ORDER NO. DAD84040071C9

Service Manual

DC Servo Fully Automatic Turntable System

SL-N5 (H), (K), (S)

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

* The colours of this model include gray, black and silver.
* The gray type model is indicated by (H) in the Service Manual.
* The black type model is indicated by (K) in the Service Manual.
* The silver type model is indicated by (S) 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.
* [PA] is available in Far East PX.
* [PE] is available in European Military.
* [PC] is available in European Audio Club.

T4P is the standard mark for the plug-in-connector type. Products carrying this mark are interchangeable and adaptable among each other.

English

Specifications

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

■ General

Mains supply:	For United Kingdom and Australia: 240 V, AC 50 Hz For continental Europe: 220V, AC 50 Hz For others: ~110~120/220~240V, 50/60 Hz
Power consumption:	2W
Dimensions: (W×H×D)	31.5 × 7.9 × 31.5 cm (12-1/2" × 3-3/32" × 12-1/2") 31.5 × 38 × 31.5 cm (12-1/2" × 14-31/32" × 12-1/2") Maximum height when dust cover is open.
Weight:	2.3 kg (5 lb.)

■ Turntable section

Type:	Fully automatic turntable Auto start Auto return Auto size select (for 30 cm (12") and 17 cm (7"))
Drive method:	Belt drive
Motor:	DC motor
Drive control method:	DC servo control
Turntable platter:	Aluminum die-cast Diameter 30 cm (12")
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:	Static balanced type, straight tonearm 4-pivot gimbal suspension
Effective length:	20 cm (7-7/8")
Tracking error angle:	+0°36' (at the outer groove of 30 cm (12") record) +3°18' (at the inner groove of 30 cm (12") record)

Panasonic®
National

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

■ Cartridge section

Type:	Plug-in connector type moving magnet stereo cartridge with one point suspension system
Magnet:	Samarium cobalt (Sm-Co)
Magnet circuit:	ALL laminated core
Frequency response:	10 Hz to 35 kHz
Output voltage:	2.5 mV at 1kHz, 5 cm/s. zero to peak lateral velocity (7 mV at 1kHz, 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:	[redacted] EPS-51CS

● 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 Australia and United Kingdom.
★ 110V-120V/220V-240V (50/60 Hz) for other areas.
★ [XA], [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:	2 W
Abmessungen: (B×H×T)	31,5 × 7,9 × 31,5 cm 31,5 × 38 × 31,5 cm (Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil)
Gewicht:	2,3 kg

■ Plattenspieler

Typ:	Automatischer Plattenspieler Auto-Start Rückführautomatik Autom. Größenwahl (für 30 cm und 17 cm-Schallplatten)
Antrieb:	Riemenantrieb
Motor:	Gleichstrommotor
Antriebsregel-Methode:	DC-Servo-Steuerung
Plattenteller:	Aluminium-Druckguß Durchmesser 30 cm
Plattenteller-Drehzahlen:	33-1/3 und 45 U/min Autom Drehzahlwahl (Manuelle Wahl möglich)
Gleichlaufschwankungen:	0,045% WRMS (JIS C5521) ±0,06% Spitze (IEC 98A bewertet)
Rumpel-Geräuschspannungsabstand:	−70 dB (IEC 98A bewertet)

■ Tonarm

Typ:	Magnetischer Stereo- Tonabnehmer mit Einsteck- Verbindung und Einpunkt- Aufhängung
Effektive Länge:	20 cm
Spurfehlwinkel:	0°36' bei der Einlaufrille einer 30 cm-Platte 3°18' bei der Auslaufrille einer 30 cm-Platte

■ Tonabnehmer

Typ:	Statisch balancierter Typ, gerader Tonarm 4-Punkt-Kardanaufhängung
Magnetkreis:	Samarium-Kobalt (Sm-Co)
Frequenzgang:	10 Hz bis 30 kHz
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
Kanaltrennung:	22 dB bei 1 kHz
Kanalabweichung:	Innerhalb 2 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-51CS

● Die Stromversorgung für dieses Gerät ist je nach Land verschieden. Die Teile für das Netzteil sind ebenfalls verschieden. Beachten Sie daher den Schaltungsplan und die Ersatzteilliste.
★ (XA)-, (PA)-, (PE)- und (PC)-Modelle sind mit einem Spannungswahlschalter versehen.

Français

CARACTERISTIQUES

Les spécifications sont susceptibles d'être modifiées sans préavis.
Le poids et les dimensions donnés sont approximatifs.

■ Généralités

Alimentation: ~ 220V
50 ou 60 Hz
Consommation: 2 W
Dimensions: 31,5 × 7,9 × 31,5 cm
(L×H×P) (Hauteur maximum lorsque le couvercle protège poussière est ouvert
31,5 × 38 × 31,5 cm
Poids: 2,3 kg

■ Platine de lecture

Type: Platine automatique
Démarrage automatique
Retour automatique
Sélecteur automatique du diamètre des disque
(Pour 30 cm [12 pouces] et 17 cm [7 pouces])
Système d'entraînement: Entraînement par courroie
Moteur: Moteur C.C.
Groupe de réglage: Servocommande à C.C.
Plateau de lecture: En aluminium moulé sous pression
Diamètre 30 cm
Vitesses de rotation: 33-1/3 et 45 t/p.m.
Pleurage et scintillement: 0,045% de valeur efficace (JIS C5521)
±0,06% de crête (IEC 98A Pondéré)
Ronflement: −70 dB (IEC 98A Pondéré)

■ Bras de lecture

Type: Bras de lecture droit, de type statiquement équilibré.
Suspension à la cardan sur 4 pivots.
Longueur effective: 200 mm
Angle d'erreur de piste: + 0°36' (au sillon extérieur d'un disque de 30 cm)
+ 3°18' (au sillon intérieur d'un disque de 30 cm)

■ Cellule pick-up

Type: Connecteur enfichable actionnant la cellule de lecture stéréo à aimant mobile avec système de suspension ponctuelle.
Aimant: Samarium-Cobalt (Sm-Co)
Circuit magnétique: Noyau entièrement feuilleté
Réponse en fréquence: 10 Hz à 35 kHz
Tension de sortie: 2,5 mV à 1 kHz; 5 cm/s., zéro à vitesse latérale de crête
(7 mV à 1 kHz 10 cm/s., zéro à vitesse 45° de crête [DIN 45 500])
Séparation des canaux: 22 dB à 1 kHz
Equilibrage des canaux: En deçà de 2 dB à 1 kHz
Impédance de charge recommandée: 47 kΩ ~ 100 kΩ
Elasticité (dynamique): 12 × 10^{-6} cm/dyne à 100 Hz
Plage de la force verticale d'appui: 1,25 ±0,25 g (12,5 ±2,5 mN)
Poids: 6 g (cellule seule)
Pointe de lecture de remplacement: [redacted] EPS-51CS

● L'alimentation en courant pour cet appareil varie selon les régions. De plus, les pièces utilisées pour l'alimentation en courant sont différentes. Aussi, se référer au schéma de montage et à la liste des pièces de remplacement.
★ Les régions (XA), (PA), (PE) et (PC) sont fournies avec un sélecteur de tension.

Español

ESPECIFICACIONES

Las especificaciones quedan sujetas a cambios sin aviso previo.
El peso y las dimensiones indicados son aproximados.

■ En general

Alimentación de corriente: ~110—120/220—240V, 50 ó 60 Hz
Consumo de corriente: 2 W
Dimensiones: 31,5 × 7,9 × 31,5 cm
(Ancho × Alto ×Prof.) (Altura máxima cuando la tapa contra el polvo está abierta.
31,5 × 38 × 31,5 cm
Peso: 2,3 kg.

■ Sección del plato giratorio

Tipo: Plato giratorio automático
Arranque automático
Retorno automático
Selección automática de tamaño
(para 30 cm (12") y 17 cm (7"))
Método de accionamiento: Accionamiento por correa
Motor: Motor de corriente continua
Método de control de-accionamiento: Servocontrol por corriente continua
Platillo del plato giratorio: Aluminio fundido
Diámetro 30 cm
Velocidades del plato giratorio: 33-1/3 y 45 rpm
Ululaciones y trémolo: 0,045% WRMS (JIS C5521)
±0,06% cresta
(IEC 98A Ponderado)
Ruido de rodadura: −70 dB (IEC 98A Ponderado)

■ Sección del brazo sonoro

Tipo: Blazo sonoro recto, con equilibrio estático suspensión cardánica con 4 pivotes
Longitud efectiva: 20 cm
Angulo de error de seguimiento: + 0°36' (en el surco exterior de un disco de 30 cm)
+ 3°18' (en el surco interior de un disco de 30 cm)

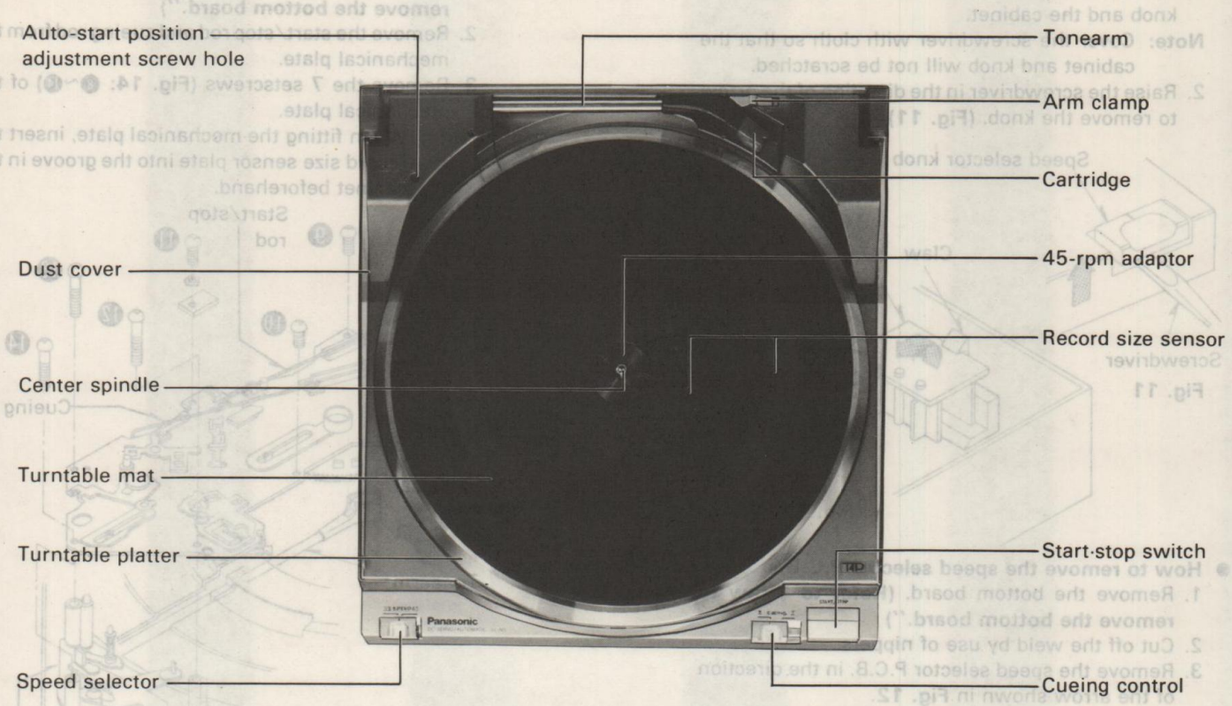
■ Sección del cartucho

Tipo: Cartucho estereofónico de imán móvil con conector enchufable suspensión en un solo punto
Imán: Samariocobalt (Sm-Co)
Circuito magnético: Nucleo totalmente laminado
Respuesta de frecuencia: 10 Hz a 35 kHz
Voltaje de salida: 2,5 mV a 1kHz
Con velocidad lateral de cero a cresta de 5 cm/s
[7 mV a 1 kHz Velocidad de 45° de cero a cresta de 10 cm/s (DIN 45 500)]
Separación de canales: 22 dB a 1 kHz
Equilibrio de canales: Sin exceder 2 dB a 1 kHz
Impedancia de carga recomendada: 47 kΩ a 100 kΩ
Elasticidad (dinámica): 12 × 10^{-6} cm/dina a 100 Hz
Radio de presión de la aguja: 1,25 ±0,25 g (12,5 ±2,5 mN)
Peso: 6 g (cartucho sólo)
Aguja de recambio: [redacted] EPS-51CS

● El suministro de energía para esta unidad varia según las áreas. También, las piezas usadas para suministro de energía son diferentes.
★ Las áreas (XA), (PA), (PE) y (PC) se proveen con selector de voltaje.

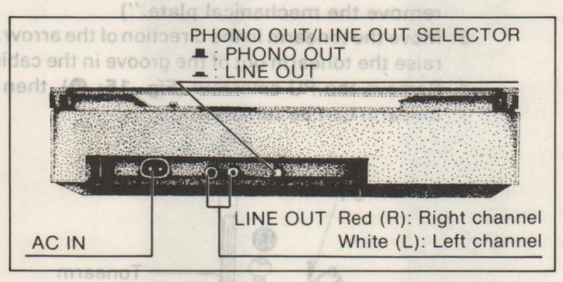
■ CONTENTS

■ LOCATION OF CONTROLS



■ CONNECTIONS

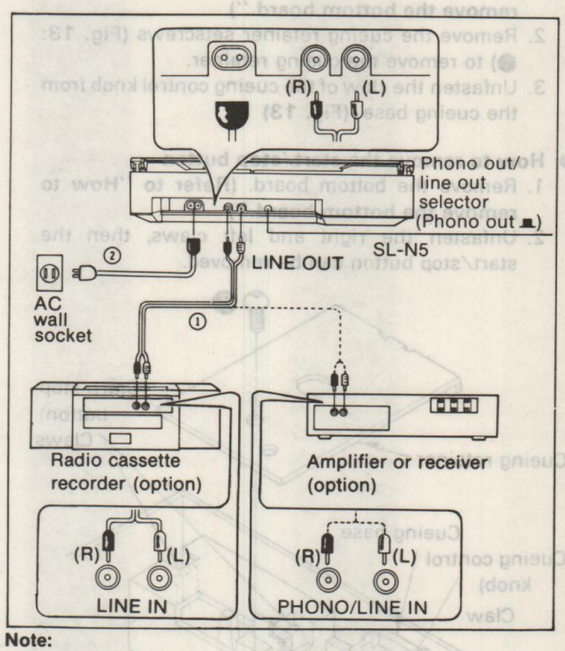
This unit has a built-in phono amplifier.



■ Plug one end into the SL-N5's AC IN socket and plug the other end into an AC wall socket.

This unit has a built-in phono amplifier. Set rear panel phono out/line out selector to correct position according to unit connected.

When connecting to	Phono out/line out selector position
Phono input jack of amplifier or radio-cassette recorder.	Phono out
Aux input jack of amplifier.	Line out
Line input jack of radio-cassette recorder.	Line out



Note:
When using a radio-cassette recorder having a LINE/PHONO input selector (such as the RX-C45), the phono amplifier switch should be in the PHONO OUT (▲) position and the radio-cassette recorder input selector in the PHONO setting.

■ DISASSEMBLY INSTRUCTIONS

● **How to remove the cartridge**
1. Set the cueing control switch to "▼".
2. Shift the arm clamper in the direction of the arrow. And slightly move the tonearm inward.
3. Remove the setscrew **(Fig. 1: ❶)** to remove the cartridge in the direction of the arrow **(Fig. 1: Ⓐ)**.

Note: MC type cartridge cannot be used on this unit.

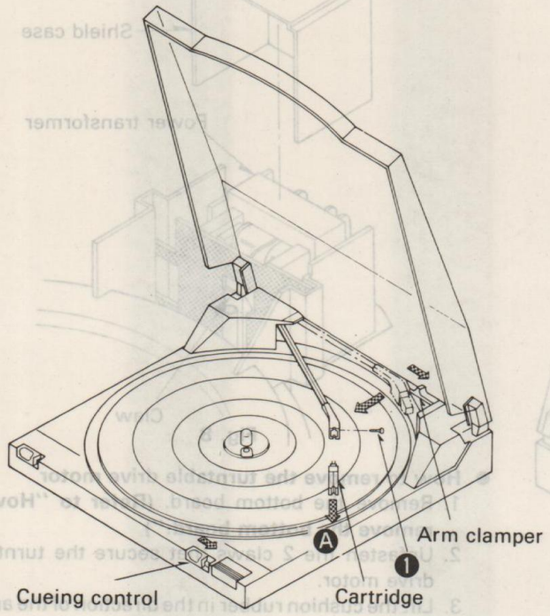


Fig. 1

● **How to remove the turntable platter**
1. Open the dust cover and remove the turntable mat.
2. Remove the belt from the capstan of drive motor.
3. Turntable platter can be removed by lifting it up. **(Fig. 2)**

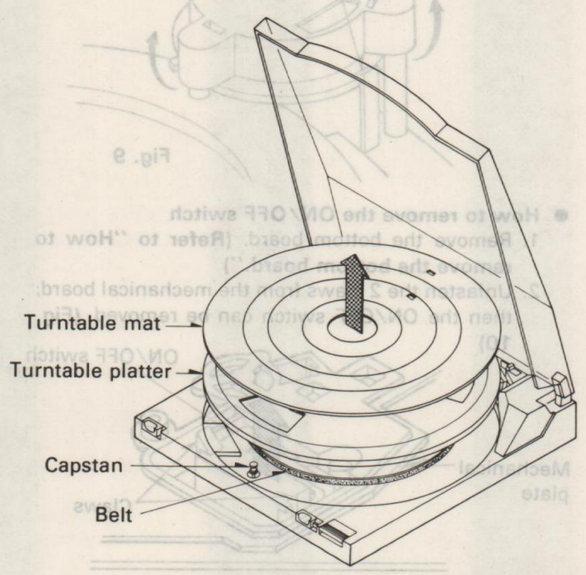


Fig. 2

● **How to remove the 45-rpm adaptor**
1. Remove the turntable platter. **(Refer to "How to remove the turntable platter.")**
2. Unfasten the 3 claws from the back of the turntable platter. Then the 45-rpm adaptor can be removed. **(Fig. 3)**

● **How to remove the record size sensor board**
1. Remove the turntable platter. **(Refer to "How to remove the turntable platter.")**
2. Unfasten the 4 claws from the back of the turntable platter. Then the record size sensor board can be removed. **(Fig. 3)**

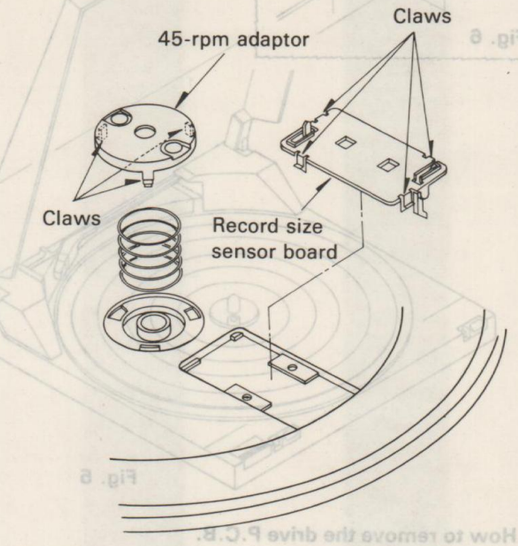


Fig. 3

● **How to remove the bottom board**
1. Remove the turntable platter. **(Refer to "How to remove the turntable platter.")**
2. Spread a soft cloth and put the set on it upside-down.
3. Remove the 4 setscrews **(Fig. 4: ❷~❺)** and 4 insulators from the bottom board, then the board can be removed.

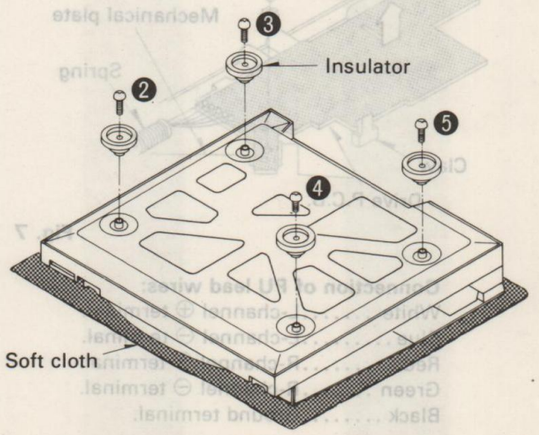


Fig. 4

● **How to remove the dust cover and hinge**

1. Open the dust cover and pull it in the direction of the arrow **(Fig. 5)** by holding both sides of the cover.
2. To remove the hinge, remove the bottom board. Next, unfasten the claw of the hinge and pull it out of the cabinet. **(Fig. 6)**

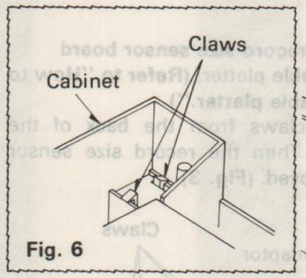


Fig. 6

Fig. 5

● **How to remove the drive P.C.B.**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Remove the screw ❻ in **Fig. 7** and remove the shield plate.
3. Remove the 5 PU lead wires and solder of the spring.
4. Unfasten the claw of the P.C.B. and remove the P.C.B. in the direction of the arrow.

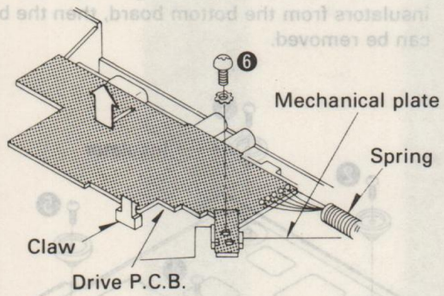


Fig. 7

Connection of PU lead wires:

White .....L-channel ⊕ terminal.
Blue .....L-channel ⊖ terminal.
Red .....R-channel ⊕ terminal.
Green .....R-channel ⊖ terminal.
Black .....Ground terminal.

● **How to remove the power transformer**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Unfasten the claw that secures the P.C.B. of the power transformer, then lift it up. **(Fig. 8)**

Note: The shield case is fitted to the transformer cabinet with adhesive.

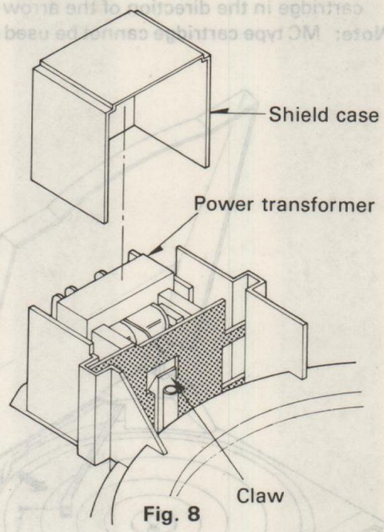


Fig. 8

● **How to remove the turntable drive motor**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Unfasten the 2 claws that secure the turntable drive motor.
3. Lift the cushion rubber in the direction of the arrow to remove the motor.

Note: Take special care not to break the claws.

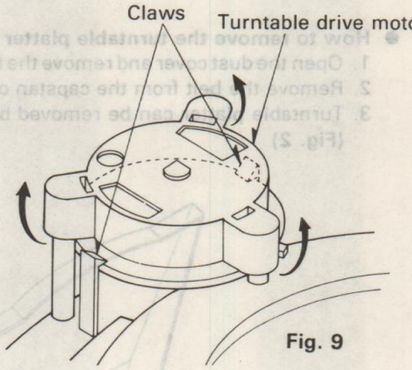


Fig. 9

● **How to remove the ON/OFF switch**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Unfasten the 2 claws from the mechanical board, then the ON/OFF switch can be removed. **(Fig. 10)**

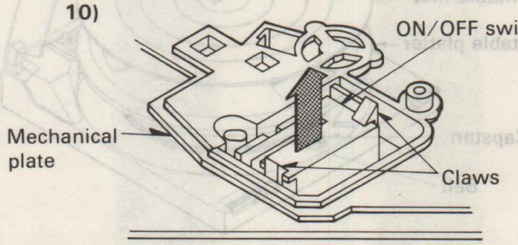


Fig. 10

● **How to remove the speed selector knob**

1. Insert a screwdriver between the speed selector knob and the cabinet.

Note: Cover the screwdriver with cloth so that the cabinet and knob will not be scratched.

2. Raise the screwdriver in the direction of the arrow to remove the knob. **(Fig. 11)**

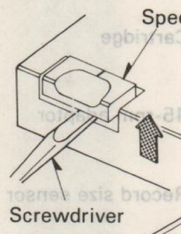


Fig. 11

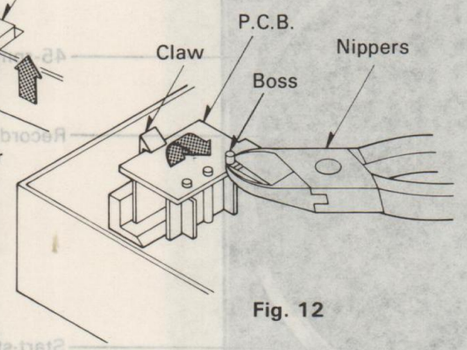


Fig. 12

● **How to remove the speed selector P.C.B.**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Cut off the weld by use of nippers.
3. Remove the speed selector P.C.B. in the direction of the arrow shown in **Fig. 12**.

Note: When fitting the speed selector P.C.B., weld the remaining boss by a soldering iron. Also, secure the P.C.B. with adhesive.

● **How to remove the cueing control knob**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Remove the cueing retainer setscrews **(Fig. 13: ❼)** to remove the cueing retainer.
3. Unfasten the claw of the cueing control knob from the cueing base. **(Fig. 13)**

● **How to remove the start/stop button**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Unfasten the right and left claws, then the start/stop button can be removed.

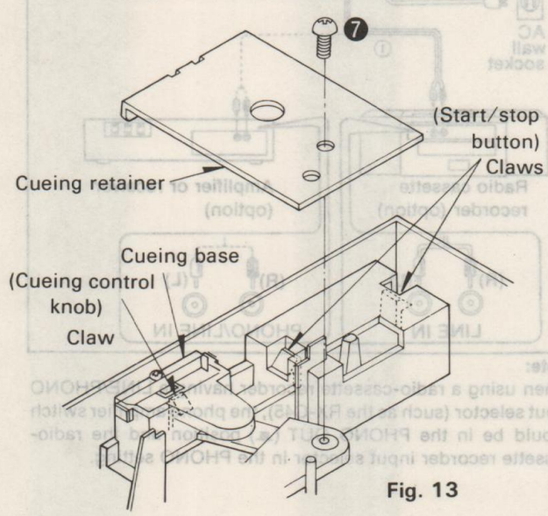


Fig. 13

● **How to remove the mechanical plate**

1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Remove the start/stop rod and cueing rod from the mechanical plate.
3. Remove the 7 setscrews **(Fig. 14: ❽~⓮)** of the mechanical plate.

Note: When fitting the mechanical plate, insert the record size sensor plate into the groove in the cabinet beforehand.

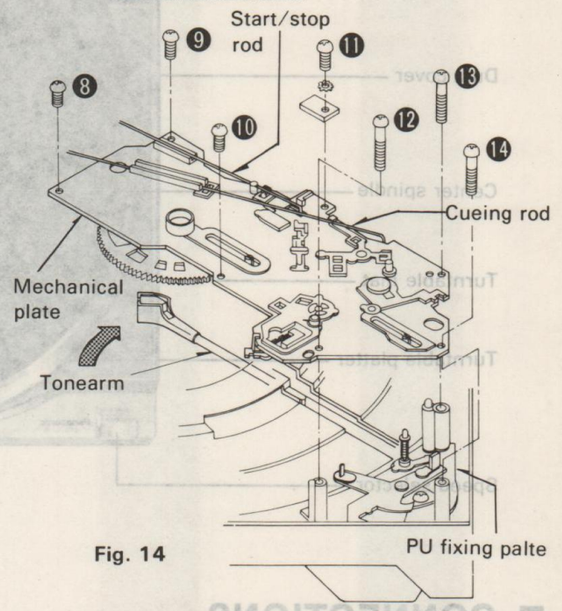


Fig. 14

● **How to remove the PU fixing plate**

1. Remove the cartridge. **(Refer to "How to remove the cartridge.")**
2. Remove the mechanical plate. **(Refer to "How to remove the mechanical plate.")**
3. Move the tonearm in the direction of the arrow and raise the tonearm out of the groove in the cabinet.
4. Remove the PU setscrew **(Fig. 15: ⓯)**, then the tonearm can be removed.

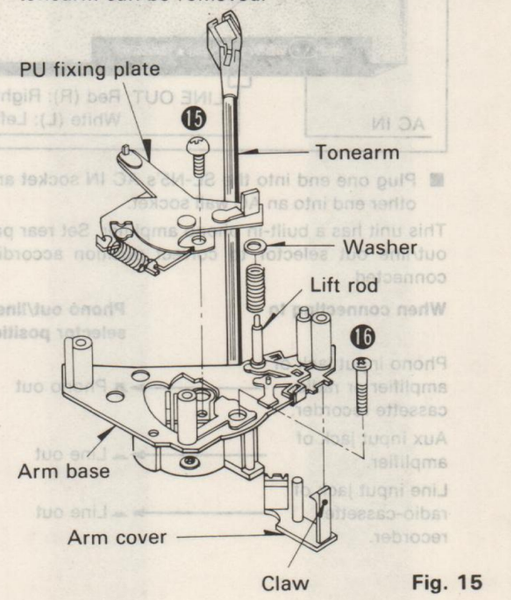


Fig. 15

● **How to remove the tonearm**

1. Remove the PU fixing plate. **(Refer to "How to remove the PU fixing plate.")**
2. Remove the tonearm setscrew **(Fig. 15: ⑯)**, then the tonearm can be removed.

● **How to remove the tonearm lift**

1. Remove the tonearm. **(Refer to "How to remove the tonearm.")**
2. Remove the washer from the lift rod. **(Fig.15)**
3. Unfasten the claw of the tonearm cover to remove the cover, then the tonearm lift can be removed.

■ MEASUREMENTS AND ADJUSTMENTS English

● **Instruments used**

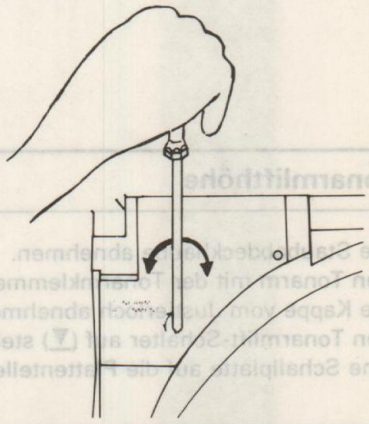
1. Screwdriver (Thin long flat-head screwdriver.)
2. 30cm record

1. Auto-start position

1. Clamp tonearm at rest position. Lightly tap tonearm to make sure it is securely clamped in place.
2. Remove the dust cover.
3. If tonearm sets down outside of record's lead-in groove, turn clockwise (IN). If it sets down to the far inside lead-in groove, turn counterclockwise (OUT).

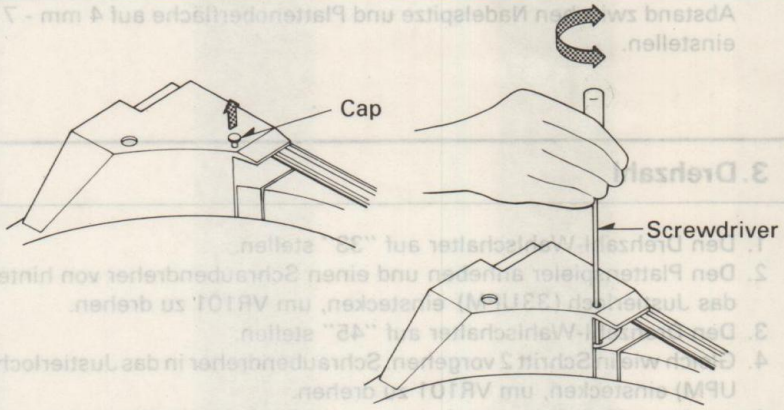
Note: Do not push down very strongly on screwdriver.

4. Replace dust cover.



2. Arm lift height

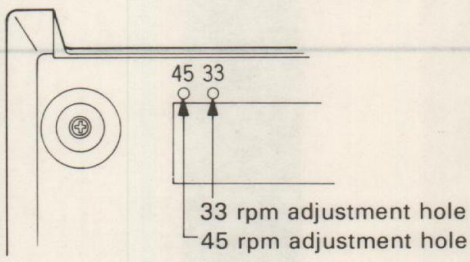
1. Remove the dust cover.
2. Secure the tonearm with arm clamper.
3. Remove the cap from the adjusting hole.
4. Set the cueing control switch to "▼".
5. Put a record on the turntable mat.
6. Shift the arm clamper to set the tonearm free, and adjust the gap between stylus tip and record surface to 4mm~7mm.



3. Rotating speed

1. Set the speed selector switch to "33".
2. Raise the unit and insert a screwdriver into the adjusting hole (33-rpm) from the back to turn VR101.
3. Set the speed selector switch to "45".
4. Same as in step 2, insert a screwdriver into the adjusting hole (45-rpm) and turn VR102.

Note: The speed adjustment should be done in 33-rpm first.



■ MESSUNGEN UND JUSTIERUNGEN — Deutsch

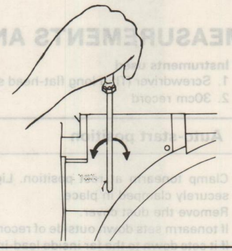
● **Zu verwendende Instrumente**
1. Schraubendreher (langer, dünner Schraubendreher mit flachem Kopf)
2. 30 cm-Schallplatte

1. Auto-Start-Position

1. Den Tonarm an der Tonarmablage-Position festklemmen. Tonarm leicht antippen, um zu prüfen, ob er sicher verriegelt ist.
2. Die Staubabdeckhabe abnehmen.
3. Falls der Tonarm außerhalb der Einlaufrille der platte aufsetzt, im Uhrzeigersinn drehen (IN).
   Falls er zu weit innen aufsetzt, entgegen dem Uhrzeigersinn drehen (OUT).

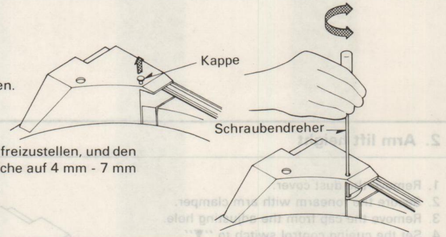
Vorsicht: Mit dem Schraubendreher nicht stark nach unten drücken.

4. Staubabdeckhaube wieder aufsetzen.



2. Tonarmlifthöhe

1. Die Staubabdeckhaube abnehmen.
2. Den Tonarm mit der Tonarmklemme befestigen.
3. Die Kappe vom Justierloch abnehmen.
4. Den Tonarmlift-Schalter auf (▼) stellen.
5. Eine Schallplatte auf die Plattentellerauflage legen.

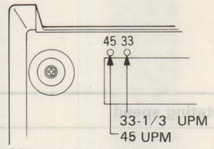


6. Die Tonarmklemme verschieben, um den Tonarm freizustellen, und den Abstand zwischen Nadelspitze und Plattenoberfläche auf 4 mm - 7 mm einstellen.

3. Drehzahl

1. Den Drehzahl-Wahlschalter auf "33" stellen.
2. Den Plattenspieler anheben und einen Schraubendreher von hinten in das Justierloch (33 UPM) einstecken, um VR101 zu drehen.
3. Den Drehzahl-Wahlschalter auf "45" stellen.
4. Gleich wie in Schritt 2 vorgehen: Schraubendreher in das Justierloch (45 UPM) einstecken, um VR101 zu drehen.

Anmerkung: Die Drehzahl-Justierung für 33-1/3 UPM sollte zuerst vorgenommen werden.



■ MESURAGES ET RÉGLAGES — Français

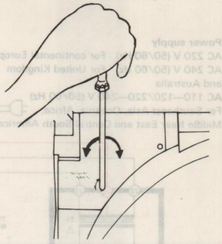
● **Equipement utilisé**
1. Tournevis (utiliser un tournevis à tête plate, mince et long).
2. Disque de 30 cm.

1. Position de démarrage automatique

1. Bloquer le bras de lecture à la position de repos. Frapper doucement sur le bras de lecture pour s'assurer qu'il est bloqué en place de façon sûre.
2. Retirer le couvercle protège-poussière.
3. Si le bras de lecture se dépose à l'extérieur du sillon d'entrée du disque, tourner dans le sens des aiguilles d'une montre ("IN").
   S'il s'abaisse trop loin à l'intérieur du sillon d'entrée, tourner dans le sens inverse des aiguilles d'une montre ("OUT").

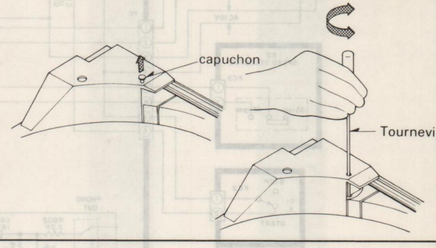
Nota: Ne pas appuyer trop fortement sur le tournevis.

4. Remettre en place le couvercle protège-poussière.



2. Hauteur d'élévation du bras

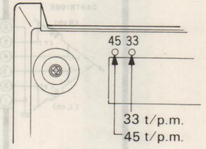
1. Retirer le couvercle protè-poussière.
2. Fixer le bras de lecture avec le clip de retenue du bras.
3. Retirer le capuchon de l'orifice de réglage.
4. Régler le commutateur de commande de pose/relevage sur (▼)
5. Placer un disque sur le tapis de la platine.
6. Déplacer le clip de retenue du bras pour laisser le bras de lecture libre, et régler l'intervalle entre l'extrémité de la pointe de lecture et la surface du disque sur 4 mm - 7 mm.



3. Vitesse de rotation

1. Régler le commutateur du sélecteur de vitesse sur "33".
2. Soulever l'appareil et introduire à partir de l'arrière un tournevis dans l'orifice de réglage (33 t/p.m.) pour faire tourner VR101.
3. Régler le commutateur du sélecteur de vitesse sur "45".
4. Comme à l'étape 2, introduire un tournevis dans l'orifice de réglage (45 t/p.m.) et faire tourner VR102.

Nota: Le réglage de la vitesse devra s'opérer tout d'abord pour 33 t/p.m.



■ MEDICIONES Y AJUSTE — Español

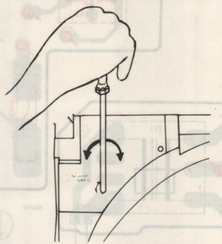
● **Instrumentos usados**
1. Destornillador (obtener un destornillador largo, delgado, de cabeza plana)
2. Disco de 30 cm.

1. Posición de arranque automático

1. Fijar el brazo de fonocaptor en la posición de descanso. Golpear ligeramente el brazo de fonocaptor para asegurarse de que está firmemente fijado en su lugar.
2. Remover la cubierta para el polvo.
3. Si el brazo de fonocaptor cae fuera del surco de entrada de disco, girar a la derecha (ENTRADA).
   Si el brazo de fonocaptor cae dentro del surco de entrada de disco, girar a la izquierda (SALIDA).

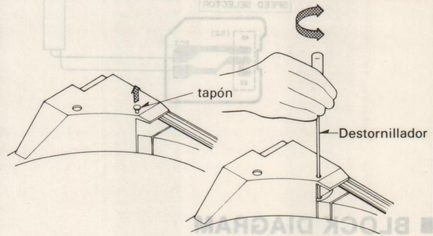
Nota: No apretar muy fuertemente sobre el destornillador.

4. Volver a colocar la cubierta para el polvo.



2. Altura de alza de brazo

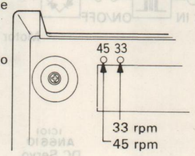
1. Remover la cubierta para el polvo.
2. Asegurar el brazo de fonocaptor con un fijador de brazo.
3. Remover el tapón del agujero de ajuste.
4. Poner el interruptor de control de guía en (▼).
5. Colocar un disco sobre la esterilla del plato giradiscos.
6. Mover el fijador de brazo de fonocaptor para que éste quede libre, y ajustar la separación entre la punta de la aguja y la superficie a 4 mm - 7 mm.



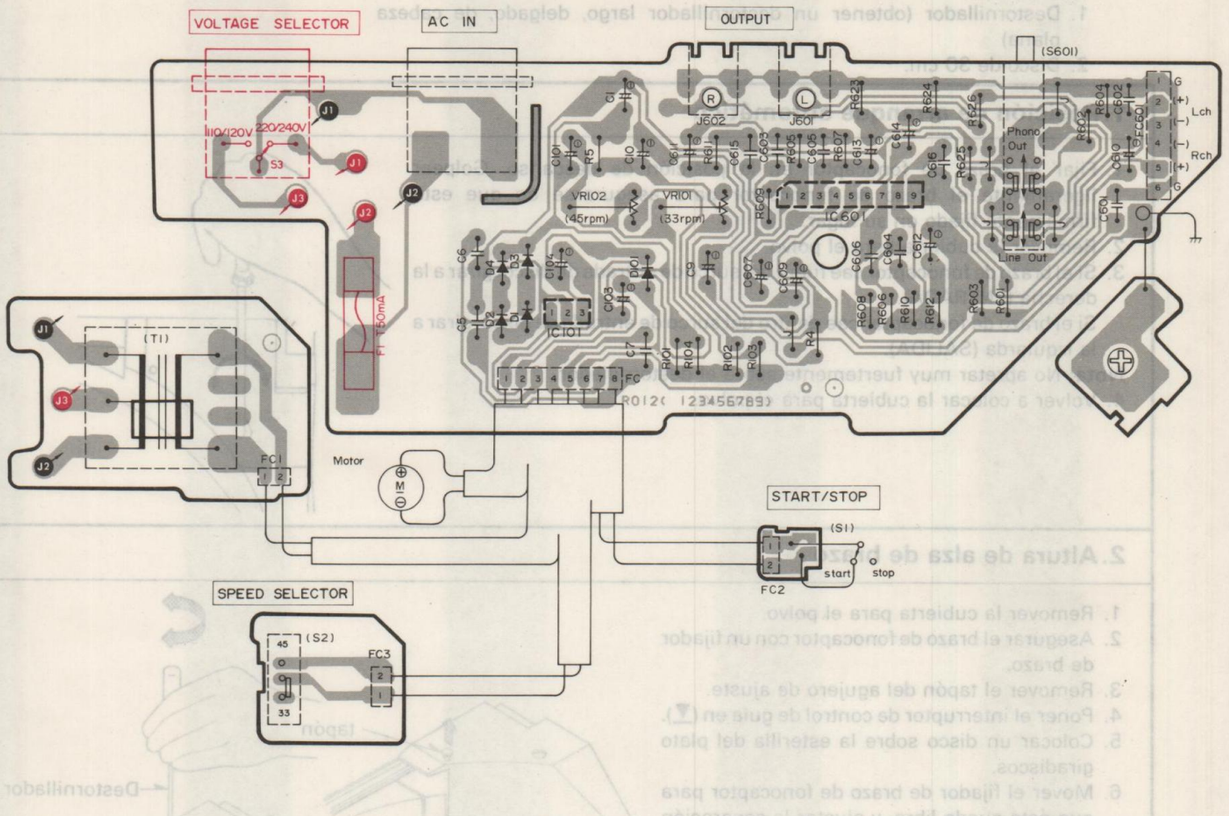
3. Velocidad rotativa

1. Poner el selector de velocidad en "33".
2. Levantar la unidad e insertar un destornillador dentro del agujero de ajuste (33-rpm) desde detrás para girar VR101.
3. Poner el selector de velocidad en "45".
4. Lo mismo que en el paso 2, insertar un destornillador dentro del agujero de ajuste (45-rpm) y girar VR102.

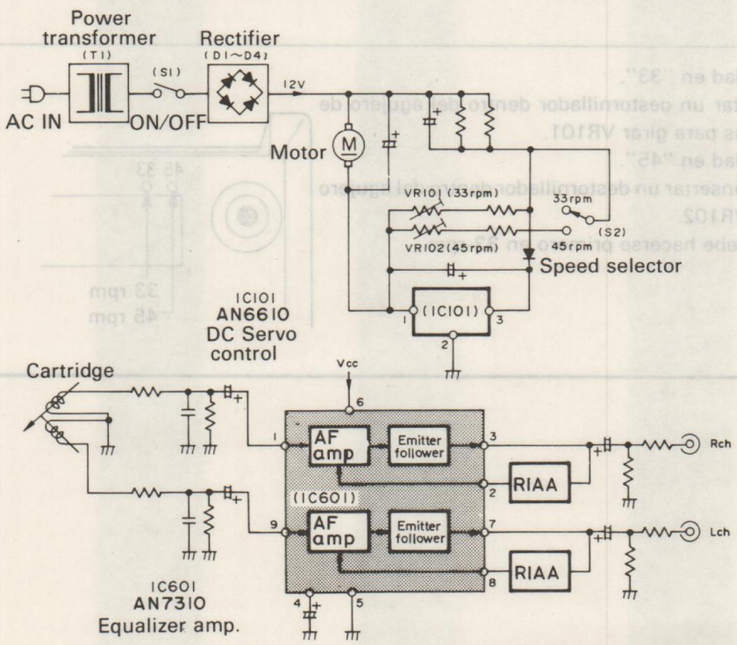
Nota: El ajuste de velocidad debe hacerse primero en 33-rpm.



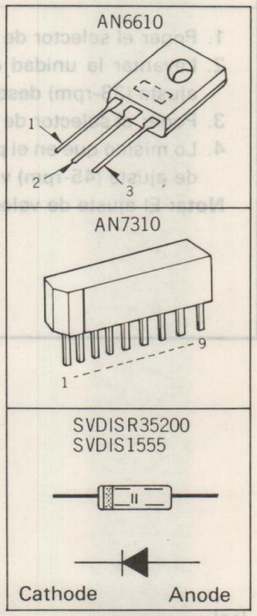
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



■ BLOCK DIAGRAM



● **Terminal guide of IC's and diode**



■ SCHEMATIC DIAGRAM

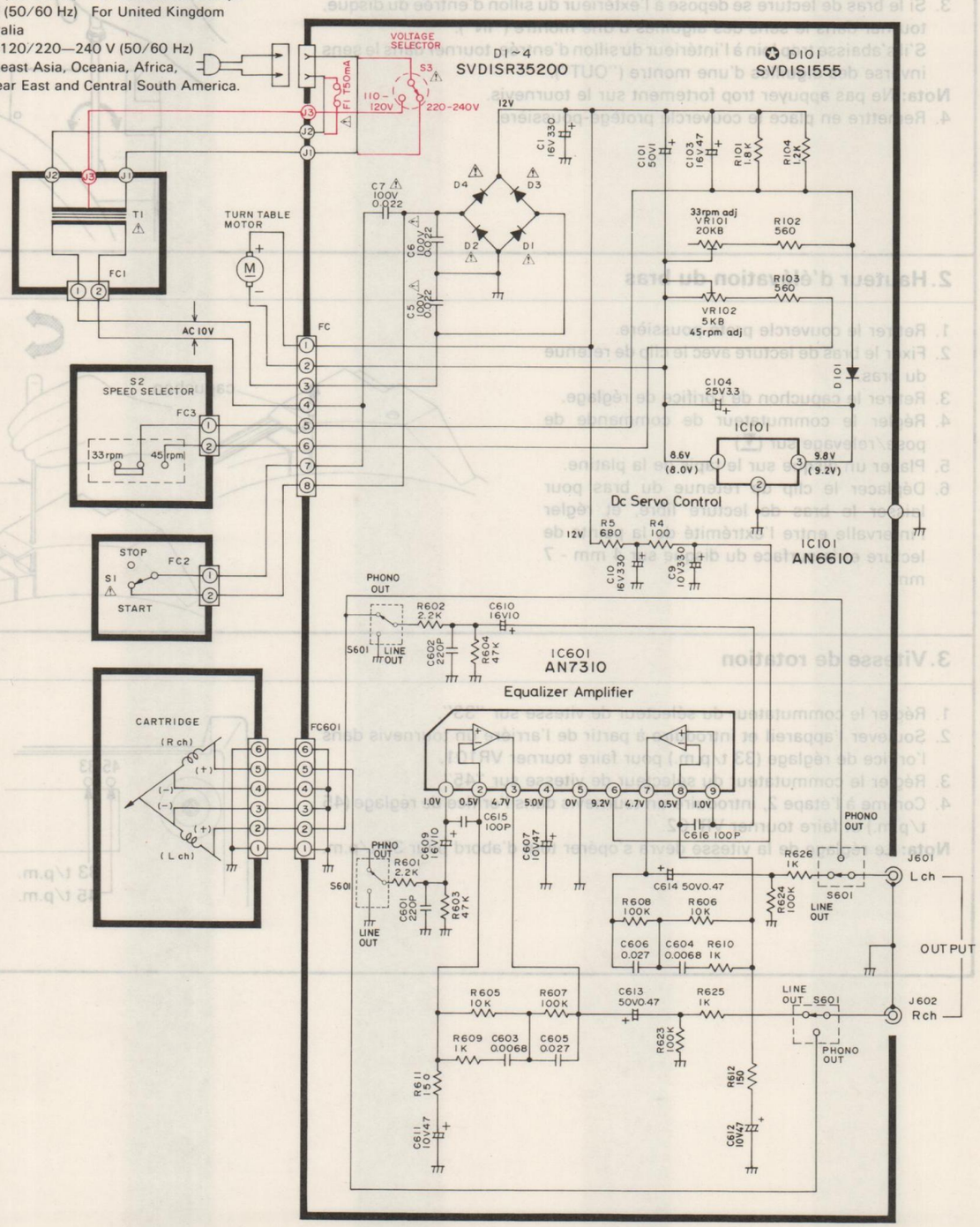
(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. S1 : Start-stop (power) switch in the "start" position.
2. S2 : Speed selector switch in the "33" position.
3. S3 : Voltage selector switch in the "220-240V" position.
4. S601: : Line out/phono out selector switch in the "Line out" position.
5. The values are of the reference voltage for the turntable rotation (33rpm) 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 45rpm.
6. 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.
7. Indicated by red are the circuits used only for (XA),(PA), and (PC) areas.

● **Power supply**

* AC 220 V (50/60 Hz) For continental Europe
* AC 240 V (50/60 Hz) For United Kingdom and Australia
* AC 110—120/220—240 V (50/60 Hz) For Southeast Asia, Oceania, Africa, Middle Near East and Central South America.



■ TROUBLESHOOTING

- **Printed circuit board checking method.**
  1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
  2. Remove the P.C.B. **(Refer to "How to remove the P.C.B.")**
  3. Connect the P.C.B. grounding terminal to the chassis of the mechanical plate with a clip-cord.
  4. Shift the P.C.B. from the unit as shown in **Fig. 16** to check the parts.

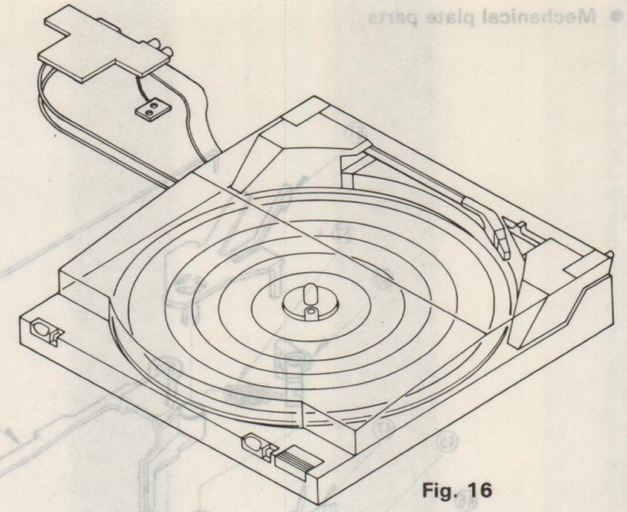
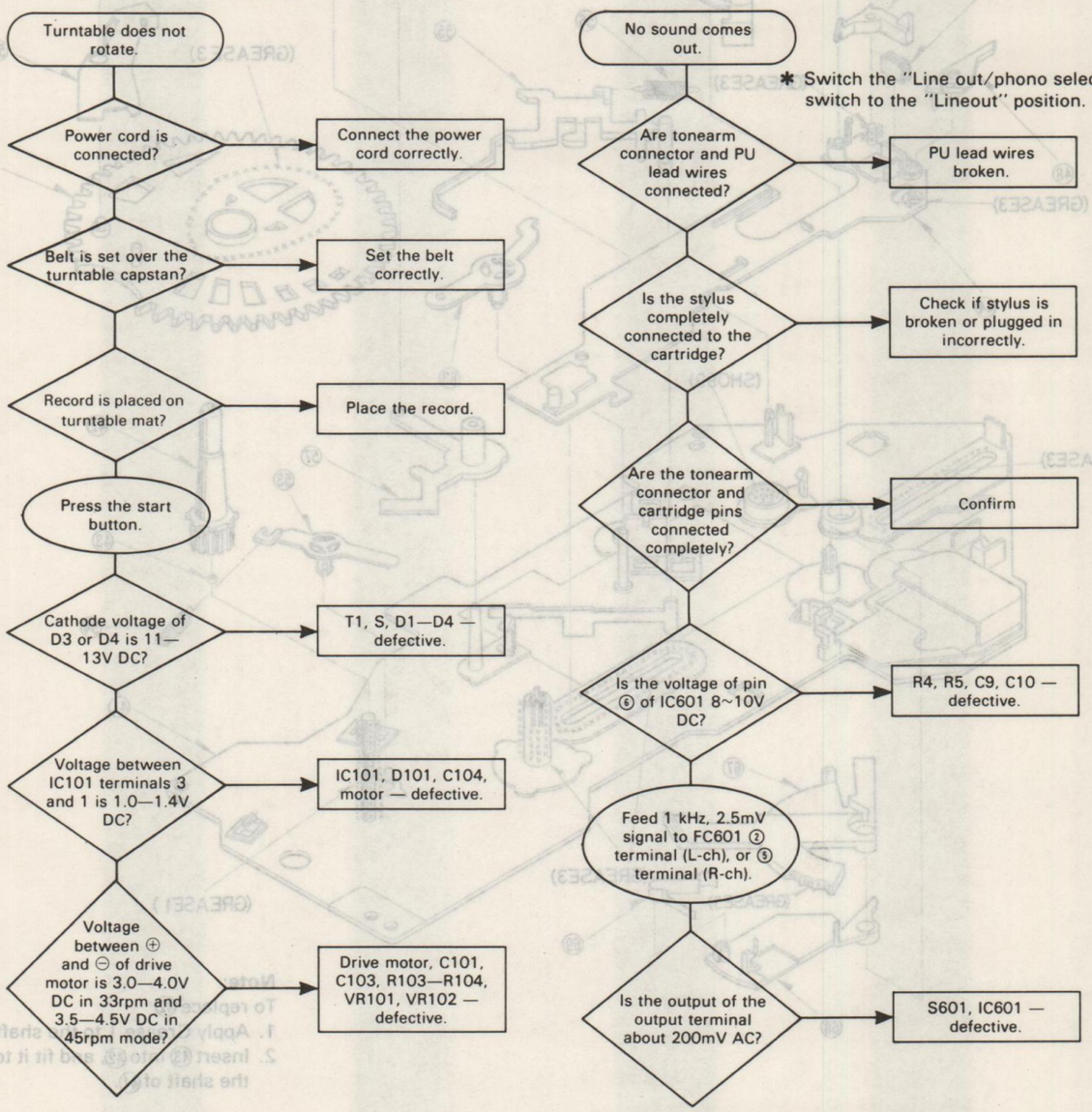


Fig. 16



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

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.
* [PA]	is available in Far East PX.
* [PE]	is available in European Military.
* [PC]	is available in European Audio Club.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	AN6610	DC Servo Control
IC601	AN7310	Equalizer Amplifier
DIODES		
D1~4 ⚠	SVD1SR35200V	Rectifier
D101 Ⓢ	MA162A	Switching
SWITCHES		
S1 ⚠	SFDSN05N01	Start/Stop
S2	SFDSHSW0834	Speed Selector
S3 [XA] Only ⚠	SFDSHXW02066	Voltage Selector
S601	SFDSPSK00A4K	Line Out/Phono Out Selector
VARIABLE RESISTORS		
VR101	EVN61AA00B24	33 rpm Speed Adjustment, 20kΩ (B)
VR102	EVN61AA00B53	45 rpm Speed Adjustment, 5kΩ (B)
POWER TRANSFORMER		
T1 [XA] only ⚠	SLT35K79E	Power Source
T1 [EK, XL] ⚠	SLT35KE78E	Power Source
T1 [Other Areas] ⚠	SLT35K59E	Power Source
FUSE		
F1 [XA] only ⚠	XBA2C005TIW	T50mA, 250V
RESISTORS		
R4	ERDS2TJ101	Carbon, 1/4W, 100Ω, ±5%
R5	ERDS2TJ681	Carbon, 1/4W, 680Ω, ±5%
R101	ERDS2TJ182	Carbon, 1/4W, 1.8kΩ, ±5%
R102, 103	ERDS2TJ561	Carbon, 1/4W, 560Ω, ±5%
R104	ERDS2TJ122	Carbon, 1/4W, 1.2kΩ, ±5%
R601, 602	ERDS2TJ222	Carbon, 1/4W, 2.2kΩ, ±5%
R603, 604	ERDS2TJ473	Carbon, 1/4W, 47kΩ, ±5%
R605, 606	ERDS2TJ103	Carbon, 1/4W, 10kΩ, ±5%
R607, 608	ERDS2TJ104	Carbon, 1/4W, 100kΩ, ±5%
R609, 610	ERDS2TJ102	Carbon, 1/4W, 1kΩ, ±5%
R611, 612	ERDS2TJ151	Carbon, 1/4W, 150Ω, ±5%
R623, 624	ERDS2TJ104	Carbon, 1/4W, 100kΩ, ±5%
R625, 626	ERDS2TJ102	Carbon, 1/4W, 1kΩ, ±5%

Ref. No.	Part No.	Description
CAPACITORS		
C1	ECEA1CU331	Electrolytic, 16V, 330μF
C5, 6 ⚠	ECQM1223KZ	Polyester, 100V 0.022μF, ±10%
C7 ⚠	ECQM1223KZ	Polyester, 100V 0.022μF, ±10%
C9	ECEA1AU331	Electrolytic, 10V, 330μF
C10	ECEA1CU331	Electrolytic, 16V, 330μF
C101	ECEA1HU010	Electrolytic, 50V, 1μF
C103	ECEA1CU470	Electrolytic, 16V, 47μF
C104	ECEA1EU3R3	Electrolytic, 25V, 3.3μF
C601, 602	ECKD1H221KB	Ceramic, 50V 220PF, ±10%
C603, 604	ECQM1H682JZ	Polyester, 50V 0.0068μF, ±5%
C605, 606	ECQM1H273JZ	Polyester, 50V 0.027μF, ±5%
C607	ECEA1AU470	Electrolytic, 10V, 47μF
C609, 610	ECEA1CU100	Electrolytic, 16V, 10μF
C611, 612	ECEA1AU470	Electrolytic, 10V, 47μF
C613, 614	ECEA1HUR47	Electrolytic, 50V, 0.47μF
C615, 616	ECKD11H101KB	Ceramic, 50V 100PF, ±10%
CABINET AND CHASSIS PARTS		
1	SFADN05N01E	Dust Cover (With Cushion Rubber) (1)
1-1	SFGZD04N01	Cushion Rubber (2)
1-2	SFGCN05N01	Cushion Rubber (1)
2	SFTGN05N01	Turntable mat (1)
3	SFWEN05N01	45rpm Adaptor (1)
4	SFQAN05N01	Spring, 45rpm Adaptor (1)
5	SFUMN05N04E	Record Detector (1)
6	SFTEN05N01	Turntable Platter (1)
7	SFGB321-1	Belt (1)
8	SFATN05N01E	Hinge (Left Side) (1)
9	SFATN05N02E	Hinge (Right Side) (1)
10 [XL, XA]	SFACN05N21	Cabinet (Gray Type) (1)
10 [Other Areas]	SFACN05N11	Cabinet (Gray Type) (1)
10 [XL, XA]	SFACN05N24	Cabinet (Silver Type) (1)
10 [Other Areas]	SFACN05N14	Cabinet (Silver Type) (1)
10 [XL, XA]	SFACN05N25	Cabinet (Black Type) (1)
10 [Other Areas]	SFACN05N15	Cabinet (Black Type) (1)

Ref. No.	Part No.	Description
11	SFKTN05N03	Knob, Speed Selector (1)
12	SFGKN05N02	Cap (Gray and Silver Type) (1)
12	SFGKN05N01	Cap (Black Type) (1)
13	SFKTN05N02	Knob, Cueing Control (1)
14	SFKTN05N01	Button, Start/Stop (1)
15	SFQAN05N02	Spring, Start-stop Button (1)
16	SFUMN05N02	Base, Cueing (1)
17	SFQPZ15R02	Spring (1)
18	SFYB-5-32	Ball (1)
19	SFUMN05N03	Lever, Cueing (1)
20	SFUPN05N01	Support, Cueing Base (1)
21	SFMZN05N01E	Motor Ass'y (1)
22	SFUZN05N02	Rod, Cueing (1)
23	SFUZN05N01	Rod, Start/Stop (1)
24	SFAUN05N01	Bottom Board (1)
25	SFGAN05N01	Insulator (4)
26	SFACN05N011	Arm Clamper (Gray Type) (1)
26	SFACN05N041	Arm Clamper (Silver Type) (1)
26	SFACN05N051	Arm Clamper (Black Type) (1)
27	SRDJ007N06	Output Terminal(Left) (1)
28	SRDJ007N05	Output Terminal(Right) (1)
29 [XA, XL, PA, PE, PC] ⚠	SFDJHSC0509	Socket (1)
29 [Other Areas] ⚠	SFDJHSC0515	Socket (1)
30 [E, EC]	SFNNN05S01	Name Plate (1)
30 [EK]	SFNNN05G01	Name Plate (1)
30 [XA]	SFNNN05X01	Name Plate (1)
30 [XL]	SFNNN05L01	Name Plate (1)
30 [PA, PE]	SFNNN05P01	Name Plate (1)
30 [PC]	SFNNN05P02	Name Plate (1)
30 [Other Areas]	SFNNN05R01	Name Plate (1)
31	SFACN05N012	Arm Cover(Gray Type) (1)
31	SFACN05N042	Arm Cover(Silver Type) (1)
31	SFACN05N052	Arm Cover(Black Type) (1)
32 Exclude [XA,PA,PE, PC Areas]	SFACN05N013	Cover, Voltage Selector (Gray Type) (1)
32 Exclude [XA,PA,PE, PC Areas]	SFACN05N043	Cover, Voltage Selector (Silver Type) (1)
32 Exclude [XA,PA,PE, PC Areas]	SFACN05N054	Cover, Voltage Selector (Black Type) (1)
33	SFQAN05N03	Spring (1)
34	SFUPN05N06	Plate (1)
35	SFKTN05N04	Knob, Line Out/Phono Out Selector (1)

■ REPLACEMENT PARTS LIST

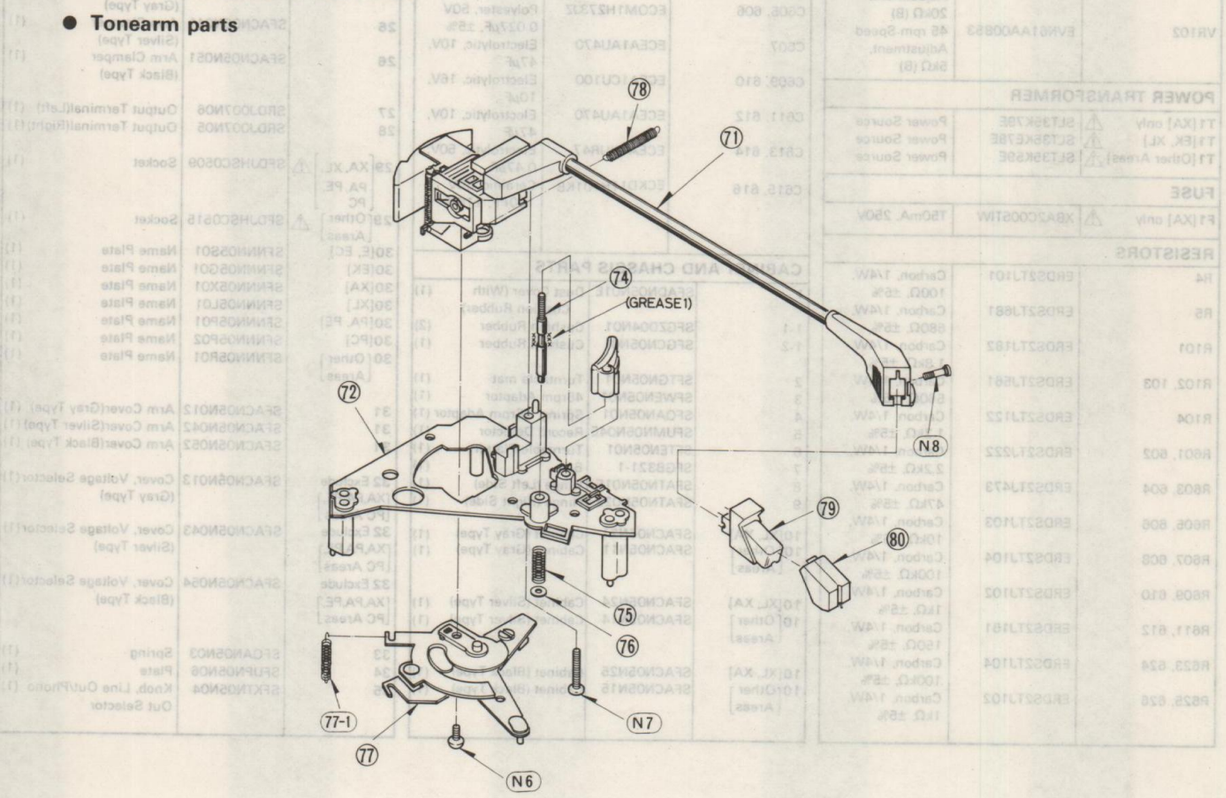
Ref. No.	Part No.	Description	
MECHANICAL PLATE PARTS			
41	SFUKN05N51E	Plate, Mechanical	(1)
42	SFTUN05N01E	Shaft, Center Spindle	(1)
43	SFYB-5-32	Ball, Shaft	(1)
44	SFUBN05N51	Plate Drive	(1)
45	SFUMN05N51	Motive Plate	(1)
46	SFGZB63M51	Cushion Rubber	(1)
47	SFQPN05N52	Spring, Motive Plate	(1)
48	SFUMN05N62	Sub Plate, Drive	(1)
49	SFUGN05N52	Main Gear	(1)
50	SFURZ15R51	Rink, Main Gear	(1)
51	SFURN05N52	Rink, Main Gear	(1)
52	SFUMZ15R61	Washer	(1)
53	SFUMN05N63	Plate, Gear Setting	(1)
54	SFQHN05N58	Spring, Gear Setting	(1)
55	SFUMN05N52	Lever, Start	(1)
56	SFQHN05N52	Spring, Start Lever	(1)
57	SFUMN05N53	Actuating Plate	(1)
58	SFUZN05N51	Rod, Actuating	(1)
59	SFUMN05N64	Lever, Switch	(1)
60	SFUMN05N65	Sub Plate, Switch Lever	(1)
61	SFUMN05N55	Control Plate	(1)
62	SFQHN05N53	Spring, Switch Lever	(1)
63	SFUMN05N56	Lever, Cueing	(1)
64	SFUMN05N57	Cam, Cueing	(1)
65	SFQPN05N51	Spring, Lift Plate	(1)
66	SFQHN05N57	Spring, Cueing Cam	(1)
67	SFUMN05N58	Index Plate	(1)
68	SFUMN05N59	Sub Plate, Index	(1)
69	SFQPB63M53	Spring, Index	(1)
TONEARM PARTS			
71	SFPAMN0501R	Tonearm(with arm lift)	(1)
72	SFUPN05N51E	Arm Base	(1)
74	SFXJN05N51	Rod, Lift	(1)
75	SFQAN05N51	Spring Lift	(1)

Ref. No.	Part No.	Description	
76	SFXWZ15R51	Washer	(1)
77	SFUPN05N52A	Mounting Plate Ass'y	(2)
77-1	SFQHN05N56	Spring, PU Plate	(1)
78	SFQHN05N55	Spring, Canceller	(1)
79 [PA, PE, PC Areas]	EPC-P53S	★ Cartridge	(1)
79 [Other Areas]	EPC-P51S	★ Cartridge	(1)
80 [PA, PE, PC Areas]	EPS-53CS	★ Stylus	(1)
80 [Other Areas]	EPS-51CS	★ Stylus	(1)
SCREWS AND WASHER PARTS			
N1	XTV3+10J	Screw, ⊕ 3×10	(8)
N2	XTV3+25J	Screw, ⊕ 3×25	(2)
N3	XTV3+35J	Screw, ⊕ 3×35	(2)
N4	XTV3+10J	Screw, ⊕ 3×10	(1)
N5 Ⓢ	XWC3B	Washer, ø3	(1)
N6	XTV3+8G	Screw, ⊕ 3×8	(1)
N7	SFPEV0Q601	Screw, Cartridge	(1)
ACCESSORIES			
A1 [E, EB, EH, EC]	SFNUN05S01	Instruction Book	(1)
A1 [EK]	SFNUN05G01	Instruction Book	(1)
A1 [XL, XA]	SFNUN05X01	Instruction Book	(1)
A1 [EG]	SFNUN05R01	Instruction Book	(1)
A1 [EF]	SFNUN05F01	Instruction Book	(1)
A1 [EI]	SFNUN05I01	Instruction Book	(1)
A1 [PA, PE, PC]	SFNUN05P01	Instruction Book	(1)
A2	SFDHN05N01	Output Cord	(1)

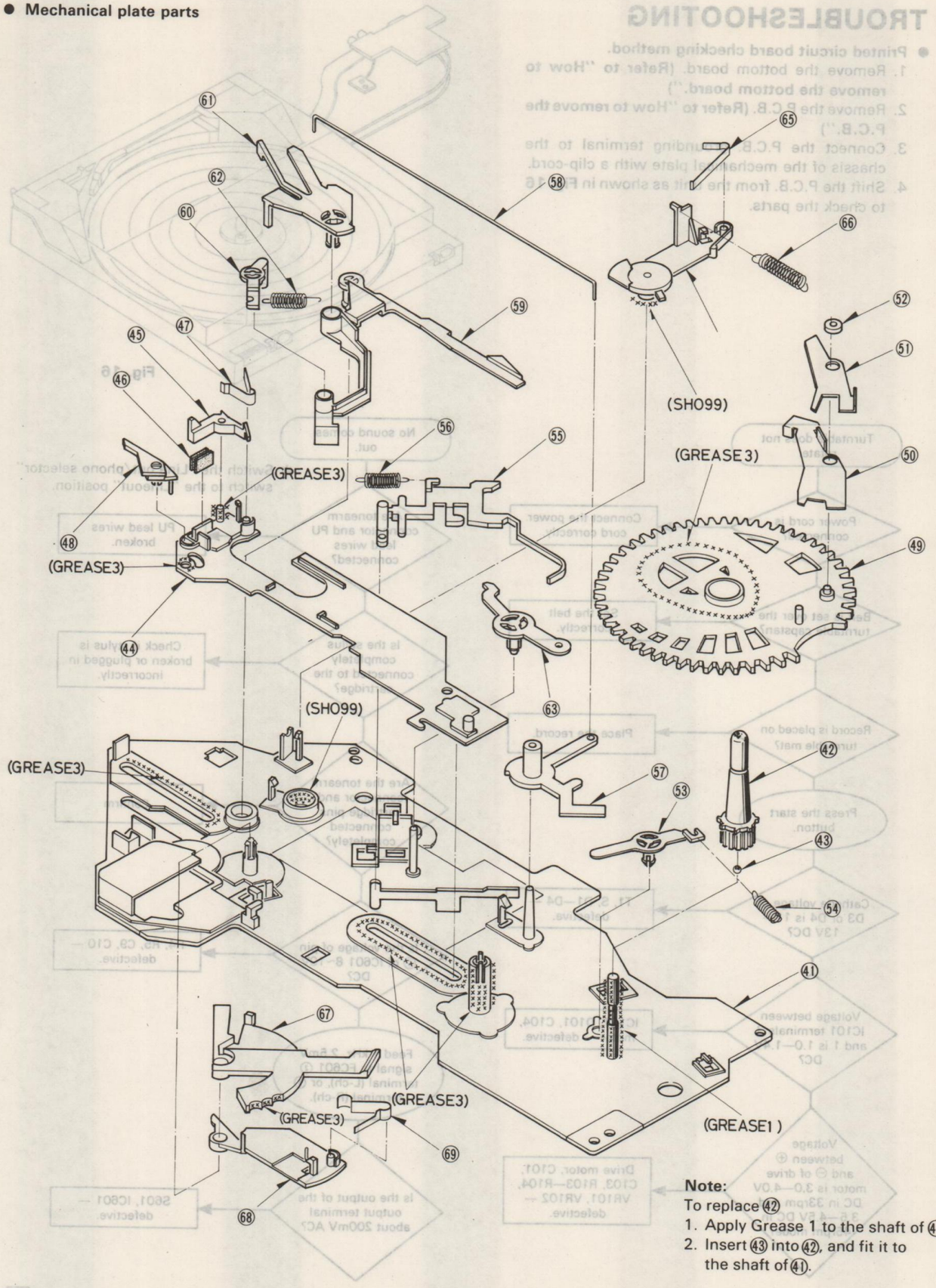
Ref. No.	Part No.	Description	
A3 [XL] ⚠	SFDAC05L01	AC Cord	(1)
A3 [EK] ⚠	SFDAC05G02	AC Cord	(1)
A3 [XA] ⚠	SFDAC05X02	AC Cord	(1)
A3 [PA, PE, PC] ⚠	SFDAC05N01	AC Cord	(1)
A3 [Other Areas] ⚠	SFDAC05E02	AC Cord	(1)
A4 [XA] Only ⚠	SFDKI19118	2 Pin Plug	(1)
A5 [PA, PE, PC] ⚠	QJP0603S	Adaptor	(1)
PACKING PARTS			
P1 [EF]	SFHPN05F01	Carton Box (Gray Type)	(1)
P1 [EF]	SFHPN05F04	Carton Box (Silver Type)	(1)
P1 [EF]	SFHPN05F05	Carton Box (Black Type)	(1)
P1 [XA, XL]	SFHPN05X01	Carton Box (Gray Type)	(1)
P1 [XA, XL]	SFHPN05X04	Carton Box (Silver Type)	(1)
P1 [XA, XL]	SFHPN05X05	Carton Box (Black Type)	(1)
P1 [Other Areas]	SFHPN05S01	Carton Box (Gray Type)	(1)
P1 [Other Areas]	SFHPN05S04	Carton Box (Silver Type)	(1)
P1 [Other Areas]	SFHPN05S05	Carton Box (Black Type)	(1)
P2	SFHHN05N01	Pad, Front	(1)
P3	SFHHN05N02	Pad, Rear	(1)
P4	SFHSN05N01	Spacer, Dust Cover	(1)
P5	SFHKN05N01	Clamper, Turntable Platter	(2)
P6	SFYH45X60	Polyethylene Bag, Unit	(1)
P7	SFHZN05N03	Arm Clamper	(1)
P8	SFHDD04N01	Pad, Turntable Mat	(1)
P9	SFYF32A35	Polyethylene Bag, Turntable Mat	(1)

■ EXPLODED VIEWS

● Tonearm parts

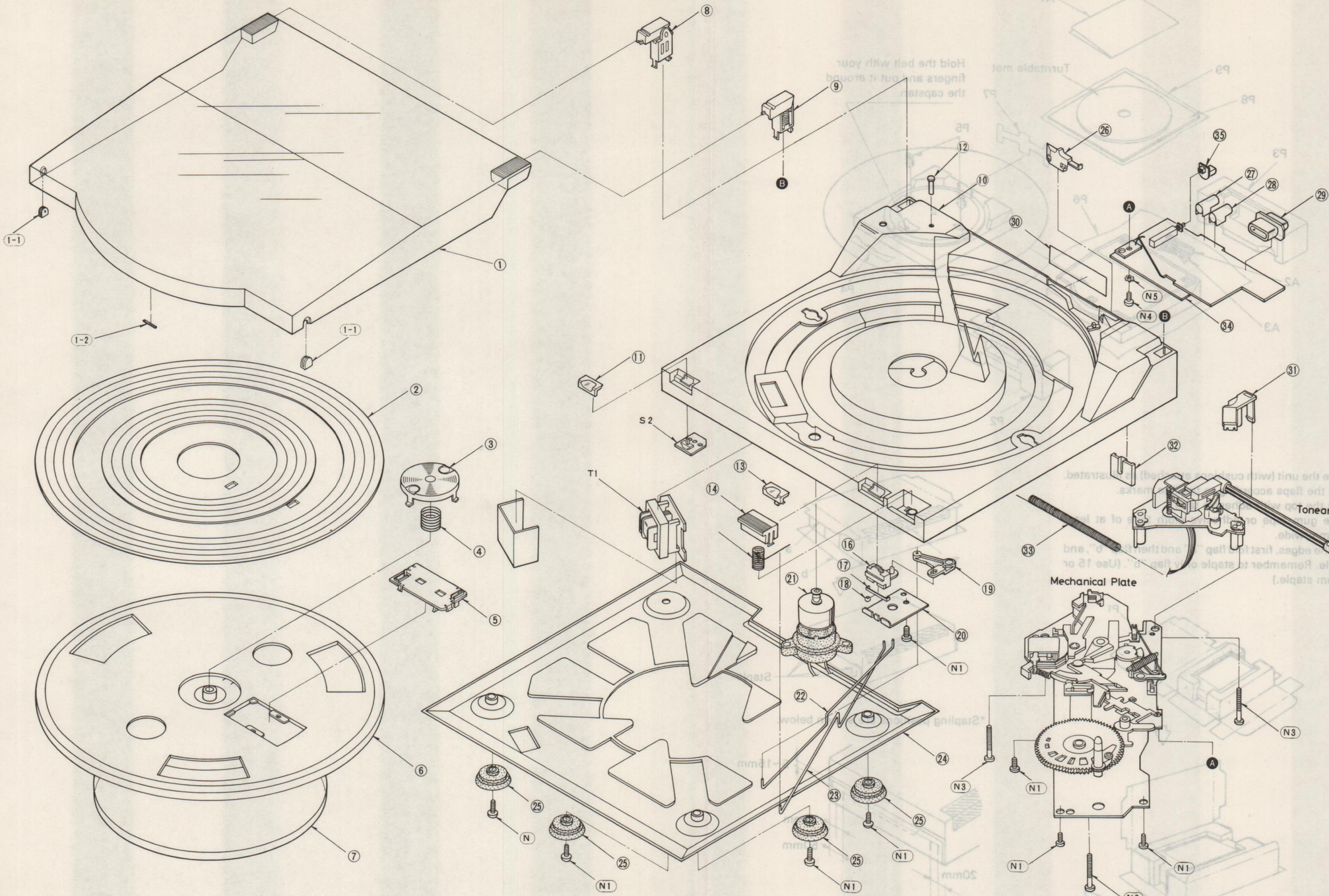


● Mechanical plate parts

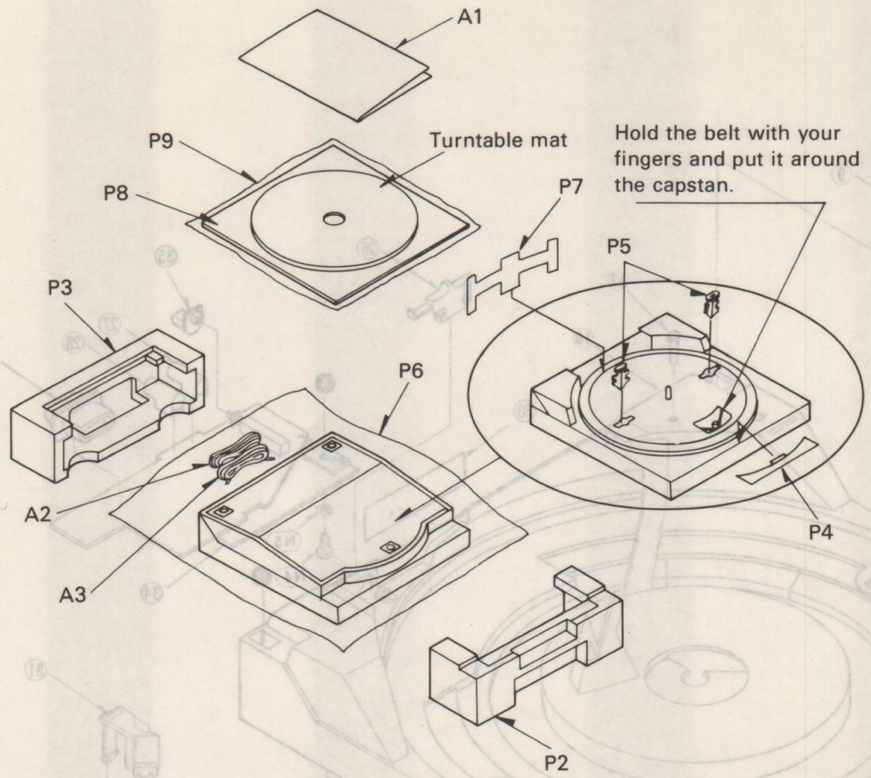


Note:
To replace ㊷
1. Apply Grease 1 to the shaft of ㊶
2. Insert ㊸ into ㊷, and fit it to the shaft of ㊶.

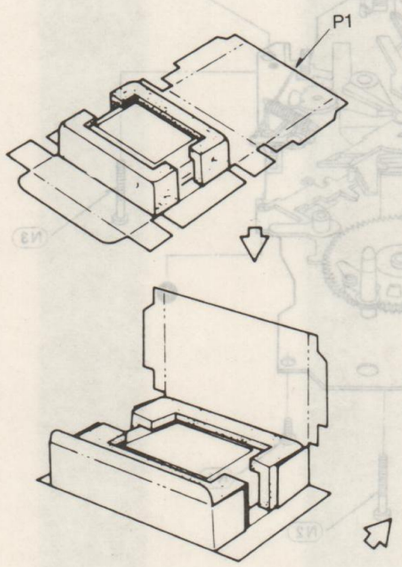
● **Cabinet and chassis parts**

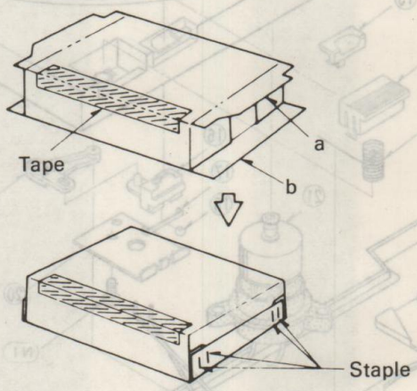


■ PACKING

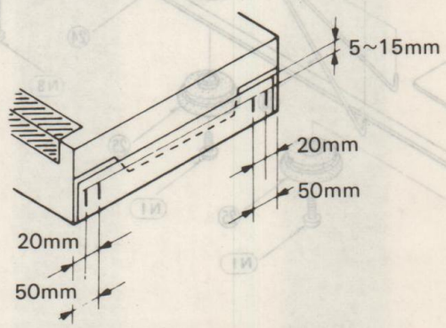


1. Place the unit (with cushions attached) as illustrated.
2. Fold the flaps according to the line marks.
3. Seal the top with adhesive tape.
   * Use gum tape or adhesive cloth tape of at least 50mm wide.
4. For the edges, first fold flap "a" and then flap "b", and staple. Remember to staple only flap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





*Stapling positions are shown below.



Printed in Japan
840415300 Ⓢ AM/YW

ORDER NO. DAD84060090C9

Service Manual

DC Servo Fully Automatic Turntable System

SL-N5 (W), (R), (B), (P)

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

* The colours of this model include white, red, blue and pink.
* The white type model is indicated by (W) in the Service Manual.
* The red type model is indicated by (R) in the Service Manual.
* The blue type model is indicated by (B) in the Service Manual.
* The pink type model is indicated by (P) 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.
* [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-N5 (H), (K), (S) Order No. DAD84040071C9

CHANGES

■ REPLACEMENT PARTS LIST

NOTE:
Mentioned in this parts list are only those changed in Model No. SL-N5 (H). (Gray Type)

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-N5 (H) ➡	SL-N5 (W), (R), (B), (P)			
CABINET AND CHASSIS PARTS					
10	SFACN05N21 [XL, XA]	SFACN05N22 [XL, XA]	Cabinet (White Type)	1	(W)
		SFACN05N12 [Other Areas]		1	(W)
		SFACN05N23 [XL, XA]	Cabinet (Red Type)	1	(R)
		SFACN05N13 [Other Areas]		1	(R)
	SFACN05N11 [Other Areas]	SFACN05N27 [XL, XA]	Cabinet (Blue Type)	1	(B)
		SFACN05N17 [Other Areas]		1	(B)
		SFACN05N26 [XL, XA]	Cabinet (Pink Type)	1	(P)
		SFACN05N16 [Other Areas]		1	(P)

Panasonic®
National

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

Ref. No.	Change of Part No. SL-N5 (H) ➡ SL-N5 (W), (R), (B), (P)		Part Name & Description	Per Set (Pcs.)	Remarks
CABINET AND CHASSIS PARTS					
12	SFGKN05N02	SFGKN05N01	Cap (Red Type Only)	1	(R)
		SFGKN05N02	Cap (White, Blue and Pink Types)	1	(W),(B),(P)
26	SFACN05N011	SFACN05N021	Arm Clamper (White Type)	1	(W)
		SFACN05N031	Arm Clamper (Red Type)	1	(R)
		SFACN05N071	Arm Clamper (Blue Type)	1	(B)
		SFACN05N061	Arm Clamper (Pink Type)	1	(P)
31	SFACN05N012	SFACN05N022	Arm Cover (White Type)	1	(W)
		SFACN05N032	Arm Cover (Red Type)	1	(R)
		SFACN05N072	Arm Cover (Blue Type)	1	(B)
		SFACN05N062	Arm Cover (Pink Type)	1	(P)
32	SFACN05N013 (Exclude [XA], [PA], [PC] Areas	SFACN05N023	Cover (White Type)	1	(W)
		SFACN05N033	Cover (Red Type)	1	(R)
		SFACN05N073	Cover (Blue Type)	1	(B)
		SFACN05N063	Cover (Pink Type)	1	(P)
PACKING PARTS					
	SFHPN05F01 [EF]	SFHPN05F02 [EF]	Carton Box (White Type)	1	(W)
		SFHPN05X02 [XL, XA]		1	(W)
		SFHPN05S02 [Other Areas]		1	(W)
P1	SFHPN05X01 [XL, XA]	SFHPN05F03 [EF]	Carton Box (Red Type)	1	(R)
		SFHPN05X03 [XL, XA]		1	(R)
		SFHPN05S03 [Other Areas]		1	(R)
	SFHPN05S01 [Other Areas]	SFHPN05F07 [EF]	Carton Box (Blue Type)	1	(B)
		SFHPN05X07 [XL, XA]		1	(B)
		SFHPN05S07 [Other Areas]		1	(B)
		SFHPN05F06 [EF]	Carton Box (Pink Type)	1	(P)
		SFHPN05X06 [XL, XA]		1	(P)
		SFHPN05S06 [Other Areas]		1	(P)

Printed in Japan
840602700 Ⓢ AM