower part of the set to the rated rotation (45 r.p.m.) and check the rotation with a strobe while adjusting the speed. **(See Fig. 18)**
7. As the more simple method, it is also possible to adjust VR1 and VR2 by removing the turntable mat. **(See Fig. 19)**

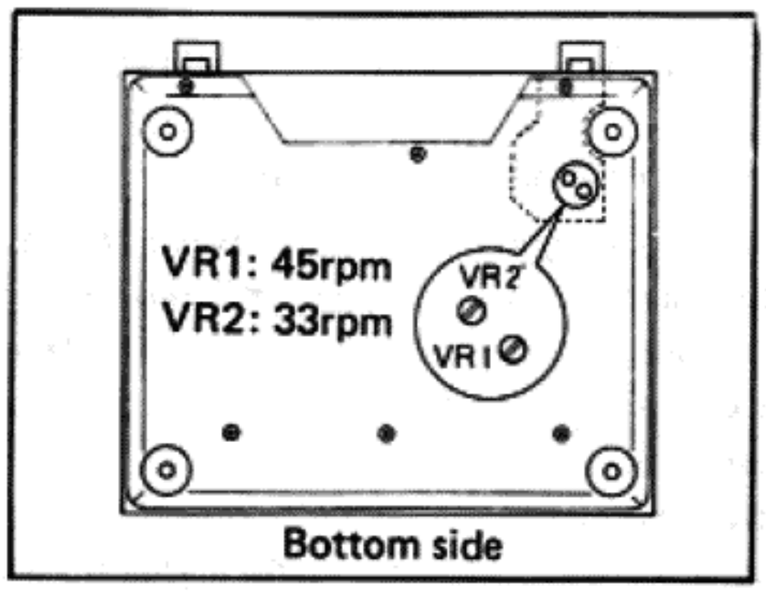


Fig. 18

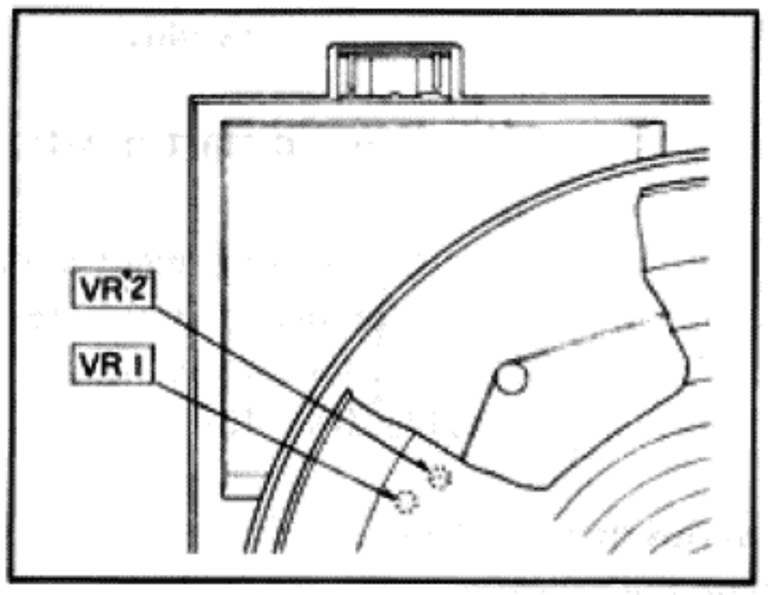


Fig. 19

■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specity the area.
   Parts without these indications can be used for all areas.
4. The "**S**" mark is service standard parts and may differ from production parts.

Areas

- [M] is available in U.S.A.
- [MC] is available in Canada.

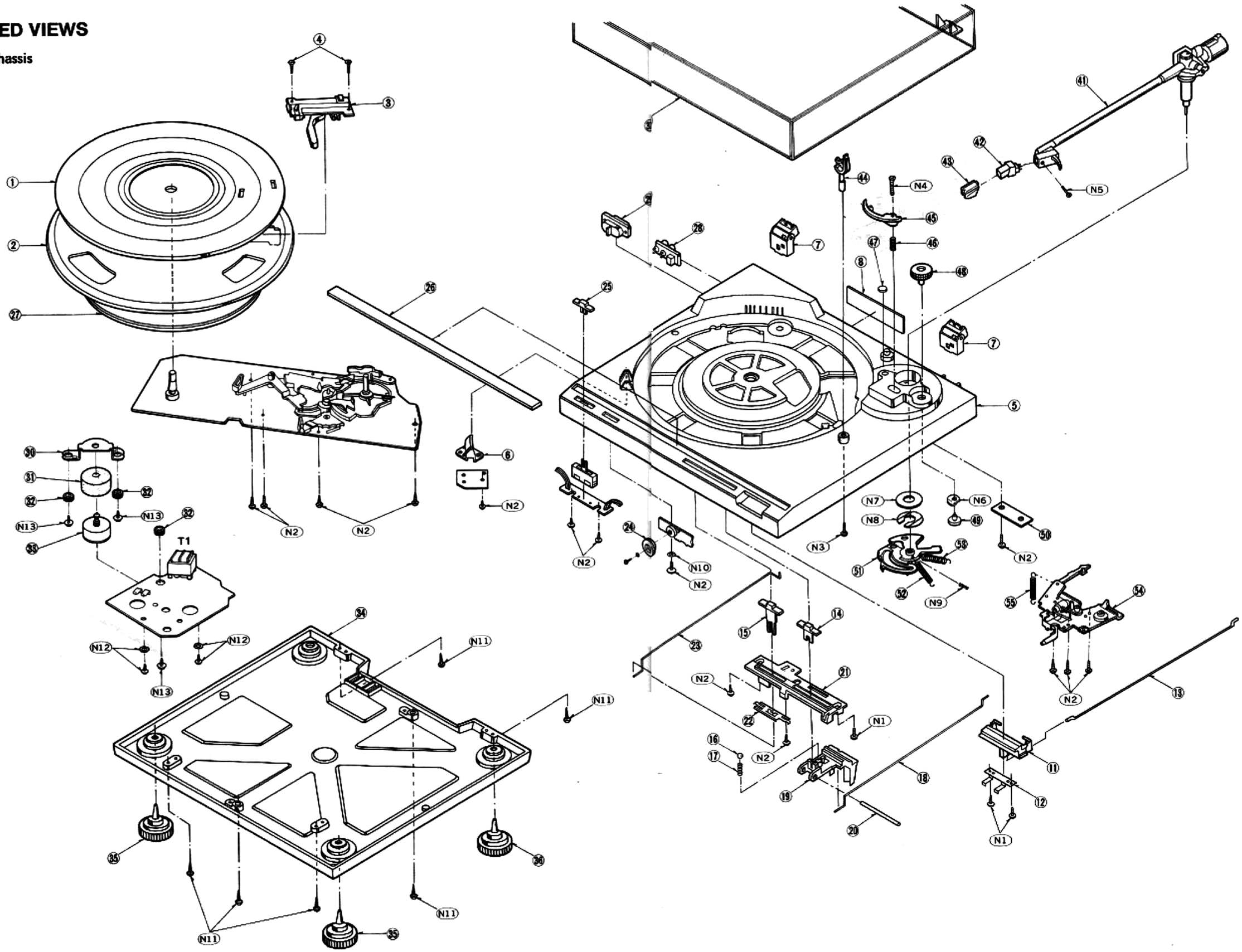
Ref No.	Part No.	Description
INTEGRATED CIRCUIT		
IC1	SVIBA808A–1	Hall IC (Speed Detector)
TRANSISTOR		
Q1	2SD549	
DIODE		
D1 ⚠	SVDSIWB40	Rectifer
VARIABLE RESISTORS		
VR1, 2	EVNM6AA00B24	Speed Adjustment, 20kΩ(B)
VR3	EVLE5AT12B53	Pitch Control, 5kΩ(B)
SWITCHES		
S1 ⚠	SFDSSS5GLP1	Power Source
S2	SFDSB03M01	Speed Selector
LAMP		
NL1 ⚠	SFDNE2HU	Strove
POWER TRANSFORMER		
T1 [M] ⚠	SLT35KL1B	Power Source
T1 [MC] ⚠	SLT35KL1A	Power Source

Ref. No.	Part No.	Value
RESISTORS		
R1	ERD25TJ224	220kΩ
R2	ERD25CKF2702	27kΩ
R3	ERD25CKF3902	39kΩ
R4	ERD25TJ154	150kΩ
R5	ERD25FJ101	100Ω
R6	ERD25TJ684	680kΩ
R101 ⚠	ERGIANJ103	10kΩ
CAPACITORS		
C1 **S**	ECEA1CS331	330μF
C2	ECFB1E473MRM	0.047μF
C3 **S**	ECQM1H153JZ	0.015μF
C4 **S**	ECKD1H222ZF	0.0022μF
C5,6	ECFB1B104ZRM	0.1μF
C7	ECFB1E223MRM	0.022μF
C8 **S**	ECKD1H472ZF	0.0047μF
C9	ECFB1B104ZRM	0.1μF
C10 **S**	ECEA1HS100	10μF
C11, 12 **S**⚠	ECKD1H223MD	0.022μF
C101 [M]⚠	ECQF1A472MD	0.0047μF
C101[MC]⚠	ECQU1A472MF	0.0047μF

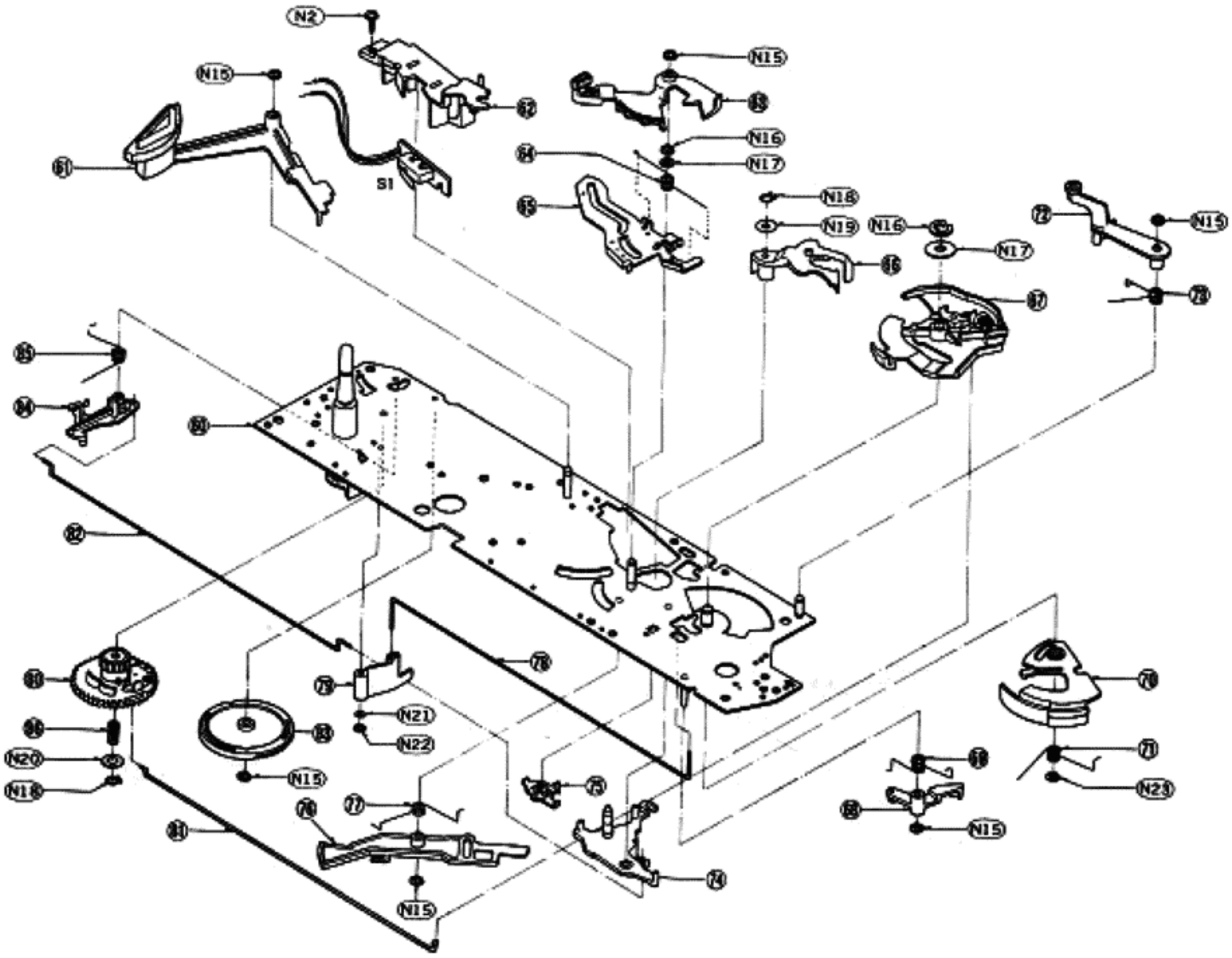
Ref. No.	Part No.	Description	
CABINET and CHASSIS PARTS			
1	SFTGDP3N01	Turntable Mat	(1)
2	SFTEB33N01	Turntable	(1)
3	SFUMB33N20A	Base, Disc Size Sensor	(1)
4	SFUZD33–01E	Latch, Disc Size Sensor Base	(2)
5	SFACB03M01	Cabinet	(1)
6	SFUM212–07	Cover, Strove	(1)
7	SFATB33N02A	Hinge	(2)
8 [M]	SFNNB03N01	Name Plate	(1)
8 [MC]	SFNNB03C01	Name plate	(1)
11	SFKTDP3N02	Button, Start, Stop	(1)
12	SFQPDP3N01	Spring, Start, Stop Button	(1)
13	SFUZBP3N02	Rod, Start, Stop	(1)
14	SFKTDP3N01	Knob, Cueing	(1)
15	SFKT803M01	Knob, Repeat	(1)
16	SFYB–5–32	Ball, Cueing	(1)
17	SFQA130–11	Spring, Cueing	(1)
18	SFUZ831S01	Rod, Cueing	(1)
19	SFUMB31S03	Slider, Cueing	(1)
20	SFXJQ34N01	Shaft, Cueing	(1)
21	SFUMB03M01	Guide, Cueing, Repeat	(1)
22	SFQPB03M01	Spring, Repeat	(1)
23	SFUZB03M01	Rod, Repeat	(1)
24	SFKTD11N01	Knob, Pich Control	(1)
25	SFKTDP3N03	Knob, Speed Selector	(1)
26	SFKKB03M01	Surface Plate	(1)
27	SFGB321–1	Belt	(1)
28	SFDJDP3N02	Socket, Phono Input	(1)
29 ⚠	SFDJHSC0491	Socket, AC Power	(1)
30	SFUPB03M01	Plate, Motor	(1)
31	SFGHB33N01	Rubber Cushion, Motor	(1)
32	SFGZB33N01	Rubber Cushion, Motor & P.C.B	(3)
33	SFMHB33N01E	Motor Ass'y	(1)
34	SFAUDP3N01	Bottom Board	(1)
35	SFGAD31S01	Insulator, Front	(2)
36	SFGAD31S02	Insulator, Rear	(2)
37 -	SFADB31S01A	Dust Cover	(1)

■ EXPLODED VIEWS

- **Cabinet and chassis**



• Automatic mechanism plate



Ref. No.	Part No.	Description	
TONE ARM and ARM BASE			
41	SFPAMOP201A	Tonearm	(1)
42 [A–[M] only]	EPC–P28	* Cartridge	(1)
	EPS–28ES	* Stylus	(1)
43 [A–[M] only]	SFCNC0231	Cover, Stylus	(1)
44	SFKUDP3N01E	Arm Rest	(1)
45	SFPRT30302E	Arm Lift	(1)
46	SFPSP30304	Spring, Arm Lift	(1)
47	SFGK170–01	Rubber Cap	(1)
48	SFPJKOP301	Knob, Canceller	(1)
49	SFPJK30302	Cam, Canceller	(1)
50	SFUPBP3N02	Plate, Phono Cord Clamper	(1)
51	SFUPBP3N01A	Arm Base	(1)
52	SFQHBP3N01	Spring	(1)
53	SFPSP30306	Spring	(1)
54	SFUPB31S01A	List Plate Ass'y	(1)
55	SFPSP30305	Spring	(1)
AUTOMATIC MECHANISM ASS'Y			
60	SFUKB33N21R	Plate, Automatic Mechanism	(1)
61	SFUMB33N08E	Plate, Disc Size Sensor	(1)
62	SFUMQ34N36	Case, Switch	(1)
63	SFUMQ34N34E	Index Plate Ass'y	(1)
64	SFUPQ34N22	Spring, Index	(1)
65	SFUPQ34N23E	Index Sub Plate	(1)

Ref. No.	Part No.	Description	
66	SFUMQ34N38	Lever, Step	(1)
67	SFUMQ34N39E	Cam, Drive	(1)
68	SFUMB33N01	Lever, Start	(1)
69	SFQSB33N02	Spring, start Lever	(1)
70	SFUMQ34N35	Cam, Start	(1)
71	SFQSQ34N24	Spring, Start	(1)
72	SFUMQ34N43	Plate, Brake	(1)
73	SFQSQ34N28	Spring, Brake	(1)
74	SFUMQ34N44	Lever Switch	(1)
75	SFUMQ34N32	Support, Actuating Rod	(1)
76	SFUMQ34N41	Lever, Repeat	(1)
77	SFQSQ34N25	Spring, Repeat Lever	(1)
78	SFQSQ34N23	Rod, Actuating	(1)
79	SFUMQ34N42	Connector, Actuating	(1)
80	SFUGQ34N21E	Main Gear Ass'y	(1)
81	SFQSQ34N22	Rod, Actuating	(1)
82	SFQSQ34N26	Rod, Switch	(1)
83	SFUGQ34N22	Gear, Drive	(1)
84	SFUMQ34N31	Plate, Stop Gear	(1)
85	SFQSQ34N21	Spring, Stop Gear	(1)
86	SFQAQ34N21	Spring, Main Gear	(1)
SCREWS, WASHERS and CIRCLIPS			
N1	S	XTV3+10BFN	Tapping, ⊕3 x 10 (2)
N2	S	XTV3+8BFN	Tapping, ⊕3 x 8 (13)
N3		XTW3+10Q	Tapping, ⊕3 x 10 (1)

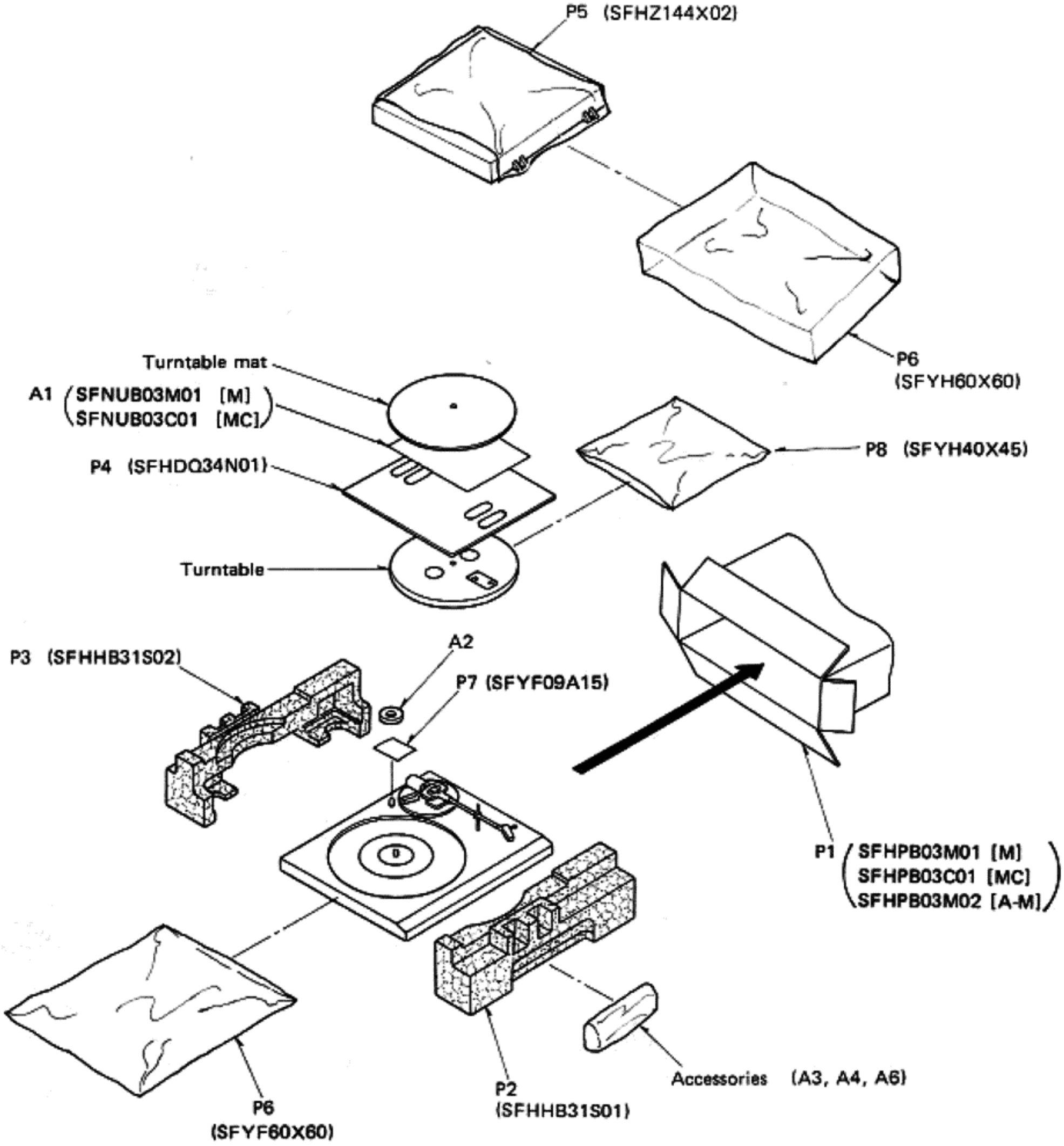
Ref. No.		Part No.	Description	
N4	S	XTS3+16BFZ	Tapping, ⊕3 x 16	(1)
N5		SFPEVOP301	Tapping, Cartridge	(1)
N6		SFPEW13005	Tone arem	(1)
N7		SFXWH31–01	Tonearm	(1)
N8		SFXW301–02	Tonearm	(1)
N9		XXES3D5FZ–1S	Tonearm	(1)
N10		XWE3	ϕ3	(1)
N11		XTW3+14QFYR	Tapping, ⊕3 x 14	(6)
N12		SFXGB33N01	Motor	(2)
N13		XYE3+EJ10	Motor	(2)
N15	S	XUC3FT	ϕ3	(6)
N16	S	XUC5FT	ϕ5	(2)
N17		SFXWQ30–11		(2)
N18	S	XUB4FT		(2)
N19		SFXWQ34N26		(1)
N20	S	XWE4		(1)
N21		SFXWQ34N21		(1)
N22	S	XUC2FT	ϕ2	(1)
N23	S	XUC25FT	ϕ2.5	(1)
ACCESSORIES				
A1 [M]		SFNUB03M01	Instructions Book, Printed Matter	(1)
A1 [MC]		SFNUB03C01	Instructions Book, Printed Matter	(1)
A2		SFWE212–01	45 Adaptor	(1)
A3		SFDLC05N01	Ground Wire	(1)
A4		SFDHC05N01	Phono Cord	(1)
A5 [A–[M] only]		SFNUB03M05	Cartridge Instruction	(1)
A6	△	RJA22Y	AC Cord	(1)

■ PACKINGS

Ref. No.	Part No.	Description	
PACKING PARTS			
P1 [M]	SFHPB03M01	Carton, Box	(1)
P1 [MC]	SFHPB03C01	Carton Box	(1)
P1 [A–[M] only]	SFHPB03M02	Carton Box	(1)
P2	SFHHB31S01	Pad, Front	(1)

Ref No.	Part No.	Description	
P3	SFHHB31S02	Pad, Rear	(1)
P4	SFHDQ34N01	Pad, Turntable	(1)
P5	SFHZ144X02	Sheet	
P6	SFYH60X60	Polyethylene Bag, Unit, Dust Cover	(2)
P7	SFYF09A15	Polyethylene Bag, 45 Adaptor	(1)

P8	SFYH40X45	Polyethylene Bag, Turntable	(1)
P9	SFYH15X20	Polyethylene Bag, Cord	(1)



Printed in Japan
8203 4200 (N) AM/YW