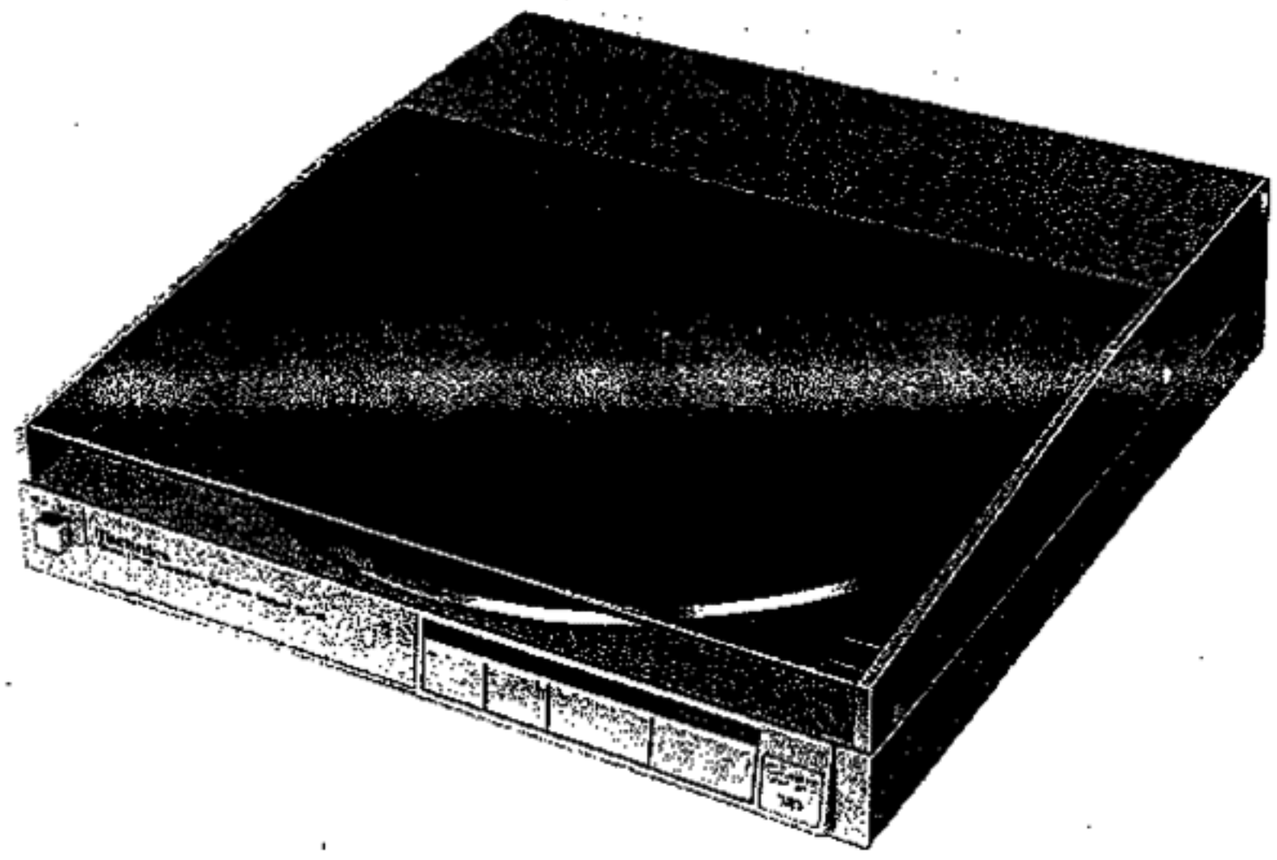
ORDER NO. DAD8311004OC1

Service Manual

Quartz Direct Drive Automatic Turntable System

SL-Q5

[M], [MC]



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

*The cartridge shown here is an option.

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:	120V AC, 60 Hz
Power consumption:	10 W
Dimensions: (W×H×D)	31.5 × 8.8 × 31.5 cm (12-1/2" × 3-1/2" × 12-1/2") 31.5 × 39 × 31.5 cm (12-1/2" × 15-23/64" × 12-1/2") (Maximum height when dust cover is open.)
Weight:	4.3 kg (9.5 lb.)

■ Turntable section

Type:	Fully Automatic turntable
Features:	Auto start/Auto lead-in Auto return Auto stop Repeat play Auto speed select Manual speed selection possible Auto size select Record presence detection
Drive method:	Direct drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase-locked control
Turntable platter:	Aluminum die-cast Diameter 30 cm (12")
Turntable speeds:	33-1/3 rpm and 45 rpm Auto speed select (Manual selection possible)
Wow and flutter:	0.012% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)
Rumble:	−56 dB (IEC 98A Unweighted) −78 dB (IEC 98A Weighted)

* Measured by obtaining signal from built-in frequency generator of motor assembly.

■ Tonearm section

Type:	Dynamic balanced type Linear tracking tonearm 4-pivot gimbal suspension
Effective length:	10.5 cm (4-1/8")
Tracking error angle:	Within ±0.1°
Effective mass:	9 g (including cartridge)
Resonance frequency:	12 Hz
Tonearm drive motor:	DC motor
Phono cable capacitance:	200 pF

Technics

Matsushita Engineering and Service Company
50 Meadowland Parkway,
Secaucus, New Jersey 07094

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

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

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
Ave. 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

■ Cartridge section

Type: Moving magnet stereo cartridge
EPC-P28S (For [PA], [PE] and [PC] areas)
EPC-P33S (For others)
Magnet circuit: All laminated core
Frequency response: 10 Hz ~ 40 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: More than 22 dB at 1 kHz
Channel balance: Within 1.8 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 (For [PA], [PE] and [PC] areas)
EPS-30ES (For others)
(Elliptical stylus)

- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.
  - ★ 220V (50/60 Hz) for Continental Europe.
  - ★ 240V (50/60 Hz) for United Kingdom and Australia.
  - ★ 110V-120V/220V-240V (50/60 Hz) for other areas.
  - ★ [EK], [XA], [XM], [PA], [PE] and [PC] areas are provided with voltage selector.

Deutsch

TECHNISCHE DATEN

Änderungen der technischen Daten vorbehalten.
Die angegebenen Gewichts- und Abmessungsdaten sind circa Werte.

■ Allgemeine Daten

Stromversorgung: ~220V, 50 Hz Wechselstrom
Leistungsaufnahme: 9 W
Abmessungen: (B x H x T) 31,5 x 8,8 x 31,5 cm
31,5 x 39 x 31,5 cm
(Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil)
Gewicht: 4.3 kg

■ Plattenspieler

Typ: Automatischer Plattenspieler
Auto-Start/Auto-Zuführung
Rückführautomatik
Stopp-Automatik
Wiederhol-Betrieb
Automatische Drehzahlwahl
Manuelle Drehzahlwahl möglich
Automatische Plattengrößewahl
Plattenpräsenz-Registrierung
Antrieb: Direktantrieb
Motor: Kollektorloser Gleichstrommotor
Antriebsregel-Methode: Quarz-Steuerung (QPL)
Plattenteller: Aluminium-Druckguß
Durchmesser 30 cm
Plattenteller-Drehzahlen: 33-1/3 und 45 U/min
Automatische Drehzahlwahl (manuelle Wahl möglich)
Gleichlaufschwankungen: 0,012% WRMS*
0,025% WRMS (JIS C5521)
± 0.035% Spitze
(IEC 98A bewertet)

* Gemessen anhand von Signalen von eingebauten Frequenzgenerator des Motorbauteils.

Rumpel-Fremdspannungsabstand: —56 dB (IEC 98A unbewertet)
Rumpel-Geräusch-spannungsabstand: —78 dB (IEC 98A bewertet)

■ Tonarm

Typ: Dynamisch ausbalancierter Tangential-Tonarm mit Kardanaufhängung mit 4-Punkt-Drehlager
Effektive Länge: 10,5 cm
Spurfehlwinkel: Innerhalb ± 0,1°
Effektive Masse: 9 g (einschließlich Tonabnehmer)
Resonanzfrequenz: 12 Hz
Tonarm-Antriebsmotor: Gleichstrommotor
Phonokabel-Kapazität: 200 pF

■ Tonabnehmer

Typ: Stereo-Magnet-Tonabnehmer
Magnetkreis: Ganzlamellenkern
Frequenzgang: 10 Hz bis 40 kHz
20 Hz bis 10 kHz ± 1 dB
Ausgangsspannung: 2,5 mV bei 1 kHz
5 cm/s. Null-zu-Spitze, lateral
(7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° [DIN 45 500])
Kanaltrennung: 22 dB bei 1 kHz
Kanalabweichung: Innerhalb 1,8 dB bei 1 kHz
Empfohlene Endimpedanz: 47 kΩ ~ 100 kΩ
Nachgiebigkeit (dynamisch): 12×10^{-6} cm/dyn bei 100 Hz
Auflagekraft-Einstellbereich: 1,25 ± 0,25 g (12,5 ± 2,5 mN)
Gewicht: 6 g (nur Tonabnehmer)
Ersatznadel: EPS-30ES (Elliptische Nadel)

■ CONTENTS

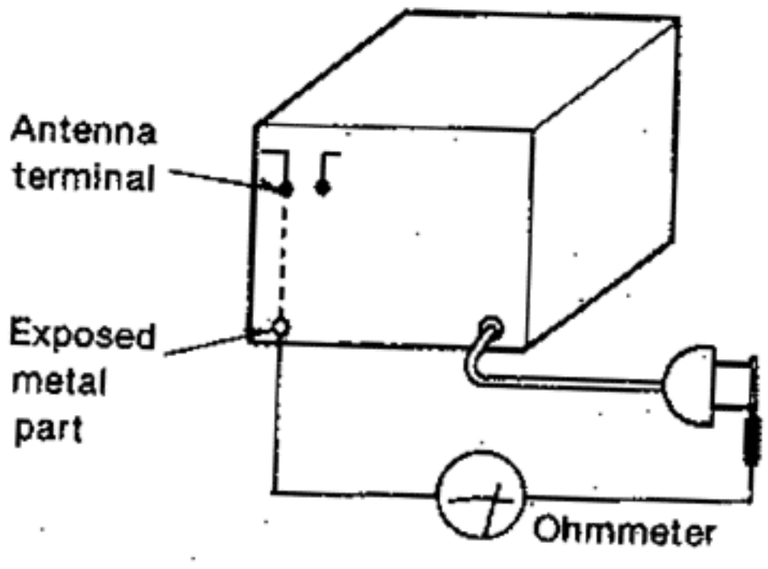
■ SAFETY PRECAUTION

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

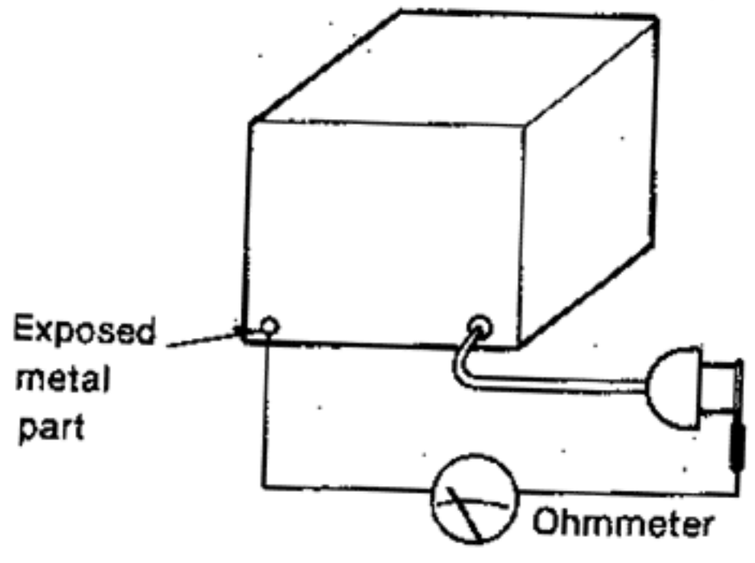
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with 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 = 3 MΩ — 5.2 MΩ



(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.

■ ADJUSTMENT POINTS

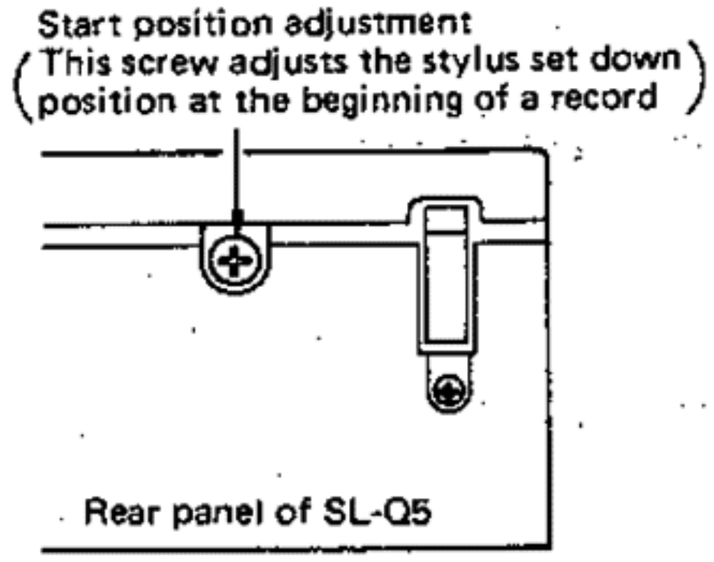


Fig. 1 Abb. 1

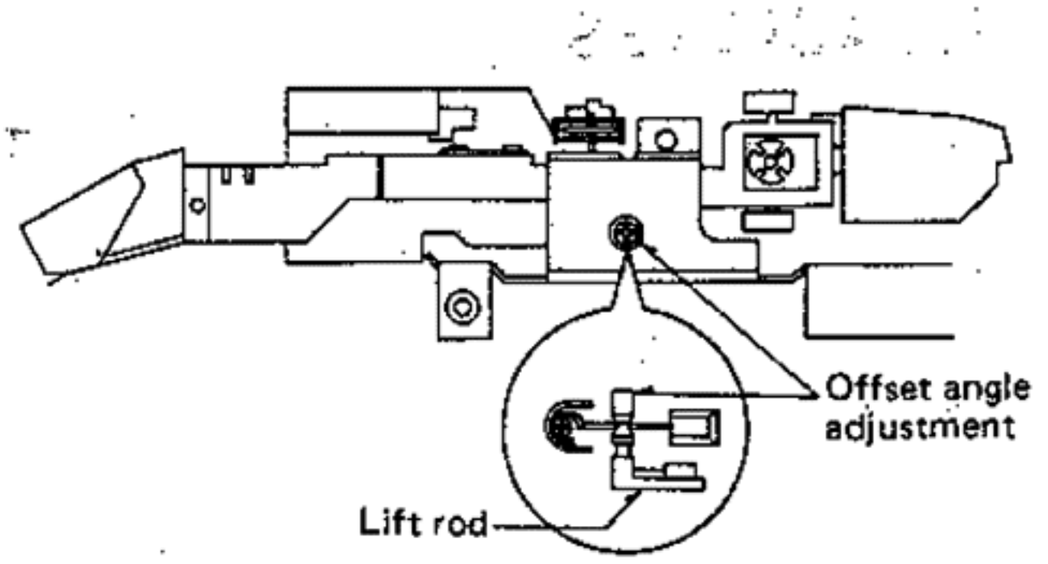
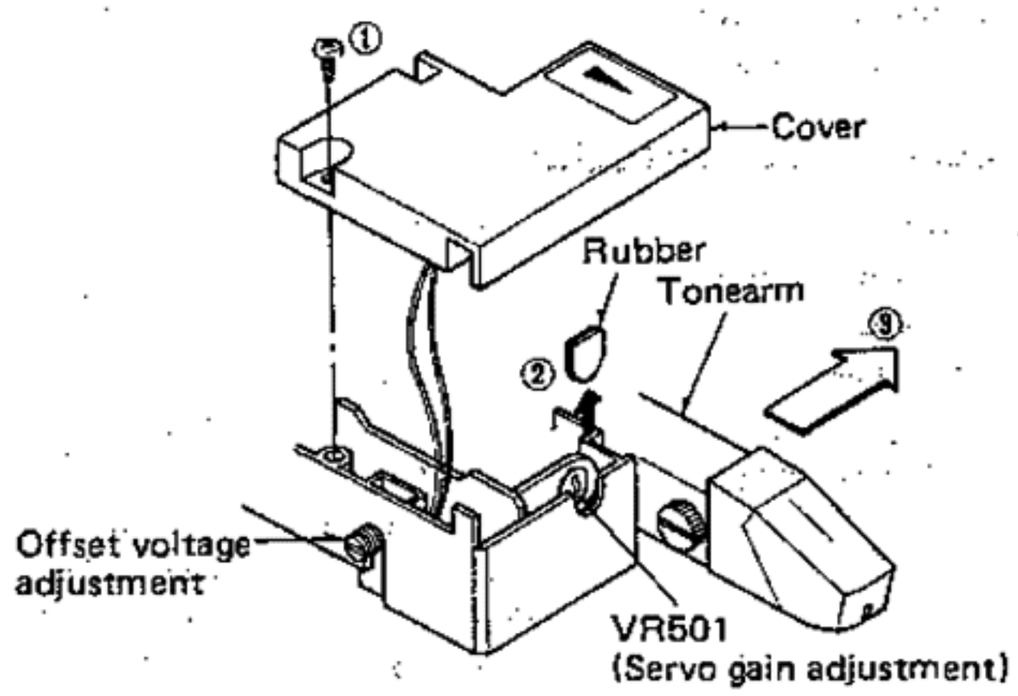


Fig. 2 Abb. 2



① Remove the cover.
② Remove the rubber.
③ When adjusting the servo gain, set the tonearm in the direction of the arrow.

Fig. 3 Abb. 3

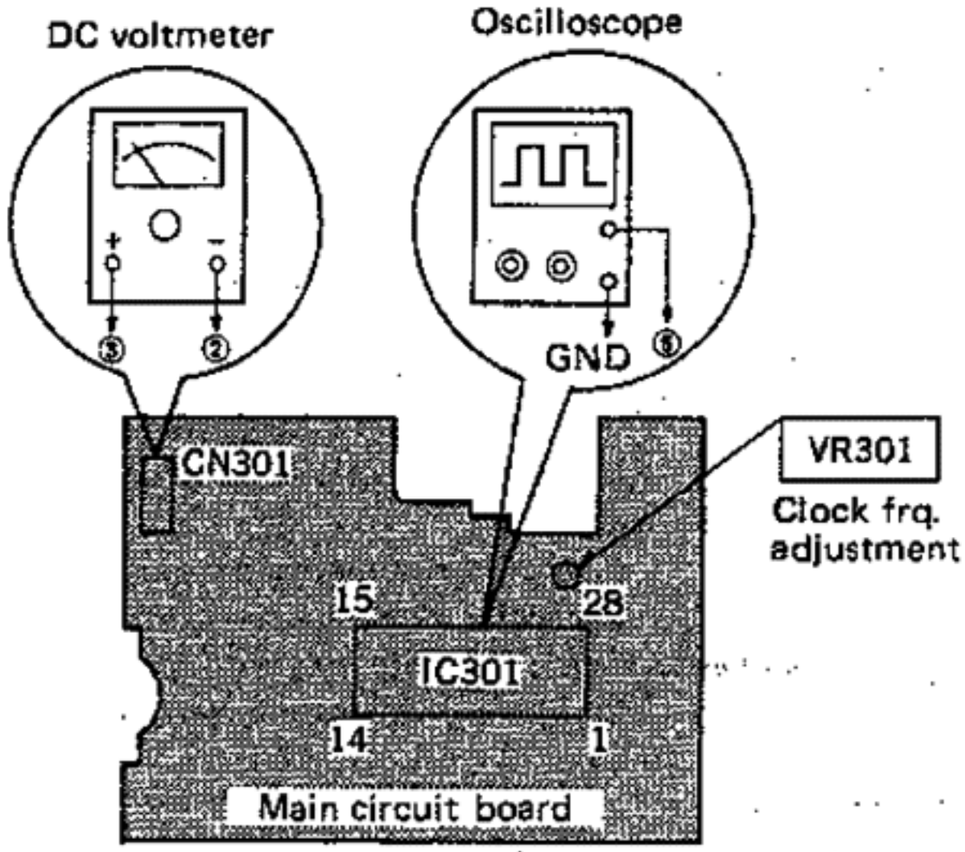


Fig. 4 Abb. 4

■ MEASUREMENTS AND ADJUSTMENTS ENGLISH

- Instruments used

1. Oscilloscope
2. DC voltmeter
3. 30cm record
4. Screwdriver

Step	Item	Preparations	Parts adjusted	Procedure
1	Start position	1) Put 30 cm record on turntable mat and close upper cabinet. 2) Set power switch to "on". 3) Push start button switch.	Start position adjust screw. (Fig. 1)	1) If stylus drops between tunes, turn adjust screw counterclockwise.
2	Tonearm offset angle	1) Open upper cabinet. 2) Set power switch to "on". 3) Push start button to move tonearm inside, then set power switch to "off".	Offset angle adjust screw. (Fig. 2)	1) Turn offset angle adjust screw so that tonearm center is aligned to V-groove of lift rod.
3	Servo gain	1) Connect DC voltmeter to CN301 terminal 3 (+) and 2 (—) of main circuit P.C.B. (Fig. 4) 2) Set power switch to "on".	VR501 (Fig. 3)	1) Completely shift tonearm to the right. 2) Adjust VR501 so that output voltage is 3.6V.
4	Offset voltage	1) Connect DC voltmeter to CN301 terminal 3 (+) and 2 (—) of main circuit P.C.B. (Fig. 4) 2) Set power switch to "on".	Offset voltage adjust screw. (Fig. 3)	1) Set tonearm to center. 2) Turn adjust screw so that output voltage is 1.8V.
5	Clock frequency	1) Connect lead wire with clip to IC301 pin 7 and pin 27 of main circuit P.C.B. 2) Connect oscilloscope to IC301 pin 6.	VR301 (Fig. 4)	1) Set power switch to "on". 2) Adjust VR301 so that the cycle output waveform is 30μF ± 1μs.

■ MESSUNGEN UND JUSTIERUNGEN ■■■■■■■■■■ Deutsch ■■■■■■■■■■

- **Zu verwendende Instrumente**

1. Oszilloskop
2. Gleichstrommeter
3. 30cm-Schallplatte
4. Schraubendreher

Schritt	Posten	Vorbereitung	Zu justierende Teile	Vorgehen
1	Start-Position	1) 30cm-Platte auflegen und Plattenspieler-Gehäuseoberteil schließen. 2) Netzschalter auf "on" stellen. 3) Start-Taste drücken.	Startposition-Justierschraube (Abb. 1)	1) Falls Nadel im Musikstück aufsetzt, entgegen dem Uhrzeigersinn drehen.
2	Tonarmwinkel	1) Gehäuseoberteil öffnen. 2) Netzschalter auf "on" stellen. 3) Start-Taste drücken, um Tonarm nach innen zu bewegen; dann Netzschalter auf "off" stellen.	Spurfehlwinkel-Justierschraube (Abb. 2)	1) Spurfehlwinkel-Justierschraube drehen, bis die Tonarmmitte mit der V-Kerbe der Liftstange übereinstimmt.
3	Servo-Verstärkung	1) Gleichstrom-Voltmeter an CN303, Anschluß 3 (+) und 2 (–) der Hauptleiterplatte anschließen. (Abb. 4) 2) Netzschalter auf "on" stellen.	VR501 (Abb. 3)	1) Tonarm ganz nach rechts bewegen. 2) VR501 so abgleichen, daß die Ausgangsspannung 3,6V beträgt.
4	Offset-Spannung	1) Gleichstrom-Voltmeter an CN303, Anschluß 3 (+) und Anschluß 2 (–) der Hauptleiterplatte anschließen. (Abb. 4) 2) Netzschalter auf "on" stellen.	Offsetspannungs-Justierschraube (Abb. 3)	1) Tonarm in die Mitte stellen. 2) Justierschraube so einstellen, daß Ausgangsspannung 1,8V beträgt. (Sechskantschlüssel verwenden.)
5	Taktgeberfrequenz	1) Anschlußdraht mit Klemmen an IC301, Stift 7 und Stift 27 der Hauptleiterplatte anschließen. 2) Oszilloskop an IC301, Stift 6 anschließen.	VR301 (Abb. 4)	1) Netzschalter auf "on" stellen. 2) VR301 so justieren, daß Ausgangswellenformperiode 30μs ± 1μs beträgt.

■ MESURAGES ET RÉGLAGES ■■■■■■■■■■ Français ■■■■■■■■■■

- **Instruments et appareils utilisés**

1. Oscilloscope
2. Voltmètre à C.C.
3. Disque de 30 cm
4. Tournevis

Etape	Article	Préparatifs	Eléments à régler	Marche à suivre
1	Position de mise en marche	1) Placer un disque de 30 cm sur la platine et refermer le boîtier supérieur. 2) Régler l'interrupteur d'alimentation sur "on" (marche). 3) Appuyer sur l'interrupteur à bouton de mise en marche.	Vis d'ajustement du positionnement de mise en marche. (Fig. 1)	1) Si la pointe de lecture descend entre les plages du disque, tourner la vis d'ajustement dans le sens inverse des aiguilles d'une montre.
2	Angle de décalage du bras de lecture	1) Ouvrir le boîtier supérieur. 2) Régler l'interrupteur d'alimentation sur "on" (marche). 3) Appuyer sur l'interrupteur à bouton de mise en marche pour faire déplacer le bras de lecture vers l'intérieur, puis régler l'interrupteur d'alimentation sur "off" (hors circuit).	Vis d'ajustement de l'angle de décalage. (Fig. 2)	1) Tourner la vis d'ajustement de l'angle de décalage de telle sorte que le centre du bras de lecture soit aligné sur la rayure en V de la tige d'élévation.
3	Amplification servo-mécanique	1) Brancher un voltmètre à C.C. à la borne 3 (+) et 2 (–) CN303 de la plaquette à circuits imprimés du montage principal. (Fig. 4) 2) Régler l'interrupteur d'alimentation sur "on" (marche).	VR501 (Fig. 3)	1) Faire pivoter entièrement vers la droite le bras de lecture. 2) Ajuster VR501 de telle sorte que la tension de sortie soit de 3,6V.

• How to remove the bottom board

1. Remove the turntable platter. (Refer to "How to remove the turntable platter.")
2. Close the dust cover and turn over the unit on a soft cloth taking care not to damage the dust cover.
3. Remove the 4 bottom board setscrews (Fig. 4: ❷ ~ ❺).

• How to remove the main circuit board

1. Remove the bottom board. (Refer to "How to remove the bottom board.")
2. Remove the 4 main circuit board setscrews (Fig. 5: ❻ ~ ❾).
3. Remove the connector CN303 and lift the main circuit board.

Note: When replacing the main circuit board, confirm the position of the reocrd detecting lever as shown in Fig. 6.

• How to remove the speed select switch circuit board

1. Remove the main circuit board. (Refer to "How to remove the main circuit board.")
2. Remove the 2 speed select switch circuit board setscrews (Fig. 7: ❿, ⓫).

• How to remove the operation switch circuit board

1. Remove the main circuit board. (Refer to "How to remove the main circuit board.")
2. Loosen the 4 front panel setscrews. (Fig. 8: ⓬ ~ ⓯)
3. Release the 3 claws of the front panel, and remove the front panel.
4. Release the 11 claws of the front panel, then the operation switch circuit board can be removed.

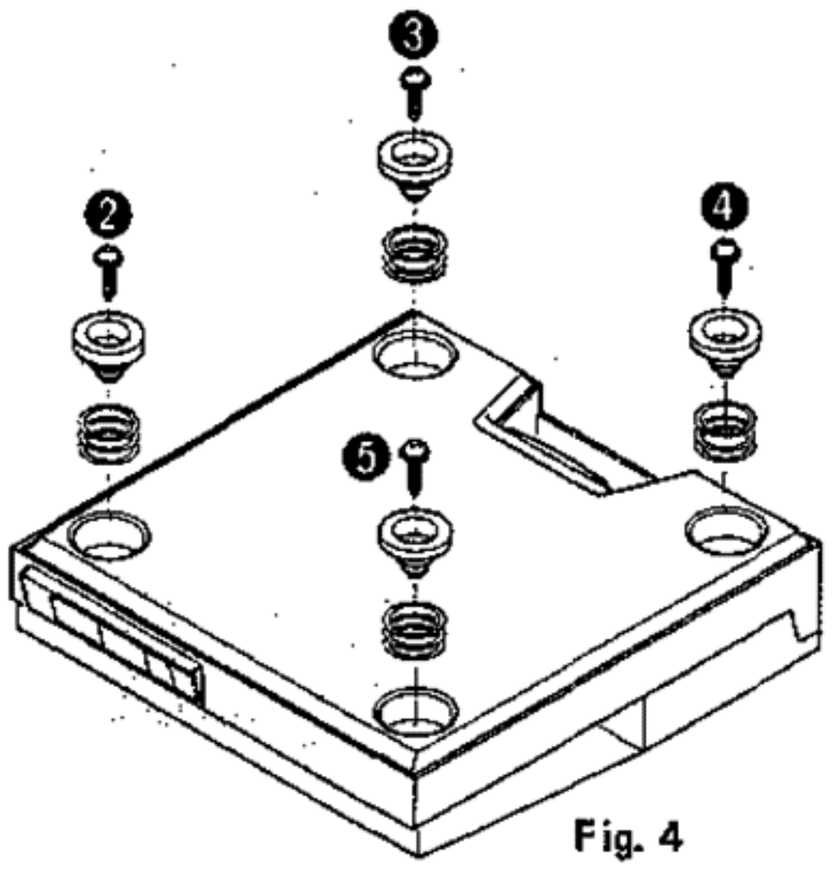


Fig. 4

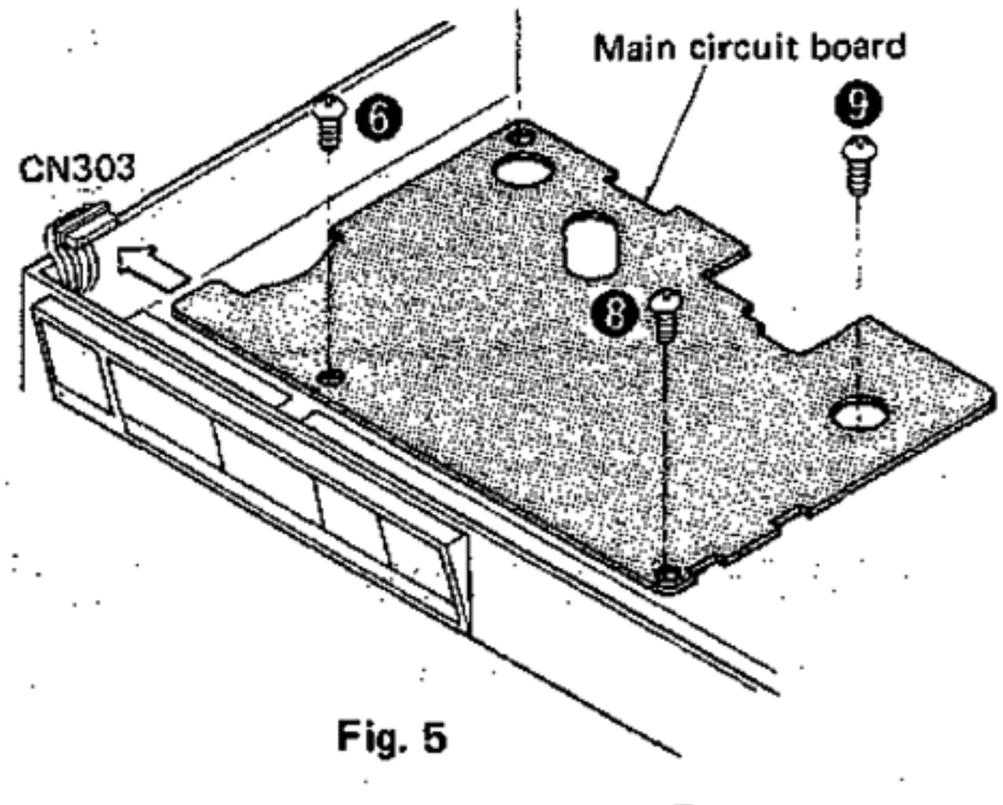


Fig. 5

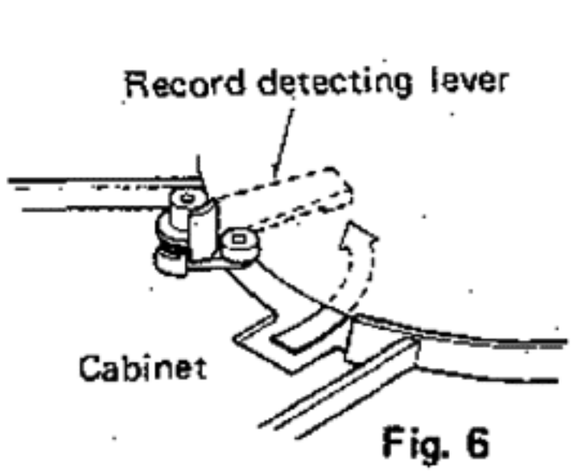


Fig. 6

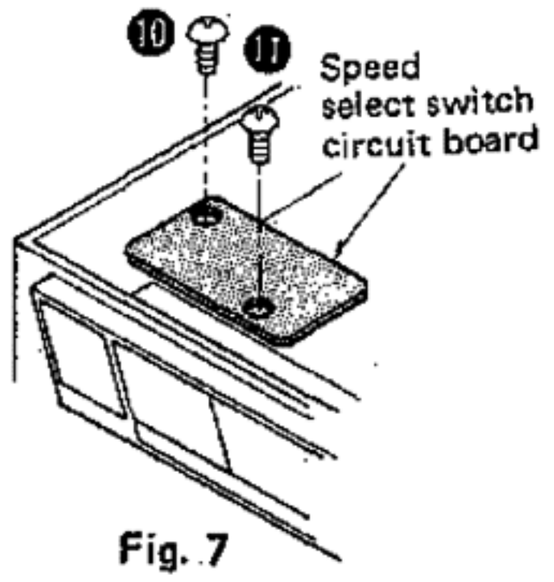


Fig. 7

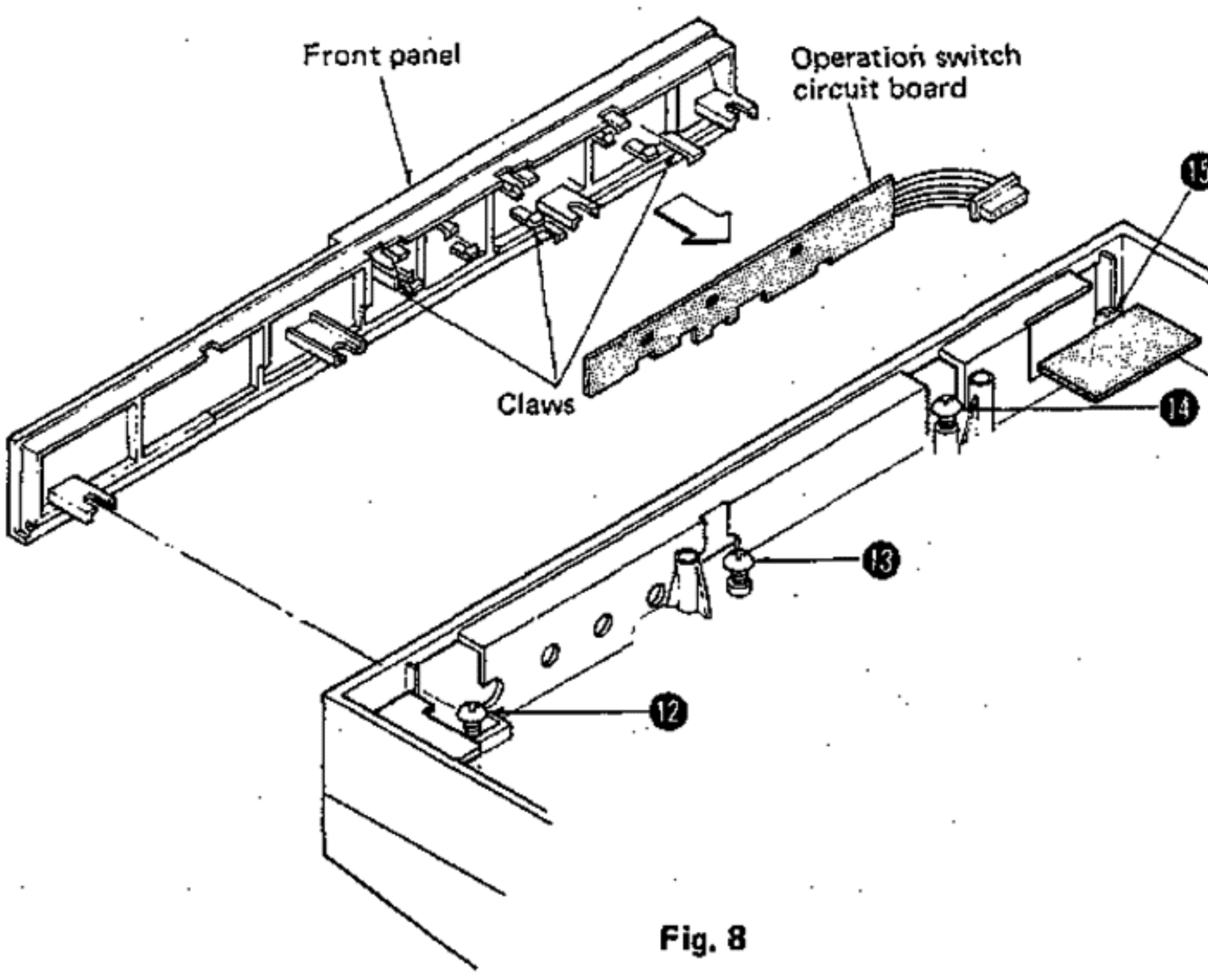


Fig. 8

• How to remove the stator frame and drive circuit board

1. Remove the main circuit board. **(Refer to "How to remove the main circuit board.")**
2. Remove the 3 stator frame setscrews (Fig. 9: ⑯ ~ ⑱) and the 2 drive circuit board setscrews (Fig. 9: ⑲, ⑳).
3. Cut off the stopper by nippers and remove the 4 setscrews (Fig. 10 : ㉑ ~ ㉔) to separate the stator frame and drive circuit board.

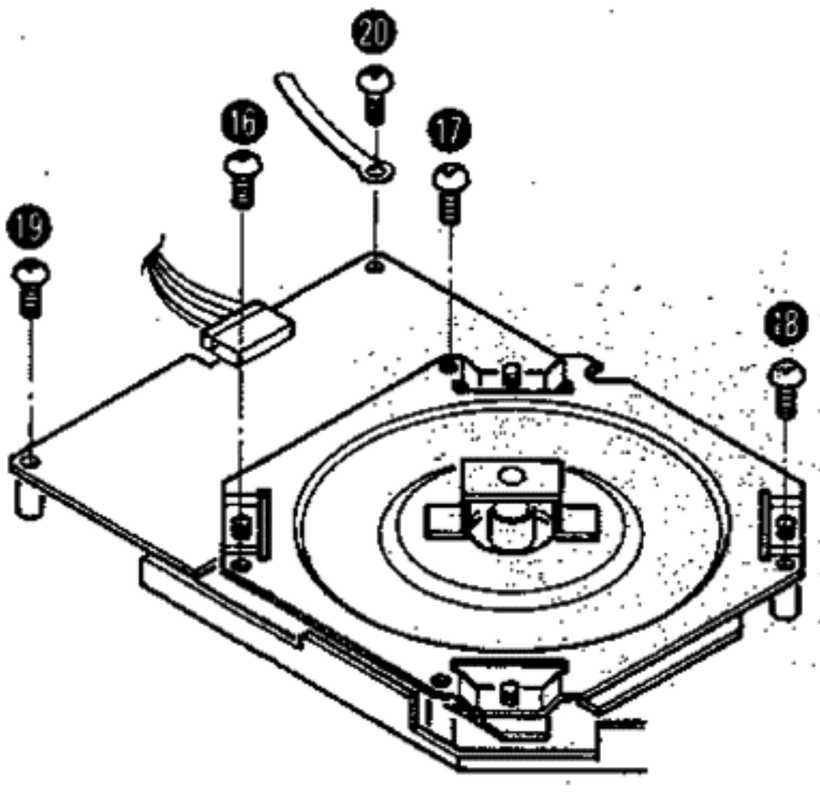


Fig. 9

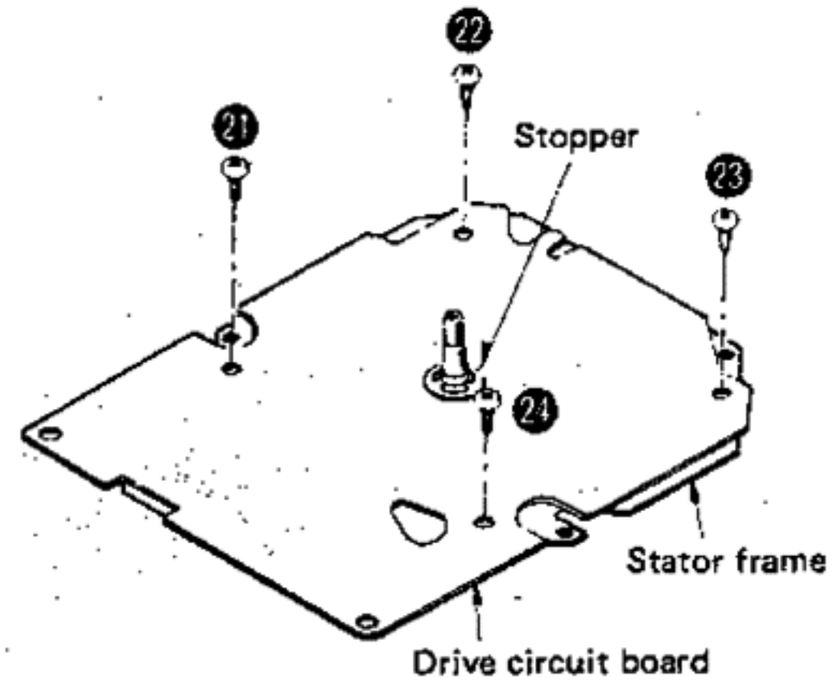


Fig. 10

• How to remove the rest switch

1. Remove the bottom board. **(Refer to "How to remove the bottom board".)**
2. Remove the swtich holder setscrew. **(Fig. 11: ㉕)**
3. Release the 2 claws of the switch holder and remove the reset switch circuit board.
4. Unsolder the 2 switch terminals, then the reset switch can be removed.

Note: When replacing the reset switch, be sure to open the dust cover.

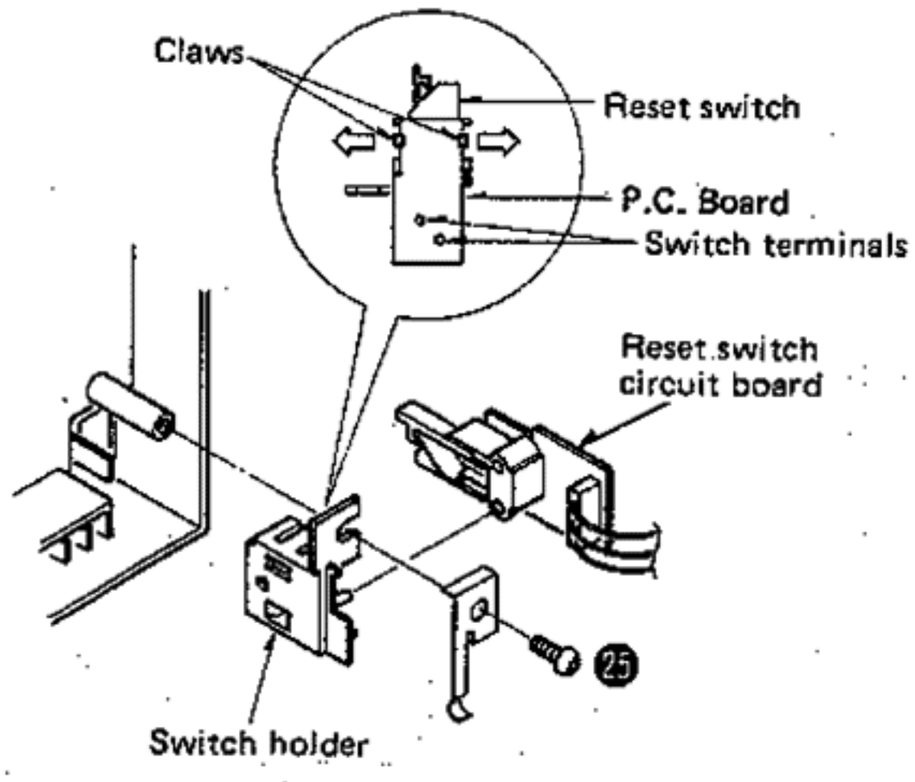


Fig. 11

• How to remove the dust cover

1. Pull out the 4 right and left rivets and 2 right and left rivet holders.
2. Lift the dust cover in the direction of the arrow. **(Fig. 12)** Then the dust cover can be remove.

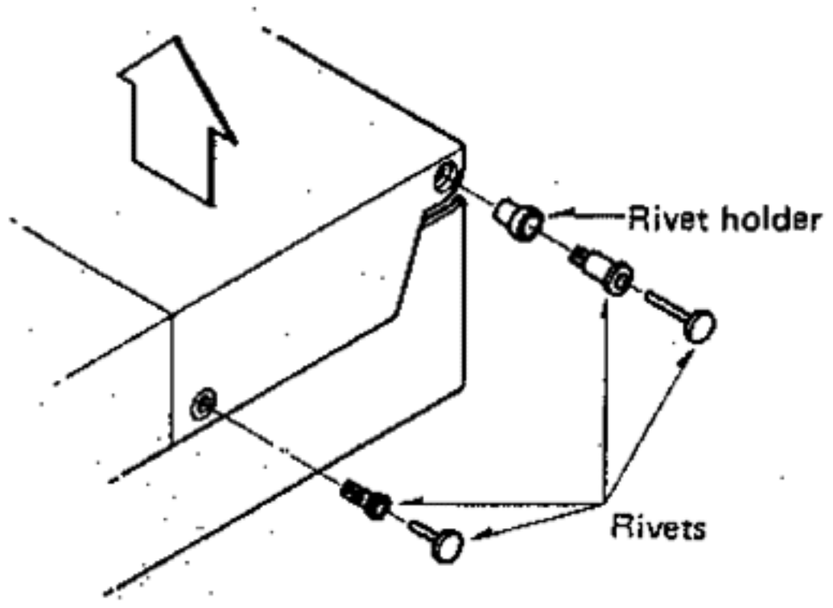


Fig. 12

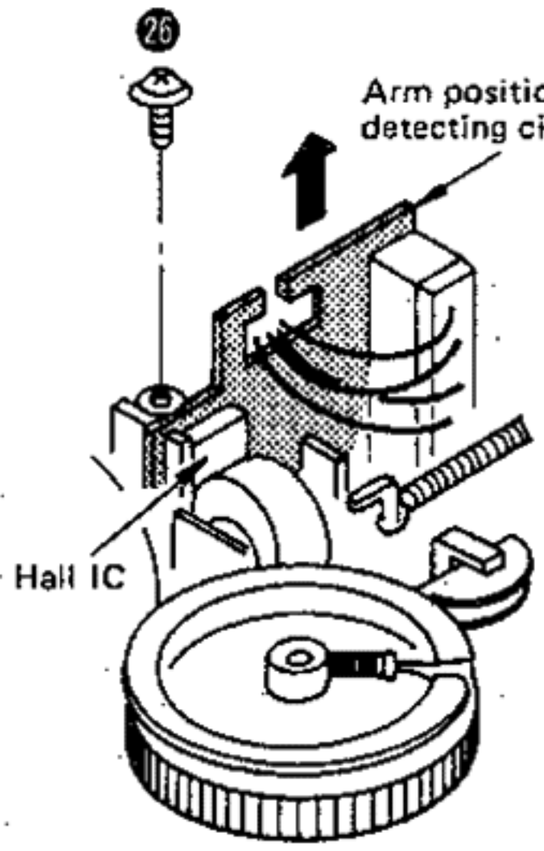
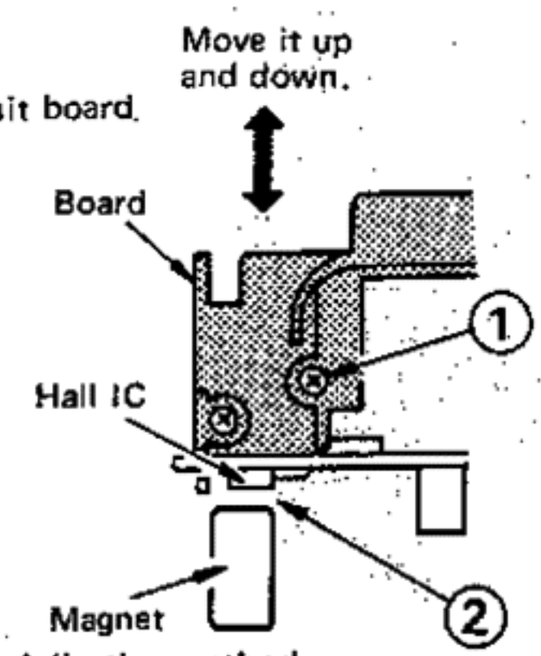


Fig. 13



Adjusting method
① Loosen the screw.
② Move the board so that the clearance between Hall IC and magnet is 0.8mm ±0.2mm, and then tighten the screw.

Fig. 14

• How to remove the tonearm positon detecting circuit board

1. Remove the dust cover. **(Refer to "How to remove the dust cover.")**
2. Remove the tonearm position detecting circuit board setscrew **(Fig. 13: ㉖)**, then the tonearm position detecting circuit board can be removed.

Note: When fitting the tonearm position detecting circuit board, adjust the clearance between Hall IC and magnet should be **0.8 mm ± 0.2 mm.**
Adjustment procedure as shown in **Fig. 14.**

- **How to remove the tonearm**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Remove the connectors CN701 and CN301.
3. Remove the lead wires cover. **(Fig. 15)**
4. Remove the dust cover. **(Refer to "How to remove the dust cover.")**
5. Remove the cartridge. **(Refer to "How to remove the cartridge.")**
6. Remove the lead wires holder. **(Fig. 16)**
7. Turn the worm gear by finger to move the tonearm inward.
8. Remove the pulley cap and pulley.
9. Remove the rest switch rod.
10. Remove the rope connecting piece from the tonearm unit.
11. Remove the guide rail clamper and guide rail.
12. Remove the tonearm setscrew (Fig. 16: ㉗), then the tonearm can be removed.

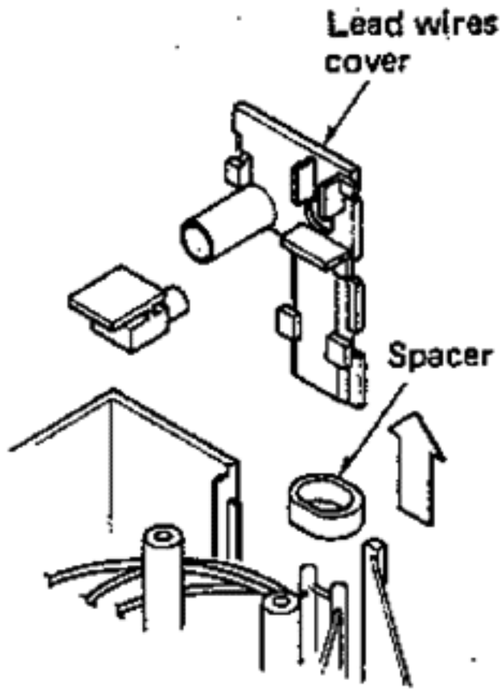


Fig. 15

- **How to remove the offset angle detection circuit board**

1. Remove the dust cover. **(Refer to "How to remove the dust cover.")**
2. Remove the indicator cover setscrew (Fig. 16: ㉘) and the indicator cover in the direction of the arrow.
3. Remove the offset angle detection circuit board set-screw (Fig. 16: ㉙), then the offset angle detection circuit board can be removed.

Note: When fitting the offset angle detection circuit board again, be sure to adjust the servo gain and offset voltage. **(Refer to the adjustment procedure)**

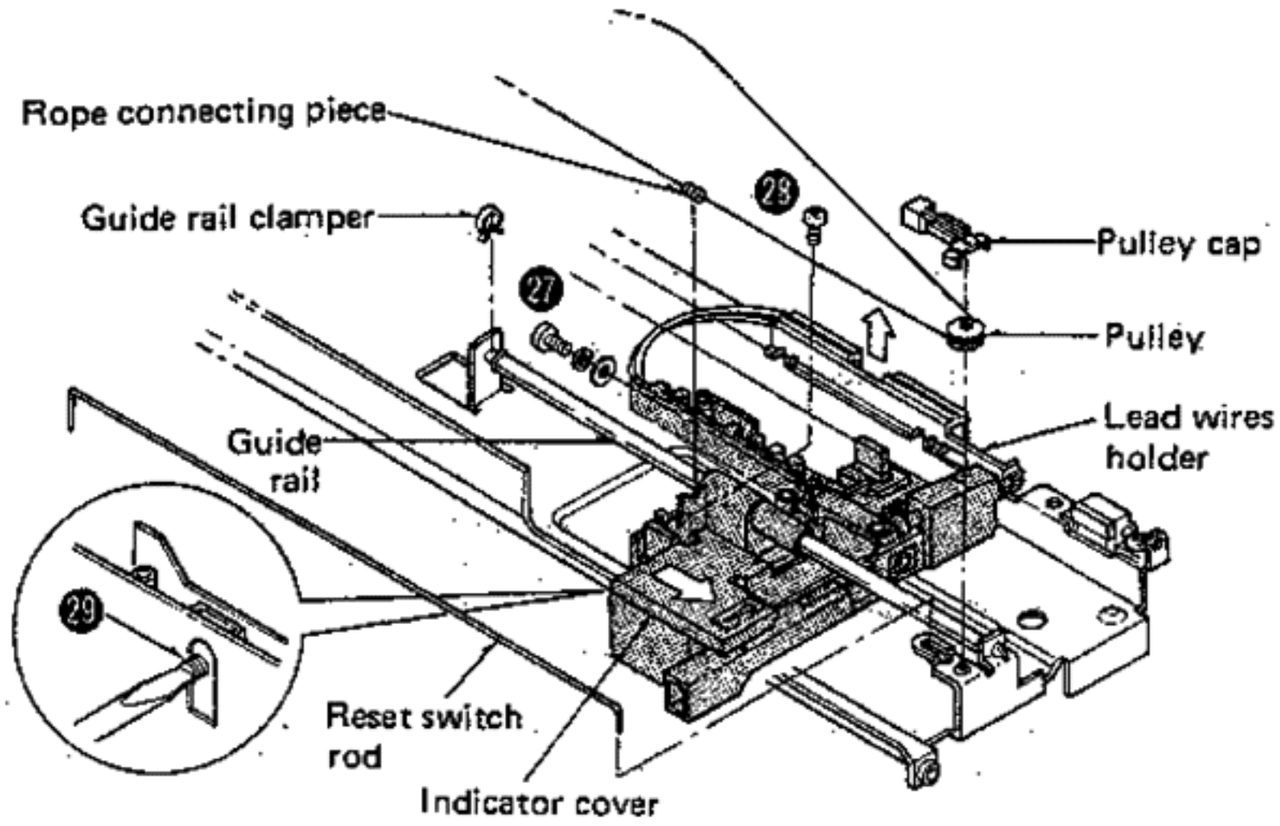


Fig. 16

- **How to remove the cueing plunger**

1. Remove the tonarm. **(Refer to "How to remove the tonearm.")**
2. Remove the offset angle detection circuit board. **(Refer to "How to remove the offset angle detection circuit board.")**
3. Unsolder the 2 lead wires of cueing plunger on the offset angle detection circuit board.
4. Remove the cueing plunger setscrew (Fig. 17 : ㉚), then the cueing plunger can be removed.

Note: The cueing plunger must be fitted in the position of **Fig. 18.**

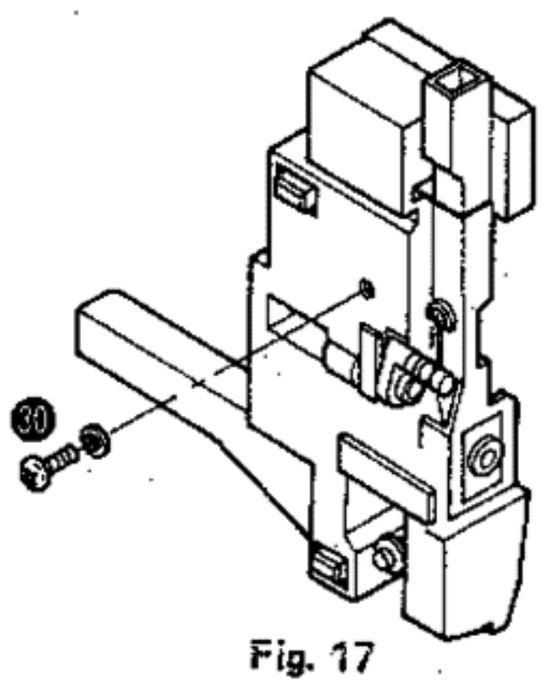


Fig. 17

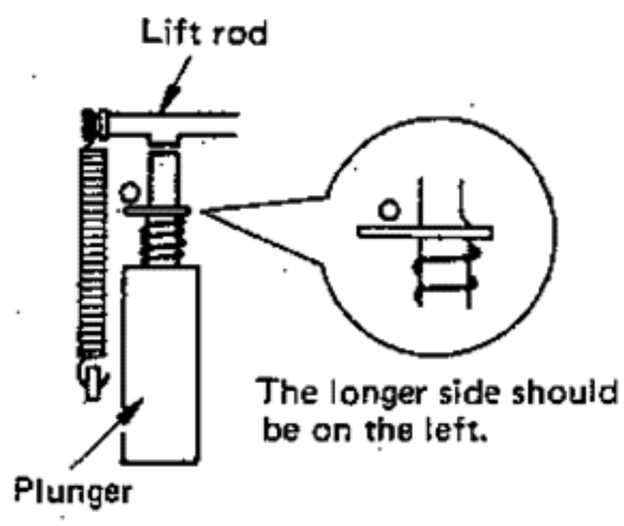


Fig. 18

■ HOW TO SET THE TONEARM DRIVE ROPE

When setting the rope, follow the procedure given below.

1. Remove the dust cover and tonearm cover. **(Refer to "How to remove the dust cover.")**
2. Remove the roller cover. **(Fig. 19)**
3. Set the rope in the order of 1 ~ 5 **(Fig. 19)**
4. Fit the rope connector to the tonearm.
5. Set the roller cover and turn the worm gear by finger to see that the tonearm moves.

Note: The arm drive wheel is not fixed. So, take care not to let is come loose during servicing. (Stop it with C-ring to prevent its removal.)

Fig. 19

■ MEASUREMENTS AND ADJUSTMENTS

- **Instruments used**

1. Oscilloscope
2. DC voltmeter
3. 30cm record
4. Screwdriver

Step	Item	Preparations	Parts adjusted	Procedure
1	Start position	1) Put 30 cm record on turntable mat and close upper cabinet. 2) Set power switch to "on". 3) Push start button switch.	Start position adjust screw. (Fig. 20)	1) If stylus drops between tunes, turn adjust screw counterclockwise.
2	Tonearm offset angle	1) Open upper cabinet. 2) Set power switch to "on". 3) Push start button to move tonearm inside, then set power switch to "off".	Offset angle adjust screw. (Fig. 21)	1) Turn offset angle adjust screw so that tonearm center is aligned to V-groove of lift rod.
3	Servo gain	1) Connect DC voltmeter to CN301 terminal 3 (+) and 2 (–) of main circuit P.C.B. (Fig. 23) 2) Set power switch to "on".	VR501 (Fig. 22)	1) Completely shift tonearm to the right. 2) Adjust VR501 so that output voltage is 3.6V.
4	Offset voltage	1) Connect DC voltmeter to CN301 terminal 3 (+) and 2 (–) of main circuit P.C.B. (Fig. 23) 2) Set power switch to "on".	Offset voltage adjust screw. (Fig. 22)	1) Set tonearm to center. 2) Turn adjust screw so that output voltage is 1.8V.
5	Clock frequency	1) Connect lead wire with clip to IC301 pin 7 and pin 27 of main circuit P.C.B. 2) Connect oscilloscope to IC301 pin 6.	VR301 (Fig. 23)	1) Set power switch to "on". 2) Adjust VR301 so that the cycle output waveform is 30μF ± 1μs.

- **Adjustment points**

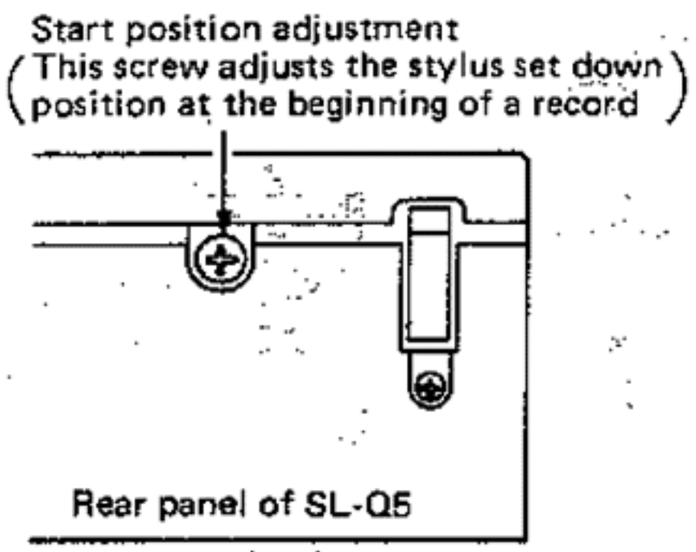


Fig. 20

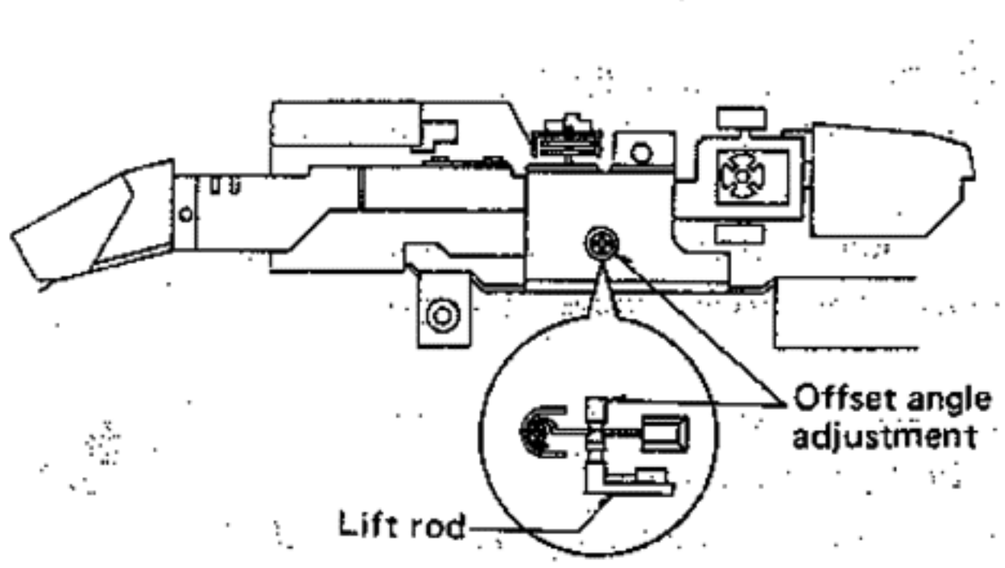
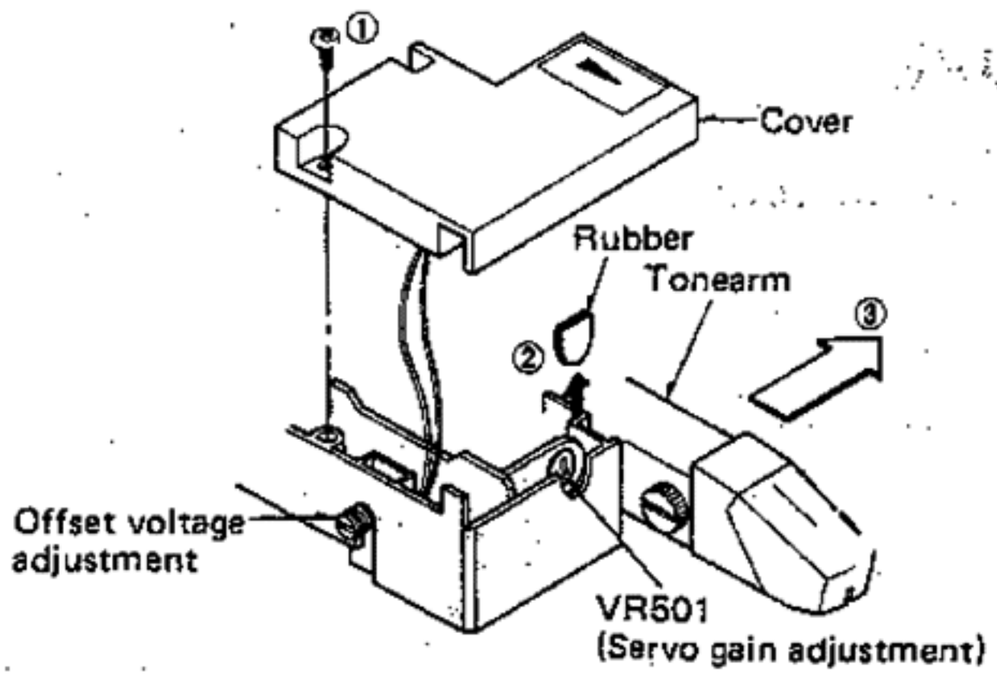


Fig. 21



① Remove the cover.
② Remove the rubber.
③ When adjusting the servo gain, set the tonearm in the direction of the arrow.

Fig. 22

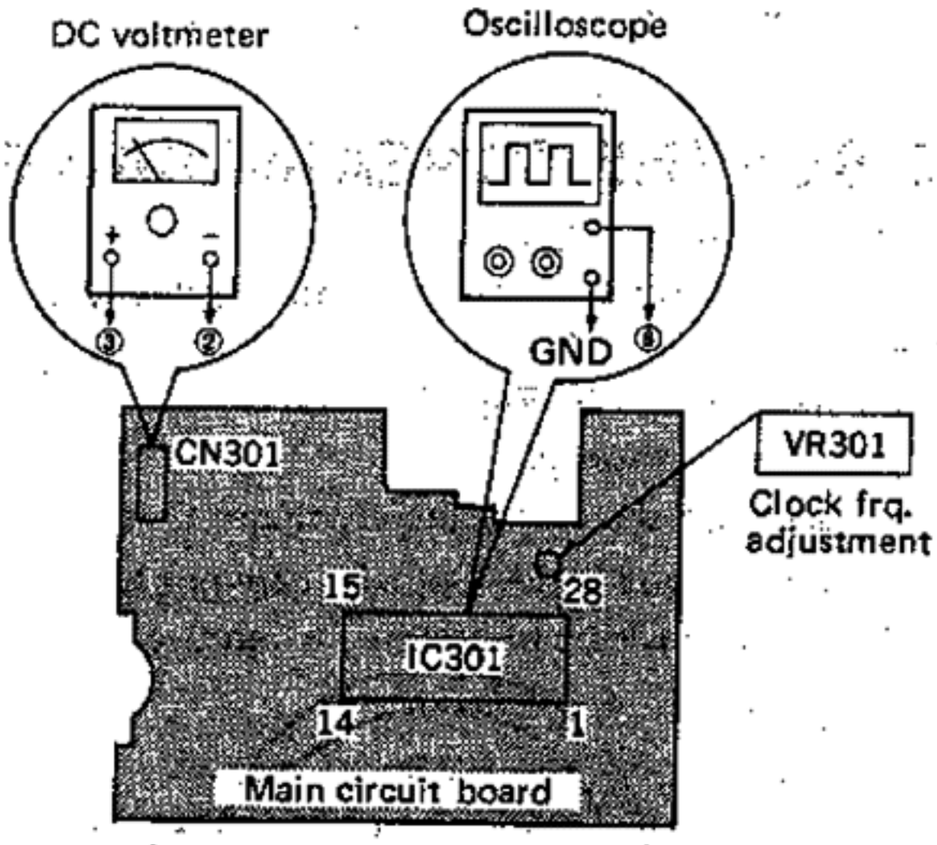
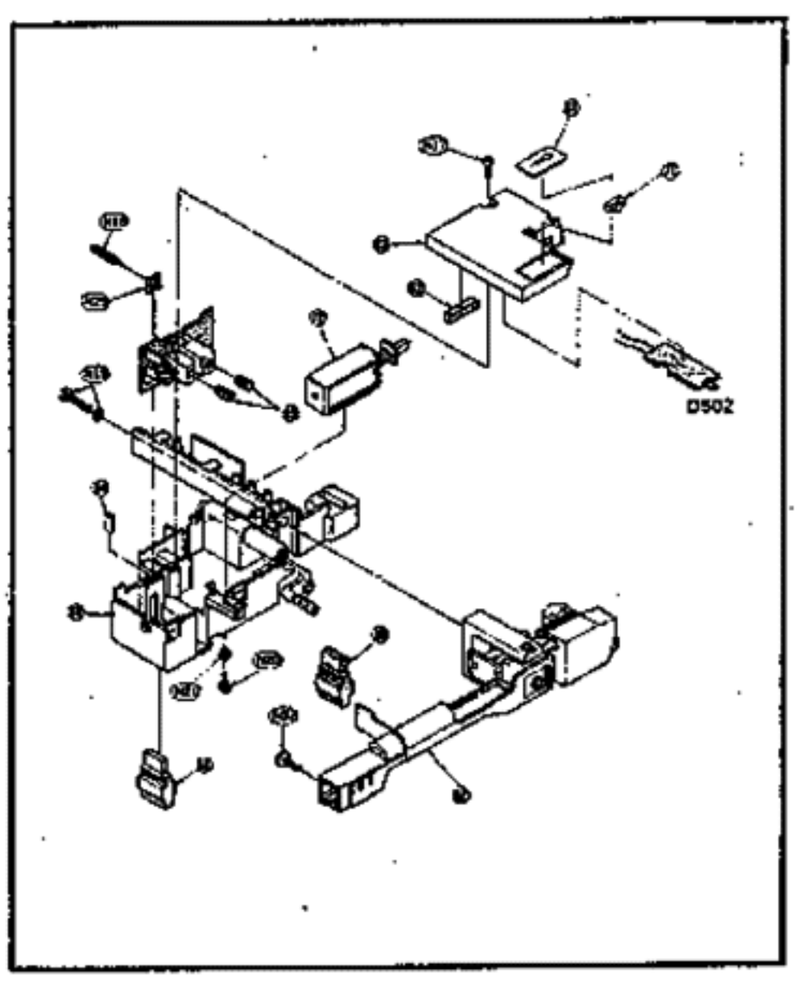
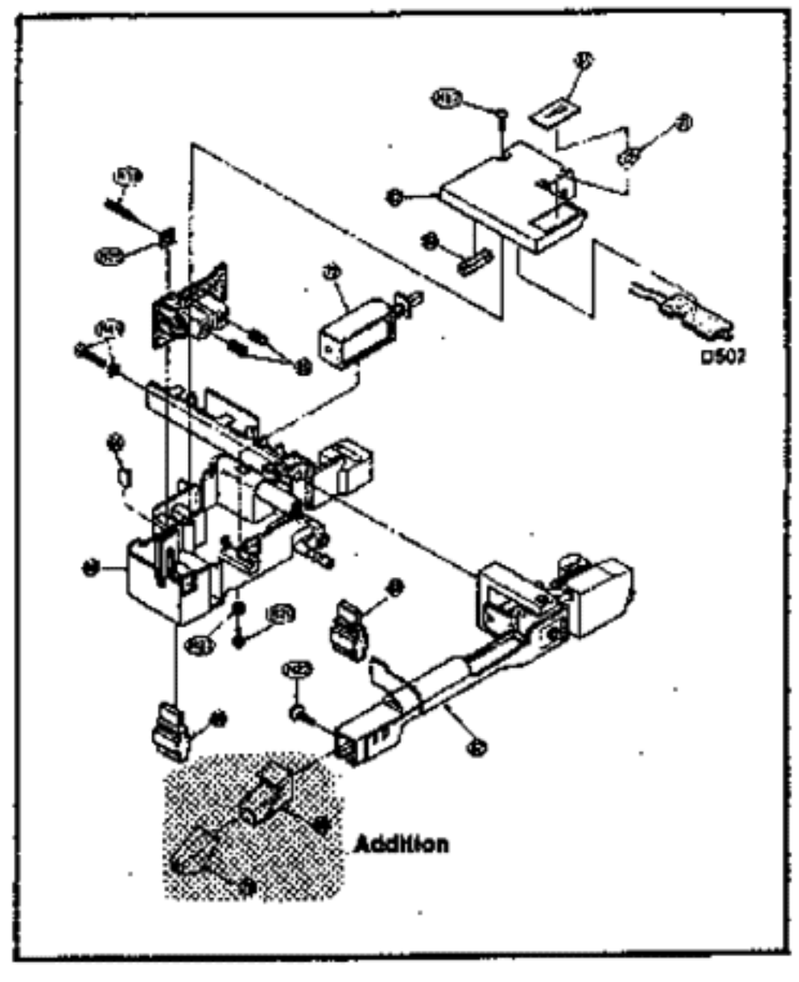


Fig. 23

Ref. No.	Change of Part No. SL-Q5 [M] → SL-Q5 / (K)		Part Name & Description	Per Set (Pcs.)	Remarks
CABINET and CHASSIS PARTS					
22	SFDJHSC0491	SFDJHSC0491 [XL]	Socket, AC Cord	1	⚠
		SFDJHSC04912 [XA, XM, EK, PA, PE and PC areas]	Socket, AC Cord	1	⚠
		SFDJHSC0498 [Other areas]	Socket, AC Cord	1	⚠
24	SFNNQC05M01	SFNNQ05S01 [E, EC]	Name Plate	1	
		SFNNQ05G01 [EK]	Name Plate	1	
		SFNNQ05X01 [XA, XM]	Name Plate	1	
		SFNNQ05P01 [PA, PE]	Name Plate	1	
		SFNNQ05P02 [PC]	Name Plate	1	
		SFNNQ05R01 [Other areas]	Name Plate	1	
58	SJT345	SJT347	Holder, Fuse	4	
69	Addition	EPC-P28AK [PA, PE, PC]	★ Cartridge	1	
		EPC-P30AK [Other areas]	★ Cartridge	1	
70	Addition	EPS-28ES [PA, PE, PC]	★ Stylus	1	
		EPS-30ES [Other areas]	★ Stylus	1	
ACCESSORIES					
A1	SFNUQ05N01	SFNUQ05i01 [Ei]	Instruction Book	1	
		SFNUQ05G01 [EK]	Instruction Book	1	
		SFNUQ05X01 [XL, XA, XM]	Instruction Book	1	
		SFNUQ05R01 [EG]	Instruction Book	1	
		SFNUQ05F01 [EF]	Instruction Book	1	
		SFNUQ05P01 [PA, PE, PC]	Instrcution Book	1	
		SFNUQ05S01 [Other areas]	Instruction Book	1	
A4	SFDAC05M01	SFDAC05G01 [EK]	AC Cord	1	⚠
		SFDAC05L01 [XL]	AC Cord	1	⚠
		SFDAC05X02 [XA, XM]	AC Cord	1	⚠
		SFDAC05N01 [PA, PE, PC]	AC Cord	1	⚠
		SFDAC05E02 [Other areas]	AC Cord	1	⚠
A5	Addition	SFDKI19118 [XA, XM] only	2 Pin Plug	1	⚠
A6	Addition	QJP0603S [PA, PE, PC] only	Adaptor, Gimens	1	⚠
PACKING PARTS					
P1	SFHPQ05M01	SFHPQ05C01 [EF] only Ⓞ	Carton Box (Silver)	1	
		SFHPQ05M01 [Other areas] Ⓞ	Carton Box (Silver)	1	
		SFHPQ05C21 [EF] only Ⓚ	Carton Box (Black)	1	
		SFHPQ05M21 [Other areas] Ⓚ	Carton Box (Black)	1	

■ EXPLODED VIEWS



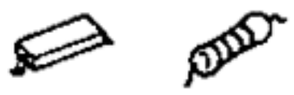


■ HOW TO REPLACE CHIPS

(Resistor, capacitor and jumper)

- **Removing procedure**

1. Completely remove the solder from both ends of the chip by use of solder suker.
2. Touch the soldering iron to the end of the chip as shown in Fig. 24, then turn the tweezers in the direction of the arrow.



Witout color code With color code

Chip resistor

Do not re-use chip resistor or capacitor without color cord.

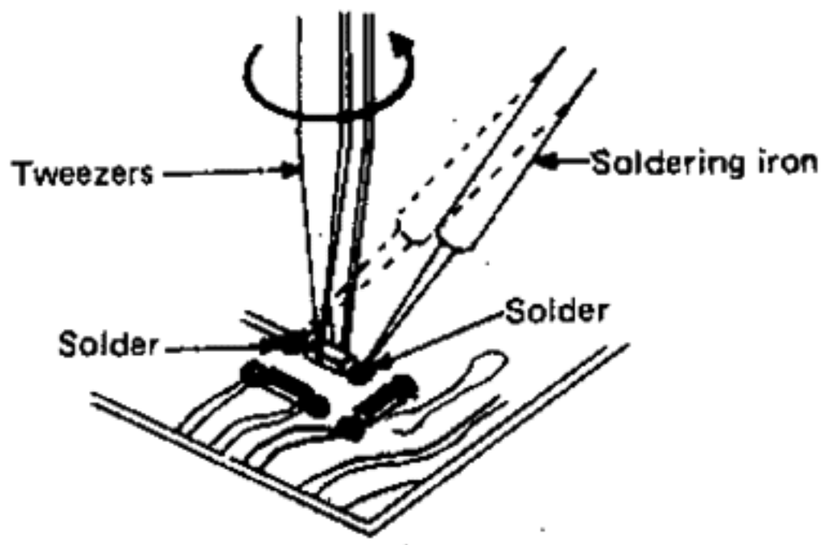


Fig. 24

- **Replacing procedure**

1. Place solder on the foil where the chip is fitted.
   Then solder the chip by holding the soldering iron as shown in Fig. 25.

Note:

1. If the chip jumper is removed, connect a coated lead wire to the part. (See Fig. 26).
   Chip jumper is marked with "J" on the printed circuit board.

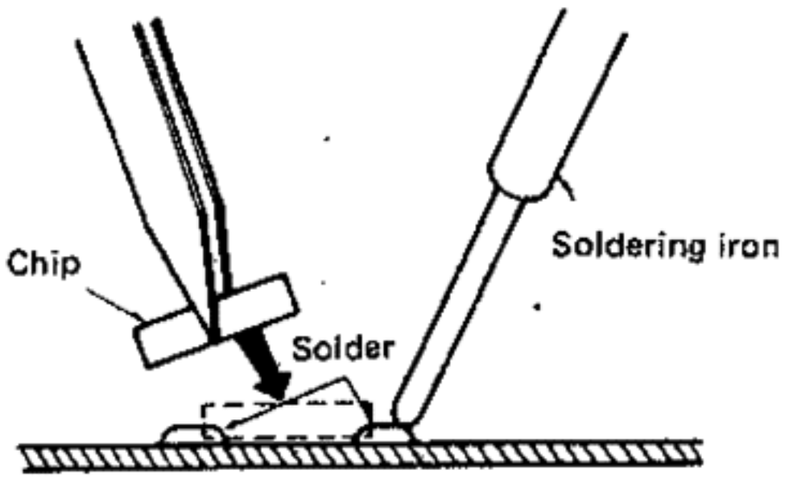


Fig. 25

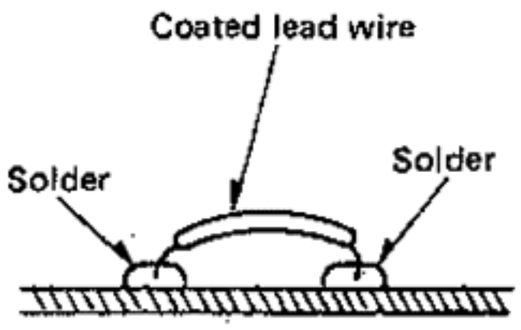


Fig. 26

- **Note for replacing chips**

1. Do not heat the chip more than 3 seconds.
2. Do not rub the electrode against the chip.
3. Use the tweezers with care not to damage the surface of the chip.
4. It is desirable to use a pencil type soldering iron. And use soldering iron less than 60W.

■ TROUBLE SHOOTING

1. How to use the repair table (Fig. 27)

① Remove the bottom board.
② Remove the main circuit board and connect the P.C.B. ground terminal to the chassis. (stator frame)
③ Put the unit on the repair table.
④ Fit the turntable platter and put on the turntable mat.
⑤ Put on the record and check the circuits from under the unit.

2. How to raise the unit (Fig. 28)

Note: Turntable platter is not fixed on the center spindle. Take care so that the turntable platter will not come loose. Also, take care allow the unit to fall down.

① Remove the bottom board.
② Completely open the upper cabinet.
③ Hold the cabinet (reset) switch with tape.
④ Fit the turntable platter.
⑤ Raise the unit and check the circuits.

3. How to turn over the unit (Fig. 29)

Note: This purpose is to check the voltage of each circuit during stop of the turntable.

① Remove the turntable platter and turn over the unit.
② Remove the bottom board.
③ Turn the power switch "on" and check the voltage.

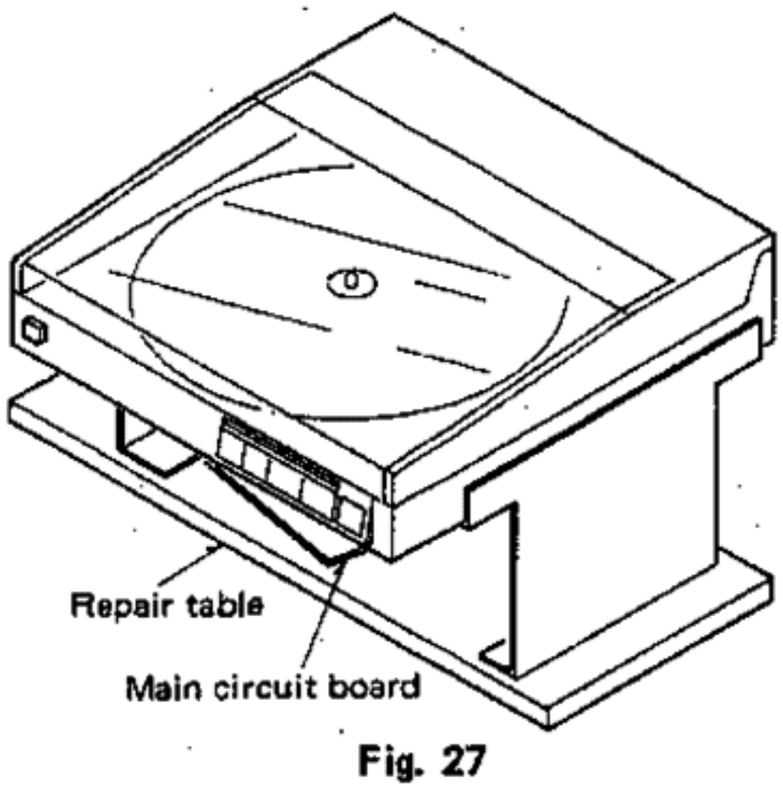


Fig. 27

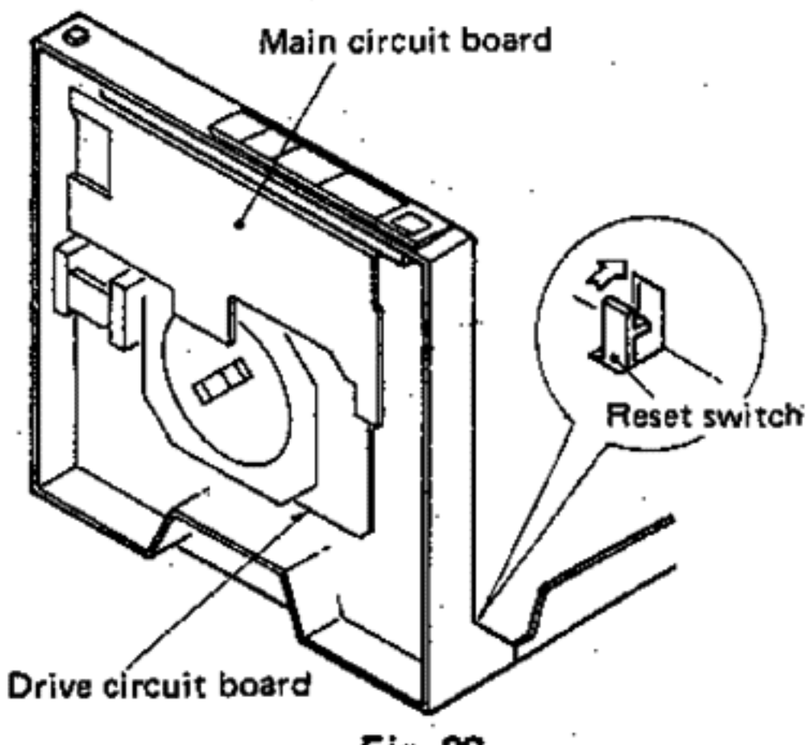


Fig. 28

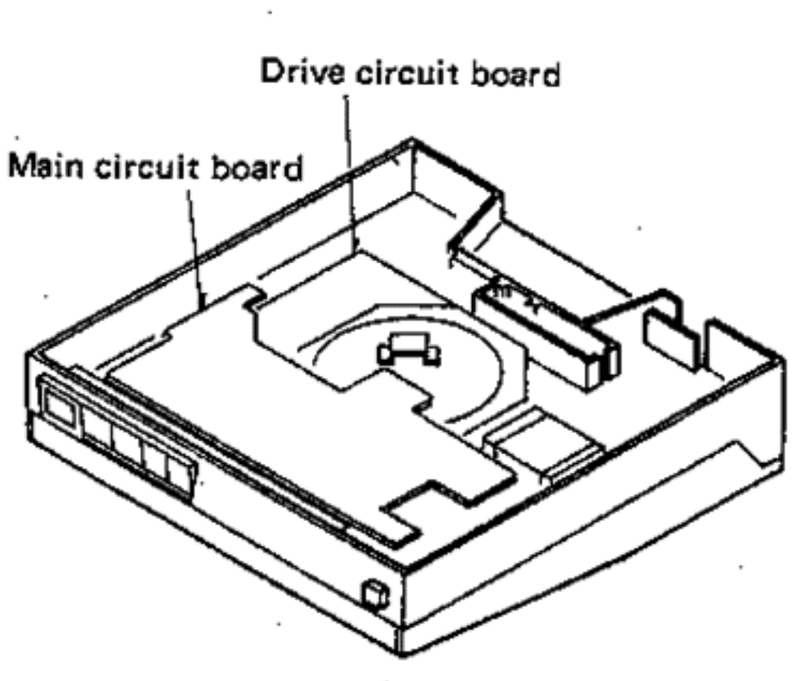
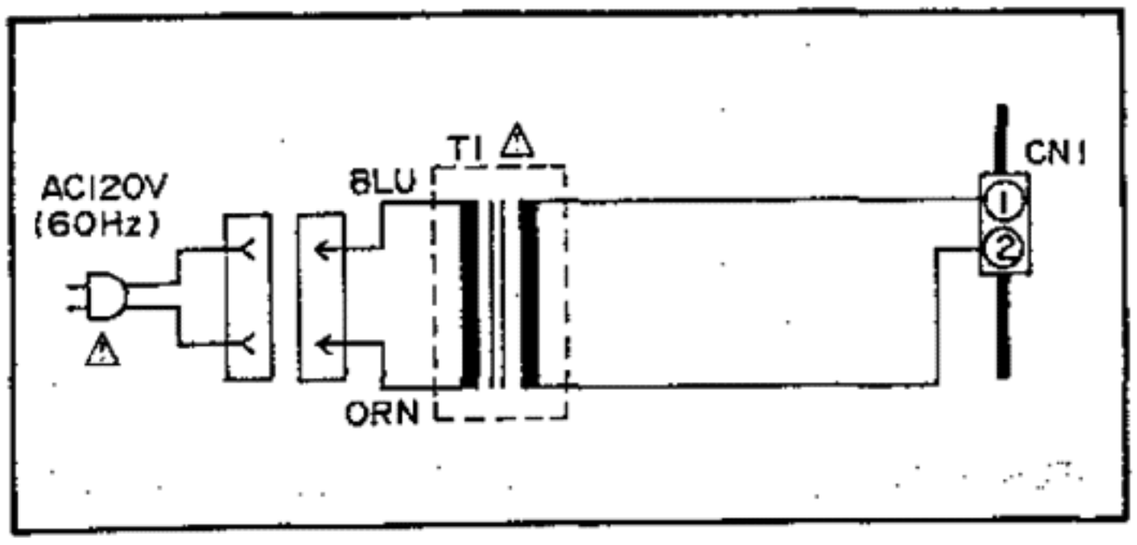


Fig. 29

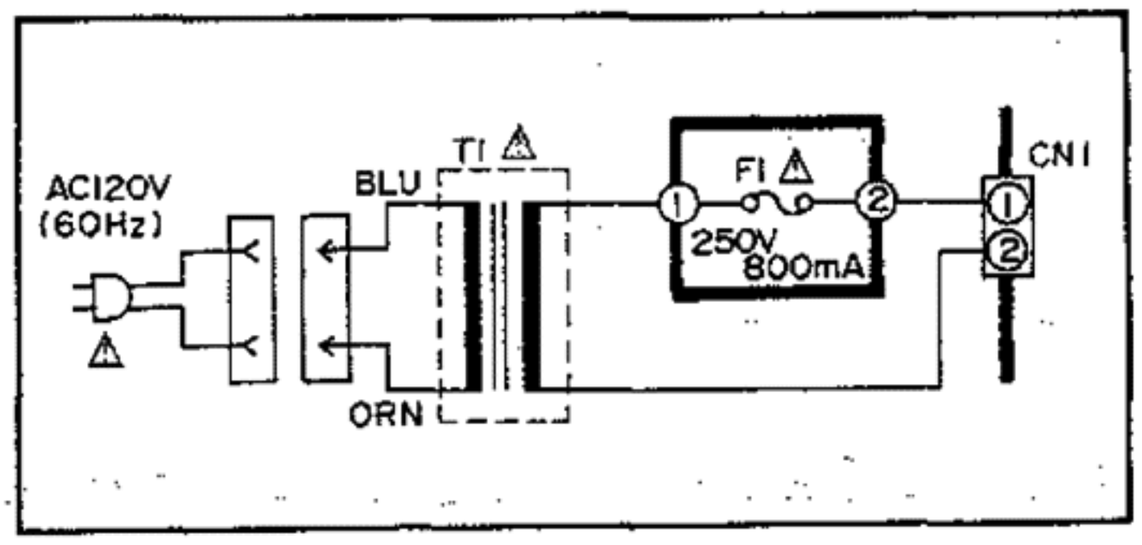
■ SCHEMATIC DIAGRAM

- **Power source circuit**

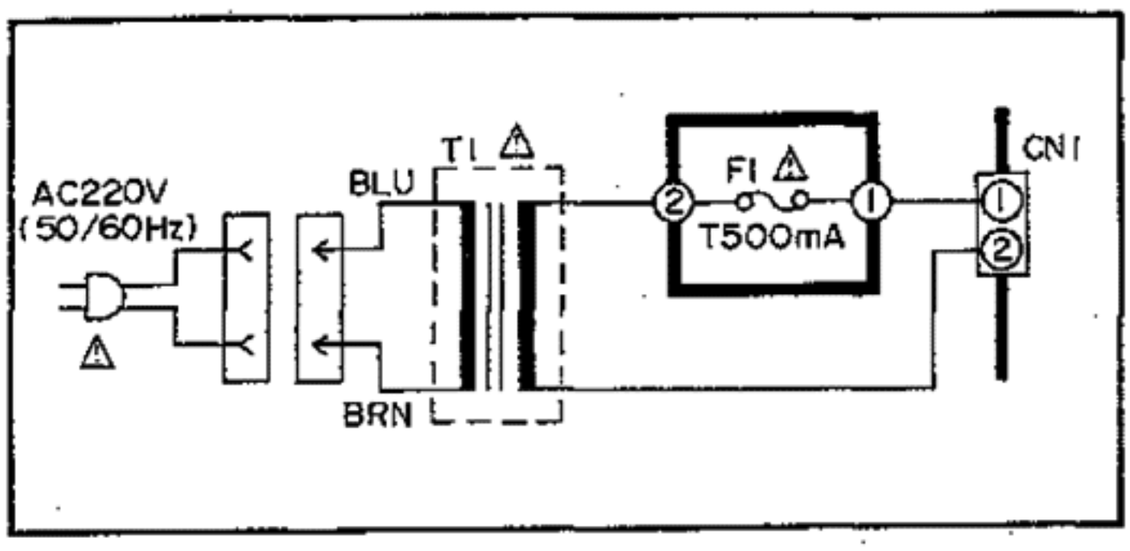
※ **Product for U.S.A.**



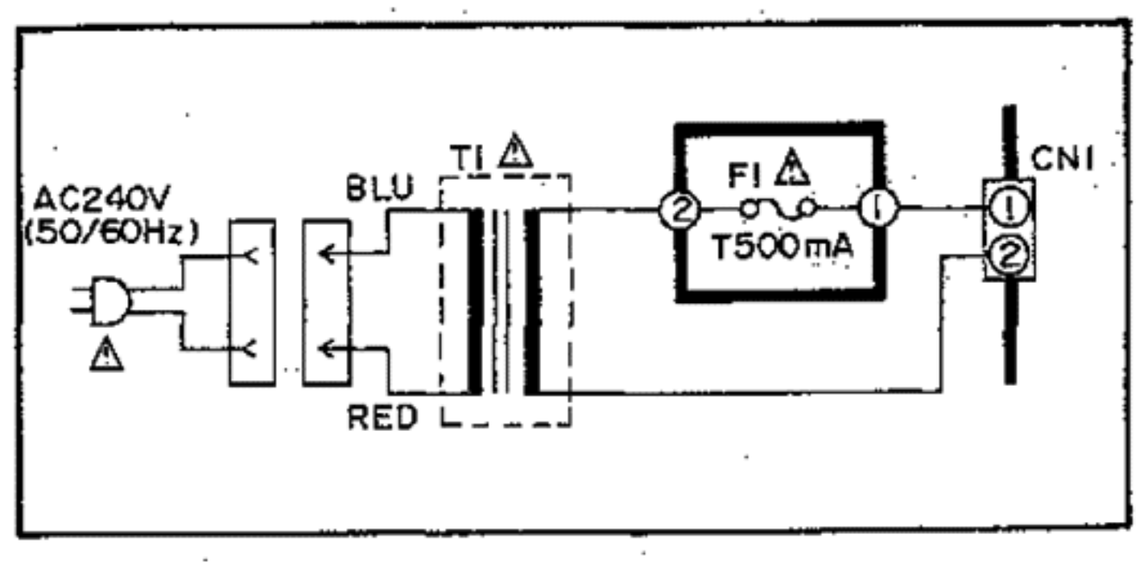
※ **Product for Canada.**



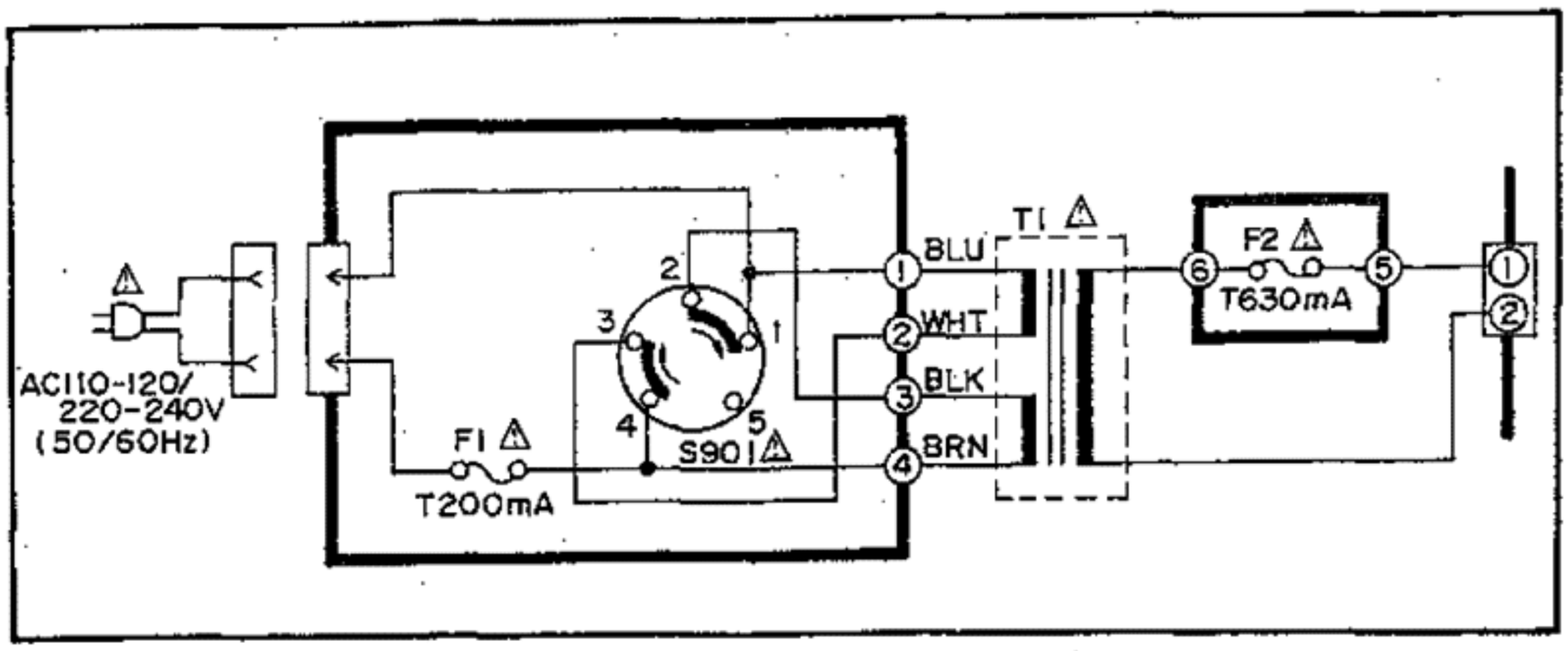
※ **Product for continental Europe**



※ **Product for Australia.**



※ **Product for United Kingdom, Southeast Asia, Oceania, Africa, Middle Near East and Central South America.**



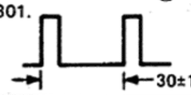
Turntable does not rotate

Power source circuit
1. AC18V between CN1 terminals ① and ②.
2. DC voltage of regulator IC (IC1). ①21V, ②0V, ③11.8V.
3. DC voltage of regulator transistor (Q1). Ⓒ 9.2V, Ⓑ 5.7V, Ⓔ 5V
4. DC voltage at terminal ① of IC101. (11.8V)
5. DC voltage at terminal ⑱ of IC201. (8.5V)

NO → 1.Power transformer, AC cord 2.IC1, S1, D1, C1~C5 3.Q1, D2 R1~R3 4.IC101 5.IC201

YES

Clock frequency
1. IC301 terminal ⑦ ~ ㉗ connected. Waveform of terminal ④ of IC301.



NO → IC301 VR301 C301 R310

YES

Push start switch, (S301).

Start/stop circuit
1. DC voltage at terminal ⑧ of IC301. (5V)
2. DC voltage at terminal ㉖ of IC301. (0V)
3. DC voltage at terminal ⑩ of IC201. (0V)
4. DC voltage at terminal ② of IC101. (0.6V)

NO → 1. S301, Q309, D309 2. IC301 3. IC201 4. IC101

YES

Drive coil and Hall element
1. Conduction check of drive coils. (About 33Ω)
2. DC voltage of Hall elements.

	①	②	③	④
Voltage	3.8	7.6	3.8	0

NO → 1. Drive coil 2. H101, H02, IC101

YES

Drive circuit (Stop)
1. DC voltage at each terminal of IC101

	②	③	④~⑩	⑪
Voltage	0	12	0	6

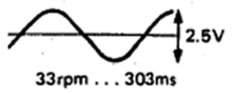
NO → IC101

YES

Drive circuit (Rotation)
1. DC voltage at each terminal of IC101.

	②	⑨	⑩	⑪
Voltage	0.8	4.9	4.9	4.7

2. Waveform between terminal ④ and ⑤ (⑥ and ⑦) of IC101.



NO → IC101

Arm motor does not rotate

1. Measurement of tonearm drive rope.
2. Measurement of tonearm drive belt.

NO → Rope and belt dislocation

YES

Arm motor control circuit
1. DC voltage at each terminal of IC301.

	⑮	⑯	⑰	⑱
Stop	5	5	0.7	0.7
Lead-in	0	5	0	0.7
Return	5	0	0.7	0

2. DC voltage at each terminal of IC401.

	①	②	③
Stop · Lead-in	1.2	3.7	3.6
Return	11	2	3.6

3. DC voltage at each terminal of IC401.

	⑤	⑥	⑦
Stop · Return	3.6	3.7	1.2
Lead-in	3.6	2	11

4. DC voltage of Q401 ~ Q404.

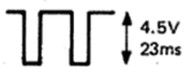
	Q401		Q403	
	Ⓑ	Ⓔ	Ⓑ	Ⓒ
Stop	0.4	0	0.7	0
Return	8.5	8.2	0	8.2

	Q402		Q404	
	Ⓑ	Ⓔ	Ⓑ	Ⓒ
Stop	0.4	0	0.7	0
Return	8.5	8.2	0	8.2

NO → 1. IC301 2. IC401 3. IC401 4. Q401~404 RF1

Lead-in return defective with 17cm record

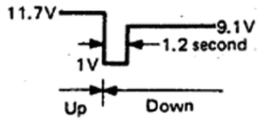
Arm position detection circuit
1. DC voltage of Hall IC (IC2) ①12V, ②0V, ③4.5V
2. Clearance between Hall IC and magnet.
3. Waveform of IC2 terminal ③ during arm motor rotation.



NO → 1.IC2 2.Adjustment (See Fig. 14) 3.IC2, 301

Cueing down/up does not work

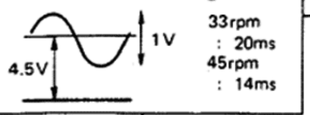
Cueing control circuit
1. DC voltage of IC301 terminal ②. (During cueing and down 0.8V.)
2. DC voltage of IC301 terminal ③. (Only during cueing down 1.6V.)
3. DC voltage of Q304 Ⓒ



NO → 1. IC301 2. Q303, 304 Plunger

Unstable rotation

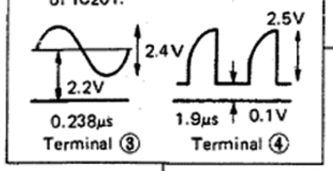
FG amplifier circuit
1. Conduction check of FG coil.
2. Waveform of terminal ⑮ of IC201.



NO → FG coil IC201 R203, 205 C201~203

YES

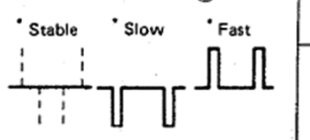
Quartz oscillator circuit
1. Waveform of terminals ③ and ④ of IC201.



NO → X201 IC201 C204~205

YES

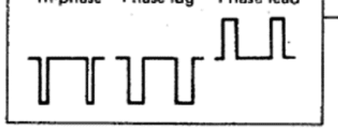
Speed control circuit
1. Waveform of terminal ⑭ of IC201.



NO → IC201 IC101

YES

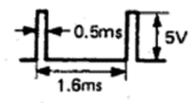
Phase control circuit
1. Waveform of terminal ⑬ of IC201.



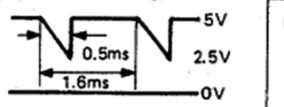
→ IC201 IC101

Offset angle does not detection

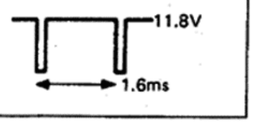
Offset error angle detection circuit
1. Waveform of terminal ⑥ of IC301. (During cueing down)



2. DC voltage of Q305 Ⓑ . . . (1.8V)
3. Waveform of Q305 Ⓒ.

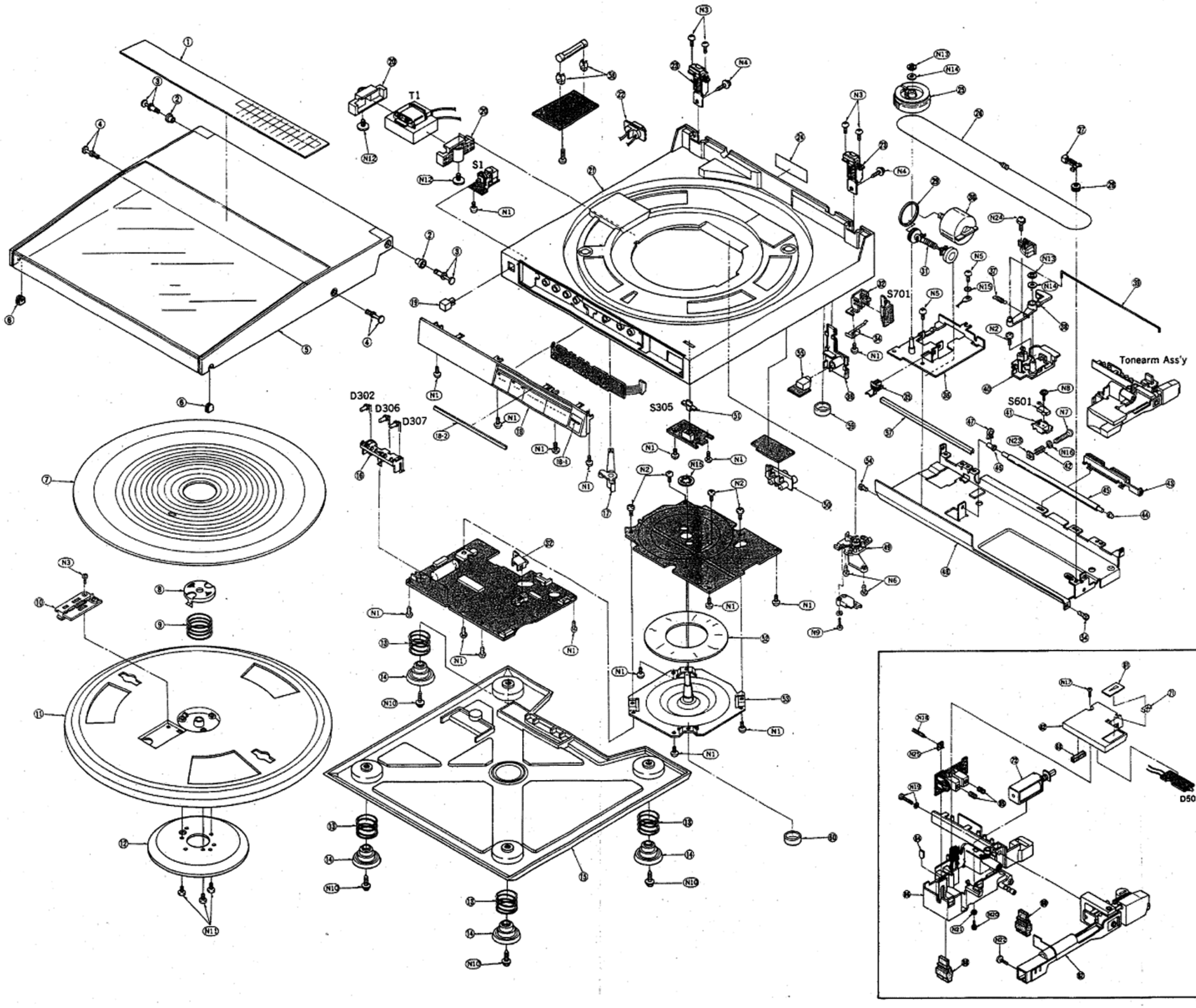


4. Waveform of terminal ⑧ of IC401.



NO → 1.IC301 2.Q305, PC501 3.Q305, 306 C302 4.IC401

■ EXPLODED VIEW



■ 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 servico standard parts and may differ from production parts.
5. The parenthesized numbers in the columns of description stand for the quantity per set.
6. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
7. Parts other than Ⓚ - and ○-marked are used for both black and silver types.

Areas

- * [E] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [EG] is available in F.R. Germany.
- * [EB] is available in Belgium.
- * [EH] is available in Holland.
- * [EF] is available in France.
- * [Ei] is available in Italy.
- * [EC] is available in Czechoslovakia.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- * [XM] is available in Central South America.
- * [PA] is available in far East PX.
- * [PE] is available in European Military.
- * [PC] is available in European Audio Club.

Black type model No. : SL-Q5 (K)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	SVIUPC7812H	Regulator
IC2	DN6838-S	Tonearm Position Detection
IC101	AN6637	Turntable Drive
IC201	AN6683	Turntable Control
IC301	MN1421FPC	Micro Computer
IC401	AN6554	Operation Amplifier
TRANSISTORS		
Q1	2SD638	Regulator
Q301,302	2SD636	Relay Drive/ Switching
Q303	2SD636	Switching
Q304	2SD892	Cueing Drive
Q305	2SB641	Offset Angle Detection
Q306	2SD636	Offset Angle Detection
Q307,308	2SB641	Switching
Q309,310	2SB641	Switching
Q311,312	2SB641	Switching
Q401,402 Ⓢ	2SD973S	Tonearm Drive Motor Control
Q403,404	2SD638	Tonearm Drive Motor Control
DIODES		
D1 ⚠	SVDS1RBA20Z	Rectifier
D2	MA4056	5.6V Zener
D301	MA4062	6.2V Zener
D302	SVDZQ06N02	Repeat
D303,304	MA165	Switching
D305	MA165	Switching
D306	SVDZQ06N03	Cueing Down
D307	SVDZQ06N02	Cueing Up
D309	MA165	Switching
D501 Ⓢ	MA162A	Switching
D502	SVDEBR3432S	Tonearm Position Indicator
D701	MA165	Switching
SWITCHES		
S1 ⚠	SFDSC02N02	On/Off(Power)
S301~304	EVQQS405K	Start,Stop,Cueing and Repeat
S305	SFDSHSW0699	Speed Select
S306,307	SFDSC05N01	Record Detection/ Reset
S601	SFDSC02N03	Rest Position Detection
S701	SFDSC05N02	Record Size Detection
S901 [XA,XM, EK,PA, PC,PE] ⚠	SFDSHXW225-2	Voltage Selector
CRYSTAL		
X201	SVQSH41TR	4.193MHz
HALL ELEMENT		
H101,102	OH-002	Turntable Position Detection
PHOTO INTERRUPTER		
PC501	ON1186	Offset Angle Detection
VARIABLE RESISTORS		
VR301	EVN61AA00B54	Clock Frequency Adjustment, 50kΩ
VR501 Ⓢ	EVNM0AA00B53	Servo Gain Adjustment, 5kΩ×2
RELAY		
RL701	SFDYQ11N02	Muting
POWER TRANSFORMER		
T1 [EK,XA, XM,PA, PE,PC] ⚠	SLT57DT7E	Power Source
T1 [XL] ⚠	SLT48DTE13E	Power Source
T1 [Other Areas] ⚠	SLT48DT10E	Power Source
FUSE		
F1 [EK,XA,XM, PA,PE,PC Only] ⚠	XBA2C02T1B	250V,T200mA
F1 [Other Areas] ⚠	XBA2C05T1B	250V,T500mA
F2 [EK,XA, XM,PA, PE,PC] ⚠	XBA2C06T1B	250V,T630mA

■ REPLACEMENT PARTS LIST.....Mechanical Parts

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 "Ⓢ" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the columns of description stand for the quantity per set.

Areas

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

Ref. No.		Part No.	Description
CABINET AND CHASSIS PARTS			
1		SFKKQ05N03	Record Groove Scale Plate,Dust Cover (1)
2		SFGZQ06N01	Rubber,Lutch (2)
3		SFUMD04N07	Lutch,Dust Cover (2)
4		SFUMQ06N08	Lutch,Dust Cover (2)
5		SFADQ06N01E	Dust Cover (1)
6		SFGZD04N01	Cushion Rubber (2)
7		SFTGQ05N01	Turntable Mat (1)
8		SFWEC06N01	45r.p.m.Adaptor (1)
9		SFQAC06N01	Spring,45r.p.m. Adaptor (1)
10		SFUMC05N11A	Record Detector Ass'y (1)
11		SFTEQ05N01	Turntable Platter (1)
12		SFTMC07-01E	Rotatory Magnet Ass'y (1)
13		SFQCC05N01	Spring,Insulator (4)
14		SFGAC05N02	Insulator (4)
15		SFAUQ06N01	Bottom Board (1)
16		SFUMQ06N05	Holder,L.E.D. (1)
17		SFUMC05N13E	Lever,Record Detector (1)
18		SFUMQ05N01R	Front Panel (1)
18-1		SFKKQ05N01	Badge,Front Panel (1)
18-2		SFKKQ05N04	Ornament Plate (1)
19		SFKTC06N04	Button,On/Off Switch
20		SFGCQ06N02	Cushion Rubber, Power Transformer (2)
21		SFACQ05N01	Cabinet (1)
22	⚠	SFDJHSC0491	Socket,A.C. Power (1)
23		SFATQ06N01E	Hinge (2)
24[M]		SFNNQ05M01	Name Plate (1)
24[MC]		SFNNQ05C01	Name Plate (1)
25		SFUML11R03	Wheel,Tonearm Drive (1)
26		SFUZC05N02E	Lope Ass'y, Tonearm Drive (1)
27		SFUMV05N23	Cap,Pulley (1)
28		SFUMC05N22	Pulley (1)
29		SFGBC10-01	Belt,Tonearm Drive Motor (1)
30		SFMHC02N02R	Motor Ass'y, Tonearm Drive (1)
31		SFUML11R02A	Worm Gear Ass'y, Tonearm Drive (1)
32		SFUMC05N15	Holder,Reset Switch (1)
34		SFQPC05N01	Spring,Reset Switch (1)
35		SFUMC02N10	Guide,Lope Ass'y (1)
36		SFUPBL3N11E	Base,Tonearm Drive Motor (1)
37		SFQHQ34N22	Spring,Rest Switch Lever (1)
38		SFUMC02N05	Lever,Rest Switch (1)
39		SFUZC02N01	Rod,Rest Switch (1)
40		SFUMC02N13	Base Ass'y, Rest Switch (1)
41		SFUMC02N06	Rest Switch Base (1)
42		SFQA913-01	Spring,Adjustment Screw
43		SFUMC02N12	Holder,Lead Wires (1)
44		SFGCC05N05	Cushion Rubber, Guide Rail (1)
45		SFXJQ06N01	Guide Rail, Tonearm Drive (1)
46		SFGCQ06N01	Cushion Rubber, Guide Rail (2)
47		SFUMQ06N07	Clamper,Guide Rail (1)
48		SFUKQ06N01E	Base Ass'y,Tonearm (1)
49		SFUMQ05N02E	Record Size Detector Ass'y (1)
50		SFDJQ06N02	Jack,Phono Output (1)
51		SFKTQ06N01	Knob,Speed Select Switch (1)
52		SFMGQ34N01	Cover,Stator Coil (1)
53		SFMZC06N01R	Stator Frame Ass'y (1)
54		SFGCQ06N03	Cushion Rubber, Dust Cover (2)
55		SFDJD04N02	Jack,Synchro Recording (1)
57		SFGZBL3N02	Spacer (1)
58	[MC Only]	SJT345	Holder,Fuse (2)
59	⚠	SFGZB63M01	Holder,Lead Wires (1)
60		SFEB25RXK12	Tube,Stator Frame (1)
TONEARM PARTS			
61		SFPAK0Q601	Indicator Plate (1)
62		SFPCS0V501	Cover,Indicator (1)
63		SFPGM0Q601	Rubber,L.E.D. (1)
64		SFPGM00301	Rubber Cap (1)
65		SFPSP00302	Spring,Adjustment (2)
66		SFPKD00301R	Tonearm Base Ass'y (1)
67		SFPAM0Q501A	Tonearm Ass'y (1)
68		SFPGML1101	Rubber,Tonearm Guide (2)
71		SFPCS00502	Holder,L.E.D. (1)
72		SFDZC05N01E	Cueing Solenoid Ass'y (1)

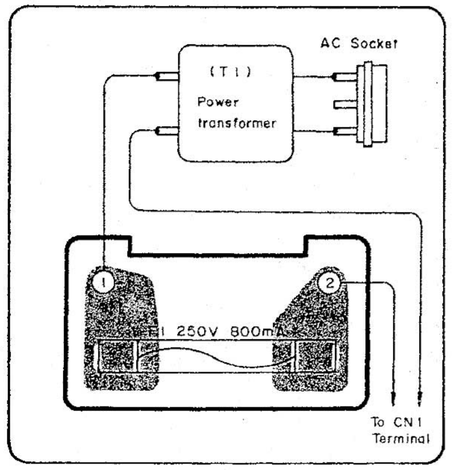
Ref. No.		Part No.	escription
N1	Ⓢ	XTV3+8BFN	Screw,⊕3X8 (16)
N2	Ⓢ	XTV3+6BFN	Screw,⊕3X6 (5)
N3		XTV3+6JFZ	Screw,⊕3X6 (5)
N4		XTWS3+14TFZ	Screw,⊕3X14 (2)
N5	Ⓢ	XTV3+6BFZ	Screw,⊕3X6 (2)
N6		XTV3+10G	Screw,⊕3X10 (2)
N7		XSN3+30S	Screw,⊕3X10 (1)
N8		XTN16+10G	Screw,⊕1.6X10 (1)
N9		XTN2+10G	Screw,⊕2X10 (1)
N10		XTW3+14QFYR	Screw,⊕3X14 (4)
N11		XTW3+5J	Screw,⊕3X5 (3)
N12		SFXGB33N01	Screw (2)
N13		CSTW3	Washer,φ3 (2)
N14	Ⓢ	XWE3A8BW	Washer,φ3 (2)
N15		SFXWC06N02	Washer, (1)
N16	Ⓢ	XWE3E10	Washer,φ (1)
N17		XTN23+6JFZ	Screw,2·3X6 (1)
N18		SFPTN00301	Screw (1)
N19		XYN3+F12S	Screw,⊕3X12 (1)
N20	Ⓢ	XSN2+4	Screw,⊕2X4 (1)
N21	Ⓢ	XWA2B	Washer,φ2 (1)
N22		SFPEV00502	Screw,Cartridge (1)
N23		XNC3HS	Nut,φ3 (1)
N24		XTW3+8Q	Screw,⊕3X8
N25		SFXN623-1	Nut,
ACCESSORIES			
A1[M]		SFNUQ05M01	Instruction Book (1)
A1[MC]		SFNUQ05C01E	Instruction Book (1)
A2		SFDHC05N01	Phono Output Cord (1)
A3		SFDLC05N01	Ground Wire (1)
A4	⚠	SFDAC05M01	A.C.Cord (1)
PACKING PARTS			
P1[M]		SFHPQ05M01	Carton Box (1)
P1[MC]		SFHPQ05M01	Carton Box (1)
P2		SFHHC05N01	Pad,Front (1)
P3		SFHHC05N02	Pad,Rear (1)
P4		SFHKC05N01	Clamper,Turntable Platter (2)
P5		SFHKQ06N01	Spacer,Tonearm (1)
P6		SFHSC06N01	Spacer,Dust Cover (1)
P7		SFYH45X50	Polyethylene Bag,Set (1)
P8		SFYH17X16	Polyethylene Bag, Accessories (1)
P9		SFHPC06S01	Sheet (1)
P10		SFHDQ06N01	Pad,Turntable Mat (1)
P11		SFYF33B35	Polyethylene Bag, Turntable Mat (1)

Ref. No.		Part No.	Description	
CABINET AND CHASSIS PARTS				
1	○	SFKKQ05N03	Record Groove Scale Plate,Dust Cover	(1)
1	Ⓚ	SFKKQ05N21	Record Groove Scale Plate,Dust Cover	(1)
2	○	SFGZQ06N01	Rubber,Latch	(2)
2	Ⓚ	SFGZC02N01	Rubber,Latch	(2)
3	○	SFUMD04N07	Latch,Dust Cover	(2)
3	Ⓚ	SFUMC02N14	Latch,Dust Cover	(2)
4	○	SFUMQ06N08	Latch,Dust Cover	(2)
4	Ⓚ	SFUMQ06N21	Latch,Dust Cover	(2)
5	○	SFADQ06N01E	Dust Cover	(1)
5	Ⓚ	SFADQ06N21E	Dust Cover	(1)
6		SFGZD04N01	Cushion rubber	(2)
7		SFTGQ05N01	Turntable Mat	(1)
8		SFWEC06N01	45r.p.m.Adaptor	(1)
9		SFQAC06N01	Spring,45r.p.m.Adaptor	(1)
10		SFUMC05N11A	Record Detector Ass'y	(1)
11		SFTEQ05N01	Turntable Platter	(1)
12		SFTMC07-01E	Rotatory Magnet Ass'y	(1)
13		SFQCC05N01	Spring,Insulator	(4)
14		SFGAC05N02	Insulator	(4)
15		SFAUQ06N01	Bottom Board	(1)
16		SFUMQ06N05	Holder,L.E.D.	(1)
17		SFUMC05N13E	Lever,Record Detector	1
18	○	SFUMQ05N01R	Front Panel	(1)
18	Ⓚ	SFUMQ05N21R	Front pane	(1)
18-1	○	SFKKQ06N01	Badge,Front Panel	1
18-1	Ⓚ	SFKKQ05N23	Badge,Front Panel	1
18-2	○	SFKKQ05N04	Ornament Plate	1
18-2	Ⓚ	SFKKQ05N22	Ornament Plate	
19		SFKTC06N04	Button,On/Off Switch	1
20 (EK,XA,XM,PA,PE,PC)		SFGCQ06X01	Cushion Rubber, Power Transformer	(2)
20 (Other Areas)		SFGCQ06N02	Cushion Rubber, Power Transformer	(2)
21	○	SFACQ05N01	Cabinet	(1)
21	Ⓚ	SFACQ05N21	Cabinet	(1)
22 (XL) ⚠		SFDJHSC0491	Socket,A.C.Power	1
22 (XA,XM.PA,PE,PC) ⚠		SFDJHSC04912	Socket,A.C.Power	(1)
22 (Other Area) ⚠		SFDJHSC0498	Socket,A.C.Power	(1)
23		SFATQ06N01E	Hinge	(2)
24 (E,EC)		SFNNQ05S01	Name Plate	(1)
24 (EK)		SFNNQ05G01	Name Plate	(1)
24 (XA,XM)		SFNNQ05X01	Name Plate	(1)
24 (PA,PE)		SFNNQ05P01	Name Plate	(1)
24 (PC)		SFNNQ05P02	Name Plate	(1)
24 (Other Areas)		SFNNQ05R01	Name Plate	(1)
25		SFUML11R03	Wheel,Tonearm Drive	(1)
26		SFUZC05N02E	Lope Ass'y, Tonearm Drive	(1)
27		SFUMV05N23	Cap,Pulley	(1)
28		SFUMC05N22	Pulley	(1)
29		SFGBC10-01	Belt,Tonearm Drive Motor	(1)
30		SFMHC02N02R	Motor Ass'y, Tonearm Drive	(1)
31		SFUML11R02A	Worm Gear Ass'y, Tonearm Drive	(1)
32		SFUMC05N15	Holder,Rest Switch	(1)
34		SFQPC05N01	Spring,Rest Switch	(1)
35		SFUMC02N10	Guide,Lope Ass'y	(1)
36		SFUPBL3N11E	Base,Tonearm Drive Motor	(1)
37		SFQHQ34N22	Spring,Rest Switch Lever	(1)
38		SFUMC02N05	Lever,Rest Switch	(1)
39		SFUZC02N01	Rod,Rest Switch	(1)
40		SFUMC02N13	Base Ass'y, Rest Switch	(1)
41		SFUMC02N06	Rest Switch Base	(1)
42		SFQA913-01	Spring,Adjustment Screw	(1)
CABINET AND CHASSIS PARTS				
43		SFUMC02N12	Holder,Lead Wires	(1)
44		SFGCC05N05	Cushion Rubber, Guide Rail	(1)
45		SFXJQ06N01	Guide Rail, Tonearm Drive	(1)
46		SFGCQ06N01	Cushion Rubber, Guide Rail	(1)
47		SFUMQ06N07	Clamper,Guide Rail	(1)
48		SFUKQ06N01E	Base Ass'y Tonearm	(1)
49		SFUMQ05N02E	Record Size Detector Ass'y	(1)
50		SFDJQ06N02	Jack,Phono Output	(1)
51		SFKTQ06N01	Knob,Speed Select Switch	(1)
52		SFMGQ34N01	Cover,Stator Coil	(1)
53		SFMZC06N01R	Stator Frame Ass'y	(1)
54		SFGCQ06N03	Cushion Rubber, Dust Cover	(2)
55		SFDJD04N02	Jack,Synchro Recording	(1)
56		SFGZB63M01	Holder,Lead Wires	(1)
57		SFGZBL3N02	Spacer	(1)
58	⚠	SJT347	Holder,Fuse	(4)
59		SFGZB63M01	Holder,Lead Wires	(1)
60		SFEB25RXK12	Tube,Stator Frame	(1)
TONEARM PARTS				
61		SFPAK0Q601	Indicator Plate	(1)
62		SFPCS0V501	Cover,Indicator	(1)
63		SFPGM0Q601	Rubber,L.E.D.	(1)
64		SFPGM00301	Rubber Cap	(1)
65		SFPSP00302	Spring,Adjustment	(2)
66		SFPKD00301R	Tonearm Base Ass'y	(1)
67		SFPAM0Q501A	Tonearm Ass'y	(1)
68		SFPGML1101	Rubber,Tonearm Guide	(2)
69 (PA,PE,PC)		EPC-P28AK	★Cartridge	(1)
69 (Other Areas)		EPC-P30AK	★Cartridge	(1)
70 (PA,PE PC)		EPS-28ES	★Stylus	(1)
70 (Other Areas)		EPS-30ES	★Stylus	(1)
71		SFPCS00502	Holder,L.E.D.	(1)
72		SFDZC05N01E	Cueing Solenoid Ass'y	(1)
SCREWS.				
N1	Ⓢ	XTV3+8BFN	Screw,⊕3X8	(16)
N2	Ⓢ	XTV3+6BFN	Screw,⊕3X6	(5)
N3		XTV3+6JFZ	Screw,⊕3X6	(5)
N4		XTWS3+14TFZ	Screw,⊕3X14	(2)
N5	Ⓢ	XTV3+6BFZ	Screw,⊕3X6	(2)
N6		XTV3+10G	Screw,⊕3X10	(2)
N7		XSN3+30S	Screw,⊕3X30	(1)
N8		XTN16+10G	Screw,⊕1.6X10	(1)
N9		XTN2+10B	Screw,⊕2X10	1
N10		XTW3+14QFYR	Screw,⊕3X14	(4)
N11		XTW3+5J	Screw,⊕3X5	(3)
N12		SFXGB33N01	Screw	(2)
N13		CSTW3	Washer,ϕ	(2)
N14	Ⓢ	XWE3A8BW	Washer ϕ3	(2)
N15		SFXWC06N02	Washer	(1)
N16	Ⓢ	XWE3E10	Washer,ϕ3	(1)
N17		XTN23+6JFZ	Screw,⊕2.3X6	(1)
N18		SFPTN00301	Screw	(1)
N19		XYN3+F12S	Screw,⊕3X12	(1)
N20	Ⓢ	XSN2+4	Screw, ⊕3X4	(1)
N21	Ⓢ	XWA2B	Washer, ϕ2	(1)
N22		SFPEV00502	Screw,Cartridge	(1)
N23		XNC3HS	Nut,ϕ3	(1)
ACCESSORIES				
A1 (EI)		SFNUQ05I01	Instruction Book	(1)
A1 (EK)		SFNUQ05G01	Instruction Book	(1)
A1 (XL XA,XM)		SFNUQ05X01	Instruction Book	(1)
A1 (EG)		SFNUQ05R01	Instruction Book	(1)
A1 (EF)		SFNUQ05F01	Instruction Book	(1)
A1 (PA,PE,PC)		SFNUQ05P01	Instruction Book	(1)
A1 (other Areas)		SFNUQ05S01	Instruction Book	
A2		SFDHC05N01	Phono Output Cord	(1)
A3		SFDLC05N01	Ground Wire	(1)
A4 (EK) ⚠		SFDAC05G01	A.C.Cord	(1)
A4 (XL) ⚠		SFDAC05L01	A.C.Cord	
A4 (XA,XM) ⚠		SFDAC05X02	A.C.Cord	
A4 (PA,PE,PC) ⚠		SFDAC05N01	A.C.Cord	
A4 (other Areas) ⚠		SFDAC05E02	A.C.Cord	
A5 (XA,XM) ⚠		SFDKI19118	2 Pin Plug	(1)
A6 (PA,PE,PC,Only) ⚠		QJP0603S	Adaptor	(1)
PACKING PARTS				
P1 (EF)	○	SFHPQ05C01	Carton Box	(1)
P1 (Other Areas)	○	SFHPQ05M01	Carton Box	(1)
P1 (EF)	Ⓚ	SFHPQ05C21	Carton Box	(1)
P1 (Other Areas)	Ⓚ	SFHPQ05M21	Carton Box	(1)
P2		SFHHC05N01	Pad,Front	(1)
P3		SFHHC05N02	Pad,Rear	(1)
P4		SFHKC05N01	Clamper,Turntable Platter	
P5		SFHKQ06N01	Spacer,Tonearm	(2)
P6		SFHSC06N01	Spacer,Dust Cover	(1)
P7		SFYH45X50	Polyethylene Bag,Set	(1)
P8		SFYH17X16	Polyethylene Bag, Accessories	(1)
P9		SFHDC06S01	Sheet	
P10		SFHDQ06N01	Pad,Turntable Mat	(1)
P11		SFYF33B35	Polyethylene Bag, Turntable Mat	(1)

Printed in Japan
831208660 Ⓗ AM/YW

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

- Power source circuit
  For [MC] only



■ SCHEMATIC DIAGRAM

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

Notes:

1. **S1** : On/off (power) switch.
2. **S301** : Start switch.
3. **S302** : Stop switch.
4. **S303** : Cueing control switch.
5. **S304** : Repeat switch.
6. **S305** : Speed selector switch in "**auto**" position.
7. **S306** : Record detector switch.
   (It is detects the record on the turntable.)
8. **S307** : Reset switch in "**on**" position.
   (Upper cabinet is closed.)
9. **S601** : Rest switch in "**off**" position.
   (Presently tonearm is on rest.)
10. **S701** : Record size detection switch.
11. The voltage value and waveform are the standard values of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Therefore, the voltage value and waveform may include some errors due to the internal impedance of the tester or the measuring set.
    * ☐ is the voltage when turntable is in stop.
    * ( ) is the voltage when turntable is in rotation.
    * ⌜ ⌟ is the voltage when tonearm is in lead-in mode.
    * < > is the voltage when tonearm is in return mode.
12. ——— Positive voltage lines.

*The part No. of diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.

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.

- **Product for MC only**

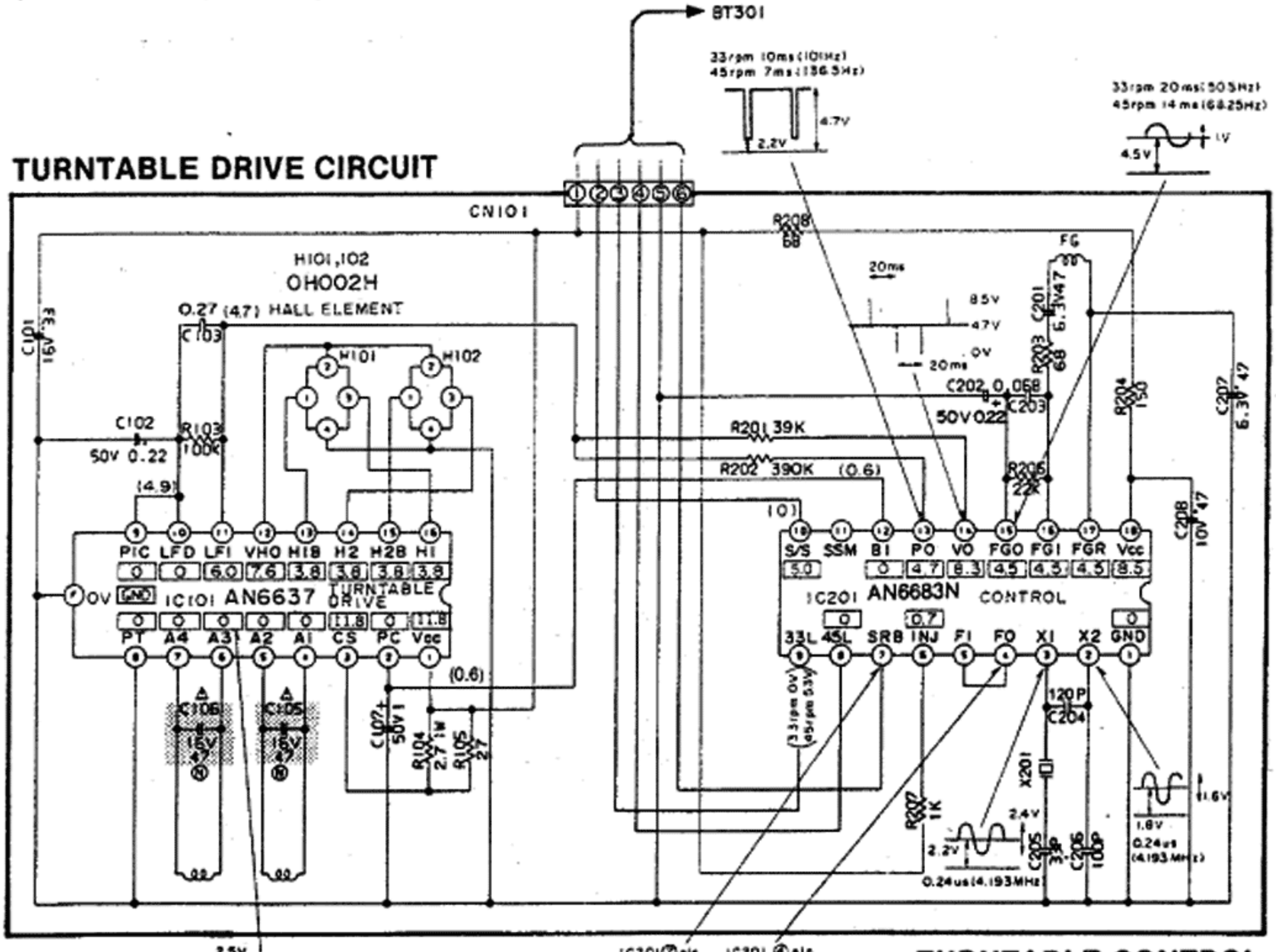
FUSE REPLACEMENT

⊟ 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

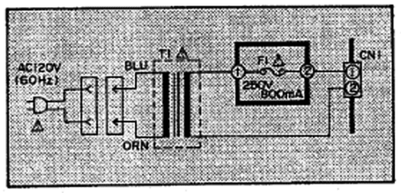
⊟ Le symbole qui se trouve près du fusible singifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.

TURNTABLE DRIVE CIRCUIT



TURNTABLE CONTROL CIRCUIT

- **Power source circuit For [MC] only**



POWER SUPPLY CIRCUIT

ARM POSITION DETECTION CIRCUIT

ARM MOTOR CONTROL CIRCUIT

OFFSET ERROR ANGLE DETECTION CIRCUIT

KEY MATRIX CIRCUIT

■ REPLACEMENT PARTS LIST...Electric Parts

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 "Ⓢ" 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	SVIUPC7812H	Regulator
IC2	DN6838-S	Tonearm Position Detection
IC101	AN6637	Turntable Drive
IC201	AN6683	Turntable Control
IC301	MN1421FPC	Micro Computer
IC401	AN6554	Operation Amplifier
TRANSISTORS		
Q1	2SD638	Regulator
Q301,302	2SD636	Relay Drive/ Synchro-rec Drive
Q303	2SD636	Switching
Q304	2SD892	Cueing Drive
Q305	2SB641	Offset Angle Detection
Q306	2SD636	Offset Angle Detection
Q307,308	2SB641	Switching
Q309,310	2SB641	Switching
Q311,312	2SB641	Switching
Q401,402 Ⓢ	2SD973S	Tonearm Drive Motor Control
Q403,404	2SD638	Tonearm Drive Motor Control
DIODES		
D1 ⚠	SVDS1RBA20Z	Rectifier
D2	MA4056	5.6V Zener
D301	MA4062	6.2V Zener
D302	SVDZQ06N02	Repeat
D303,304	MA165	Switching
D305	MA165	Switching
D306	SVDZQ06N03	Cueing Down
D307	SVDZQ06N02	Cueing Up
D309	MA165	Switching
D501 Ⓢ	MA162A	Switching
D502	SVDEBR3432S	Tonearm Position Indicator
D701	MA165	Switching
SWITCHES		
S1 ⚠	SFDSC02N02	On/Off(Power)
S301~304	EVQQS405K	Start,Stop. Cueing and Repeat
S305	SFDSHSW0699	Speed Selector
S306,307	SFDSC05N01	Record Detection/Reset
S601	SFDSC02N03	Rest Position Detection
S701	SFDSC05N02	Record Size Detection
CRYSTAL		
X201	SVQSH41TR	4.193MHz
HALL ELEMENT		
H101,102	OH-002	Turntable Positic Detection
PHOTO INTERRUPTER		
PC501	ON1186	Offset Angle Detection
VARIABLE RESISTORS		
VR301	EVN61AA00B54	Clock Frequency Adjustment 50kΩ(B)
VR501 Ⓢ	EVNM0AA00B53	Servo Gain Adjustment 5kΩ
RELAY		
RL701	SFDYQ11N02	Muting
POWER TRANSFORMER		
T1(M) ⚠	SLT48DTL3A	Power Source
T1(MC) ⚠	SLT48DT11C	Power Source
FUSE		
F1(MC Only) ⚠	XBA2F08NU100	250V,800mA

• Description of each terminal of MN1421FPC

*These are the basic functions of MN1421FPC. Therefore, some terminals are not necessary of circuit functions may be partially changed depending on the purposes.

No.	Mark	Description
1	VSS	Ground terminal
2	CO9	Cueing control terminal ("H" during cueing and cueing down)
3	CO8	Cueing control terminal ("H" only during cueing down — about 1 sec.)
4 5 6	CO7 CO6 CO5	Key scan output terminal
7 8 9 10	Ai3 Ai2 Ai1 Ai0	Key scan input terminal
11 12	Bi3 Bi2	Auto size and speed select terminal Terminal ⑪, ⑫ "L" → 30cm record · 33rpm ⑪ "L" ⑫ "H" pulse → 17cm record · 45rpm
13	Bi1	Rest position detecting terminal ("H" when tonearm is at rest position)
14	Bi0	Record detection terminal ("H" when record is present)
15 16 17 18	EO0 EO1 EO2 EO3	Tonearm drive motor control terminal (Arm servo)
19	TEST	Test terminal (not used, connected to ground)
20	RST	Reset terminal (micom is reset at "L")
21	SNS0	Offset angle detection input terminal
22	SNS1	Arm position detecting input terminal
23	DO0	Turntable speed select terminal ("H" in 45rpm; "L" in 33rpm)
24	DO1	Repeat indicator terminal (ON at "L")
25	DO2	Synchro-rec on/off terminal
26	DO3	Turntable start/stop select terminal ("L" at start; "H" at stop)
27	VDD	Power supply (+5V)
28	OSC	Oscillation circuit (Clock frequency is adjusted to 30μs ± 1μs)

■ RESISTORS AND CAPACITORS

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. This "Ⓢ" mark is service standard parts and may differ from production parts.
4. Unless otherwise specified. All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ All capacitors are in MICROFARADS (μF) P = 10^{-6}μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

ERG	1	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD: Carbon	25 : 1/4W	F: ±1%
ERG: Metal Oxide	1 : 1W	J : ±5%
ERX: Metal Film	2 : 2W	G: ±2%

ERD2FCG□□□ ——→ Fuse type carbon (1/4W)
ERD10TLJ□□□ ——→ Chip type carbon (1/8W)
ECUV1H□□□ ——→ Chip type ceramic
ERDS2TJ□□□ ——→ Small type carbon (1/4W)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : ±5%
ECKD : Ceramic	1C : 16V	2H : 500V DC	K : ±10%
ECQM : Polyester	1E : 25V	1 : 100V	Z : +80%, −20%
ECCD : Ceramic	1V : 35V	AL: 125V AC	P : +100%, −0%
ECKF : Ceramic	1H : 50V	MY: 125V AC	M : ±20%
ECEB : Electrolytic	1J : 63V		
	50 : 50V		

Ref. No.	Part No.	Value
RESISTORS		
RF1 ⚠	ERD2FCG180	18
RF2 ⚠	ERD2FCG330	33
R1	ERDS2TJ681	680
R2	ERDS2TJ221	220
R103	ERD10TLJ104	100K
R104	ERX1ANJ2R7	2.7
R105	ERD10TLJ270	27
R201	ERD10TLJ393	39K
R202	ERD10TLJ394	390K
R203	ERD10TLJ680	68
R204	ERD10TLJ151	150
R205	ERD10TLJ223	22K
R207	ERD10TLJ102	1K
R208	ERD10TLJ680	68
R301	ERDS2TJ272	2.7K
R302,303	ERDS2TJ102	1K
R304,305	ERDS2TJ102	1K
R306	ERDS2TJ821	820
R307	ERDS2TJ271	270
R308	ERDS2TJ331	330
R309	ERDS2TJ272	2.7K
R310	ERDS2TJ562	5.6K
R311	ERDS2TJ153	15K
R312	ERDS2TJ472	4.7K
R313,314	ERDS2TJ333	33K
R315,316	ERDS2TJ333	33K

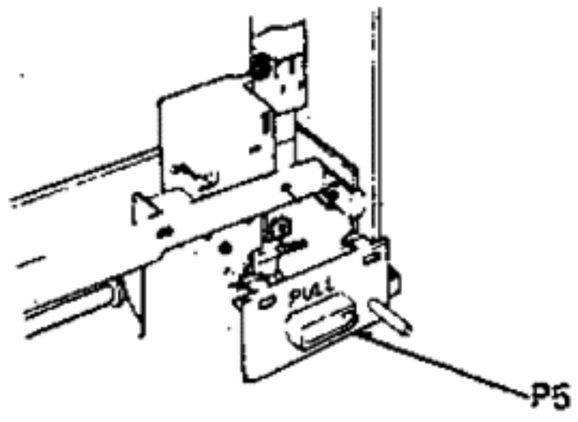
Ref. No.	Part No.	Value
R317	ERDS2TJ102	1K
R318,319	ERDS2TJ332	3.3K
R320	ERDS2TJ272	2.7K
R321,322	ERDS2TJ331	330
R323	ERDS2TJ562	5.6K
R324	ERDS2TJ223	22K
R325	ERDS2TJ103	10K
R326	ERDS2TJ272	2.7K
R328	ERDS2TJ102	1K
R329	ERDS2TJ221	220
R330	ERDS2TJ103	10K
R331	ERDS2TJ222	2.2K
R332	ERDS2TJ562	5.6K
R333	ERDS2TJ331	330
R334	ERDS2TJ222	2.2K
R335,336	ERDS2TJ332	3.3K
R337,338	ERDS2TJ332	3.3K
R339,340	ERDS2TJ222	2.2K
R341	ERDS2TJ103	10K
R342	ERDS2TJ472	4.7K
R343	ERDS2TJ103	10K
R344	ERDS2TJ472	4.7K
R345	ERDS2TJ103	10K
R346	ERDS2TJ472	4.7K
R347	ERDS2TJ103	10K

Ref. No.	Part No.	Value
R348	ERDS2TJ472	4.7K
R349	ERDS2TJ103	10K
R350	ERDS2TJ472	4.7K
R351	ERDS2TJ103	10K
R352	ERDS2TJ472	4.7K
R401,402	ERDS2TJ683	68K
R403	ERDS2TJ472	4.7K
R404	ERDS2TJ122	1.2K
R405	ERDS2TJ222	2.2K
R406	ERDS2TJ102	1K
R407	ERDS2TJ224	220K
R408	ERDS2TJ222	2.2K
R409	ERDS2TJ102	1K
R410	ERDS2TJ224	220K
R411	ERDS2TJ272	2.7K
R412	ERDS2TJ681	680
R413,414	ERDS2TJ101	100
R415,416	ERDS2TJ471	470
R501 Ⓢ	ERD25FJ391	390
R502 Ⓢ	ERD25FJ681	680
R503 Ⓢ	ERD25FJ561	560
CAPACITORS		
C1,2 ⚠	ECQM1223KZ	0.022
C3 ⚠	ECQM1223KZ	0.022
C4	ECEB1VU102	1000
C5 Ⓢ	ECEA1CU330	33

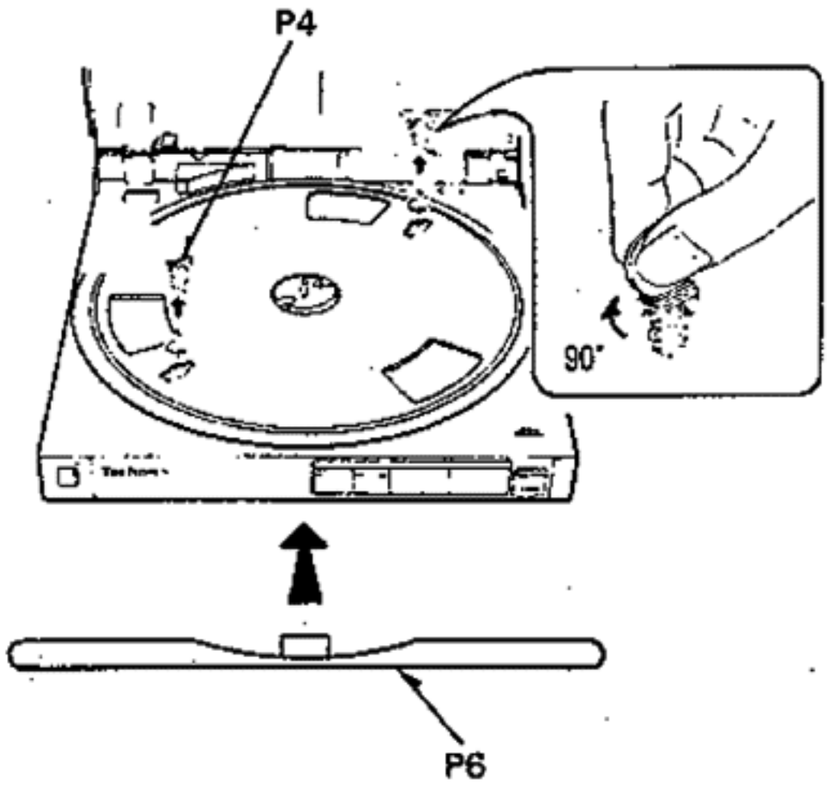
Ref. No.	Part No.	Value
C101 Ⓢ	ECEA1CU330	33
C102 Ⓢ	ECEA50ZR22	0.22
C103	ECQV05274JZ	0.27
C105,106 Ⓢ ⚠	ECEA1CN470S	47
C107 Ⓢ	ECEA50Z1	1
C201 Ⓢ	ECEA1AU470	47
C202 Ⓢ	ECEA50ZR22	0.22
C203 Ⓢ	ECQM1H683JZ	0.068
C204	ECUV1H121JCM	120P
C205	ECUV1H330JCM	33P
C206	ECUV1H101JCM	100P
C207,208 Ⓢ	ECEA1AU470	47
C301 Ⓢ	ECCD1H680K	68P
C302 Ⓢ	ECQM1H104JZ	0.1
C303	ECKD2H102KB	0.001
C304 Ⓢ	ECEA0JU470	47
C305 Ⓢ	ECEA1HU3R3	3.3
C306	ECFR1H104ZF	0.1
C307	ECKD2H102KB	0.001
C308,309	ECFR1H104ZF	0.1
C401,402 Ⓢ	ECQM1H223JZ	0.022
C403 Ⓢ	ECEA1CU330	33
C404,405 Ⓢ	ECEA0JU470	47
C601	ECFB1B104ZM	0.1
C701 Ⓢ	ECEA1CU101	100

■ PACKING

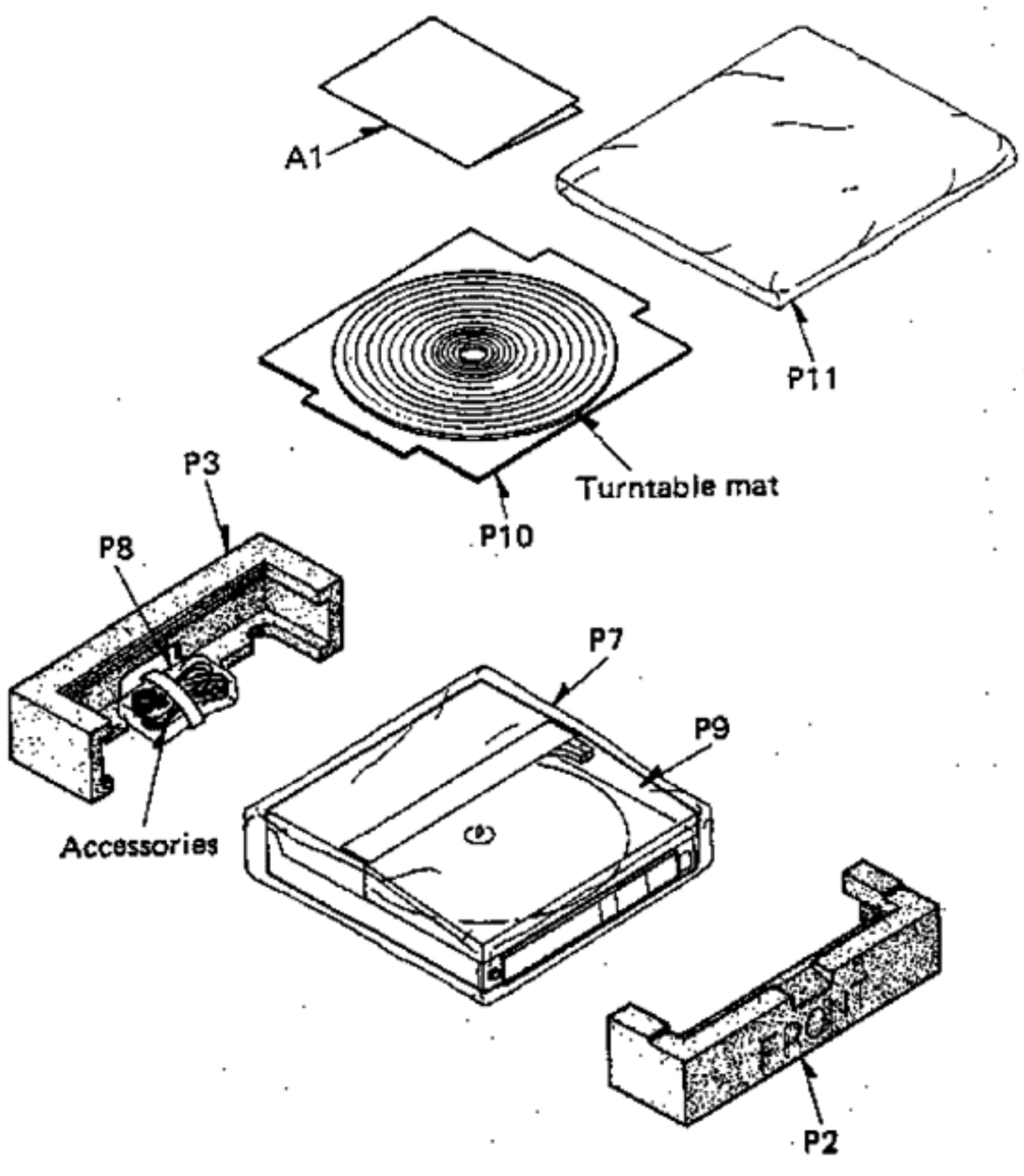
1. Open the upper cabinet and fit the spacer in place.



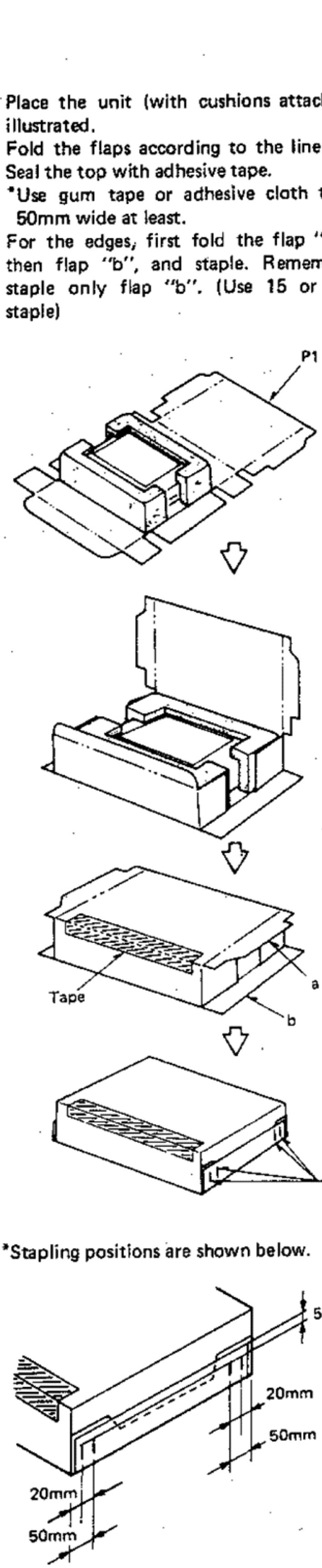
2. Fit the turntable platter and dust cover spacer in place.



3. Put the set into polyethylene bag, and make the package as shown below.



4. Place the unit (with cushions attached) as illustrated.
5. Fold the flaps according to the line marks.
6. Seal the top with adhesive tape.
   *Use gum tape or adhesive cloth tape of 50mm wide at least.
7. For the edges, first fold the flap "a" and then flap "b", and staple. Remember to staple only flap "b". (Use 15 or 16mm staple)



*Stapling positions are shown below.

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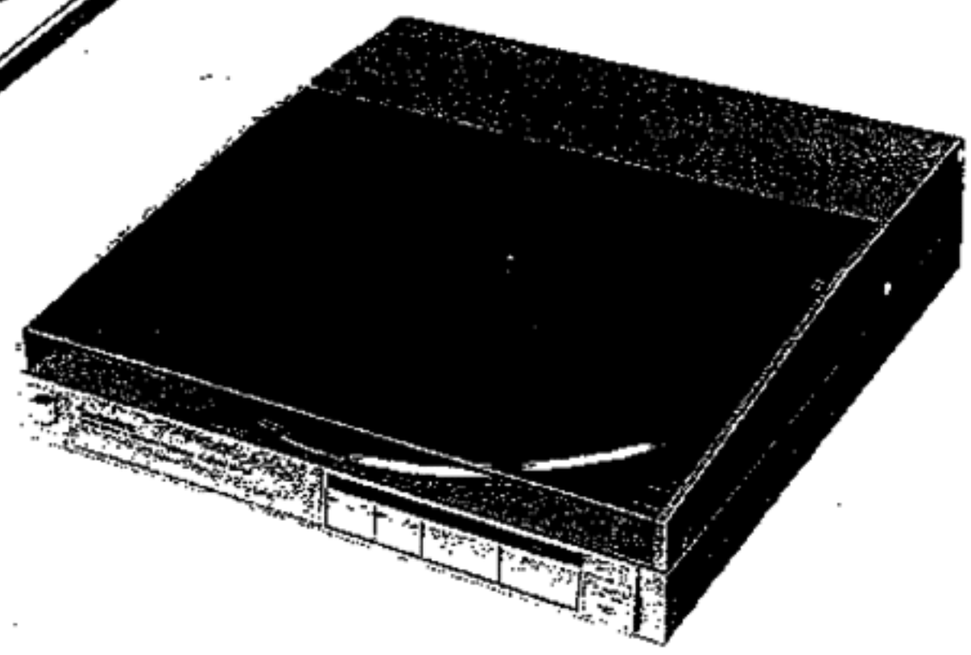
Service Manual

Quartz Direct Drive Automatic Turntable System

SL-Q5/(K)

[E], [EK], [XL], [EG], [EB],
[EH], [EF], [Ei], [EC], [XA],
[XM], [PA], [PE], [PC]

Supplement-1



*** The colors of this model include silver and black.**
*** The black type model is provided with (K) in the Service Manual.**

Areas

- * [E] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [EG] is available in F.R. Germany.
- * [EB] is available in Belgium.
- * [EH] is available in Holland.
- * [EF] is available in France.
- * [Ei] is available in Italy.
- * [EC] is available in Czechoslovakia.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- * [XM] is available in Central South America.
- * [PA] is available in far East PX.
- * [PE] is available in European Military.
- * [PC] is available in European Audio Club.

Please use this manual together with the service manual for Model No. SL-Q5 (K), Order No. DAD83120045C9.

Notes: ★ This supplement is issued to fill up the Drive circuit board in Service Manual of SL-Q5/(K).
★ This supplement should be filed with the service manual for Model No. SL-Q5/(K). (Order No. DAD83120045C9)

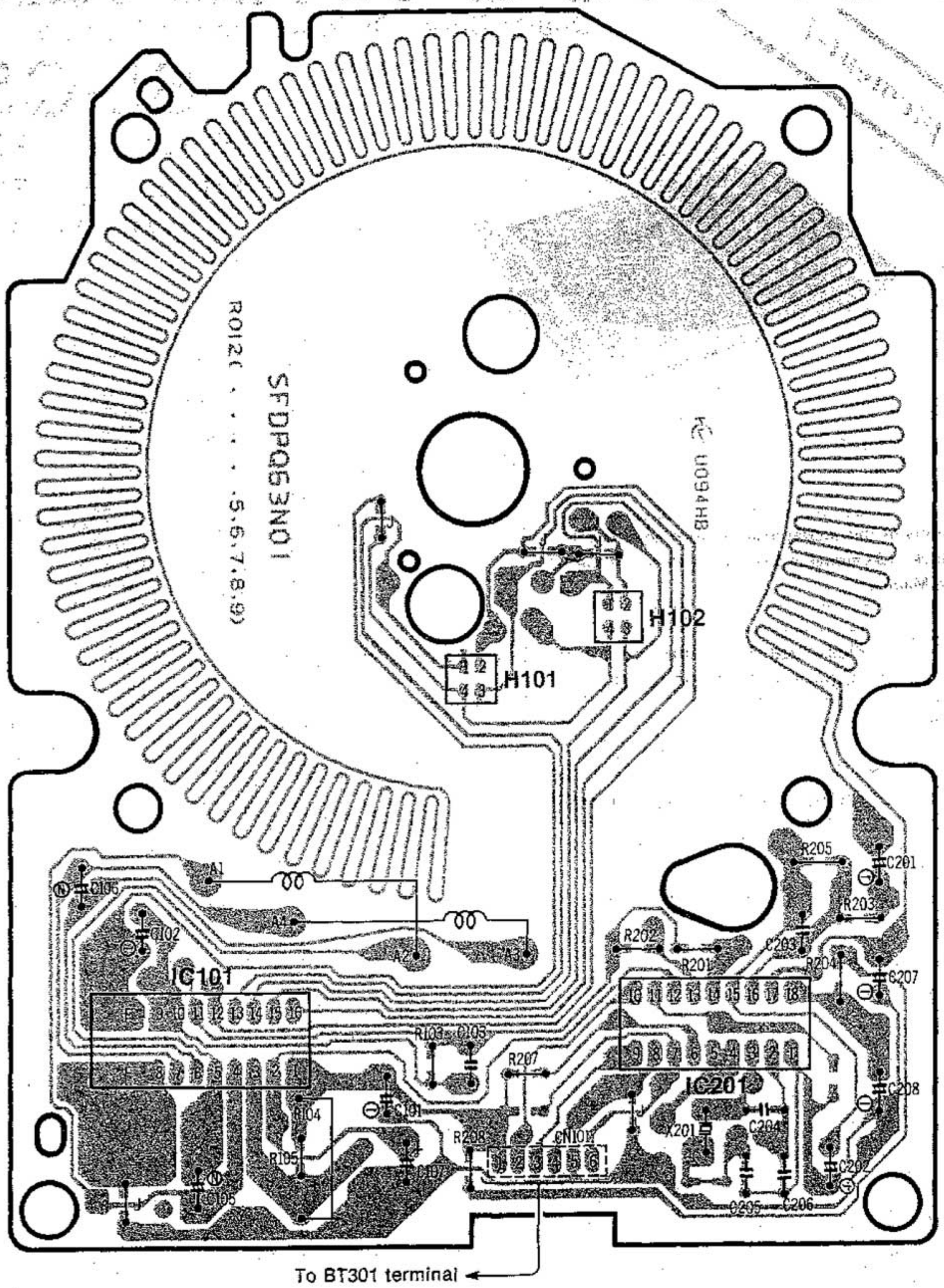
Technics

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

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

■ PRINTED CIRCUIT BOARD

• Drive circuit board



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