ORDER NO. HAD85032456C9

Service Manual

Turntable System
SL-BD3

Color

(S)	Silver Type
(K)	Black Type

T4P is the standard mark for the "P-mount" plug-in-connector system. Products carrying this mark are interchangeable and compatible with each other.

Color	Area
(S), (K)	[E] .....Switzerland and Scandinavia
(S), (K)	[EK] .....United Kingdom
(S), (K)	[XL] .....Australia
(S), (K)	[EG] .....F.R. Germany
(S), (K)	[EB] .....Belgium
(S), (K)	[EH] .....Holland
(S), (K)	[EF] .....France
(S), (K)	[Ei] .....Italy
(S), (K)	[EC] .....Czechoslovakia
(S), (K)	[XA] .....Southeast Asia, Oceania, Africa, Middle Near East and Central South America
(S), (K)	[PA] .....Far East PX
(S), (K)	[PE] .....European Military
(S), (K)	[PC] .....European Audio Club

SPECIFICATIONS

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

■ 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: Frequency generator servo control

Turntable platter: Aluminum die-cast
Diameter 31.2 cm (12-9/32")

Turntable speeds: 33-1/3 rpm and 45 rpm

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: 13.5 g (including cartridge)

Stylus pressure. 1.25 g (Fixed)

Applicable cartridge weight: 6 g

■ Cartridge section

Type: Moving magnet stereo cartridge

Magnet circuit: All laminated core

Frequency response 10 Hz~35 kHz

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-30CS

Technics

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ General

Power supply: For United Kingdom and Australia: 240V, AC 50 Hz
For continental Europe: 220V, AC 50 Hz
For others: ~110~127/220~240V, 50/60 Hz

Power consumption: 3 W

Dimensions: (W×H×D) 43 × 10 × 37.5 cm (16-15/16" × 3-15/16" × 14-3/4")
Maximum height when top (dust cover) is open.
43 × 37 × 41 cm (16-15/16" × 14-9/16" × 16-1/8")

Weight: 3.8 kg (8.4 lb.)

■ CONTENTS

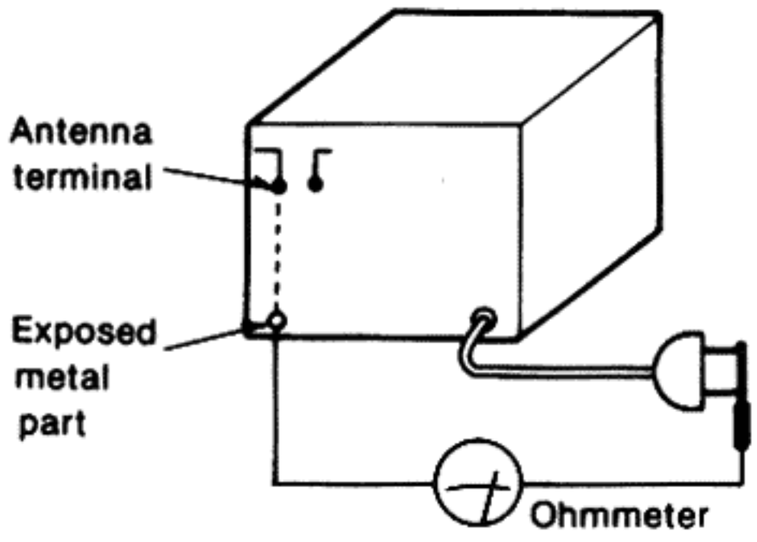
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

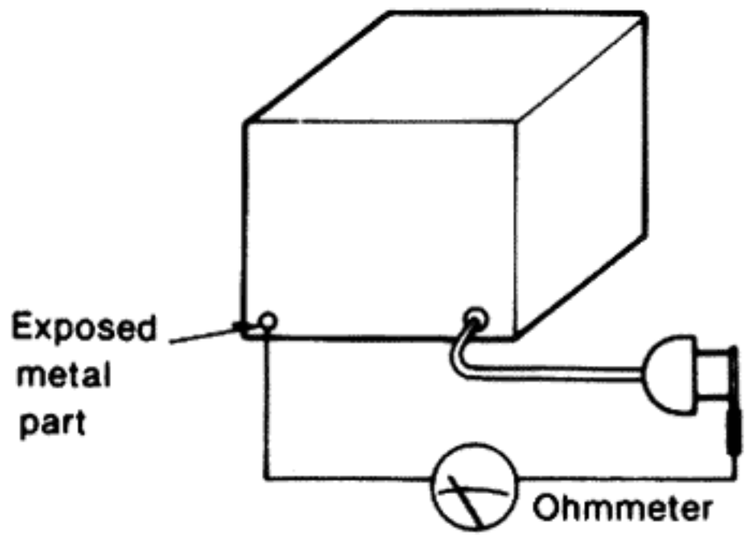
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

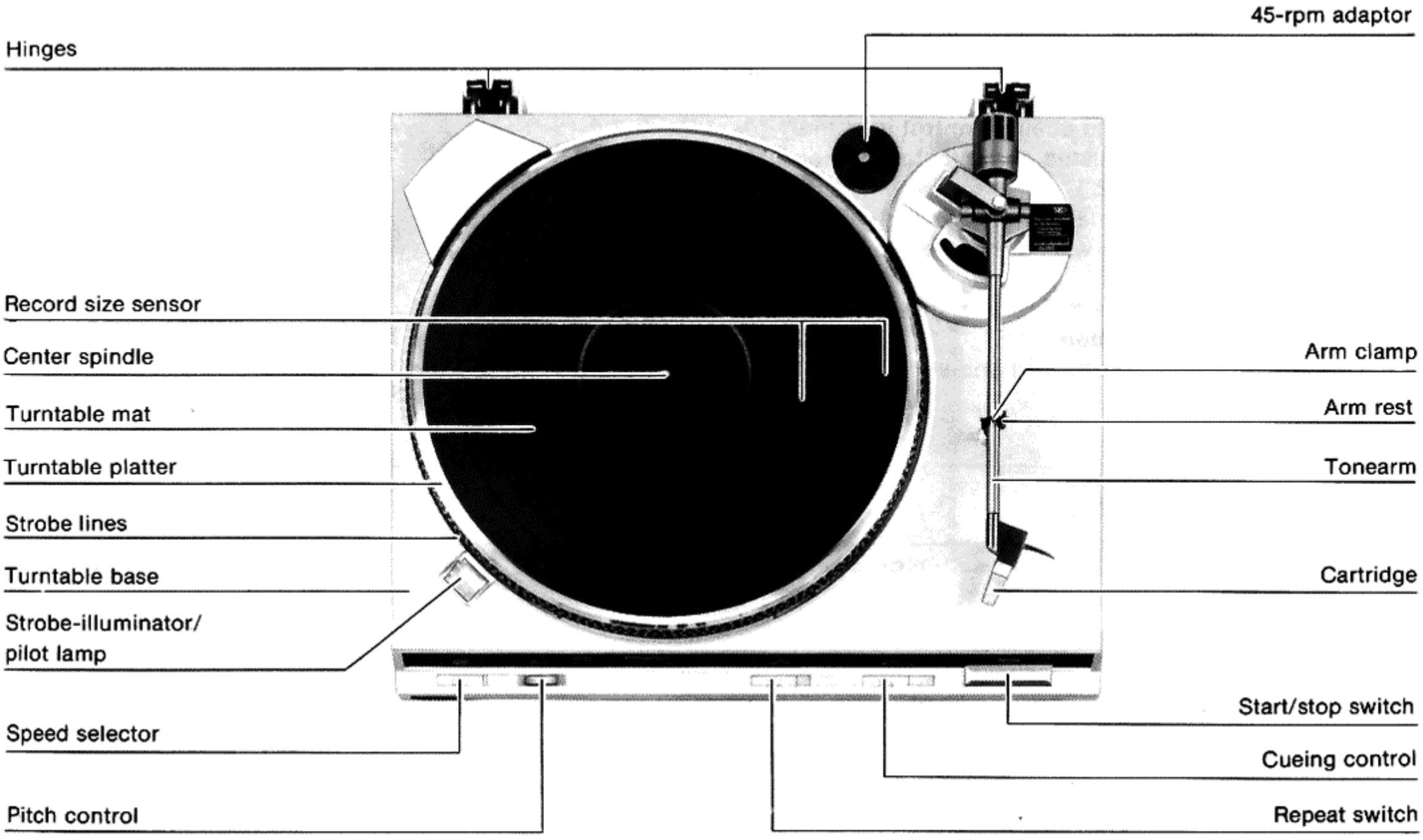


(Fig. B)

Resistance = Approx ∞

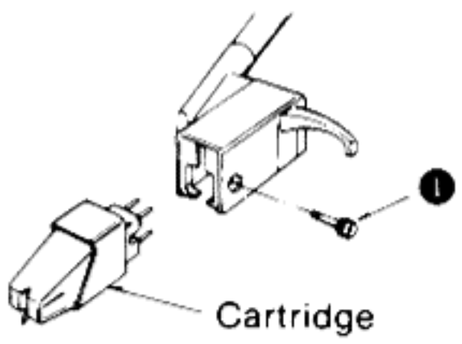
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS

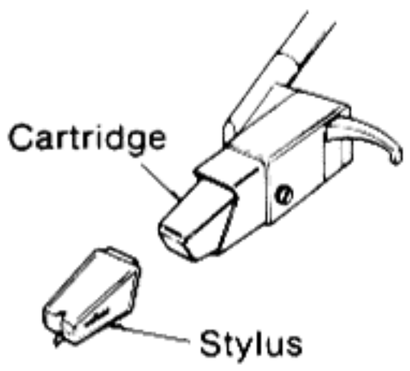


■ DISASSEMBLY INSTRUCTIONS

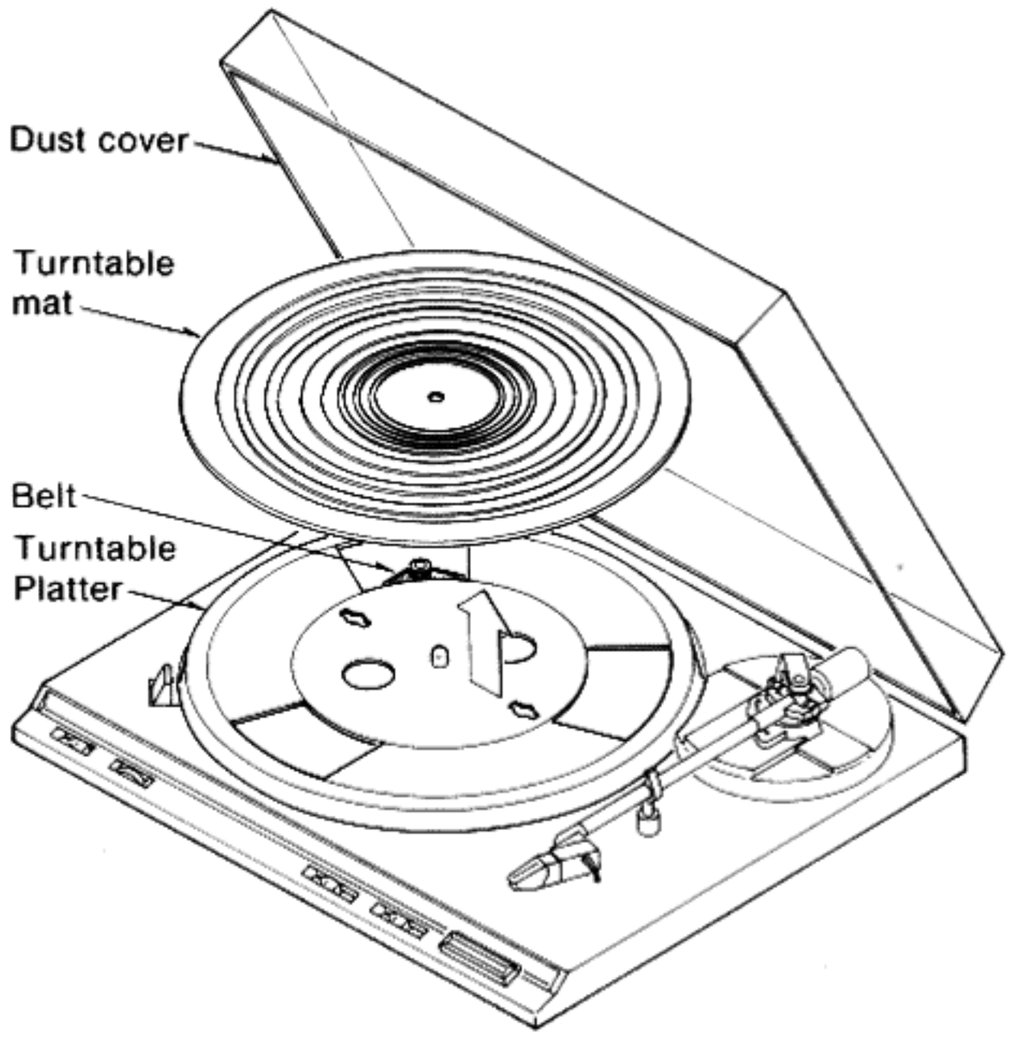
Ref. No 1	How to remove the cartridge
Procedure 1	1. Remove the setscrew ❶. 2. Pull out the cartridge, taking care that your hand does not touch the stylus tip.



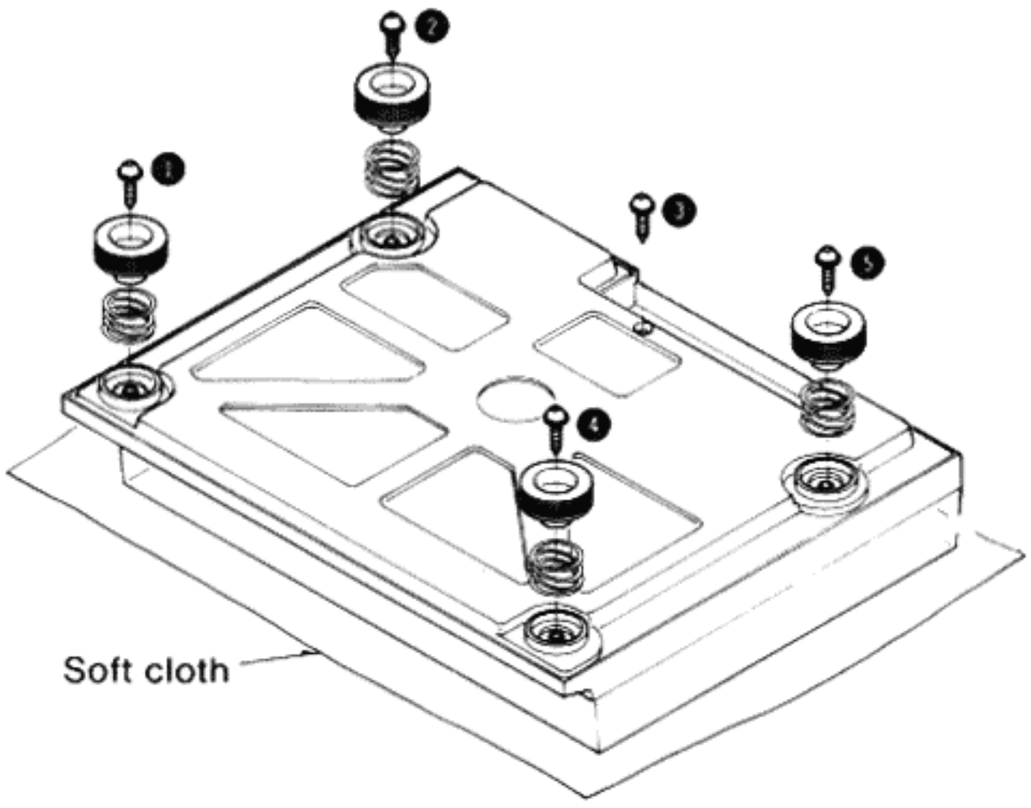
Ref. No 2	How to remove the stylus
Procedure 2	• Pull out the stylus, taking care not to touch the stylus tip.



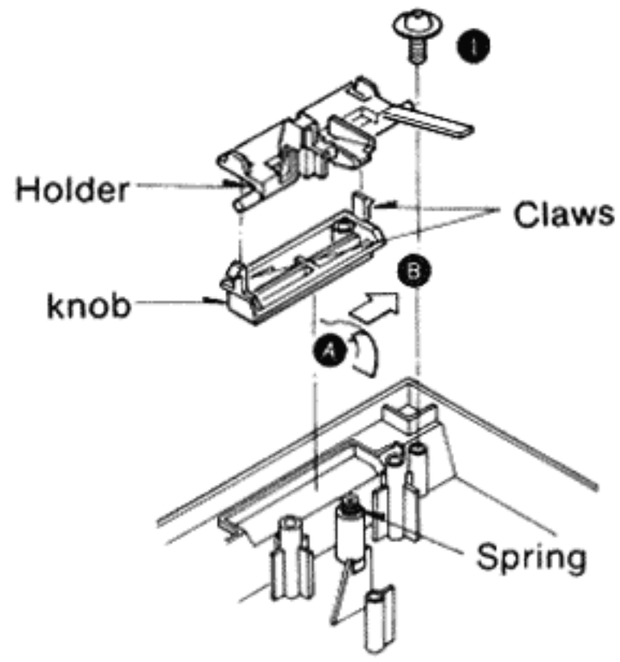
Ref. No 3	How to remove the turntable platter
Procedure 3	1. Open the dust cover and remove the turntable mat. 2. Remove the belt 3. Lift up the turntable platter.



Ref. No 4	How to remove the bottom board
Procedure 3 ➧ 4	1. Turn over the unit on a soft cloth. 2. Remove the 5 setscrews (❶ ~ ❺)

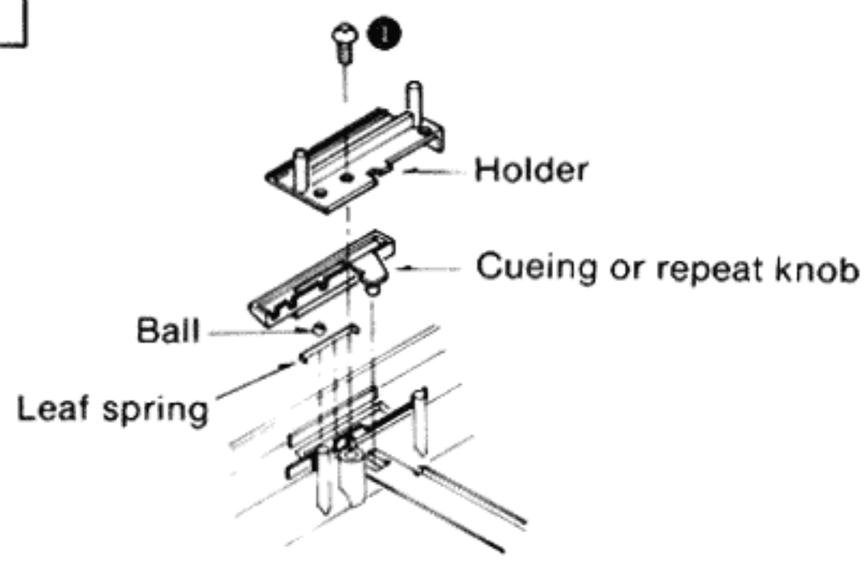


Ref. No 6	How to remove the start/stop knob
Procedure 3 ➧ 4 ➧ 6	1. Remove the setscrew ❶. 2. Remove the holder (with knob) in the direction of the arrows (Ⓐ, Ⓑ). 3. Release the 2 claws.



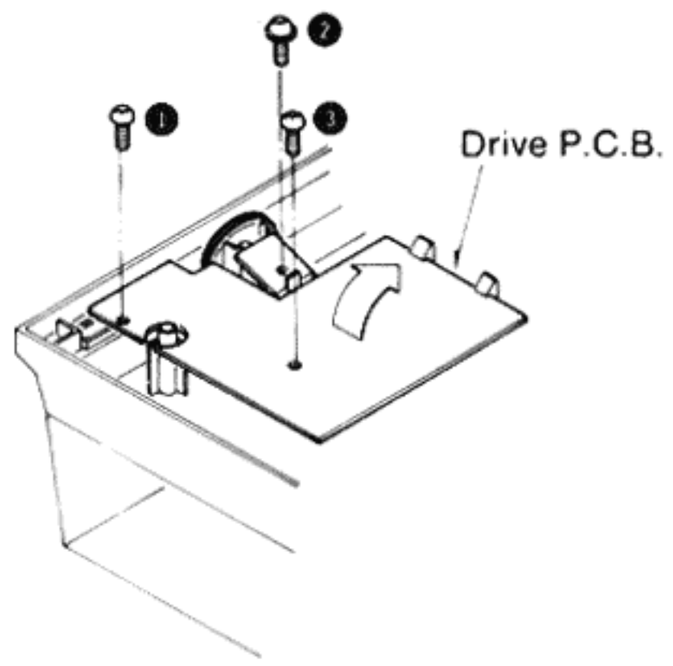
Note:
When attaching the start/stop knob, do not forget to attach the spring.

Ref. No 5	How to remove the cueing and repeat knob
Procedure 3 ➧ 4 ➧ 5	• Remove the setscrew ❶.



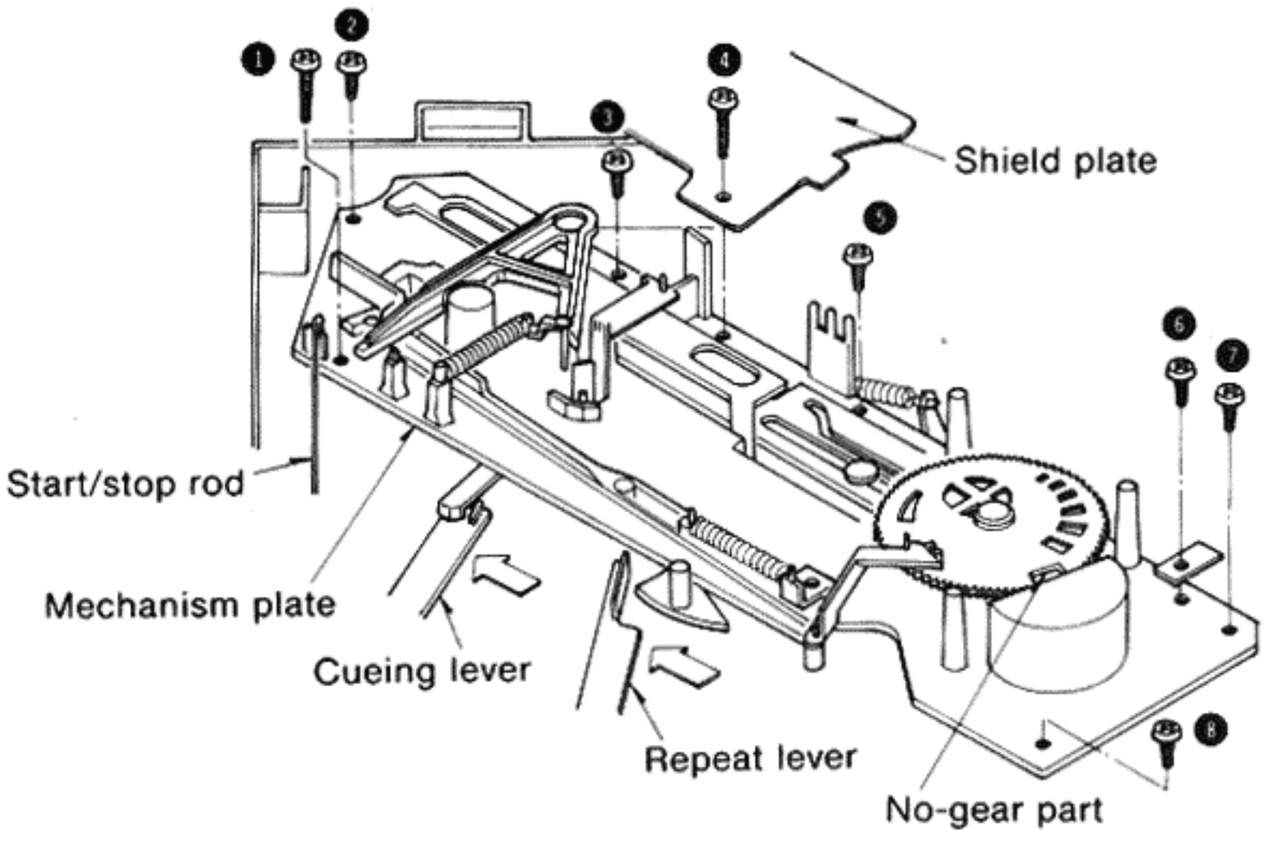
Caution:
When removing the cueing and repeat knob, please note the ball bearing which is held between the leaf spring and knob and take care not to drop or lose it.

Ref. No 7	How to remove the drive P.C.B.
Procedure 3 ➧ 4 ➧ 7	1. Remove the 3 setscrews (❶ ~ ❸). 2. Remove the drive P.C.B. in the direction of the arrow.



Ref. No 8	How to remove the mechanism plate
Procedure 3 ➧ 4 ➧ 8	1. Release the start/stop rod. 2. Remove the 8 setscrews. (❶ ~ ❽) 3. Lift up the mechanism plate.

Note:
When fitting the mechanism plate, check the following points.
- Turn the main gear until it comes to the no gear part.
- Shift the cueing and repeat lever plates in the direction of the arrow.

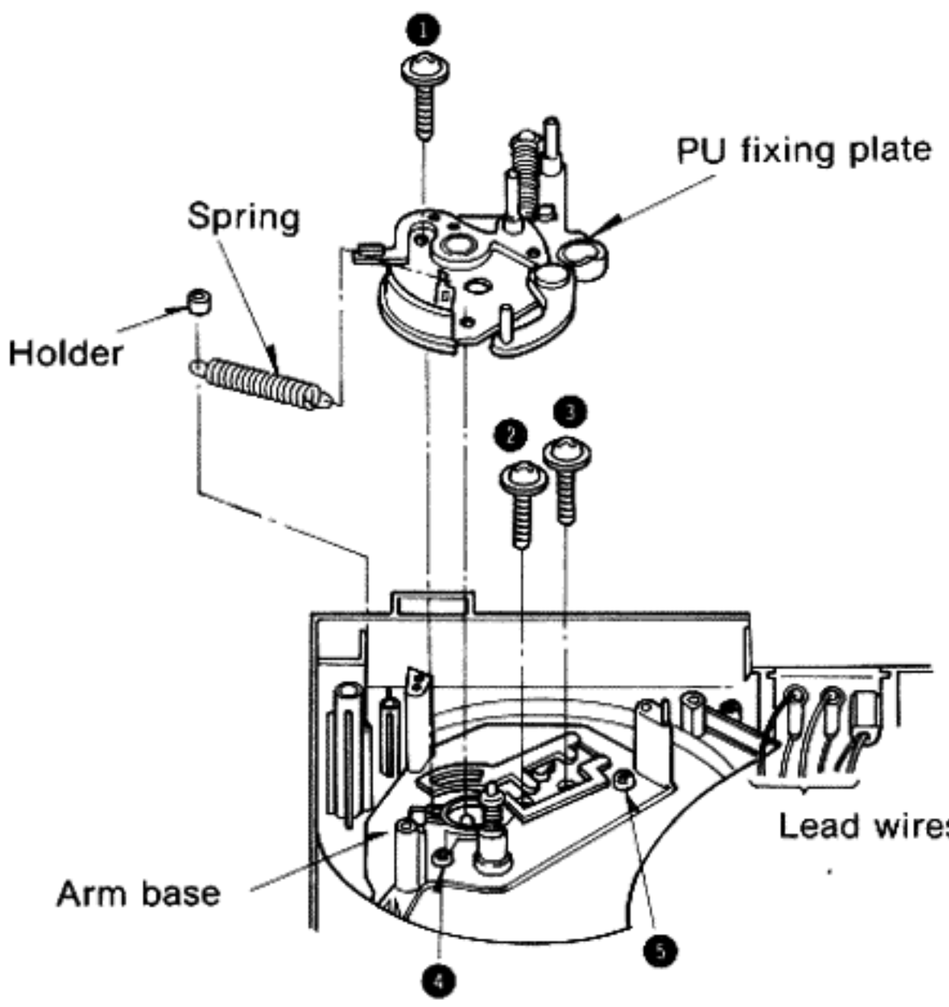


Ref. No 9	How to remove the tonearm
Procedure 3♦4♦8♦9	

1. Unsolder the 5 PU lead wires from the phono terminal.
2. Remove the spring holder.
3. Remove the setscrew ❶.
4. To remove the tonearm, remove the 2 setscrews (❷, ❸).
5. To remove the arm base, remove the 2 setscrews. (❹, ❺)

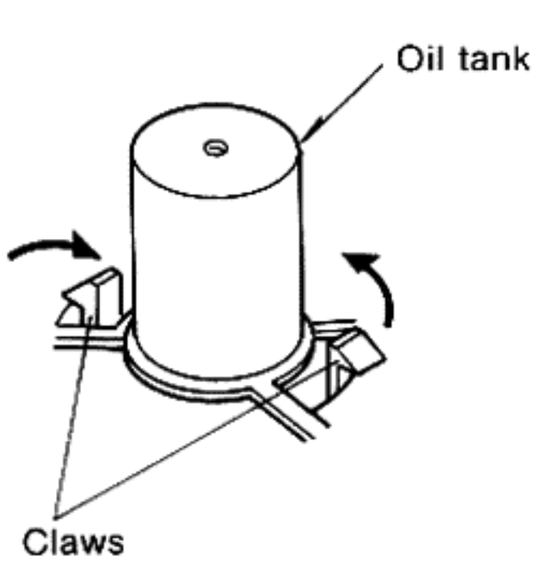
* PU lead wiring method

White .....L channel (+) terminal
Blue.....L channel (−) terminal
Red .....R channel (+) terminal
Green .....R channel (−) terminal
Black.....Ground terminal



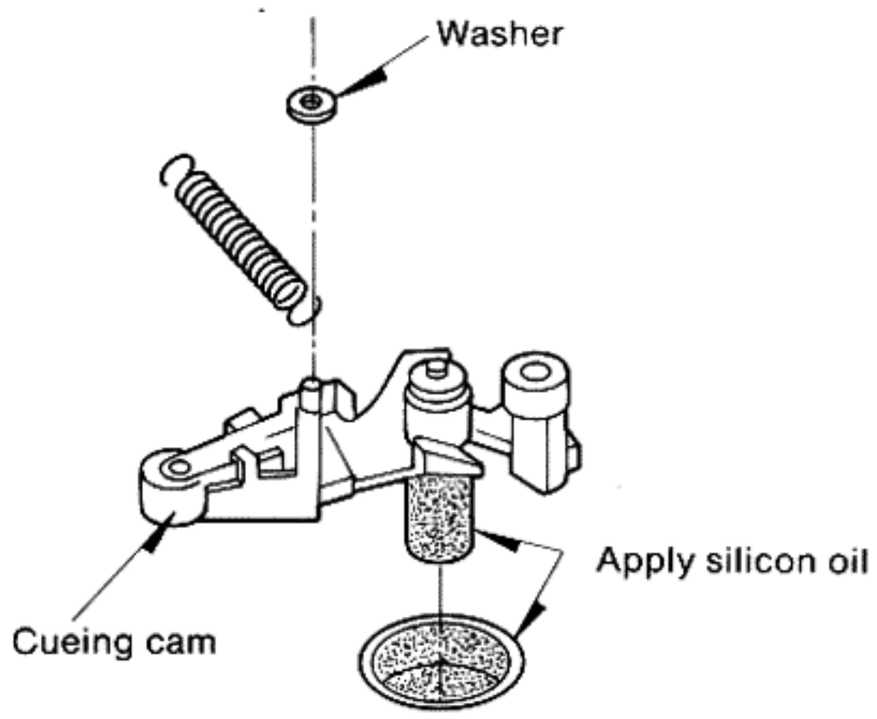
Ref. No 10	How to remove the cueing cam
Procedure 3♦4♦8♦10	

1. Release the 2 claws with a driver.
2. Remove the washer.
3. Pull out the cueing cam.



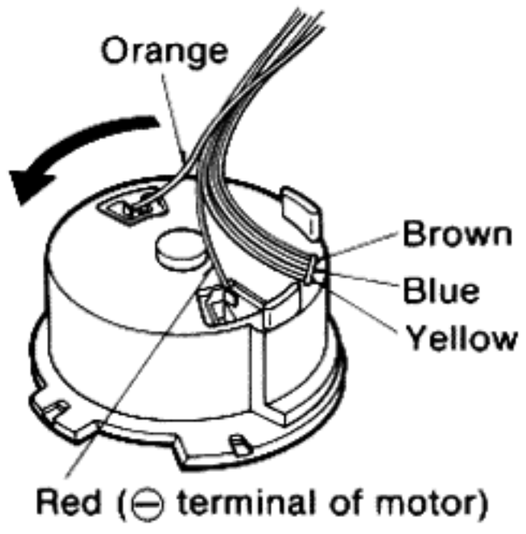
Note:
If the cueing time of the tonearm becomes too short, or if the cueing cam is replaced, apply silicon oil (Part No. SZZ0L12) according to the following procedure.

1. Remove the cueing cam.
2. Apply silicon oil to the cueing cam and oil tank.

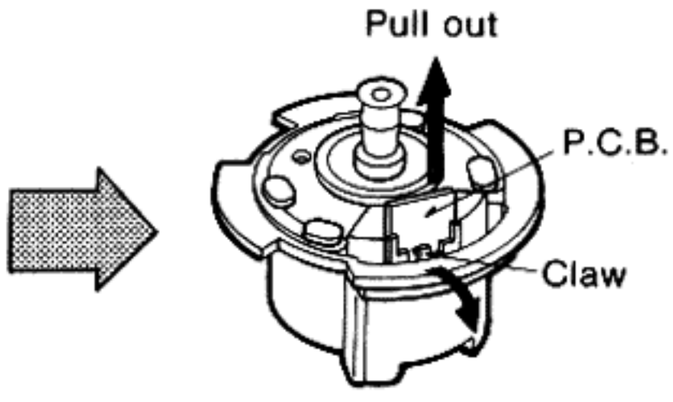


Ref. No 11	How to remove the magnetic resistor element
Procedure 3 ♦ 4 ♦ 11	

1. Remove the motor assembly in the direction of the arrow.
2. Unsolder the 3 lead wires from the magnetic resistor P.C.B.

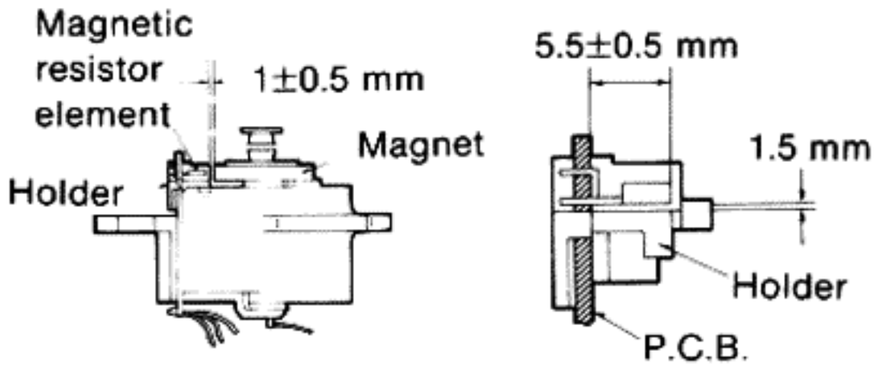


1. Release the claw and pull out the P.C.B.
2. Unsolder the 3 terminals of the magnetic resistor element.



Note:
If the magnetic resistor element has been replaced, observe the following mounting precaution.

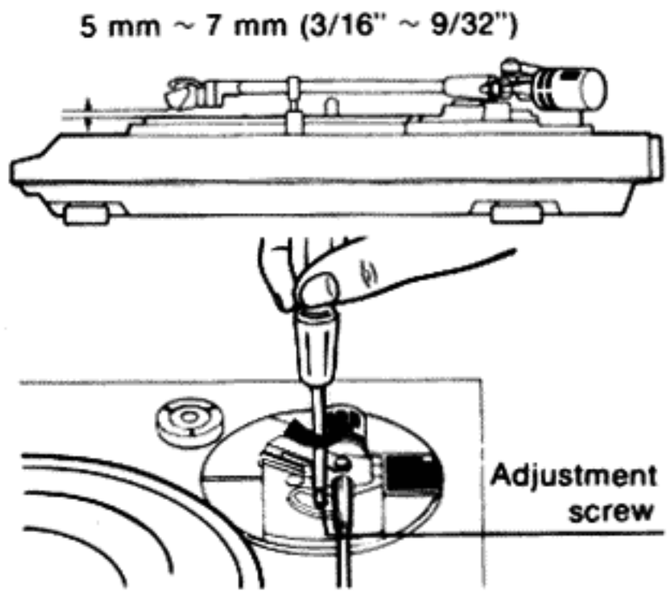
- The magnetic resistor element is supplied with the center lead bent. Be sure the seat the bent lead flush to the P.C.B.
- This will ensure the proper clearance (1±0.5mm) between the magnet and the magnetic resistor element as shown below.



■ MEASUREMENTS AND ADJUSTMENTS

- **Arm-lift height adjustment**

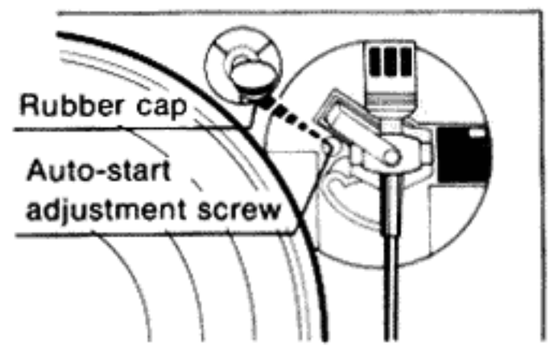
The arm-lift height (distance between the stylus tip and the record surface when the cueing control is at the "▽" position) has been adjusted at the factory to approximately 5 to 7 mm (3/16"—9/32").
If the clearance is too narrow or too wide, turn the adjustment screw clockwise or counterclockwise.
Clockwise rotation
—distance between the record and stylus tip is decreased.
Counterclockwise rotation
—distance between the record and stylus tip is increased.



- **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.
3. Turn the screw with a screwdriver, clockwise or counterclockwise as necessary.

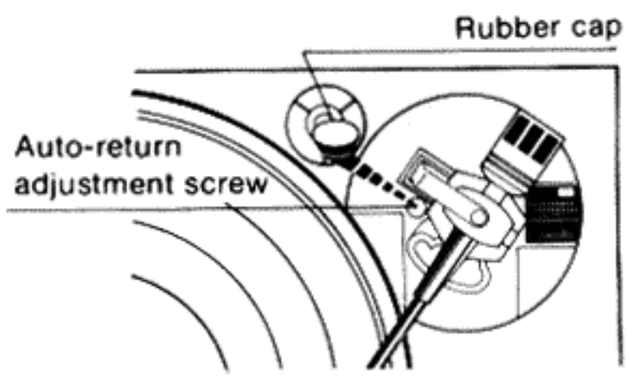
If the stylus tip sets down too far in the recorded groove,
—turn counterclockwise.
If the stylus tip sets down outside of the record,
—turn clockwise.
Adjust so the stylus tip lands 1 ~ 2 mm in from the edge of the record.



- **Automatic return position**

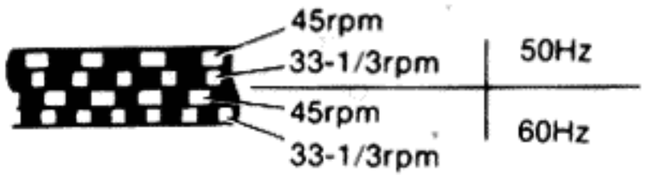
(Remove the rubber cap.)
1. Put the stylus protector on the cartridge.
2. Move the tonearm toward the center of the record. The auto-return adjustment screw will appear.

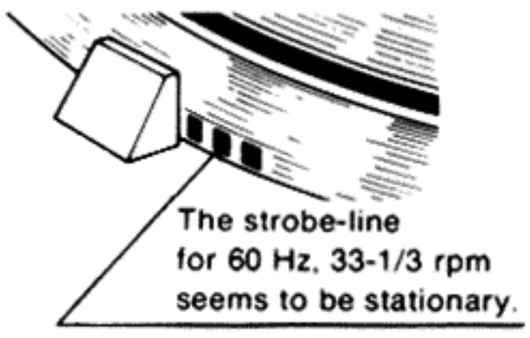
If the tonearm tends to return to the arm rest before the play has finished,
—turn counterclockwise.
If the tonearm fails to return after the final groove,
—turn clockwise.



- **Speed adjustment (pitch control)**

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. Push the power switch. The strobe-illuminator/pilot lamp will light up and the platter will rotate.
3. 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.
4. Turning the pitch control in the "+" direction increases the speed.
5. Turning the pitch control in the "—" direction decreases the speed.





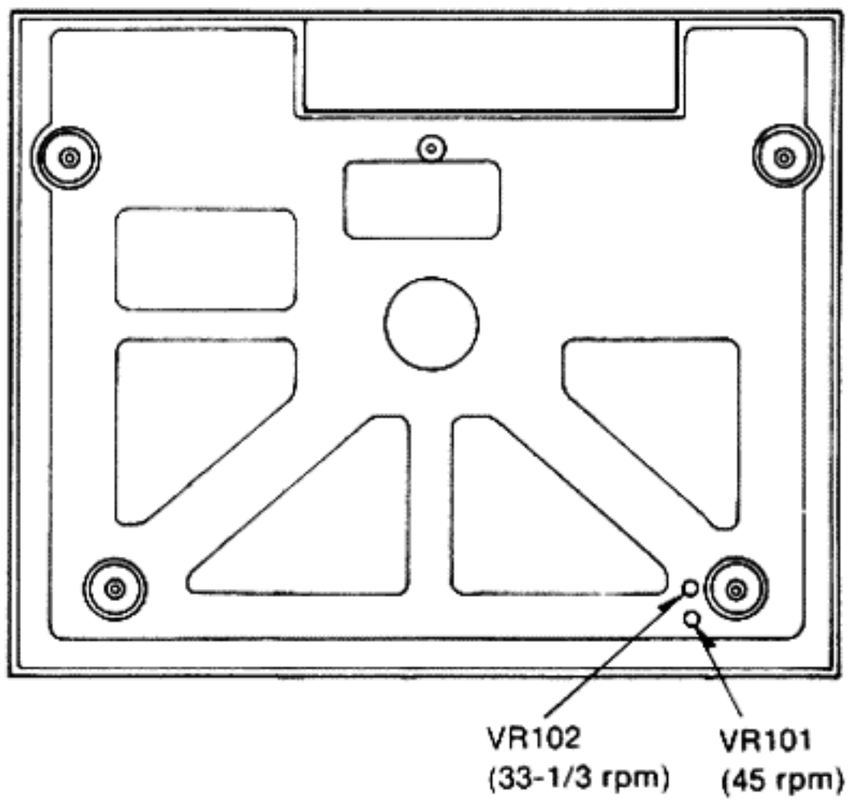
In the U.S.A. and CANADA use 60 Hz lines.
The 50 Hz lines are for European countries.

- **Rotating speed**

When the turntable drive/control IC (IC101) or the variable resistors (VR101, 102) are changed, or if the rated rotation is not reached even when the pitch control knob is turned, adjust the rotating speed in the following procedure.

1. Set the speed selector switch to the "45" position.
2. Turn VR101 with a screwdriver from the bottom of the set to the rated rotation (45 rpm) and check the rotation with a strobe while adjusting the speed.
3. Set the speed selector switch to the "33" position.
4. Turn VR102 with a screwdriver from the bottom of the set to the rated rotation (33-1/3 rpm) and check the rotation with a strobe while adjusting the speed.

Note: Be sure to make the adjustment for 45 rpm first.



■ TROUBLESHOOTING

No sound comes out.

→ Are tonearm connector and PU lead wire connected?

→ PU lead wires broken.

↓

Is the stylus completely connected to the cartridge?

→ Check if stylus is broken or plugged in incorrectly.

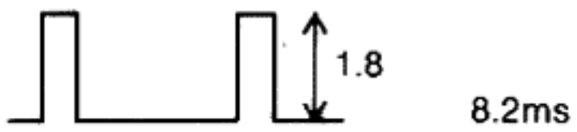
↓

Are the tonearm connector and cartridge pins connected completely?

→ Confirm.

Strobe LED does not indicate.

→ **Strobe LED drive circuit**
•Waveform of collector of Q201



→ Q201, 202 (Drive transistor)
D201~D206
R201~R205
} defective

Turntable does not rotate.

→ **AC power plug is connected?**

→ Connect the AC power plug to an AC wall socket.

Belt is set over the turntable capstan?

→ Set the belt correctly.

Power source circuit

1. AC 14V between FC1 terminals ② and ③.
2. DC voltage of regulator IC (IC1)
   ① 12V ② 6V ③ 0V
3. DC voltage at terminal ⑫ of IC101 (3V).

→ T1 (Power transformer)
S1 (Power switch)
D1~D4 (Rectifier diode)
IC1 (Regulator IC)
IC101 (Drive IC)
} defective

Drive circuit

- DC voltage of drive transistor (Q101)

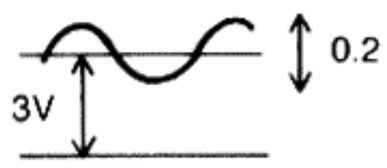
	Base	Collector	Emitter
33 rpm	1.5V	6.3V	0.8V
45 rpm	1.6V	5.2V	0.9V

→ IC101 (Drive IC)
Q101 (Drive transistor)
Motor
R108,109 (Resistor)
} defective

Unstable rotation

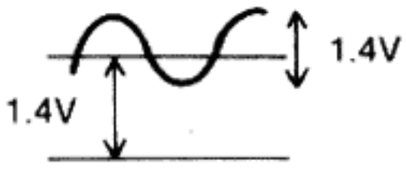
FG amplifier circuit

1. Waveform of terminal ④ of CN101



33 rpm 3.3ms
45 rpm 2.5ms

2. Waveform of terminal ⑤ of IC101



33 rpm 3.3ms
45 rpm 2.5ms

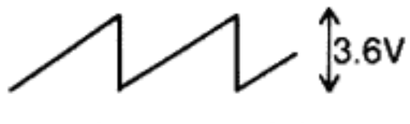
→ Z601 (Magnetic resistor element)
IC101 (Control IC)
R101~R103
C101~C103
Motor
} defective

Control circuit

1. Waveform of terminal ⑧ of IC101

33 rpm 3.3ms
45 rpm 2.5ms

2. Waveform of terminal ⑨ of IC101



33 rpm 3.3ms
45 rpm 2.5ms

→ IC101 (Control IC) defective

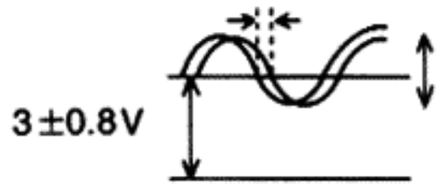
Turntable rotates too fast or does not rotate.

1. Conduction check of CN101 terminal of ④ and ⑤, ① and ④.

→ If the reading is ∞, then Z601 defective.
If the reading is 1.3kΩ, then motor defective.

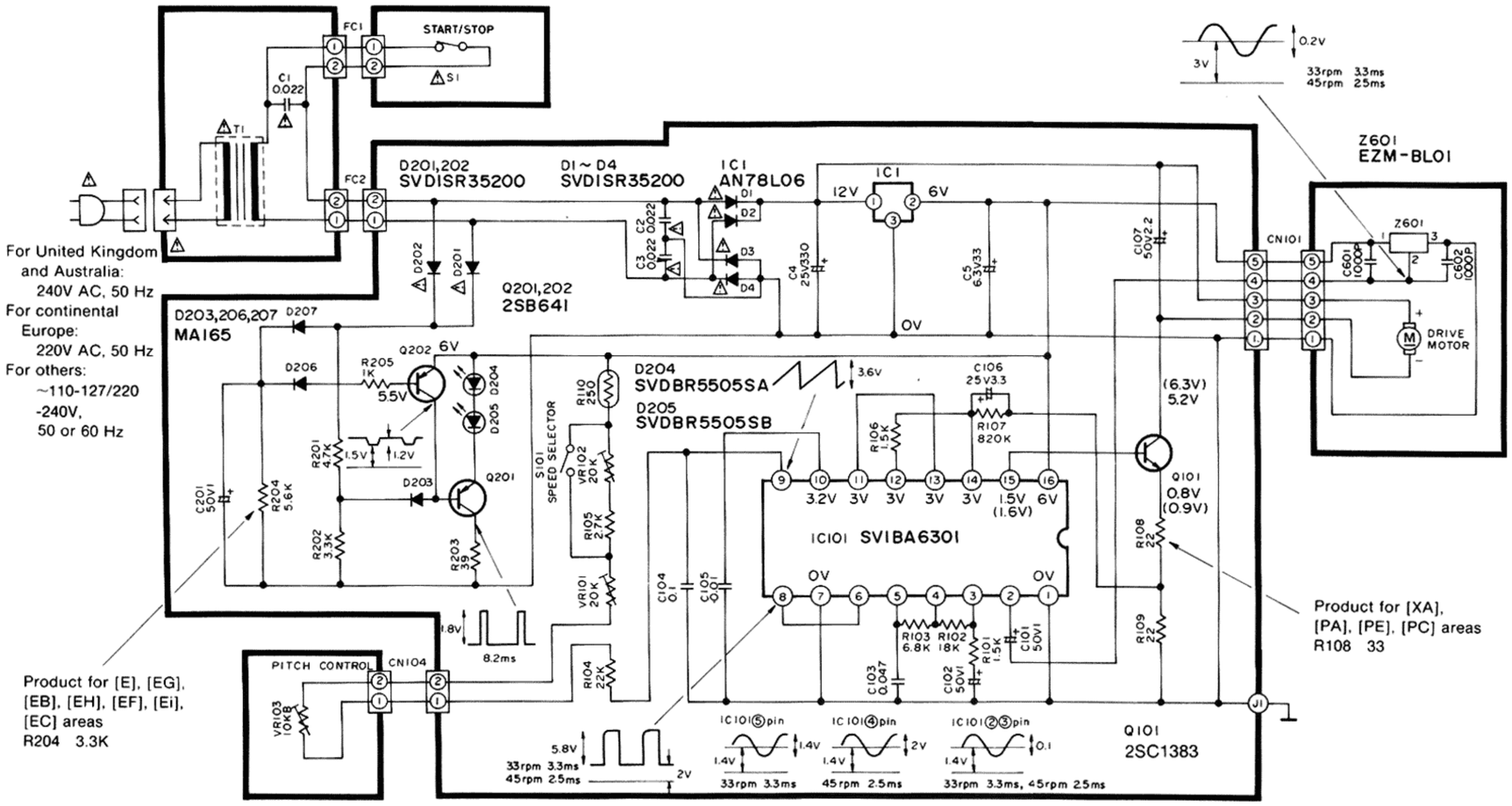
1. Waveform of terminal of CN101.

Δt=5% (0.17ms) more than 120mV



→ Refer to precaution on page 5.

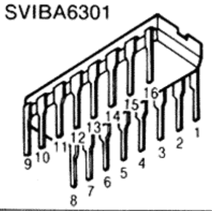
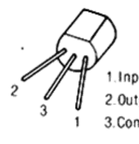
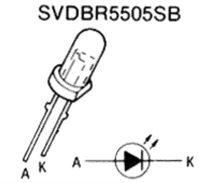
■ SCHEMATIC DIAGRAM



Notes:

1. S1: Power switch in "on" position.
2. S101: Speed selector switch in "33" position.
3. The values are of the reference voltage for the turntable rotation (33 rpm) of this unit, measured by a DC voltmeter (high impedance) on the basis of chassis. So, some error might be included depending on the internal impedance of the measuring instrument and the unit measured.
   * ( ): voltage in 45 rpm.
4. Important safety notice:
   Components identified by a ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
5. VR101 is the 45 rpm speed adjustment variable resistor.
6. VR102 is the 33-1/3 rpm speed adjustment variable resistor.
7. This schematic diagram may be modified at any time with the development of new technology.

- **Terminal guide of IC's, transistors and diodes**

SVIBA6301	AN78L06	SVDBR5505SA SVDBR5505SB
		
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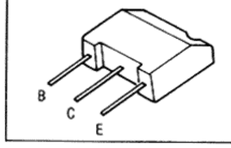
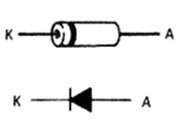
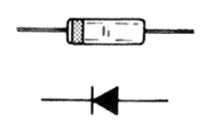
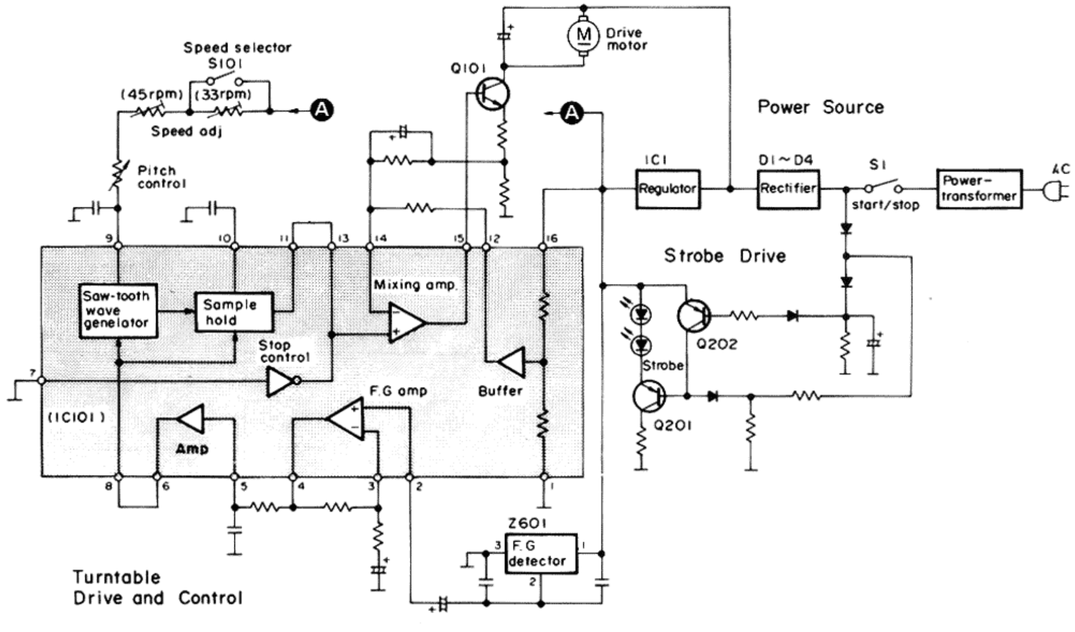
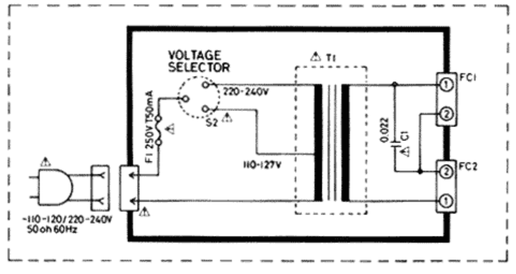
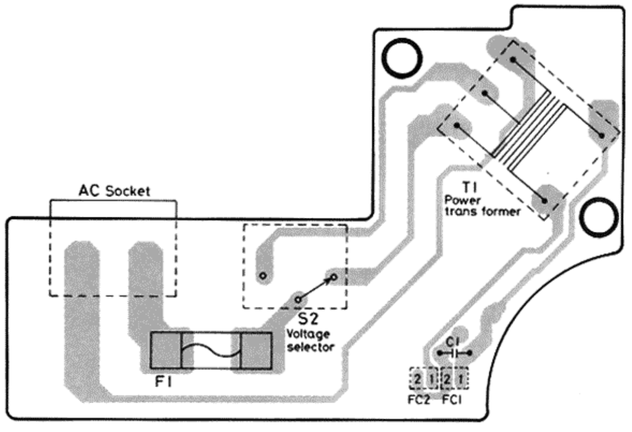
		

■ BLOCK DIAGRAM

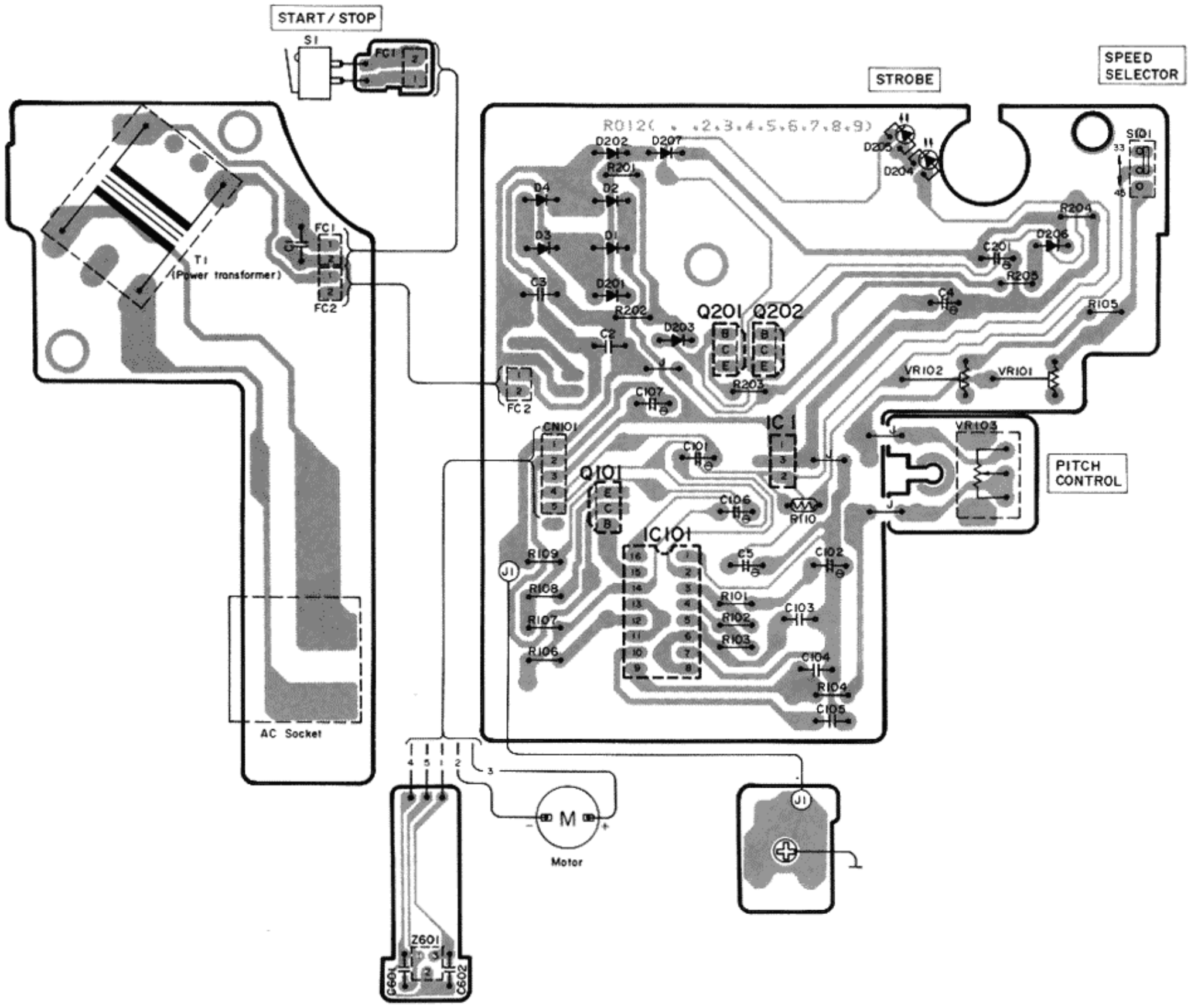


- **Power source circuit**
  For [XA], [PA], [PE], [PC] areas





■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



■ OPERATIONAL DESCRIPTION OF MECHANISM

- **Auto mechanism timing chart**

No.	Operation	Description	Rotation angle of main gear	Fig. No.
1.	**Start** (Press the start/stop button.)	• Start/stop rod pushes the cut-lever to disengage it from the drive plate.	0°	Fig. 1 ❶, ❷
	(Drive circuit turns ON.)	• Portion Ⓐ of cut-lever pushes the switch lever. • Switch lever turns and presses the power switch contact.	0°	Fig. 1 ❸
	(Main gear rotates.)	• Portion Ⓑ of cut-lever pushes the actuating rod. • Actuating lever turns and pushes the friction link and actuating link. • Small gear and main gear are engaged.	0°	Fig. 1 ❹ ~ ❼
2.	**Cueing up**	• As the main gear rotates, the drive plate moves. • Projection Ⓒ of the drive plate pushes the cueing cam. • Cueing cam rotates.	6° ~ 33°	Fig. 1 ❽, ❾ Fig. 2 ❿
3.	**Movable piece setting**	• Movable piece touches the switch control piece. • Movable piece is turned to hold the PU fixing plate moving pin.	152°	Fig. 3 ⓫
4.	**Record size detection plate setting**	• Record size detection plate rotates when the drive plate moves.	156°	Fig. 2 ⓬
5.	**Index setting**	• Index plates (A) and (B) and index sub-plate rotates when the drive plate moves.	158°30′	Fig. 2 ⓭

No.	Operation	Description	Rotation angle of main gear	Fig. No.
6.	**Record size detection**	★ Detection of 30 cm (12") record 1. The record size detecting plate pushes the reset lever attached to the turntable platter. 2. Only the 30 cm record detecting pin interlocked with the reset lever moves down. 3. The 30 cm record detecting pin touches index plate (B), then index plates (A) and (B) rotate.	170° ~ 238°	Fig. 4 ⑭
		★ Detection of 17 cm (7") record 1. The record size detecting plate pushes the reset lever attached to the turntable platter. 2. Both 30 cm and 17 cm record detecting pins interlocked with the reset lever move down. 3. The 30 cm and 17 cm record detecting pins touch index plate (B), then index plates (A) and (B) rotate.	170° ~ 238°	Fig. 5 ⑮
		★ In case of no record 1. The record size detecting plate pushes the reset lever attached to the turntable platter. 2. Both 30 cm and 17 cm record detecting pins interlocked with the reset lever remain up. 3. The 30 cm and 17 cm record detecting pins do not touch index plate (B), so index plates (A) and (B) as well as index sub-plate remain stationary.	170° ~ 238°	Fig. 4
7.	**Positioning of index plate**	•When the main gear rotates, the drive plate starts moving in the direction of arrow ⑯. •Index plates (A), (B) and index sub-plate move back slightly as in the record size detection mode.	255° ~ 278°30′	Fig. 2 ⑯, ⑰
8.	**Tonearm drop position**	•PU fixing plate moving pin turns the PU fixing plate, pushing it in the direction of arrow ⑱. ★ In case of 30 cm record The PU fixing plate rotates until drop positioning pin (A) contacts index plate (A). ★ In case of 17 cm record The PU fixing plate rotates until drop positioning pin (A) contacts index plate (A). ★ In case of no record The PU fixing plate does not rotate since drop positioning pin (B) is touching index plate (A).	 269° ~ 299° 269° ~ 317°	Fig. 6 Fig. 6 Fig. 7 Fig. 8
9.	**Power switch lock**	•The PU fixing plate rotates and the PU fixing plate pin pushes the switch control piece in the direction of arrow ⑳. •When the PU fixing plate pin moves to point ㉑, the switch control piece moves in the direction of arrow ㉒, and then the projection of the switch control piece is held by the mechanism board.	269° ~ 299°	Fig. 1 ⑳ ~ ㉒
10.	**Moving piece reversal**	•Actuating piece attached to the drive plate touches the mechanism board and is reversed, making the PU fixing plate moving pin free.	310° ~ 326°	Fig. 3 ㉓
11.	**Cueing down**	•Projection Ⓒ of the drive plate is disengaged from the cueing cam, thereby shifting for cueing down.	336° ~ 354°40′	Fig. 2 ㉔
12.	**Index cancel**	•Also, when the drive board moves, the index plate returns to the initial condition.	340° ~ 360°	Fig. 2 ㉕
13.	**Begin play**	•The main gear and small gear disengage; only the small gear continues to rotate (turntable rotation).	360°	
14.	**End play**	•The tonearm moves to the center of the turntable. •The PU fixing plate pushes the actuating rod. •Operation continues as in No. 1 Start.		Fig. 1 ④ ~ ⑦
15.	**Cueing up**	•(Same as No. 2 Cueing up)	6° ~ 33°	
16.	**Tonearm return**	•The drive board pushes the PU fixing plate moving pin; the tonearm returns to the arm rest.	43° ~ 142°	
17.	**Cueing down**	•(Same as No. 11 Cueing down)	336° ~ 354°40′	
18.	**Power off**	•The fixed pin of the PU fixing plate contacts the switch control piece; the projection of the switch control piece breaks contact with the mechanism board. The switch lever rotates, causing the power switch contact to disengage.	351°30′	

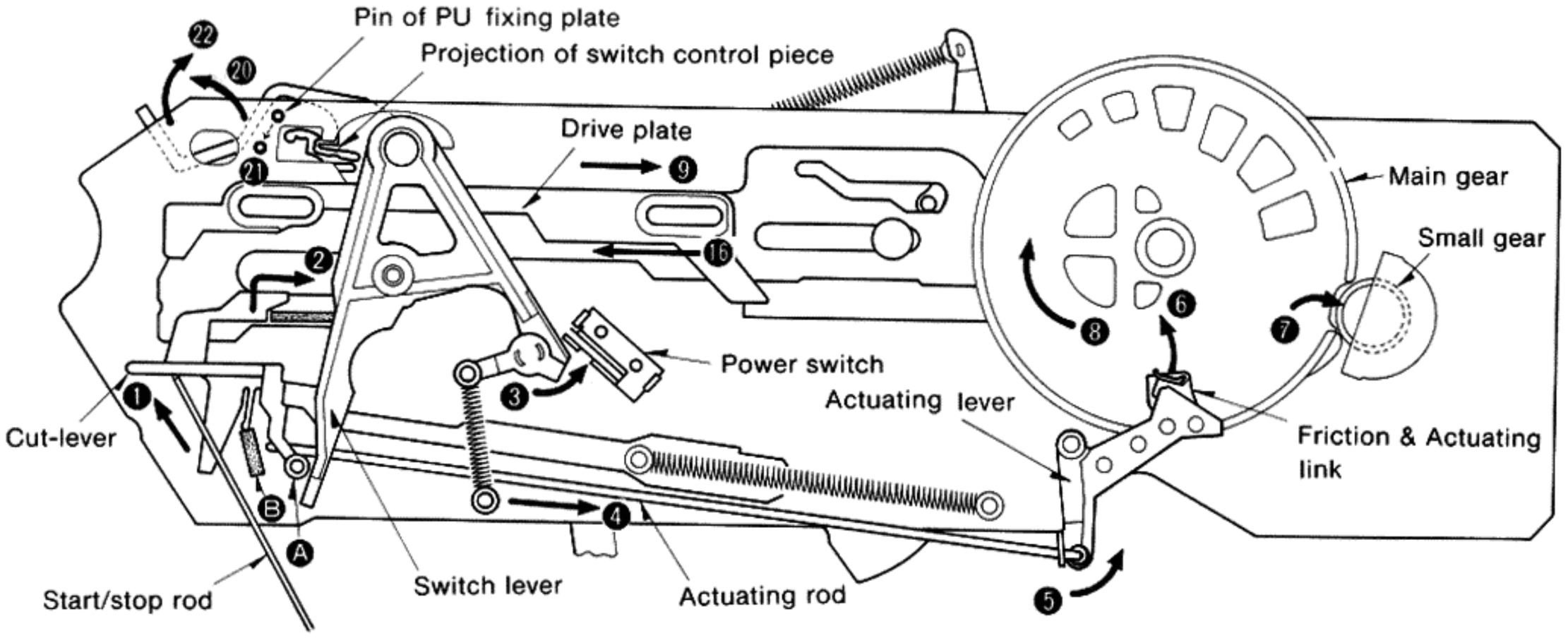


Fig. 1

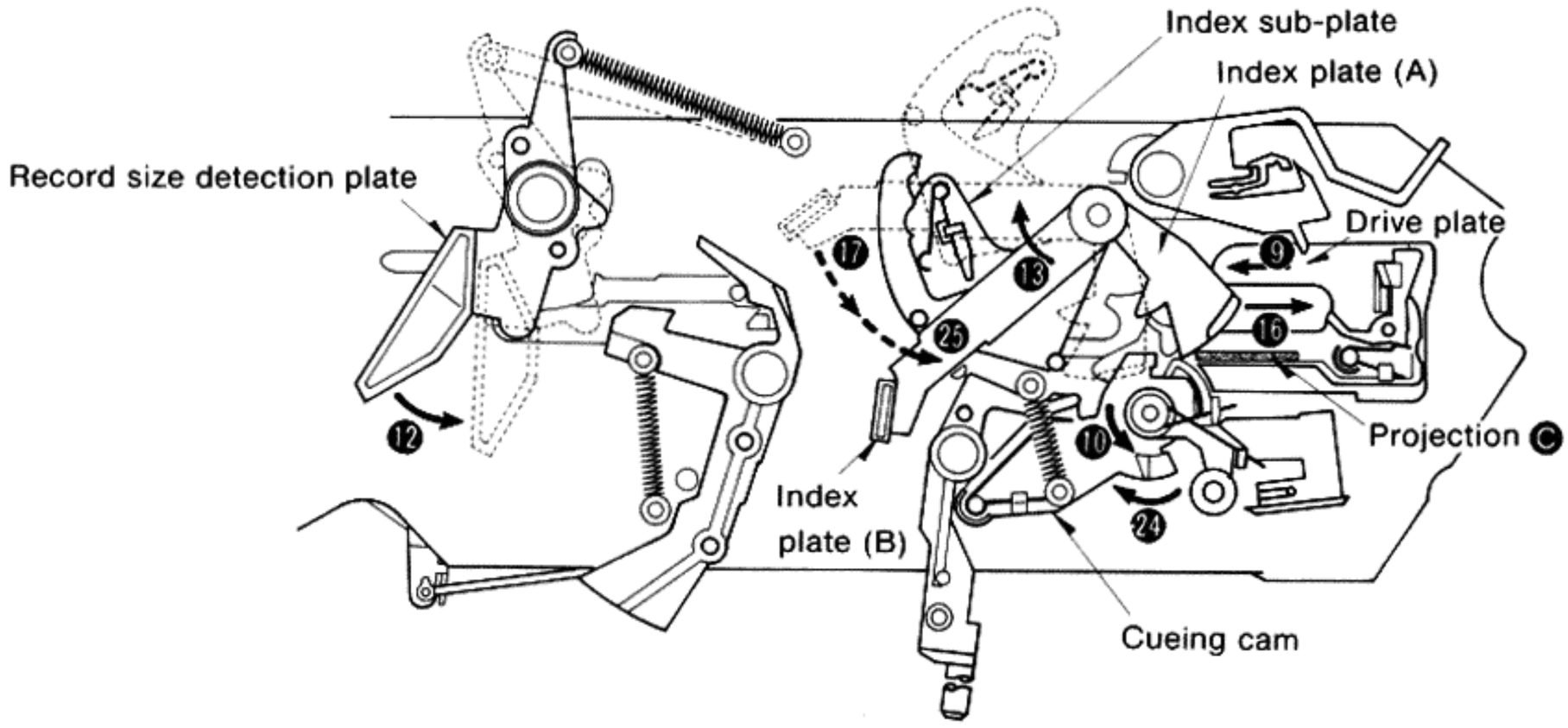


Fig. 2

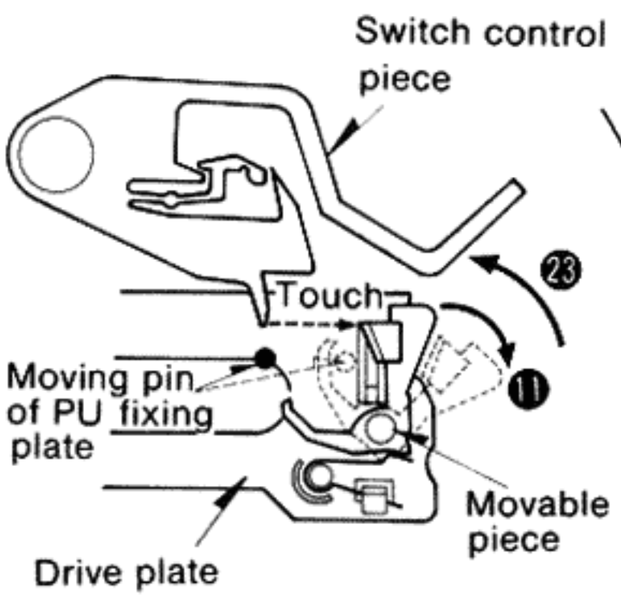


Fig. 3

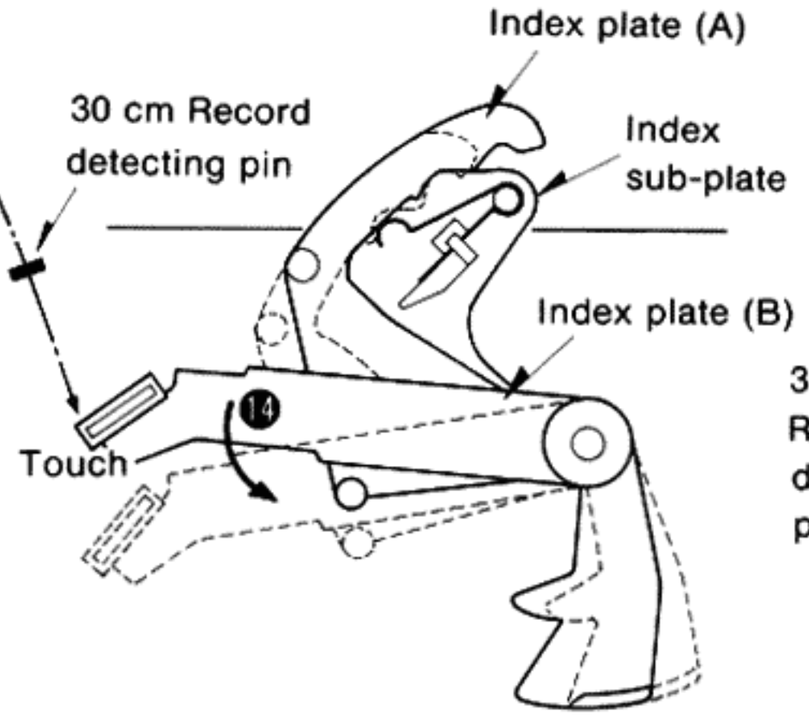


Fig. 4

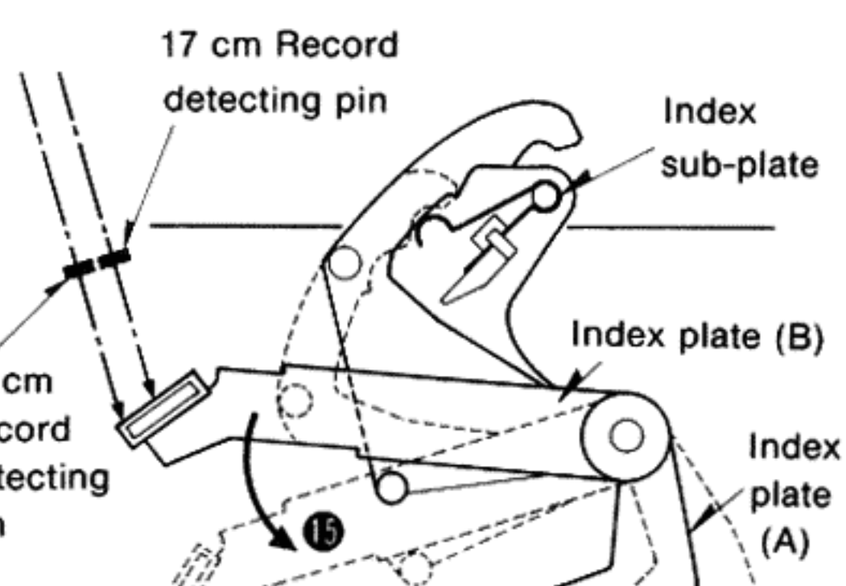


Fig. 5

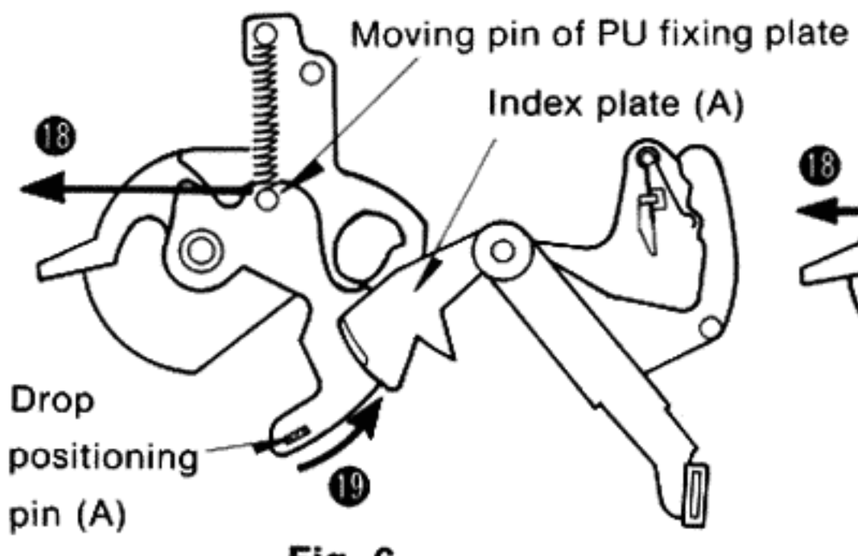


Fig. 6

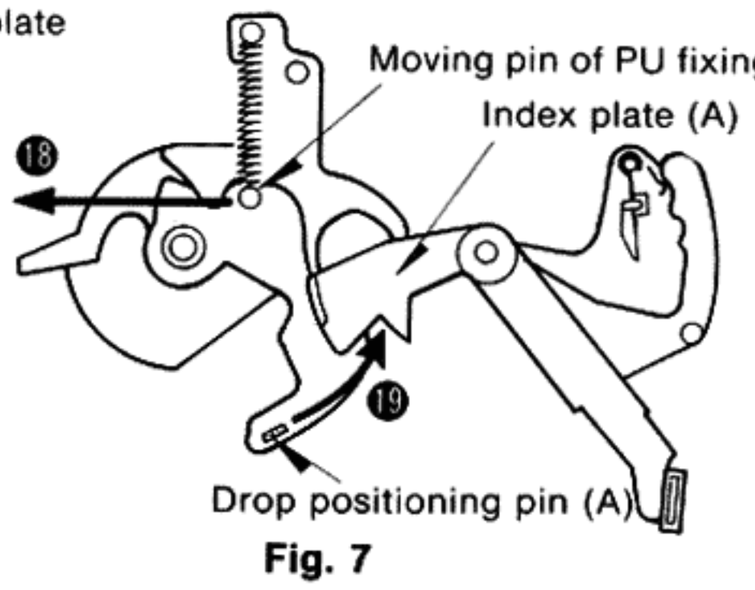


Fig. 7

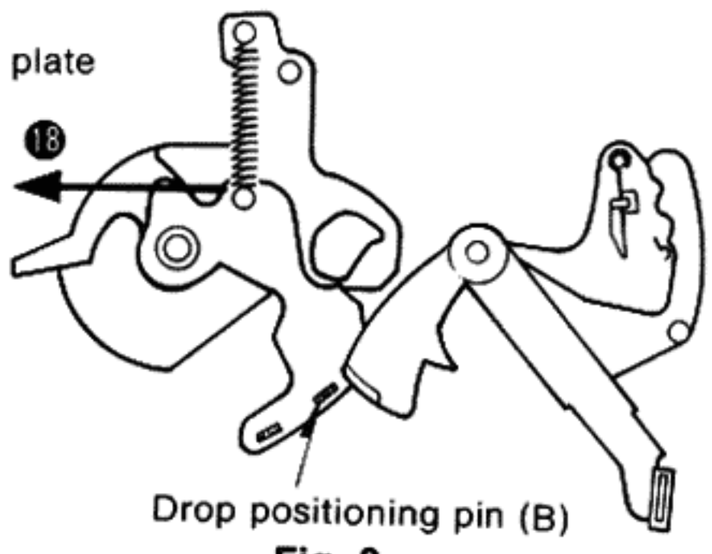
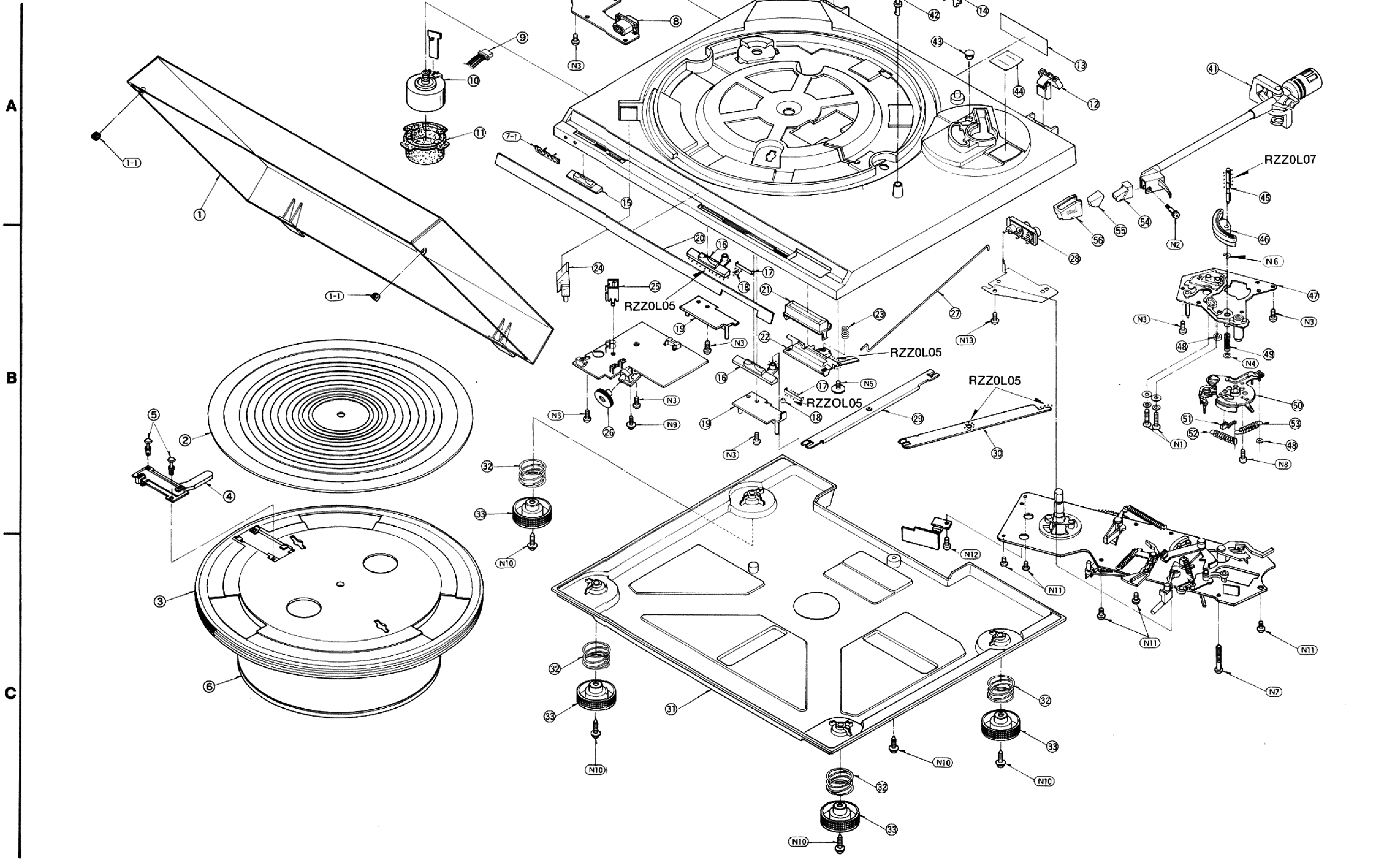


Fig. 8

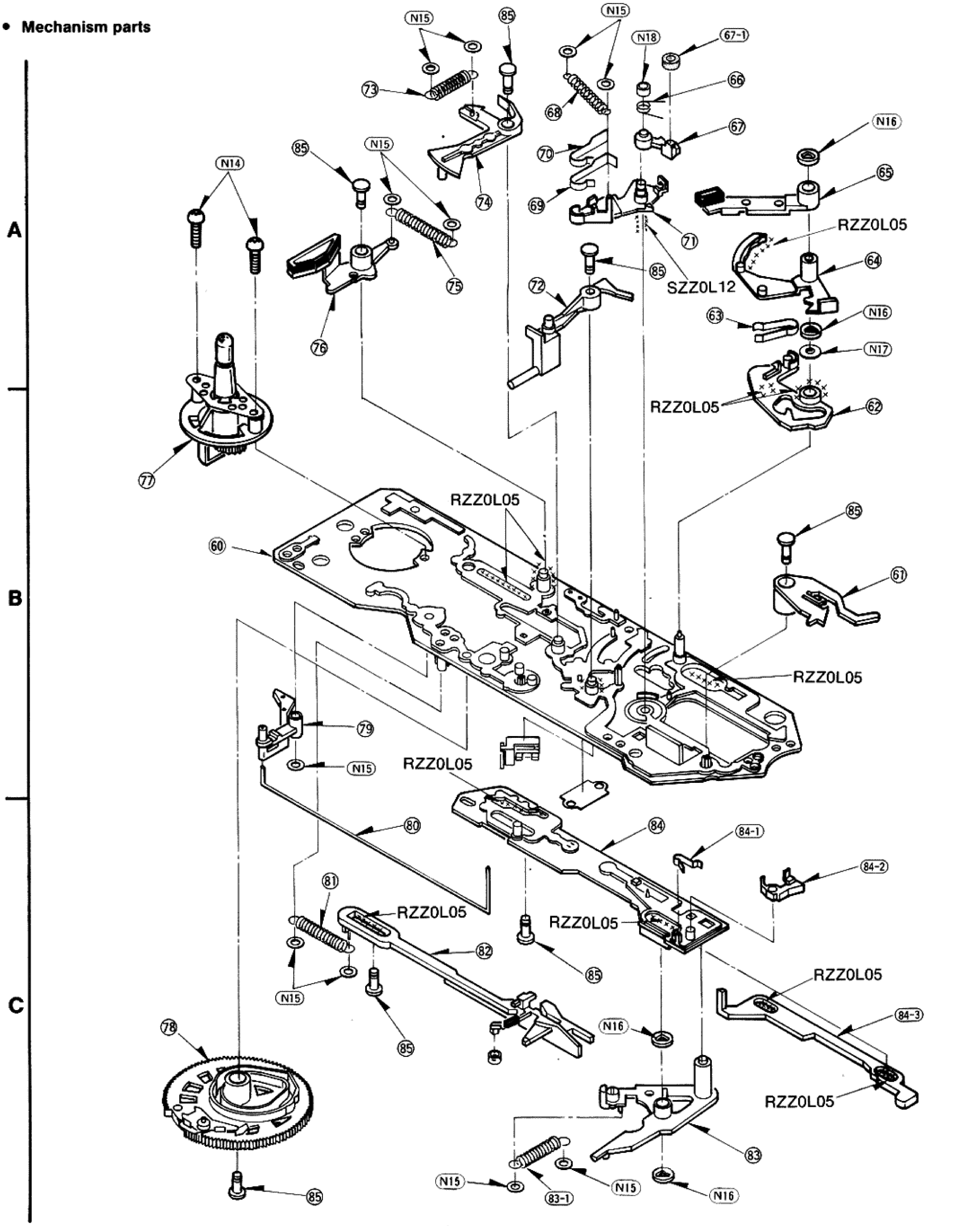
■ EXPLODED VIEW

- **Cabinet and chassis parts**



A	(1-1) (1) (11) (10) (7-1) (9) (15) (8) (7) (12) (42) (43) (14) (44) (13) (12) (41) (45)
B	(5) (2) (4) (1-1) (33) (32) (24) (26) (25) (19) (20) (19) (16) (16) (18) (17) (21) (22) (18) (17) (23) (29) (27) (30) (28) (56) (55) (54) (48) (51) (52) (46) (49) (48) (53) (50) (47)
C	(3) (6) (33) (32) (31) (32) (33) (32) (33)

- **Mechanism parts**



A	85 76 73 75 74 85 69 72 70 68 85 71 63 67 66 67-1 64 65
B	77 60 79 85 62 61
C	78 85 81 85 80 82 83-1 85 84 84-1 83 84-2 84-3

■ 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 a ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ-marked parts are used for black type only, while ○-marked parts are used for silver type only.
4. Parts other than Ⓚ- and ○-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The "Ⓢ" mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set.

Black type model No. SL-BD3 (K)

Ref. No.	Part. No.	Description
INTEGRATED CIRCUITS		
IC1	AN78L06	Regulator
IC101	SVIBA6301	Drive and Control
TRANSISTORS		
Q101	2SC1383	Switching
Q201, 202	2SB641	Strobe Drive
DIODES		
D1,2,3,4	⚠SVD1SR35200V	Rectifier
D201,202	⚠SVD1SR35200V	Rectifier
D203	MA165	Switching
D204	SVDBR5505SA	Strobe
D205	SVDBR5505SB	Strobe
D206, 207	MA165	Switching
SWITCHES		
S1	⚠SFDSD72R01	Power
S2 [XA, PA PE, PC] only	⚠SFDSHXW02066	Voltage Selector
S101	SFDSHSW0834	Speed Selector
VARIABLE RESISTORS		
VR101,102	EVN61AA00B24	Speed Adjustment, 20 kΩ (B)
VR103	EVJE1AF20B14	Pitch Control, 10 kΩ (B)
MAGNETIC RESISTOR ELEMENT		
Z601	EZM-BL01	F·G Detector
POWER TRANSFORMER		
T1 [EK, XL]	⚠SLT35KE61E	Power Source
T1 [PA, PE PC, XA]	⚠SLT35KE62E	Power Source
T1 [other]	⚠SLT35KE64E	Power Source
THERMISTER		
R110	ERTD2FFK251S	250Ω
FUSE		
F1 [XA, PA PE, PC] only	⚠XBAS2C005TIW	250V, T50 mA
RESISTORS		
R101	ERDS2TJ152	Carbon, 1/4W, 1.5 kΩ, ±5%
R102	ERDS2TJ183	Carbon, 1/4W, 18 kΩ, ±5%
R103	ERDS2TJ682	Carbon, 1/4W, 6.8 kΩ, ±5%
R104	ERDS2TJ223	Carbon, 1/4W, 22 kΩ, ±5%
R105	ERDS2TJ272	Carbon, 1/4W, 2.7 kΩ, ±5%
R106	ERDS2TJ152	Carbon, 1/4W, 1.5 kΩ, ±5%

Ref. No.	Part. No.	Description
R107	ERDS2TJ824	Carbon, 1/4W, 820 kΩ, ±5%
R108 [XA, PA PE, PC]	ERDS2TJ330	Carbon, 1/4W, 33Ω, ±5%
R108 [other]	ERDS2TJ220	Carbon, 1/4W, 22Ω, ±5%
R109	ERDS2TJ220	Carbon, 1/4W, 22Ω, ±5%
R201	ERDS2TJ472	Carbon, 1/4W, 4.7 kΩ, ±5%
R202	ERDS2TJ332	Carbon, 1/4W, 3.3 kΩ, ±5%
R203	ERDS2TJ390	Carbon, 1/4W, 39Ω, ±5%
R204 [EK, XL XA, PA PE, PC]	ERDS2TJ562	Carbon, 1/4W, 5.6 kΩ, ±5%
R204 [other]	ERDS2TJ332	Carbon, 1/4W, 3.3 kΩ, ±5%
R205	ERDS2TJ102	Carbon, 1/4W, 1 kΩ, ±5%
CAPACITORS		
C1, 2, 3	⚠ECQG1223KZ	Polyester, 100V, 0.022 μF, ±10%
C4	ECEA1EU331	Electrolytic, 25V, 330 μF
C5	ECEA0JU330	Electrolytic, 6.3V, 33 μF
C101, 102	ECEA1HU010	Electrolytic, 50V, 1 μF
C103	ECQM1H473KV	Polyester, 50V, 0.047 μF, ±10%
C104	ECQP1104JZ	Polypropylene, 100V, 0.1 μF, ±5%
C105	ECQM1H103KV	Polyester, 50V, 0.01 μF, ±10%
C106	ECEA1EU3R3	Electrolytic, 25V, 3.3 μF
C107	ECEA1HU2R2	Electrolytic, 50V, 2.2 μF
C201	ECEA1HU010	Electrolytic, 50V, 1 μF
C601, 602	ECUX1H102MBM	Chip Ceramic, 50V, 0.001 μF, ±20%
CABINET AND CHASSIS PARTS		
1	SFADZ15R01E	Dust Cover (with Cushion Rubber) (1)
1-1	SFGZD04N01	Rubber Cushion, Dust Cover (2)
2	SFTGBD3N01	Turntable Mat (1)
3	SFTEBD3N01	Turntable Platter (1)
4	SFUMB33N20A	Base, Disc Size Sensor (1)
5	SFUZD33-01E	Latch, Disc Size Sensor Base (2)
6	SFGBZ15R01	Belt (1)
7 ○	SFACBD3N01E	Cabinet (Silver) (1)
7 Ⓚ	SFACBD3N21E	Cabinet (Black) (1)
7-1 ○	SFKBBD2N01	Badge (Silver) (1)
7-1 Ⓚ	SFKBBD2N21	Badge (Black) (1)

Ref. No.	Part. No.	Description
8 [XL, XA PA, PE PC]	⚠SFDJHSC0509	AC Socket (1)
8 [other]	⚠SFDJHSC0515	AC Socket (1)
9	SFDJBD2N02E	Connector Ass'y (5P) (1)
10	SFMHBD2N01E	Motor (1)
11	SFUMBD2N08	Cushion Rubber, Motor (1)
12	SFATZ15R01A	Hinge (2)
13 [E, EC]	SFNNBD3S01	Name Plate (1)
13 [XA]	SFNNBD3X01	Name Plate (1)
13 [EG]	SFNNBD3R01	Name Plate (1)
13 [EB, EH EF, Ei]	SFNNBD3Q01	Name Plate (1)
13 [PA, PE]	SFNNBD3P01	Name Plate (1)
13 [EK, XL]	SFNNBD3G01	Name Plate (1)
13 [PC]	SFNNBD3P02	Name Plate (1)
14 Except for [XA, PA PE, PC]	SFUMBD3N03	Cover (1)
15	SFKTBD2N03	Knob, Speed Selector (1)
16	SFKTBD2N02	Knob, Cueing and Repeat (2)
17	SFQPZ15R02	Spring Plate (2)
18	SFYB-5-32	Ball (2)
19	SFUMBD3N02	Bracket, Cueing and Repeat Knob (2)
20 ○	SFKKBD3N01	Ornament (Silver) (1)
20 Ⓚ	SFKKBD3N21	Ornament (Black) (1)
21	SFKTBD2N01	Knob, Stop (1)
22	SFUMBD2N01	Base, Stop Knob (1)
23	SFQHZ15R01	Spring, Stop Knob (1)
24	SFUMBD2N07	Strobe (1)
25	SFUMBD2N06	Holder, LED (1)
26	SFKTBD2N04	Knob, Speed Adjuster (1)
27	SFUZB63M01	Rod, Start, Stop Knob (1)
28	SFDJBD2N01	Jack, Output (1)
29	SFUMBD2N03	Lever, Cueing (1)
30	SFUPB63M01	Lever, Repeat (1)
31	SFAUBD2N01	Bottom Cover (1)
32	SFQCBD2N01	Spring, Insulator (4)
33	SFGABD2N01	Insulator (4)
TONEARM PARTS		
41 ○	SFPAMBD201A	Tonearm (Silver) (1)
41 Ⓚ	SFPAMBD202A	Tonearm (Black) (1)
42	SFKUB63M01E	Tonearm Rest (1)
43 ○	SFGK170-01	Cap (1)
43 Ⓚ	SFGK171F01	Cap (Black) (1)
44	SFKKBD2N02	Plate, Canceller (1)
45	SFXJBD2N51	Shaft, Arm Lift (1)
46	SFUMBD2N51	Arm Lift (1)
47	SFUPBD3N51E	Arm Base (1)
48	SFGZZ15R02	Holder (2)

Ref. No.	Part. No.	Description	
49	SFQAZ15R53	Spring	(1)
50	SFUPB63M52E	Plate, Pick-up Mounting	(1)
51	SFUMZ15R57	Spring Pin	(1)
52	SFQHB63M57	Spring	(1)
53	SFQHB63M56	Spring	(1)
54 [PA, PE] [PC]	EPC-P28S	★ Cartridge	(1)
54 [other]	EPC-P30S	★ Cartridge	(1)
55 [PA, PE] [PC]	EPS-28CS	★ Stylus	(1)
55 [other]	EPS-30CS	★ Stylus	(1)
56 [PA, PE] [PC]	SFCNC05101	Cover, Stylus	(1)
56 [other]	SFCNC03301	Cover, Stylus	(1)

AUTOMATIC MECHANISM PARTS

60	SFUKB63M52E	Plate Ass'y, Automatic Mechanism	(1)
61	SFUMB63M65	Guide, Switch Lever	(1)
62	SFUMB63M62	Sub Plate, Index	(1)
63	SFQPB63M53	Spring, Index	(1)
64	SFUMB63M63	Plate (A), Index	(1)
65	SFUMB63M64E	Plate (B) Ass'y, Index	(1)
66	SFQSB63M52	Spring, Cueing Cam	(1)
67	SFUMB63M61	Lever, Break	(1)
67-1	SFUZB63M52	Felt, Break	(1)
68	SFQHB63M55	Spring, Cueing Cam	(1)
69	SFQPB63M52	Spring, Cueing Cam	(1)
70	SFQPB63M54	Spring, Cueing Cam	(1)
71	SFUMB63M60	Cam, Cueing	(1)
72	SFUMB63M59	Lever, Cueing	(1)
73	SFQHB63M54	Spring, Repeat Plate	(1)
74	SFUMB63M58	Lever, Repeat	(1)
75	SFQHB63M53	Spring, Record Size Detector	(1)
76	SFUMB63M57E	Record Size Detector Ass'y	(1)
77	SFTUB63M51A	Turntable Shaft Ass'y	(1)
78	SFUGB63M51E	Main Gear Ass'y	(1)
79	SFUMB63M54	Motive Plate	(1)

Ref. No.	Part. No.	Description	
80	SFQSB63M51	Rod	(1)
81	SFQHB63M51	Spring, Cancel Lever Ass'y	(1)
82	SFUMB63M53E	Lever Ass'y, Cancel	(1)
82-1	SFQHB63M52	Spring, Switch Lever Ass'y	(1)
83	SFUMB63M55E	Lever Ass'y, Switch	(1)
84	SFUBB63M51E	Plate Ass'y Drive	(1)
84-1	SFQPB63M51	Spring, Drive Plate Ass'y	(1)
84-2	SFUMB63M51	Lever	(1)
84-3	SFUMB63M52	Repeat Plate	(1)
85	SFUMZ15R56	Pin	(7)

SCREWS AND WASHERS

N1	XYN3+F12	Screw, ⊕3×12	(2)
N2	SFPEV0Q601	Screw, Cartridge	(1)
N3	XTV3+8G	Screw, ⊕3×8	(7)
N4	SFGZZ15R02	Washer	(1)
N5	SFXGQ06N01	Screw	(1)
N6	XUC3FY	Washer, ϕ3	(1)
N7	XTV3+30J	Screw, ⊕3×30	(1)
N8	SFXGQ34N02	Screw	(1)
N9	XTW3+10Q	Screw, ⊕3×10	(1)
N10	XTW3+14QFYR	Screw, ⊕3×14	(5)
N11	XTV+10G	Screw, ⊕3×10	(5)
N12	XYE3+EJ8	Screw, ⊕3×8	(1)
N13	XTV3+20J	Screw, ⊕3×20	(1)
N14	XTV3+14J	Screw, ⊕3×14	(2)
N15	SFXWZ15R51	Washer	(11)
N16	SFXWB63M52	Washer	(2)
N17	SFXWB63M51	Washer	(2)
N18	SFUMZ15R61	Washer	(1)
N19	SFXWQ34N22	Washer	(1)

ACCESSORIES

A1 [EK]	SFNUBD3G01	Instruction Book	(1)
A1 [XL, XA]	SFNUBD3X01	Instruction Book	(1)
A1 [EG]	SFNUBD3R01	Instruction Book	(1)
A1 [EF]	SFNUBD3F01	Instruction Book	(1)
A1 [Ei]	SFNUBD3I01	Instruction Book	(1)
A1 [PA, PE] [PC]	SFNUBD3P01	Instruction Book	(1)
A1 [other]	SFNUBD3S01	Instruction Book	(1)

Ref. No.	Part. No.	Description	
A2	SFDHBD2N01	Output Cord	(1)
A3	SFDLJ02N11E	Ground Wire	(1)
A4	SFWE212-01	45 Adaptor	(1)
A5 [PA, PE] [PC]	⚠SFDAC05N01	AC Cord	(1)
A5 [XA]	⚠SFDAC05X02	AC Cord	(1)
A5 [XL]	⚠SFDAC05L01	AC Cord	(1)
A5 [EK]	⚠SFDAC05G02	AC Cord	(1)
A5 [other]	⚠SFDAC05E02	AC Cord	(1)
A6 [XA] only	⚠SFDKI19118	Plug	(1)
A7 [PA, PE] [PC] only	⚠QJP0603S	Adaptor	(1)

PACKING PARTS

P1 [EF]	○	SFHPBD3C01	Carton Box (Silver)	(1)
P1 [other]	○	SFHPBD3M01	Carton Box (Silver)	(1)
P1 [EF]	Ⓚ	SFHPBD3F21	Carton Box (Black)	(1)
P1 [other]	Ⓚ	SFHPBD3M21	Carton Box (Black)	(1)
P2		SFHHBD3N01	Pad, Left	(1)
P3		SFHHBD3N02	Pad, Right	(1)
P4		SFHKBD3N01	Clamper, Turntable	(2)
P5		SFHZQ62M01	Clamper, Tonearm (Back)	(1)
P6		SFHZB63M01	Clamper, Tonearm	(1)
P7		SFHZZ15R02	Clamper, Cord	(1)
P8		SFHZD03M01	Polyethylene Sheet	(1)
P9		SFYH60×60	Polyethylene Bag, Unit	(1)
P10		SFYH52×50	Polyethylene Bag, Dust Cover	(1)
P11		SFYH17×16	Polyethylene Bag, Cord	(1)
P12		SFYF05A06	Polyethylene Bag, 45 Adaptor	(1)
P13		SFHZQ63M01	Pad, Weight	(1)

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