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Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP-217-0**

STEREO TURNTABLE

PL-110

- This service manual is applicable to the ZE type.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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1. SPECIFICATIONS

Motor and Turntable

Drive System	Belt-drive
Motor	DC motor
Turntable Platter	280mm diam. aluminum alloy die-cast
Speeds	33-1/3 and 45 rpm
Wow and Flutter	Less than 0.05% (WRMS)
Signal-to-Noise-Ratio	More than 68 dB (DIN-B)
(with Pioneer cartridge model PC-K65)	

Tonearm

Type	Static-balance type, Straight pipe arm
Effective Arm Length	190 mm
Overhang	9.3 mm

Subfunctions

Auto-return mechanism, Free stop hinges

Miscellaneous

Power Requirements	D.C. 20V
Power Consumption	2.4W
Dimensions	422 (W) x 108 (H) x 345 (D) mm
	16-3/8 (W) x 4-1/4 (H) x 13-5/8 (D) in.
Weight	3.2 kg/7 lb 1 oz

PC-K65 Specifications

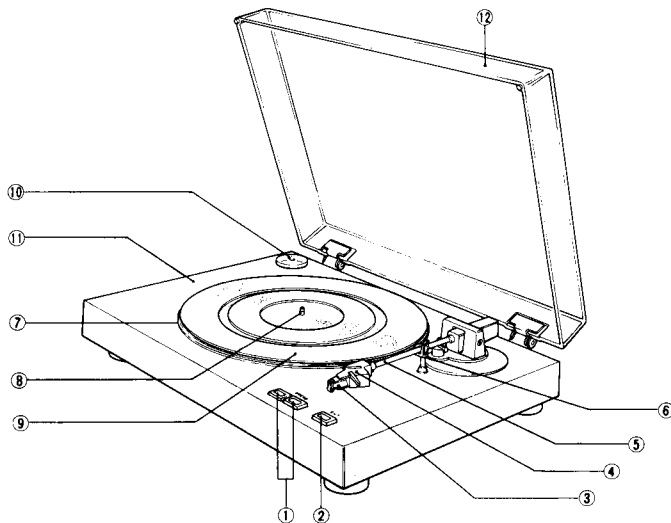
Type	Moving Magnet type
Stylus	0.5 mil diamond (PN-K65)
Output Voltage	3.5 mV
	(1 kHz, 50 mm/s Peak velocity, LAT)
Tracking Force	2.1 g to 2.9 g (proper 2.5 g)
Frequency Response	20 ~ 20,000 Hz
Recommended Load	47 kΩ
Weight	3.4 g

Accessories

EP Adapter	1
Instructions note.....	1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

2. FRONT PANEL FACILITIES



- ① **SPEED SWITCH**
Set this switch in accordance with the speed of the record which is to be played.
Depress "33" for playing 33-1/3 rpm records.
Depress "45" for playing 45 rpm records.

② **CUT SWITCH**
Depress this switch to stop play.

③ **CARTRIDGE (PC-K65)**

④ **HEADSHELL**

⑤ **TONEARM**

⑥ **ARM REST**
This serves to hold and clamp the tonearm. When moving the tonearm, release the clamp.
- ⑦ **PLATTER**

⑧ **PLATTER MOUNTING SHAFT**

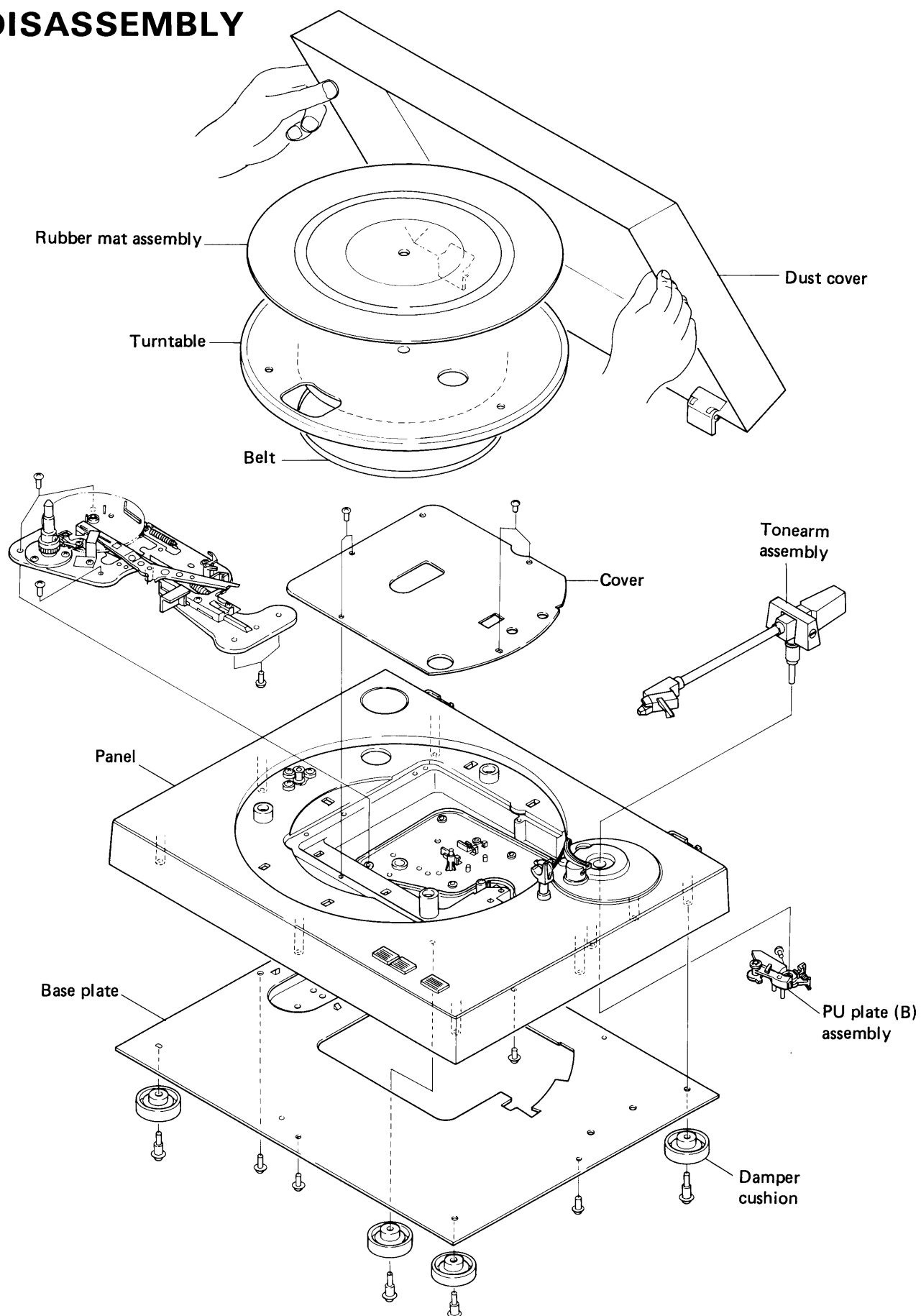
⑨ **RUBBER MAT**

⑩ **EP ADAPTER**
This is used when playing records without a "middle."

⑪ **CABINET**

⑫ **DUST COVER**

3. DISASSEMBLY



3.1 REMOVAL AND INSTALLATION OF DETECTOR LEVER UNIT

1. Hold the detector lever unit with your right hand as shown in Fig. 3-1, open the PU plate (A) and PU plate (B) of the PU plate (B) assembly with your left hand, and carefully pull out the detector lever unit upward.
2. Install the detector lever unit in reverse sequence of the removal. In this case, however, note that the detector lever unit will be bent when the pin portion (A) is in contact with the detector lever unit and the detector lever unit is pushed hard.

3.2 REMOVAL AND INSTALLATION OF PU PLATE (B) ASSEMBLY

1. Remove the base plate and remove the PU board plate.
2. Insert a slightly long screwdriver into the turntable through the opening on the back of the turntable as shown in Fig. 3-3, and remove the screw used to fix the PU plate (B) assembly.
3. Install the PU plate (B) assembly in reverse sequence of the removal. In this case, however, install the PU plate (B) assembly so that the mark on the panel is on the line extended from the side panel of the PU plate (B) (Fig.3-4).

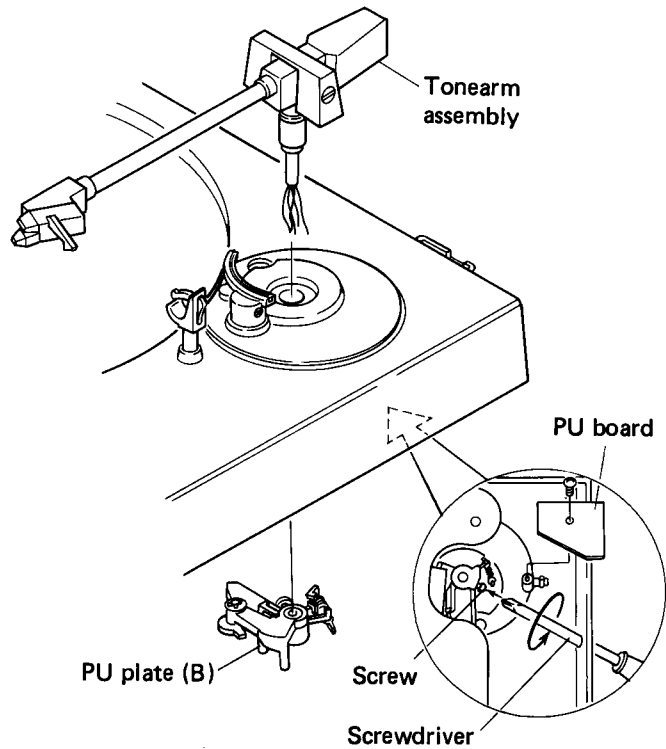


Fig. 3-3 Remove PU plate (B)

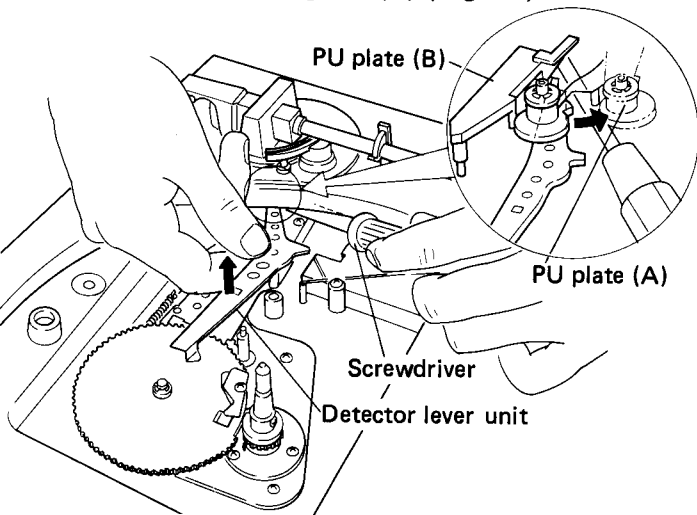


Fig. 3-1 Remove detector lever unit

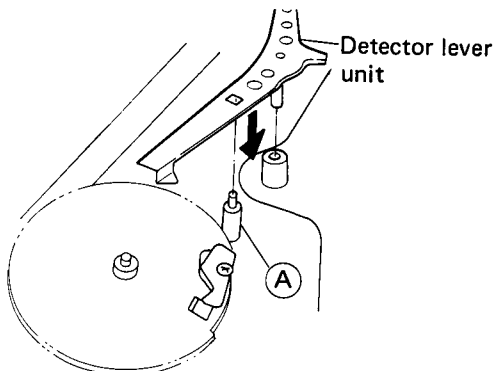


Fig. 3-2 Attach detector lever unit

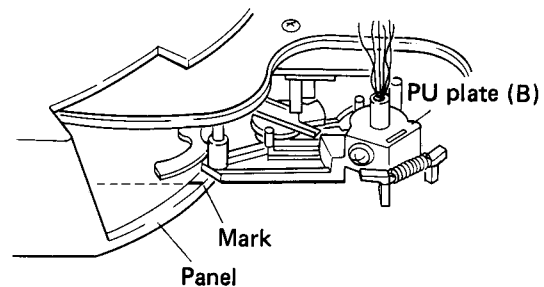


Fig. 3-4 Attach PU plate (B)

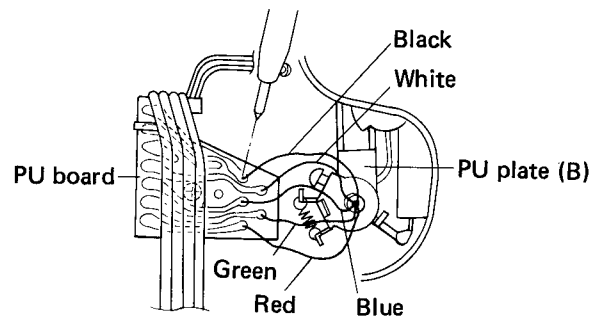


Fig. 3-5 Disconnect the tonearm lead wires

4. EXPLODED VIEWS

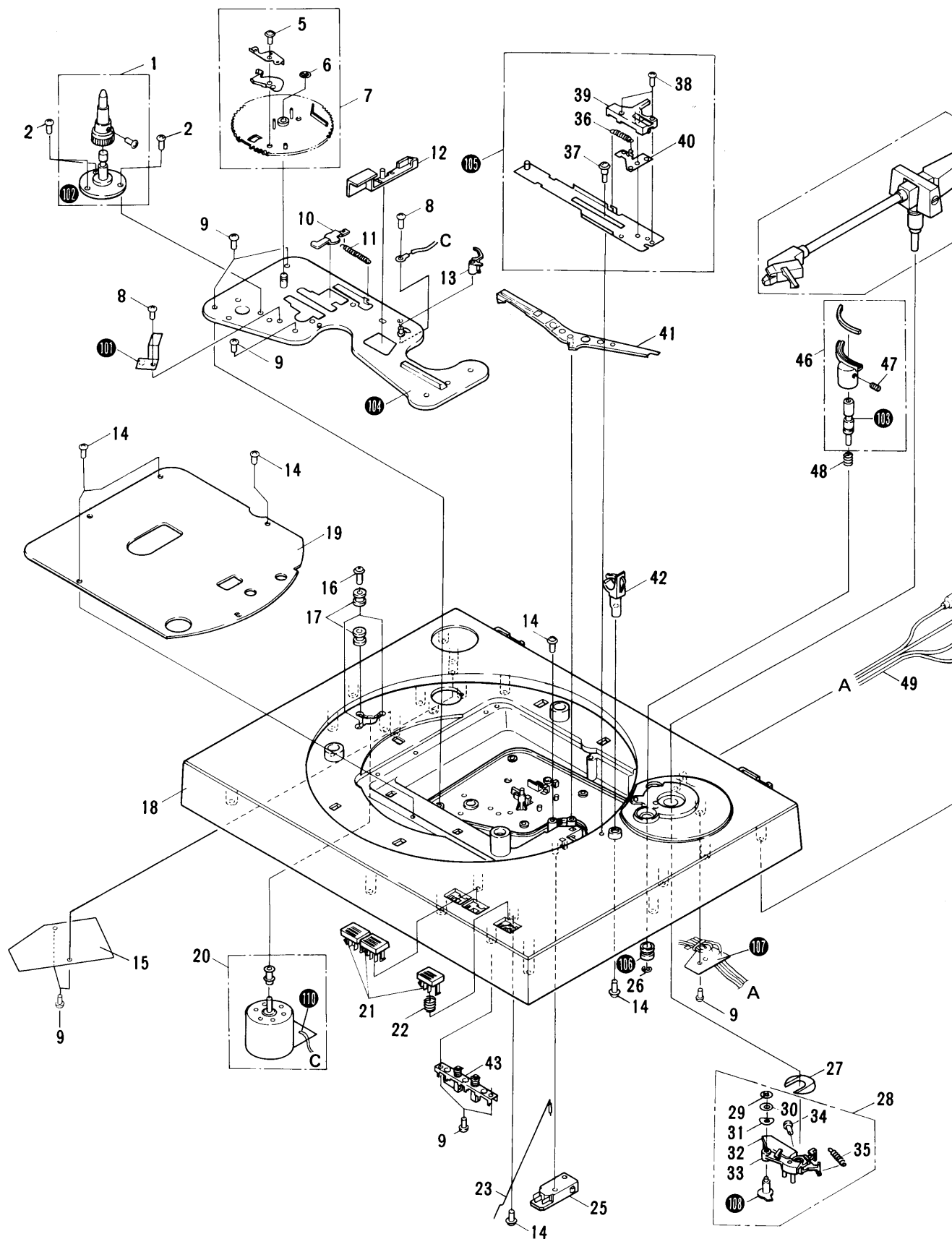
Exterior

A

B

C

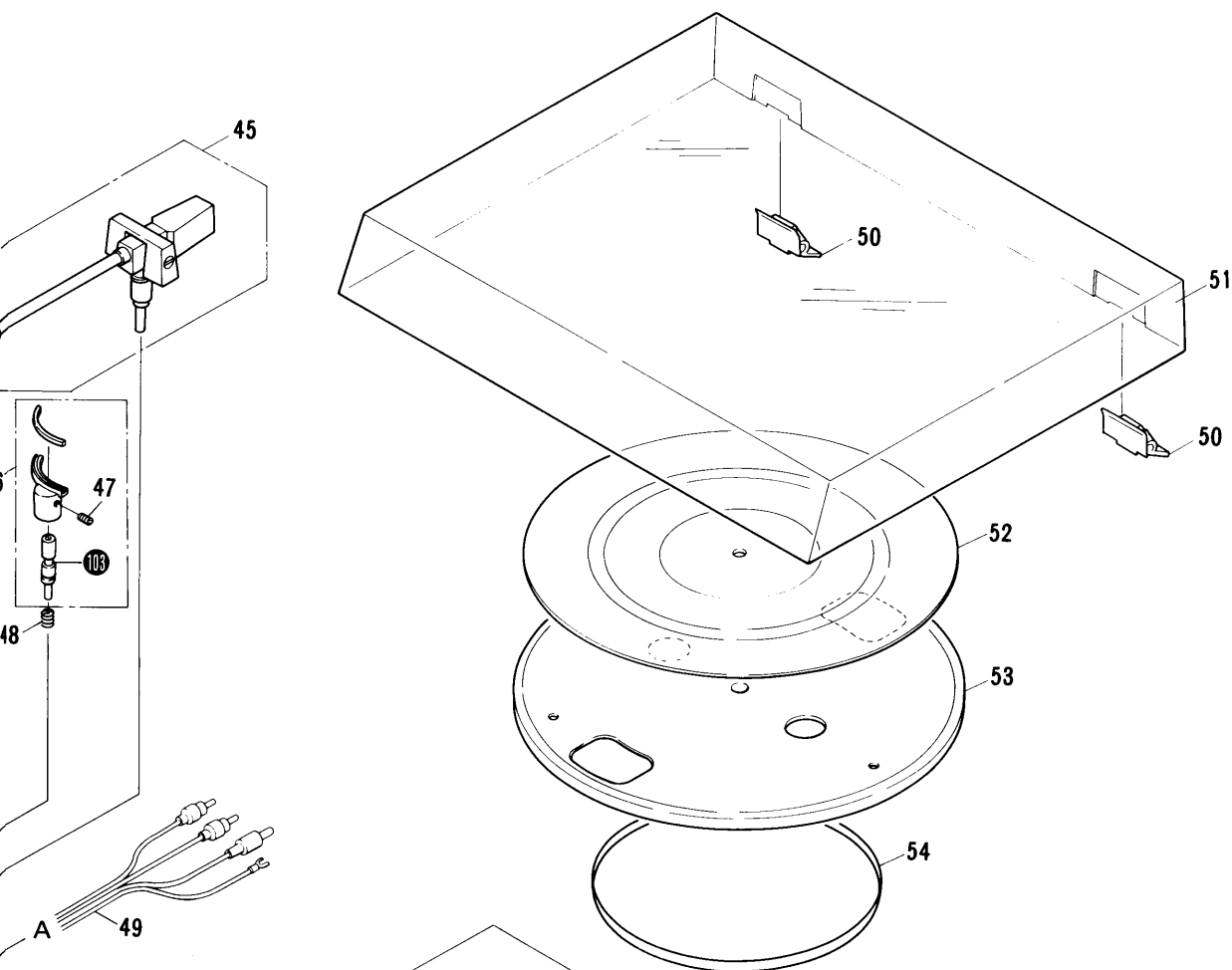
D



4

5

6

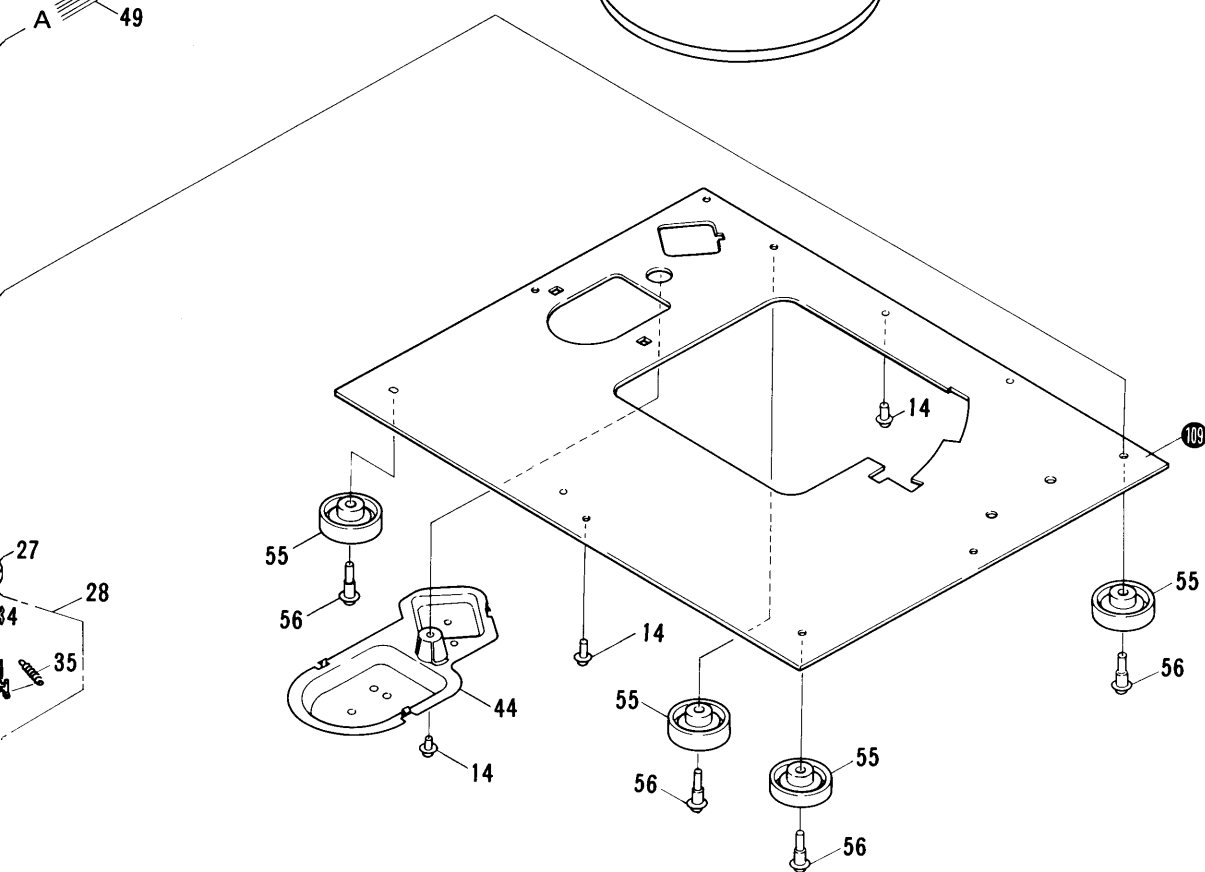


A

B

C

D



4

5

6

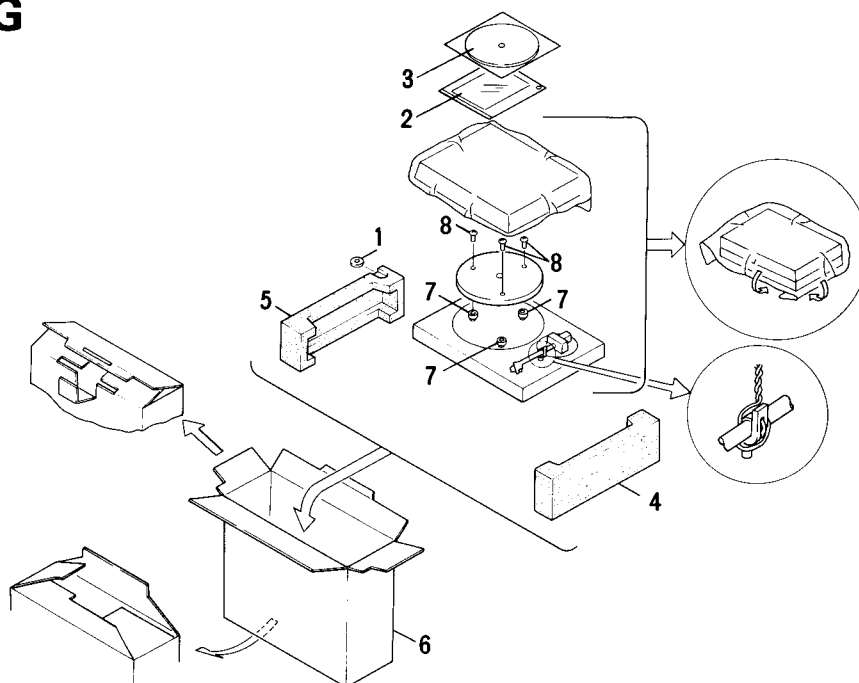
NOTES:

- Parts without part number cannot be supplied.
 - The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
- ★★ **GENERALLY MOVES FASTER THAN ★**
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	PXB-177	Shaft assembly		41.	PXT-496	Detector lever unit
	2.	PDZ30P080FMC	Screw		42.	PXB-192	Tonearm rest assembly
	3.				43.	XWS-020	Switch assembly
	4.				44.	PNX-466	Cover
	5.	PBA-126	Screw	★	45.	PXB-284	Tonearm assembly
	6.	YE40S	E-type washer		46.	PXB-296	EV assembly
	7.	PYY-100	Cam assembly		47.	ZMK40M050FZK	Screw
	8.	PDZ30P050FMC	Screw		48.	PBH-237	EV spring
	9.	PPZ30P080FMC	Screw		49.	PDE-212	PU cord
	10.	PNX-035	Lock plate	★	50.	PXB-155	Hinge assembly
	11.	PBH-225	Lock plate spring	★	51.	PNV-034	Dust cover
	12.	PNX-465	Switch lever		52.	PEA-061	Rubber mat assembly
	13.	PNX-031	Switch locker		53.	PNR-177	Turntable platter
	14.	IPZ30P100FMC	Screw	★★	54.	PEB-224	Belt
	15.	XWR-038	Power supply assembly		55.	PEB-210	Damper cushion
	16.	PBA-112	Screw		56.	PBA-143	Screw
	17.	PEB-172	Rubber bush		101.		Protector
	18.	PNY-025	Panel		102.		Shaft unit
	19.	PMS-019	Cover		103.		Shaft
★★	20.	PYY-113	Motor assembly		104.		Sub-panel unit
	21.	PAC-118	Push button		105.		Driving plate assembly
	22.	PBH-340	Spring		106.		EV shaft holder
	23.	PXB-283	Cut pole assembly		107.		PU board plate
	24.				108.		Index cam
★★	25.	PSF-020	Micro switch		109.		Base plate
	26.	YE70S	E-type washer		110.		GND lead unit
	27.	PBK-059	R spring washer				
	28.	PXB-285	PU plate (B) assembly				
	29.	YS40FBT	E-type washer				
	30.	WC40FMC	Flat washer				
	31.	PNC-227	PU spring washer				
	32.	PNX-467	PU plate (A)				
	33.	PNX-464	PU plate (B)				
	34.	PMD40P080FMC	Screw				
	35.	PBH-308	PU plate spring				
	36.	PBH-224	Spring				
	37.	PBA-145	Screw				
	38.	PMZ26P100FMC	Screw				
	39.	PNX-304	EV cam				
	40.	PNC-220	Start plate				

5. PACKING



Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	N93-603	45 adaptor		6.	PHH-026	Packing case
	2.	PRH-001	Instructions note		7.	PNX-294	Turntable platter protector
	3.	PEA-061	Rubber mat assembly		8.	PBA-144	Screw
	4.	PHA-144	Protector (L)				
	5.	PHA-145	Protector (R)				

6. ELECTRICAL PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
★★ GENERALLY MOVES FASTER THAN ★
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Miscellaneous Parts

Mark	Part No.	Symbol & Description
	XWR-038	Power supply assembly
	XWS-020	Switch assembly
★★	PYY-113	Motor assembly
★★	PSF-020	Micro switch

Switch Assembly (XWS-020)

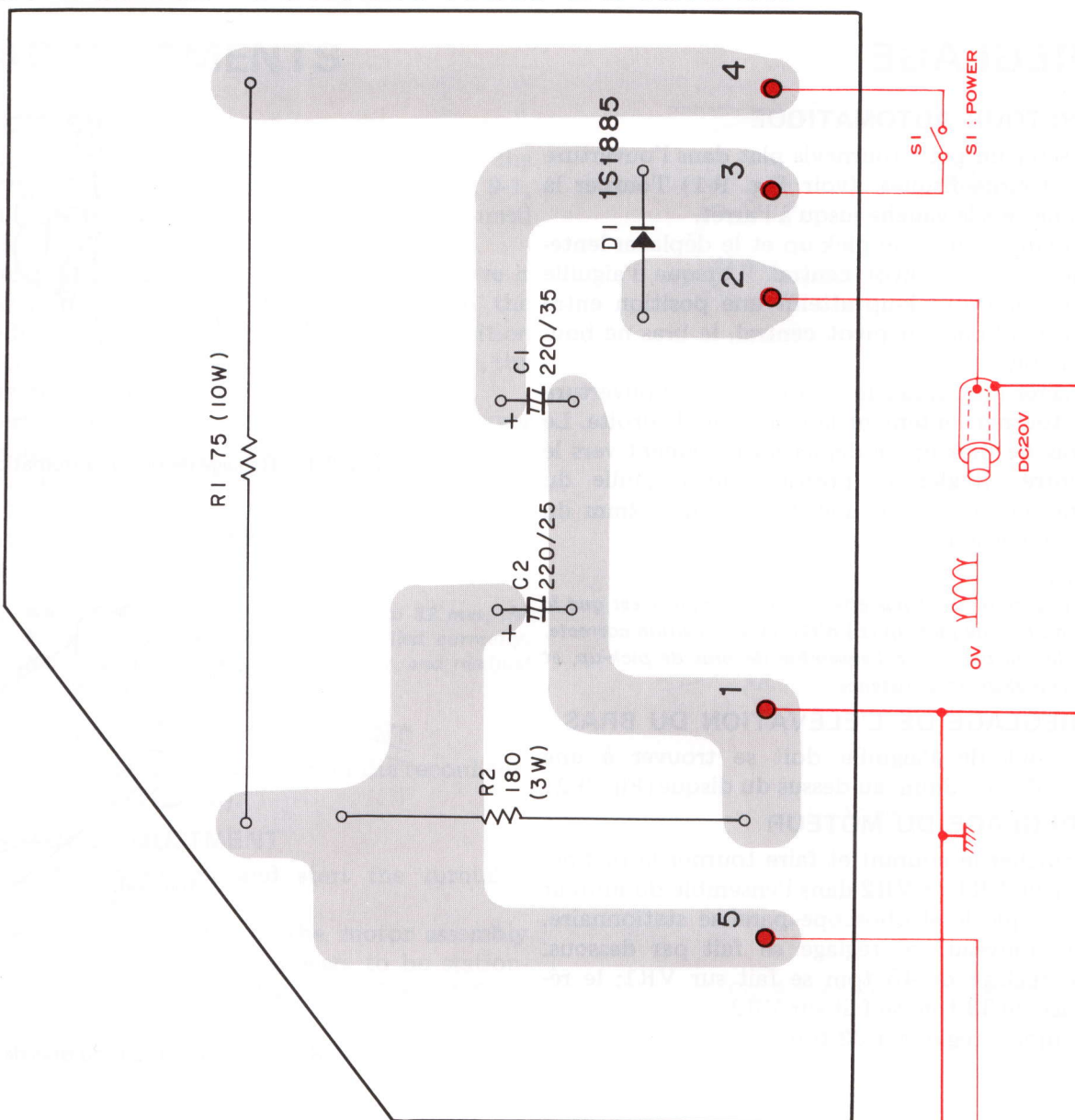
Mark	Part No.	Symbol & Description
★★	PSG-042	Push switch

Power Supply Assembly (XWR-038)

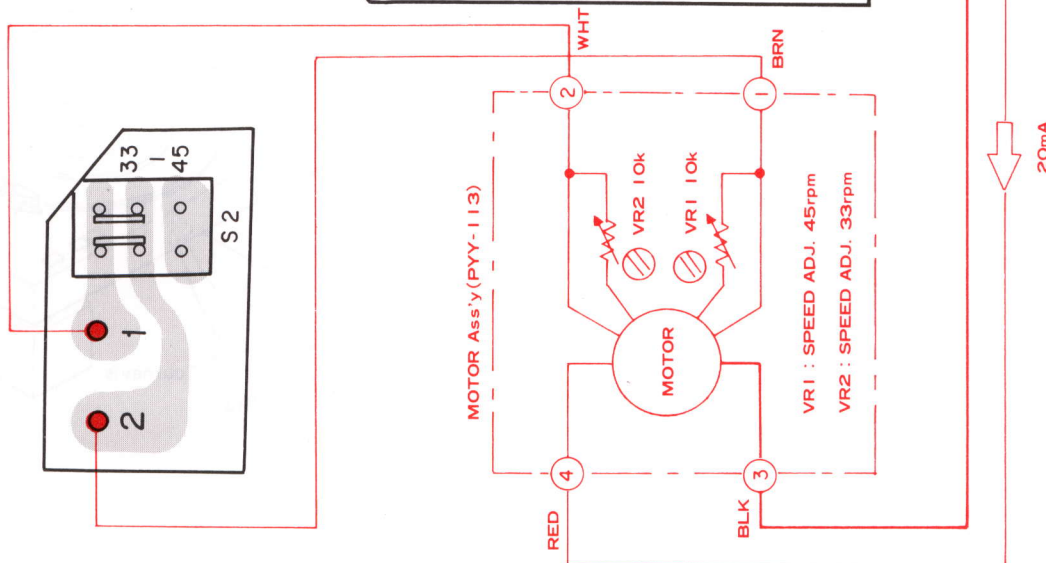
Mark	Part No.	Symbol & Description
★	1S1885	D1 Diode
	CEA 221M 35L	C1 Capacitor
	CEA 221M 25L	C2 Capacitor
	RT10B 750K	R1 Resistor
	RS3PF 181J	R2 Resistor
	PDN-002	Ceramic tube

7. P.C. BOARD CONNECTION DIAGRAM

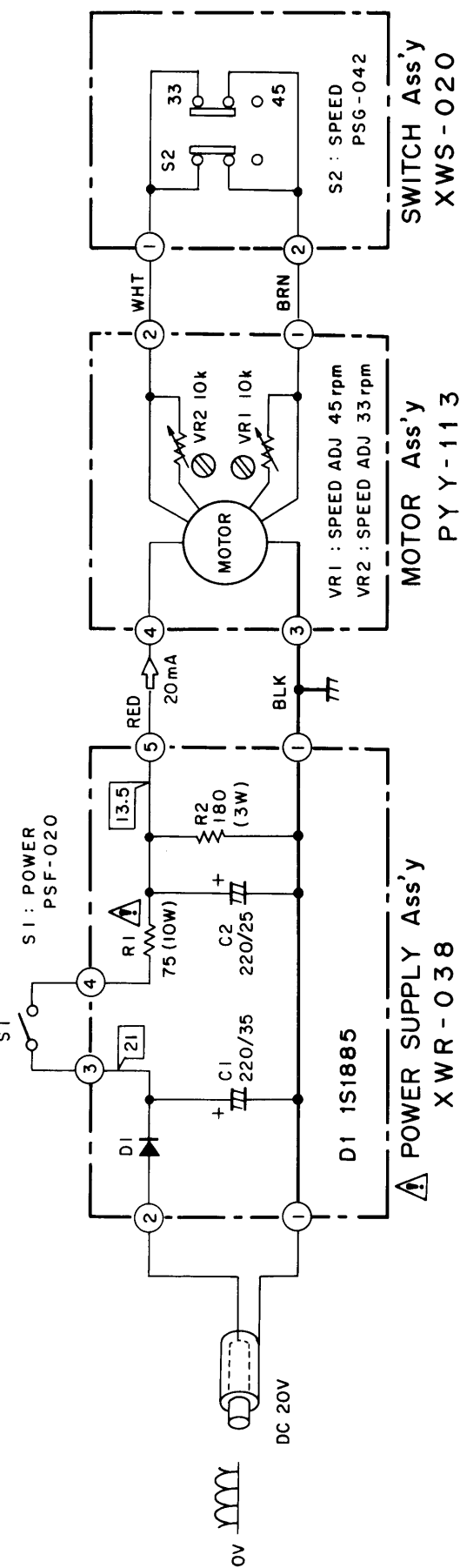
POWER SUPPLY Ass'y (XWR-038)



SWITCH Ass'y (XWS-020)



SCHEMATIC DIAGRAM



1. RESISTORS:

Indicated in Ω , $\frac{1}{2}W$, $\frac{1}{8}W$, $\pm 5\%$ tolerance unless otherwise noted k : k Ω ,
 M : M Ω , (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ (M); $\pm 20\%$ tolerance

2. CAPACITORS:

Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
 Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE

: DC voltage (V)

4. OTHERS:

: Adjusting point.

The mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SWITCHES:

S1 : POWER ON — OFF
 S2 : SPEED 33 1/3 rpm — 45 rpm

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

NOTE:

The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

D

C

B

A

9. ADJUSTMENTS

9.1 AUTO-RETURN

1. Insert a small flat-head screwdriver into the player through the opening as shown in Fig. 9-1, and turn the index cam counterclockwise until it stops.
2. Hold the tone arm with your hand and move it slowly toward the center spindle. When the needle point of the tonearm reaches at a position 45 to 35 mm from the center of the spindle, the tonearm will no longer move.
3. Insert the screwdriver once again into the player through the opening, turn the index cam clockwise slowly. The tonearm will move gradually to the center spindle. Adjust gap between the center spindle and needle point of the tonearm to about 32 mm.

Note; When this gap cannot be adjusted to 32 mm, the PU plate (B) assembly is not installed correctly. Reinstall the PU plate (B) assembly, and readjust this gap.

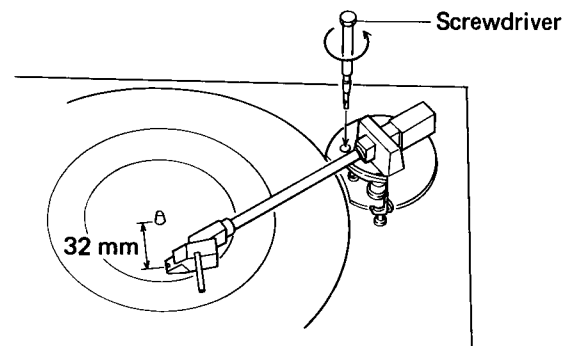


Fig. 9-1 Auto-return adjustment

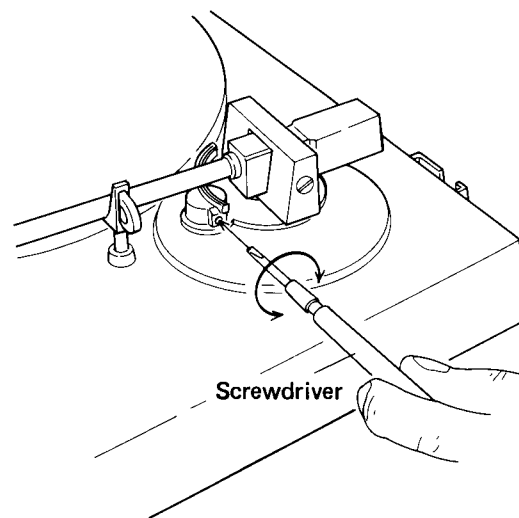


Fig. 9-2 Arm-elevation adjustment

9.2 ARM-ELEVATION ADJUSTMENT

The height of the stylus tip from the record surface is 8 ± 3 mm (Fig. 9-2).

9.3 MOTOR ADJUSTMENT

1. Turn the power on and start the turntable platter rotating.
2. Adjust VR1 and VR2 in the motor assembly so that the stroboscope appears to be stationary. Again this adjustment is performed from below.
3. Adjust VR1 for 45 rpm speed, and VR2 for 33 rpm.
4. Always adjust at 33 rpm.

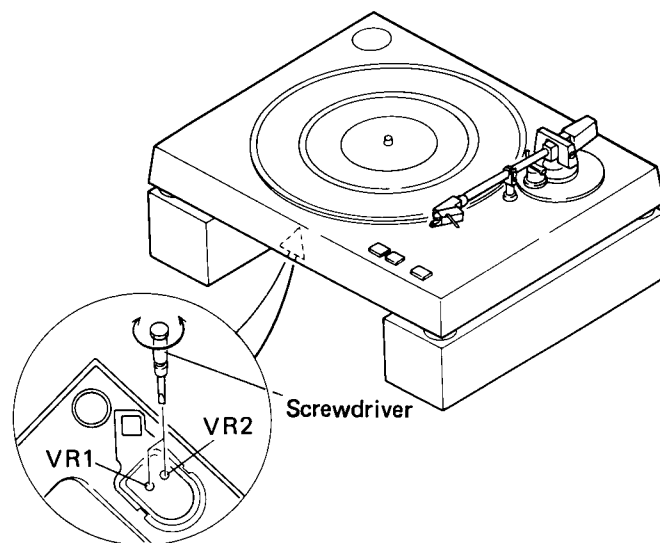


Fig. 9-3 Motor adjustment

9. RÉGLAGE

9.1 RETOUR AUTOMATIQUE

1. Insérer un petit tournevis plat dans l'ouverture du tourne-disques. (voir Fig. 9-1) Tourner la came vers la gauche jusqu'à l'arrêt.
2. Prendre le bras de pick-up et le déplacer lentement vers le pivot central. Lorsque l'aiguille du bras de pick-up atteint une position entre 45 et 35mm du pivot central, le bras ne bougera plus.
3. Insérer à nouveau le tournevis dans l'ouverture et tourner lentement la came vers la droite. Le bras de pick-up se déplacera lentement vers le centre. Régler la position de l'aiguille du bras de pick-up à une distance de 32mm du pivot central.

Remarque:

Si la distance ne peut pas être réglée à 32mm, c'est que la plaque du bras de pick-up (B) n'est pas en position correcte. Réinstaller la plaque de l'ensemble de bras de pick-up, et refaire le réglage de la distance.

9.2 RÉGLAGE DE L'ÉLEVATION DU BRAS

Le bout de l'aiguille doit se trouver à une hauteur de $8 \pm 3\text{mm}$ au-dessus du disque (Fig. 9-2).

9.3 RÉGLAGE DU MOTEUR

1. Brancher le courant et faire tourner la platine.
2. Régler VR1 et VR2 dans l'ensemble du moteur pour que le stroboscope paraisse stationnaire. De nouveau, ce réglage se fait par dessous.
3. Le réglage de 45 tpm se fait sur VR1; le réglage de 33 tpm se fait sur VR2.
4. Toujours régler sur 33 tpm.

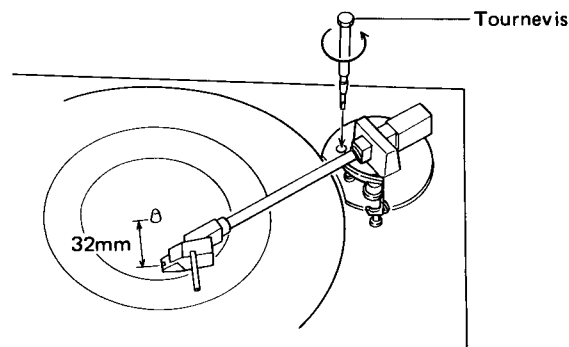


Fig. 9-1 Réglage de retour automatique

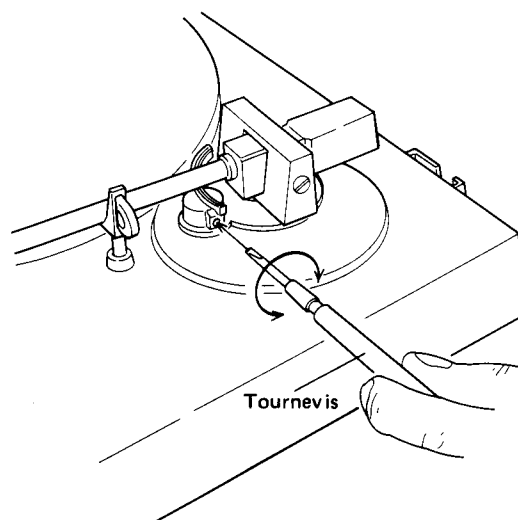


Fig. 9-2 Réglage de la hauteur du bras de pick-up

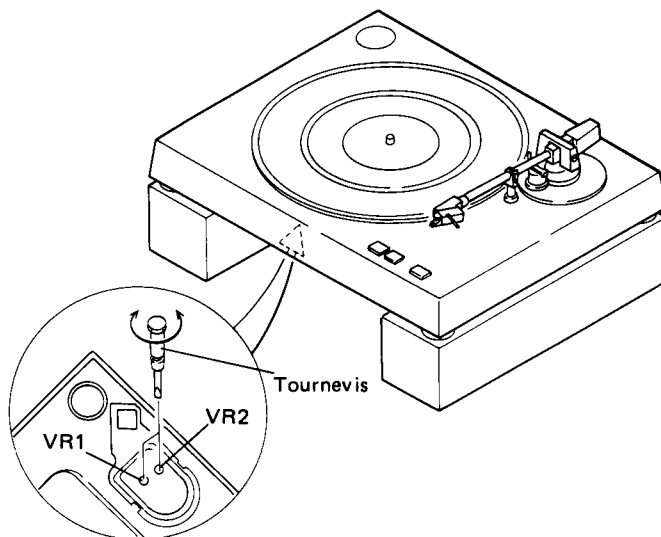


Fig. 9-3 Réglage du moteur

9. AJUSTE

9.1 RETORNO AUTOMÁTICO

1. Insertar un destornillador pequeño de cabeza plana en el reproductor a través de la abertura tal y como se muestra en la figura 9-1, y girar la leva de referencia hacia la izquierda hasta que se detenga.
2. Sostener el brazo fonocaptor con la mano y moverlo lentamente hacia el pivote central. Cuando la punta de la aguja en el brazo fonocaptor llegue a la posición de 45 a 35mm desde el centro del pivote, el brazo fonocaptor dejará de moverse.
3. Insertar de nuevo el destornillador en el reproductor a través de la abertura, girar la leva de referencia lentamente hacia la derecha. El brazo fonocaptor se moverá gradualmente hacia el pivote central. Ajustar el huelgo entre el pivote central y la punta de la aguja del brazo fonocaptor a unos 32mm.

NOTA;

Cuando este huelgo no pueda ajustarse a 32mm, significa que el ensamble de la placa PU (B) no está correctamente instalado. Volver a instalar el ensamble de la placa PU (B) y reajustar el huelgo.

9.2 AJUSTE DE LA ELEVACIÓN DEL BRAZO

La altura de la punta de la aguja a la superficie del disco es de $8 \pm 3\text{mm}$ (Fig. 9-2).

9.3 AJUSTE DEL MOTOR

1. Conectar la alimentación e iniciar la rotación del plato del giradiscos.
2. Ajustar los VR1 y VR2 del ensamble del motor de modo que el estroboscopio parezca estár estático. Este ajuste se efectúa de nuevo desde debajo.
3. Ajustar el VR1 para la velocidad de 45 rpm, y VR2 para la de 33 rpm.
4. Ajustar siempre a 33 rpm.

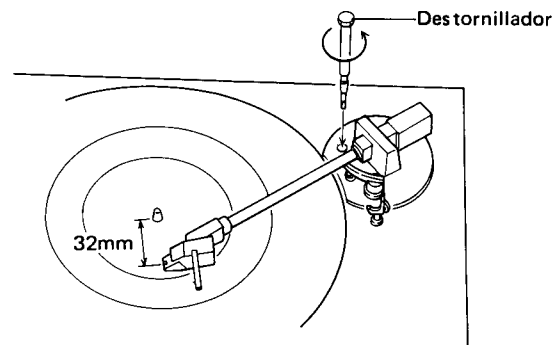


Fig. 9-1 Ajuste del retorno automático

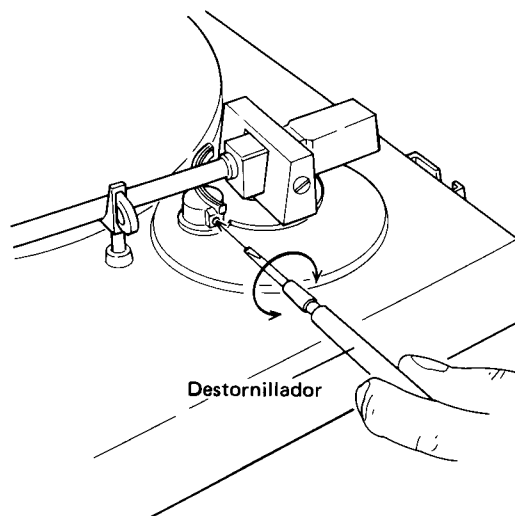


Fig. 9-2 Ajuste de la elevación del brazo

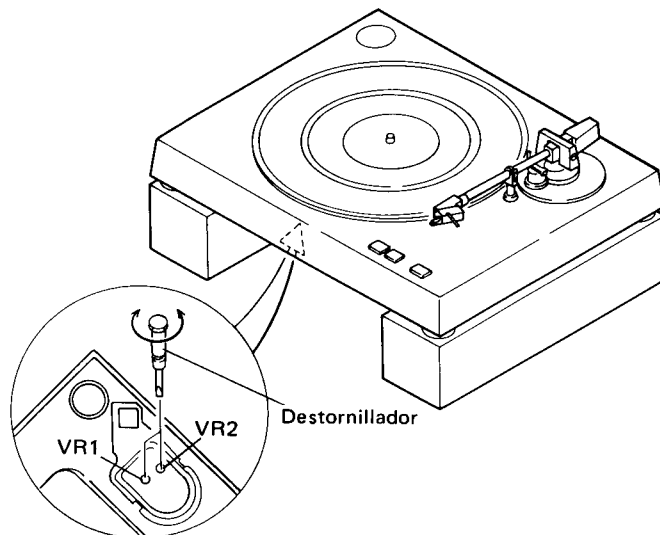


Fig. 9-3 Ajuste del motor