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# SERVICE MANUAL

# TT165



# marantz®

model **TT165**

*Turntable*

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

### ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, MARANTZ part number has to be specified. If you order by mail, fulfil MARANTZ order forms.

**MARANTZ TRADING S.A.**  
326 Avenue Louise Bte 32  
1050 Brussels  
Belgium

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

### PARTS ORDERING:

Parts may be ordered from the following addresses:

#### EUROPE

##### **MARANTZ EUROPE**

326 Avenue Louise Bte 32  
1050 Brussels  
Belgium

##### **MARANTZ TRADING S.A.**

326 Avenue Louise Bte 32  
1050 Brussels  
Belgium

##### **AUSTRIA**

HORNYPHON  
Vertriebsgesellschaft GmbH  
Wienerbergstrasse 1  
A 1101 Wien  
Austria

##### **BELGIUM**

SVD DIVISION MARANTZ  
Industrialaan 1  
B 1720 Groot-Bijgaarden  
Belgium

##### **DENMARK**

MARANTZ  
Division of Philips Service A/S  
Prags Boulevard 80  
Postbox 1919  
DK 2300 København S  
Denmark

##### **FINLAND**

MARANTZ  
Division of Oy Philips Ab  
Kaivokatu 8  
00100 Helsinki  
Finland

##### **FRANCE**

MARANTZ FRANCE  
4 Rue Bernard Palissy  
F 92600 Asnières  
France

##### **SWITZERLAND**

DYNAVOX ELECTRONICS  
Route de Villars 105  
CH 1701 Fribourg  
Switzerland

##### **SPAIN**

PHONO S.A.  
Ignacio Iglesias 10  
Barcelona (Badalona)  
Spain

##### **THE NETHERLANDS**

MARANTZ  
De limiet 3  
NL 4131 NR Vianen  
The Netherlands

##### **GERMANY**

MARANTZ GERMANY GmbH  
Max-Planck-Strasse 22  
D 6072 Dreieich 1  
Germany

##### **GREAT BRITAIN**

MARANTZ AUDIO U.K. Ltd  
Unit 15/16  
Saxon Way Industrial Estate  
Moor Lane  
Harmondsworth UB7 0LW  
Great Britain

##### **TURKEY**

DOGRUOL LTD  
I.M.C.  
6 Blok N° 6310  
Unkapani  
Istanbul  
Turkey

##### **NORWAY**

MARANTZ  
Division of Philips A/S  
Sandstuveien 40  
Oslo 6  
Norway

##### **ITALY**

MARANTZ ITALIANA S.P.A.  
Via Chiese, 74  
20126 Milano  
Italy

##### **SWEDEN**

MARANTZ  
Division of Philips Försäljning AB  
Tegeluddsvägen 1  
S115 84 Stockholm  
Sweden

##### **GREECE**

ADAMCO S.A.  
P.O. Box 21025  
Ippocrates Street 188  
Athens 11410  
Greece

##### **AUSTRALIA**

MARANTZ AUSTRALIA PTY., LTD.  
19 Chard Road  
Brookvale, NSW 2100  
Australia  
Telex: 24121

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

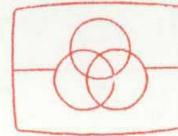
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## FEATURES

Automatic-return Belt Drive Turntable



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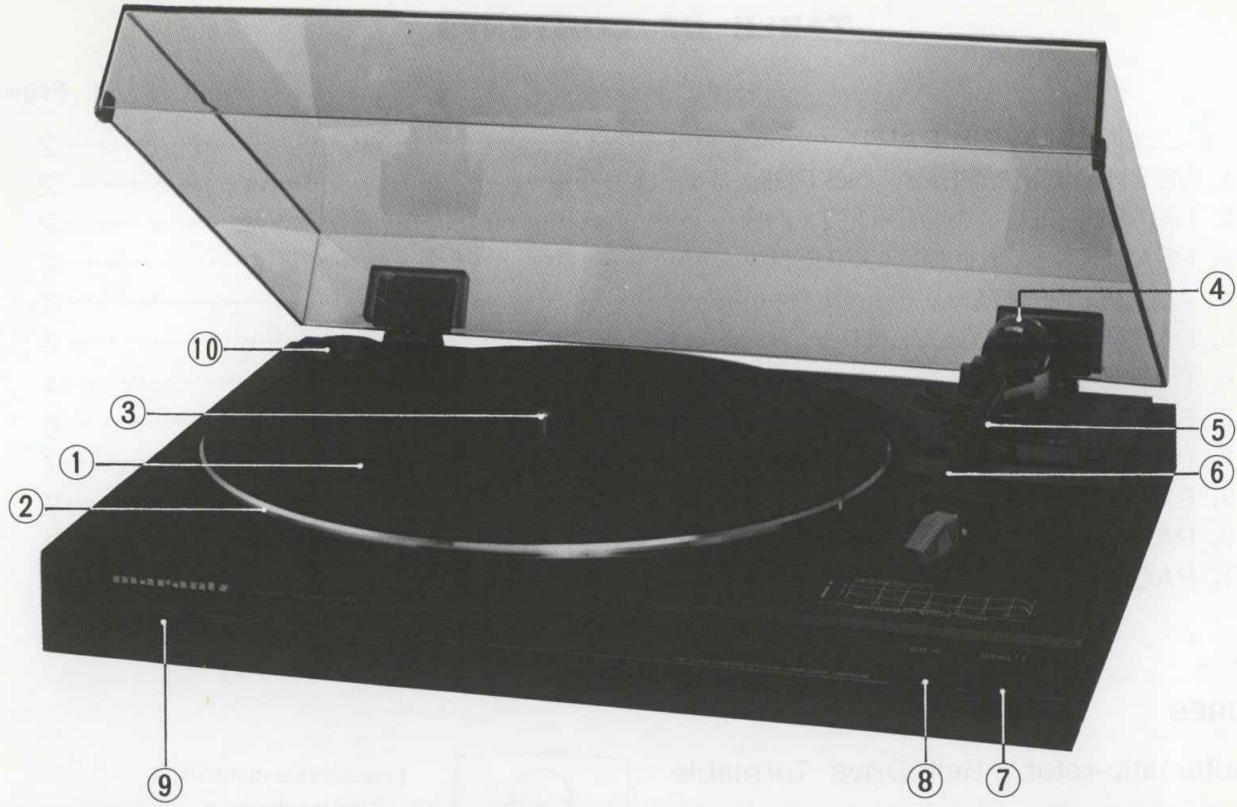
## SPECIFICATIONS (Limit)

TURNTABLE			
Motor	DC Servo motor	Output voltage	2.5mV±3.5dB at 1kHz 3.54cm/sec.
Speed	33-1/3 and 45 r.p.m.	Channel balance	Within 2.5dB at 1kHz
Wow & Flutter	±0.2% (DIN45507)	Channel separation	More than 18dB at 1kHz
Rumble	55dB DIN45539B (weighted)	Load resistance	47KΩ
Turntable platter	296mm aluminum alloy die-cast	Weight	6g
TONEARM			
Effective length	222mm	OPERATION	Automatic return, automatic shaft off, stop
Usable cartridge	Universal, P-mount type	Cueing	Oil-damped
CARTRIDGE			
Type	P-mount system, with 0.6 mil stylus Dual Magnet type	GENERAL	
Frequency response	20-20,000Hz	Power consumption	4 watts
		Dimensions	420(w) x 99(h) x 336(d) mm
		Weight	2.8kg (net)

**NOTE:** Nominal Specs represent the design specs; all units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit Specs represent the absolute worst condition which still might be considered acceptable; in no case should a unit perform to less than within any Limit Spec.

Lubrication of the mechanism is not required. However, whenever a unit is brought in for adjustment or repair, always use good common sense ... clean any dust or dirt from mechanical parts and if moving parts do seem to bind, check for dirt. If necessary, add a very fine film of light-weight specially formulated lubricant.

Specifications and appearance are subject to change for modification without notice.



1. Turntable platter mat	6. Tonearm
2. Turntable platter	7. Cue button
3. Turntable shaft	8. Cut button
4. Counterweight	9. Speed selector button
5. Tonearm rest	10. 45 rpm adapter

## 1. MECHANISM OPERATING PRINCIPLES

### AUTOMATIC RETURN (Refer to Fig. 1)

While Stylus (42-1) tip approaches the final groove of the record, Arm (32), linked to Tonearm (43-1) by Lever (31), pushes Cam (27) in the direction of the arrow, and Cam (26) moves together with Cam (27) in that direction. When Stylus (42-1) tip enters the final rough-pitch groove of the record, Cam (26) engages the pawl of Spindle Ass'y (37) and Gear (25) starts turning. Lever Ass'y (30) is moved by turning of Gear (25) and slope on Lever Ass'y (30) pushes Arm (35) up, and Tonearm (43-1) is lifted from record surface.

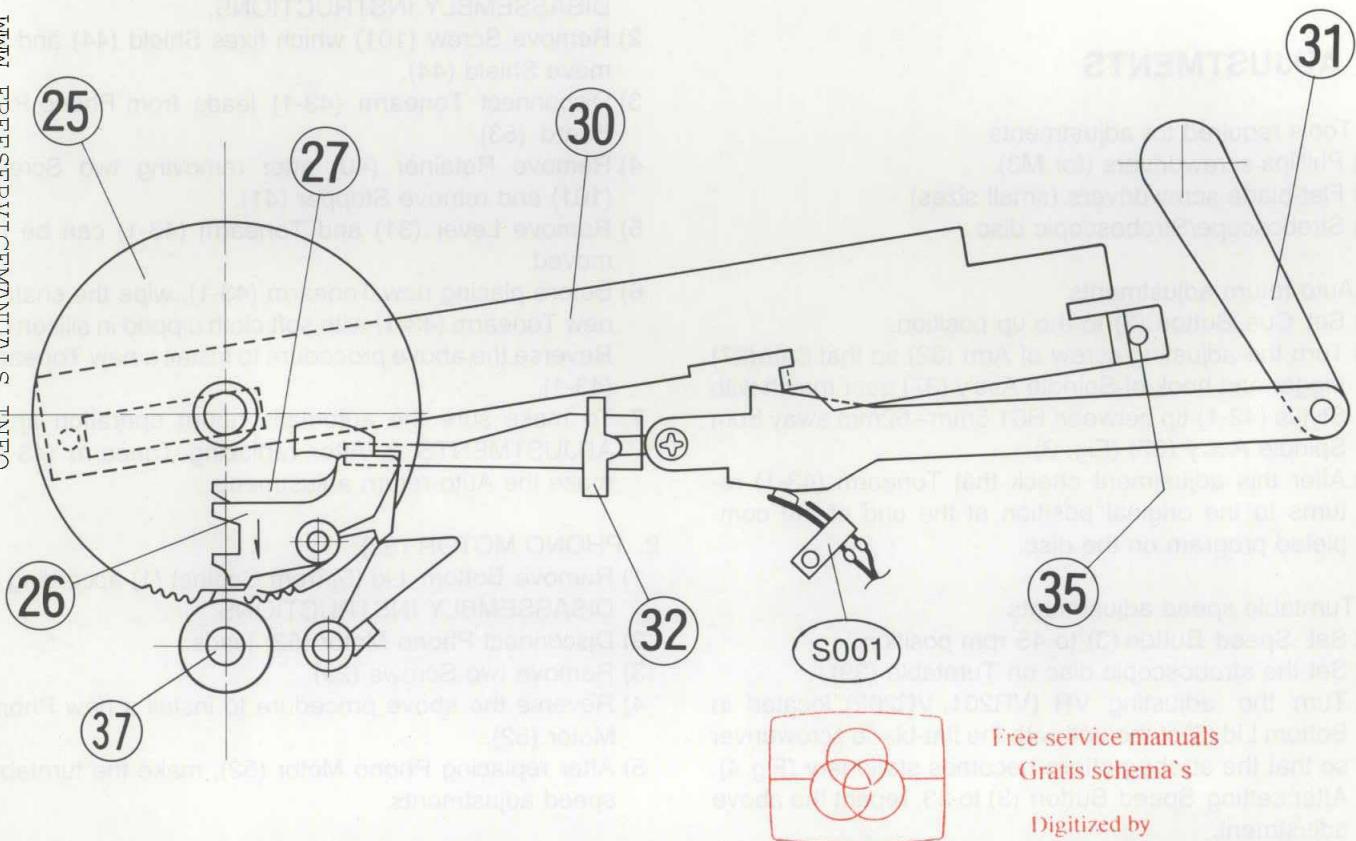
Then, Lever Ass'y (30) also pushes Lever (31), and Tonearm (43-1) returns to its rest. On the other hand, Arm (32) is pulled by Lever (31) and Mini Switch (S001) is turned off, and Phono Motor (52) stops rotation.

## 2. DISASSEMBLY INSTRUCTIONS

Before disassembly, disconnect AC Power Cord (50) and Connective Cord (51). Remove Bottom Lid (5) from Cabinet (1) as follows:

1. Remove Dust Cover (11).
2. Fasten Tonearm (43-1) to Retainer Ass'y (16).
3. Remove Turntable Sheet (24) and remove Belt (36) from Phono Motor (52) pulley.
4. Remove turntable (39).
5. Position the unit upside down and remove seven Screws (102) which mount Bottom Lid (5) to Cabinet (1) and four Screws (28) (A in Fig. 2) which mount Leg (19) to Cabinet (1).

## 2. PARTS RELOCAMENT



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Fig. 1

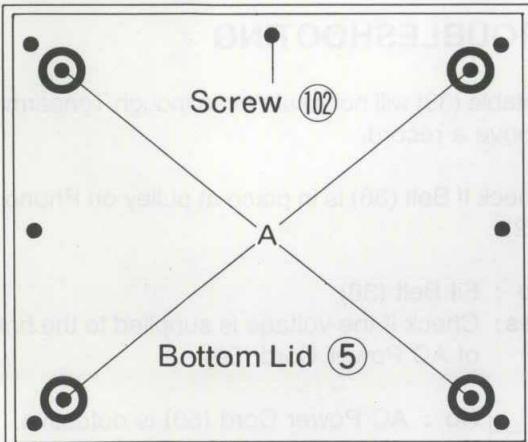


Fig. 2

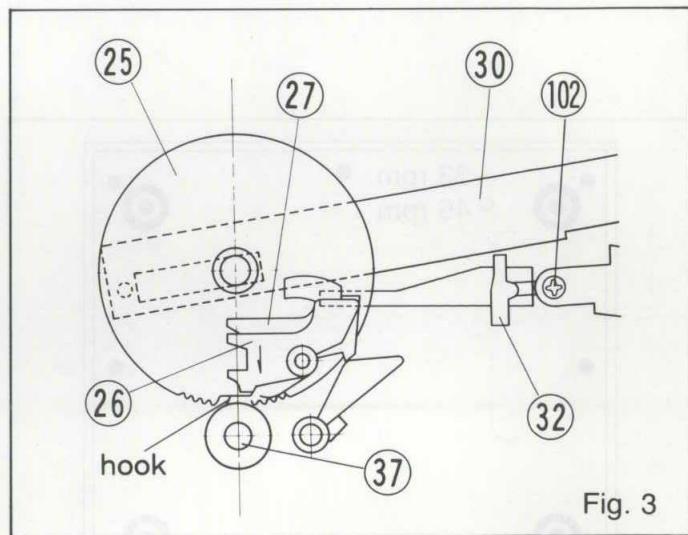


Fig. 3

### 3. REASSEMBLY INSTRUCTIONS

To reassemble, use DISASSEMBLY INSTRUCTIONS in reverse.

### 4. ADJUSTMENTS

#### 1. Tools required for adjustments

- 1) Phillips screwdrivers (for M3)
- 2) Flat-blade screwdrivers (small sizes)
- 3) Stroboscope/Stroboscopic disc

#### 2. Auto-return adjustments

- 1) Set Cue Button (3) to the up position.
- 2) Turn the adjusting screw of Arm (32) so that Cam (27) trigger and hook of Spindle Ass'y (37) gear match with Stylus (42-1) tip between R61.5mm–62mm away from Spindle Ass'y (37) (Fig. 3).
- 3) After this adjustment check that Tonearm (43-1) returns to the original position at the end of the completed program on the disc.

#### 3. Turntable speed adjustments

- 1) Set Speed Button (3) to 45 rpm position.
- 2) Set the stroboscopic disc on Turntable (39).
- 3) Turn the adjusting VR (VR201, VR202) located in Bottom Lid (5) of the unit with the flat-blade screwdriver so that the strobo pattern becomes stationary (Fig. 4).
- 4) After setting Speed Button (3) to 33, repeat the above adjustment.

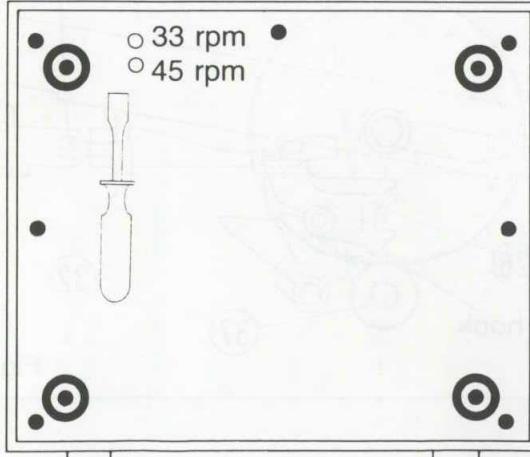


Fig. 4

### 5. PARTS REPLACEMENT

#### 1. TONEARM (43-1)

- 1) Remove Bottom Lid (5) from Cabinet (1) according to DISASSEMBLY INSTRUCTIONS.
- 2) Remove Screw (101) which fixes Shield (44) and remove Shield (44).
- 3) Disconnect Tonearm (43-1) leads from Phono P.W. Board (53).
- 4) Remove Retainer (40) after removing two Screws (101) and remove Stopper (41).
- 5) Remove Lever (31) and Tonearm (43-1) can be removed.
- 6) Before placing new Tonearm (43-1), wipe the shaft of new Tonearm (43-1) with soft cloth dipped in silicon oil. Reverse the above procedure to install a new Tonearm (43-1).
- 7) To make sure the automatic return operation apply ADJUSTMENTS 2. After replacing Tonearm (43-1), make the Auto-return adjustments.

#### 2. PHONO MOTOR (52)

- 1) Remove Bottom Lid (5) from Cabinet (1) according to DISASSEMBLY INSTRUCTIONS.
- 2) Disconnect Phono Motor (52) leads.
- 3) Remove two Screws (29).
- 4) Reverse the above procedure to install a new Phono Motor (52).
- 5) After replacing Phono Motor (52), make the turntable speed adjustments.

#### 3. SPINDLE ASS'Y (37)

- 1) Remove Turntable (39) and remove Washers (108), (106) and (105) which mount Spindle (37) and install new Spindle (37).
- 2) After replacing Spindle (37), make Auto-return adjustments.

### 6. TROUBLESHOOTING

1. Turntable (39) will not rotate even though Tonearm (43-1) is above a record.

– Check if Belt (36) is in place at pulley on Phono Motor (52).

**No** : Fit Belt (36).

**Yes** : Check if the voltage is supplied to the both end of AC Power Cord (50).

**No** : AC Power Cord (50) is defective.

**Yes** : Check if the voltage is supplied to lug terminal plate for Phono Motor (52) leads wires.

**No** : Phono Motor (52) is defective.

**Yes** : Mini Switch (S001) is defective.

## 2. Tonearm (43-1) will not return to the correct point.

– Check if the gap between Spindle Ass'y (37) gear and Cam (27) is adequate referring to ADJUSTMENTS 2.

**No** : Adjust the gap.

**Yes** : Check if Lever Ass'y (30) moves to the original position when Tonearm (43-1) is moved from the center of Turntable (39) to Retainer Ass'y (16) by hand.

**No** : Lever Ass'y (30) is not correctly mounted.

**Yes** : Lever (31) is not correctly mounted or Gear (25) is not laterally mounted.

## 3. Tonearm (43-1) will not automatically return.

– Check if the gap between Spindle Ass'y (37) gear and Cam (27) is adequate referring to ADJUSTMENTS 2.

**No** : Adjust the gap.

**Yes** : Check if Tonearm (43-1) returns when Tonearm (43-1) is moved to the center of a record.

**No** : Lever (31) is not correctly mounted.

**Yes** : Adjust return position referring ADJUSTMENT 2.

## 4. Turntable (39) will not stop rotation.

– Check if the knob of Mini Switch (S001) is sufficiently pushed by Arm (32) when Tonearm (43-1) returns to Retainer Ass'y (16).

**No** : Mini Switch (S001) is not correctly mounted.

**Yes** : Check to see that the gap between Arm (32) and Mini Switch (S001) is adequate referring to ADJUSTMENTS 5.

**No** : Adjust the gap.

**Yes** : Mini Switch (S001) is defective.

## 5. No sound from the speaker

– Removing Cartridge (42), touch the upper two terminals (L $\ominus$  and R $\oplus$ ) at the end of tonearm (43-1) with a metallic screwdriver and listen for the speaker to produce a humming noise (Fig. 5).

**Yes** : Cartridge (42) or Tonearm (43-1) lead-wires is defective

**No** : Perform continuity test between Tonearm (43-1) end and Connective Cord (51) on dead channel (Fig. 6).

**Yes** :  $\oplus$  and  $\ominus$  cables are not isolated.

**No** : Plug of connective Cord (51) or terminal is connected incorrectly. Perform continuity test of input terminal of amplifier or receiver.

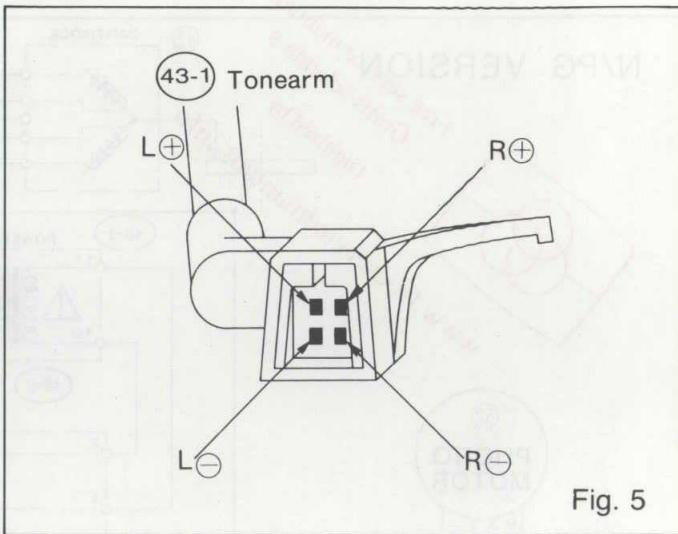


Fig. 5

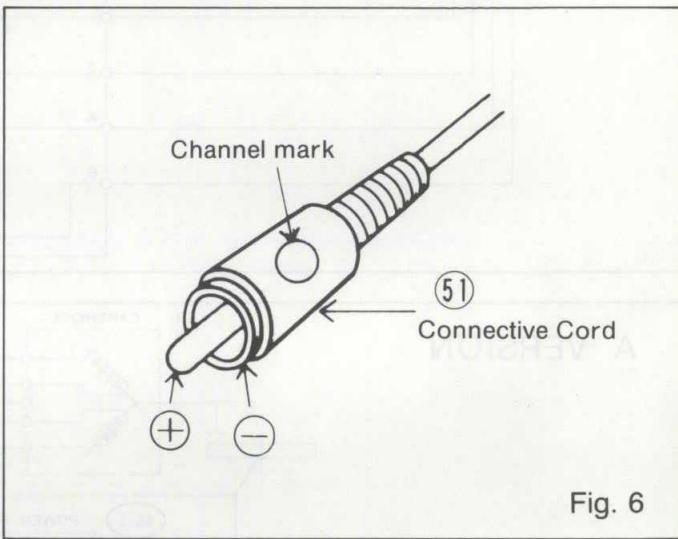


Fig. 6

## 6. Turntable (39) turns at incorrect speed.

– Check if the supply voltage is correct for this unit.

**No** : Connect the unit to the correct voltage.

**Yes** : Adjust speed of Turntable (39) turns in accordance with ADJUSTMENTS 3.

## 7. Noise from unit

– Check for noise with Turntable (39) removed.

**Yes** : Check Phono Motor

**No** : Check for noise when turntable (39) is moved by hand after Belt (36) is removed.

**No** : Check the position of Belt (36) and pulley on Phono Motor (52). (See ADJUSTMENTS 6)

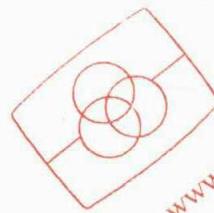
**Yes** : Spindle Ass'y (37) is defective.

## 7. SCHEMATIC DIAGRAMS

N/PG VERSION

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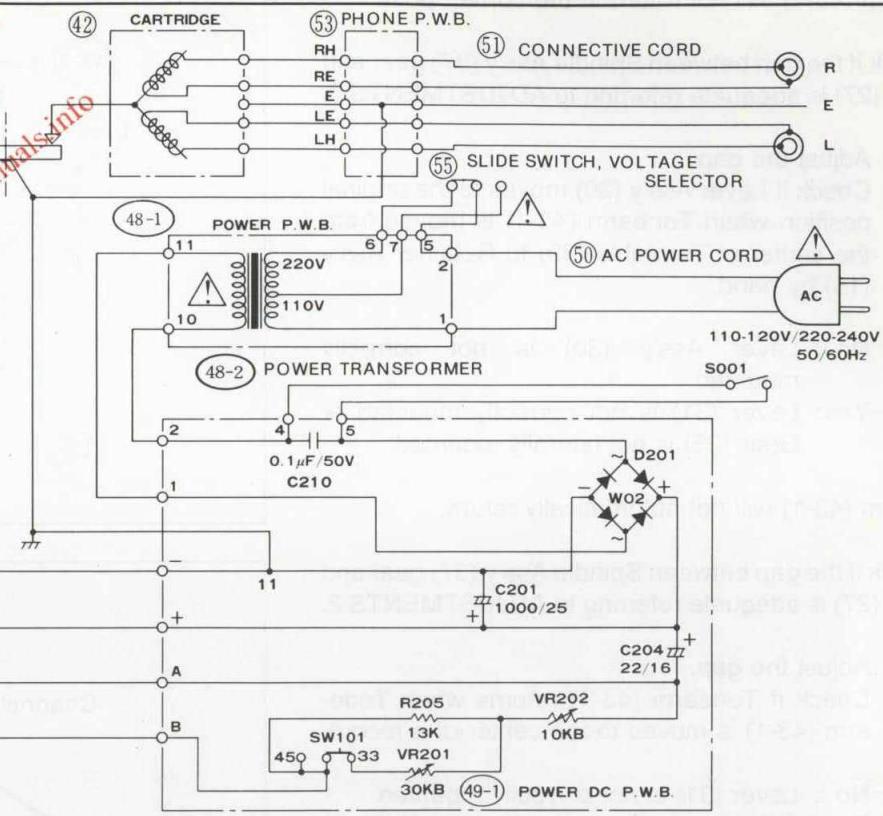
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(52)  
PHONO  
MOTOR

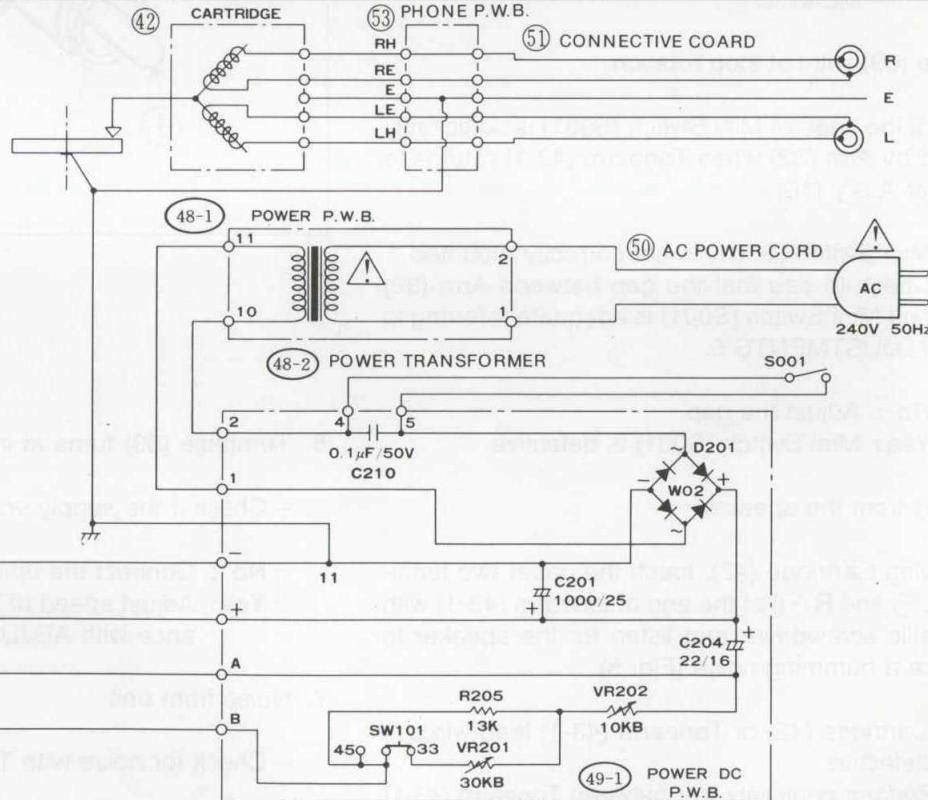
B A + -



A VERSION

(52)  
PHONO  
MOTOR

B A + -



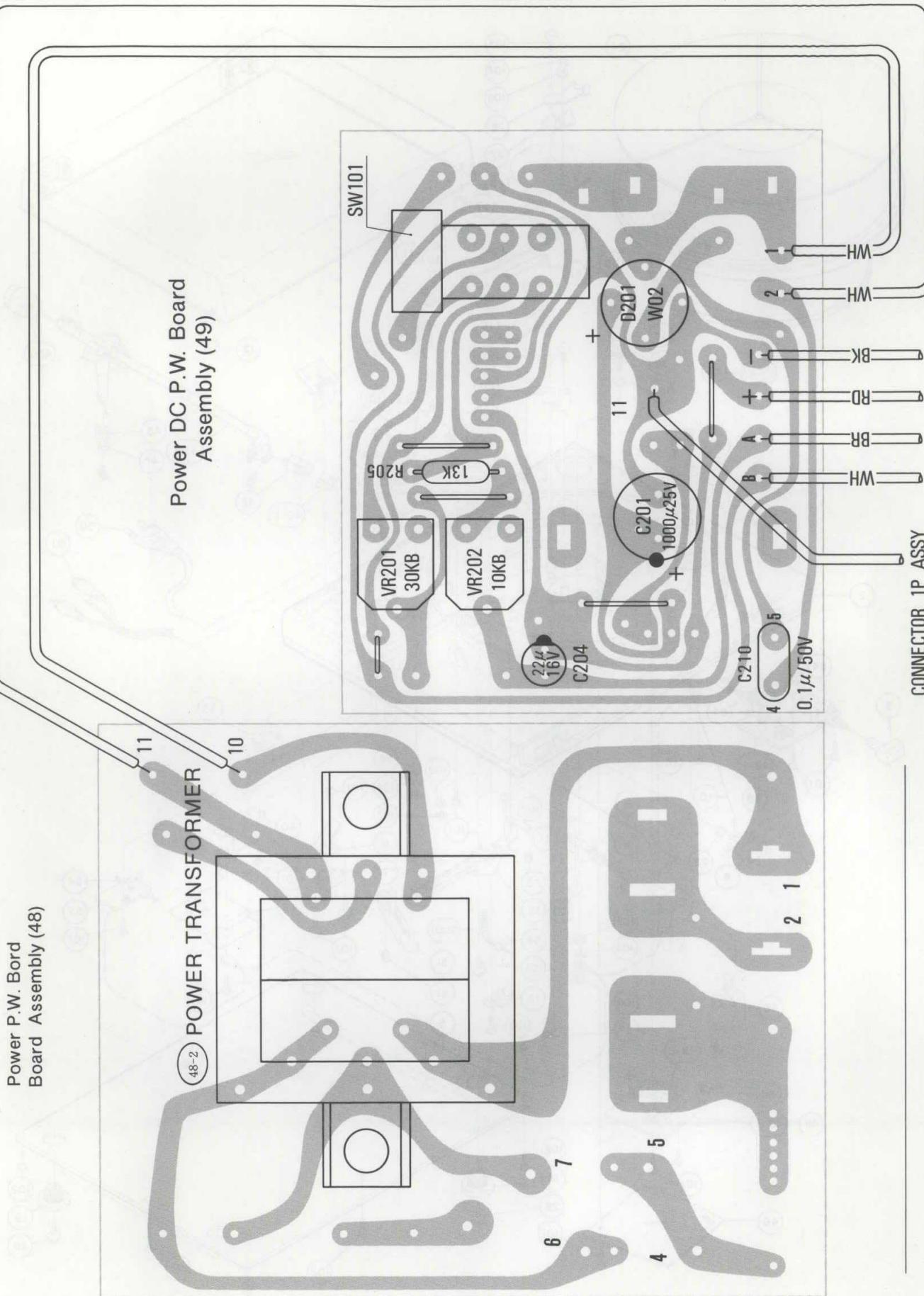
Components and wiring are subject to change for modification without notice.

To service personnel

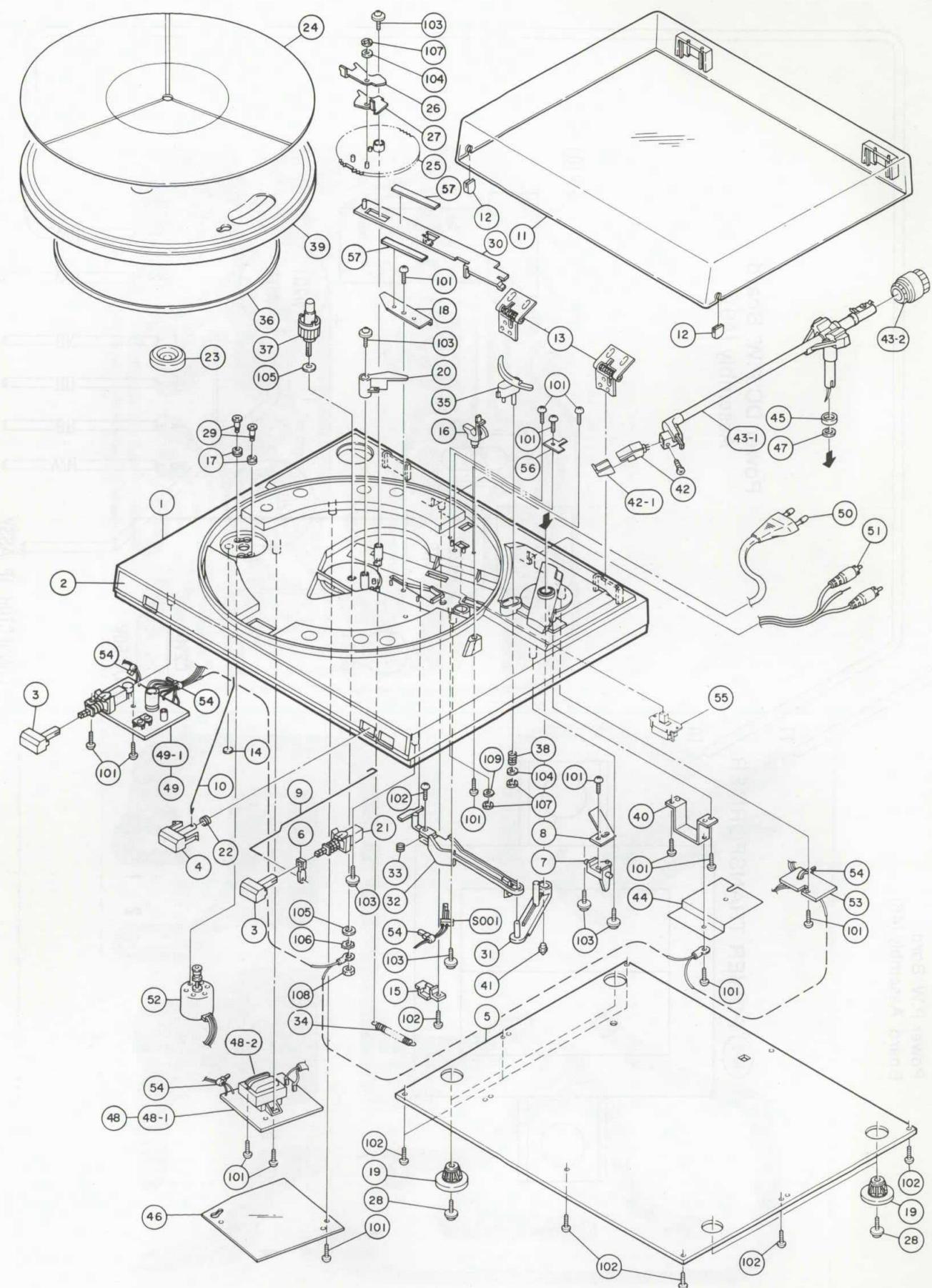
Make sure that only replacement parts recommended by the manufacturer should be used when the parts marked "!" in schematic diagram are exchanged.

Never fail to make leakage-current or resistance measurements before returning the appliance to the customer so as to make sure that exposed parts are acceptably insulated from the supply circuit.

## 8. PRINTED WIRING BOARDS



**9. (CO1-99) EXPLODED VIEW**



## 10. PARTS LIST

REF. DESIG.	PART NO.	DESCRIPTION
Q-1	456Z072010	Cabinet
Q-2	456Z158010	Window, Front
Y-3	456Z270010	Button, Cue/Speed
Y-4	456Z270020	Button, Cut
W-5	456Z257010	Lid, Bottom
W-6	432Z118010	Spacer
H-7	432Z002030	Arm
RE-8	432Z354010	Lever
EE-9	456Z357010	Rod, Cueing
ES-0	456Z357020	Rod, Cut
A-1	432Z053010	Cover, Dust Cover
H-2	427Z252010	Pad, Dust Cover
H-3	456Z153010	Hinge
H-4	456Z056010	Buffer
H-6	456Z104500	Retainer Ass'y
H-7	434Z809020	Cushion
AL-8	456Z160010	Bracket
AL-9	456Z057010	Leg
AL-20	456Z002010	Arm
AL-21	SP000102AR	Push Switch
Q-22	432Z115010	Spring
23	427Z362010	Adaptor, 45 Adaptor
24	414Z107010	Sheet, Turntable
25	456Z058010	Gear
26	456Z054010	Cam
27	456Z054020	Cam
28	456Z010010	Screw
29	434Z010030	Screw
30	456Z354500	Lever Ass'y
31	456Z354010	Lever
32	456Z002020	Arm
33	456Z115010	Spring
34	456Z115020	Spring
35	456Z002030	Arm
36	456Z264010	Belt
37	456Z117500	Spindle Ass'y
38	456Z115030	Spring
39	456Z165010	Turntable
40	456Z104010	Retainer
41	456Z114010	Stopper
42	PC22106080	Cartridge, CT165
42-1	PS22106070	Stylus, CTS165
43-1	PA110010AR	Tonearm
43-2	456Z008010	Weight
44	456Z109010	Shield
45	456Z118010	Spacer
46	456Z120010	Insulator
47	456Z012010	Washer
48	ZZ456Z1210	<b>POWER CIRCUIT BOARD</b>
48	ZZ456Z2210	P.W.B Ass'y, Power
48-1	YH456Z1210	P.W.Board, Power
△48-2	TS100054AR	Power Transformer
△48-2	TS100055AR	Power Transformer
49	ZZ456Z1220	<b>POWER DC CIRCUIT BOARD</b>
49-1	YH456Z1220	P.W.B Ass'y, Power DC
		P.W.Board, Power DC
C201	EA10802510	Elect. Cap. 1000 $\mu$ F 25V
C204	EA22601610	Elect. Cap. 22 $\mu$ F 16V
C210	DF16104310	Film Cap. 0.1 $\mu$ F 50V
R205	GD05133140	13K $\Omega$ 1/4W $\pm$ 5%
VR201	RA03030800	30K $\Omega$ Trimming
VR202	RA01030800	10K $\Omega$ Trimming
D201	HE200003AR	Diode, W02
SW101	SP020108AR	Push Switch

REF. DESIG.	PART NO.	DESCRIPTION	
△50	YC022001AR	AC Power Cord	N
△50	YC024003AR	AC Power Cord	A
△50	YC024001AR	AC Power Cord	PG
51	YB012005AR	Connective Cord	
52	PM223005AR	Phono Motor	
53	WH432Z0420	P.W.Board, Phono	
△55	SS010202AR	Slide Switch, Volt. Selector	N, PG
56	431Z118010	Spacer	N, PG
57	456Z157010	Tape	
S001	SM0101127R	Mini Switch	
101	427Z010080	Screw, $\varnothing$ 3x10	
102	427Z010090	Screw, $\varnothing$ 3x12	
103	427Z010140	Screw, $\varnothing$ 3x10	
104	54020301A0	Flat Washer, P, $\varnothing$ 3.2	
105	456Z012020	Washer, $\varnothing$ 4.2	
106	54050400R0	T.L. Washer, $\varnothing$ 4	
107	64020300Q0	RG Ring, E, $\varnothing$ 2	
108	53110403A9	Hexagon Nut, M4	
109	456Z012030	Flat Washer, P, $\varnothing$ 3.2	

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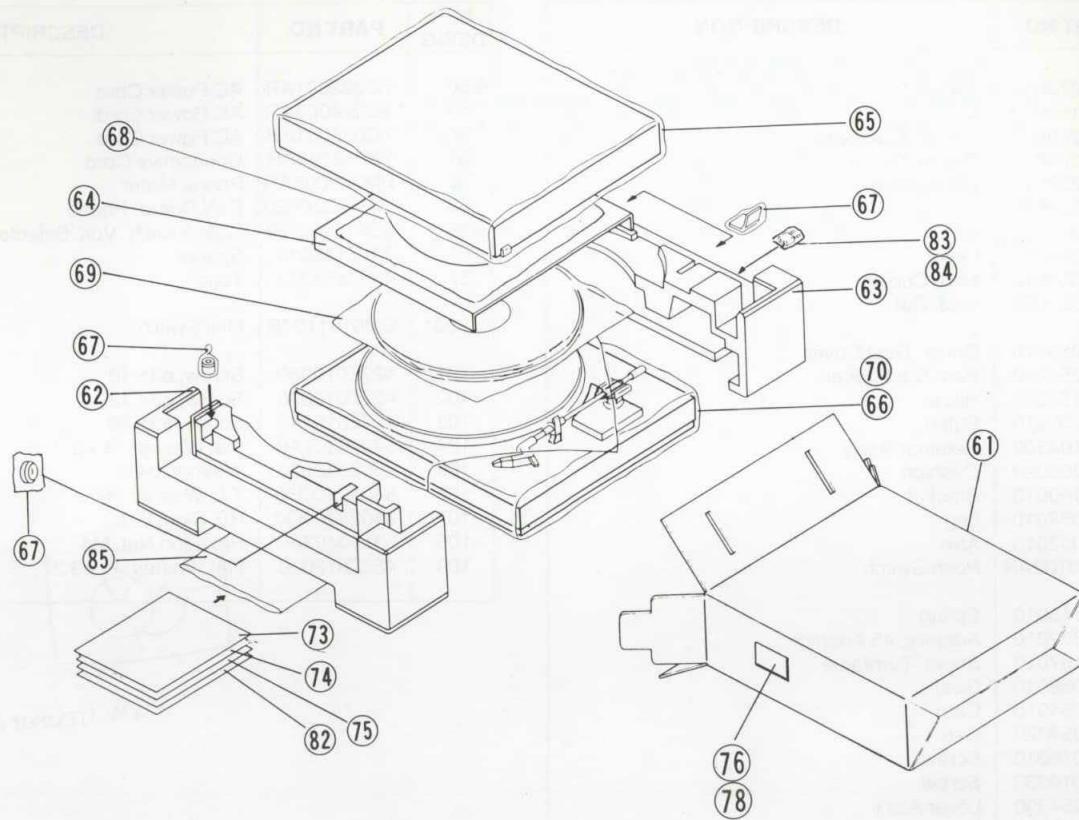
(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

To service personnel

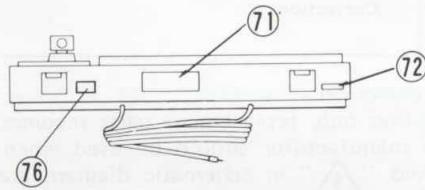
Make sure that only replacement parts recommended by the manufacturer should be used when the parts marked "!" in schematic diagram are exchanged.



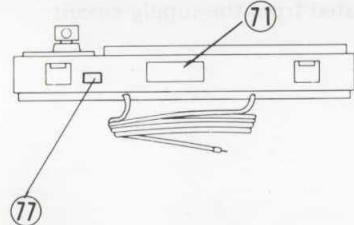
Never fail to make leakage-current or resistance measurements before returning the appliance to the customer so as to make sure that exposed parts are acceptably insulated from the supply circuit.

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**11. (HO1-99) PACKING MATERIALS**

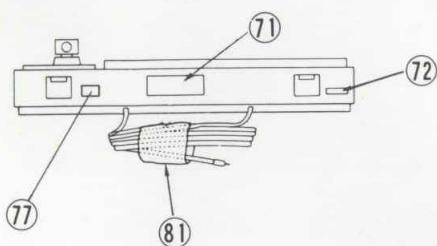
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(A)

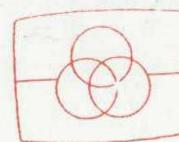


(PG)



N : for Europe  
 A : for Australia  
 PG : for PX

REF. DESIG.	PART NO.	DESCRIPTION
61	456Z801010	Packing Case
62	456Z809010	Cushion, Front
63	456Z809020	Cushion, Rear
64	456Z807010	Reinforcement
65	452Z269010	Protector, Dust Cover
66	432Z811010	Polyethy. Bag, Unit
67	432Z811020	Polyethy. Bag, Accessories
68	456Z811010	Polyethy. Bag, TT Sheet
69	456Z811020	Polyethy. Bag, TT Platter
70	432Z269020	Protector, Unit
71	456Z203010	Name Plate
71	456Z203020	Name Plate
71	456Z203030	Name Plate
72	427Z861050	Label
73	456Z851310	User Manual
74	456Z851010	Spec/Circuit DGM
75	9631000090	Warranty Card
75	416H854010	Warranty Card
76	9510901110	Label, Serial No. Label
77	2112265110	Indicator
78	9526019030	Serial No. Label
78	9526019060	Serial No. Label
81	432Z861020	Label
82	3435851210	User Manual, Caution Card
83	YJ040012AR	Jack, AC Adaptor
84	435Z811020	Polyethy. Bag
85	452Z811020	Polyethy. Bag



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