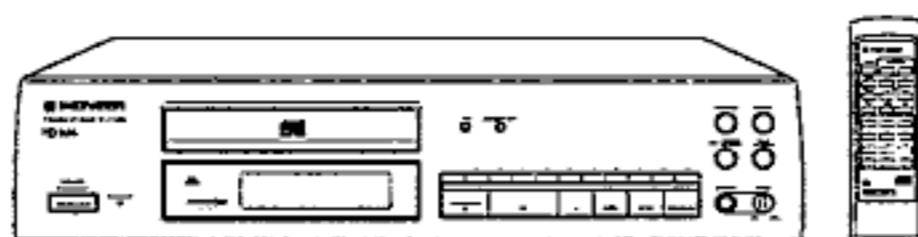


# Service Manual



ORDER NO.  
**RRV1324**

COMPACT DISC PLAYER

# PD-204

## PD-104

## PD-004

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Type	Model			Power Requirement	The voltage can be converted by the following method.
	PD-204	PD-104	PD-004		
WEMXK	○	○	—	AC220 – 240V	
WBWXK	○	○	—	AC220 – 240V	
WPWXJ	○	○	—	AC220 – 240V	
WLXJ	○	○	—	AC220 – 240V	
RDXJ	○	○	—	AC110 – 127V/220 – 240V	With the voltage selector
WEXK/FR	—	—	○	AC220 – 240V	

## CONTENTS

1. SAFETY INFORMATION .....	2
2. EXPLODED VIEWS, PACKING AND PARTS LIST ..	3
3. SCHEMATIC AND PCB CONNECTION DIAGRAM .....	9
4. PCB PARTS LIST .....	18
5. ADJUSTMENTS .....	20
6. IC INFORMATION .....	29
7. BLOCK DIAGRAM .....	31
8. CONTRAST OF MECELLANEOUS PARTS .....	32
9. PANEL FACILITIES .....	36
10. SPECIFICATIONS .....	36

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# 1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

**VARO!**  
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSATEILYLLE. ÄLÄ KATSO SÄTEESEEN.

**ADVERSEL:**  
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

**VARNING!**  
OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.



LASER  
Kuva 1  
Lasersateilyn varoituserkki

**WARNING!**  
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER  
Picture 1  
Warning sign for laser radiation

**IMPORTANT**  
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

**LASER DIODE CHARACTERISTICS**  
MAXIMUM OUTPUT POWER: 5 mw  
WAVELENGTH: 780-785 nm

## LABEL CHECK

WBWXK, WPWXJ and WLXJ types

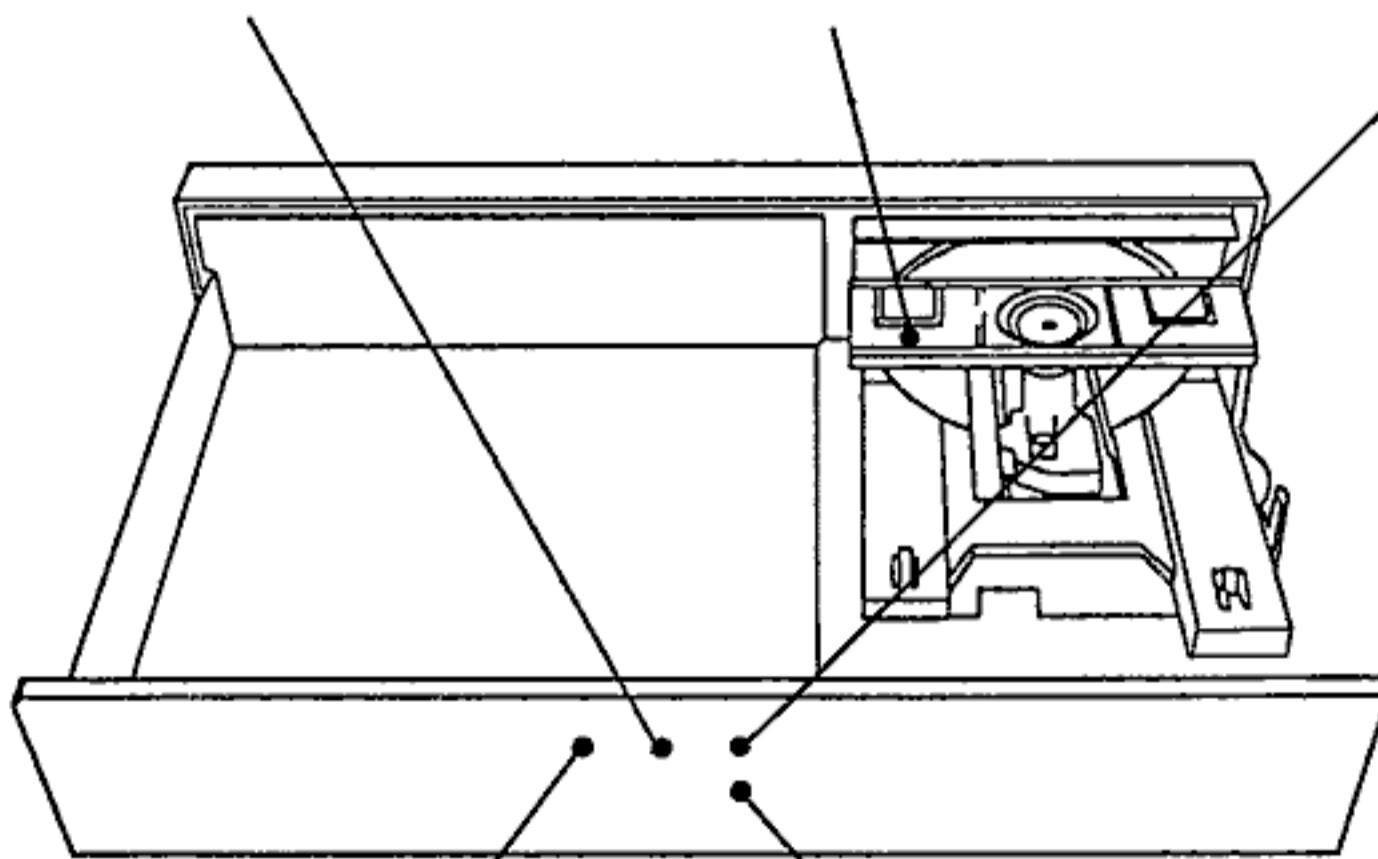
WEMXK, WBWXK, WLXJ and WEXK/FR types

WEMXK and WEXK/FR types

**CAUTION**  
INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM  
PRW1018



**ADVARSEL**  
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.  
**VORSICHT!**  
UNSIHTBARE LASERSTRÅLUNG TRIT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!  
VRW1094



**Additional Laser Caution**

- Laser Interlock Mechanism**  
The position of the switch (S601) for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not CLMP terminal side (when CLMP signal is OFF or high level). Thus, the interlock will no longer function if the switch (S601) is deliberately set to CLMP terminal side (low level).  
The interlock also does not function in the test mode \*. Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the PRE AMP BOARD ASSY mounted on the pickup assembly is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).
- When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.  
92S1B

\* Refer to page 21.

**CLASS 1 LASER PRODUCT**  
VRW-328

WEMXK, WBWXK, WLXJ and WEXK/FR types

**VARO!**  
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.  
**VARNING!**  
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Beträkta ej strålen.  
PRW1233

WEMXK and WEXK/FR types

## 2. EXPLODED VIEWS, PACKING AND PARTS LIST

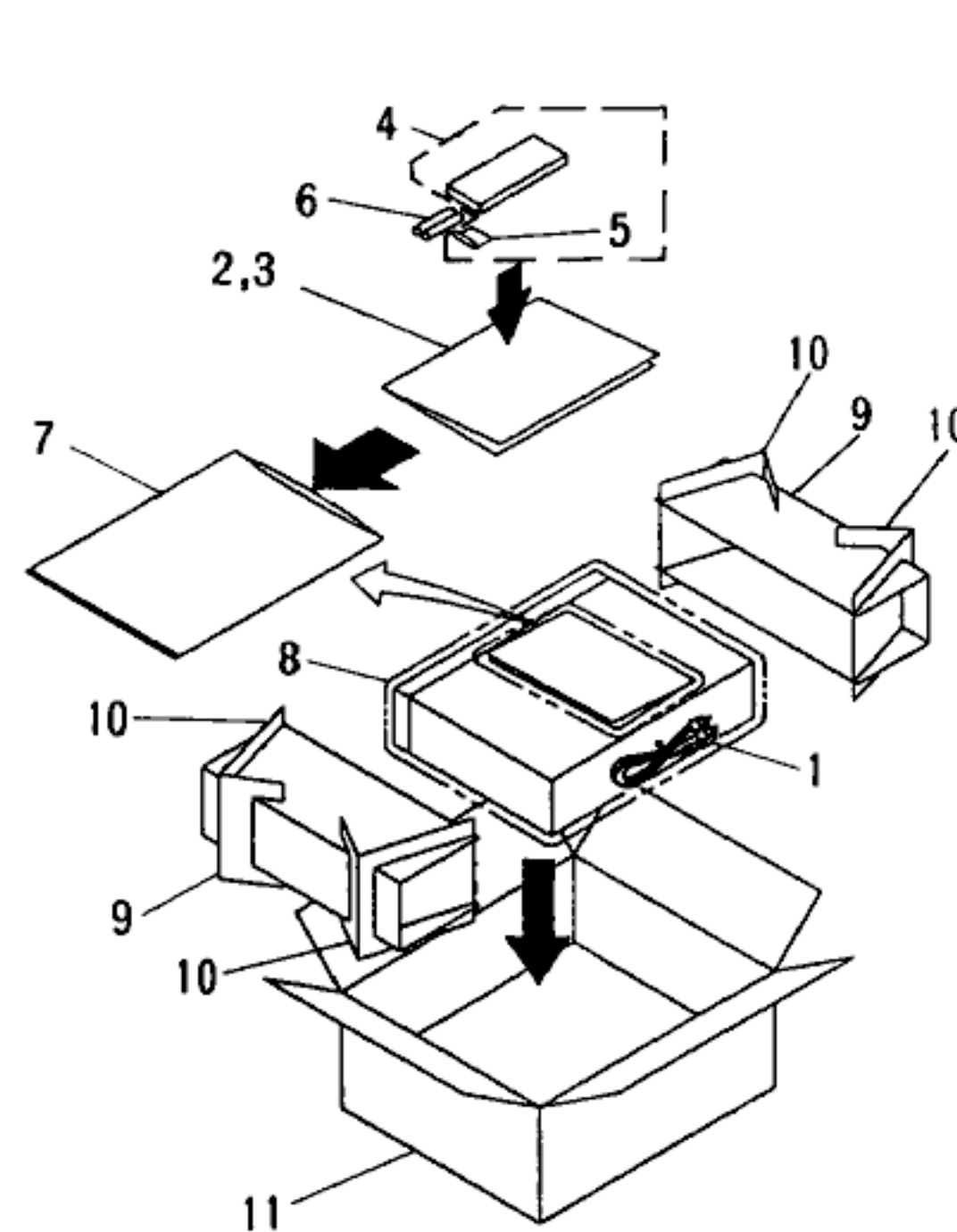
- NOTES:**
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
  - Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

### 2.1 PACKING

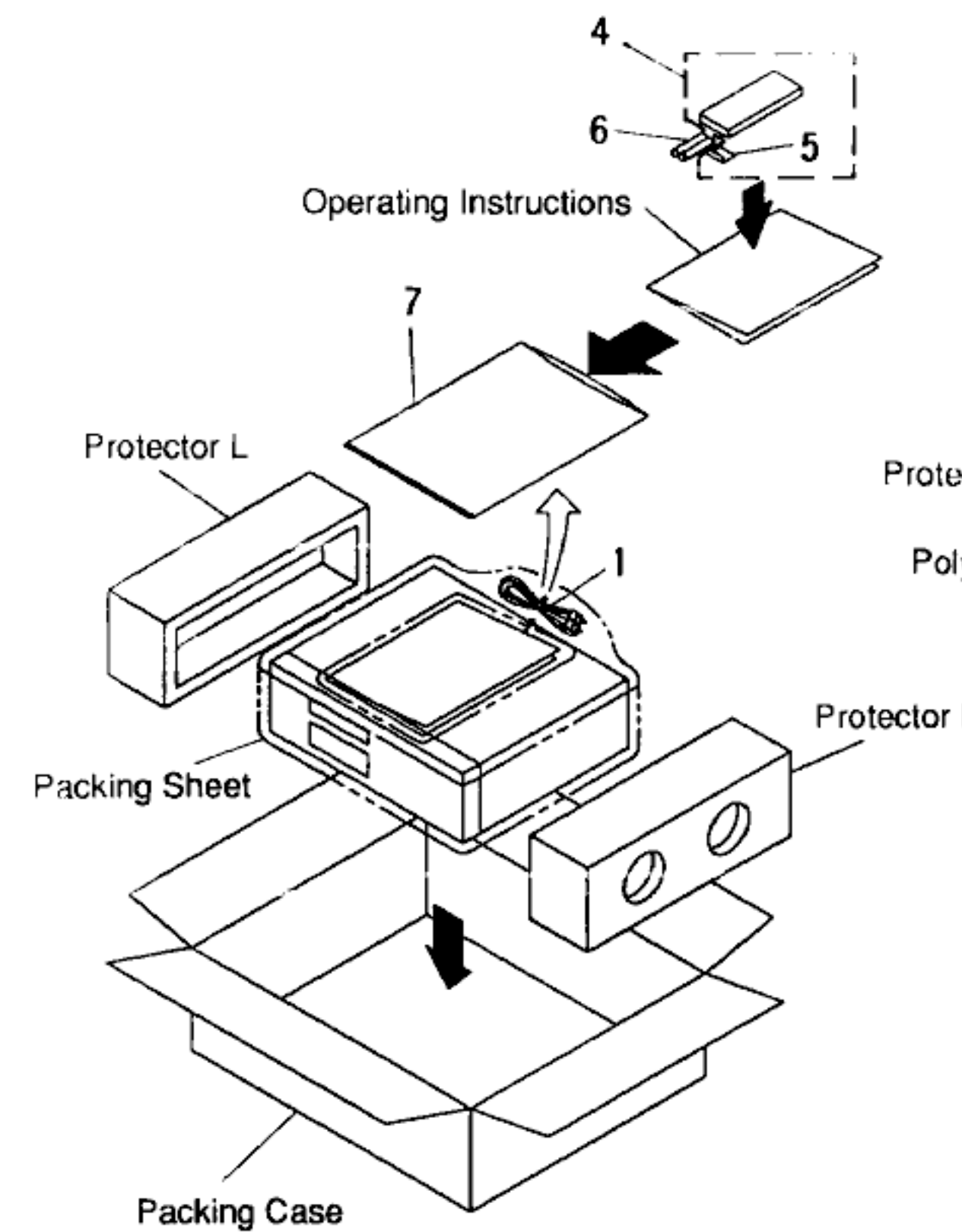
#### Parts List

Mark	No.	Description	Parts No.
	1	Cord with pin plug	PDE1248
	2	Operating instructions (English)	PRB1223
	3	Operating instructions (German/French/Italian/Dutch/Swedish/Spanish/Portuguese)	PRE1212
	4	Remote control unit	PWW1061
	5	Battery cover	PZN1010
NSP	6	Battery (R03, AAA)	VEM - 022
	7	Polyethylene bag	Z21 - 038
	8	Packing sheet	AHG1090
	9	Paper protector	PHA1297
	10	Paper spacer	PHA1298
	11	Packing case	PHG2153

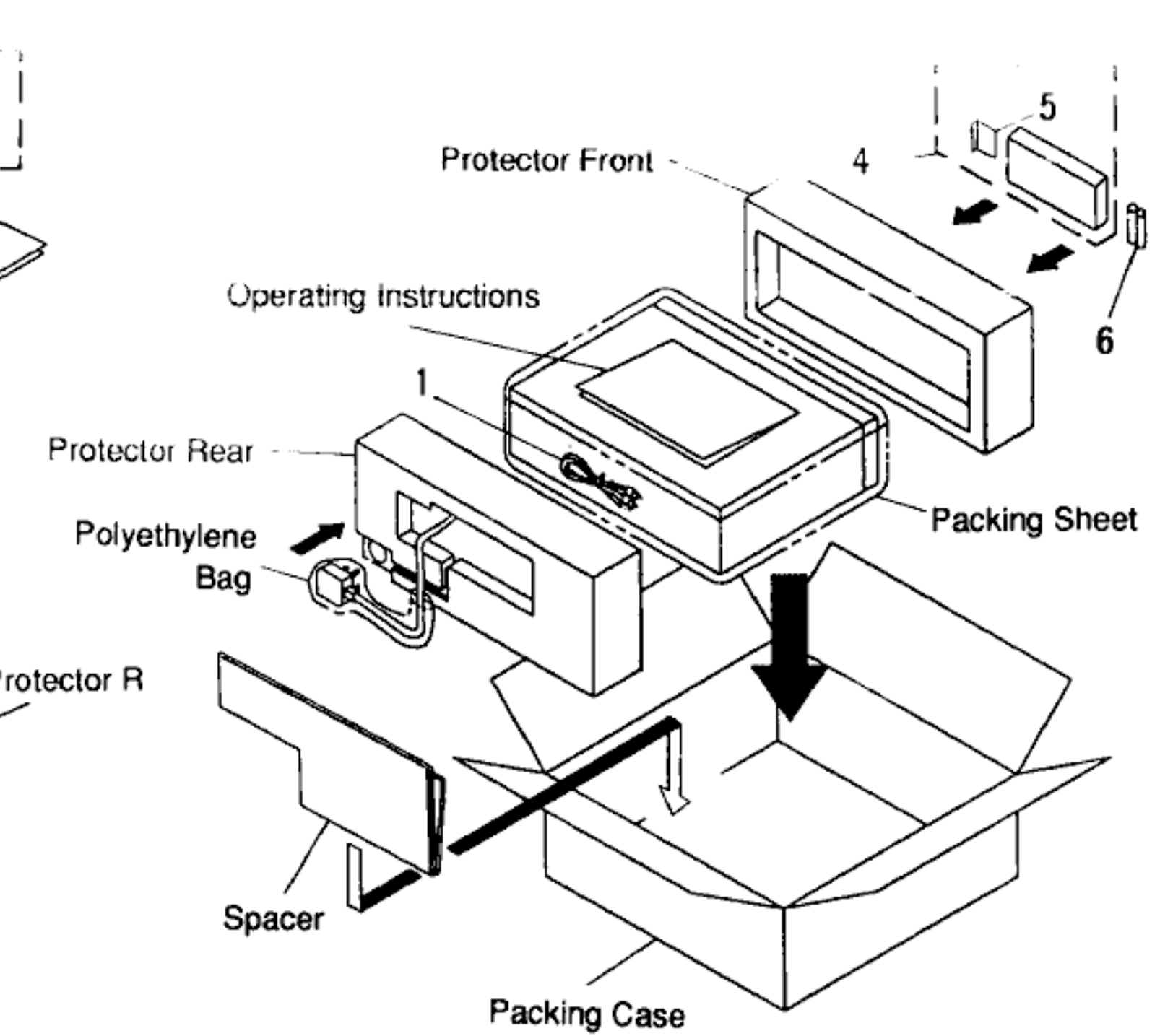
#### ● For WEMXK and WEXK/FR types



#### ● For RDXJ, WPWXJ and WLXJ types



#### ● For WBWXK type

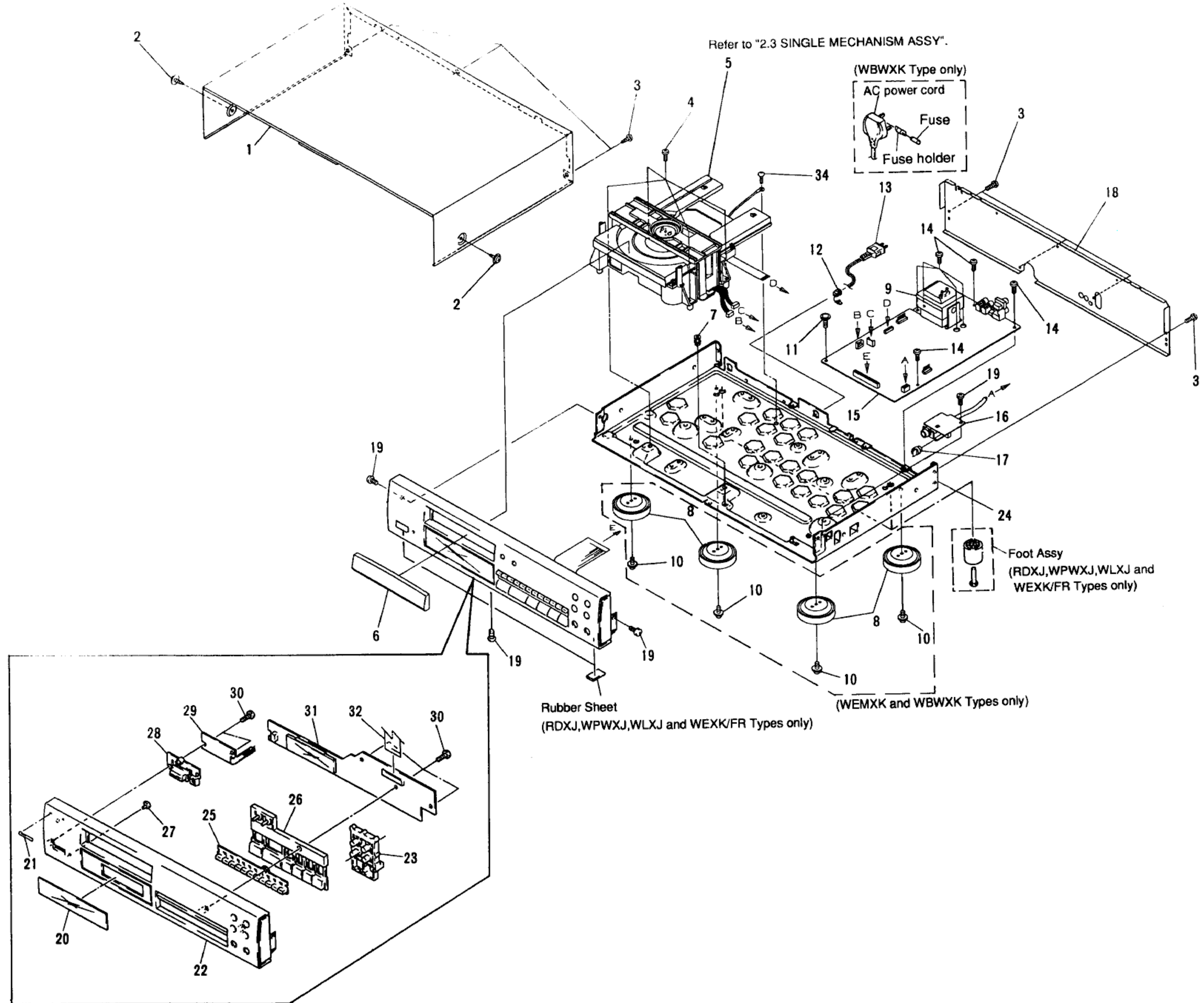


2.2 EXTERIOR

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

Parts List

Mark	No.	Description	Parts No.
	1	Bonnet	RYY1183
	2	Screw	FBT40P080FZK
	3	Screw	BBZ30P080FZK
	4	Screw	BBZ30P160FMC
NSP	5	SINGLE MECHANISM ASSY	RXA1672
	6	Tray name plate	PNW2539
	7	PCB spacer	PNY - 404
	8	Insulator	PNW1912
Δ	9	Power transformer	PTT1236
	10	Screw	IBZ30P100FCC
	11	Screw	IBZ30P150FCC
Δ	12	Cord stopper	CM - 22B
Δ	13	AC power cord	PDG1003
Δ	14	Screw	BBZ30P060FMC
Δ	15	MOTHER BOARD ASSY	PWM1936
	16	HEADPHONE BOARD ASSY	PWZ2948
	17	Headphone knob	PAC1707
	18	Rear base	PNA2188
	19	Screw	IBZ30P080FCC
	20	Display window	PAM1665
	21	Name plate	PAM1608
	22	Function panel	PNW2546
NSP	23	Mode button	PAC1796
	24	Under base	PNA2219
	25	10 key	PAC1797
	26	Function button	PAC1798
	27	LED lens	PNW2019
	28	Power button	PAC1708
NSP	29	SW BOARD ASSY	PWZ2940
	30	Screw	PPZ30P100FMC
	31	FUNCTION BOARD ASSY	PWZ2933
	32	32P F.F.C/30V	PDD1041
	33	.....	
	34	Screw	PDZ30P050FMC

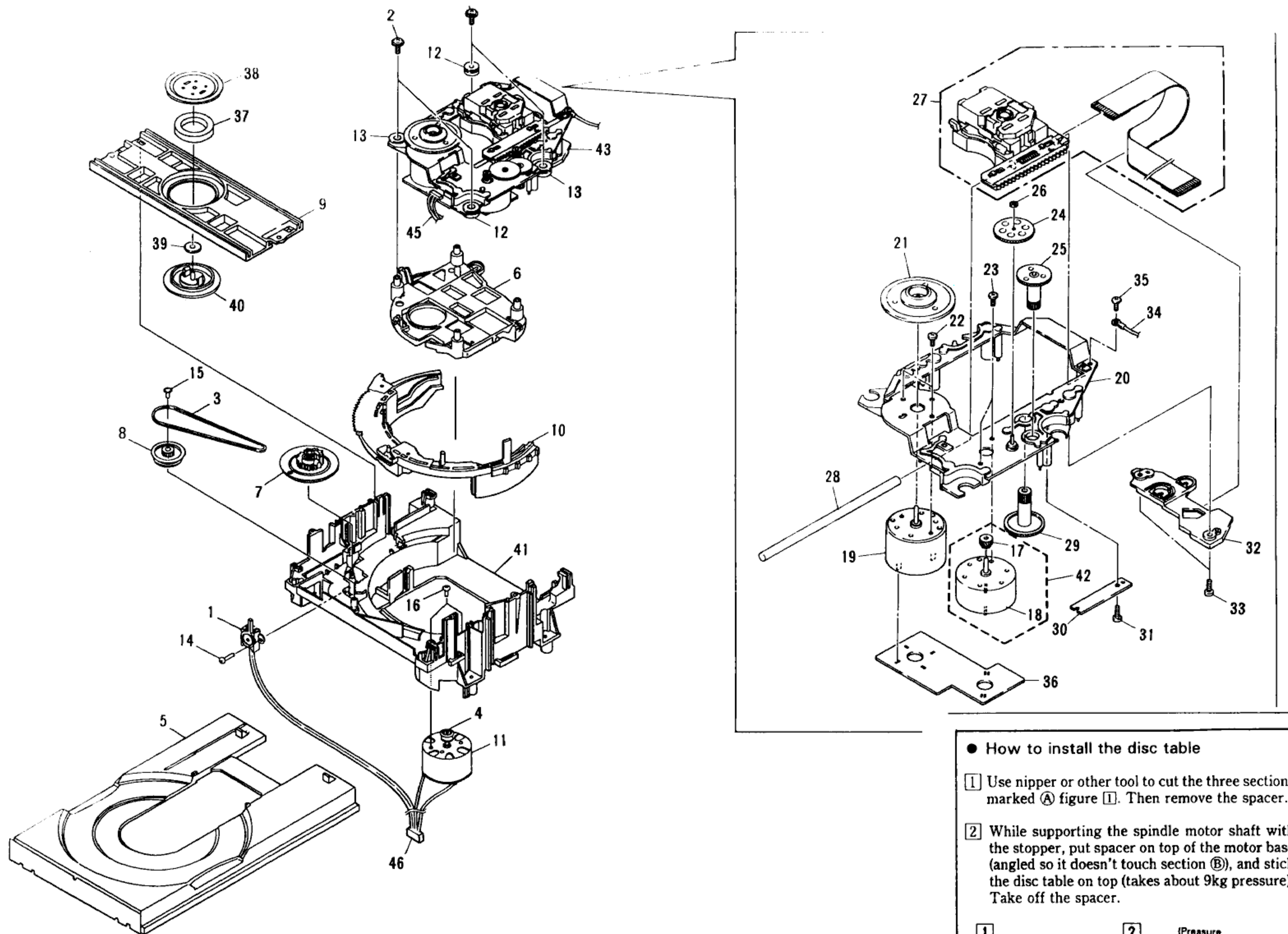


### 2.3 SINGLE MECHANISM ASSY

• FOR RXA1672

#### Parts List

Mark	No.	Description	Parts No.
	1	Lever switch (CLAMP)	DSK1003
	2	Float screw	PBA1048
	3	Rubber belt	PEB1193
	4	Motor pulley	PNW1634
	5	Tray	PNW2455
	6	Float base	PNW2032
	7	Drive gear 2	PNW2369
	8	Gear pulley	PNW2034
	9	Clamper base	PNW2375
	10	Clamp cam	PNW2364
	11	DC motor/0.75W	PXM1010
	12	Float rubber B	REB1287
	13	Float rubber G	REB1288
	14	Screw	BPZ26P080FMC
	15	Screw	Z39-019
	16	Screw	PMZ26P040FMC
	17	Pinion gear	PNW2055
NSP	18	DC motor (CARRIAGE)	PXM1027
	19	DC motor Assy (SPINDLE)	PEA1235
	20	Carriage base	PNW2445
	21	Disc table	PNW1608
	22	Screw	JFZ20P030FN1
	23	Screw	JFZ17P025FZK
	24	Gear 3	PNW2054
	25	Gear 2	PNW2053
	26	Washer	WT12D032D025
	27	Pickup assy	PEA1291
	28	Guide bar	PLA1094
NSP	29	Gear 1	PNW2052
	30	Gear stopper	PNB1303
	31	Screw	BPZ20P060FMC
	32	PWB holder	PNW2057
	33	Screw	BPZ20P100FMC
	34	Earth lead unit	PDF1104
	35	Screw	BBZ26P060FMC
NSP	36	MECHANISM BOARD ASSY	PWX1192
	37	Clamp magnet	PMF1014
NSP	38	Yoke	PNB1216
	39	H spacer	PEB1249
	40	Clamper S	PNW1609
	41	Loading base	PNW2376
	42	DC motor assy (CARRIAGE)	PEA1246
NSP	43	SERVO MECHANISM ASSY	AXA7017
	44	.....	
	45	Connector assy (4P)	RDE1043
	46	Connector assy (5P)	PDE1239



### 3. SCHEMATIC AND PCB CONNECTION DIAGRAM

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:  
Unit: k: kΩ, M: MΩ, or Ω unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:  
Unit: p: pF or μF unless otherwise noted.  
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.

5. COILS:  
Unit: m: mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:  
□ or - V : DC voltage (V) in PLAY mode unless otherwise noted.  
↻ mA or - mA : DC current in PLAY mode unless otherwise noted.  
Value in ( ) is DC current in STOP mode.

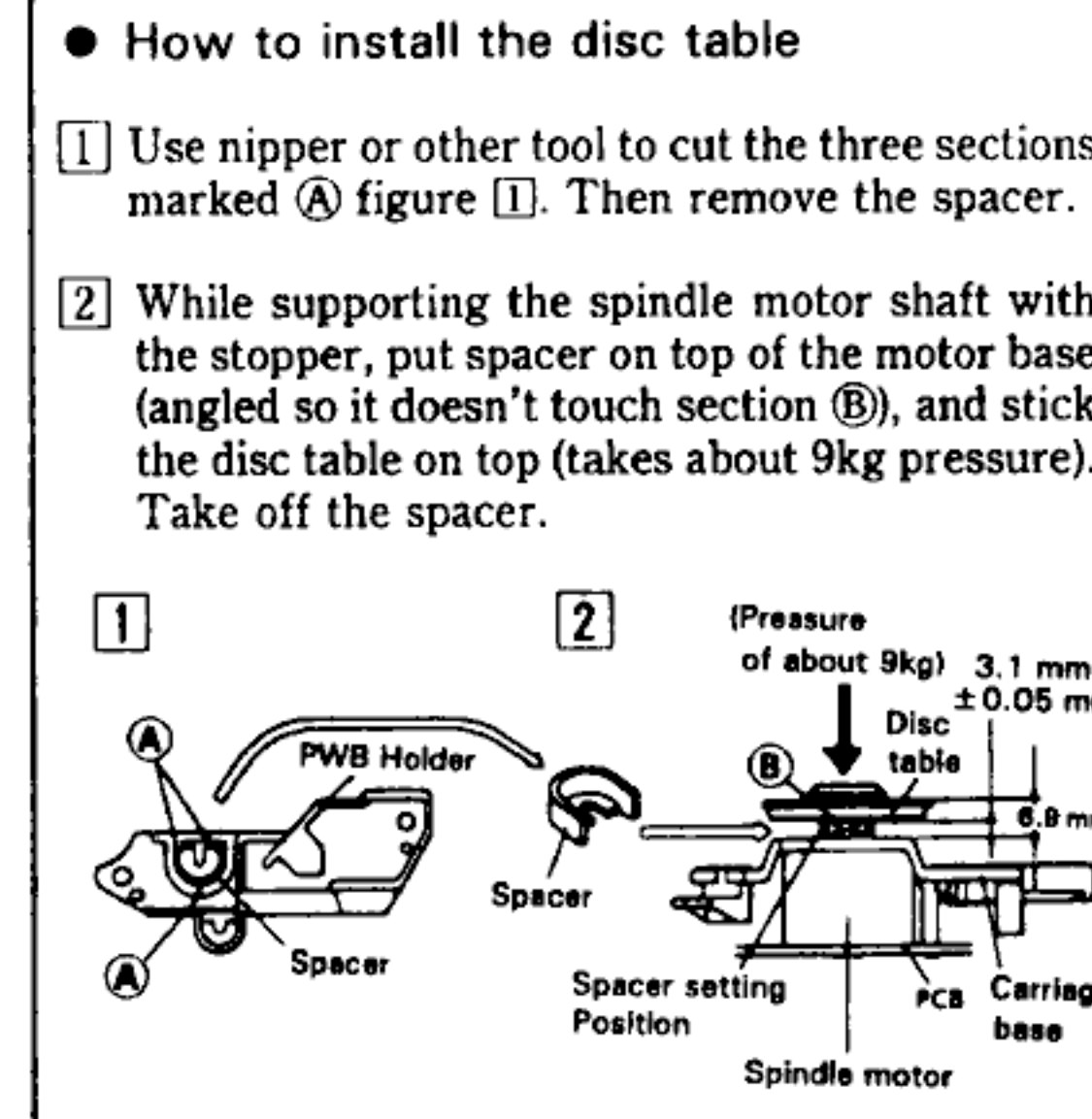
7. OTHERS:  
● or ○ : Adjusting point.  
◁ : Measurement point.  
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

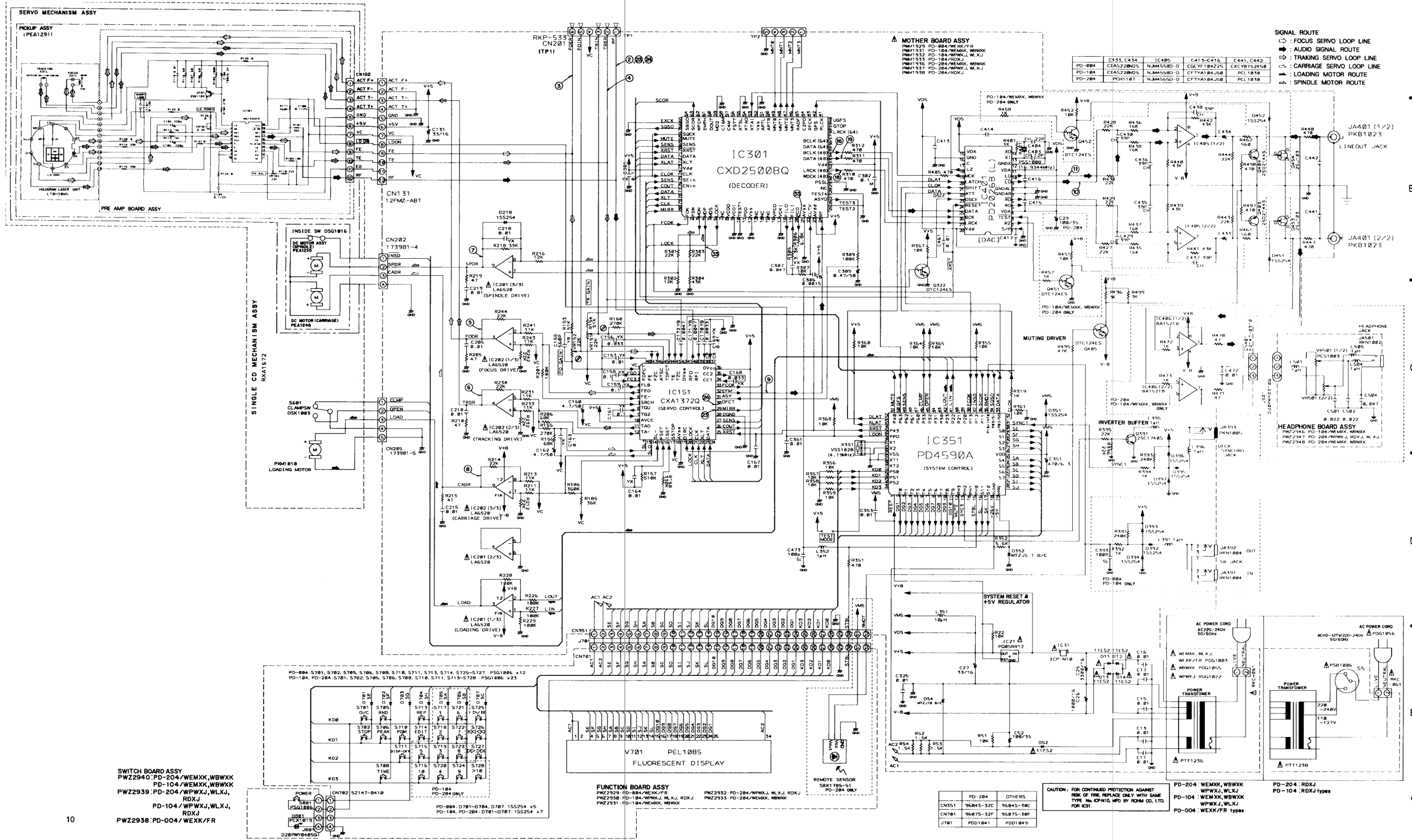
8. SCH-□ ON THE SCHEMATIC DIAGRAM:  
• SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

#### 9. SWITCHES (Underline indicates switch position):

- FUNCTION BOARD ASSY
- S701 : ▲ OPEN/CLOSE
  - S702 : ■ STOP
  - S705 : RANDOM
  - S706 : PEAK SEARCH
  - S708 : TIME
  - S710 : PROGRAM
  - S711 : DISPLAY OFF
  - S713 : REPEAT
  - S714 : EDIT
  - S715 : 5
  - S716 : 10
  - S717 : 1
  - S718 : 2
  - S719 : 3
  - S720 : 4
  - S721 : 6
  - S722 : 7
  - S723 : 8
  - S724 : 9
  - S725 : ▶/|| PLAY/PAUSE
  - S726 : ◀◀◀ TRACK/MANUAL SEARCH REV
  - S727 : ▶▶▶ TRACK/MANUAL SEARCH FWD
  - S728 : > 10

- SWITCH BOARD ASSY
- S801 : POWER STANDBY/ON





● This diagram is viewed from the mounted parts side.

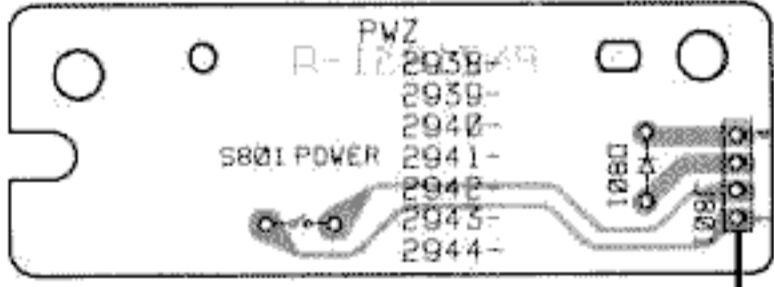
NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

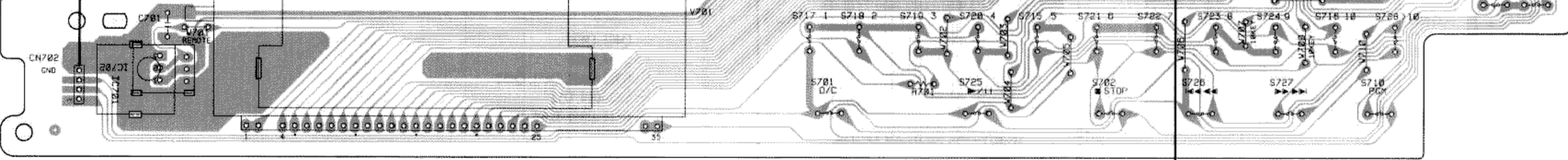
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

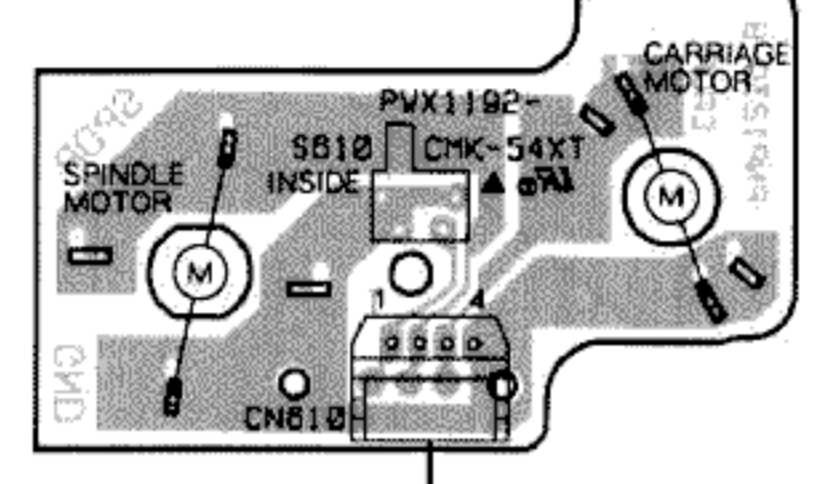
SWITCH BOARD ASSY



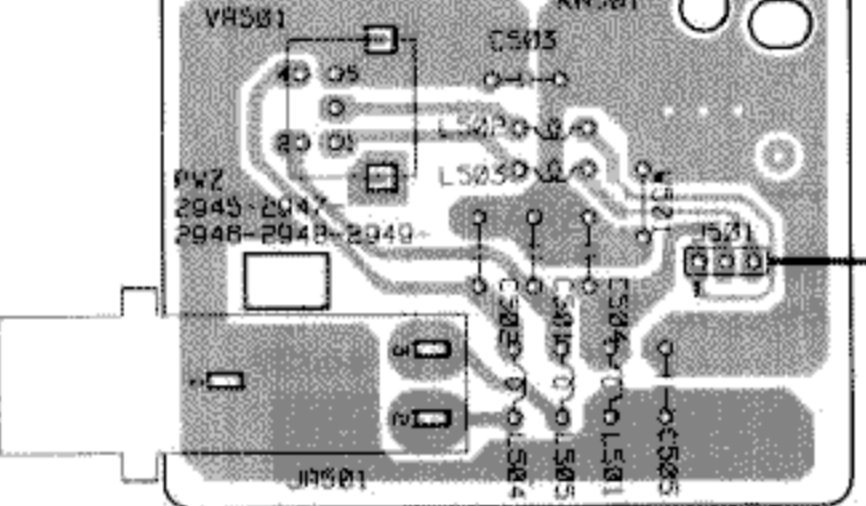
FUNCTION BOARD ASSY



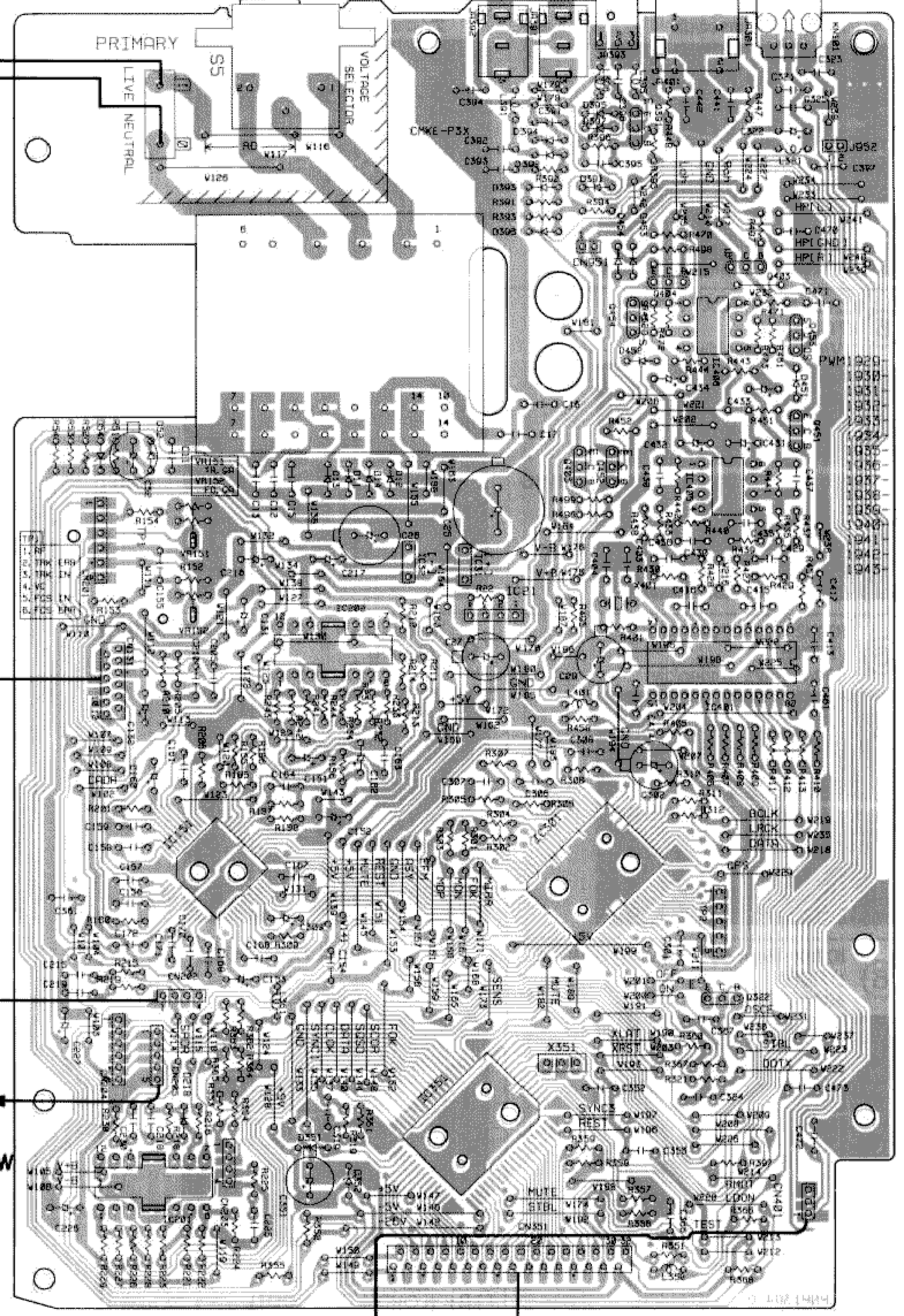
MECHANISM BOARD ASSY



HEADPHONE BOARD ASSY



MOTHER BOARD ASSY



⚠ AC POWER CORD

WEMXK, WBWXK, WPWXJ  
WLXJ, WEXK / FR :  
AC 220-240V/50/60Hz  
RDXJ :  
AC 110-127V/220-240V  
50/60Hz

TO PICKUP ASSY  
CN102

TO LOADING  
MOTOR AND  
CLAMP SW

- Q391
- Q403
- Q454
- Q404 IC406
- Q453
- Q451
- Q405 Q452
- IC405
- IC31
- IC21
- IC202 IC401
- IC151 IC301
- Q322
- IC351
- IC201

- PNP1387-A : PD-204 / WEMXK, WBWXK  
PD-104 / WEMXK, WBWXK  
PD-004 / WEXK / FR
- PNP1386-A : PD-204 / WPWXJ, WLXJ, RDXJ  
PD-104 / WPWXJ, WLXJ, RDXJ

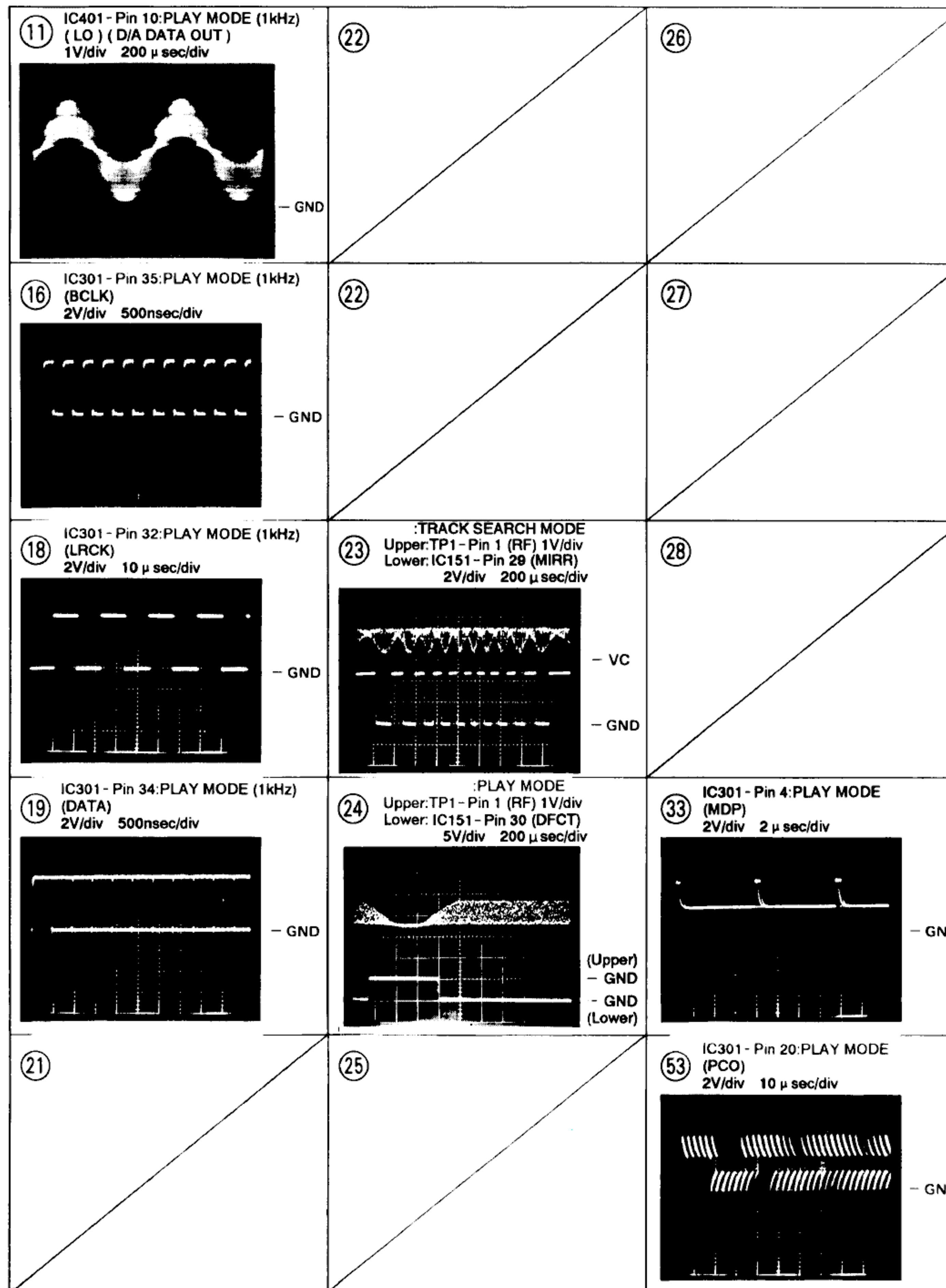
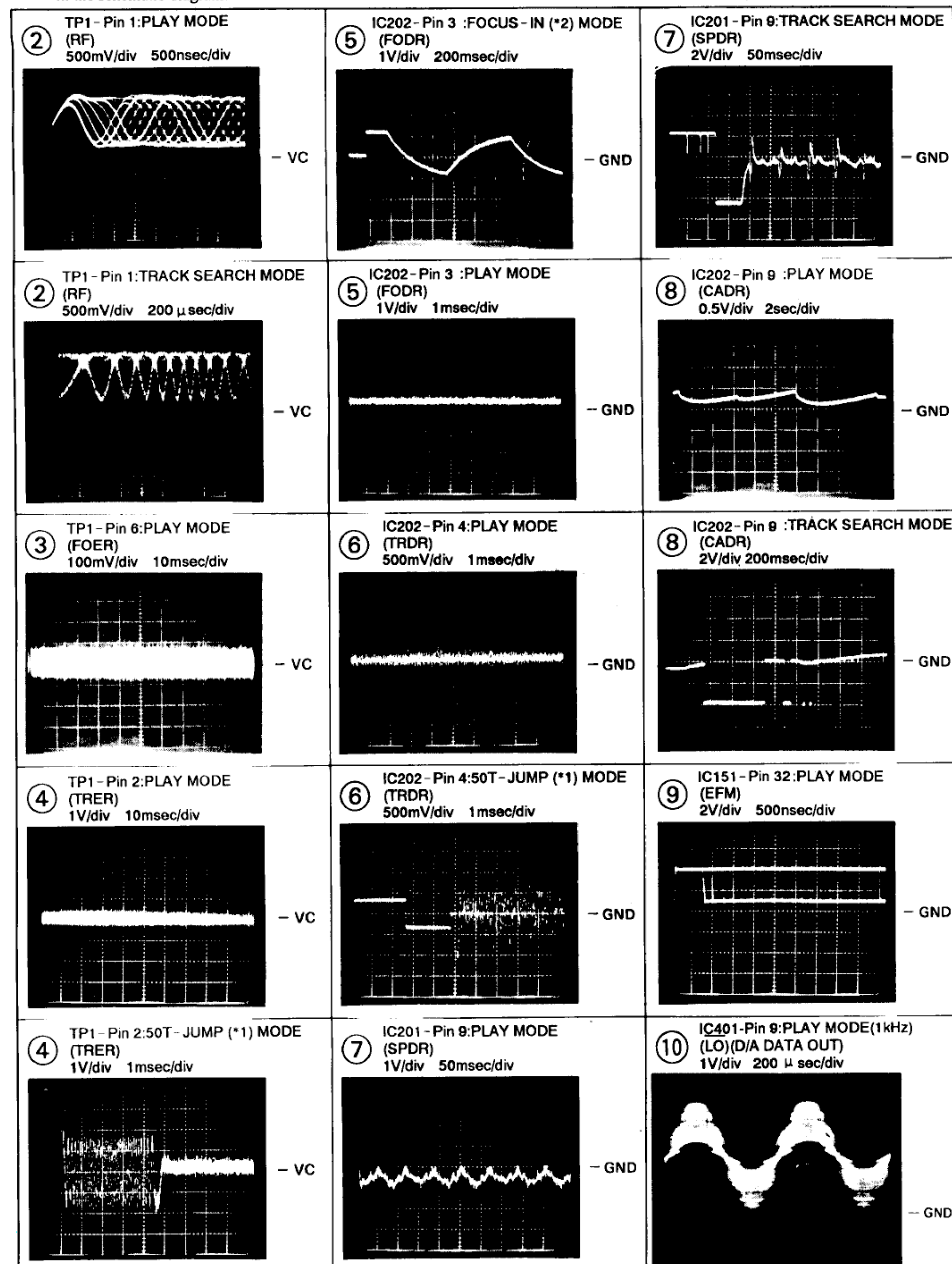
- PNP1384-B : PD-204 / WEMXK, WBWXK  
PD-104 / WEMXK, WBWXK  
PD-004 / WEXK / FR
- PNP1385-B : PD-204 / WPWXJ, WLXJ, RDXJ  
PD-104 / WPWXJ, WLXJ, RDXJ

**WAVEFORMS**

Note: The encircled numbers denote measuring points in the schematic diagram.

\*1 50T-JUMP: After switching to the pause mode, press the manual search key.

\*2 FOCUS-IN: Press the key without loading a disc.



**4. PCB PARTS LIST**

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.  
 Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47K ohm (tolerance is shown by J=5%, and K=10%).  
 560 Ω → 56 × 10<sup>1</sup> → 561 ..... RD1/8PM 561 J  
 47k Ω → 47 × 10<sup>3</sup> → 473 ..... RD1/4PS 473 J  
 0.5 Ω → 0R5 ..... RN2H 0R5 K  
 1 Ω → 010 ..... RS1P 010 K  
 Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).  
 5.62k Ω → 562 × 10<sup>1</sup> → 5621 ..... RN1/4PC 5621 F

**■ PARTS LIST FOR PD-204**

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
$\Delta$		MOTHER BOARD ASSY	PWM1936	<b>CAPACITORS</b>			
NSP		SUB BOARD ASSY	PWX1396	C403			CCCCH120J50
		FUNCTION BOARD ASSY	PWZ2933	C404			CCCCH220J50
NSP		SWITCH BOARD ASSY	PWZ2940	C429, C430, C435-C438			CCCCH390J50
		HEADPHONE BOARD ASSY	PWZ2948	C473			CCCSL101J50
		MECHANISM BOAR ASSY	PWX1192	C29, C52			CEAS101M35
<b>MOTEHR BOARD ASSY</b>				C26			CEAS102M16
<b>SEMICONDUCTORS</b>				C131, C27			CEAS330M16
	IC406		BA15218	C25			CEAS332M16
	IC151		CXA1372Q	C351			CEAS471M6R3
	IC301		CXD2500BQ	C160, C162			CEAS4R7M50
$\Delta$	IC31		ICP-N10	C309			CEASR47M50
$\Delta$	IC201, IC202		LA6520	C302, C413-C416			CFTYA104J50
	IC405		NJM4565D-D	C157, C164, C169, C218			CGCYX103K25
	IC401		PD2026B(L)	C158, C159, C161, C163, C301			CGCYX104K25
	IC351		PD4590A	C156, C168			CGCYX333K25
	IC21		PQ05RR12	C307			CGCYX473K25
	Q391		2SC1740S	C306			CKCYB152K50
	Q403, Q404		2SD2144S	C170			CKCYB332K50
	Q453, Q454		2SJ103	C171, C172			CKCYB472K50
	Q322, Q405, Q451, Q452		DTC124ES	C155			CKCYB561K50
$\Delta$	D11-D14, D52		11ES2	C11, C13, C15, C16, C167			CKCYF103Z50
	D218, D351, D395-D397		ISS254	C17, C205, C210, C215, C219			CKCYF103Z50
	D451, D452		ISS254	C325, C353, C361, C417, C461			CKCYF103Z50
	D54		MTZJ18B	C472			CKCYF103Z50
	D352		MTZJ5.1B	C433, C434 (220μF/25V)			PCH1107
				C441, C442 (0.0015μF/50V)			PCL1030
<b>COILS AND FILTERS</b>				<b>RESISTORS</b>			
	L352, L395, L396		LAU010J	VR151, VR152 (22kΩ)			PCP1030
	L351		LAU100J	Other Resistors			RD1/6PM□□□
<b>OTHERS</b>				<b>OTHERS</b>			
	CN131 FPC CONNECTOR (12P)			CN131 FPC CONNECTOR (12P)			12FMZ-ABT
	CN202 MT CONNECTOR (4P)			CN202 MT CONNECTOR (4P)			173981-4
	CN205 MT CONNECTOR (5P)			CN205 MT CONNECTOR (5P)			173981-5



Mark	No.	Description	Parts No.
	CN401	JUMPER CONNECTOR (3P)	52147-0310
	CN351	FFC CONNECTOR (32P)	9604S-32C
	JA401	2P PIN JACK	PKB1023
	JA393	MINI JACK	PKN1005
	X401	CRYSTAL RESONATOR (16.9344MHz)	PSS1008

△		TERMINAL	RKC-061
	CN201	CONNECTOR (6P)	RKP-533
	X351	CERAMIC RESONATOR (4.19MHz)	VSS1028

## FUNCTION BOARD ASSY

### SEMICONDUCTORS

D701-D707	ISS254
-----------	--------

### SWITCHES AND RELAYS

S701, S702, S705, S706, S708	PSG1006
S710, S711, S713-S728	PSG1006

### OTHERS

CN702	JUMPER CONNECTOR (4P)	52147-0410
CN701	FFC CONNECTOR(32P)	9607S-32F
V701	FL INDICATOR TUBE	PEL1085
	REMOTE SENSOR	SBX1785-51

## SWITCH BOARD ASSY

### SEMICONDUCTORS

D801	PCX1019
------	---------

### SWITCHES AND RELAYS

S801	PSG1006
------	---------

## HEADPHONE BOARD ASSY

### COILS AND FILTERS

L501, L504, L505	LAU010J
------------------	---------

### CAPACITORS

C501, C502	CKCYF223Z50
C504	CKCYF473Z50

### RESISTORS

VR501 (5kΩ)	PCS1003
-------------	---------

### OTHERS

JA501	HEADPHONE JACK	RKN1002
-------	----------------	---------

## MECHANISM BOARD ASSY

### SWITCHES AND RELAYS

S610	DSG1016
------	---------

### OTHERS

CN610	MT CONNECTOR (4P)	173979-4
-------	-------------------	----------

## 5. ADJUSTMENTS

### ● Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

### ● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 – 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin6 (FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin1 (RF)	Radial tilt adjustment screw. Tangential tilt adjustment screw
4	RF level verification	TP1, Pin1 (RF)	None
5	Focus servo loop gain adjustment	TP1, Pin5 (FCS. IN) TP1, Pin6 (FCS. ERR)	VR152 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin3 (TRK. IN) TP1, Pin2 (TRK. ERR)	VR151 (TRK. GAN)

### ● Abbreviation table

FCS. ERR	:Focus Error
TRK. ERR	:Tracking Error
FCS GAN	:Focus Gain
TRK GAN	:Tracking Gain
FCS. IN	:Focus In
TRK. IN	:Tracking In

### ● Measuring Instrument and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS - 7)
4. 8cm disc (With at least about 20 minutes of recording)
5. Low-pass filter (39kΩ + 0.001μF)
6. Resistor (100kΩ)
7. Ball point hexagon wrench (GGK1002)
8. Standard tools

● **Test Point and Adjustment Variable Resistor Positions**

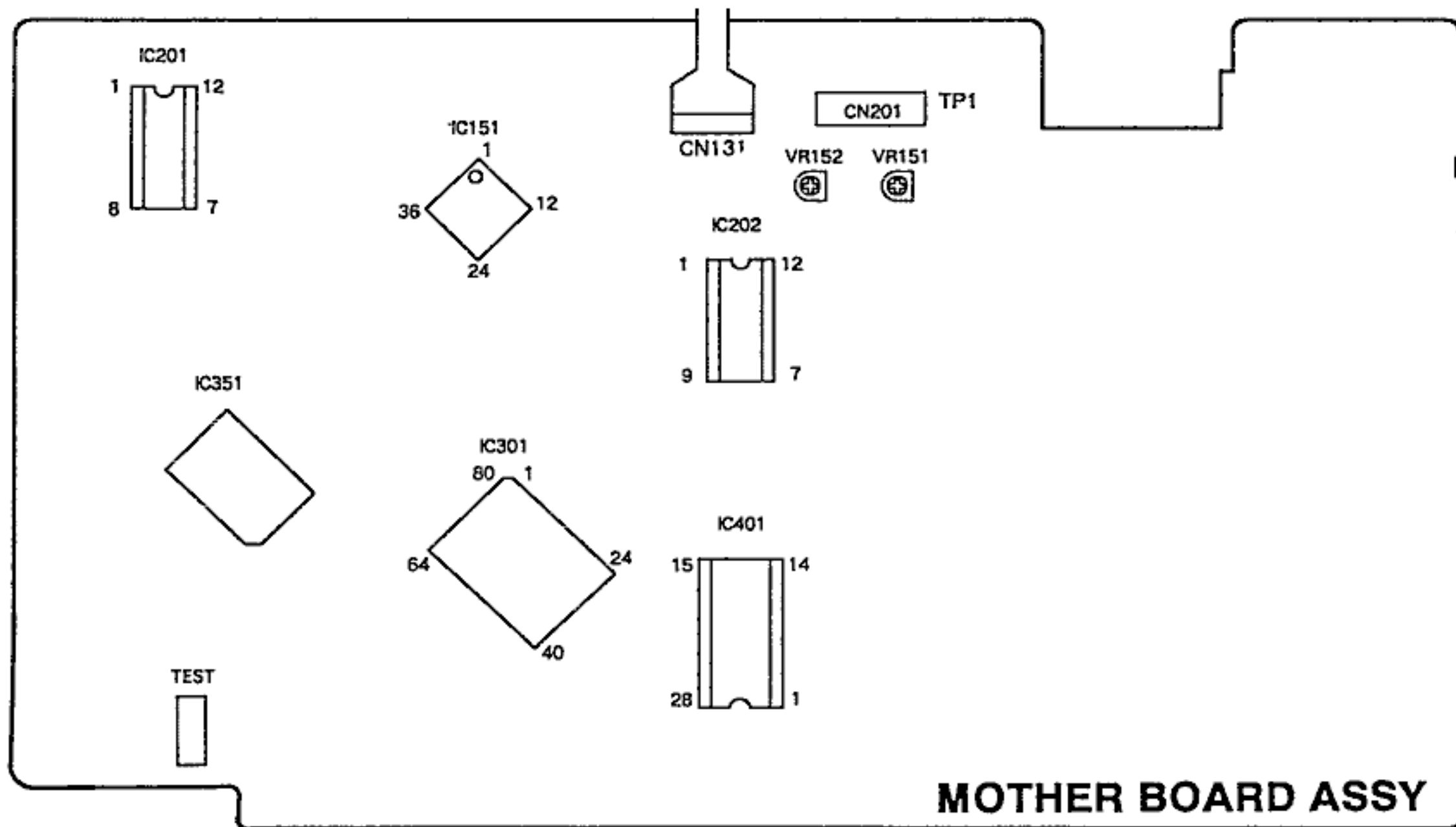


Fig. 1 Adjustment Locations

● **Notes**

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.
3. GND of the oscilloscope connect to TP1, pin4 (VC). If GND is shorted to the ground of the player, the player should be damaged.

● **Test Mode**

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

**[Setting these models to test mode]**

How to set this model into test mode.

1. Unplug the power cord from the AC socket.
2. Short the test mode jumper wires. (See Fig. 1.)
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

**[Release from test mode]**

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

**[Operations of the keys in test mode]**

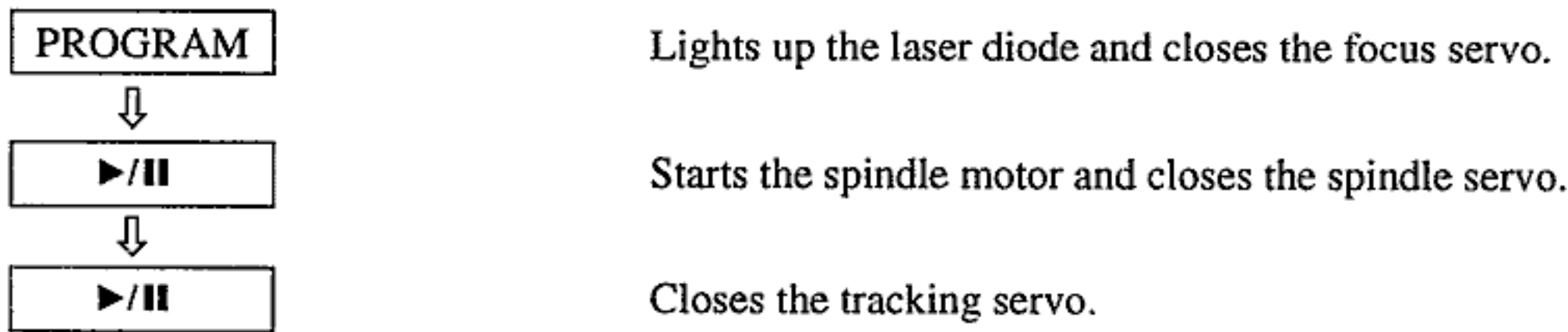
Code	Key Name	Function in Test Mode	Explanation
	PROGRAM	Focus servo close	<p>The laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc.</p> <p>With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo.</p> <p>If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered three times and returned to its original position.</p>
▶/II	PLAY/PAUSE	Spindle servo ON	<p>Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500rpm at the inner periphery), sets the spindle servo in a closed loop.</p> <p>Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed.</p> <p>If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.</p>
		Tracking servo close/open	<p>Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal.</p> <p>If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem.</p> <p>This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.</p>
◀◀• ◀◀	MANUAL TRACK SEARCH REV	Carriage reverse (inwards)	<p>Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes in an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.</p>
▶▶• ▶▶	MANUAL TRACK SEARCH FWD	Carriage forward (outwards)	<p>Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes in an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.</p>

Code	Key Name	Function in Test Mode	Explanation
■	STOP	Stop	Switches off all the servos and initialized. The pickup remains where it was when this key was pressed.
▲	OPEN/CLOSE	Disc tray open/close	Open/close the disc tray. This key is a toggle key and open/close tray alternately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

**[How to play back a disc in test mode]**

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.

Here is the key operation sequence for playing back a disc in test mode.



Wait at least 2 – 3 seconds between each of these operations.

**1. Focus Offset Verification**

● Objective	Verify the DC offset for the focus error amp.		
● Symptom when out of adjustment	The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) and GND is to TP1, Pin 4 (VC).  [Settings]    5mV/division 10 ms/division DC mode	● Player state  ● Adjustment location  ● Disc	Test mode, stopped (just the Power switch on)  None  None needed
<b>[Procedure]</b>			
Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is $0 \pm 50$ mV.			

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

## 2. Tracking Error Balance Verification

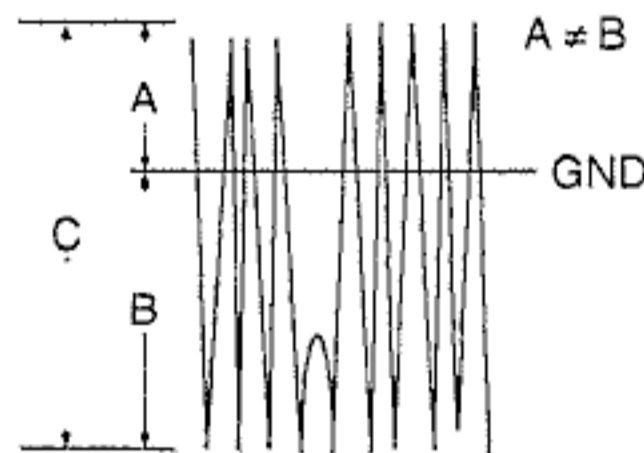
<ul style="list-style-type: none"> <li>● Objective</li> <li>● Symptom when out of adjustment</li> </ul>	To verify that there is no variation in the sensitivity of the tracking photo diode.  Play does not start or track search is impossible.		
<ul style="list-style-type: none"> <li>● Measurement instrument connections</li> </ul>	Connect the oscilloscope to TP1. Pin 2 (TRK. ERR) and GND is to TP1, Pin 4 (VC). This connection may be via a low pass filter.  [Settings]    50 mV/division 5 ms/division DC mode	<ul style="list-style-type: none"> <li>● Player state</li> <li>● Adjustment location</li> <li>● Disc</li> </ul>	Test mode, focus and spindle servos closed and tracking servo open  None  YEDS-7

### [Procedure]

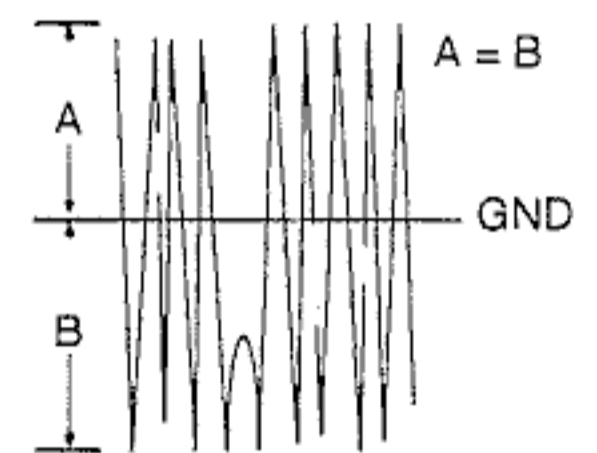
1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL TRACK SEARCH FWD **▶▶ • ▶▶▶** or REV **◀◀ • ◀◀◀** key.
2. Press the PROGRAM key, then the PLAY/PAUSE **▶/||** key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

$$\text{When } A \geq B, \frac{A - B}{C} \times \frac{1}{2} \leq 0.1$$

$$\text{When } A < B, \frac{B - A}{C} \times \frac{1}{2} \leq 0.1$$



When there is a DC component



When there is no DC component

### 3. Pickup Radial/Tangential Tilt Adjustment

<ul style="list-style-type: none"> <li>● Objective</li> </ul>	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down the disc for the best read out of the RF signals.		
<ul style="list-style-type: none"> <li>● Symptom when out of adjustment</li> </ul>	Sound broken; some discs can be played but not others.		
<ul style="list-style-type: none"> <li>● Measurement instrument connections</li> </ul>	Connect the oscilloscope to TP1, Pin 1 (RF) and GND is to TP1, Pin 4 (VC).  [Settings]    20 mV/division 200 ns/division AC mode	<ul style="list-style-type: none"> <li>● Player state</li> <li>● Adjustment location</li> <li>● Disc</li> </ul>	Test mode, play  Pickup radial tilt adjustment screw and tangential tilt adjustment screw  8 cm disc (However, those with approx. 20 min audio signal (music).)

**[Procedure]**

1. Press the MANUAL TRACK SEARCH FWD ►► • ►► or REV ◄◄ • ◄◄ key to move the pickup to the external circumference of the disc.  
  
Press the PROGRAM key, the PLAY/PAUSE ►/|| key twice in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with the hexagon wrench (GGK1002) so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Fig. 3).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.

**Note:** Radial and tangential mean the directions relative to the disc shown in Fig. 2.

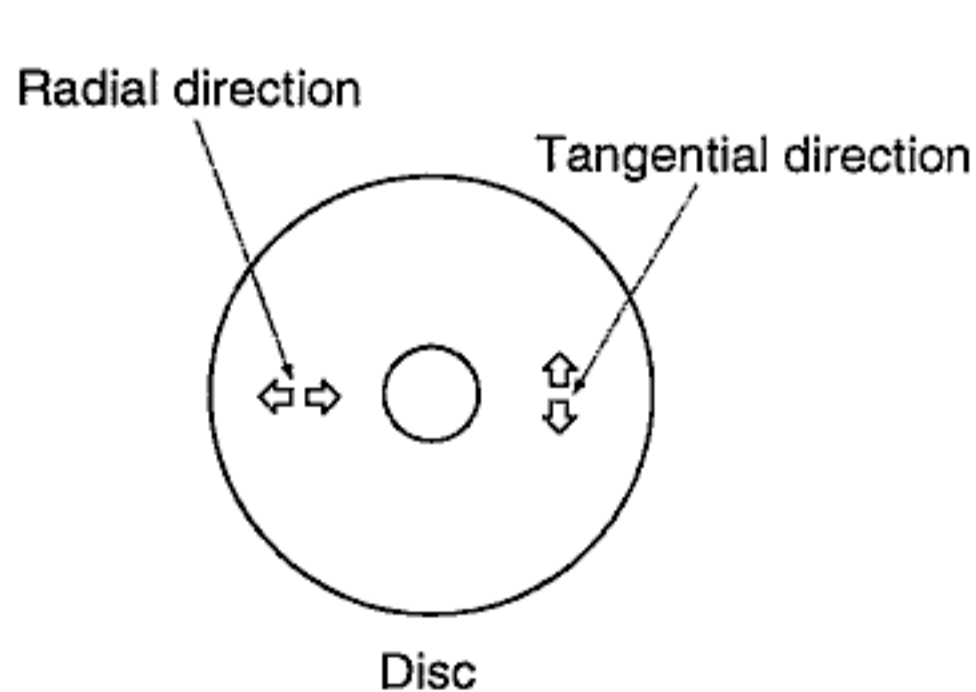
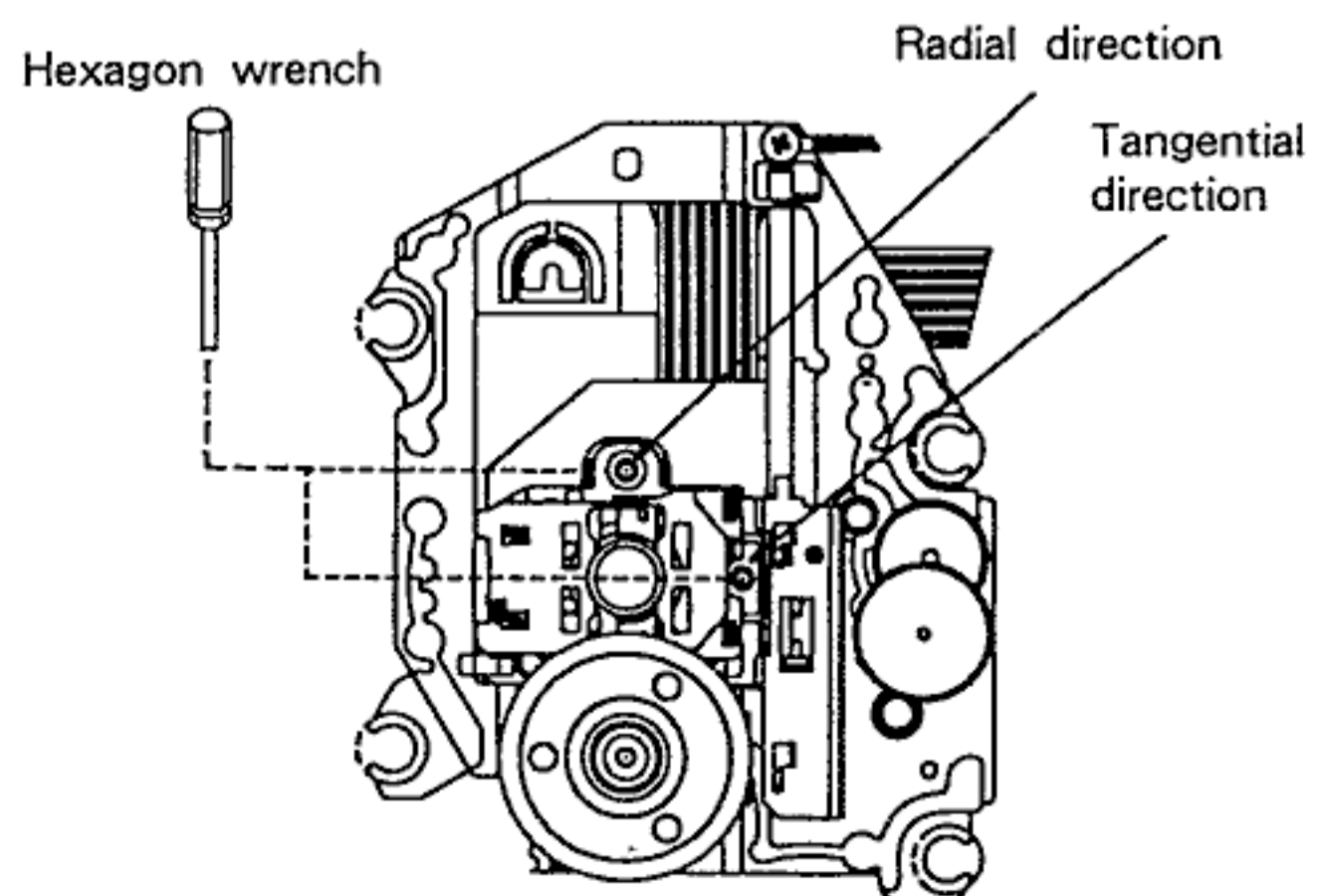


Fig. 2



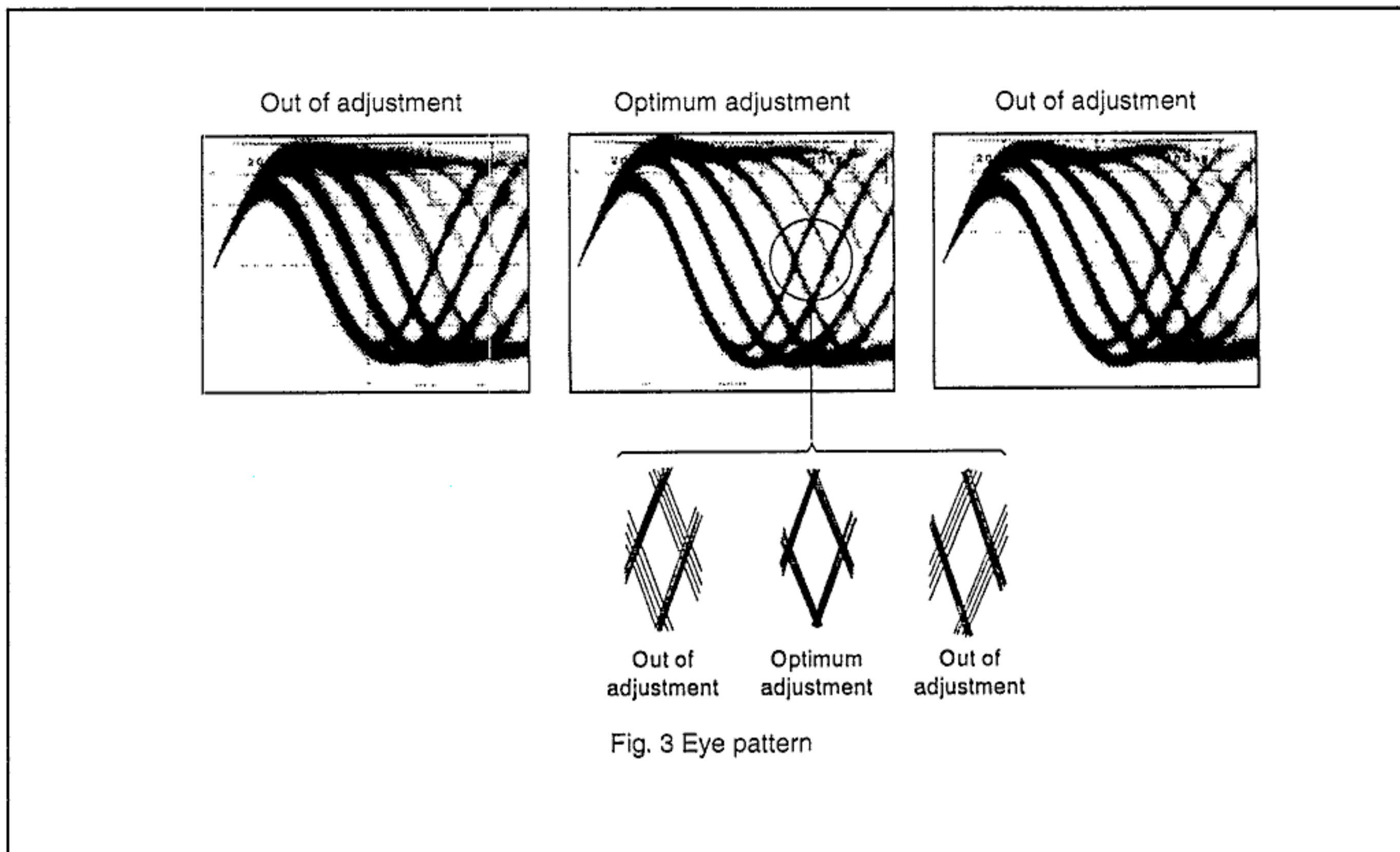


Fig. 3 Eye pattern

#### 4. RF Level Verification

<ul style="list-style-type: none"> <li>● Objective</li> </ul>	To verify the playback RF signal amplitude.		
<ul style="list-style-type: none"> <li>● Symptom when out of adjustment</li> </ul>	No play or no search.		
<ul style="list-style-type: none"> <li>● Measurement instrument connections</li> </ul>	Connect the oscilloscope to TP1. Pin 1 (RF) and GND is to TP1. Pin 4 (VC).  [Settings]    50 mV/division 10 ms/division AC mode	<ul style="list-style-type: none"> <li>● Player state</li> <li>● Adjustment location</li> <li>● Disc</li> </ul>	Test mode, play  None  YEDS-7
<p><b>[Procedure]</b></p> <ol style="list-style-type: none"> <li>1. Move the pickup to midway across the disc (R=35 mm) with the MANUAL TRACK SEARCH FWD ►►•►► or REV ◄◄•◄◄ key, then press the PROGRAM key, the PLAY/PAUSE ►/   key twice in that order to close the respective servos and put the player into play mode.</li> <li>2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.</li> </ol>			



## 5. Focus Servo Loop Gain Adjustment

<ul style="list-style-type: none"> <li>● Objective</li> </ul>	To optimize the focus servo loop gain.		
<ul style="list-style-type: none"> <li>● Symptom when out of adjustment</li> </ul>	Playback does not start or focus actuator noisy.		
<ul style="list-style-type: none"> <li>● Measurement instrument connections</li> </ul>	See figure 4. [Settings] CH1                      CH2 20 mV/division    5 mV/division X - Y mode	<ul style="list-style-type: none"> <li>● Player state</li> <li>● Adjustment location</li> <li>● Disc</li> </ul>	Test mode, play  VR152 (FCS. GAN)  YEDS-7

### [Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the MANUAL TRACK SEARCH FWD  $\blacktriangleright\blacktriangleright \cdot \blacktriangleright\blacktriangleright$  or REV  $\blacktriangleleft\blacktriangleleft \cdot \blacktriangleleft\blacktriangleleft$  key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY/PAUSE  $\blacktriangleright/\parallel$  key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

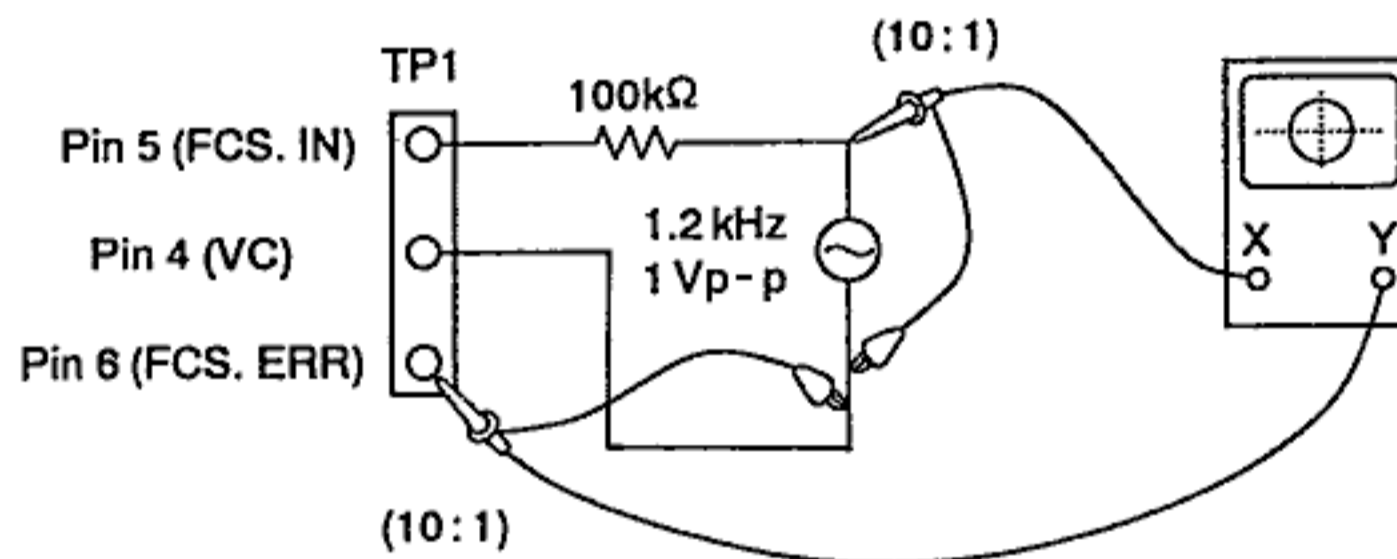
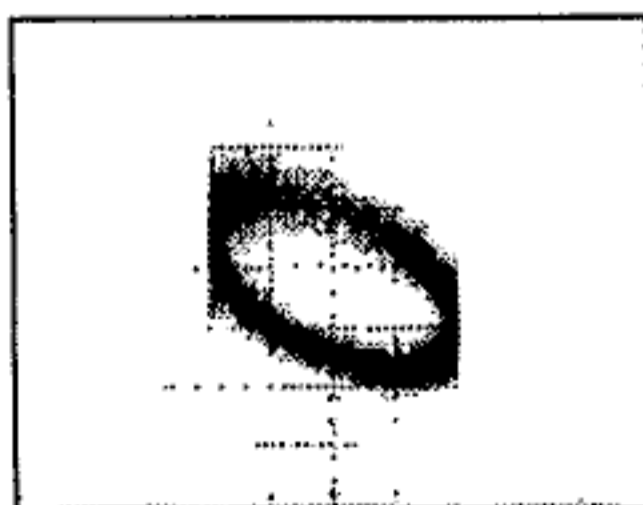
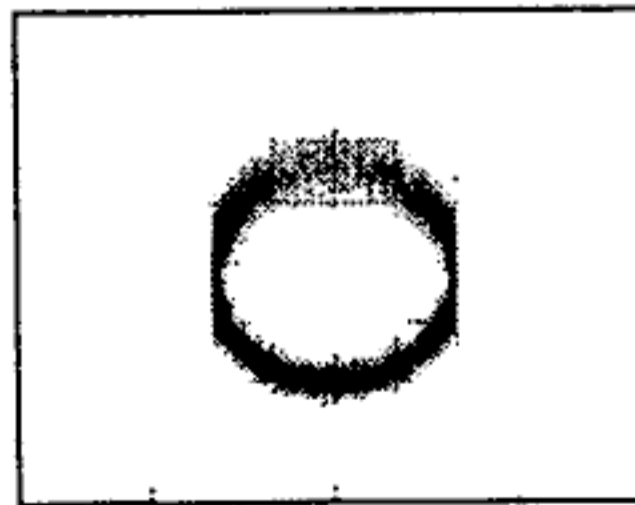


Fig. 4

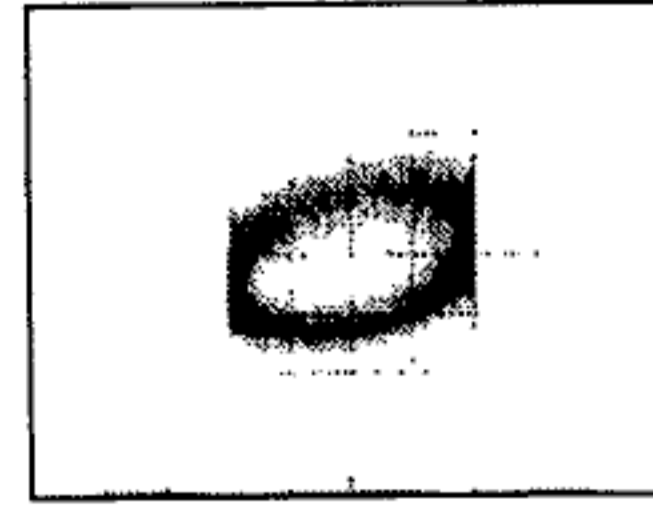
### Focus Gain Adjustment



Higher gain



Optimum gain



Lower gain

### 6. Tracking Servo Loop Gain Adjustment

<ul style="list-style-type: none"> <li>● Objective</li> </ul>	To optimize the focus servo loop gain.		
<ul style="list-style-type: none"> <li>● Symptom when out of adjustment</li> </ul>	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
<ul style="list-style-type: none"> <li>● Measurement instrument connections</li> </ul>	See figure 5.	<ul style="list-style-type: none"> <li>● Player state</li> </ul>	Test mode, play
	[Settings] CH1                      CH2 50 mV/division    20 mV/division X - Y mode	<ul style="list-style-type: none"> <li>● Adjustment location</li> <li>● Disc</li> </ul>	VR151 (TRK. GAN)  YEDS-7

**[Procedure]**

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the MANUAL TRACK SEARCH FWD **▶▶ • ▶▶▶** or REV **◀◀ • ◀◀◀** key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY/PAUSE **▶/||** key twice in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

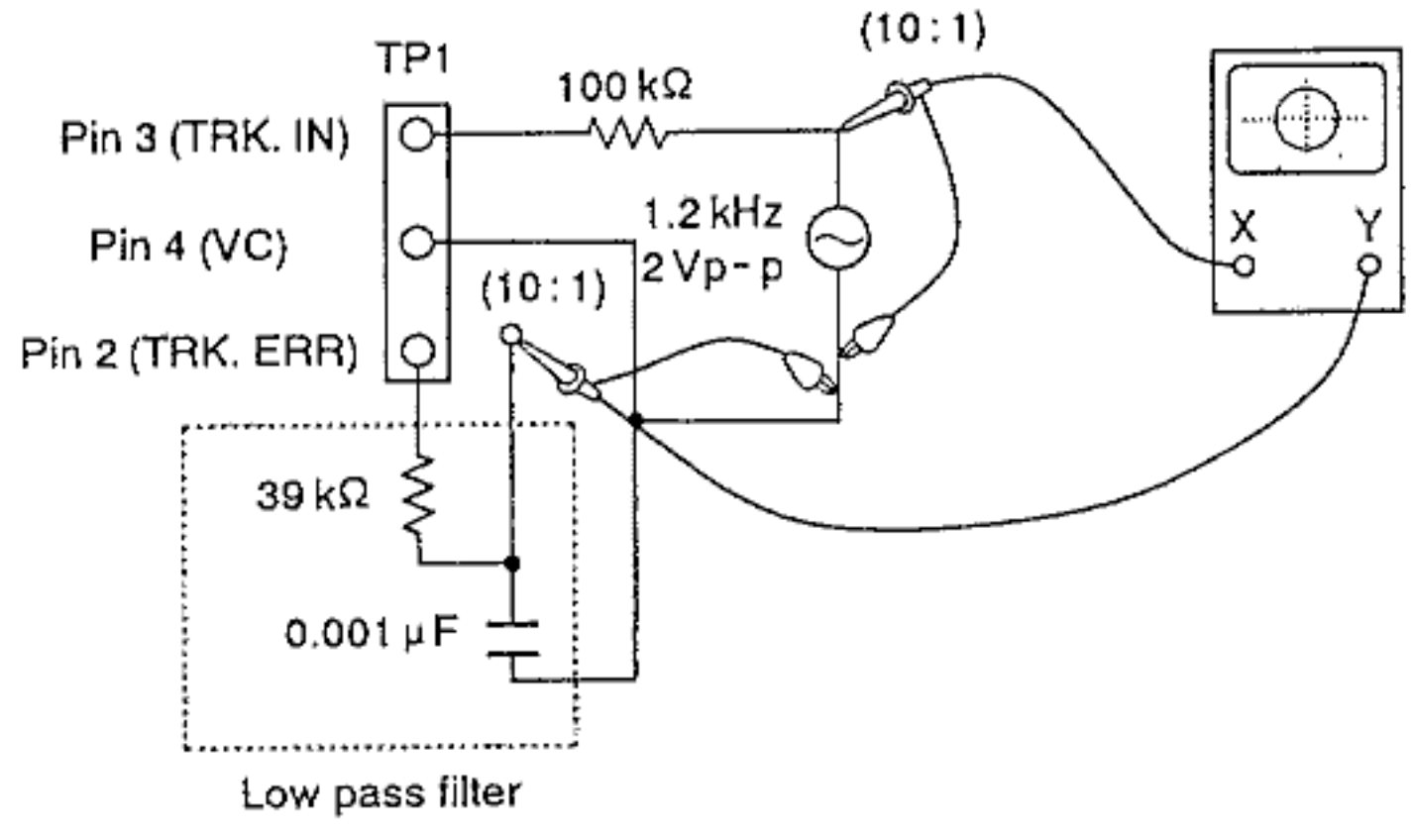
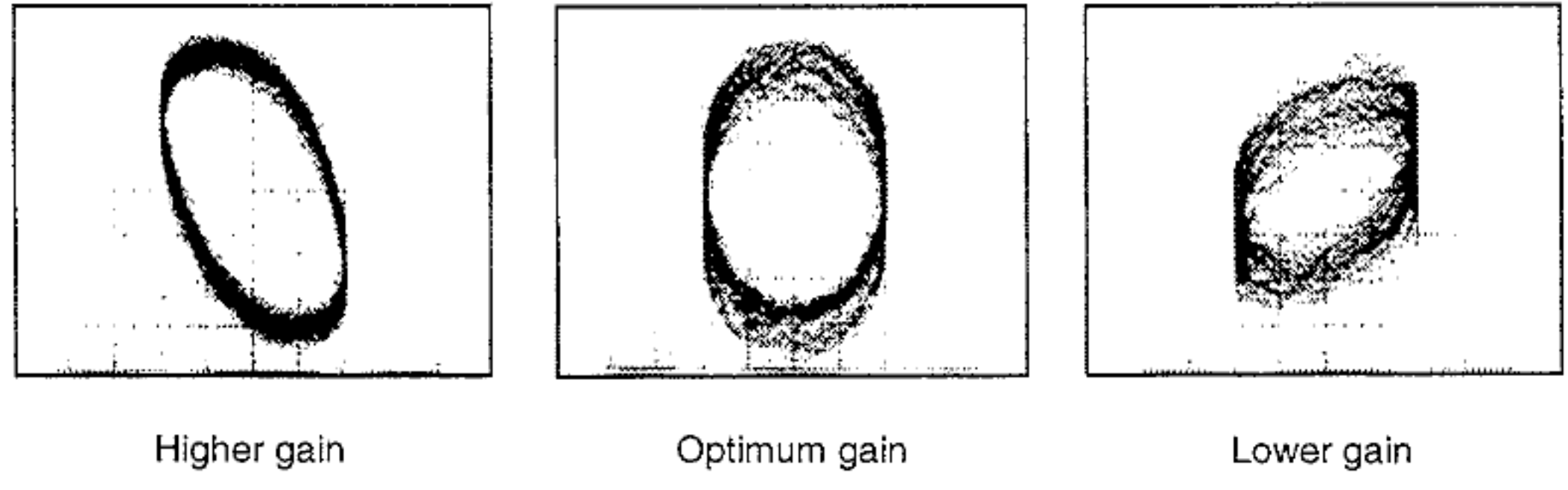


Fig. 5

Tracking Gain Adjustment



## 6. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### ■ PD4590A (MOTHER BOARD ASSY, IC351)

#### SYSTEM CONTROL

##### ● Pin Function

Pin No.	NAME	I/O	FUNCTION
1	$\overline{\text{REST}}$	–	CPU reset (L : Reset)
2	G1	O	FL drive digit output
3	G2	O	FL drive digit output
4	G3	O	FL drive digit output
5	G4	O	FL drive digit output
6	G5	O	FL drive digit output
7	G6	O	FL drive digit output
8	G7	O	FL drive digit output
9	G8	O	FL drive digit output
10	G9	O	FL drive digit output
11	G10	O	FL drive digit output
12	$\overline{\text{MUTE}}$	O	Muting output (L : Muting, H : OFF)
13	SYC3	O	Sync output
14	VOLL	O	Electrically operated volume LED output (L : Goes off, H : Lights)
15	STBY	O	Standby LED output (L : Goes off, H : Lights), OSCE output
16	SEG l	O	FL drive segment output
17	SEG k	O	FL drive segment output
18	VLOAD	–	–26V
19	VPRE	–	–5V
20	SEG j	O	FL drive segment output
21	SEG i	O	FL drive segment output
22	SEG d	O	FL drive segment output
23	SEG c	O	FL drive segment output
24	SEG b	O	FL drive segment output
25	SEG a	O	FL drive segment output
26	VDD	–	+5V
27	SEG h	O	FL drive segment output
28	SEG g	O	FL drive segment output
29	SEG f	O	FL drive segment output
30	SEG e	O	FL drive segment output
31	SYC1	I	Sync input (Pull-up required.)
32	CLOK	O	Serial clock and model switching discrimination port *Note 2

Pin No.	NAME	I/O	FUNCTION
33	DATA	O	LSI control data serial output
34	SQSO	I	Subcode Q data serial input
35	RMDT	I	Remote control data input
36	SCOR	I	Subcode sync S0+S1 input
37	$\overline{\text{INS}}\overline{\text{D}}$	I	Slider inside SW input (L : Inside)
38	FCOK	I	Focus OK input (H : OK, L : NG)
39	VOLD	O	Electrically operated volume up/down (*Note 3)
40	VOLU	O	
41	LIN	O	Disc tray in/out (*Note 4)
42	LOUT	O	
43	NC	O	Not used. (open)
44	NC	O	
45	$\overline{\text{OPEN}}$	I	Disc tray opening completion SW input
46	$\overline{\text{CLPM}}$	I	Disc tray clamping completion SW input
47	NC	O	Not used. (open)
48	NC	O	
49	SENS	I	LSI operating status multiple modes input
50	GFS	I	Frame sync lock input (H : OK, L : NG)
51	MUTE	O	Muting output (H : Muting, L : OFF)
52	DLAT	O	Digital filter IC latch pulse
53	XLAT	O	LSI control data latch pulse
54	$\overline{\text{XRST}}$	O	LSI reset (L : Reset, H : Cancel)
55	$\overline{\text{LDON}}$	O	Laser diode output (H : OFF, L : ON)
56	X1	-	Main system clock oscillation (4.194304 MHz)
57	X2	-	
58	Vss	-	GND
59	XT1	-	GND
60	XT2	-	Not used. (open)
61	KD0/TEST	I	Key scanning input and TEST mode request input *Note 1
62	KD1	I	Key scanning input
63	KD2	I	Key scanning input
64	KD3	I	Key scanning input

\*Note 1 ..... Discriminated when the power is ON.

\*Note 2 ..... Discriminated when the inlet is ON.

H : (Electrically operated volume)

L : (ATT)

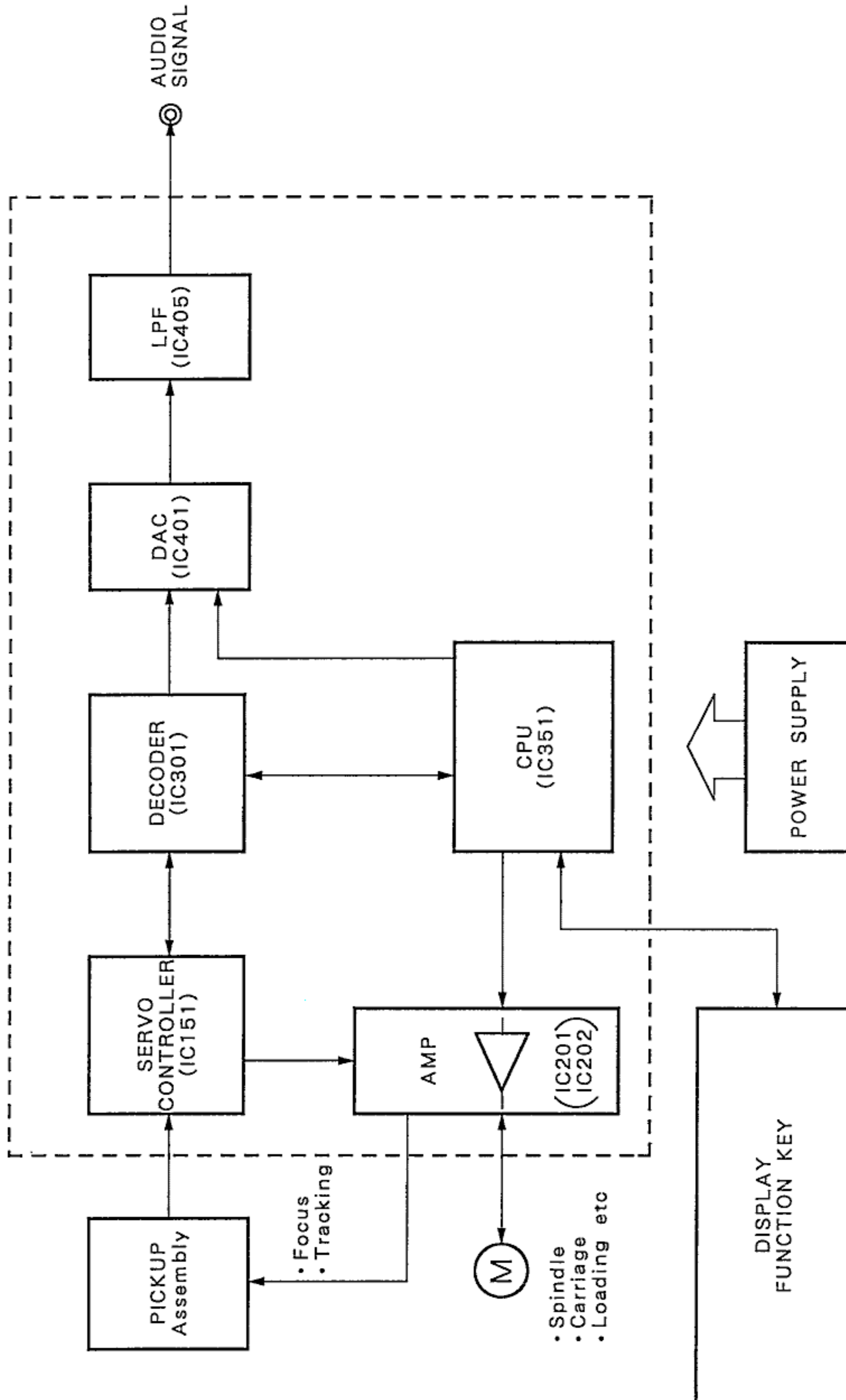
\*Note 3

	VOLD	VOLU
Volume UP	L	H
DOWN	H	L
STOP	L	L

\*Note 4

	LOUT	LIN
Tray IN	L	H
OUT	H	L
STOP	L	L

## 7. BLOCK DIAGRAM



## 8. CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

### ■ CONTRAST OF PD-204/WBWXK, WPWXJ, WLXJ, RDXJ, AND WEMXK

PD-204/WBWXK, WPWXJ, WLXJ, RDXJ and WEMXK have the same construction except for the following :

Mark	Symbol & Description	Part No.					Remarks
		PD-204					
		WEMXK	WBWXK	WPWXJ	WLXJ	RDXJ	
$\Delta$	MOTHER BOARD ASSY	PWM1936	PWM1936	PWM1937	PWM1937	PWM1938	
NSP	SUB BOARD ASSY	PWX1396	PWX1396	PWX1395	PWX1395	PWX1395	
	└─ FUNCTION BOARD ASSY	PWZ2933	PWZ2933	PWZ2932	PWZ2932	PWZ2932	
NSP	└─ SWITCH BOARD ASSY	PWZ2940	PWZ2940	PWZ2939	PWZ2939	PWZ2939	
	└─ HEADPHONE BOARD ASSY	PWZ2948	PWZ2948	PWZ2947	PWZ2947	PWZ2947	
$\Delta$	AC power cord	PDG1003	PDG1055	RDG1022	PDG1003	PDG1056	
$\Delta$	Fuse (T5A)	Not Used	PEK1003	Not Used	Not Used	Not Used	* 1
$\Delta$	Power transformer (AC220-240V)	PTT1236	PTT1236	PTT1236	PTT1236	Not Used	
$\Delta$	Power transformer (AC110-127V/220-240V)	Not Used	Not Used	Not Used	Not Used	PTT1238	
	Function panel	PNW2546	PNW2546	PNW2545	PNW2545	PNW2545	
	Display window WT	PAM1665	PAM1665	Not Used	Not Used	Not Used	
	Display window OR	Not Used	Not Used	PAM1666	PAM1666	PAM1666	
	Insulator	PNW1912	PNW1912	Not Used	Not Used	Not Used	
	Foot assy	Not Used	Not Used	AEC1531	AEC1531	AEC1531	* 1
	Rubber sheet	Not Used	Not Used	AEB1111	AEB1111	AEB1111	* 1
NSP	Bonnet	PYY1183	PYY1183	PYY1182	PYY1182	PYY1182	
	Under base	PNA2219	PNA2219	PNA2177	PNA2177	PNA2177	
	Rear base	PNA2188	PNA2189	PNA2191	PNA2192	PNA2190	
	Operating instructions (English)	PRB1223	PRB1223	Not Used	Not Used	Not Used	
	Operating instructions (German/French/Italian/Dutch/Swedish/Spanish/Portuguese)	PRE1212	Not Used	Not Used	Not Used	Not Used	
	Operating instructions (English/Spanish/Chinese)	Not Used	Not Used	PRE1213	PRE1213	PRE1213	
	Packing case	PHG2153	PHG2113	PHG2111	PHG2111	PHG2111	
	Protector front	Not Used	PHA1239	Not Used	Not Used	Not Used	* 1
	Protector rear	Not Used	PHA1254	Not Used	Not Used	Not Used	* 1
	Spacer	Not Used	PHC1075	Not Used	Not Used	Not Used	* 1
	Protector R	Not Used	Not Used	PHA1289	PHA1289	PHA1289	* 1
	Protector L	Not Used	Not Used	PHA1290	PHA1290	PHA1290	* 1
	Paper protector	PHA1297	Not Used	Not Used	Not Used	Not Used	
	Paper spacer	PHA1298	Not Used	Not Used	Not Used	Not Used	
	Packing sheet	AHG1090	Z23 - 007	Z23 - 007	Z23 - 007	Z23 - 007	
NSP	Caution label HE	PRW1233	Not Used	Not Used	Not Used	Not Used	
	Caution label (F)	VRW - 328	VRW - 328	Not Used	VRW - 328	Not Used	
	Caution label (G)	VRW - 329	VRW - 329	Not Used	VRW - 329	Not Used	
	Caution label	VRW1094	Not Used	Not Used	Not Used	Not Used	
	Caution label	Not Used	PRW1018	PRW1018	PRW1018	Not Used	* 2
	Polyethylene bag	Z21 - 038	Not Used	Z21 - 038	Z21 - 038	Z21 - 038	
	Polyethylene bag	Not Used	Z21 - 013	Not Used	Not Used	Not Used	For AC power cord

Note \* 1: Refer to "2. EXPLODED VIEWS, PACKING AND PARTS LIST".  
\* 2: Refer to page 2.

■ CONTRAST OF PD-104/WEMXK, WBWXK, WPWXJ, WLXJ, RDXJ, AND PD-204/WEMXK

PD-104/WEMXK, WBWXK, WPWXJ, WLXJ, RDXJ and PD-204/WEMXK have the same construction except for the following :

Mark	Symbol & Description	Part No.						Remarks
		PD-204/ WEMXK	PD-104/ WEMXK	PD-104/ WBWXK	PD-104/ WPWXJ	PD-104/ WLXJ	PD-104/ RDXJ	
△ NSP	MOTHER BOARD ASSY	PWM1936	PWM1931	PWM1931	PWM1932	PWM1932	PWM1933	
	SUB BOARD ASSY	PWX1396	PWX1394	PWX1394	PWX1393	PWX1393	PWX1393	
	└─ FUNCTION BOARD ASSY	PWZ2933	PWZ2931	PWZ2931	PWZ2930	PWZ2930	PWZ2930	
NSP	└─ SWITCH BOARD ASSY	PWZ2940	PWZ2940	PWZ2940	PWZ2939	PWZ2939	PWZ2939	
	└─ HEADPHONE BOARD ASSY	PWZ2948	PWZ2946	PWZ2946	Not Used	Not Used	Not Used	
△	AC power cord	PDG1003	PDG1003	PDG1055	RDG1022	PDG1003	PDG1056	* 1
△	Fuse (T5A)	Not Used	Not Used	PEK1003	Not Used	Not Used	Not Used	
△	Power transformer (AC220-240V)	PTT1236	PTT1236	PTT1236	PTT1236	PTT1236	Not Used	
△	Power transformer (AC110-127V/220-240V)	Not Used	Not Used	Not Used	Not Used	Not Used	PTT1238	
	32P FFC/30V	PDD1041	Not Used	Not Used	Not Used	Not Used	Not Used	
	30P FFC/30V	Not Used	PDD1049	PDD1049	PDD1049	PDD1049	PDD1049	
	Function panel	PNW2546	PNW2544	PNW2544	PNW2540	PNW2540	PNW2540	
	Display window WT	PAM1665	PAM1661	PAM1661	Not Used	Not Used	Not Used	
	Display window OR	Not Used	Not Used	Not Used	PAM1667	PAM1667	PAM1667	
	Tray name plate	PNW2539	PNW2539	PNW2539	PNW2547	PNW2547	PNW2547	
	Headphone knob	PAC1707	PAC1707	PAC1707	Not Used	Not Used	Not Used	
	Insulator	PNW1912	PNW1912	PNW1912	Not Used	Not Used	Not Used	
	Foot assy	Not Used	Not Used	Not Used	AEC1531	AEC1531	AEC1531	* 1
	Rubber sheet	Not Used	Not Used	Not Used	AEB1111	AEB1111	AEB1111	* 1
	Bonnet	PYY1183	PYY1183	PYY1183	PYY1182	PYY1182	PYY1182	
NSP	Under base	PNA2219	PNA2219	PNA2219	PNA2177	PNA2177	PNA2177	
	Rear base	PNA2188	PNA2178	PNA2184	PNA2186	PNA2187	PNA2185	
	Operating instructions (English)	PRB1223	PRB1223	PRB1223	Not Used	Not Used	Not Used	
	Operating instructions (German/French/Italian/Dutch/Swedish/Spanish/Portuguese)	PRE1212	PRE1212	Not Used	Not Used	Not Used	Not Used	
	Operating instructions (English/Spanish/Chinese)	Not Used	Not Used	Not Used	PRE1213	PRE1213	PRE1213	
	Remote control unit	PWW1061	Not Used	Not Used	Not Used	Not Used	Not Used	
	Battery cover	PZN1010	Not Used	Not Used	Not Used	Not Used	Not Used	
NSP	Battery (R03, AAA)	VEM - 022	Not Used	Not Used	Not Used	Not Used	Not Used	
	Cord with mini plug	Not Used	PDE1247	PDE1247	PDE1247	PDE1247	PDE1247	For packing
	Packing case	PHG2153	PHG2152	PHG2109	PHG2105	PHG2105	PHG2105	
	Protector front	Not Used	Not Used	PHA1239	Not Used	Not Used	Not Used	* 1
	Protector rear	Not Used	Not Used	PHA1254	Not Used	Not Used	Not Used	* 1
	Spacer	Not Used	Not Used	PHC1075	Not Used	Not Used	Not Used	* 1
	Protector R	Not Used	Not Used	Not Used	PHA1289	PHA1289	PHA1289	* 1
	Protector L	Not Used	Not Used	Not Used	PHA1290	PHA1290	PHA1290	* 1
	Paper protector	PHA1297	PHA1297	Not Used	Not Used	Not Used	Not Used	
	Paper spacer	PHA1298	PHA1298	Not Used	Not Used	Not Used	Not Used	
	Packing sheet	AHG1090	AHG1090	Z23 - 007	Z23 - 007	Z23 - 007	Z23 - 007	
	Caution label HE	PRW1233	PRW1233	Not Used	Not Used	Not Used	Not Used	
NSP	Caution label (F)	VRW - 328	VRW - 328	VRW - 328	Not Used	VRW - 328	Not Used	
	Caution label (G)	VRW - 329	VRW - 329	VRW - 329	Not Used	VRW - 329	Not Used	
	Caution label	VRW1094	VRW1094	Not Used	Not Used	Not Used	Not Used	* 2
	Caution label	Not Used	Not Used	PRW1018	PRW1018	PRW1018	Not Used	
	Polyethylene bag	Z21 - 038	Not Used	Not Used	Not Used	Not Used	Not Used	
	Polyethylene bag	Not Used	Not Used	Z21 - 013	Not Used	Not Used	Not Used	For AC power cord

Note \* 1: Refer to "2. EXPLODED VIEWS, PACKING AND PARTS LIST".  
\* 2: Refer to page 2.

■ **CONTRAST OF PD-004/WEXK/FR AND PD-204/WEMXK**

PD-004/WEXK/FR and PD-204/WEMXK have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		PD-204/ WEMXK	PD-004/ WEXK/FR	
Δ	MOTHER BOARD ASSY	PWM1936	PWM1929	
NSP	SUB BOARD ASSY	PWX1396	PWX*392	
NSP	└─ FUNCTION BOARD ASSY	PWZ2933	PWZ2929	
	└─ SWITCH BOARD ASSY	PWZ2940	PWZ2938	
	└─ HEADPHONE BOARD ASSY	PWZ2948	Not Used	
	32P FFC/30V	PDD1041	Not Used	
	30P FFC/30V	Not Used	PDD1049	
	Function panel	PNW2546	PNW2543	
	Display window WT	PAM1665	PAM1664	
	10 key	PAC1797	Not Used	
	Tray name plate	PNW2539	PNW2547	
	Headphone knob	PAC1707	Not Used	
	Insulator	PNW1912	Not Used	
	Foot assy	Not Used	AEC1222	* 1
	Rubber sheet	Not Used	AEB1111	* 1
	Rear base	PNA2188	PNA2183	
	Operating instruction (English)	PRB1223	Not Used	
	Operating instructions (German/French/Italian/Dutch/ Swedish/Spanish/Portuguese)	PRE1212	Not Used	
	Operating instructions (French)	Not Used	PRD1003	
	Remote control unit	PWW1061	Not Used	
NSP	Battery cover	PZN1010	Not Used	
	Battery (R03, AAA)	VEM - 022	Not Used	
	Cord with mini plug	Not Used	PDE1247	For packing
	Packing case	PHG2153	PHG2154	
	Polyethylene bag	Z21 - 038	Not Used	

Note \* 1: Refer to "2. EXPLODED VIEWS, PACKING AND PARTS LIST".



**MOTHER BOARD ASSY**

PWM1937, PWM1938, PWM1931, PWM1932, PWM1933, PWM1929 and PWM1936 have the same construction except for the following:

Mark	Symbol & Description	Part No.							Remarks
		PWM1936	PWM1937	PWM1938	PWM1931	PWM1932	PWM1933	PWM1929	
	C29	CEAS101M35	CEAS101M35	CEAS101M35	Not Used	Not Used	Not Used	Not Used	* 3
	C393	Not Used	Not Used	Not Used	CCCSL101J50	CCCSL101J50	CCCSL101J50	CCCSL101J50	
	C413 – C416	CFTYA104J50	CFTYA104J50	CFTYA104J50	CFTYA104J50	CFTYA104J50	CFTYA104J50	CFTYA104J50	
	C433, C434	PCH1107	PCH1107	PCH1107	CEAS220M25	CEAS220M25	CEAS220M25	CEAS220M25	
	C441, C442	PCL1030	PCL1030	PCL1030	PCL1030	PCL1030	PCL1030	CKCYB152K50	
	CN351	9604S – 32C	9604S – 32C	9604S – 32C	9604S – 30C	9604S – 30C	9604S – 30C	9604S – 30C	
	CN401	52147 – 0310	52147 – 0310	52147 – 0310	52147 – 0310	Not Used	Not Used	Not Used	* 3
	D392 – D394	Not Used	Not Used	Not Used	1SS254	1SS254	1SS254	1SS254	
	D451, D452	1SS254	1SS254	1SS254	1SS254	Not Used	Not Used	Not Used	
	IC405	NJM4565D-D	NJM4565D-D	NJM4565D-D	NJM4558D-D	NJM4558D-D	NJM4558D-D	NJM4558D-D	
	IC406	BA15218	BA15218	BA15218	BA15218	Not Used	Not Used	Not Used	* 3
	JA391, JA392	Not Used	Not Used	Not Used	RKN1004	RKN1004	RKN1004	RKN1004	
	L391	Not Used	Not Used	Not Used	LAU010J	LAU010J	LAU010J	LAU010J	* 3
	Q451, Q452	DTC124ES	DTC124ES	DTC124ES	DTC124ES	Not Used	Not Used	Not Used	* 3
	Q453, Q454	2SJ103	2SJ103	2SJ103	2SJ103	Not Used	Not Used	Not Used	
	R391	Not Used	Not Used	Not Used	RD1/6PM244J	RD1/6PM244J	RD1/6PM244J	RD1/6PM244J	* 3
	R392	Not Used	Not Used	Not Used	RD1/6PM102J	RD1/6PM102J	RD1/6PM102J	RD1/6PM102J	* 3
	R451, R452	RD1/6PM103J	RD1/6PM103J	RD1/6PM103J	RD1/6PM103J	Not Used	Not Used	Not Used	* 3
	R457, R458, R472, R473	RD1/6PM102J	RD1/6PM102J	RD1/6PM102J	RD1/6PM102J	Not Used	Not Used	Not Used	
	R470, R471	RD1/6PM470J	RD1/6PM470J	RD1/6PM470J	RD1/6PM470J	Not Used	Not Used	Not Used	
	S5	Not Used	Not Used	PSB1006	Not Used	Not Used	PSB1006	Not Used	

Note \*3: Refer to "3. SCHEMATIC AND PCB CONNECTION DIAGRAMS".

**FUNCTION BOARD ASSY**

PWZ2932, PWZ2931, PWZ2930, PWZ2929 and PWZ2933 have the same construction except for the following:

Mark	Symbol & Description	Part No.					Remarks
		PWZ2933	PWZ2932	PWZ2931	PWZ2930	PWZ2929	
	CN 701	9607S – 32F	9607S – 32F	9607S – 30F	9607S – 30F	9607S – 30F	
	D705, D706	1SS254	1SS254	1SS254	1SS254	Not Used	
	S715 – S724, S728	PSG1006	PSG1006	PSG1006	PSG1006	Not Used	
	Remote Sensor	SBX1785-51	SBX1785-51	Not Used	Not Used	Not Used	

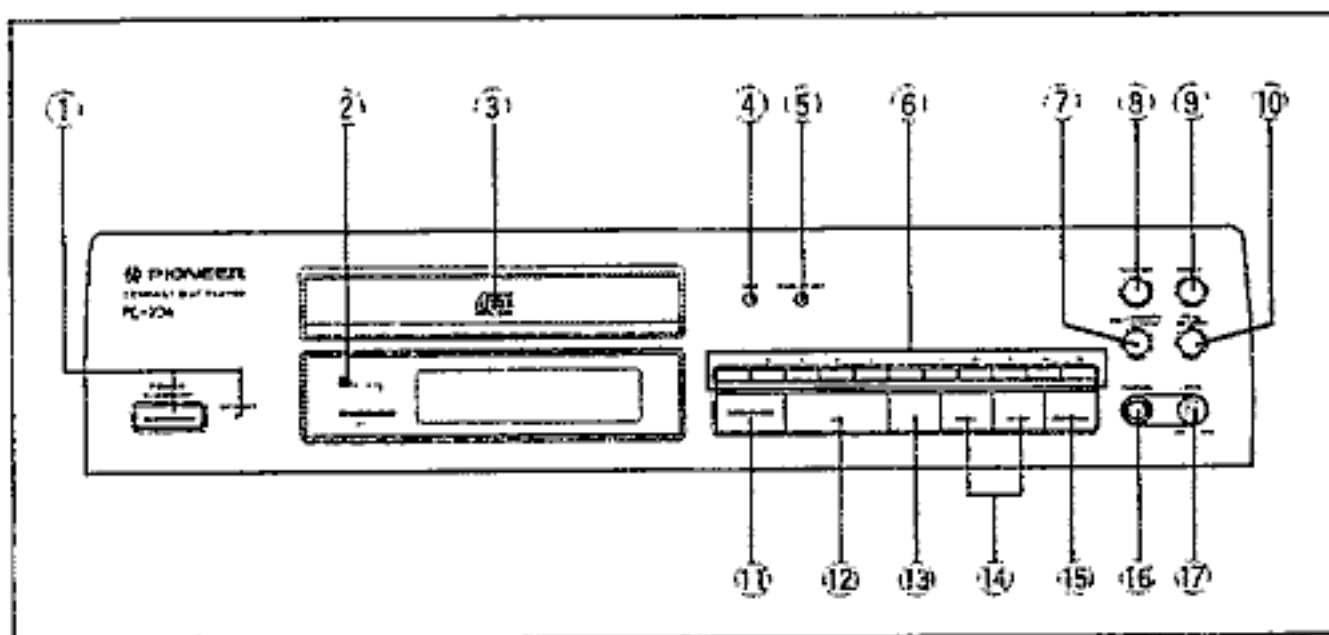
**SWITCH BOARD ASSY**

Although PWZ2938, PWZ2939 and PWZ2940 are different in part number, they consist of the same component.

**HEADPHONE BOARD ASSY**

Although PWZ2946, PWZ2947 and PWZ2948 are different in part number, they consist of the same component.

## 9. PANEL FACILITIES



### FRONT PANEL

- ① **POWER STANDBY/ON switch and STANDBY indicator**
- ② **Remote sensor**  
Receives the signal from the remote control unit.  
• The PD-104 is not equipped with the remote sensor.
- ③ **Disc tray**
- ④ **TIME button**
- ⑤ **DISPLAY OFF button**
- ⑥ **Digit buttons**  
(1 - 10, >10)
- ⑦ **COMPU/AUTO EDIT button**
- ⑧ **RANDOM button**
- ⑨ **REPEAT button**
- ⑩ **PEAK SEARCH button**
- ⑪ **OPEN/CLOSE button (▲)**
- ⑫ **Play/Pause button (▶/||)**
- ⑬ **Stop button (■)**
- ⑭ **Track/Manual search buttons**  
(◀◀ ◀▶ / ▶▶ ▶▶)
- ⑮ **PROGRAM button**
- ⑯ **Headphones jack (PHONES)**
- ⑰ **Headphones volume control (LEVEL)**

## 10. SPECIFICATIONS

### 1. General

Type .....	Compact disc digital audio system
Power requirements .....	AC 220 - 240 V, 50/60 Hz
Power consumption .....	12 W
Operating temperature .....	+5°C - +35°C
Weight .....	3.1 kg
External dimensions .....	420(W) X 101(H) X 267(D) mm

### 2. Audio section

Frequency response .....	2 Hz - 20 kHz
S/N ratio .....	102 dB or more (EIAJ)
Dynamic range .....	96 dB or more (EIAJ)
Harmonic distortion .....	0.003% or less (EIAJ)
Output voltage .....	2.0 V (EIAJ)
Wow and flutter .....	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Channels .....	2-channel (stereo)

### 3. Output terminal

Audio line output jacks  
Control input/output jacks (available with the PD-104)  
CD-DECK SYNCHRO jack  
Headphones jack (with volume control)

### 4. Accessories

• Remote control unit (PD-204 only) .....	1
• AAA/R03 dry cell batteries (PD-204 only) .....	2
• Control cable (PD-104 only) .....	1
• Output cable .....	1
• Operating instructions .....	1
• Warranty Card .....	1

#### NOTE:

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