ORDER NO. SD82052185C1

Service Manual

Turntable System

SL-Q30

[M], [MC]

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:	7 W
Dimensions: (W×H×D)	43×10.6×37.5 cm (16-15/16"×4-7/32"×14-3/4") Maximum height when top (dust cover) is open. 43×37×42 cm (16-15/16"×14-9/16"×16-17/32")
Weight:	6.2 kg (13.7 lb.)

■ Turntable section

Type:	Quartz Direct drive Fully automatic turntable Auto start Auto return Auto stop Repeat play Manual play
Drive method:	Direct drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase-locked control
Turntable platter:	Aluminum die-cast Diameter 31.2 cm
Turntable speeds:	33-1/3 rpm and 45 rpm
Wow and flutter:	0.012% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)

*This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter.
Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble:	−56 dB (IEC 98A Unweighted) −78 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
Friction:	Less than 7 mg (lateral vertical)
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:	135 pF

Technics

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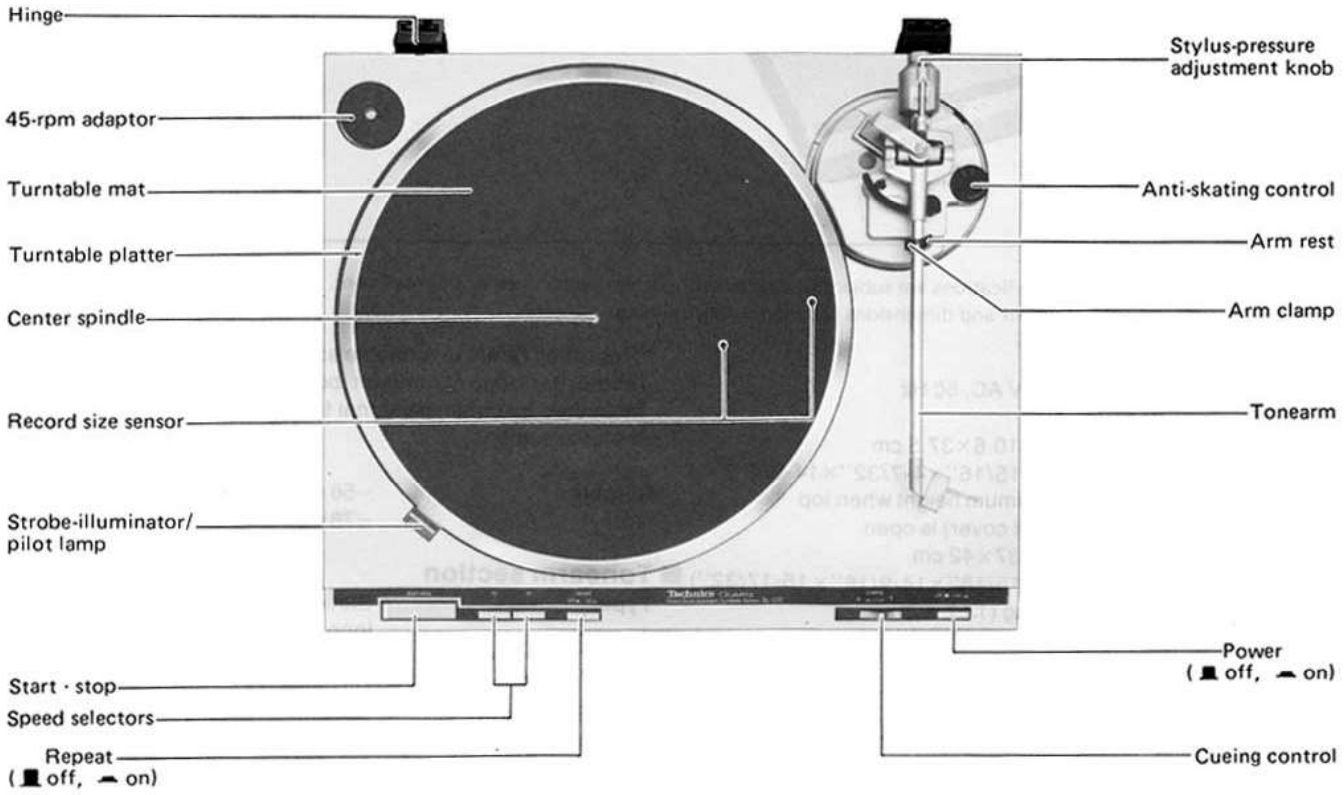
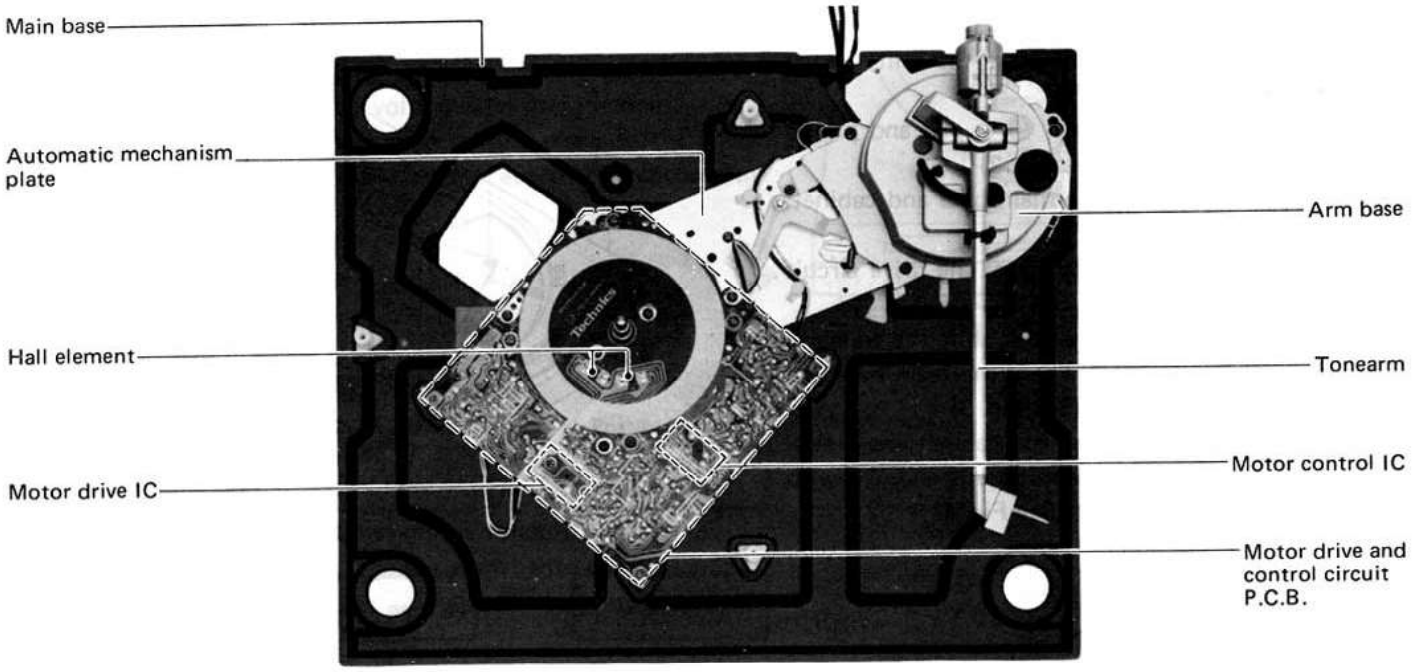
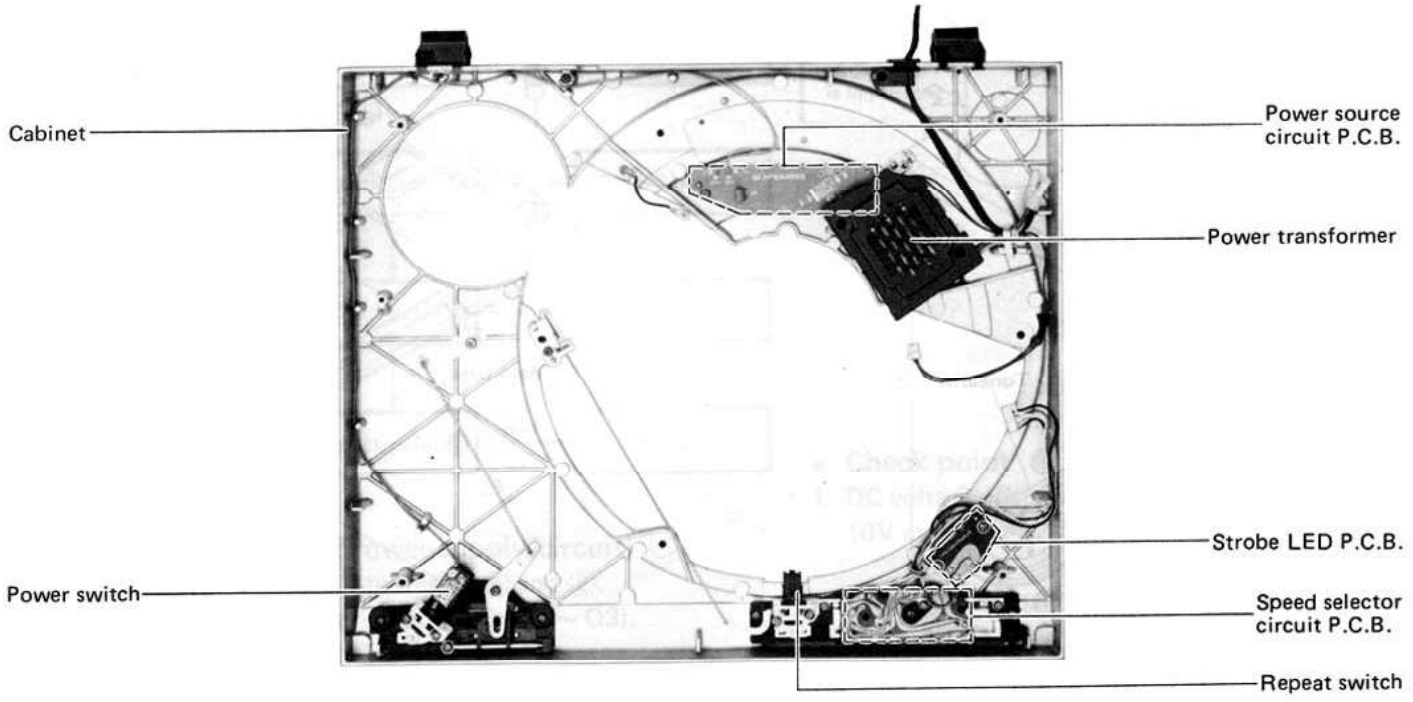
■ LOCATION OF CONTROLS




Main base
Automatic mechanism plate
Hall element
Motor drive IC
Arm base
Tonearm
Motor control IC
Motor drive and control circuit P.C.B.


Cabinet
Power switch
Power source circuit P.C.B.
Power transformer
Strobe LED P.C.B.
Speed selector circuit P.C.B.
Repeat switch

■ DISASSEMBLY INSTRUCTIONS

- **How to remove the main base and cabinet (Separation of cabinet)**

1. Fix the tonearm on the rest.
2. Remove the turntable and cartridge.
3. Remove the panel cover setscrews ❶ ~ ❸ and earth lead setscrew ❹. **(See Fig. 1)**
4. Close the dust cover, and turn over the unit, taking care not to scratch it.
5. Remove the insulator setscrews ❺ ~ ❽ and phono cord clamper setscrew ❾. **(See Fig. 2)**
6. Turn the unit up, holding the main base and cabinet.
7. Remove the dust cover.
8. Remove the connectors ❿ and ⓫ of the drive circuit P.C.B. **(See Fig. 1)**
9. Remove the tonearm from the rest, shift the tonearm inward, and lift the cabinet. Then, the main base and cabinet can be disassembled. **(See Fig. 3)**
10. When assembling the main base and cabinet, make sure that the cueing lever of the arm base is engaged with the cueing ring of the cabinet. **(See Fig. 4)**

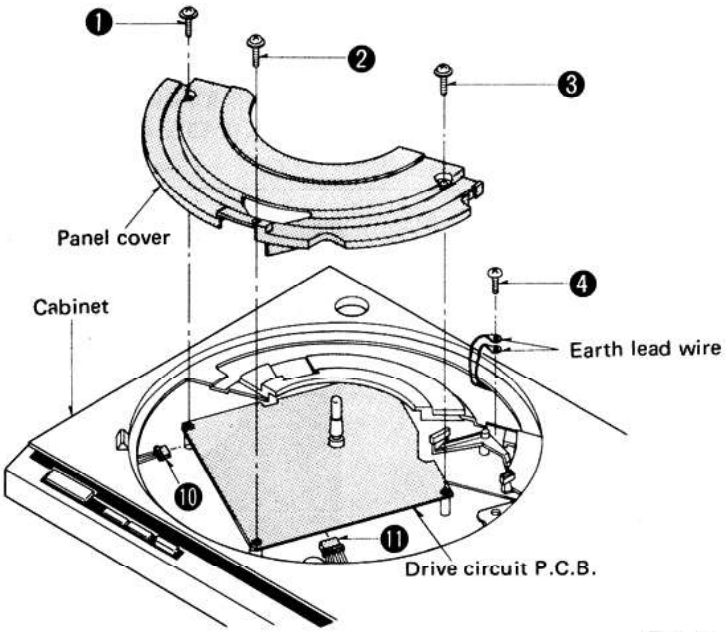


Fig. 1

※ The insulator spring (white) at this position is different from other three springs.

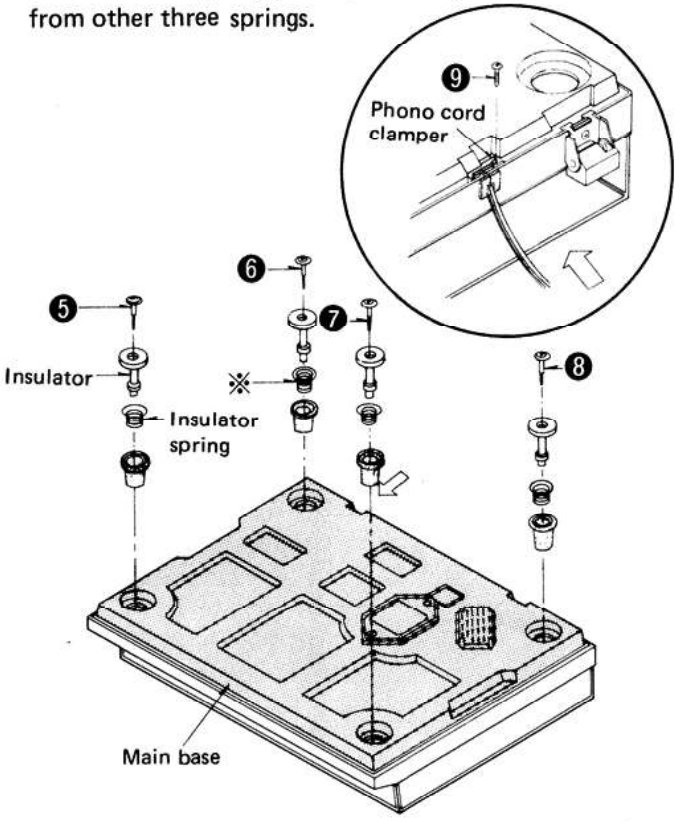
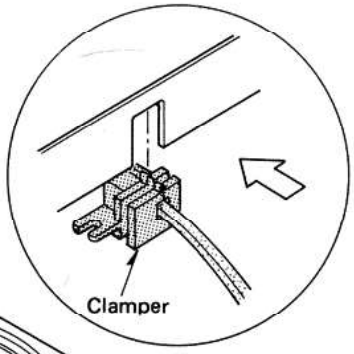


Fig. 2



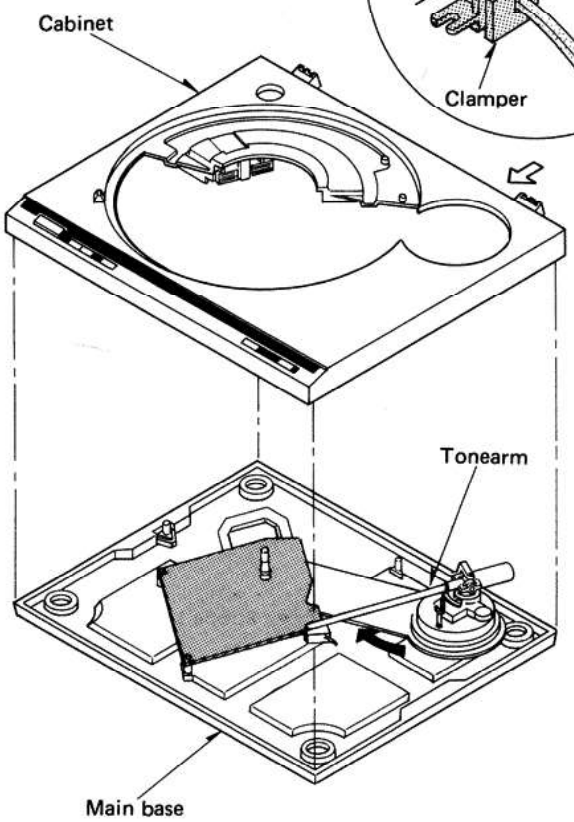


Fig. 3

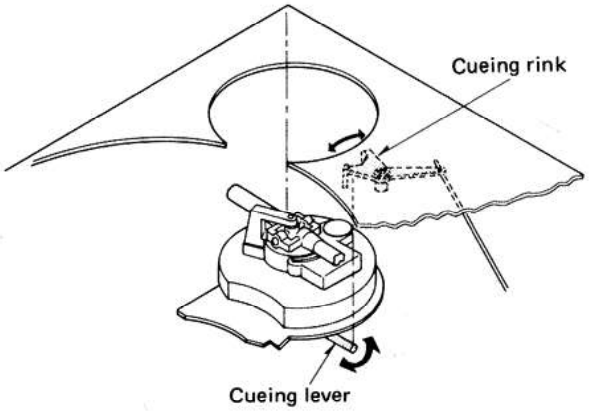


Fig. 4

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

1. Perform the procedure 1 ~ 7 of **"How to remove the main base and cabinet". (See page 4)**
2. Remove the 5 setscrews **(Fig. 5 : ⑫ ~ ⑯)** of stator frame.
   Note: Screws ⑫ ~ ⑯ are red.
3. Pull out the 3 connectors **(Fig. 5 : ⑰ ~ ⑲)** of drive circuit P.C.B.
4. Raise the left-hand side of cabinet (in the direction of the arrow of **Fig. 5**).
5. Raise the drive circuit P.C.B. and pull it toward you to remove it along with the stator frame.

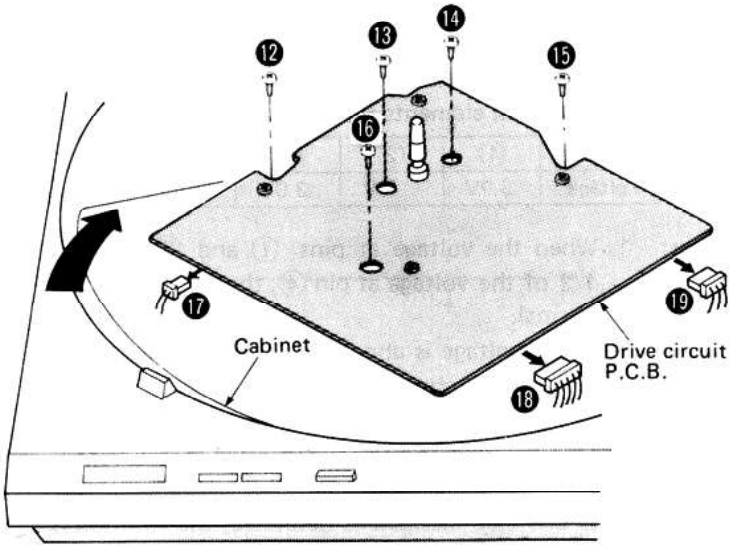


Fig. 5

★ To separate the drive circuit P.C.B. and stator frame. . . . . .

1. Remove the 4 setscrews **(Fig. 6 : ⑳ ~ ㉓)** of drive circuit P.C.B.

★ To remove the regulator transistor (Q3) . . . . . .

1. Remove the setscrew ㉔ in **Fig. 6.**

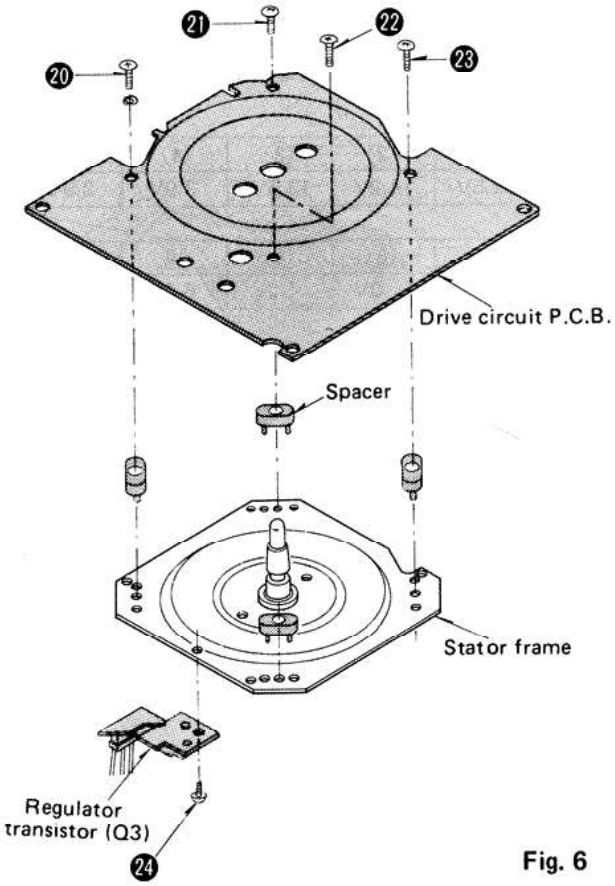


Fig. 6

• How to replace the electric parts (Drive circuit P.C.B.)

1. Remove the turntable and panel cover.
2. Remove the drive circuit P.C.B. setscrews ㉕ ~ ㉘ and connectors ㉙ ~ ㉛. Remove the drive circuit P.C.B. by lifting it as shown by the arrow. Then, the electric parts can be replaced. **(See Fig. 7)**
   To replace the regulator transistor (Q3), the stator frame must be removed beforehand.

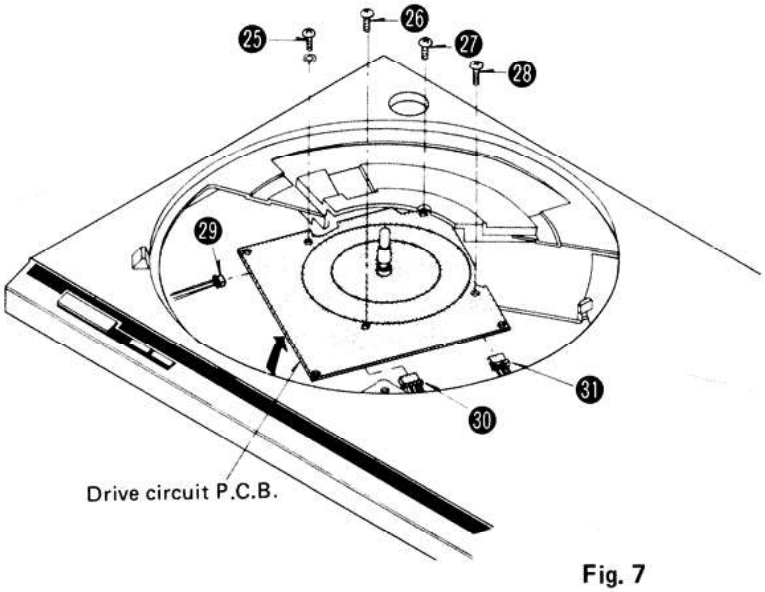


Fig. 7

• How to remove the Hall element

1. Remove the turntable.
2. Unsolder the Hall element.

Note: When replacing Hall element, note that the Hall element surface must be faced to the magnet of the turntable.
The legs are allowed to be reverse in position provided that the surface is up. **(See Fig. 8)**

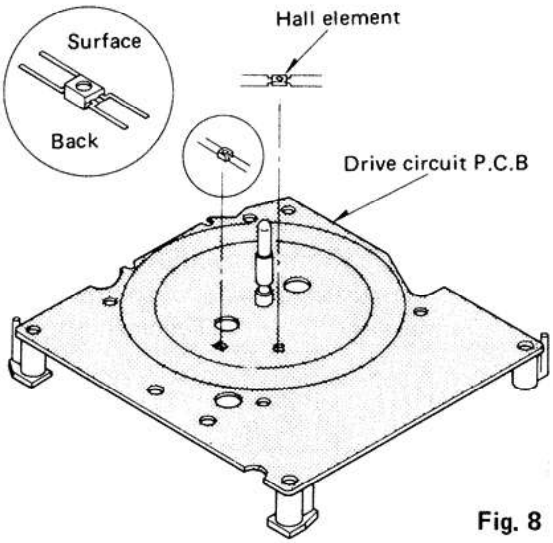


Fig. 8

• How to remove the arm base and tonearm

1. Separate the main base from the cabinet. **(Refer to "How to remove the main base and cabinet".)**
2. Remove the arm base setscrews ㉜ ~ ㉞ . Then, the arm base can be removed. **(See Fig. 9)**
3. When removing the tonearm, turn over the arm base and remove the PU fixing plate setscrew ㉟ and canceller spring. **(See Fig. 10)**
4. Remove the phono output P.C.B. setscrew ㊱ and unsolder the 5 lead wires from the tonearm. **(See Fig. 10)**
5. Remove the tonearm setscrews ㊲ and ㊳ . Then, the tonearm can be removed in the direction of the arrow. **(See Fig. 10)**
6. When removing this lift base plate, remove the arm lift setscrew ㊴ before tuning over the arm base, and then remove the arm lift. **(See Fig. 9)**
   Note: Remove the spring under the arm lift at the same time.
7. Remove the anti-skating control knob. **(See Fig. 9)**
8. Turn over the arm base and remove the PU fixing plate.
9. Remove the lift base plate setscrews ㊵ and ㊶ . Then, the lift base plate can be removed.
10. Before mounting the arm base, make sure that the automatic mechanism is in the initial stage, and then shift the cueing lever of the arm base down in the direction of the arrow in order to make cueing-up. **(See Fig. 10)**

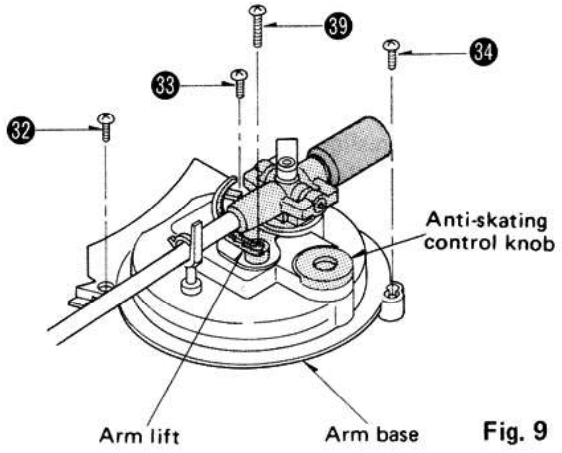


Fig. 9

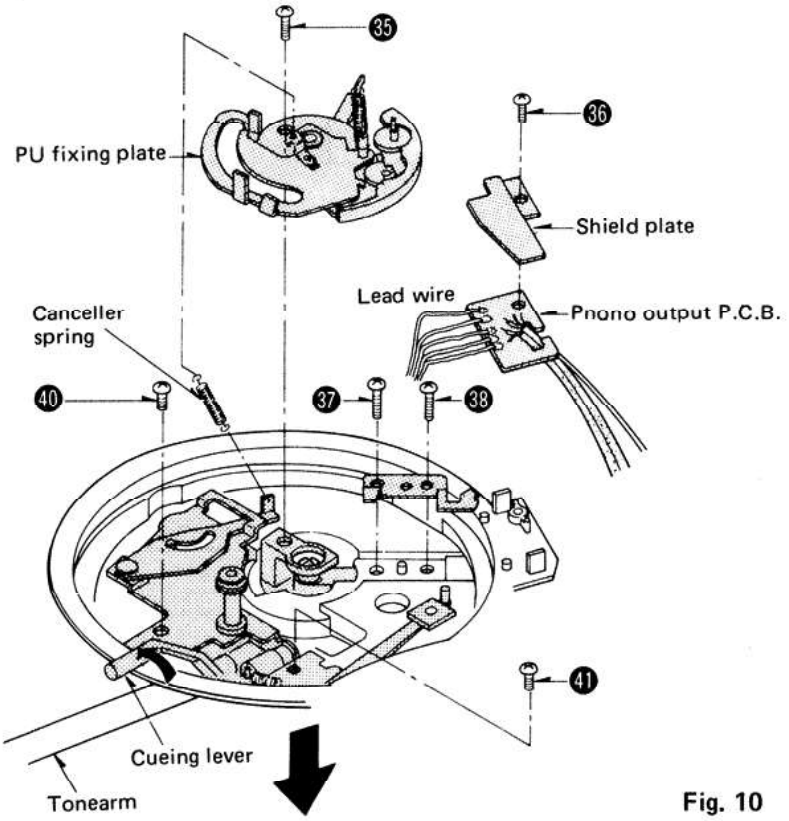


Fig. 10

• How to remove the automatic mechanism plate

1. Separate the main base from the cabinet. **(Refer to "How to remove the main base and cabinet".)**
2. Remove the drive circuit P.C.B. and the stator frame. **(Refer to "How to remove the drive circuit P.C.B. and stator frame".)**
3. Remove the arm base. **(Refer to "How to remove the arm base and tonearm".)**
4. Remove the mechanism plate setscrews ㊷ ~ ㊺ . Then, the mechanism plate can be removed. **(See Fig. 11)**

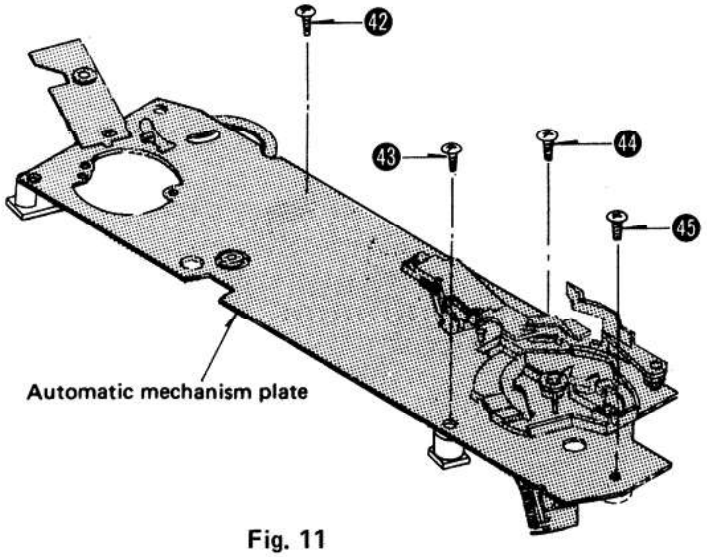


Fig. 11

■ HOW TO CHECK THE PRINTED CIRCUIT BOARD

• Removing the turntable (Fig. 12)

1. Remove the turntable and panel cover.
2. Set the power switch to "on".
3. Shift the tonearm slightly inside.
   Then the arm switch (S1) turns "on", and control IC (IC201) is set to "start" mode. When the tonearm is on the rest, arm switch is "off", and control IC is at stop.
4. Check at each point by voltmeter or oscilloscope.
   (Connect the minus terminal of the tester to the GND terminal of phono cable or the automatic mechanism plate.)

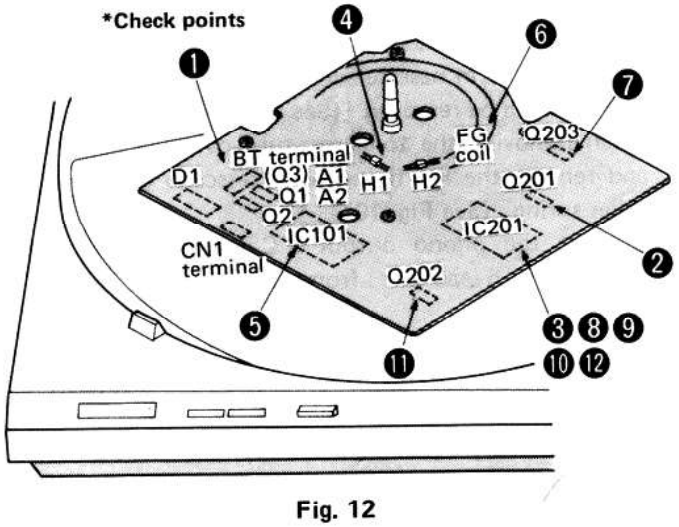
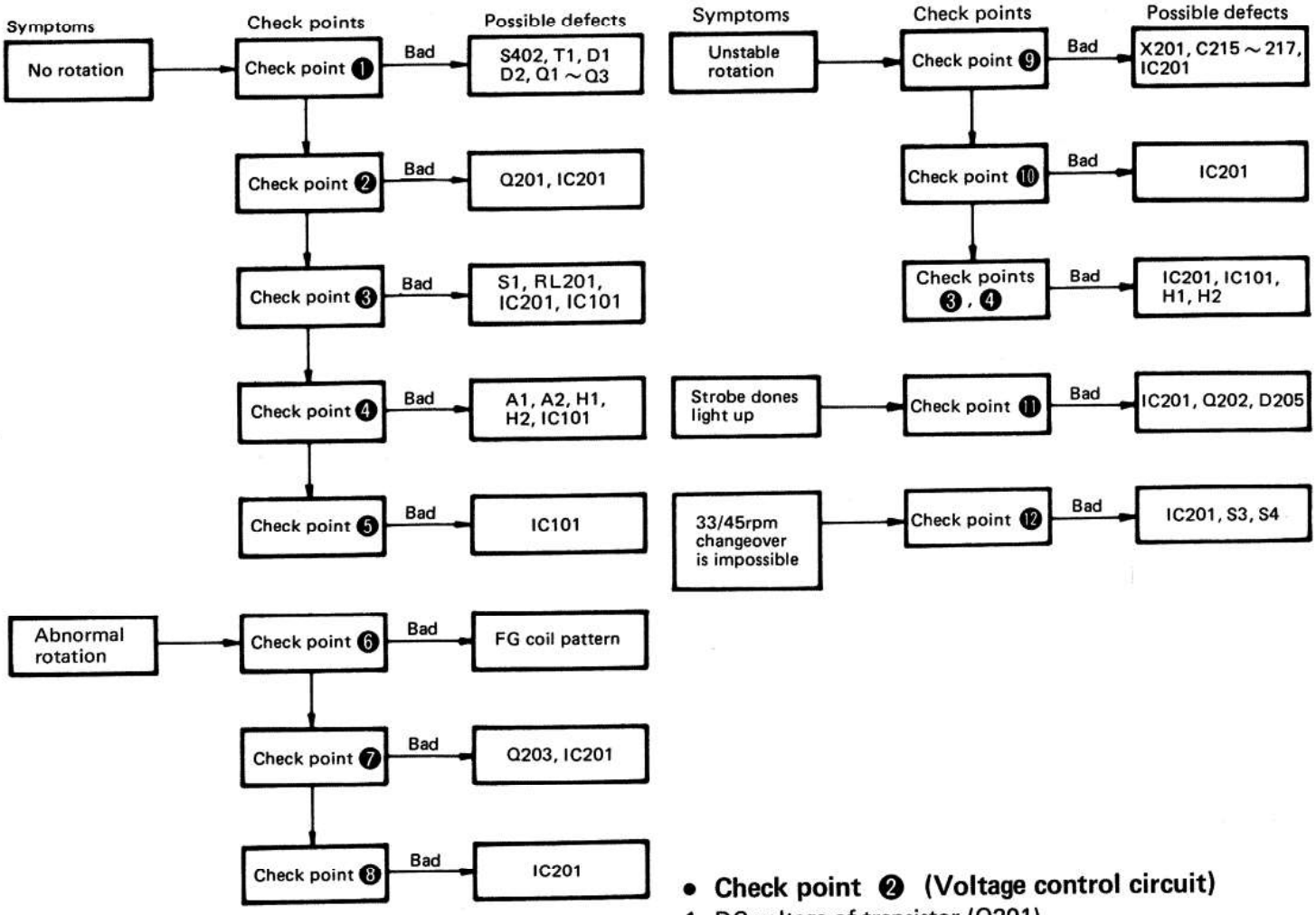


Fig. 12

★ Trouble shooting guide



• Check point ❶ (Power supply circuit)

1. AC 23V between CN1 terminals ① and ②.
2. DC voltage of regulator transistors (Q1 ~ Q3).

Note: Measure Q3 at BT terminal.
(BT1 — Emitter, BT2 — Base, BT3 — Collector)
(BRN) (WHT) (WHT)

	Q1	Q2	Q3
Base	5.7V	15.4V	14.8V
Emitter	5.1V	14.8V	14.2V
Collector	15.4V	26V	26V

• Check point ❷ (Voltage control circuit)

1. DC voltage of transistor (Q201).
   10V at base, 14.2V at collector, 9.4V at emitter.

• Check point ❸ (Start/Stop, brake circuit)

1. Move the tonearm and turn the arm switch (S1) to on/off.
2. DC voltage at pins ⑲ ~ ㉑ of control IC (IC201).

	ON	OFF
⑲	7.0V	0V
⑳	0.2V	5.9V
㉑	4.2V	0.1V

Notes:
1. S1 is "off" when tonearm is on the rest.
2. S1 is "on" when tonearm is inside the rest position.

• Check point ❹ (Drive coil, Hall element)

1. Conduction check of drive coils (A1, A2).

Note: In case of conduction failure on one phase, turntable rotates but drive torque is halved.

2. DC voltage of Hall elements (H1, H2).

Pin	①	②	③	④
Voltage	3.9V	0V	3.9V	7.8V

Notes:
1. When the voltage at pins ① and ③ is about 1/2 of the voltage at pin ④, the Hall element is normal.
2. If the voltage is abnormal, unsolder the pins ① and ③, and check the voltage again. (When it is 1/2 of the voltage at pin ④, the Hall element is normal but drive IC (IC101) is defective.)
3. If one Hall element is defective, the rotation is unstable because the turntable position cannot be detected.

• Check point ❺ (Drive circuit)

1. DC voltage at each terminal of turntable drive IC (IC101). (Arm switch S1 is "on".)

Terminal	①	②	③	④	⑤	⑥
Voltage	13.5V	14.2V	13.5V	3.9V	3.9V	3.9V

Terminal	⑦	⑧	⑨	⑩	⑪	⑫
Voltage	3.9V	0V	4.2V	6.4V	5.0V	0V

Terminal	⑬	⑭	⑮	⑯	⑰	⑱
Voltage	14.2V	13.4V	14.1V	13.5V	0.7V	1.2V

Terminal	⑲	⑳	㉑	㉒	㉓	㉔
Voltage	0V	2.9V	0.7V	0V	8.7V	7.8V

* If arm switch (S1) is "off", terminals ⑨, ⑰, ⑱, ⑳ and ㉑ are as follows:

Terminal	⑨	⑰	⑱	⑳	㉑
Voltage	0.1V	0.6V	0.6V	0.6V	0.6V

• Check point ❻ (FG coil)

1. Conduction check of FG coil.

• Check point ❼ (FG amplifier circuit)

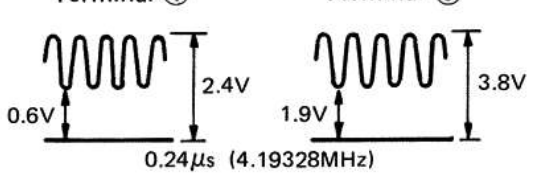
1. DC voltage at transistor (Q203). 1V at base, 2.8V at collector, 0.4V at emitter.
2. DC voltage at terminals ㉒ ~ ㉔ of control IC (IC201). 3.1V at terminals ㉒ and ㉓, 2.8V at terminal ㉔.

• Check point ❽ (Control circuit)

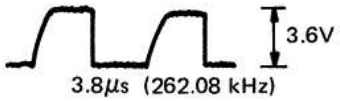
1. DC voltage at terminal ⑰ of control IC (IC201) → 5.0V (Reference voltage).

• Check point ❾ (Crystal oscillator circuit)

1. Waveforms of terminals ④ and ⑤ of control IC (IC201).



2. Waveform of terminal ② of control IC (IC201).



• Check point ❿ (Control circuit)

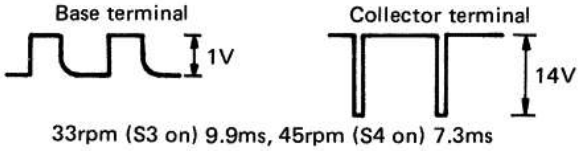
1. DC voltage and waveform of terminals ⑬ ~ ⑯ of control IC (IC201).

Terminal	⑬	⑮	⑯
Voltage	0.2V	8.0V	1.4V

2. Waveforms of terminals ⑬ ~ ⑮ with the use of CR oscillator. **(Refer to "How to check control circuit".)**

• Check ⓫ (Strobe drive control)

1. Waveform of strobe drive transistor (Q202).



• Check point ⓬ (Speed selector circuit)

1. DC voltage at terminals ⑥ and ⑦ of control IC (IC201).
   Terminal ⑥ → S3 on 3.4V, S4 on 0V.
   Terminal ⑥ → S3 on 0V, S4 on 3.9V.

★ How to check the control circuit

Instruments used

1. CR oscillator
2. Oscilloscope (Two channel type)
3. 50V, 1μF electrolytic capacitor

Setting

1. Remove the turntable and panel cover.
2. Remove the connector (CN2) from the arm switch.
3. Unsolder the positive ⊕ side of C203.

Checking procedure

1. Solder the capacitor to the negative ⊖ side of C203, and connect the CR oscillator to it.
   Or, connect the oscillator to the positive ⊕ side of C203. **(See Fig. 13)**
2. Checking the output of the oscillator on the oscilloscope, adjust so that the waveform becomes as shown in **Fig. 13**
3. Measure the waves at terminal ⑬, ⑭, ⑮ of IC201. When the output waveforms are as shown **Fig. 14** the control circuit is normal.
   However, because of ther stability of the CR oscillator, the waveforms are not the same as those in normal rotation.

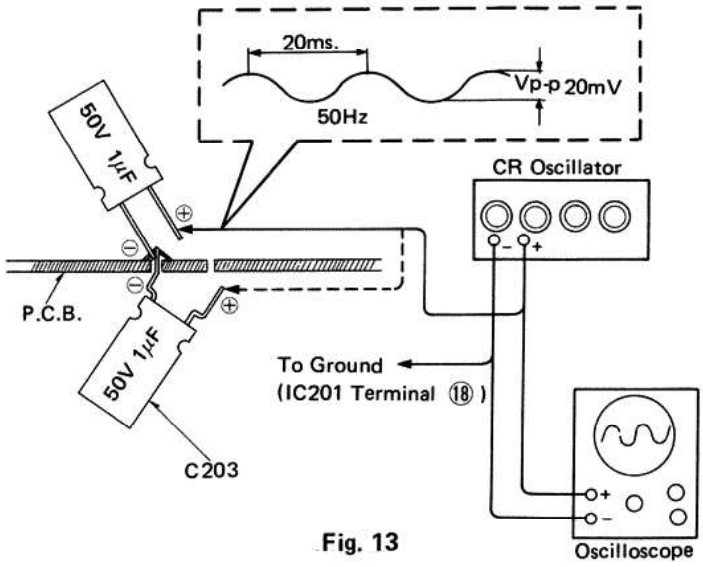


Fig. 13

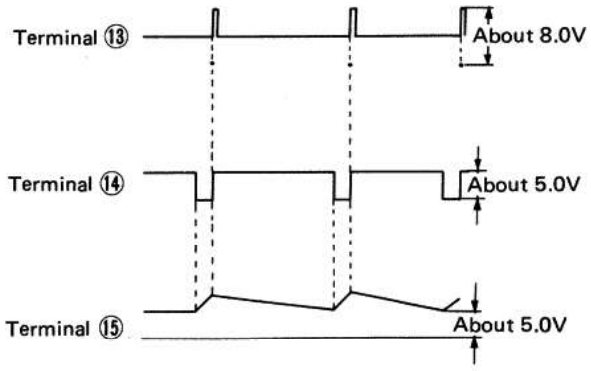


Fig. 14

• How to check the operation with the turntable

1. Remove the turntable and panel cover.
2. Connect the clip (or solder the lead) to the checking part and bring it out of the bottom board, then connect a voltmeter or oscilloscope. **(Fig. 15)**
3. Connect the ground terminal of the tester to the GND terminal of the phone cable.
4. Put on the turntable and the mat.
5. Put on a record and set the power switch to "**on**" to check the voltage and waveform.

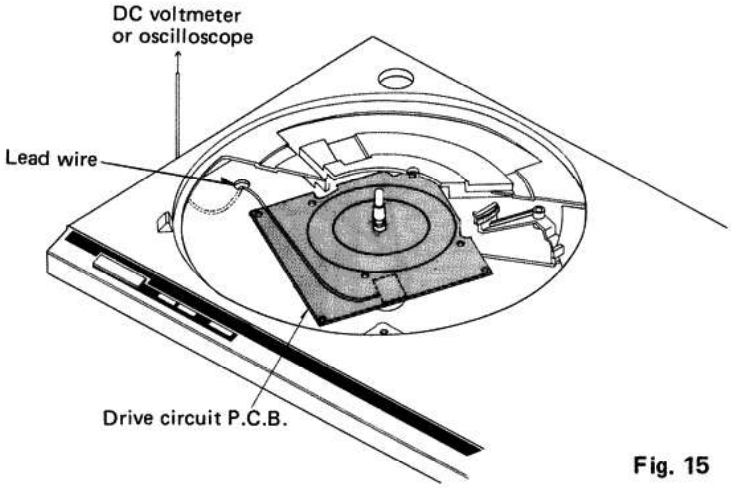


Fig. 15

★ Trouble shooting guide

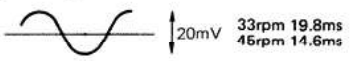
Symptoms → **Check points**

No rotation

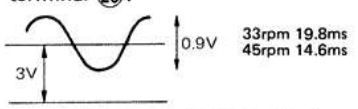
1. Voltage at terminal ⑩ of drive IC (IC101) stop. 6.4V → Rotation: 5.0V
2. Waveform between terminals ⑰ and ⑱ of drive IC (IC101).

Abnormal rotation

1. Collector waveform of FG amplifier (Q203).



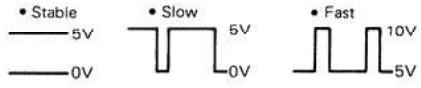
2. Waveform of control IC (IC201) terminal ㉓.



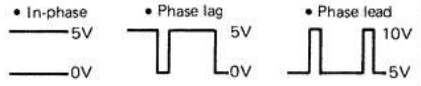
Symptoms → **Check points**

Unstable rotation

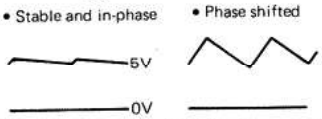
1. Waveform of control IC (IC201) terminal ⑬.



2. Waveforms of control IC (IC201) terminal ⑭.

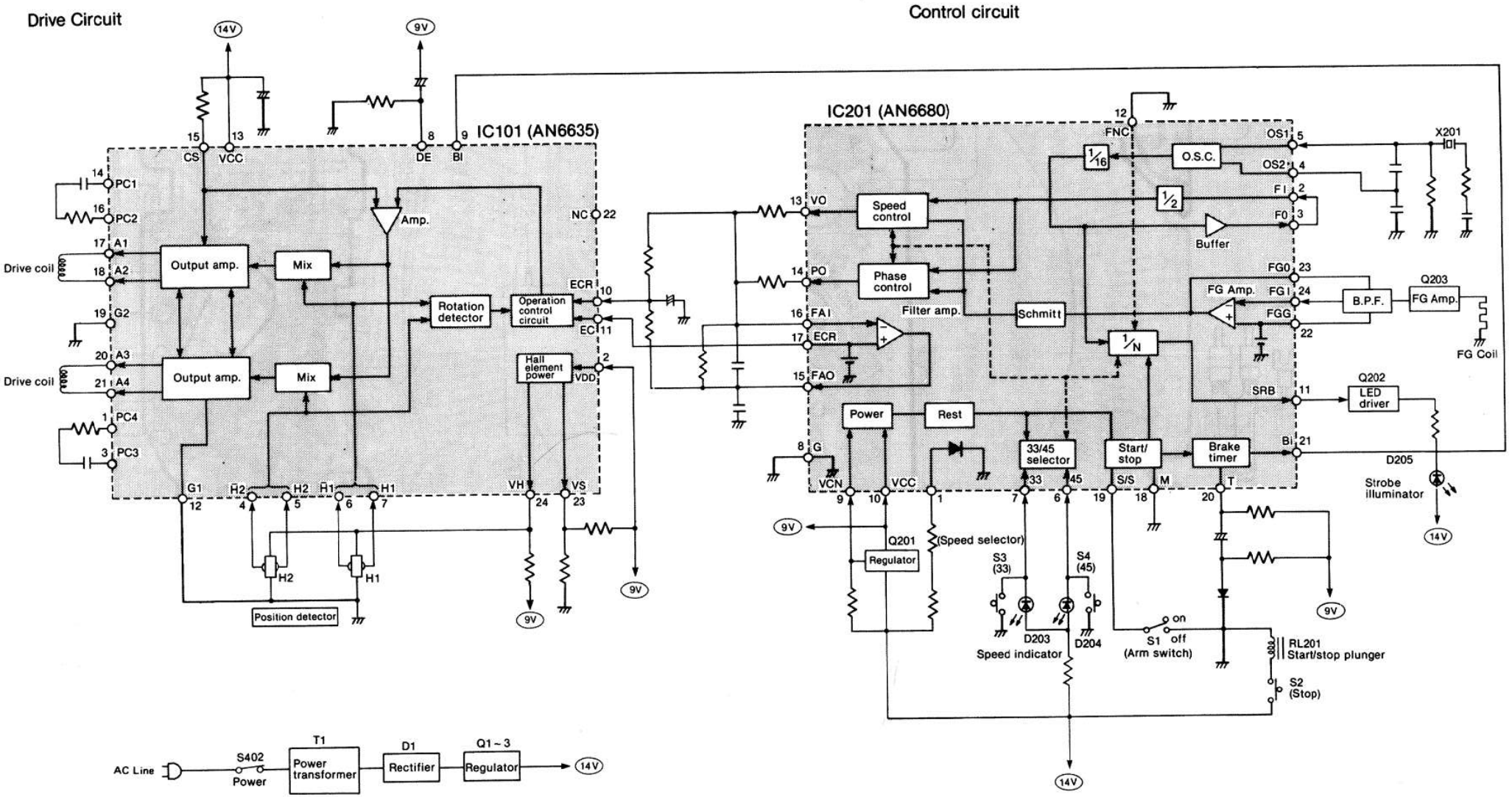


3. Waveforms of control IC (IC201) terminal ⑮.



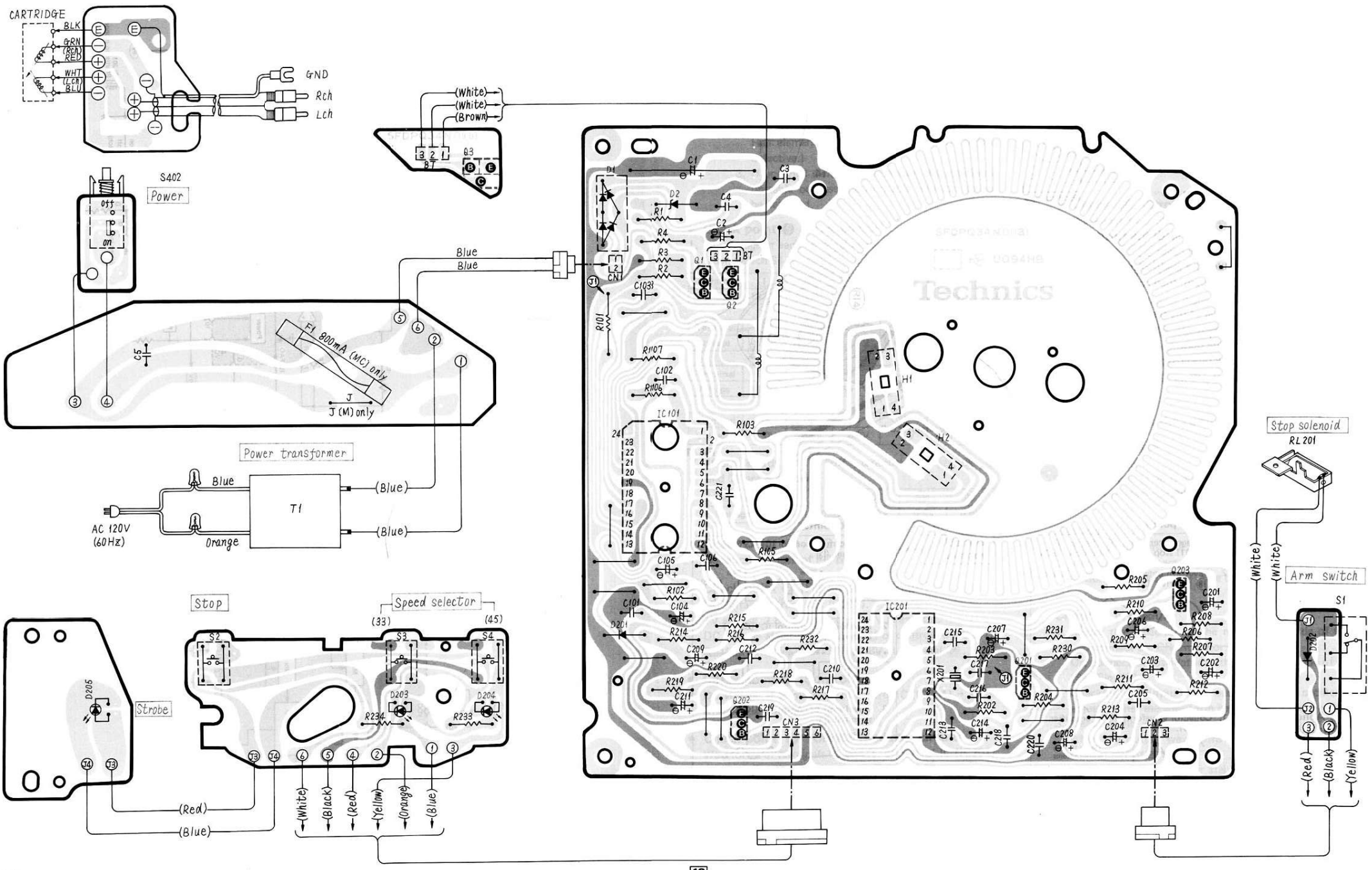
4. Voltage at terminal ⑯ of control IC (IC201).
   Stop: 1.4V → Rotation: 5.0V

■ BLOCK DIAGRAM



■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

Ground (Earth) Lines



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

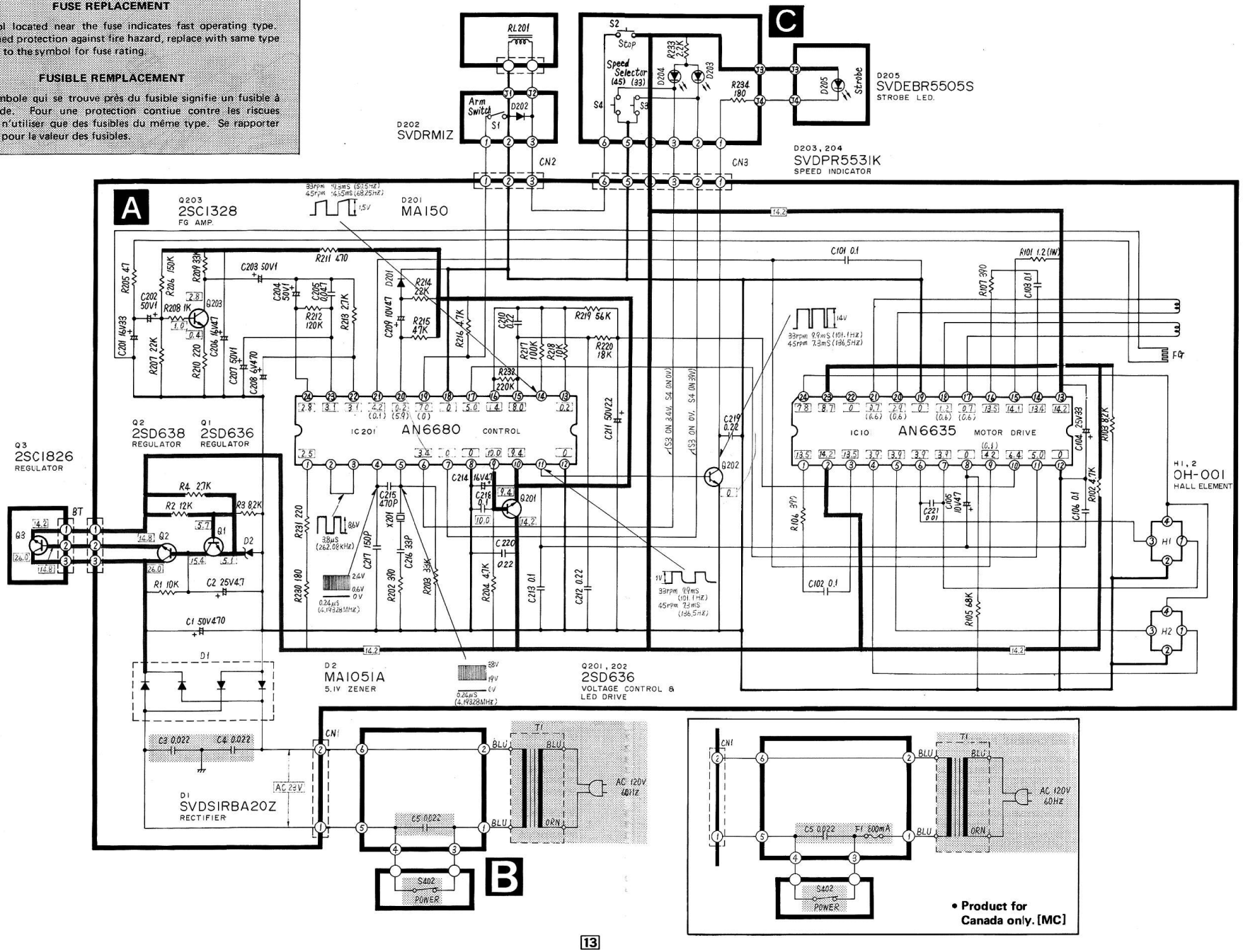
• Product for MC only

FUSE REPLACEMENT

Symbol located near the fuse indicates fast operating type. For continued protection against fire hazard, replace with same type fuse. Refer to the symbol for fuse rating.

FUSIBLE REMPLACEMENT

Le symbole qui se trouve près du fusible signifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.



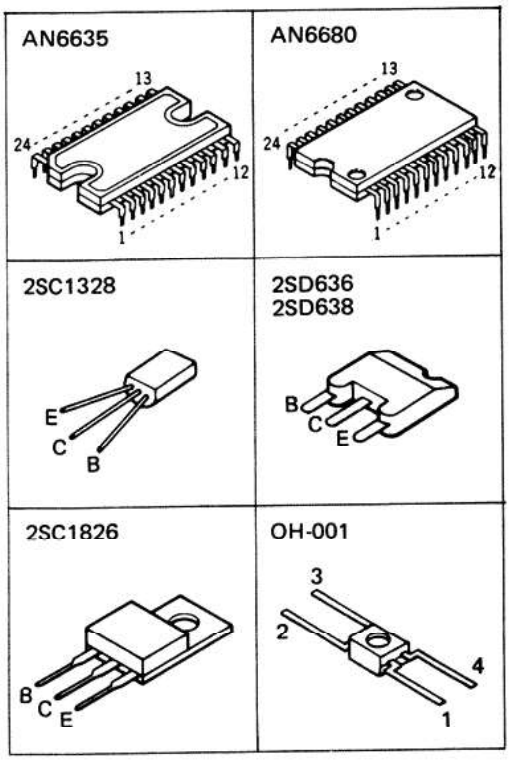
Notes:

1. **S1** : Arm switch in "**on**" position.
2. **S2** : Start/stop switch in "**off**" position. (not push condition)
3. **S3, 4** : Speed selector switch in "**off**" position. (not push condition)
   S3 . . . . .33-1/3 r.p.m. S4 . . . . 45 r.p.m.
4. **S402** : Power switch in "**on**" position.
5. The value in ☐ is the reference voltage at stop of turntable, measured by DC electronic circuit tester (high-impedance) on the basis of chassis. (S1 . . . . "on")
   Therefore, the measured value may include some error depending on the internal impedance of DC circuit tester and other conditions.
6. ═══ Positive voltage lines.
   ( ) is the voltage when tonearm is on the rest. (S1 ... "off)

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.

• Terminal guide of transistors and IC's



• Terminals of IC101 (AN6635)

No.	Description
1	Output circuit phase correction terminal
2	Hall element power supply input terminal
3	Output circuit phase correction terminal
4, 5, 6, 7	Hall element input terminals
8	Start timer setting terminal
9	Brake timer command input terminal
10	Torque command input terminal
11	Torque command standard input terminal
12	Ground terminal
13	Power supply input terminal
14	Output circuit phase correction terminal
15	Current detection terminal
16	Output circuit phase correction terminal
17, 18	Single-phase drive output terminal
19	Ground terminal
20, 21	Two-phase drive output terminal
22	Blank terminal (not used)
23	Hall element power supply setting terminal
24	Hall element power output terminal

• Terminals of IC201 (AN6680)

No.	Description
1	Injection current supply terminal
2, 3	Rotational speed adjusting terminal (Connect terminals ② and ③ in case of no speed adjustment.)
4, 5	Crystal oscillation terminal (f = 4.19328MHz)
6	45r.p.m setting terminal (at Ⓛ level)
7	33r.p.m setting terminal (at Ⓛ level)
8	Ground terminal
9, 10	Supply voltage control terminal
11	Strobe terminal (33r.p.m 101.1Hz, 45r.p.m 136.5Hz)
12	FG teeth selection terminal
13	Speed error output terminal
14	Phase error output terminal
15	Filter amp. output terminal
16	Filter amp. minus input terminal
17	Standard voltage terminal (Filter amp. plus input terminal)
18	Mode setting terminal
19	Start/Stop setting terminal (Start at Ⓗ level, stop at Ⓛ level)
20	Timer terminal [Timer starts operating when the voltage is 0V in start mode and the motor speed is less than 14.2r.p.m (21.5Hz) in stop mode.]
21	Brake terminal (start at Ⓗ level; stop at Ⓛ level)
22	FG amp. plus input terminal (bias voltage)
23	FG amp. output terminal
24.	FG amp. minus input terminal

■ MEASUREMENTS AND ADJUSTMENT

• 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 aproximately 5 to 8 mm (3/16" ~ 5/16"). **(Fig. 16)**

If the clearance is too narrow or too wide, turn the adjustment screw clockwise or counterclockwise. **(Fig. 17)**

Clockwise rotation

–distance between the record and stylus tip is decreased.

Counterclockwise rotation

–distance between the record and stylus tip is increased.

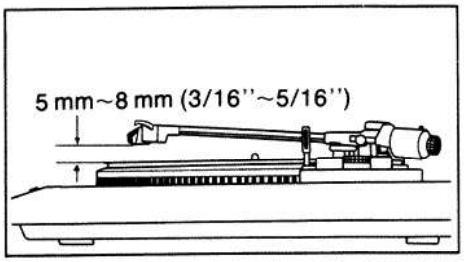


Fig. 16

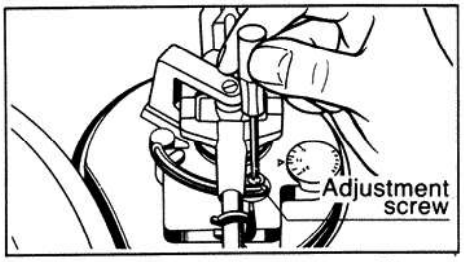


Fig. 17

• Adjustment of automatic start position

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. 18)**
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.

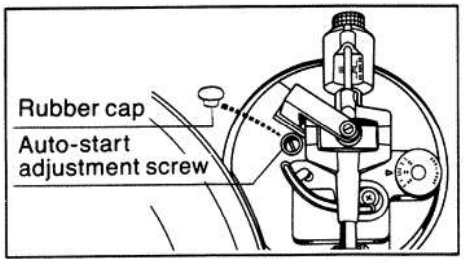


Fig. 18

• Adjustment of automatic return position

(Fig. 19)

(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 toenarm fails to return after the final groove.

–turn clockwise.

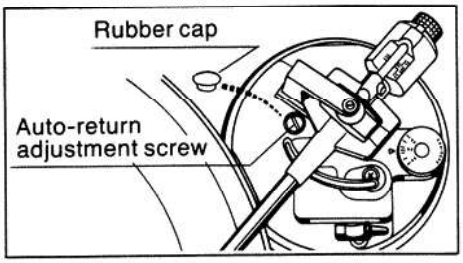


Fig. 19

■ 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 specify 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.

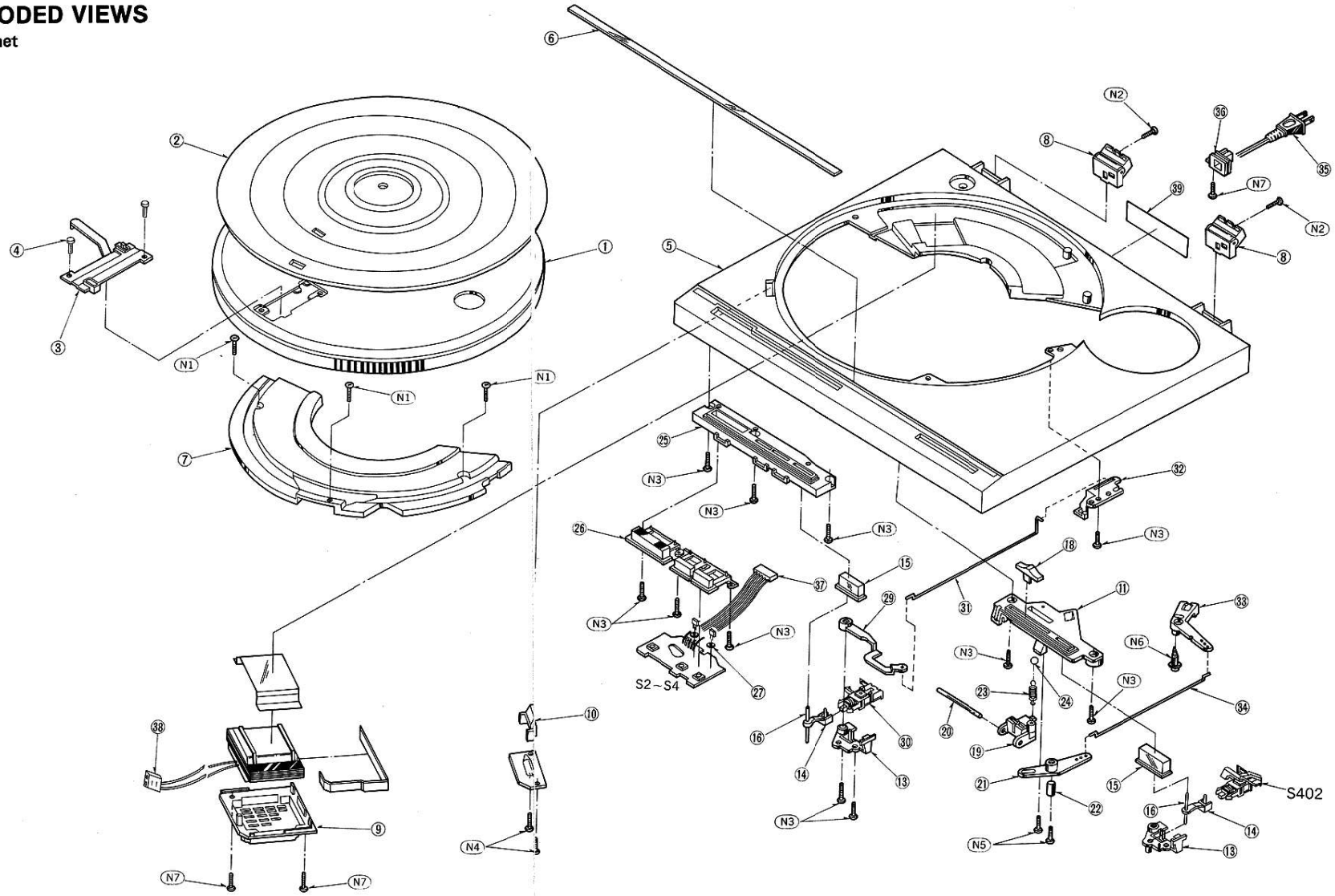
Ref. No.		Part No.	Description
INTEGRATED CIRCUITS			
IC101		AN6635	Drive
IC201		AN6680	Control
TRANSISTORS			
Q1, 201, 202		2SD636	Regulator & Switching
Q2		2SD638	Regulator
Q3		2SC1826	Regulator
Q203	S	2SC1328–T	FG Amplifier
DIODES			
D1	⚠	SVDS1RBA20Z	Rectifier
D2		MA1051A	5.1V, Zener
D201	S	MA162A	Diode
D202		SVDRM1Z	Diode

Ref. No.	Part No.	Description
D203, 204	SVDPR5531K	Light Emitting Diode, Speed Indicator (Red)
D205	SVDEBR5505S	Light Emitting Diode, Strobe
HALL ELEMENT		
H1, 2	OH–001	Turntable Position Detector
CRYSTAL		
X201	SVQU306115	4.19328 MHz Counter Oscillator
SOLENOID		
RL201	SFDZQ34N01Z	Start/Stop

Ref. No.		Part No.	Description
SWITCHES			
S1		SFDPQ34N22R	Arm (Rest) Switch
S2 ~ 4		EVQQJR02K	Start/Stop & Speed Selector
S402	⚠	SFDSQ34N04	Power Source
FUSE			
F1 [MC] only	⚠	XBA2F08NU100	800mA, 250V
POWER TRANSFORMER			
T1 [M]	⚠	SLT57PL1A	Power Source
T1 [MC]	⚠	SLT57P23C	Power Source

■ EXPLODED VIEWS

• Cabinet



Ref. No.		Part No.	Value
RESISTORS			
R1	S	ERD25FJ103	10K
R2	S	ERD25TJ123	12K
R3	S	ERD25FJ822	8.2K
R4	S	ERD25FJ272	2.7K
R101	S	ERX1ANJ1R2	1.2
R102	S	ERD25FJ472	4.7K
R103	S	ERD25FJ822	8.2K
R105	S	ERD25TJ683	68K
R106, 107	S	ERD25FJ391	390
R202	S	ERD25FJ391	390
R203	S	ERD25TJ333	33K
R204	S	ERD25FJ472	4.7K
R205	S	ERD25FJ470	47
R206	S	ERD25TJ154	150K
R207	S	ERD25TJ223	22K
R208	S	ERD25FJ102	1K
R209	S	ERD25FJ332	3.3K
R210	S	ERD25FJ221	220
R211	S	ERD25FJ471	470
R212	S	ERD25TJ124	120K
R213	S	ERD25FJ272	2.7K
R214	S	ERD25TJ223	22K
R215	S	ERD25TJ473	47K
R216	S	ERD25FJ472	4.7K
R217	S	ERD25TJ104	100K
R218	S	ERD25FJ103	10K
R219	S	ERD25TJ563	56K
R220	S	ERD25TJ183	18K
R230	S	ERD25FJ181	180
R231	S	ERD25FJ221	220
R232	S	ERD25TJ224	220K
R233	S	ERD25FJ222	2.2K
R234	S	ERD25FJ181	180
CAPACITORS			
C1	S	ECEB1HS471	470
C2	S	ECEA25Z4R7	4.7
C3, 4	⚠ S	ECKD1H223PF	0.022
C5	⚠ S	ECQM1223KZ	0.022
C101, 102	S	ECQM1H104KZ	0.1
C103	S	ECQM1H104KZ	0.1
C104	S	ECEA1ES330	33
C105	S	ECEA1AS470	47
C106	S	ECKF1E104ZV	0.1
C201	S	ECEA1CS330	33
C202, 203	S	ECEA50Z1	1
C204	S	ECEA50Z1	1
C205	S	ECQM1H473KZ	0.047
C206	S	ECEA1ES470	47
C207	S	ECEA50Z1	1
C208	S	ECEA0JS471	470
C209	S	ECEA1AS470	47
C210	S	ECQV05224JZ	0.22
C211	S	ECEA50Z2R2	2.2
C212	S	ECQV05224JZ	0.22
C213	S	ECKF1E104ZV	0.1
C214	S	ECEA1ES470	47
C215	S	ECCD1H471K	470P
C216	S	ECCD1H330K	33P
C217	S	ECCD1H151K	150P
C218	S	ECKF1E104ZV	0.1
C219, 220	S	ECQV05224JZ	0.22
C221	S	ECQM1H103KZ	0.01

* All resistors are in OHMS (Ω), K = 1000Ω

* All capacitors are in MICROFARADS (μF), P = μμF

Ref. No.	Part No.	Description	
CABINET and CHASSIS PARTS			
1	SFTEQ03M51E	Turntable	(1)
2	SFTGQ34N01	Turntable Mat	(1)
3	SFUMQ34N01E	Base, Disc Size Sensor	(1)
4	SFUZD33–01E	Latch, Disc Size Sensor Base	(2)
5	SFACQ03M51	Cabinet	(1)
6	SFKKQ03M51	Surface Plate	(1)
7	SFUMQ34N22	Cover, Panel	(1)
8	SFATQ34N01A	Hinge	(2)
9	SFUMQ34N06	Cover, Transformer	(1)
10	SFUMQ11N09	Cover, Neon Lamp Strobe	(1)
11	SFUMQ34N02	Guide, Power Switch	(1)

Ref. No.	Part No.	Description	
13	SFUMQ34N12	Plate, Power/Repeat Switch	(1)
14	SFUMQ34N13	Plate, Power/Repeat Knob	(1)
15	SFKTQ34N02	Knob, Power/Repeat	(1)
16	SFXJQ34N02	Shaft, Power/Repeat	(1)
18	SFKTQ34N01	Knob, Cueing	(1)
19	SFUMQ34N23	Silder, Cueing	(1)
20	SFXJQ34N01	Shaft Guide	(1)
21	SFUMQ34N04	Rink, Cueing (A)	(1)
22	SFXOQ34N01	Pipe, Cueing	(1)
23	SFQA130–11	Spring, Cueing	(1)
24	SFYB–5–32	Ball, Cueing	(1)
25	SFUMQ34N03	Guide, Start/Stop Switch	(1)
26	SFKTQ34N03	Knob, Start/Stop Switch	(1)

Ref. No.	Part No.	Description	
27	SFGZD11N01	Spacer, LED Speed	(2)
29	SFUMQ34N05	Rink, Repeat	(1)
30	SFDSQ34N03	Switch, Repeat	(1)
31	SFUZQ34N01	Rod, Repeat	(1)
32	SFUMQ34N21	Guide, Repeat	(1)
33	SFUMQ34N11	Rink, Cueing (B)	(1)
34	SFUZQ34N02	Rod, Cueing	(1)
35 ⚠	RJA9Y	AC Cord	(1)
36	SFUMQ34N09	Bushing, AC Cord	(1)
37	SFDJQ34N03E	Connector Ass'y 6P	(1)
38	SFDJQ34N04E	Connector Ass'y 2P	(1)
39 [M]	SFNNQ03M51	Name Plate	(1)
39 [MC]	SFNNQ03C51	Name Plate	(1)
40	SFADQ03M51E	Dust Cover	(1)

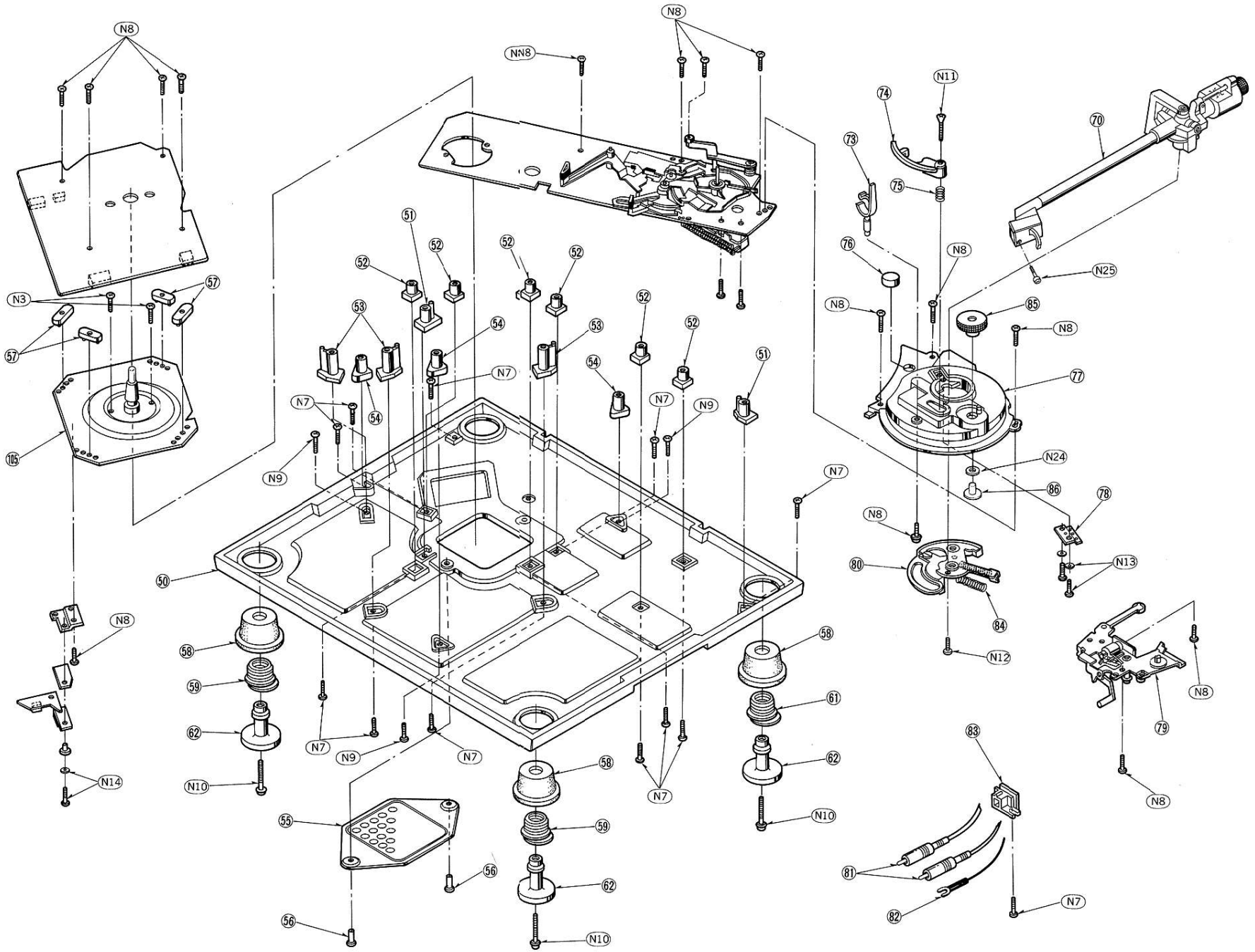
Ref. No.		Part No.	Description	
SCREWS, WASHERS and CIRCLIPS				
N1		XTW3+14GFZ	Tapping, ⊕ 3 x 14	(3)
N2	S	XTV3+8BFZ	Tapping, ⊕ 3 x 8	(16)
N3	S	XTV3+8BFN	Tapping, ⊕ 3 x 8	(11)
N4		XTW3+8T	Tapping, ⊕ 3 x 8	(2)
N5		XTW3+10Q	Tapping, ⊕ 3 x 10	(2)
N6		SFXGQ20–01	Tapping	(1)
N7		XTW3+10TFZ	Tapping, ⊕ 3 x 10	(12)
N8	S	XTV3+10BFN	Tapping, ⊕ 3 x 10	(7)
N9		XTW4+10QFZ	Tapping, ⊕ 4 x 10	(3)
N10		XTW4+30TFYR	Tapping, ⊕ 4 x 30	(4)
N11	S	XTS3+16BFZ	Tapping, ⊕ 3 x 16	(1)
N12		SFXGQ34N02	Tapping	(1)
N13		XYN3+C12S	Tapping, ⊕ 3 x 12	(2)
N14		XYN3+C8S	Tapping, ⊕ 3 x 8	(1)

Ref. No.		Part No.	Description	
N15	S	XUC3FT	Circlip, ϕ3	(7)
N16	S	XUB4FT	Circlip, ϕ4	(1)
N17		SFXWQ34N26	Washer	(1)
N18		SFXWQ30–11	Washer	(1)
N19	S	XUC5FT	Circlip, ϕ5	(1)
N20	S	XWE4BW	Washer, ϕ4	(1)
N21		SFXWQ34N21	Washer	(2)
N22	S	XTV3+6BFN	Tapping, ⊕ 3 x 6	(1)
N23	S	XUC2FT	Circlip, ϕ2	(1)
N24		SFPEW13005	Washer	(1)
N25		SFPEV0P301	Screw, Cartridge	(1)

■ EXPLODED VIEWS

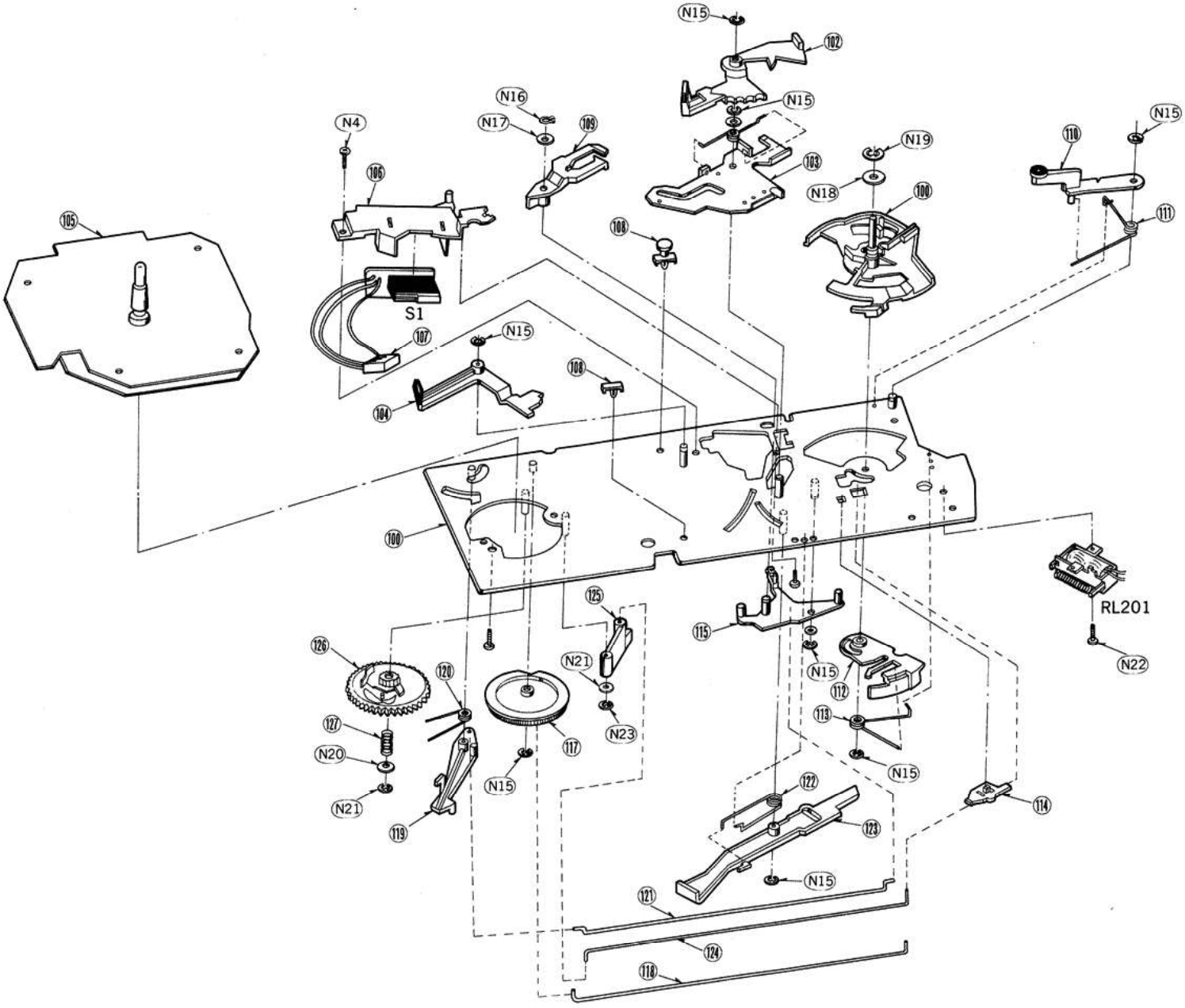
• Main base (Bottom board)

Ref. No.	Part No.	Description	
MAIN BASE and TONE ARM PARTS			
50	SFAUQ34N01	Bottom Board	(1)
51	SFUMQ34N08	Supporter, Mechanism Plate (A)	(2)
52	SFUMQ34N14	Supporter, Mechanism Plate (B)	(6)
53	SFUMQ34N15	Supporter, Drive P.C.B.	(3)
54	SFUMQ34N16	Supporter, Clamper	(3)
55	SFUPQ34N01	Cover, Gear	(1)
56	SFUZQ34N06E	Latch, Gear Cover	(2)
57	SFMZQ34N04	Spacer, Driver P.C.B.	(4)
58	SFGAQ34N01	Rubber, Insulator	(4)
59	SFQHQ34N01	Spring, Insulator Front & Rear Left	(3)
61	SFQHQ34N03	Spring, Insulator Rear Right	(1)
62	SFUMQ34N07E	Foot, Insulator	(4)
105	SFMZQ34N01A	Stater Frame Ass'y	(1)
TONE ARM PARTS			
70	SFPAM0P301A	Tone Arm	(1)
73	SFPRTQ3001E	Arm Rest	(1)
74	SFPRT30302E	Lift Arm	(1)
75	SFPSP30304	Spring, Lift Arm	(1)
76	SFGK170–01	Rubber Cap	(1)
77	SFPKDQ3001	Base, Tone Arm	(1)
78	SFPAB30310	Sub Base, Tone Arm	(1)
79	SFPAB30305A	Plate, Lift Ass'y	(1)
80	SFPAB30301A	Plate, Tone Arm	(1)
81	SFDH212–01	Phono Cord	(1)
82	SFEL028–01E	Ground Wire	(1)
83	SFUMQ34N10	Bushing, Phono Cord	(1)
84	SFPSP30302	Spring, Anti-Skate Force Control	(1)
85	SFPJK30301	Knob, Anti-Skate Force Control	(1)
86	SFPJK30302	Cam, Anti-State Force Control Knob	(1)



■ EXPLODED VIEWS

• Automatic mechanism plate



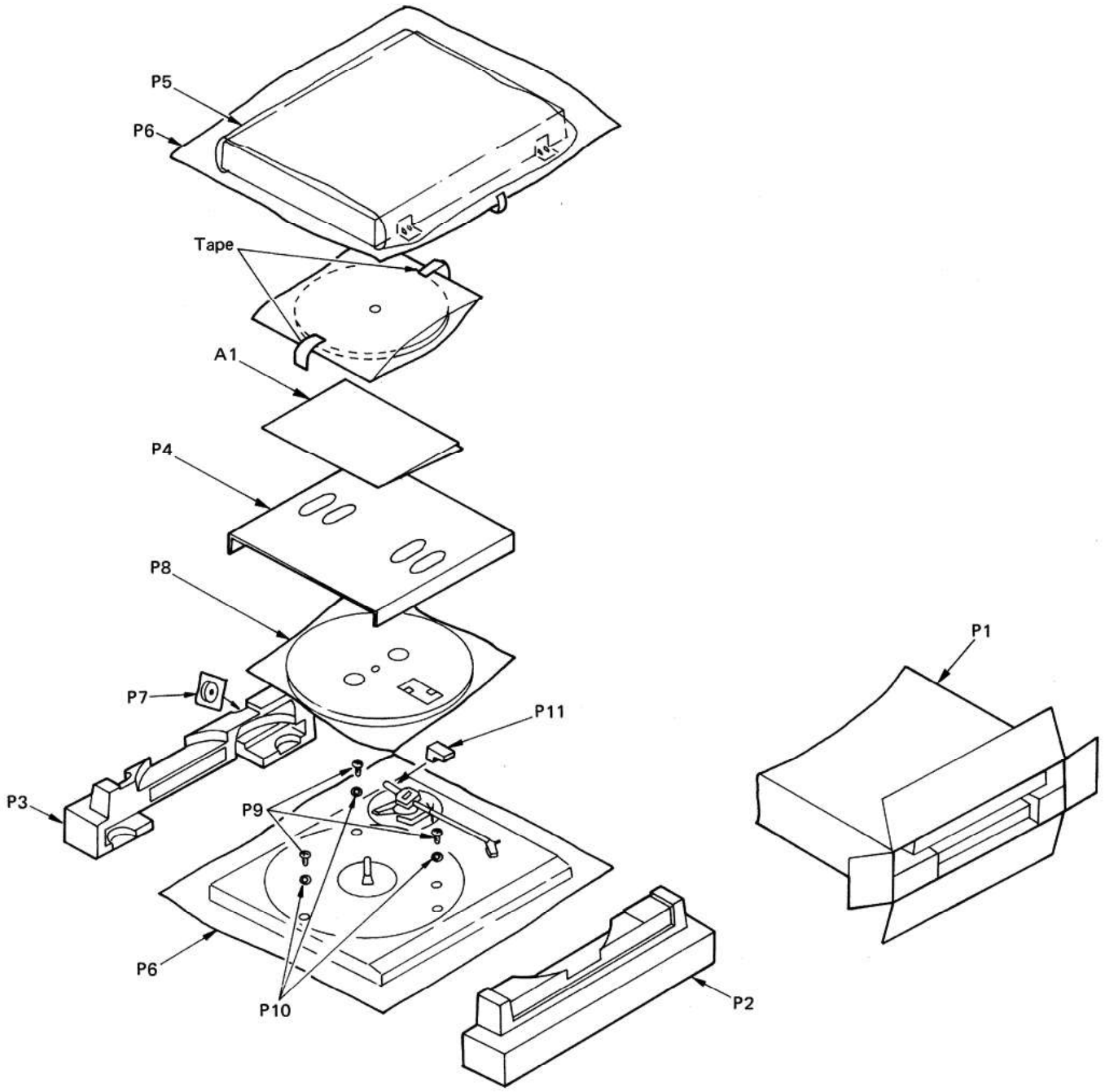
Ref. No.	Part No.	Description	
AUTOMATIC MECHANISM ASS'Y			
100	SFUKQ34N21E	Plate, Automatic Mechanism	(1)
101	SFUMQ34N39E	Cam, Drive	(1)
102	SFUMQ34N34E	Index Plate Ass'y	(1)
103	SFUPQ34N23E	Index Sub Plate Ass'y	(1)
104	SFUMQ34N33E	Plate, Disc Size Sensor	(1)
105	SFMZQ34N01A	Stater Frame Ass'y	(1)
106	SFUMQ34N36	Case, Switch	(1)
107	SFDJQ34N02E	Connector Ass'y 3P	(1)
108	SFEZQ34N01	Clamper	(1)
109	SFUMQ34N38	Lever, Stop	(1)
110	SFUMQ34N43	Plate, Brake	(1)
111	SFQSQ34N28	Spring, Brake	(1)
112	SFUMQ34N35	Cam, Start	(1)

Ref. No.	Part No.	Description	
113	SFQSQ34N24	Spring, Start	(1)
114	SFUMQ34N32	Support, Actuating Rod	(1)
115	SFUMQ34N44	Lever, Switch	(1)
117	SFUGQ34N22	Gear, Dirve	(1)
118	SFQSQ34N22	Rod, Drive	(1)
119	SFUMQ34N31	Plate, Stop Gear	(1)
120	SFQSQ34N21	Spring, Stop Gear	(1)
121	SFQSQ34N26	Rod, Switch	(1)
122	SFQSQ34N25	Spring, Repeat Lever	(1)
123	SFUMQ34N41	Lever, Repeat	(1)
124	SFQSQ34N23	Rod, Actuating	(1)
125	SFUMQ34N42	Connector, Actuating	(1)
126	SFUGQ34N21E	Main Gear Ass'y	(1)
127	SFQAQ34N21	Spring, Main Gear	(1)

■ PACKINGS

Ref. No.	Part No.	Description	
ACCESSORIES			
A1 [M]	SFNUQ03M51	Instructions Book	(1)
A1 [MC]	SFNUQ03C51E	Instructions Book	(1)
A2	SFWE212–01	Adaptor, 45r.p.m.	(1)
PACKING PARTS			
P1 [M]	SFHPQ03M51	Carton Box	(1)
P1 [MC]	SFHPQ03C51	Carton Box	(1)
P2	SFHHQ03M51	Pad, Front	(1)

Ref. No.	Part No.	Description	
P3	SFHHQ03M52	Pad, Rear	(1)
P4	SFHDQ34N01	Pad, Turntable	(1)
P5	SFHZ144X02	Sheet	(1)
P6	SFYH60X60	Polyethylene Bag Unit & Dust Cover	(2)
P7	SPB1083	Polyethylene Bag, Accessories	(1)
P8	SFYH40X45	Polyethylene Bag, Turntable	(1)
P9	SFXGQ34N04	Screw, Clamp	(3)
P10	SFXW172–03	Washer, Clamp	(3)
P11	SFHZQ03M51	Pad, Tonearm	(1)



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