

Service Manual

ORDER NO.
RRV1322

FILE-TYPE COMPACT DISC PLAYER

PD-F100E

PD-F904

● Refer to the service manual RRV1225 for PD – F904/KU/CA.

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 – F100E	PD – F904		
RD	○	○	AC110 – 127V/220 – 240V	With the voltage selector
WEM	○	—	AC220 – 240V	—

4212

1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!

AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.
ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:

USYNLIG LASERSTRÅLING VED ÅBNING
NÅR SIKKERHEDSAFBRYDERE ER UDE AF
FUNKTION UDGÅ UDSÆTTELSE FOR
STRÅLING.

VARNING!

OSYNLIG LASERSTRÅLNING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.



LASER
Kuva 1
Lasersäteilyn
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

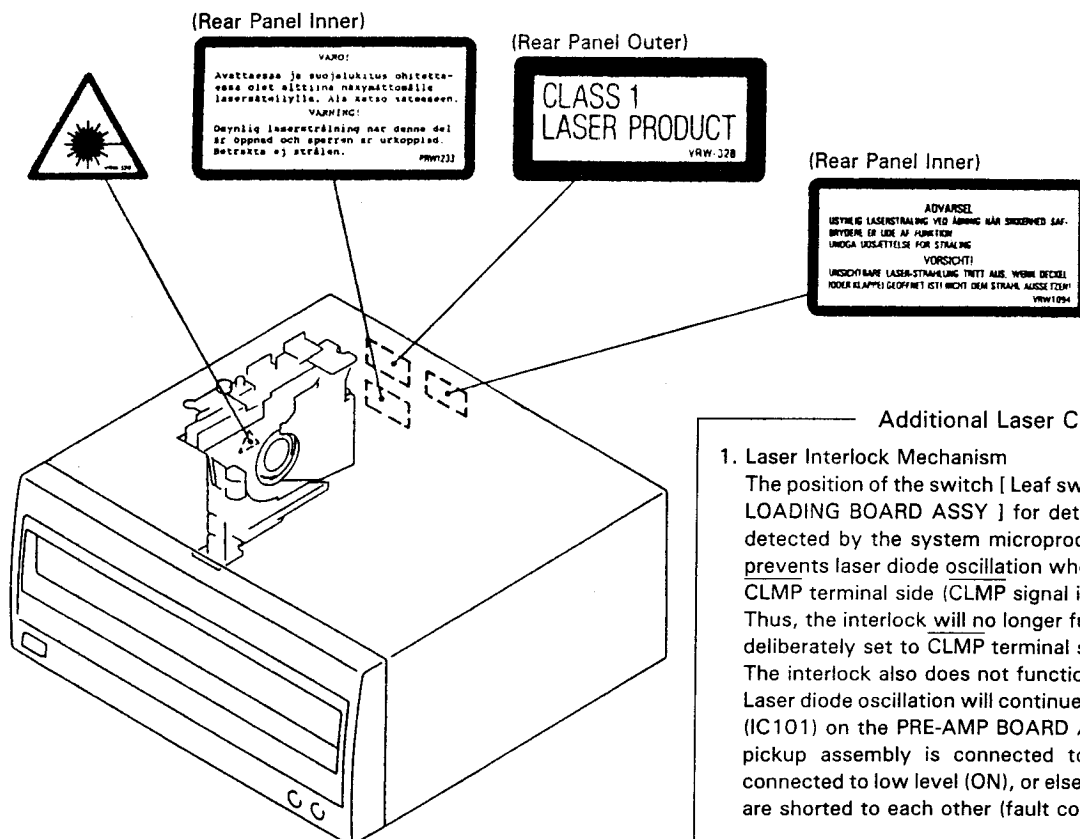
IMPORTANT

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 (PD-F100E/WEM Only)



Additional Laser Caution

1. Laser Interlock Mechanism

The position of the switch [Leaf switch (VSK1011) on the LOADING BOARD ASSY] for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch is not on CLMP terminal side (CLMP signal is OFF or high level.). Thus, the interlock will no longer function if the switch 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).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

*: Refer to page 29 in the service manual RRV1225 for PD-F904/KU/CA.

2. CONTRAST OF MISCELLANEOUS PARTS

NOTES :

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ 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%).

560Ω → 56 × 10¹ → 561 RD1/8PM $\begin{smallmatrix} 5 & 6 & 1 \\ J \end{smallmatrix}$

47kΩ → 47 × 10³ → 473 RD1/4PS $\begin{smallmatrix} 4 & 7 & 3 \\ J \end{smallmatrix}$

0.5Ω → 0R5 RN2H $\begin{smallmatrix} 0 & 5 \\ K \end{smallmatrix}$

1Ω → 010 RS1P $\begin{smallmatrix} 0 & 1 & 0 \\ K \end{smallmatrix}$

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10¹ → 5621 RM1/4PC $\begin{smallmatrix} 5 & 6 & 2 \\ F \end{smallmatrix}$

PD-F100E/RD, WEM, PD-F904/RD and PD-F904/KU/CA have the same construction except for the following :

Mark	Symbol & Description	Part No.				Remarks
		PD-F904/ KU/CA	PD-F100E/ RD	PD-F100E/ WEM	PD-F904/ RD	
Δ	● Exterior					
	AC power cord	PDG1015	PDG1056	PDG1003	PDG1056	
	Cord stopper (PLASTIC)	CM-22C	CM-22B	CM-22B	CM-22B	
	6S label	ORW1069	Not used	Not used	Not used	
	Rope unit	PBL1007	PBL1005	PBL1007	PBL1005	
	Rear base	PNA2218	PNA2232	PNA2231	PNA2230	
	MAIN BOARD assy	PWZ3077	PWZ3079	PWZ3078	PWZ3079	
	OUTPUT BOARD assy	PWZ3080	PWZ3080	PWZ3081	PWZ3080	
	POWER BOARD assy	PWZ3065	PWZ3067	PWZ3066	PWZ3067	
	I/O CONNECTOR BOARD assy	PWX1390	Not used	PWX1390	Not used	
NSP	Loading mechanism assy	PXA1571	PXA1567	PXA1571	PXA1567	
	Label	Not used	PRW1408	PRW1408	PRW1408	*1
	Foot assy (REAR)	AEC1531	AEC1531	Not used	AEC1531	
	Insulator assy (REAR)	Not used	Not used	PNW1912	Not used	
	● Door Panel Assy					
	Sheet G	PAM1680	PAM1689*2	PAM1689*2	PAM1689*2	(*2: Sheet GPS)
	Door stay	PNB1534	PNB1538	PNB1534	PNB1538	
	Escutcheon	PNW2383	PNW2601	PNW2383	PNW2601	
	Door panel	PNW2572	PNW2599	PNW2599	PNW2572	
	Front window	PNW2578	PNW2578	PNW2597	PNW2578	
NSP	● Packing					
	Packing case	PHG2133	PHG2146	PHG2145	PHG2144	
	Operating instructions (English)	PRB1227	Not used	Not used	Not used	
	Operating instructions (English/Spanish/Chinese)	Not used	PRE1222	Not used	PRE1222	
	Operating instructions (English/French)	Not used	Not used	PRE1221	Not used	
	Operating instructions (German/Italian/Dutch/Swedish/Spanish/Portuguese)	Not used	Not used	PRD1005	Not used	
	Wireless remote control unit	PWW1104	PWW1097	PWW1104	PWW1104	
	Cord with mini plug	PDE1247	PDE1247	Not used	PDE1247	
	● Others					
	Caution label HE	Not used	Not used	RRW1233	Not used	
NSP	Caution label (G)	Not used	Not used	VRW-329	Not used	
	Caution label	Not used	Not used	VRW1094	Not used	Refer to page 2.

Note *1: Refer to "■ EXPLODED VIEWS".

POWER BOARD Assy

PWZ3066, PWZ3067 and PWZ3065 have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		PWZ3065	PWZ3066	PWZ3067	
Δ	IC32-IC35	Not used	ICP-N10	ICP-N10	*
Δ	S5	Not used	Not used	PSB1006	*
Δ	Power transformer (AC120V)	PTT1297	Not used	Not used	
Δ	Power transformer (AC220-240V)	Not used	PTT1298	Not used	
Δ	Power transformer (AC110-127V/220-240V)	Not used	Not used	PTT1299	

Note *: Refer to SCH-1F.

MAIN BOARD Assy

PWZ3079, PWZ3078 and PWZ3077 have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		PWZ3077	PWZ3079	PWZ3078	
	R354	RS1/10S103J	Not used	Not used	*
	R353	Not used	RS1/10S103J	RS1/10S103J	
	CN353 9P jumper connector	52147-0910	Not used	52147-0910	

Note *: Refer to SCH-2F.

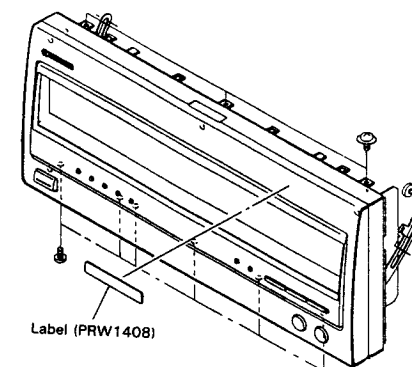
OUTPUT BOARD Assy

PWZ3081 and PWZ3080 have the same construction except for the following :

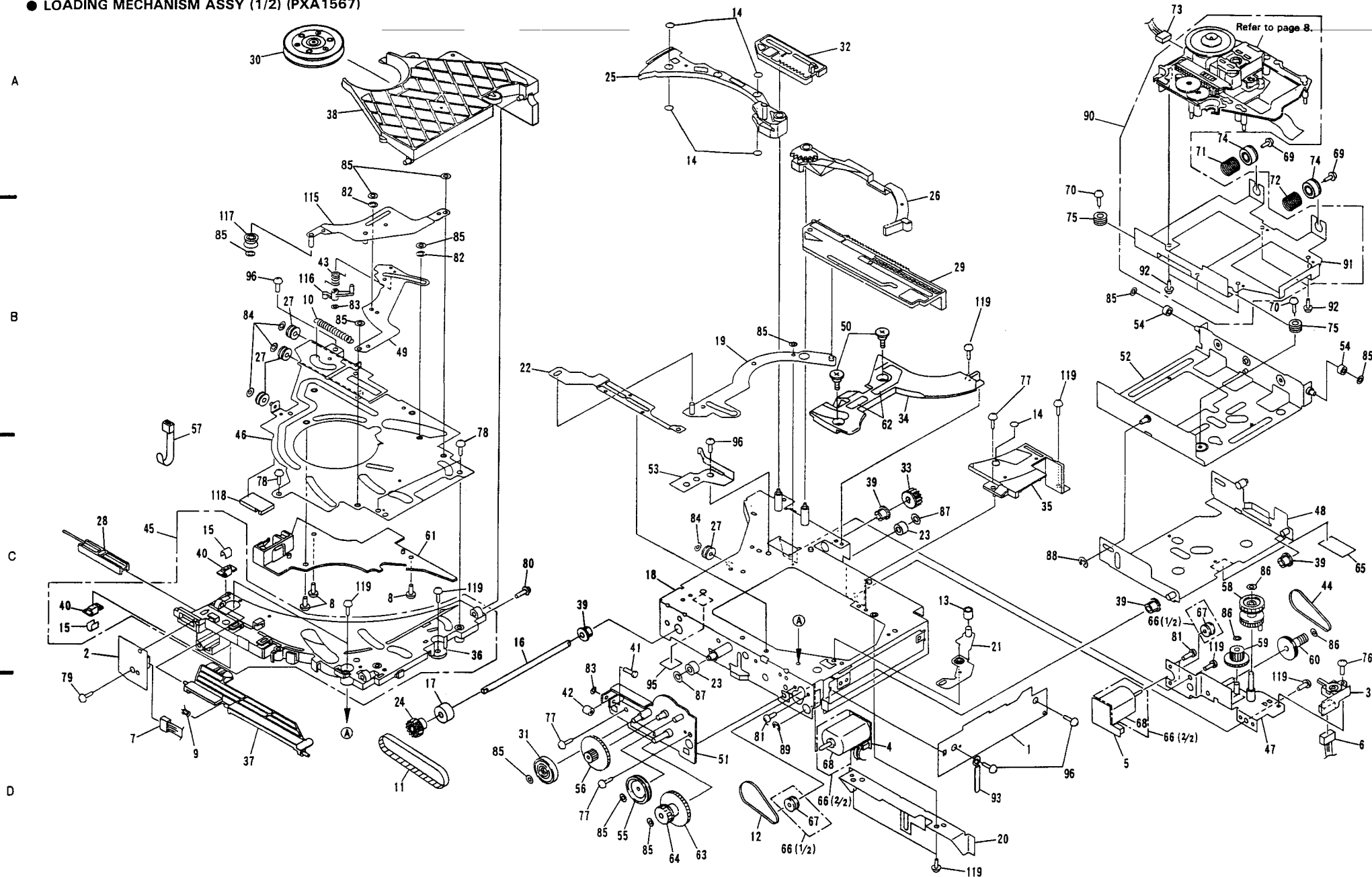
Mark	Symbol & Description	Part No.		Remarks
		PWZ3080	PWZ3081	
	JA392 Jack (SR OUT)	PKN1004	Not used	

■ EXPLODED VIEWS

● Exterior



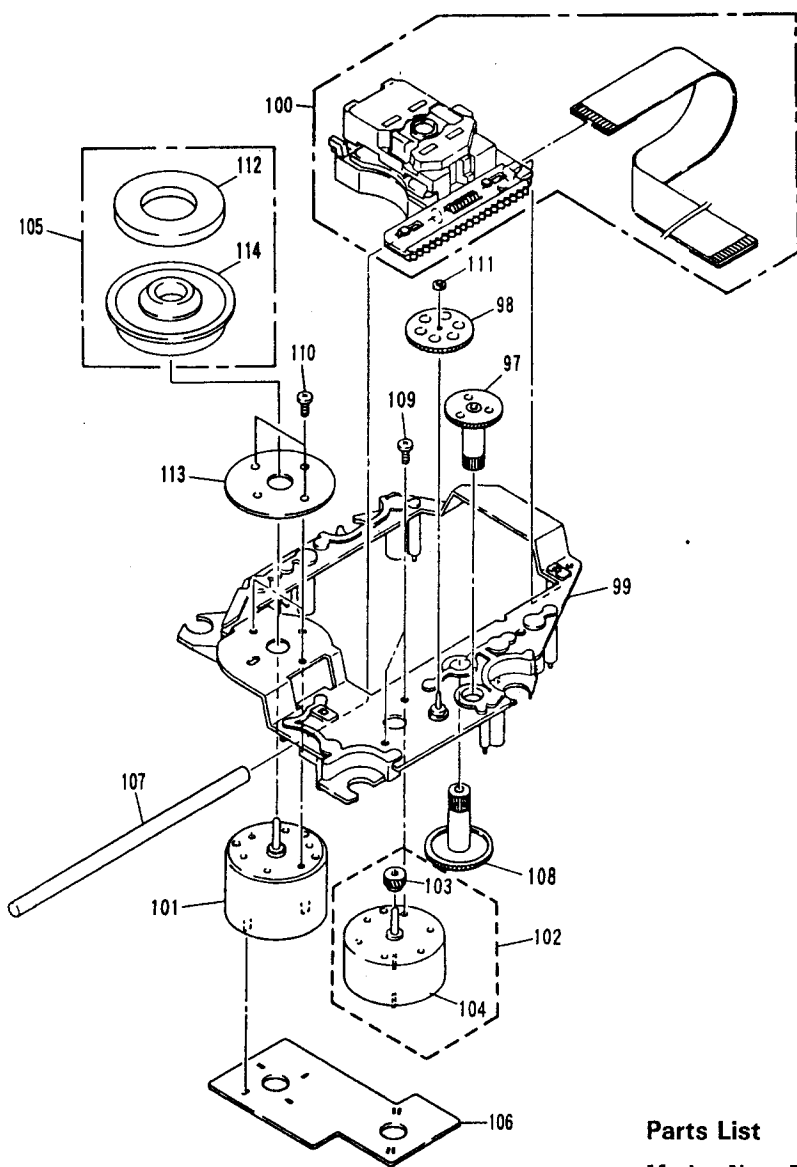
● LOADING MECHANISM ASSY (1/2) (PXA1567)



Parts List

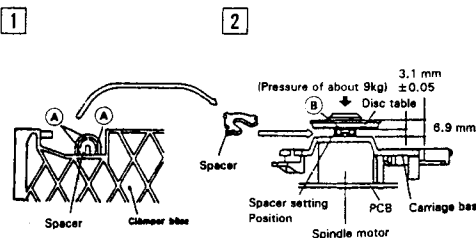
Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	1	MECHA BOARD ASSY	PWZ2776	51	GEAR ANGLE B	PNB1496	
NSP	2	SENSOR BOARD ASSY	PWZ2777	52	SLIDER	PNB1531	
NSP	3	LOADING BOARD ASSY	PWZ2778	53	UPPER PLATE	PBK1141	
NSP	4	SELECT MOTOR BOARD ASSY	PWZ2782	54	ROLLER	PNW1967	
NSP	5	LOADING MOTOR BOARD ASSY	PWZ2783	55	GEAR PULLEY	PNW2411	
	6	CONNECTOR ASSY (3P)	PDE1234	56	GEAR L	PNW2412	
	7	CONNECTOR ASSY (4P)	PDE1235	57	BINDER	Z09-056	
	8	SCREW	PBA1090	58	GEAR A	PNW2420	
	9	STOPPER SPRING	PBH1183	59	WORM WHEEL	PNW2421	
	10	ARM SPRING	PBH1202	60	WORM	PNW2422	
	11	BELT	PEB1268	61	C CUP	PNW2537	
	12	BELT	PEB1269	62	SHEET	PED1026	
	13	LEVER RUBBER	PEB1279	63	GEAR S	PNW2433	
	14	CUSHION (ART. SUEDE)	PED-049	64	SYNCHRO GEAR S	PNW2434	
NSP	15	CUSHION (ART. SUEDE)	PED1016	65	FLEXIBLE GUARD	PNM1264	
NSP	16	SYNCHRO SHAFT	PLA1131	66	MOTOR ASSY	PEA1320	
	17	SPACER	PLA1133	67	MOTOR PULLEY	PNW1634	
NSP	18	LOADING BASE	PNB1528	NSP 68	MOTOR	PXM1002	
NSP	19	LEVER	PNB1486	69	SCREW	PBA1084	
NSP	20	SLIDE ANGLE	PNB1489	70	SCREW	PBA1087	
	21	K LEVER	PNB1529	71	FLOAT SPRING	PBH1197	
	22	DRIVE LEVER	PNB1509	72	FLOAT SPRING B	PBH1198	
	23	ROLLER	PNW2299	73	CONNECTOR ASS'Y (4P)	PDE1240	
	24	SYNCHRO GEAR	PNW2413	74	FLOAT RUBBER	PEB1267	
	25	ARM A	PNW2554	75	RUBBER BUSHING	VEB1138	
	26	ARM B	PNW2541	76	SCREW	BBZ26P060FZK	
	27	PULLEY	PNW2416	77	SCREW	BBZ30P050FZK	
	28	SELECT LEVER	PNW2417	78	SCREW	BPZ30P080FMC	
	29	DRIVE PLATE	PNW2549	79	SCREW	BPZ30P060FZK	
	30	CLAMPER	PNW2569	80	SCREW	IBZ30P080FMC	
NSP	31	TENSIONER	PNW2423	81	SCREW	PMZ20P030FMC	
	32	RACK	PNW2555	82	WASHER	WA31D054D013	
	33	SUB GEAR	PNW2425	83	WASHER	WT17D034D025	
	34	A CUP	PNW2553	84	WASHER	WT21D050D025	
	35	B CUP	PNW2427	85	WASHER	WT26D047D025	
NSP	36	D CUP	PNW2429	86	WASHER	WT26D047D050	
	37	STOPPER	PNW2556	87	WASHER	WT34D072D025	
	38	CLAMPER BASE	PNW2432	88	E RING	YE25FUC	
	39	BUSHING	PNW2435	89	E RING	YE30FUC	
NSP	40	DISC GUIDE	PNW2550	NSP 90	SERVO MECHANISM ASS'Y B	PXA1539	
	41	ROLLER SHAFT	PLA1139	NSP 91	SERVO BASE	PNB1477	
	42	STOCKER ROLLER	DNK2391	92	SCREW	BPZ26P100FMC	
	43	SEARCH SPRING	PBH1201	93	BINDER	RNH-184	
	44	BELT A	PEB1244	94	.....		
	45	D CUP ASSY	PEA1329	95	DG SPACER	PNM1261	
	46	SIDE ANGLE	PNB1484	96	SCREW	BCZ30P050FMC	
	47	GEAR ANGLE	PNB1485	115	P LEVER B	PNB1492	
	48	SLIDE LINK	PNB1490	116	SEARCH LEVER	PNW2430	
	49	P LEVER A	PNB1491	117	C PULLEY	PNW2460	
	50	SCREW	PBA1099	118	ANGLE SPACER	PNM1257	
				119	SCREW	BBZ30P060FMC	

● **LOADING MECHANISM ASSY (2/2) (PXA1567)**
(Servo Mechanism Assy B)



● **How to install the disc table**

- 1 Use nippers or other tool to cut the three sections marked (A) and three sections marked (B) in figure. Then remove the spacer.
- 2 While supporting the spindle motor shaft with the stopper, put spacer on top of yoke M, and stick the disc table on top (takes about 9kg pressure). Detach the spacer.

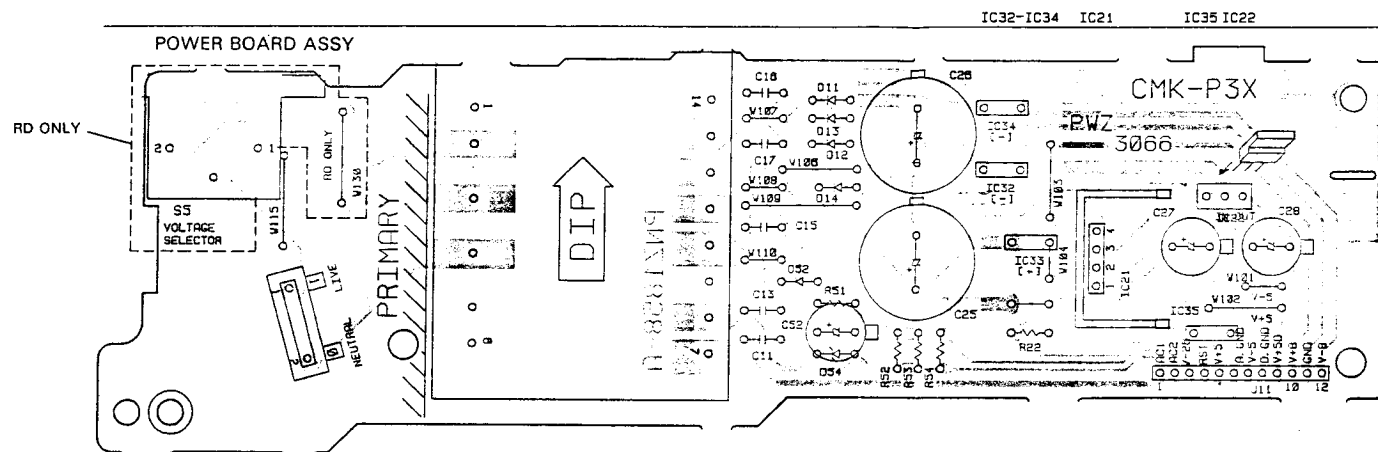


Parts List

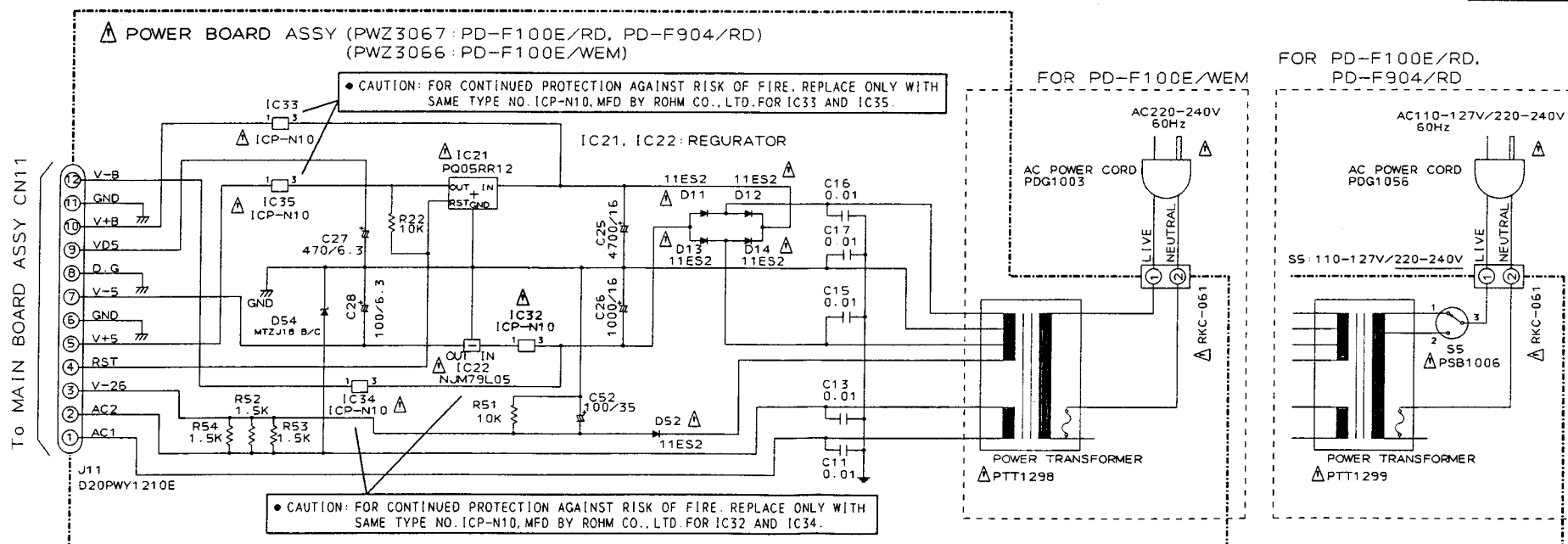
Mark	No.	Description	Parts No.
	97	GEAR 2 (POM)	PNW2053
	98	GEAR 3 (POM)	PNW2054
	99	CARRIDGE BASE (FE)	PNW2445
	100	PICK UP ASS'Y	PEA1319
	101	D.C. MOTOR ASSY (SPINDLE)	PEA1235
	102	D.C. MOTOR ASSY (CARRIAGE)	PEA1246
NSP	103	PINION GEAR (POM)	PNW2055
	104	DC MOTOR	PXM1027
	105	DISC TABLE ASS'Y	PEA1314
NSP	106	MECHANISM BOARD ASSY	PWX1192
	107	GUIDE BAR (STEEL)	PLA1094
	108	GEAR 1 (POM)	PNW2052
	109	SCREW	JFZ17P025FZK
	110	SCREW	JFZ20P040FMC
	111	WASHER	WT12D032D025
	112	CLAMP MAGNET	PMF1014
	113	YOKE M	PNB1312
NSP	114	DISC TABLE	PNW2410

3. SCHEMATIC AND PCB DIAGRAMS

3.1 POWER BOARD ASSY AND ADJACENCIES TO THE POWER TRANSFORMER



- This diagram is viewed from the mounted parts side.



SCH - 1F

POWER BOARD ASSY AND ADJACENCIES TO THE POWER TRANSFORMER

POWER BOARD ASSY AND ADJACENCIES TO THE POWER TRANSFORMER

SCH-1F

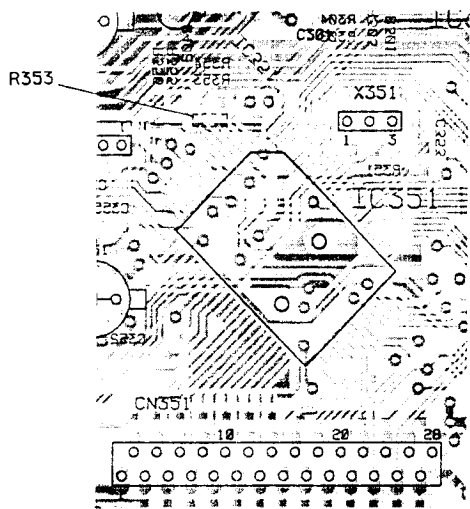
3.2 MAIN BOARD ASSY

Note:

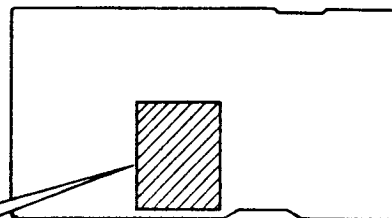
For MAIN BOARD assy, only the differences between PWZ3079, PWZ3078 and PWZ3077 are shown.

A

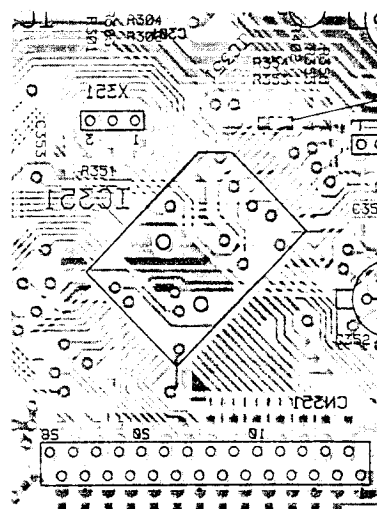
MAIN BOARD ASSY



B



PCB-2F

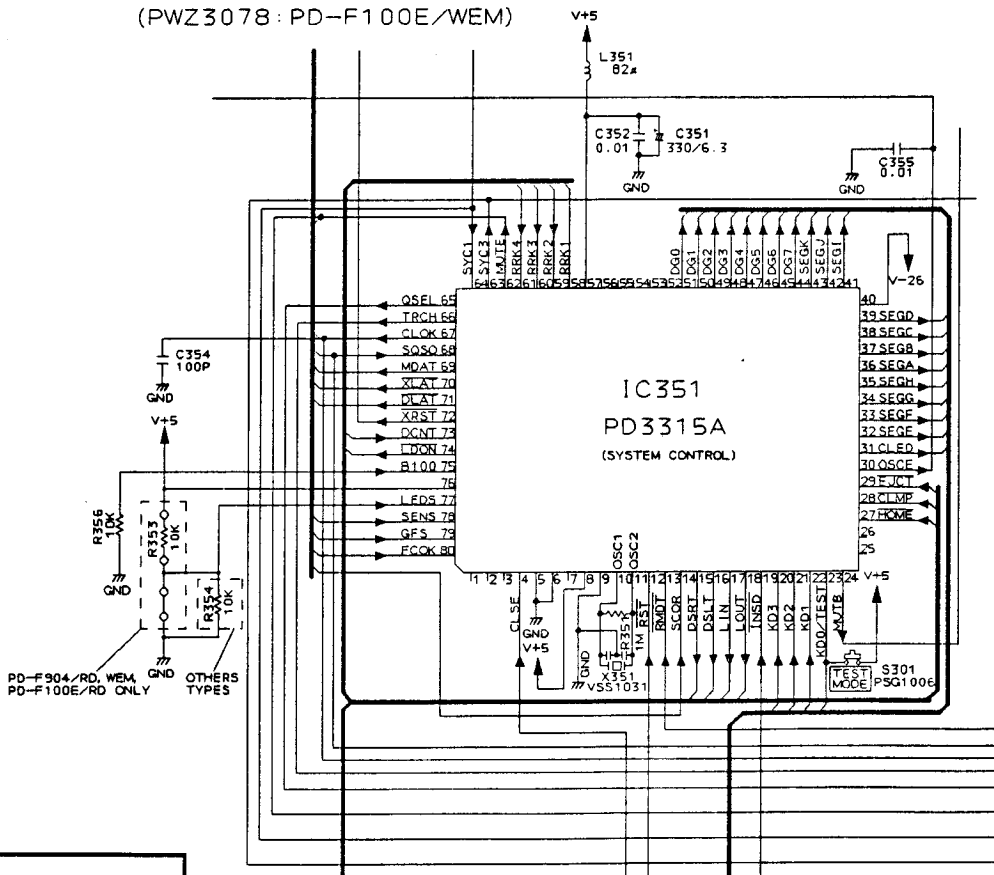


- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

MAIN BOARD ASSY
(PWZ3079: PD-F100E/RD,
PD-F904/RD)
(PWZ3078: PD-F100E/WEM)

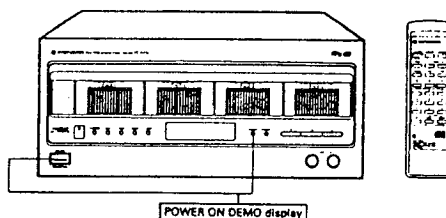
SCH-2F



SCH-2F

MAIN BOARD ASSY

Service Manual



ORDER NO.
RRV1225

FILE-TYPE COMPACT DISC PLAYER

PD-F904

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

Type	Model	Power Requirement	Remarks
	PD-F904		
KU/CA	○	AC120V	

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

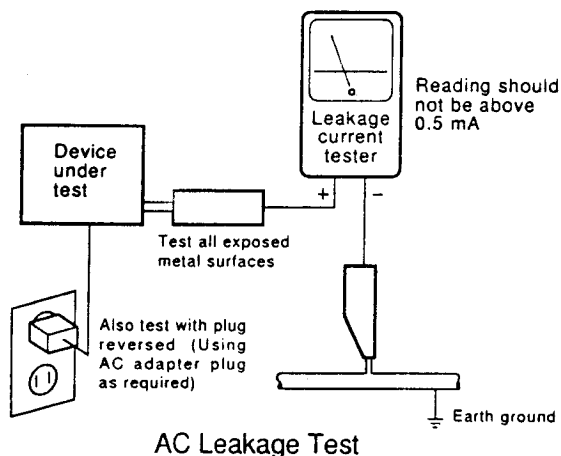
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. SPECIFICATIONS

1. General

Type	Compact disc digital audio system
Power requirements	AC 120 V, 60 Hz
Power consumption	12 W
Operating temperature	+5°C - +35°C (+41°F - +95°F)
Weight	11.0 kg (24 lb 4 oz)
External dimensions	420(W) X 399(D) X 190(H) mm 16-9/16(W) X 15-11/16(D) X 7-1/2(H) in

2. Audio section

Frequency response	2 Hz - 20 kHz
S/N ratio	98 dB or more (EIAJ)
Dynamic range	96 dB or more (EIAJ)
Channel separation	96 dB or more (EIAJ)
Harmonic distortion	0.003 % or less (EIAJ)
Level difference between channels	1.0 dB or less (EIAJ)
Output voltage	2 ± 0.3 Vrms (EIAJ)
Wow and flutter	less than ±0.001 % (W,PEAK) (below measurable level) (EIAJ)
Channels	2-channel (stereo)

3. Output terminal

Audio line output
Control input/output jacks
CD-DECK SYNCHRO jack
I/O INTERFACE

4. Functions

Number of discs to be stored - maximum 100.

Basic Operation Buttons

- PLAY, PAUSE, STOP

Playback mode

- All Playback Mode
- Single Playback Mode
- Custom Playback Mode

Search Function

- Disc Search
- Track Search
- Manual Search

Programming

- Maximum 32 steps
- Pause
- Program Clear (single track or all tracks)

Repeat Functions

- 1 Track Repeat
- Single Repeat
- All Discs Repeat
- Program Repeat
- Single Random Repeat
- All Discs Random Repeat
- Custom Random Repeat
- Custom Repeat

Random Play

- Random Play (repeat also available)

Switching Display

Disc/Track Number, Time Consumed (track/disc), and Total Time

ADLC

Automatic Digital Level Controller

Memory Hold

Stored Playback Mode, Program Contents, or Custom Mode

Last Disc Memory

Direct Search with the Digit buttons (remote control unit)

Power On/Off (remote control unit)

CD-DECK SYNCHRO jack

Remote Control jack

5. Display

FL Tube Display

- ► indicator
- || indicator
- Playback Mode indicators (all, single, custom)
- Elapsed Time Display (min, sec)
- Total Time Display
- Disc Number, Track Number
- Program Step Number
- Custom Number
- Repeat indicator
- Random indicator
- Program indicator
- ADLC indicator

6. Accessories

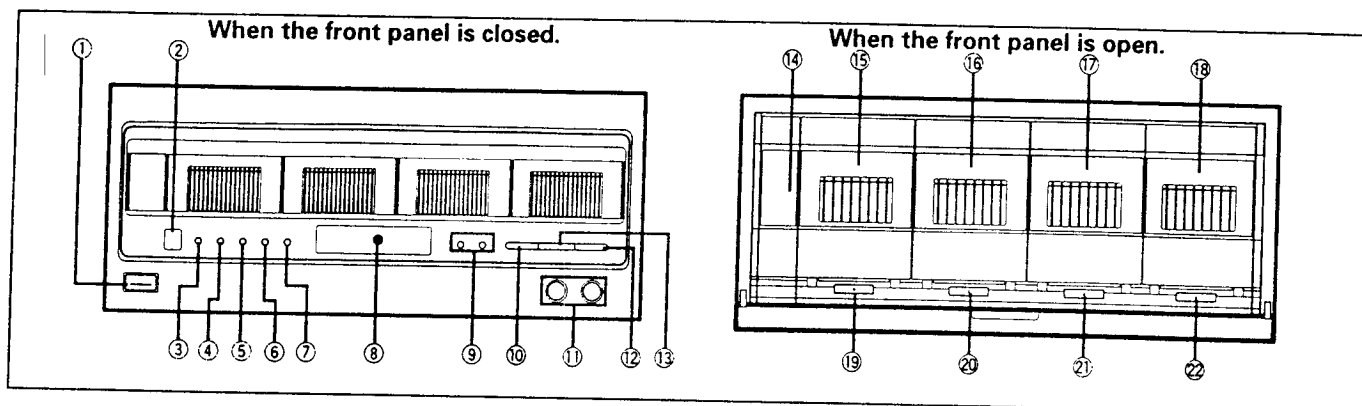
● Remote control unit	1
● AAA/R03 dry cell batteries	2
● Output cable	1
● Control cable	1
● Electrostatic charge removal sheet	1
● Operating instructions	1
● Index label sheet	1
● CD liner notes file	1

NOTE:

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

3. PANEL FACILITIES

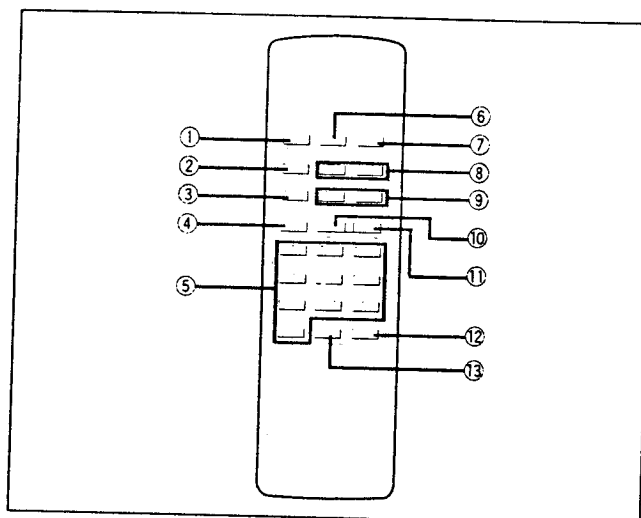
FRONT PANEL



- ① POWER STANDBY/ON switch
- ② Remote sensor
Receives the signal from the remote control unit.

- ③ RANDOM button
- ④ ADLC button
- ⑤ TIME button
- ⑥ MODE button
- ⑦ CLEAR button
- ⑧ Display window
- ⑨ Track/Manual search buttons
(◀◀ ◀◀ / ▶▶ ▶▶)
- ⑩ Stop button (■)
- ⑪ DISC buttons (-/+)
- ⑫ Play button (▶)
- ⑬ Pause button (||)
- ⑭ PLAY INDICATOR
- ⑮ Rack 1
- ⑯ Rack 2
- ⑰ Rack 3
- ⑱ Rack 4
- ⑲ EJECT button for Rack 1 (▲)
- ⑳ EJECT button for Rack 2 (▲)
- ㉑ EJECT button for Rack 3 (▲)
- ㉒ EJECT button for Rack 4 (▲)

REMOTE CONTROL UNIT



Remote control buttons with the same names or marks as buttons on the front panel of the player control the same operations as the corresponding front panel buttons.

- ① POWER button
- ② PGM button
- ③ MODE button
- ④ Stop button (■)
- ⑤ Digit buttons (0 - 9)
- ⑥ REPEAT button
- ⑦ RANDOM button
- ⑧ DISC buttons (-/+)
- ⑨ Track search buttons (◀◀ / ▶▶)
- ⑩ Pause button (||)
- ⑪ Play button (▶)
- ⑫ TRACK SET button
- ⑬ DISC SET button

4. DISASSEMBLY

4.1 REMOVAL OF LOADING MECHANISM ASSY

1. Remove the bonnet. (At this time, return the loading mechanism assy to the home position if it is not in the home position.)
2. Remove the rivet and then remove the rope unit.
3. Remove the four screws ① and then remove the select guide.
4. Remove the flat cable from the connector (CN625), and also remove the rope unit from the loading mechanism assy.
5. Raise the loading mechanism assy and remove it.

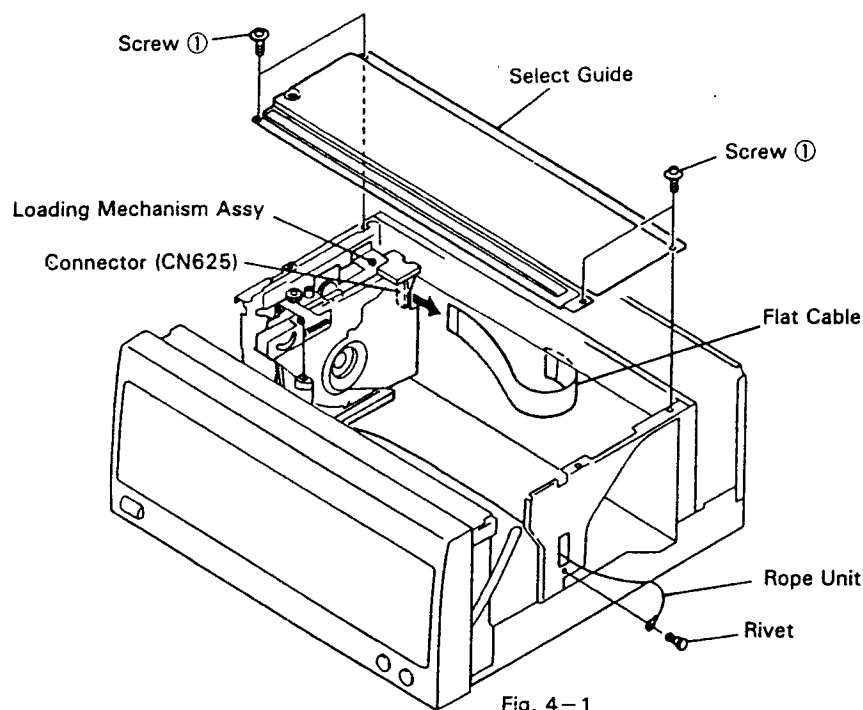


Fig. 4-1

Note) Execute assembly in reverse order of the disassembly.

However, the following items must be executed.

- Synchronization matching for upper and lower gear

Adjust the relation between the sub gear teeth and the select guide as shown in Fig. 4-2.

- Position confirmation for body and loading mechanism assy

Looking from the top, conform that part ③ of the gear angle B and part ④ of the angle L are parallel. (Refer to Fig. 4-3.)

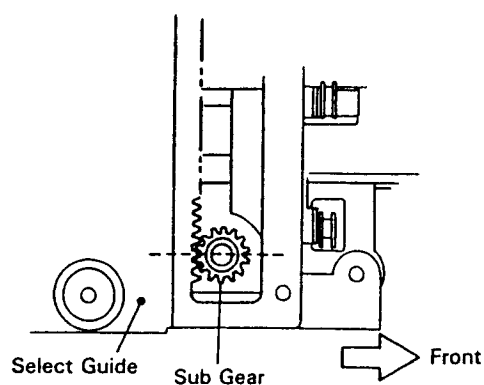


Fig. 4-2

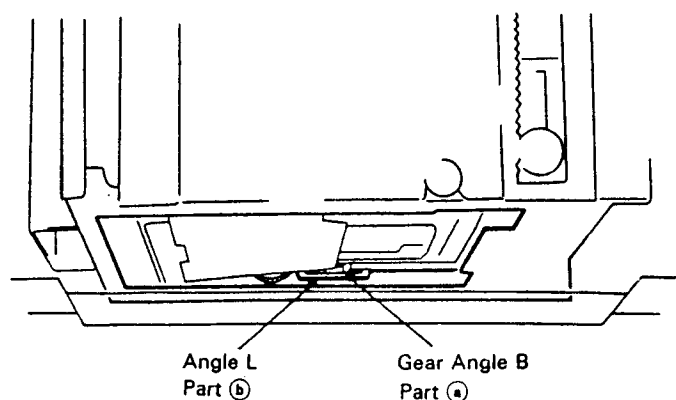


Fig. 4-3

4.2 REMOVAL OF SERVO MECHANISM ASSY

1. Remove the loading mechanism assy. [Refer to "4.1 REMOVAL OF LOADING MECHANISM ASSY".]
2. Remove the screw ① and the clamber base.
3. Remove the stopper. (At this time, remove the stopper spring at the same time.)
4. Remove the arm spring.
5. Remove the three screws ③ fixing the D cup, remove the screw ④ fixing the side angle and the connector (CN626), and then remove the D cup and the side angle.
6. Remove arm A, arm B, and the connecting rack.
7. Remove the four screws ⑤ fixing the servo mechanism assy. Remove the flexible circuit board of the pickup assy from the connector (CN621) and pull out the servo mechanism assy.
8. Remove the connector (CN610) of the servo mechanism assy and then remove the servo mechanism assy.

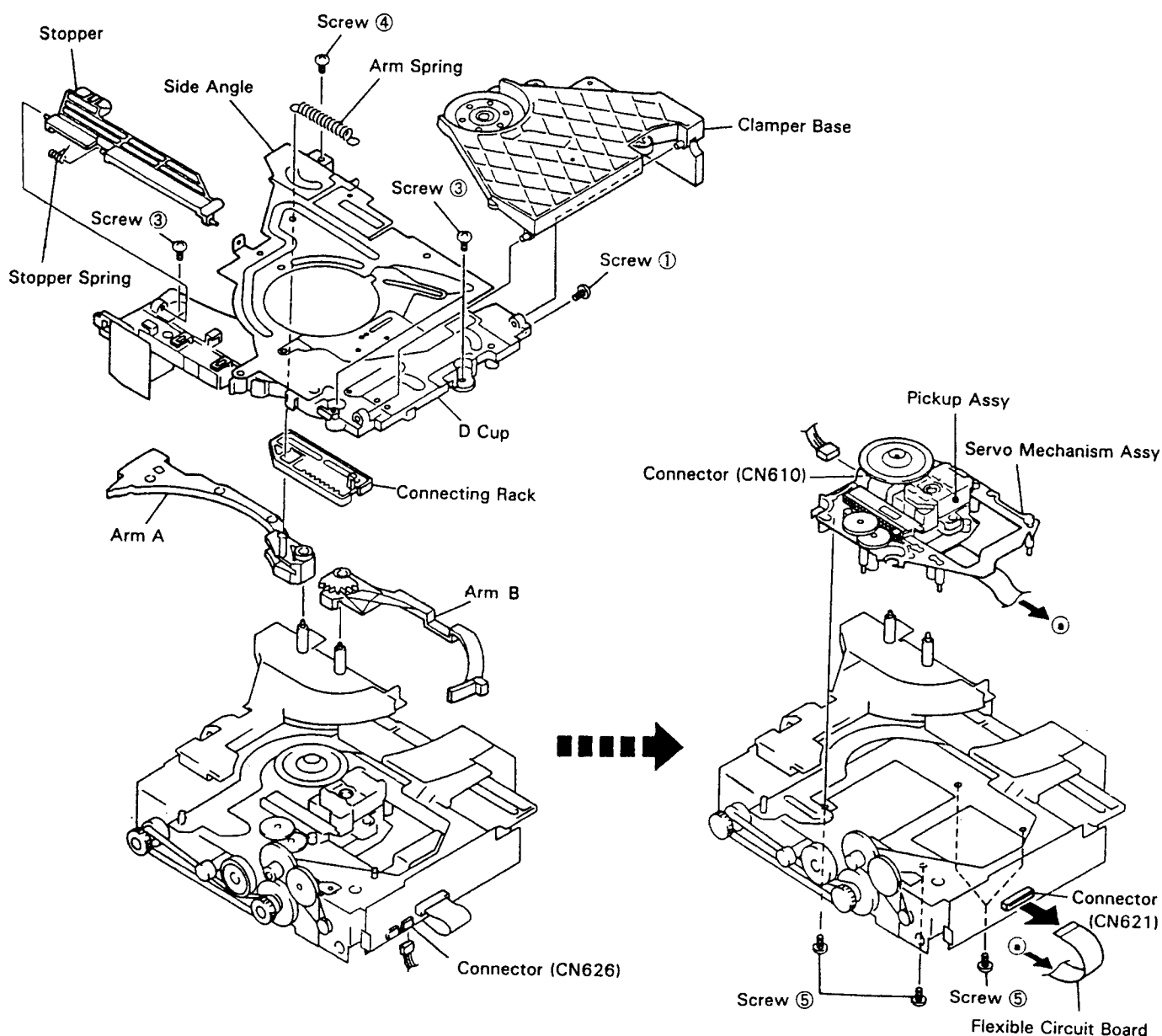


Fig. 4-4

Note) Execute assembly in reverse order of the disassembly.
However, the following items must be executed.

- Synchronization matching for arm A, arm B and connecting rack

Confirm correct positioning of the drive plate mark and the mark of gear A as shown in Fig. 4-5. If the position is not correct, turn the worm [refer to "4.3 REMOVAL OF BELT A"] to obtain the correct position. Also, install arm A and arm B as shown in Fig. 4-6 and position the connecting rack as shown in Fig. 4-6 (refer to ①), seen from above.

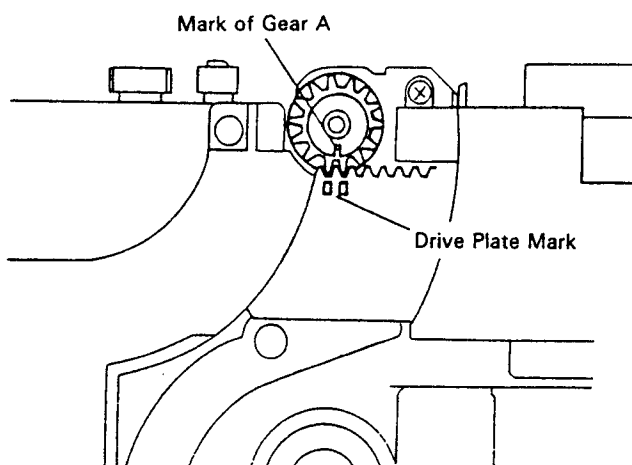


Fig. 4-5

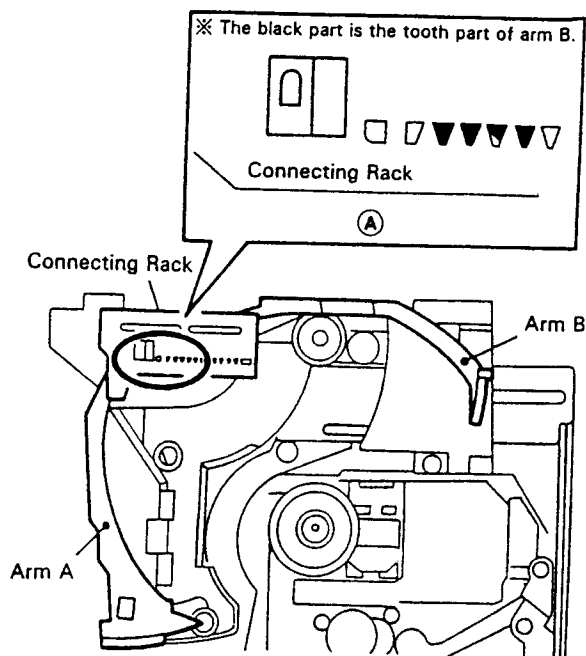


Fig. 4-6

- Select lever position matching

When installing the D cup, pull out the pin of the select lever and insert the lever pin into the select lever hole.

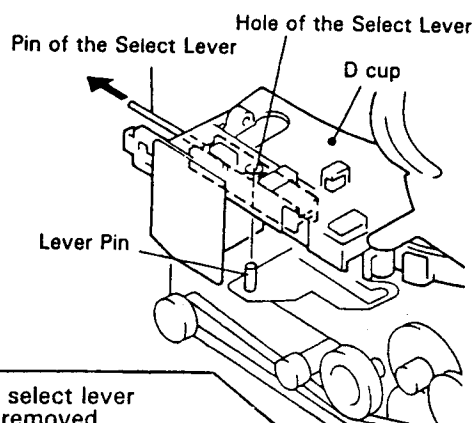


Fig. 4-7

- When the select lever has been removed

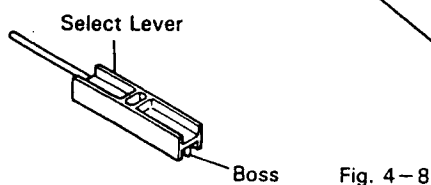


Fig. 4-8

Note: For installation of the select lever, insert it with the boss pointing down.

- Caution items for installation of the clamber base

Bring part ③ of the clamber base onto part ④ of the stopper.

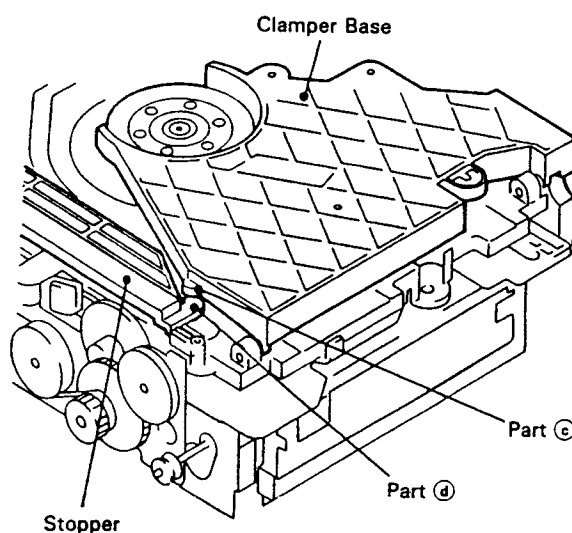


Fig. 4-9

4.3 REMOVAL OF BELT A

1. Remove the loading mechanism assy. [Refer to "4.1 REMOVAL OF LOADING MECHANISM ASSY".]
2. Pull the synchro shaft together with the sub gear. (At this time, the synchro gear, the collar, and the timing belt come off together.)
3. Remove the two screws ① fixing the gear angle A and remove the gear angle A. (At this time, the cord clamber also comes off.)
4. Remove the washer fixing the gear A and the worm wheel and remove the belt A.
 - If the work is difficult, remove the connectors (CN641, CN624) and cut the binder to make the work easier.

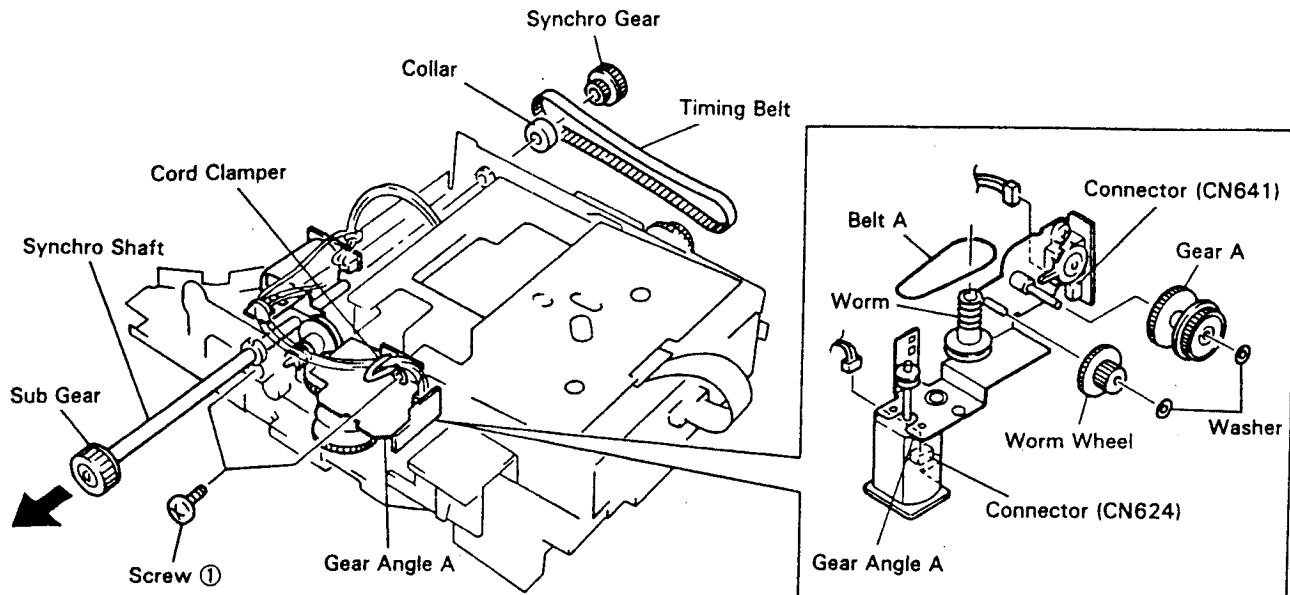


Fig. 4-10

Note) Execute assembly in reverse order of the disassembly.

However, the following items must be executed.

- Synchronization matching for gear A and drive plate

Match the drive plate mark and the mark of gear A as shown in Fig. 4-11, and then fix the gear angle A with the screws. (At this time, the lever of the loading switch must be on the upper side of the projection of gear A.)

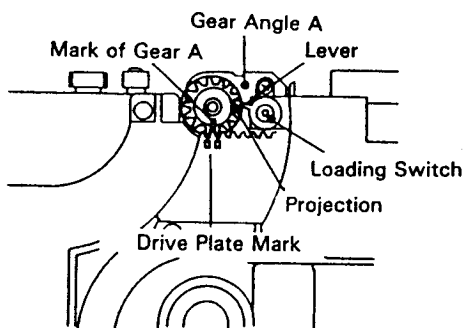


Fig. 4-11

- Synchro belt installation

Place the synchro belt as shown in Fig. 4-12 onto the synchro gear S. Place the collar onto the synchro shaft, place the timing belt onto the synchro gear, and press fit the synchro shaft in this condition.

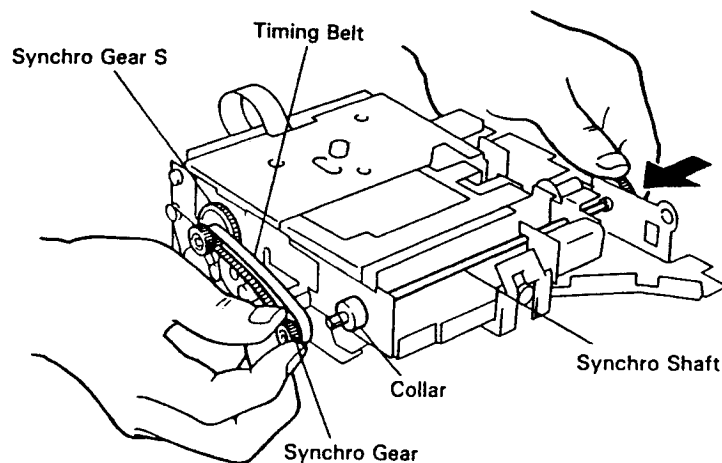


Fig. 4-12

5. EXPLODED VIEWS, PACKING AND PARTS LIST

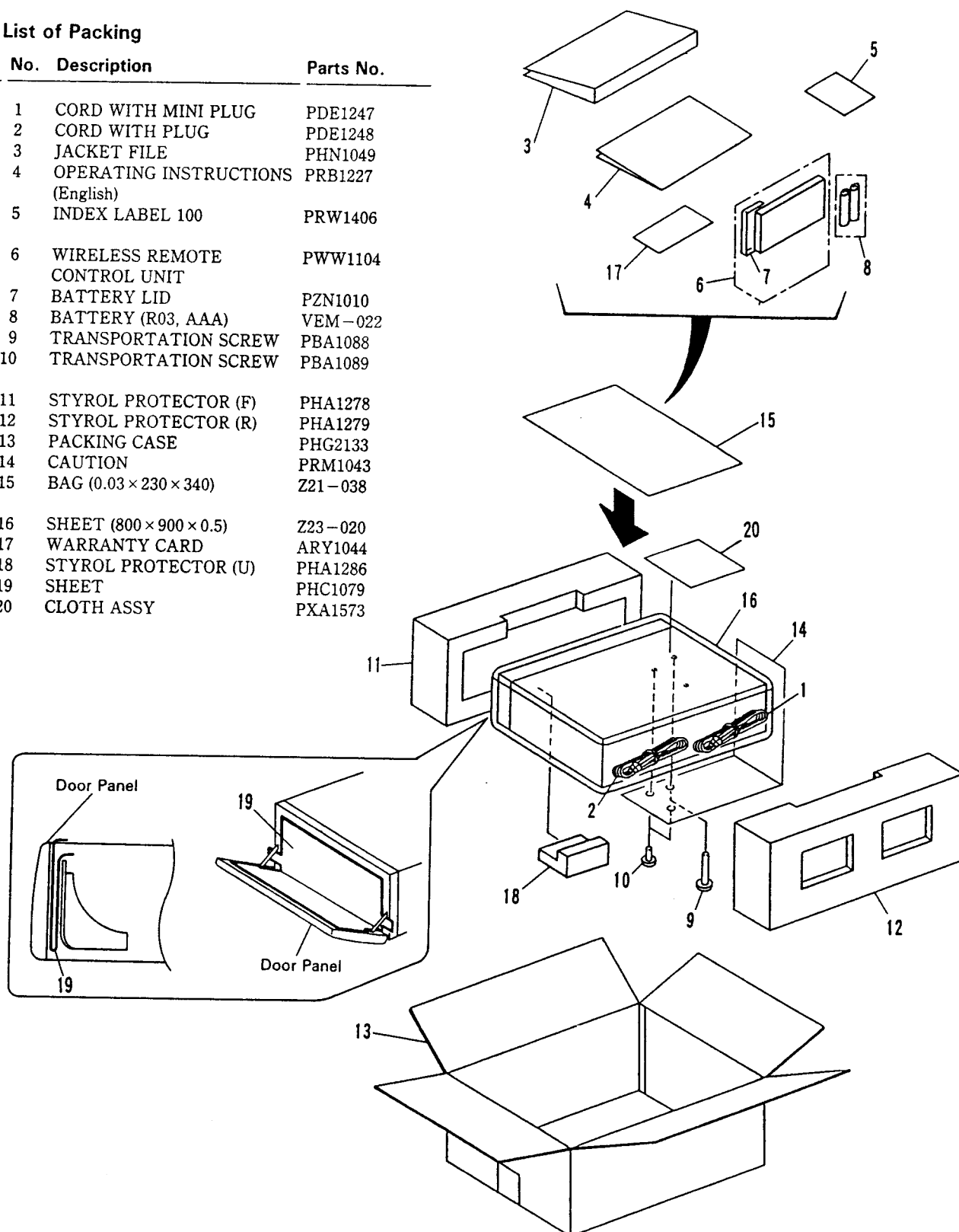
NOTES :

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The $\triangle$ 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.

5.1 PACKING

Parts List of Packing

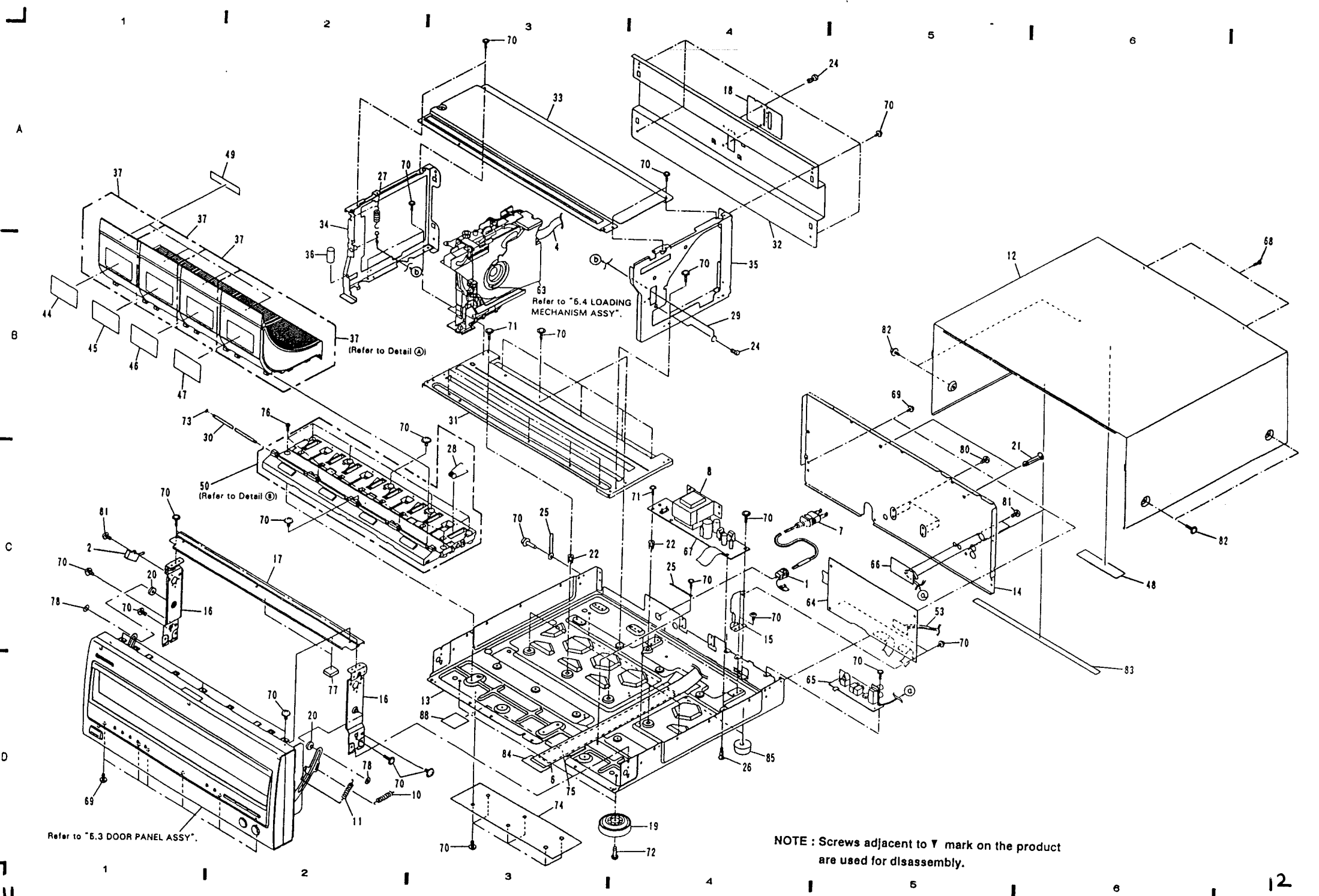
Mark	No.	Description	Parts No.
	1	CORD WITH MINI PLUG	PDE1247
	2	CORD WITH PLUG	PDE1248
	3	JACKET FILE	PHN1049
	4	OPERATING INSTRUCTIONS (English)	PRB1227
	5	INDEX LABEL 100	PRW1406
	6	WIRELESS REMOTE CONTROL UNIT	PWW1104
NSP	7	BATTERY LID	PZN1010
	8	BATTERY (R03, AAA)	VEM-022
	9	TRANSPORTATION SCREW	PBA1088
	10	TRANSPORTATION SCREW	PBA1089
	11	STYROL PROTECTOR (F)	PHA1278
	12	STYROL PROTECTOR (R)	PHA1279
	13	PACKING CASE	PHG2133
	14	CAUTION	PRM1043
	15	BAG (0.03 × 230 × 340)	Z21-038
NSP	16	SHEET (800 × 900 × 0.5)	Z23-020
	17	WARRANTY CARD	ARY1044
	18	STYROL PROTECTOR (U)	PHA1286
	19	SHEET	PHC1079
	20	CLOTH ASSY	PXA1573



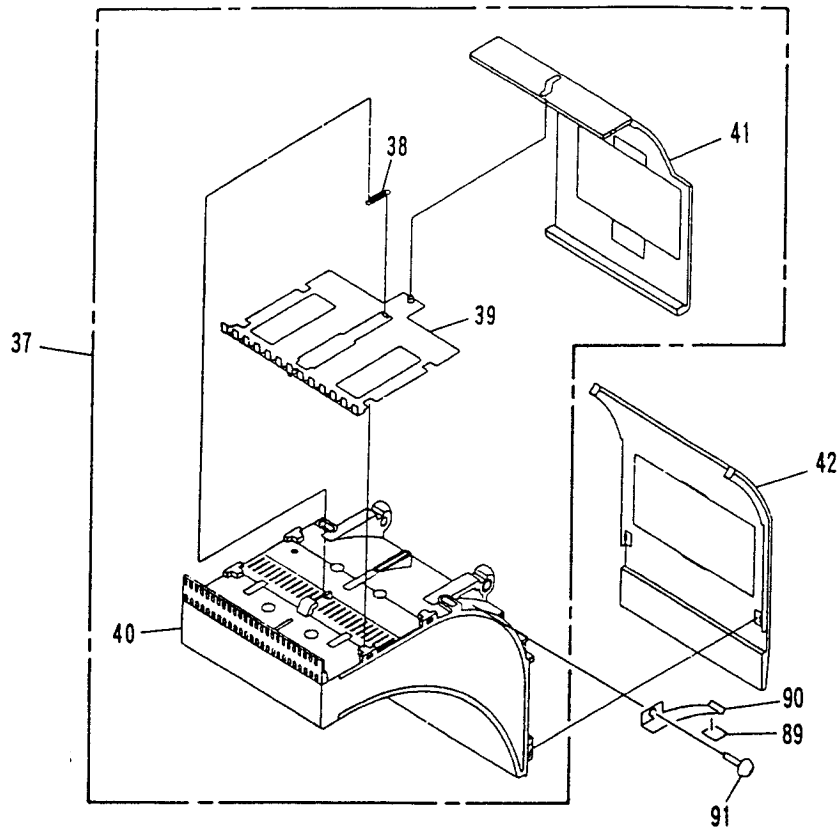
5.2 EXTERIOR

Parts List of Exterior

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
△	1	CORD STOPPER (PLASTIC)	CM-22C	NSP	51	RACK BOARD A ASSY	PWZ2779
	2	LEVER SWITCH (S)	DSK1003	NSP	52	RACK BOARD B ASSY	PWZ2781
	3	.....			53	CONNECTOR ASSY 5P	PDE1266
	4	22P F.F.C/30V	PDD1157		54	CONICAL SPRING	PBH1206
	5	.....			55	LEVER SPRING	PBH1204
	6	28P F.F.C/30V	PDD1164		56	SWITCH PLATE	PBK1131
△	7	AC POWER CORD	PDG1015		57	RACK BASE	PNW2407
△	8	POWER TRANSFORMER	PTT1297		58	RACK LOCK	PNW2565
	9	.....			59	LOCK LEVER	PNW2409
	10	CANCEL SPRING	PBH1173		60	SCREW	BPZ26P060FZK
	11	SUPPORT SPRING	PBH1192		61	STOPPER SCREW	PBA1095
	12	BONNET CASE	PYY1178		62	SCREW	PPZ30P060FMC
NSP	13	UNDER BASE	PNA2057	NSP	63	LOADING MECHANISM ASSY	PXA1571
	14	REAR BASE (FE)	PNA2218		64	MAIN BOARD ASSY	PWZ3077
	15	PCB ANGLE	PNB1468	NSP	65	OUTPUT BOARD ASSY	PWZ3080
	16	SIDE ANGLE	PNB1469		66	I/O CONNECTOR BOARD	PWX1390
	17	ESCUTCHEON ANGLE	PNB1502		67	POWER BOARD ASSY	PWZ3065
	18	FFC HOLDER	PNM1274		68	SCREW	BBZ30P100FCC
	19	INSULATOR	PNW1912		69	SCREW	BBZ30P080FCC
	20	ROLLER	PNW2468		70	SCREW	IBZ30P060FCC
NSP	21	SPACER 24 (PLASTIC)	PNW2484		71	SCREW	IBZ30P150FCC
	22	SPACER (PLASTIC)	PNY-404		72	SCREW	IBZ30P100FCC
	23	.....			73	E RING	YE30FUC
	24	RIVET (PLASTIC)	RBM-003	NSP	74	BOTTOM PLATE	PNB1511
	25	CORD CLAMPER (STEEL)	RNH-184		75	FFC PLATE	PNM1275
NSP	26	SPACER	VEC1596		76	SCREW	PBA1099
	27	WIRE SPRING	PBH1182		77	DISC GUARD	PNM1245
	28	EJECT SPRING	PBH1214		78	WASHER	WT36D120D050
	29	ROPE UNIT	PBL1007		79	.....	
	30	SHAFT	PLA1138		80	SCREW	IBZ30P080FCC
	31	MAIN BASE	PNA2108		81	SCREW	BBZ26P060FCC
	32	REAR ANGLE	PNA2126		82	SCREW	FBT40P080FZK
	33	SELECT GUIDE	PNB1479		83	BONNET GUARD	PNM1244
	34	ANGLE L	PNB1516	NSP	84	JOINT BOARD ASSY	PWZ3074
	35	SIDE ANGLE R	PNB1517		85	FOOT ASSY	AEC1531
NSP	36	SCREW HOLDER	PNW2489		86	.....	
	37	DISC RACK ASS'Y	PXA1574		87	.....	
	38	GUIDE SPRING	PBH1177		88	ISOLATION SHEET	PNM1270
	39	GUIDE PLATE	PNB1476	NSP	89	RUBBER HOLDER	PEB1283
NSP	40	RACK	PNW2583	NSP	90	CLIK PLATE	PBK1133
NSP	41	TOP GUIDE	PNW2405		91	SCREW	Z39-024
	42	RACK PANEL	PNW2406				
	43	.....					
	44	RACK WINDOW 1	PAM1674				
	45	RACK WINDOW 2	PAM1675				
	46	RACK WINDOW 3	PAM1676				
	47	RACK WINDOW 4	PAM1677				
	48	65 LABEL	ORW1069				
	49	ADDRESS LABEL	PRW1359				
NSP	50	RACK BASE ASS'Y	PXA1572				



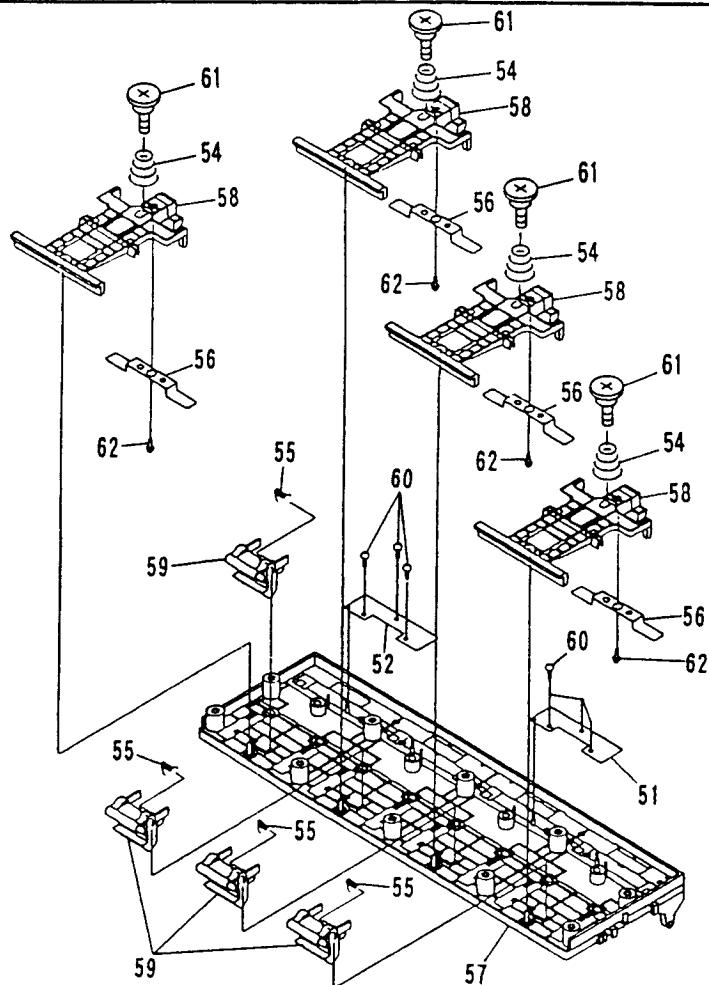
● Detail (A)



A

B

● Detail (B)



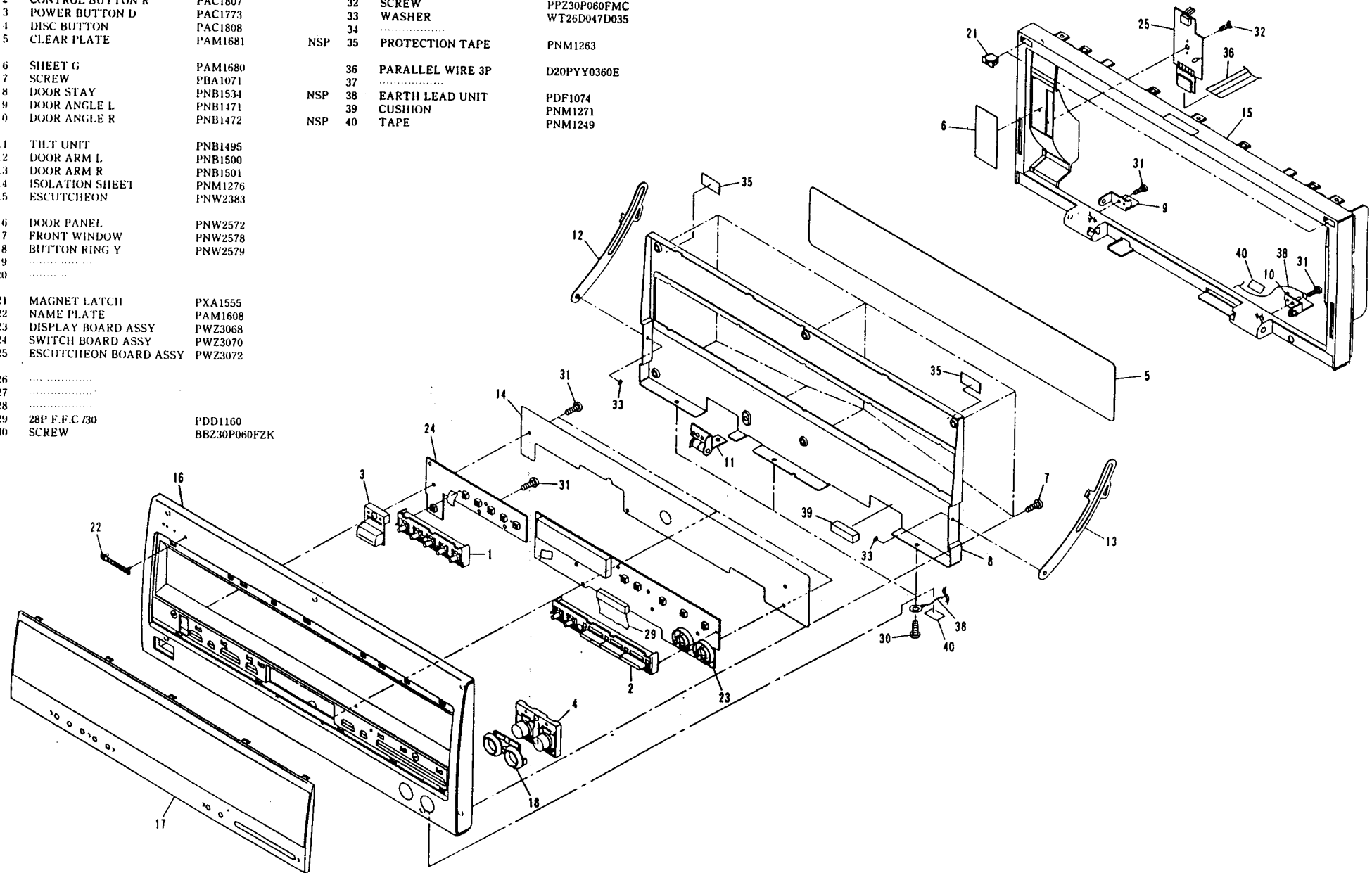
C

D

5.3 DOOR PANEL ASSY

Parts List of Door Panel Assy

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
A	1	CONTROL BUTTON L	PAC1771	31	SCREW	PPZ30P100FMC	
	2	CONTROL BUTTON R	PAC1807	32	SCREW	PPZ30P060FMC	
	3	POWER BUTTON D	PAC1773	33	WASHER	WT26D047D035	
	4	DISC BUTTON	PAC1808	34	.....		
	5	CLEAR PLATE	PAM1681	NSP	35	PROTECTION TAPE	PNM1263
	6	SHEET G	PAM1680	36	PARALLEL WIRE 3P	D20PYY0360E	
	7	SCREW	PBA1071	37	.....		
	8	DOOR STAY	PNB1534	NSP	38	EARTH LEAD UNIT	PDF1074
	9	DOOR ANGLE L	PNB1471	39	CUSHION	PNM1271	
	10	DOOR ANGLE R	PNB1472	NSP	40	TAPE	PNM1249
	11	TILT UNIT	PNB1495				
	12	DOOR ARM L	PNB1500				
	13	DOOR ARM R	PNB1501				
	14	ISOLATION SHEET	PNM1276				
	15	ESCUTCHEON	PNW2383				
B	16	DOOR PANEL	PNW2572				
	17	FRONT WINDOW	PNW2578				
	18	BUTTON RING Y	PNW2579				
	19	.....					
	20	.....					
NSP	21	MAGNET LATCH	PXA1555				
	22	NAME PLATE	PAM1608				
	23	DISPLAY BOARD ASSY	PWZ3068				
	24	SWITCH BOARD ASSY	PWZ3070				
	25	ESCUTCHEON BOARD ASSY	PWZ3072				
NSP	26	.....					
	27	.....					
	28	.....					
	29	28P F.F.C /30	PDD1160				
	30	SCREW	BBZ30P060FZK				

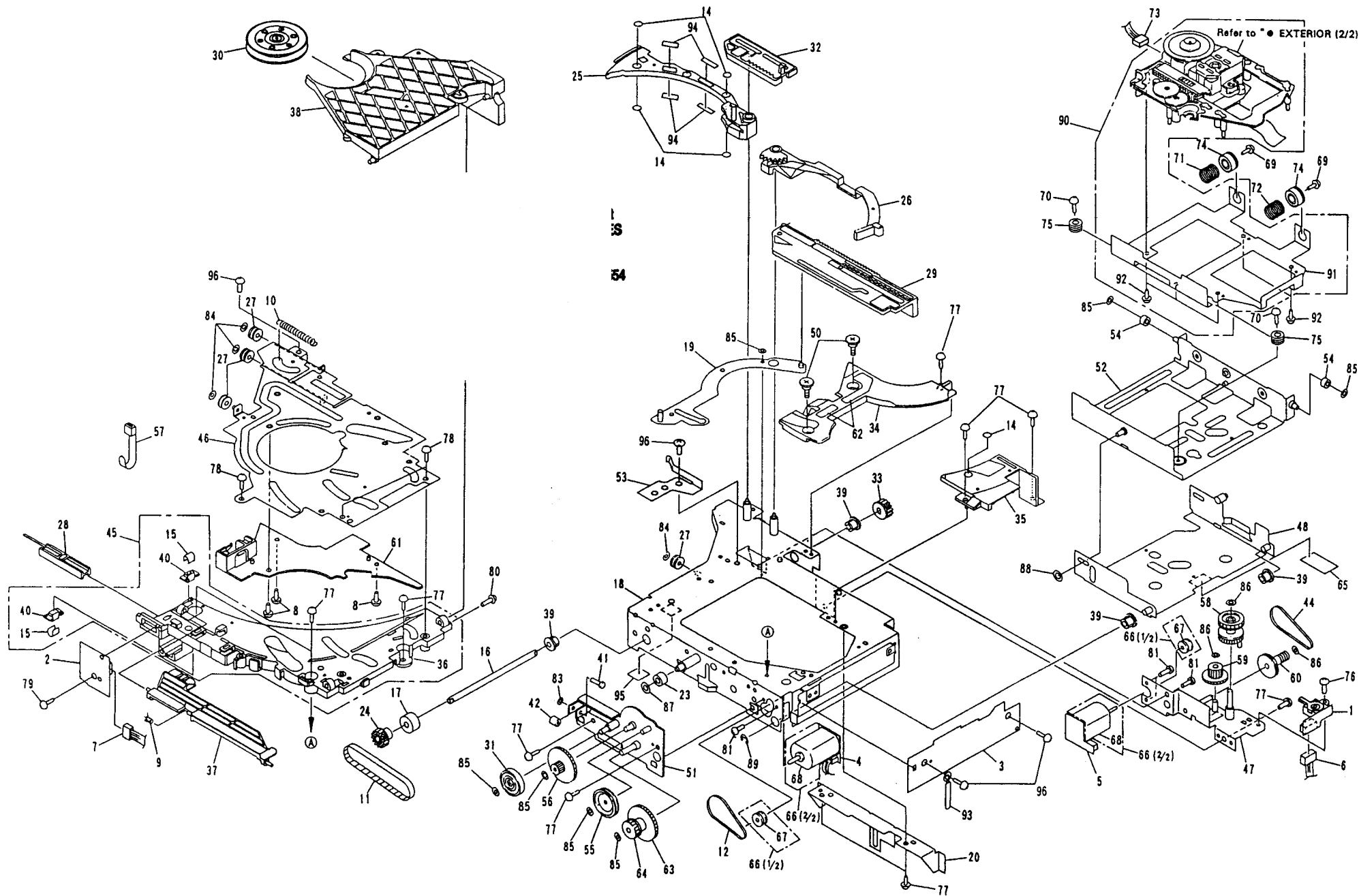


5.4 LOADING MECHANISM ASSY

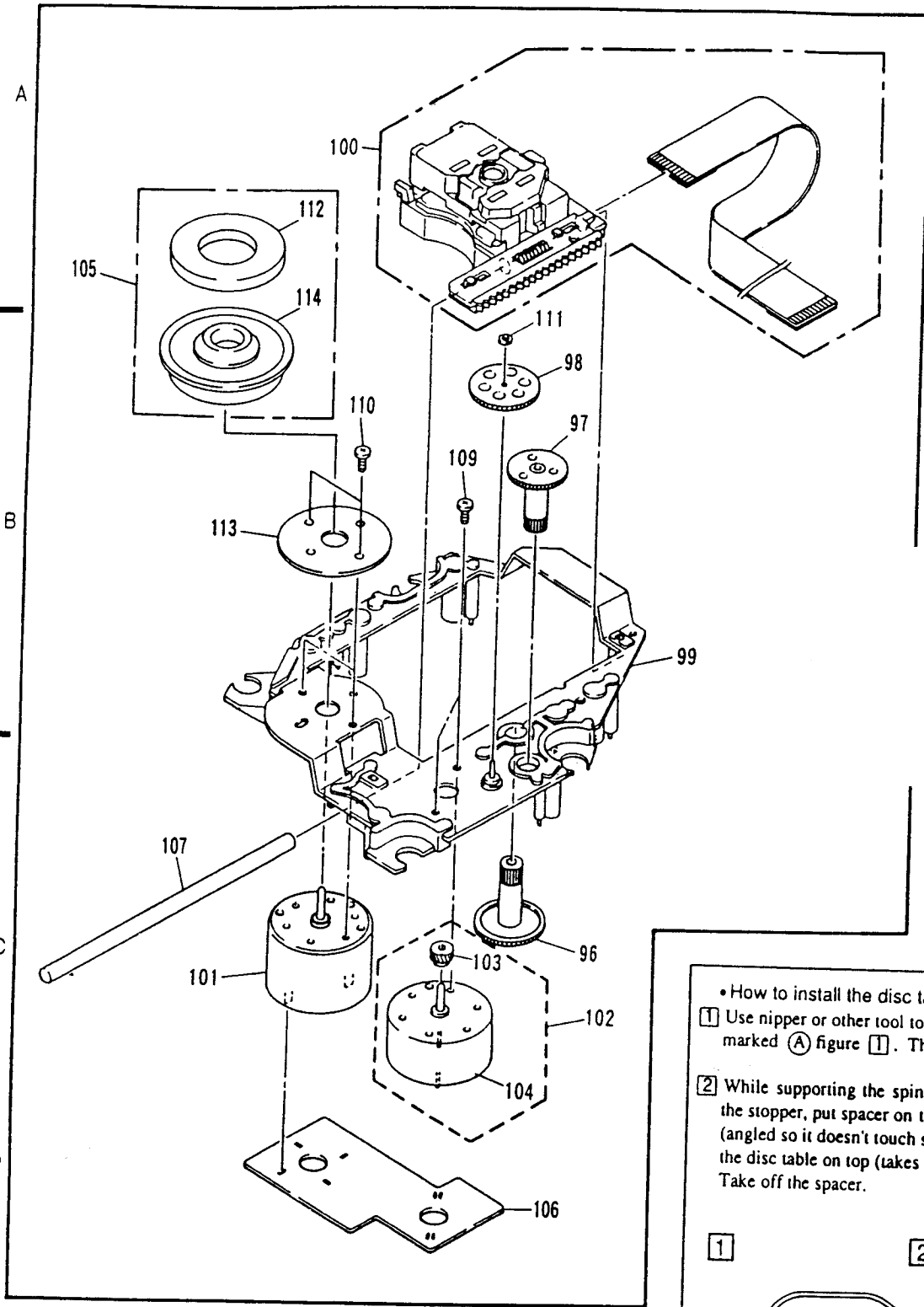
● EXTERIOR (1/2)

Parts List of Exterior (1/2)

A	Mark No. Description			Parts No.	Mark No. Description			Parts No.
	Mark	No.	Description		Mark	No.	Description	
A	NSP	1	MECHA BOARD ASSY	PWZ2776	51	GEAR ANGLE B	PNB1496	
	NSP	2	SENSOR BOARD ASSY	PWZ2777	52	SLIDER	PNB1531	
	NSP	3	LOADING BOARD ASSY	PWZ2778	53	UPPER PLATE	PBK1141	
	NSP	4	SELECT MOTOR BOARD ASSY	PWZ2782	54	ROLLER	PNW1967	
	NSP	5	LOADING MOTOR BOARD ASSY	PWZ2783	55	GEAR PULLEY	PNW2411	
		6	CONNECTOR ASSY (3P)	PDE1234	56	GEAR L	PNW2412	
		7	CONNECTOR ASSY (4P)	PDE1235	57	BINDER	Z09-056	
		8	SCREW	PBA1090	58	GEAR A	PNW2420	
		9	STOPPER SPRING	PBH1183	59	WORM WHEEL	PNW2421	
		10	ARM SPRING	PBH1202	60	WORM	PNW2422	
B		11	BELT	PEB1268	61	C CUP	PNW2537	
		12	BELT	PEB1269	62	SHEET	PED1026	
		13	.....		63	GEAR S	PNW2433	
		14	CUSHION (ART. SUEDE)	PED-049	64	SYNCHRO GEAR S	PNW2434	
	NSP	15	CUSHION (ART. SUEDE)	PED1016	65	FLEXIBLE GUARD	PNM1264	
	NSP	16	SYNCHRO SHAFT	PLA1131	66	MOTOR ASSY	PEA1320	
		17	SPACER	PLA1133	67	MOTOR PULLEY	PNW1634	
	NSP	18	LOADING BASE	PNB1532	68	MOTOR	PXM1002	
	NSP	19	LEVER	PNB1486	69	SCREW	PBA1084	
	NSP	20	SLIDE ANGLE	PNB1489	70	SCREW	PBA1087	
C		21	.....		71	FLOAT SPRING	PBH1197	
		22	.....		72	FLOAT SPRING B	PBH1198	
		23	ROLLER	PNW2299	73	CONNECTOR ASS'Y (4P)	PDE1240	
		24	SYNCHRO GEAR	PNW2413	74	FLOAT RUBBER	PEB1267	
		25	ARM A	PNW2554	75	RUBBER BUSHING	VEB1138	
		26	ARM B	PNW2541	76	SCREW	BBZ26P060FZK	
		27	PULLEY	PNW2416	77	SCREW	BBZ30P050FZK	
		28	SELECT LEVER	PNW2417	78	SCREW	BBZ30P080FCC	
		29	DRIVE PLATE	PNW2549	79	SCREW	BPZ30P060FZK	
		30	CLAMPER	PNW2569	80	.....		
D	NSP	31	TENSIONER	PNW2423	81	SCREW	PMZ20P030FMC	
		32	RACK	PNW2555	82	.....		
		33	SUB GEAR	PNW2425	83	WASHER	WT17D034D025	
		34	A CUP	PNW2553	84	WASHER	WT21D050D025	
		35	B CUP	PNW2427	85	WASHER	WT26D047D025	
	NSP	36	D CUP	PNW2429	86	WASHER	WT26D047D050	
		37	STOPPER	PNW2556	87	WASHER	WT36D072D025	
		38	CLAMPER BASE	PNW2576	88	E RING	YE25FUC	
		39	BUSHING	PNW2435	89	E RING	YE30FUC	
	NSP	40	DISC GUIDE	PNW2550	NSP 90	SERVO MECHANISM ASS'Y B	PXA1539	
E		41	ROLLER SHAFT	PLA1139	NSP 91	SERVO BASE	PNB1477	
		42	ROLLER	DNK2391	92	SCREW	BPZ26P100FMC	
		43	.....		93	BINDER	RNH-184	
		44	BELT A	PEB1244	94	SHEET (S)	PED1022	
		45	D CUP ASSY	PEA1329	95	DG SPACER	PNM1261	
		46	SIDE ANGLE	PNB1533	96	SCREW	BCZ30P050FMC	
		47	GEAR ANGLE	PNB1485				
		48	SLIDE LINK	PNB1490				
		49	.....					
		50	SCREW	PBA1099				

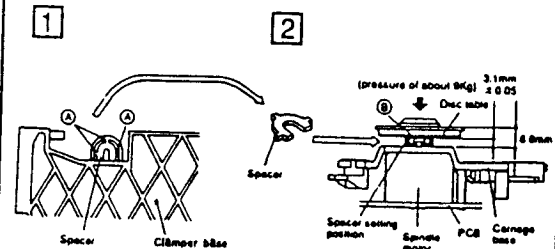


● EXTERIOR (2/2) (Servo Mechanism Assy B)



• How to install the disc table

- ① Use nipper or other tool to cut the three sections marked (A) figure ①. Then remove the spacer.
- ② While supporting the spindle motor shaft with the stopper, put spacer on top of the motor base (angled so it doesn't touch section (B)), and stick the disc table on top (takes about 9Kg pressure). Take off the spacer.



Parts List of Exterior (2/2)

Mark	No.	Description	Parts No.
A	96	GEAR 1 (POM)	PNW2052
	97	GEAR 2 (POM)	PNW2053
	98	GEAR 3 (POM)	PNW2054
	99	CARRIDGE BASE (FE)	PNW2445
	100	PICK UP ASS'Y	PEA1319
	101	D.C. MOTOR ASSY (SPINDLE)	PEA1235
	102	D.C. MOTOR ASSY (CARRIAGE)	PEA1246
	103	PINION GEAR (POM)	PNW2055
	NSP 104	DC MOTOR	PXM1027
	105	DISC TABLE ASS'Y	PEA1314
	NSP 106	MECHANISM BOARD ASSY	PWX1192
	107	GUIDE BAR (STEEL)	PLA1094
	108	.....	
	109	SCREW	JFZ17P025FZK
	110	SCREW	JFZ20P040FMC
B	111	WASHER	WT12D032D025
	112	CLAMP MAGNET	PMF1014
	NSP 113	YOKE M	PNB1312
	NSP 114	DISC TABLE	PNW2410

6. PCB PARTS LIST

NOTES :

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ 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 $\rightarrow$ 56 $\times$ 10¹ $\rightarrow$ 561 RD1/8PM 5 6 1 J
 47k Ω $\rightarrow$ 47 $\times$ 10³ $\rightarrow$ 473 RD1/4PS 4 7 3 J
 0.5 Ω $\rightarrow$ 0R5 RN2H 0 R 5 K
 1 Ω $\rightarrow$ 010 RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow$ 562 $\times$ 10¹ $\rightarrow$ 5621 RM1/4PC 5 6 2 1 F

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES				Q405	DIGITAL TRANSISTOR	DTC124EK	
△	MOTHER BOARD ASSY	PWM1975		D391-397	DIODE	1SS133X	
	└MAIN BOARD ASSY	PWZ3077		SWITCHES AND RELAYS			
NSP	└OUTPUT BOARD ASSY	PWZ3080		S301	SWITCH	PSG1006	
NSP	I/O CONNECTOR BOARD ASSY	PWX1390		COILS AND FILTERS			
NSP△	SUB BOARD ASSY	PWX1419		L351	RADIAL INDUCTOR	LFA820K	
	└POWER BOARD ASSY	PWZ3065		CAPACITORS			
NSP	└DISPLAY BOARD ASSY	PWZ3068		C152, 153	ELECT. CAPACITOR	CEAS101M10	
NSP	└SWITCH BOARD ASSY	PWZ3070		C155	CERAMIC CAPACITOR	CKSQYB182K50	
NSP	└ESCUTCHEON BOARD ASSY	PWZ3072		C156	CERAMIC CAPACITOR	CKSQYB333K25	
NSP	└JOINT BOARD ASSY	PWZ3074		C157	CERAMIC CAPACITOR	CKSQYB103K50	
				C158, 159	CERAMIC CAPACITOR	CKSQYB104K25	
NSP	RACK BASE ASSY	PXA1572		C160	ELECT. CAPACITOR	CEAS4R7M50	
NSP	└RACK BOARD ASSY	PWX1340		C161	CERAMIC CAPACITOR	CKSQYB104K25	
NSP	└└RACK BOARD A ASSY	PWZ2779		C162	ELECT. CAPACITOR	CEAS4R7M50	
NSP	└└RACK BOARD B ASSY	PWZ2781		C163	CERAMIC CAPACITOR	CKSQYB104K25	
NSP	LOADING MECHANISM ASSY	PXA1571		C164, 167	CERAMIC CAPACITOR	CKSQYB103K50	
NSP	└LOADING MECHANISM BOARD ASSY	PWX1422		C168	CERAMIC CAPACITOR	CKSQYB333K25	
	└└MECHA BOARD ASSY	PWZ2776		C169	CERAMIC CAPACITOR	CKSQYB103K50	
NSP	└└SENSOR BOARD ASSY	PWZ2777		C170	CERAMIC CAPACITOR	CKSQYB332K50	
NSP	└└LOADING BOARD ASSY	PWZ2778		C171, 172	CERAMIC CAPACITOR	CKSQYB472K50	
NSP	└└SELECT MOTOR BOARD ASSY	PWZ2782		C205	CERAMIC CAPACITOR	CKSQYB103K50	
NSP	└└LOADING MOTOR BOARD ASSY	PWZ2783		C208, 209	ELECT. CAPACITOR	CEAS330M16	
				C210, 215	CERAMIC CAPACITOR	CKSQYB103K50	
NSP	└SERVO MECHANISM ASSY B	PXA1539		C218, 219	CERAMIC CAPACITOR	CKSQYB103K50	
NSP	└└MECHANISM BOARD ASSY	PWX1192		C225, 230	CERAMIC CAPACITOR	CKSQYB103K50	
				C301, 302	ELECT. CAPACITOR	CEAS330M16	
				C303	CERAMIC CAPACITOR	CKSQYB104K25	
				C304, 305	CERAMIC CAPACITOR	CKSQYF104Z25	
				C306	CERAMIC CAPACITOR	CKSQYB152K50	
				C307	CERAMIC CAPACITOR	CKSQYB473K25	
				C308	CERAMIC CAPACITOR	CKSQYB103K50	
				C309	ELECT. CAPACITOR	CEASR47M50	
				C351	ELECT. CAPACITOR	CEAS331M6R3	
				C352, 353	CHIP CAPACITOR	CKSQYF103Z50	
				C354	CHIP CAPACITOR	CCSQCH101J50	
				C355, 361	CHIP CAPACITOR	CKSQYF103Z50	
				C367	CHIP CAPACITOR	CKSQYF103Z50	
				C393	CHIP CAPACITOR	CCSQCH101J50	
				C401	ELECT. CAPACITOR	CEAS330M16	
				C403	CHIP CAPACITOR	CCSQCH120J50	
				C404	CHIP CERAMIC C.	CCSQCH220J50	
MAIN BOARD ASSY							
SEMICONDUCTORS							
	IC151	SERVO IC	CXA1372Q				
△	IC201, 202	POWER OP-AMP IC	LA6520				
△	IC203	POWER OP-AMP IC	LA6517				
	IC301	EFM DEMODULATION IC	CXD2500BQ				
	IC351	MICROCOMPUTER, IC	PD3315A				
	IC401	D/A CONVERTER IC	PD2026B(L)				
	IC405	IC	NJM4558M				
	Q322	DIGITAL TRANSISTOR	DTC124EK				
	Q391	CHIP TRANSISTOR	2SC2412K				
	Q403, 404	TRANSISTOR	2SD2114K				

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	C406, 410	CERAMIC CAPACITOR	CKSQYF104Z25	POWER BOARD ASSY			
	C413	AUDIO FILM CAPACITOR	CFTYA104J50	SEMICONDUCTORS			
	C414	CERAMIC CAPACITOR	CKSQYF104Z25	△	IC21	REGULATOR, IC	PQ05RR12
	C415, 416	AUDIO FILM CAPACITOR	CFTYA104J50	△	IC22	REGULATOR IC	NJM79L05A
	C421	AUDIO FILM CAPACITOR	CFTYA104J50	△	D11-14	DIODE	11ES2
	C423, 424	CERAMIC CAPACITOR	CKSQYF104Z25	△	D52	DIODE	11ES2
	C429, 430	CHIP CAPACITOR	CCSQCH390J50		D54	ZENNER DIODE	MTZJ18B/C
	C431, 432	ELECT. CAPACITOR	CEAS330M16	CAPACITORS			
	C433, 434	ELECT. CAPACITOR	CEAS220M25	C11, 13	CERAMIC CAPACITOR	CKCYF103Z50	
	C435-438	CHIP CAPACITOR	CCSQCH050C50	C15-17	CERAMIC CAPACITOR	CKCYF103Z50	
	C461	CHIP CAPACITOR	CKSQYF103Z50	C25	ELECT. CAPACITOR	CEAS472M16	
	C71-74	ELECT. CAPACITOR	CEAS330M16	C26	ELECT. CAPACITOR	CEAS102M16	
	C75-79	CERAMIC CAPACITOR	CKSQYF104Z25	C27	ELECT. CAPACITOR	CEAS471M6R3	
RESISTORS				C28	ELECT. CAPACITOR	CEAS101M10	
	VR151, 152	VR(22k)	RCP1084	C52	ELECT. CAPACITOR	CEAS101M35	
	R439-442	CHIP METAL OXIDE RESISTOR	RN1/10SE104D	RESISTORS			
		OTHER RESISTORS	RS1/10S□□□□	R22	CARBON FILM RESISTOR	RD1/6PM103J	
OTHERS				R51	CARBON FILM RESISTOR	RD1/6PM103J	
	CN11	12PJUMPER CONNECTOR	52147-1210	R52-54	CARBON FILM RESISTOR	RD1/6PM152J	
	CN201	JACK 6P	VKN-004	TRANSFORMER			
	CN202	22P CONNECTOR	52044-2245	△	POWER TRANSFORMER	PTT1297	
	CN203	CONNECTOR 5P	173981-5	OTHERS			
	CN351	CONNECTOR 28P	9604S-28C	△	TERMINAL	RKC-061	
	CN352	3P JUMPER CONNECTOR	52147-0310	DISPLAY BOARD ASSY			
	CN353	9P JUMPER CONNECTOR	52147-0910	SEMICONDUCTORS			
	X351	CERAMIC RESONATOR	VSS1031	D703, 704	DIODE	1SS254	
	X401	XTAL RES (OSC)	PSS1008	SWITCHES AND RELAYS			
OUTPUT BOARD ASSY				S703, 707	SWITCH	PSG1006	
COILS AND FILTERS				S708, 711	SWITCH	PSG1006	
	L391	RADIAL INDUCTOR	LFA010K	S712, 715	SWITCH	PSG1006	
	L395, 396	RADIAL INDUCTOR	LFA010K	S716	SWITCH	PSG1006	
CAPACITORS				RESISTORS			
	C388, 389	CERAMIC CAPACITOR	CKSQYB104K25	R701-704	CARBON FILM RESISTOR	RD1/6PM103J	
	C397	CERAMIC CAPACITOR	CCCCH470J50	OTHERS			
	C398	CERAMIC CAPACITOR	CGCYX104K25	CN701	CONNECTOR 28P	9604S-28F	
	C399	CERAMIC CAPACITOR	CCCCH470J50	V701	FL TUBE	PEL1079	
	C441, 442	AUDIO FILM CAPACITOR	CFTXA152J50	SWITCH BOARD ASSY			
OTHERS				SEMICONDUCTORS			
	JA391, 392	JACK	RKN1004	D701, 702	DIODE	1SS254	
	JA393	JACK	PKN1005	SWITCHES AND RELAYS			
	JA401	JACK	PKB1009	S701, 702	SWITCH	PSG1006	
I/O CONNECTOR BOARD ASSY				S709, 710	SWITCH	PSG1006	
SEMICONDUCTORS				S713, 714	SWITCH	PSG1006	
	D1301-1314	DIODE	1SS254	OTHERS			
CAPACITORS					REMOTE SENSOR	SBX1785	
	C1301-1305	AXIAL CAPACITOR	CKPUYB101K50				
	C1306-1308	CERAMIC CAPACITOR	CKPUYF103Z25				
RESISTORS							
		ALL RESISTORS	RD1/6PM□□□□				
OTHERS							
	JA394	CONNECTOR	PKP-038				

Mark	No.	Description	Parts No.
ESCUTCHEON BOARD ASSY			
SEMICONDUCTORS			
	D801	LED	SEL6210S-TS
RESISTORS			
	R801	CARBON FILM RESISTOR	RD1/6PM331J
OTHERS			
	CN801	3PJUMPER CONNECTOR	52151-0310
	J802	CONNECTOR ASS'Y	PDE1250
JOINT BOARD ASSY			
OTHERS			
	CN751, 752	CONNECTOR 28P	9604S-28F
RACK BOARD A ASSY			
SWITCHES AND RELAYS			
	S651, 652	PUSH SWITCH	DSG1015
OTHERS			
	CN651	CONNECTOR 5P	VKN1062
RACK BOARD B ASSY			
SWITCHES AND RELAYS			
	S653, 654	PUSH SWITCH	DSG1015
MECHA BOARD ASSY			
OTHERS			
	CN621	CONNECTOR	12FMZ-ABT
	CN622	CONNECTOR 3P	4-173979-3
	CN623	CONNECTOR 4P	173979-4
	CN624	CONNECTOR 3P	6-173979-3
	CN625	CONNECTOR 22P	SLEM22R-2
	CN626	CONNECTOR 3P	6-173979-4
	CN627	CONNECTOR 3P	173979-3
SENSOR BOARD ASSY			
SEMICONDUCTORS			
	Q631	PHOTO-INTERRUPTER	GP1A53HR
SWITCHES AND RELAYS			
	S631	PUSH SWITCH	DSG1016
RESISTORS			
	R631	CARBON FILM RESISTOR	RD1/6PM471J
OTHERS			
	CN631	CONNECTOR 3P	6-173979-4

Mark	No.	Description	Parts No.
LOADING BOARD ASSY			
SWITCHES AND RELAYS			
		REAF SWITCH	VSK1011
OTHERS			
	CN641	CONNECTOR 3P	4-173979-3
SELECT MOTOR BOARD ASSY			
OTHERS			
	J627	CONNECTOR ASS'Y 2P	PDE1244
LOADING MOTOR BOARD ASSY			
OTHERS			
	J624	CONNECTOR ASS'Y 2P	PDE1245
MECHANISM BOARD ASSY			
SWITCHES AND RELAYS			
	S610	PUSH SWITCH	DSG1016
OTHERS			
	CN610	CONNECTOR 4P	173979-4

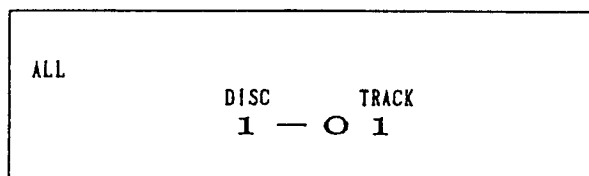
7. OPERATING DESCRIPTION

7.1 POWER SUPPLY RECEPTACLE ON

When the mechanism is not at the home position when the power supply receptacle is switched ON, it will return to the home position, the mechanism will be clamped and stop will be executed with the following display.

The normal play mode will be <ALL> mode when no mode specification has been made.

Receptacle ON (DISC Display)

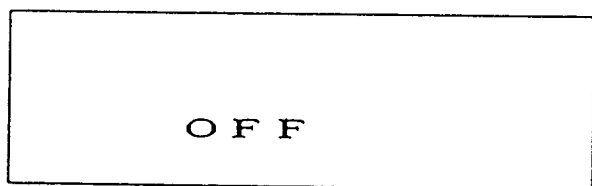


7.2 POWER ON/OFF (Product, Remote Control)

1. POWER-OFF

1. When the <POWER ON/OFF> key is pressed at the time of POWER ON, the entire FL will go out, and power OFF condition will be reached.
2. Except for the <POWER ON/OFF> key, all other keys are disabled during POWER OFF.
3. When the <POWER ON/OFF> key is pressed during PLAY, during SEARCH, etc., the operation will be stopped, the disc will be stored, the mechanism will return to the home position, clamping will be executed, and then the power will be switched OFF. At this time, "OFF" is displayed at the 7-segment display to indicate that POWER-OFF is being executed.

During POWER-OFF



4. The play mode, the program, the customer, and the last disc are kept even when POWER OFF is executed.

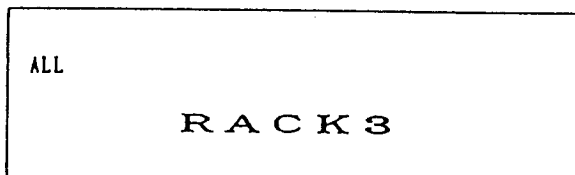
2. POWER-ON

1. When the <POWER ON/OFF> key is pressed at the time of POWER OFF, the FL will light, and all keys will be enabled.
2. The disc No. at the time of POWER OFF will be displayed, and when then the <PLAY> key is pressed, that disc will be searched and played. (Last Disc Memory specifications)
3. When the <TRACK-BACK> key is pressed within 1 sec. after POWER-ON, the business demonstration display will be started. When a key is pressed or the door is opened, the demonstration will stop, and the display returns to the original display mode.

7.3 DOOR AND ROLLING RACK OPEN

1. As play operation is continued even when the door is opened, disc exchange is possible even during playback, but as the rolling rack with the mechanism behind it can not be tilted, the discs in that rack can not be exchanged.
2. While the door is open, the number of the rolling rack which can not be tilted is displayed on the 7-segment display. (Only "RACK" is displayed when all racks can be tilted.)

With open door



(The number of the rack which can not be tilted is shown.)

3. When the door is opened during selection or loading, the operation will be interrupted temporarily. The operation will be started again after confirmation that the door has been closed. Accordingly, when the <PLAY> key or the <RANDOM> key is pressed while the door and the rolling rack is open, play operation will not begin. Play will be started after confirmation that the door has been closed.
4. When a rolling rack is tilted, the disc existence information for that part, the program write information, and the random erasure information are cleared. (The customer writing information is not cleared.) When at this time all written information is cleared in <PROGRAM> mode, <ALL> mode will be entered.

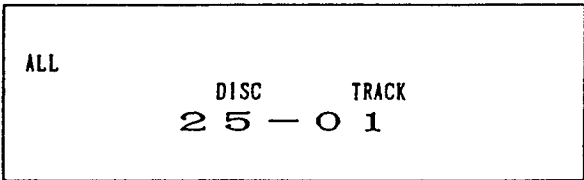
7.4 PAUSE (Product, Remote Control)

- 1. When the <PAUSE> key is pressed during play, the PAUSE segment will light and pause will be executed at that location.
When the <PAUSE> key is pressed during search, pause will be executed at the search completion address.
- 2. When skip title selection is executed in pause condition, pause will be executed at the search completion address.
- 3. Pause is cancelled with the <PAUSE> key or the <PLAY> key.

7.5 STOP (Last Disc Memory specification) (Product, Remote Control)

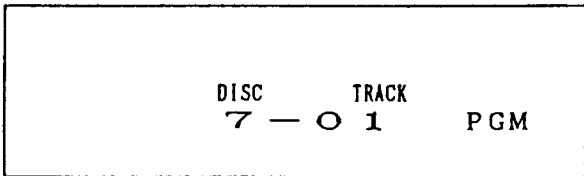
- 1. When the <STOP> key is pressed during play, the number of the disc played immediately before will be displayed, the disc will be stored, the mechanism will return to the home position, clamping will be executed and stop condition will be reached.
- 2. When the <PLAY> key is pressed again, the previously played disc will be searched and played (Last Disc Memory).
When a program has been set up, the number of the first disc in the program will be displayed, and when then the <PLAY> key is pressed, play will start from that disc.

<STOP> key ON



(The number of the disc played immediately before is shown.)

<STOP> key ON (with a program)



(The number of the first disc of the program is shown.)

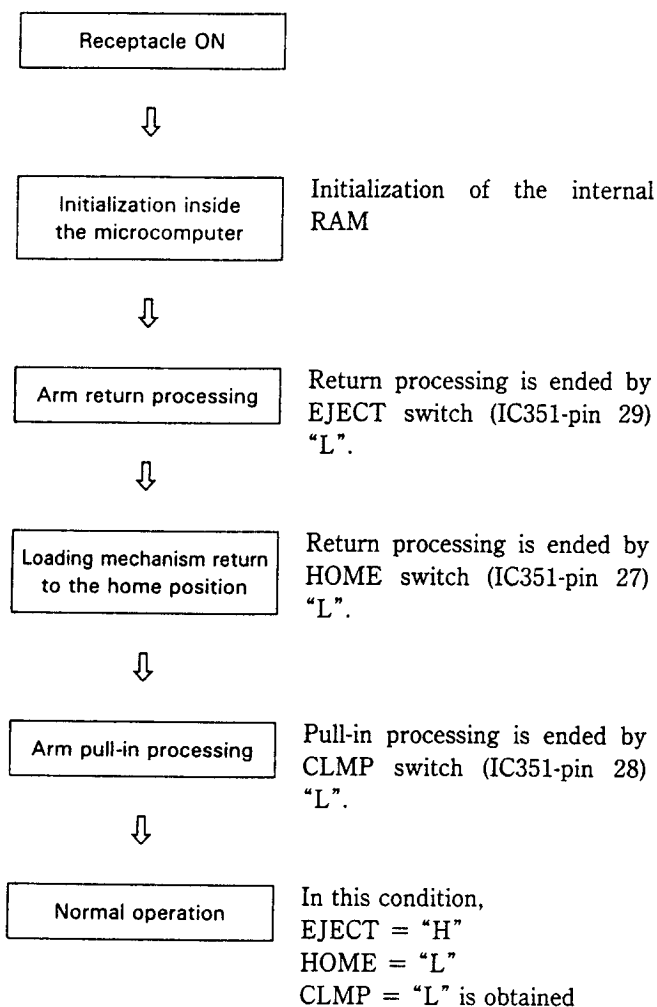
- 3. Last Disc Memory applies for all modes, <ALL>, <SINGLE>, and <CUSTOM>.
(However, this applies only for normal play.)
- 4. When the <STOP> key is pressed during repeat or pause ON, repeat or pause also will be cancelled.
When the <STOP> key is pressed during stop in <PROGRAM> mode, <PROGRAM> mode will be cancelled (when a program has been written, this also will be cleared), and <ALL> mode will be entered.

7.6 LIST OF FL DISPLAY CHARACTERS

Display	Contents
OFF	Displayed after the POWER key has been pressed until standby status has been reached.
RACK *	Displayed when the door or the rack is open. * shows the number of the rack where the mechanism is (number of the rack which can not be opened).
RACK	When no number is shown, the mechanism is at the home position. All racks can be opened.
25-no	Displayed when there has been no disc (Example: No 25th disc).
End	Displayed when manual search has been executed to the last disc.
PAUSE	Displayed when PAUSE PGM has been entered by PGM input.
P- **	Display of the entered PGM step when the TOTAL display has been set in PGM mode.
C1- **	Displayed at the time of confirmation of the disc entered in custom mode. (C1 at the time of custom 1 check)

7.7 OPERATION FLOWCHART

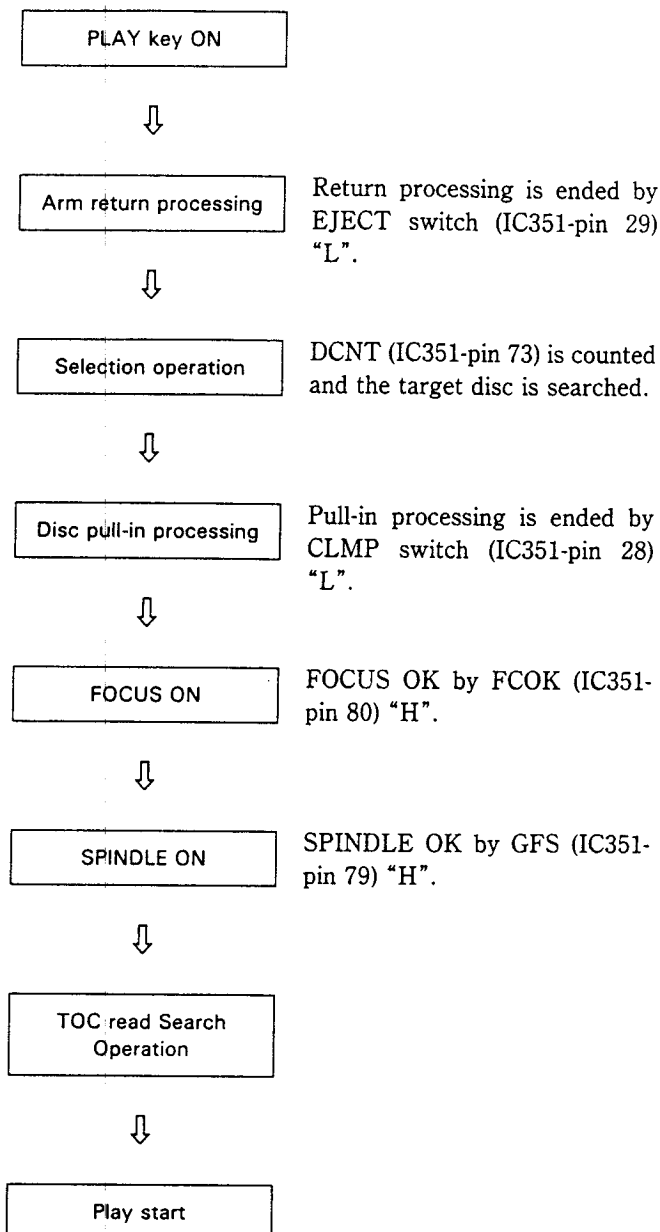
1. Sequence at the time of Receptacle ON



Afterwards, selection and playing is executed by input of the PLAY key etc.

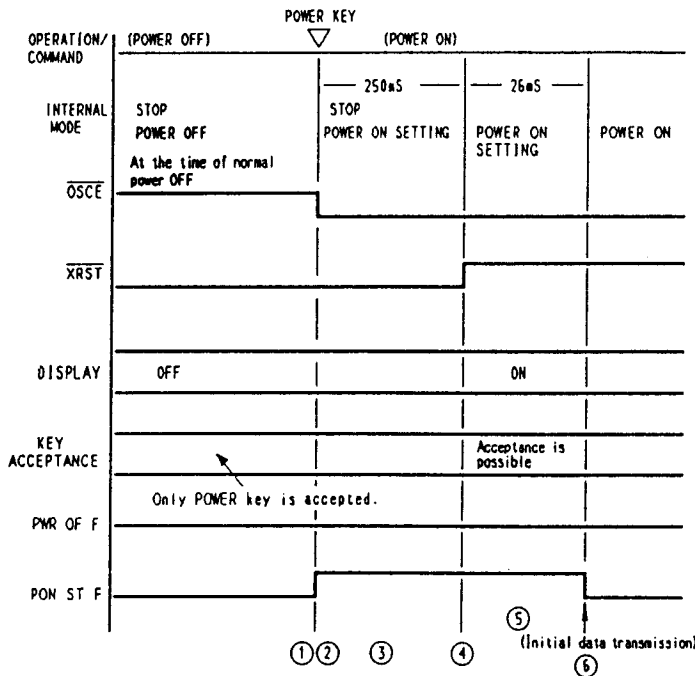
In case of NG for an operation, stop is executed at the respective position if the operation is not completed after several retries.

2. Sequence at the time of Setup (from Mechanism Home Position Standby)



3. Power ON/OFF Sequence

1. OSCE, $\overline{\text{XRST}}$ timing and operation flags at the time of power OFF $\rightarrow$ power ON



- ①. Press the POWER key for power OFF.
- ②. $\overline{\text{OSCE}} = "L"$ (LSI oscillation permission) occurs immediately.
- ③. Waiting for 250 ms.
- ④. $\overline{\text{XRST}} = "H"$ (LSI reset cancellation)
- ⑤. Waiting for about 26 ms.
- ⑥. LSI initial setting is executed.

LSI DATA FOLLOW

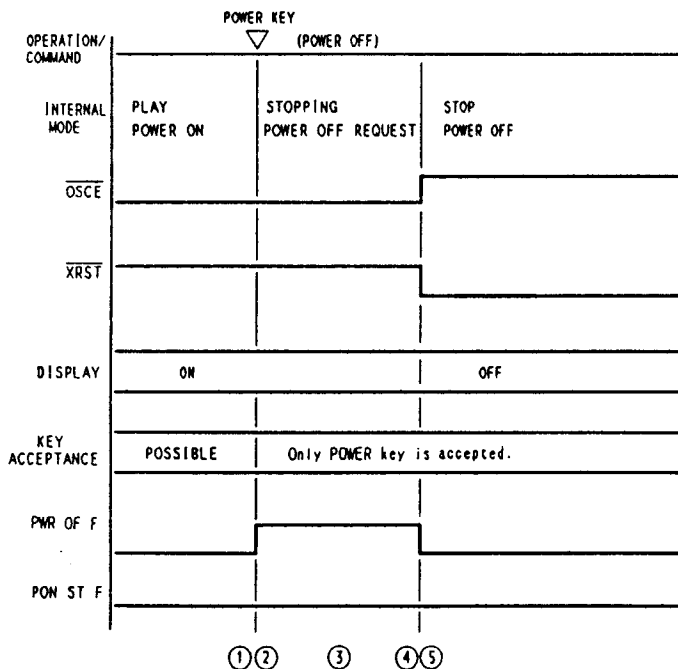
CLV-CNT INITIAL	\$D6
SERVO Coefficient Specification	\$C6
AUDIO CONTROL	\$A0
FUNCTION	\$9B20
MODE Specification	\$81

SERVO OFF

SP STOP	\$E0
BRKOFF	\$10
TR-OFF, SL-OFF	\$20
FOCUS-OFF	\$00
LD OFF	LDON=H

AUTO SEQUENCE OFF \$40

2. OSCE, $\overline{\text{XRST}}$ timing and operation flags at the time of power ON $\rightarrow$ power OFF



- ①. Press the POWER key at the time of power ON.
- ②. Power OFF request flag = "H"
If during play, the mechanism starts to stop.
- ③. The mechanism returns to the home position, waiting is executed until the end of operation.
- ④. $\overline{\text{XRST}} = "L"$ (LSI reset) after stop completion.
After 100 μs , $\overline{\text{OSCE}} = "H"$ (LSI oscillation stop).
- ⑤. Power OFF request flag = "L"

Data flow at the time of power OFF

In order to prevent run-away of mechanism, LSI, etc. during power OFF, the output of each output port is initialized as follows. Direction follow also is executed.

LDON "H"

LOUT "L", LIN "L", DSRT "L", DSLT "L"
STBL "H", XLAT "H", DLAT "H", MUTE "H"
 $\overline{\text{XRST}}$ "L", SYC3 "L", IN1 "L", OUT1 "L"
MUTB "L", SCLK "H", DATA "H", CLOK "H"

8. 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 Instruments and Tools

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

● Test Point and Adjustment Variable Resistor Positions

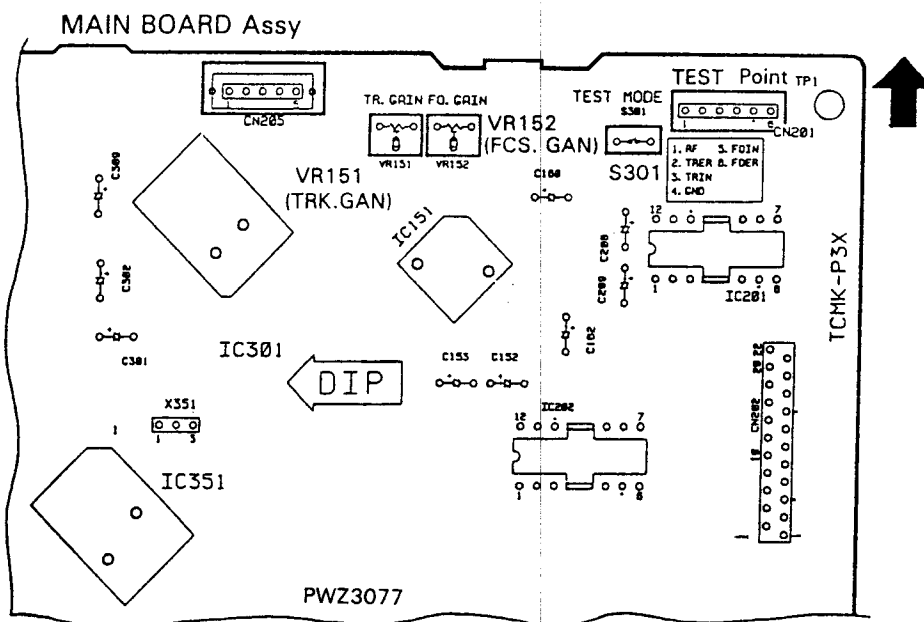


Fig. 1 Adjustment Location

● 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.

● 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. Push the test mode switch (S301). (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
	MODE	Closes focus servo after the disc is clamped.	After the first disc is clamped, the laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. 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 up, then the actuator is lowered and raised three times and returned to its original position.
▶	PLAY	Spindle servo ON	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. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. 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.
||	PAUSE	Tracking servo close/open	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. 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. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

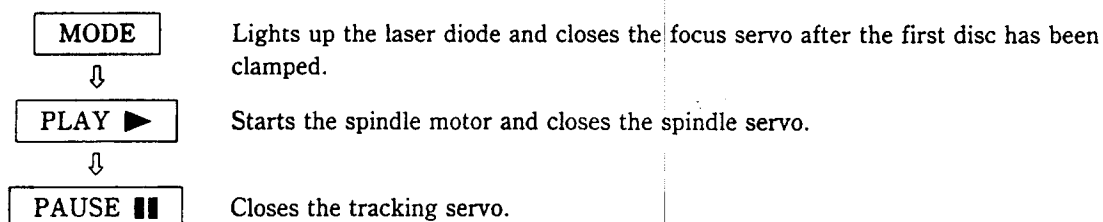
Code	Key Name	Function in Test Mode	Explanation
	TRACK/ MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	TRACK/ MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed. After this, return the disc to the rack and the mechanism back to its original position.

Note: Use the first disc in the test mode. (Other discs cannot be selected.)

[How to playback 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.



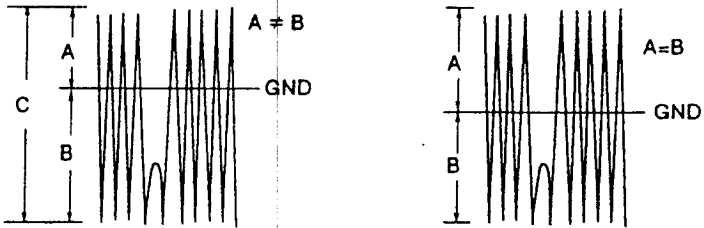
Wait at least 2–3 seconds between each of these operations.

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, Pin6 (FCS. ERR) [Settings] 5mV/division 10ms/division DC mode	● Player State ● Adjustment Location ● Disc	Test mode, stopped (just the Power switch on) None None needed
[Procedure] Verify the DC voltage at TP1, Pin6 (FCS. ERR) is $0 \pm 50\text{mV}$.			

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

● Objective	To verify that there is no variation in the sensitivity of the tracking photo diode.		
● Symptom when out of adjustment	Play does not start or track search is impossible.		
● Measurement Instrument Connections	Connect the oscilloscope to TP1, Pin2 (TRK. ERR). This connection may be via a low pass filter. [Settings] 50mV/division 5ms/division DC mode	● Player State ● Adjustment Location ● Disc	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=35mm) with the TRACK/MANUAL SEARCH FWD ►► • ►►► key or REV ◄◄◄ • ◄◄◄ key. 2. Press the MODE key, then the PLAY ► 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, pin2 (TRK. ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.			
When $A \geq B$, $\frac{A-B}{C} \times \frac{1}{2} \leq 0.1$ 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

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken; some discs can be played but not others.		
● Measurement Instrument Connections	Connect the oscilloscope to TP1, Pin1 (RF). [Settings] 20mV/division 200ns/division AC mode	● Player State ● Adjustment Location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw 8 cm disc [However, those with approx. 20 min of audio signal (music).]

[Procedure]

1. Press the TRACK/MANUAL SEARCH FWD ►► • ►► key or REV ◄◄ • ◄◄ key to move the pickup to the external circumference of the disc.
Press the MODE key, the PLAY ► key, then the PAUSE ■■ key 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).
※ The ball-point type hexagonal wrench is used because the disc will get in the way if a normal hexagonal wrench is used.
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.

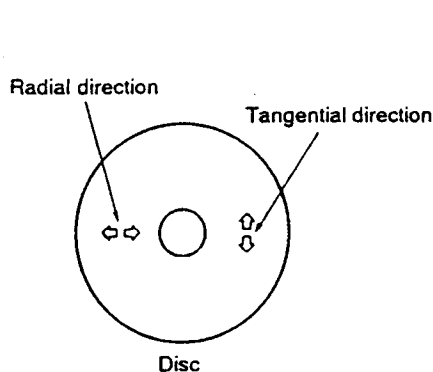
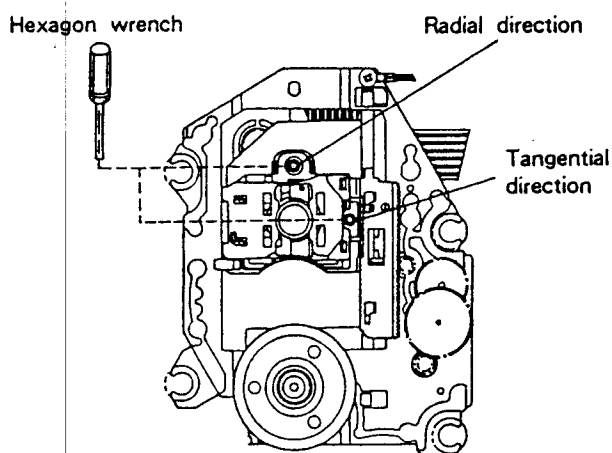
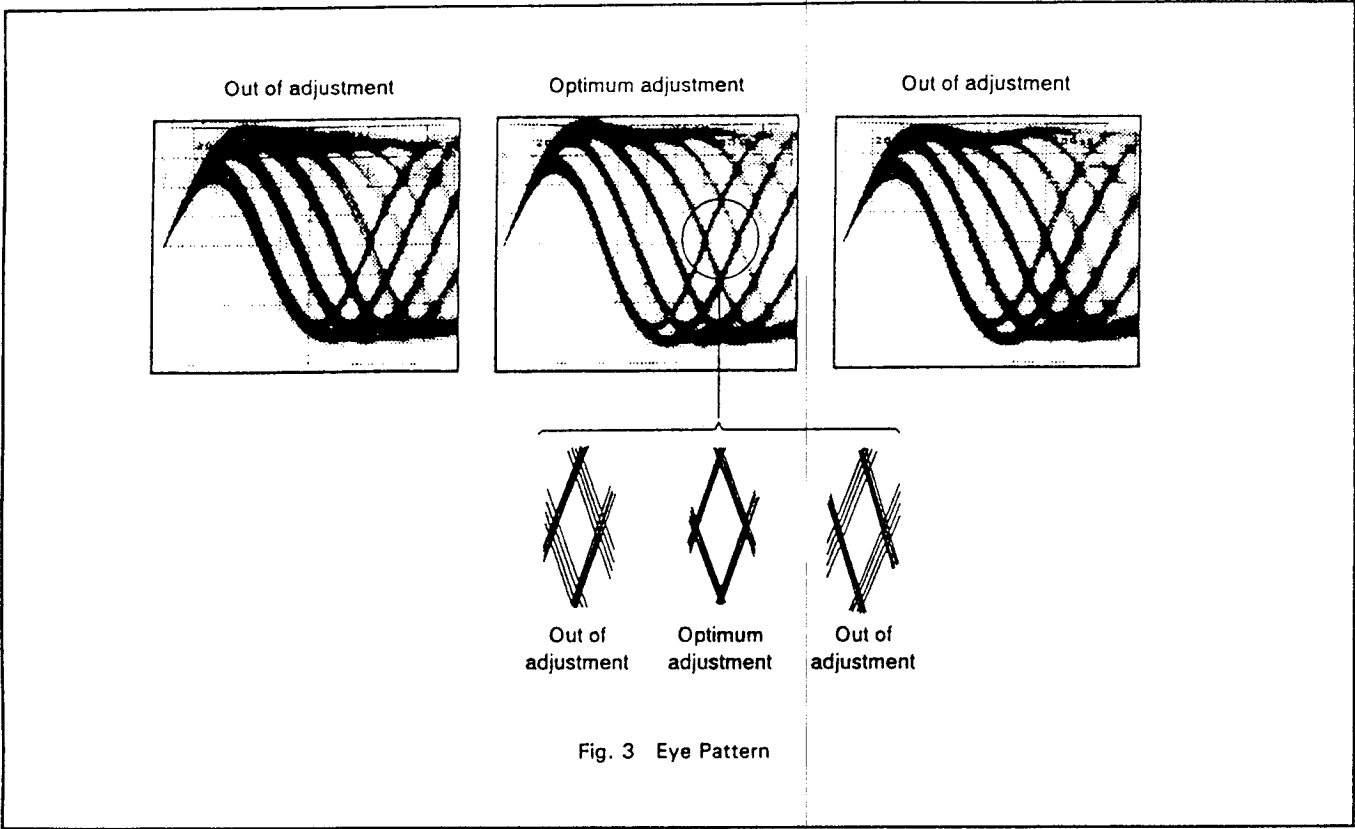


Fig. 2





Out of adjustment



Optimum adjustment



Out of adjustment



4. RF Level Verification

Objective	To verify the playback RF signal amplitude.		
Symptom when out of adjustment	No play or no search		
Measurement Instrument Connections	Connect the oscilloscope to TP1, Pin1 (RF). [Settings] 50mV/division 10ms/division AC mode	- Player State - Adjustment Location - Disc	Test mode, play None YEDS-7
[Procedure] - Move the pickup to midway across the disc (R=35mm) with the TRACK/MANUAL SEARCH FWD ►►►•►►► key or REV ◄◄◄•◄◄◄ key, then press the MODE key, the PLAY ► key, then the PAUSE ■■ key in that order to close the respective servos and put the player into play mode. - Verify the RF signal amplitude is 1.2Vp-p ± 0.2V.			

5. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement Instrument Connections	See Fig. 4. [Settings] CH1 20mV/division X-Y mode CH2 5mV/division	● Player State ● Adjustment Location ● Disc	Test mode, play VR152 (FCS. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2kHz and 1Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ►►► key or REV ◄◄◄ key to move the pickup to halfway across the disc (R=35mm), then press the MODE key, the PLAY ► key, then the PAUSE ■■ key 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.

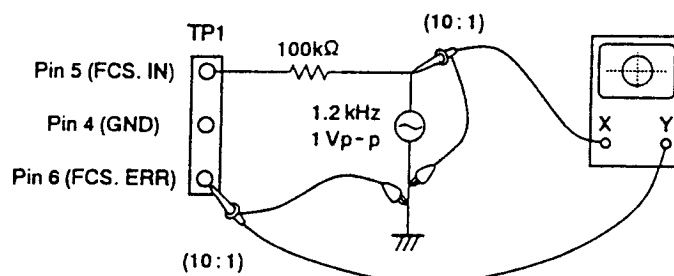
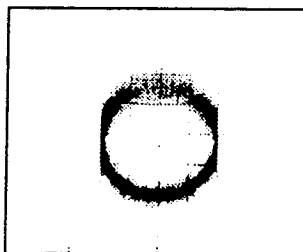


Fig. 4

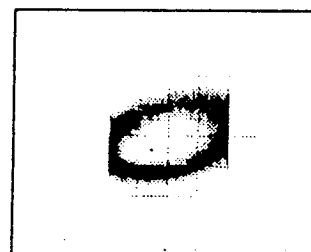
Focus Gain Adjustment



Higher gain



Optimum gain



Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement Instrument Connections	See Fig. 5. [Settings] CH1 50mV/division X-Y mode CH2 20mV/division	● Player State ● Adjustment Location ● Disc YEDS-7	Test mode, play VR151 (TRK. GAN)

[Procedure]

1. Set the AF generator output to 1.2kHz and 2Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ►►►► key or REV ◀◀◀◀ key to move the pickup to halfway across the disc (R=35mm), then press the MODE key, the PLAY ► key, then the PAUSE ◼◼ key 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.

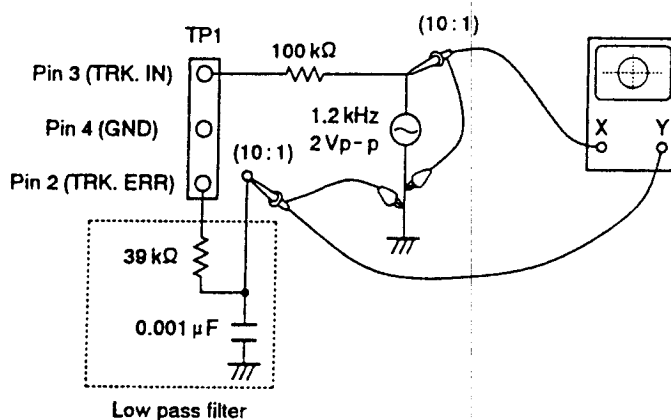
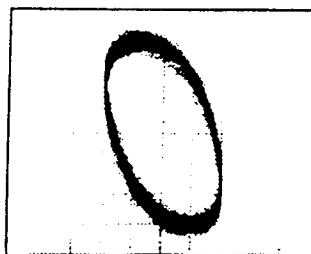
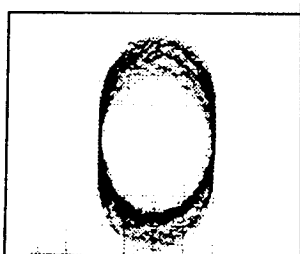


Fig. 5

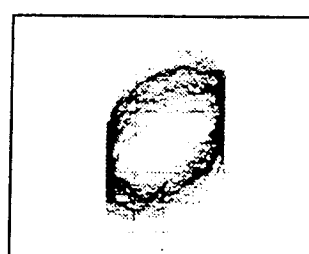
Tracking Gain Adjustment



Higher gain



Optimum gain



Lower gain

9. SCHEMATIC AND PCB CONNECTION DIAGRAMS

9.1 MECHA BOARD ASSY, SENSOR BOARD ASSY, LOADING BOARD ASSY, SELECT MOTOR BOARD ASSY, LOADING MOTOR BOARD ASSY AND MECHANISM BOARD ASSY

A 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:K, M:MQ, or Q unless otherwise noted.

Rated power: 1/4W, 1/5W, 1/8W, 1/10W unless otherwise noted.

Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.

4. CAPACITORS:

Unit: p:pF or $\mu\mu$ unless otherwise noted.

Rating: capacitor (μ F)/ voltage (V) unless otherwise noted.

Rated voltage: 50V except for electrolytic capacitors.

5. COILS:

Unit: m:mH or μ H unless otherwise noted.

6. VOLTAGE AND CURRENT:

□ or - V :

□ mA : DC voltage (V) in PLAY mode unless otherwise noted.

□ 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):

MECHANISM BOARD ASSY

S610 INSIDE SW

MAIN BOARD ASSY

S301 TEST MODE

DISPLAY BOARD ASSY

S703 H-H

S707 PAUSE

S708 DISC NUMBER -

S711 $\blacktriangleright\blacktriangleright\blacktriangleright$

S712 STOP

S715 PLAY

S716 DISC NUMBER +

SWITCH BOARD ASSY

S701 RANDOM

S702 POWER

S709 MODE

S710 CLEAR

S713 ADLC

S714 TIME

SENSOR BOARD ASSY

S631 HOME

RACK BOARD A ASSY

S651 EJECT

S652 EJECT

RACK BOARD B ASSY

S653 EJECT

S654 EJECT

D

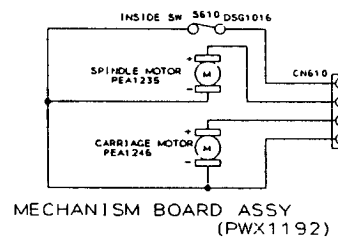
LOADING MECHANISM ASSY (PXA1571)

LOADING MECHANISM BOARD ASSY (PWX1422)

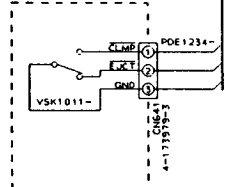
SELECT MOTOR BOARD ASSY (PWZ2782)

LOADING MOTOR BOARD ASSY (PWZ2783)

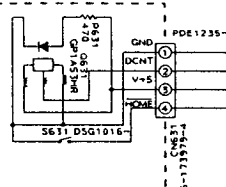
SERVO MECHANISM ASSY B (PXA1539)



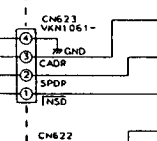
LOADING BOARD ASSY (PWZ2778)



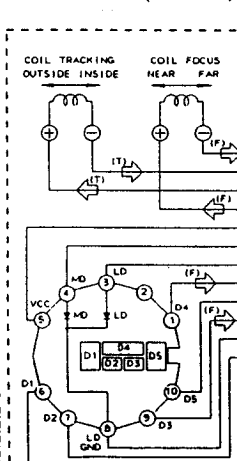
SENSOR BOARD ASSY (PWZ2777)



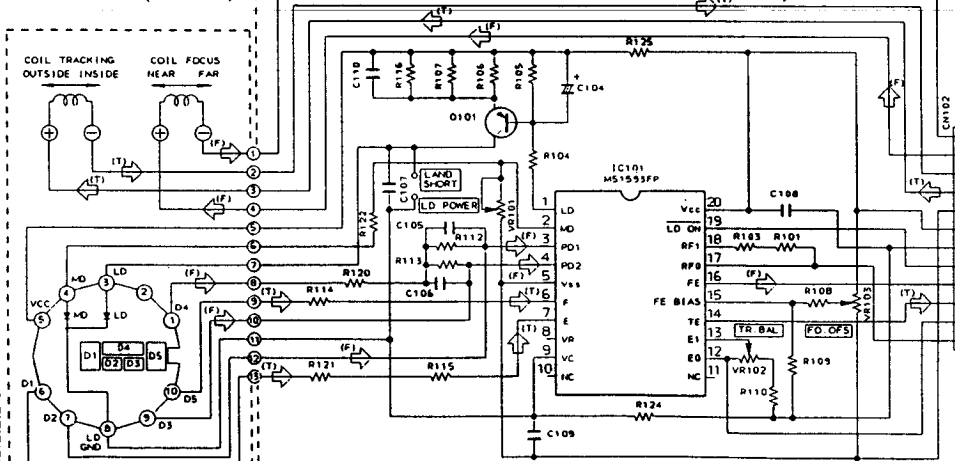
MECHA BOARD ASSY (PWZ2776)



PICKUP ASSY (PEA1319)



PRE-AMP BOARD ASSY



1 MECHA BOARD ASSY

2 LOADING MOTOR BOARD ASSY

3 SERVO MECHANISM ASSY B
MECHANISM BOARD ASSY

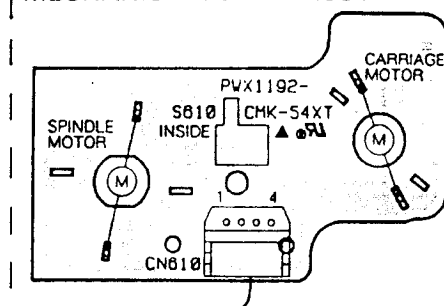
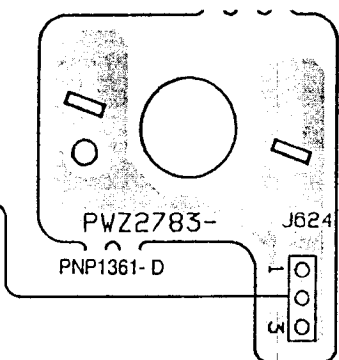
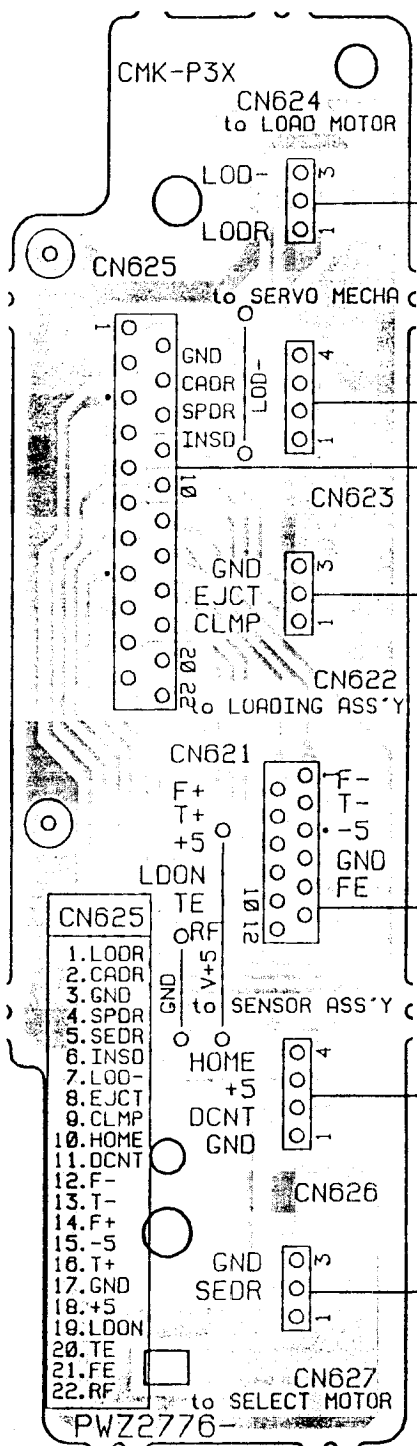
PCB-1

A

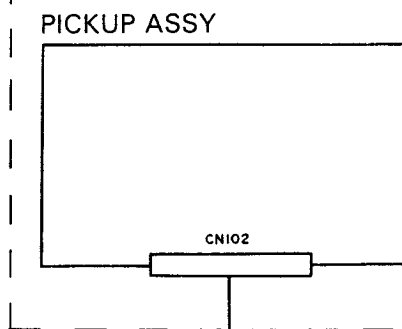
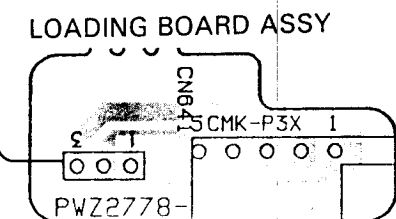
B

C

D

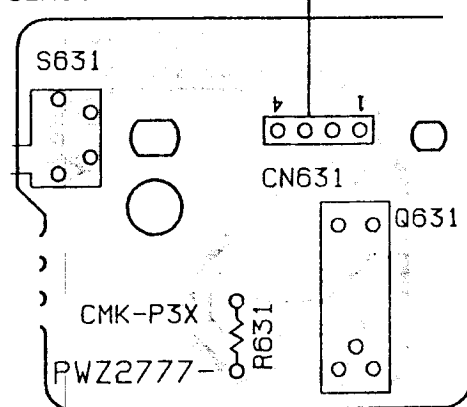


To MAIN BOARD assy CN202

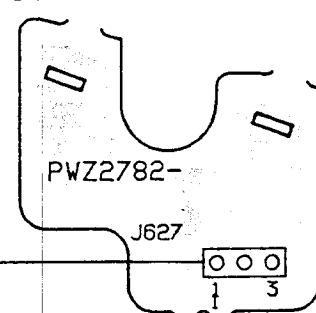


• This diagram is viewed from the mounted parts side.

SENSOR BOARD ASSY



SELECT MOTOR BOARD ASSY



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

A

A

B

B

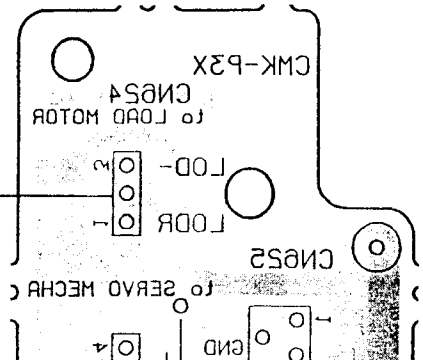
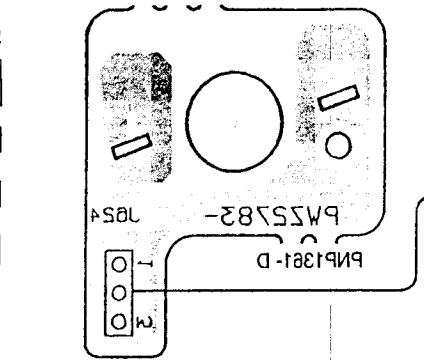
C

C

D

A

A



A

A

B

B

C

C

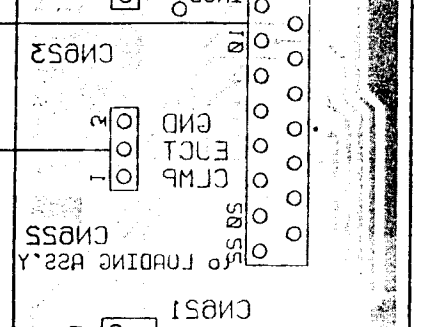
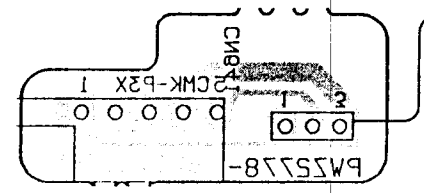
D

A

A

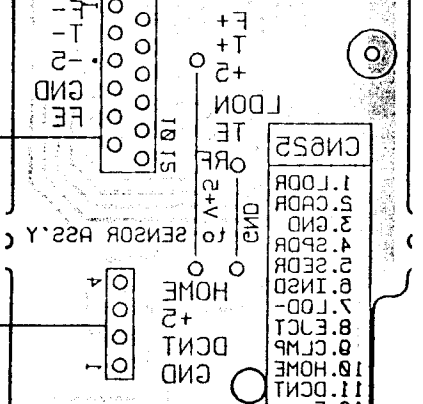
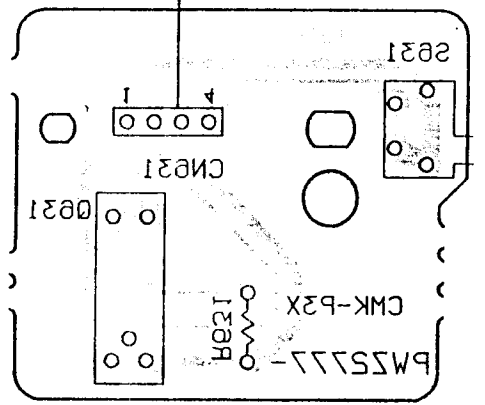
To MAIN BOARD assy CN505

LOADING BOARD ASSY

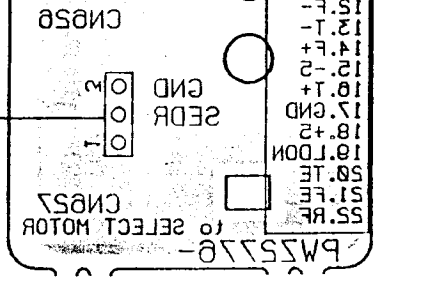
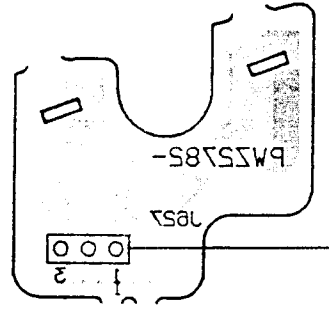


● This diagram is viewed from the foil side.

SENSOR BOARD ASSY



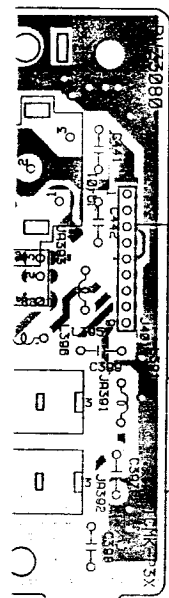
SELECT MOTOR BOARD ASSY



IN BOARD ASSY, OUTPUT BOARD ASSY, RACK BOARD A ASSY,
CK BOARD B ASSY AND I/O CONNECTOR BOARD ASSY

- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

PUT BOARD ASSY



NNECTOR BOARD ASSY

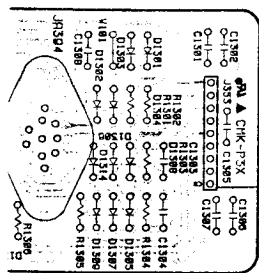
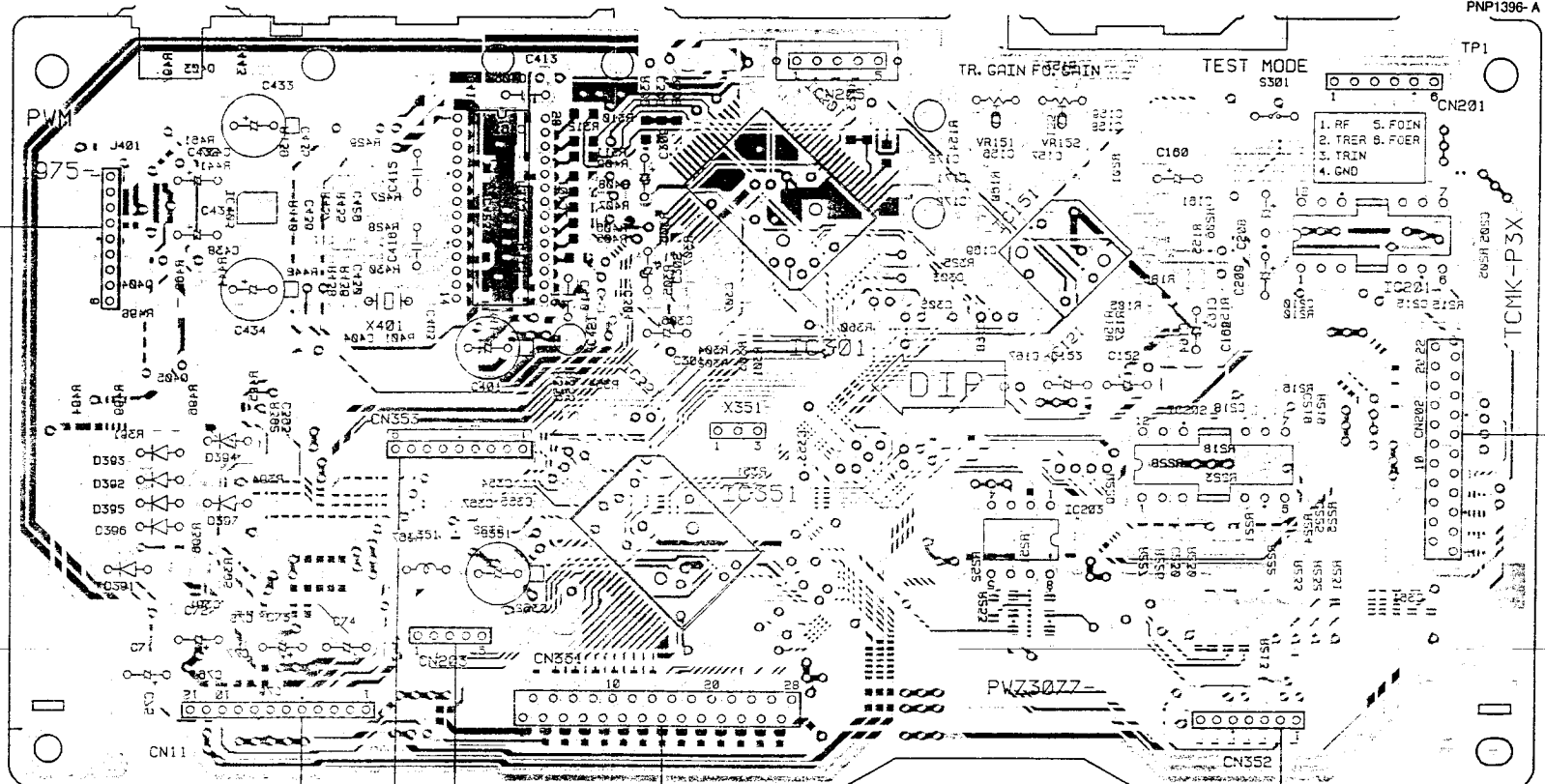


diagram is viewed from the
 mated parts side.

MAIN BOARD ASSY

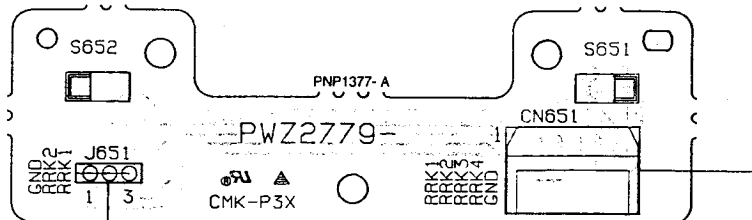


To POWER BOARD assy J11—

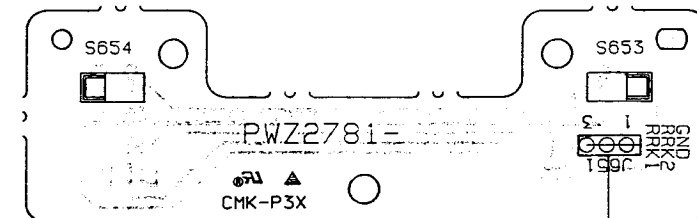
— To JOINT BOARD assy CN752 To ESCUTCHEON BOARD assy CN801

To MECHA BOARD assy CN625 -

RACK BOARD A ASSY



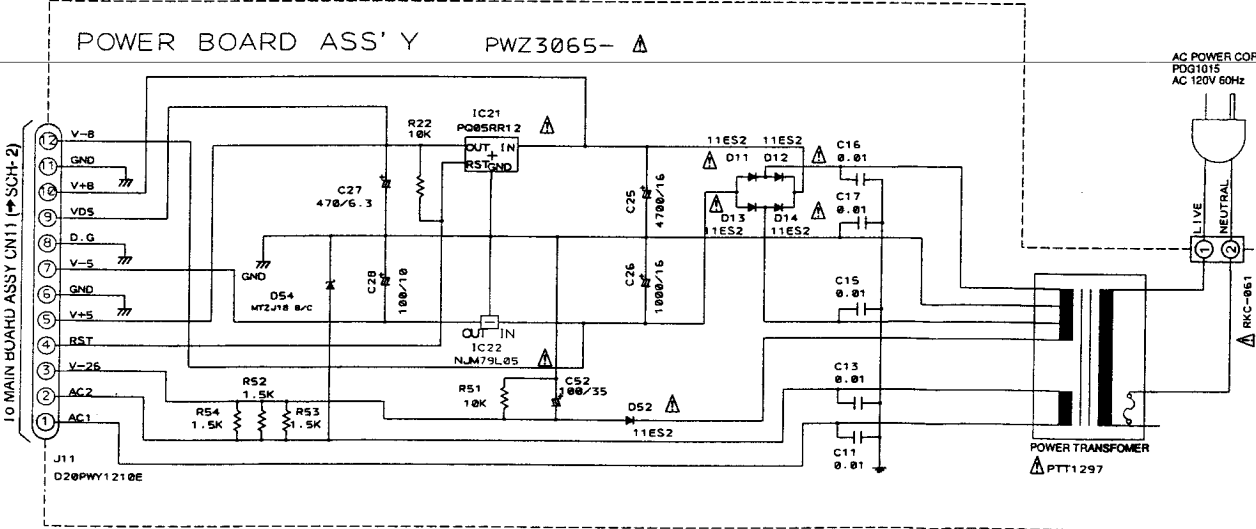
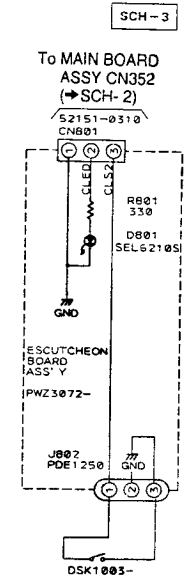
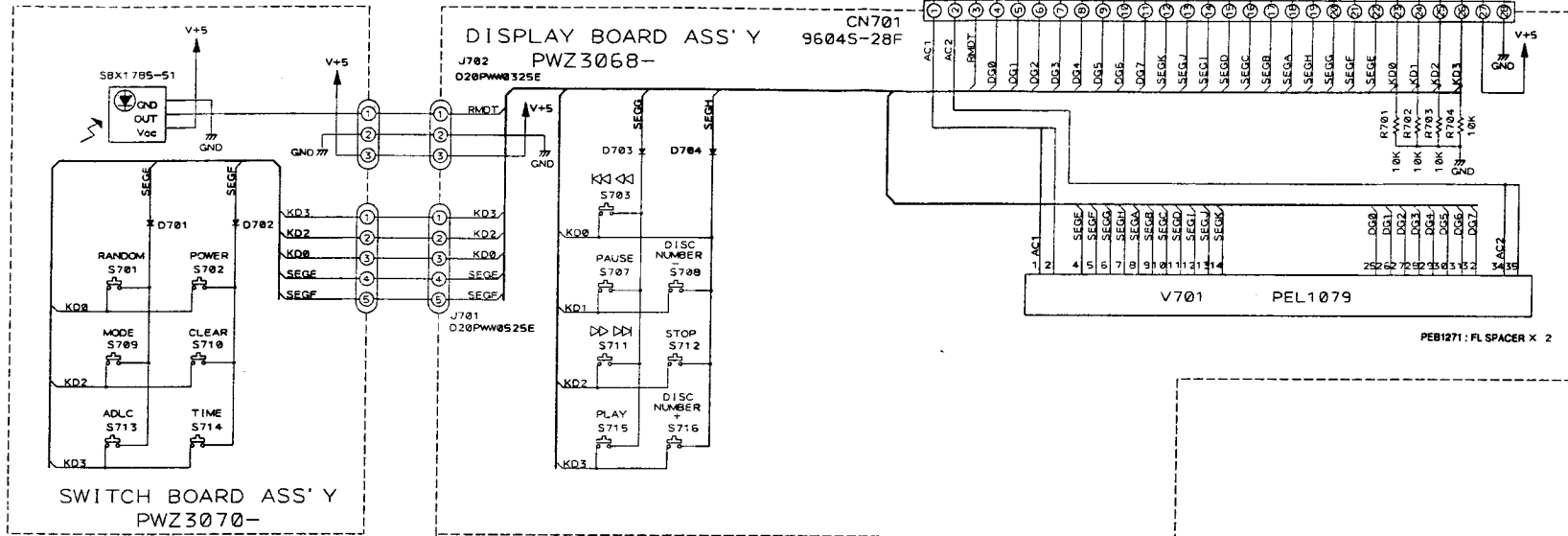
RACK BOARD B ASSY



- 2 3 4 5 6 7 8

NER BOARD ASSY, DISPLAY BOARD ASSY, SWITCH BOARD ASSY,
ESCUTCHEON BOARD ASSY AND JOINT BOARD ASSY

NOTE:
Any diode without part number indicates 1SS254.
Any tact sw without part number indicates PSG1006.



CH-3 POWER BOARD ASSY, DISPLAY BOARD ASSY, SWITCH BOARD ASSY, ESCUTCHEON BOARD ASSY, JOINT BOARD ASSY

SCH-3

477

TO MAIN BOARD Assy CM325

ESCUTCHEON BOARD ASSY

POWER BOARD ASSY

TO MAIN BOARD Assy CM11

CMK-B2X

IC51

IC55

SWITCH BOARD ASSY

CMK-B2X

JOINT BOARD ASSY

CMK-B2X

TO MAIN BOARD Assy CM321

Diagram is viewed from the top

DISPLAY BOARD ASSY

SPACER

SPACER

CMK-B2X

210P

IBPULSE

2112

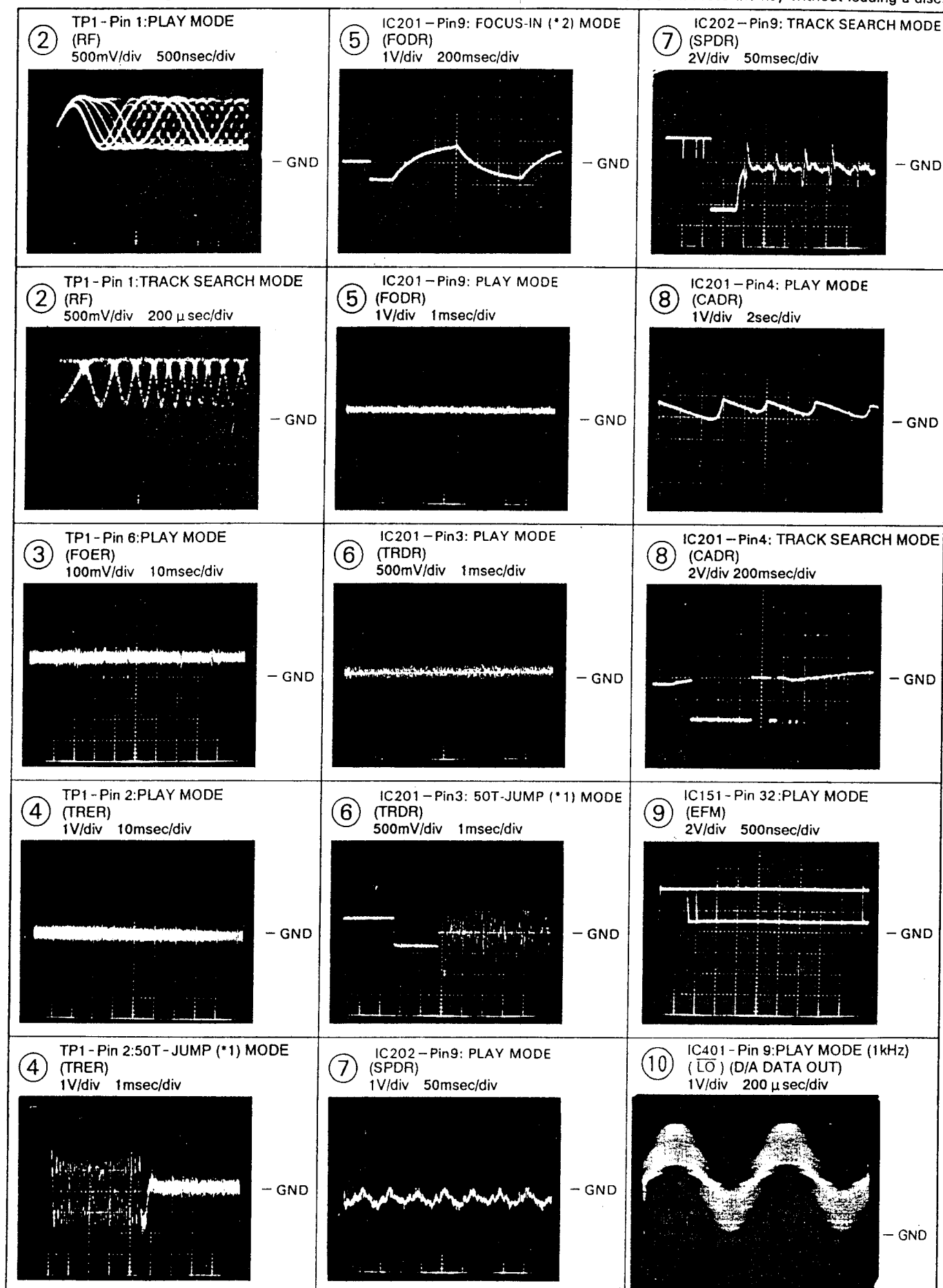
BT

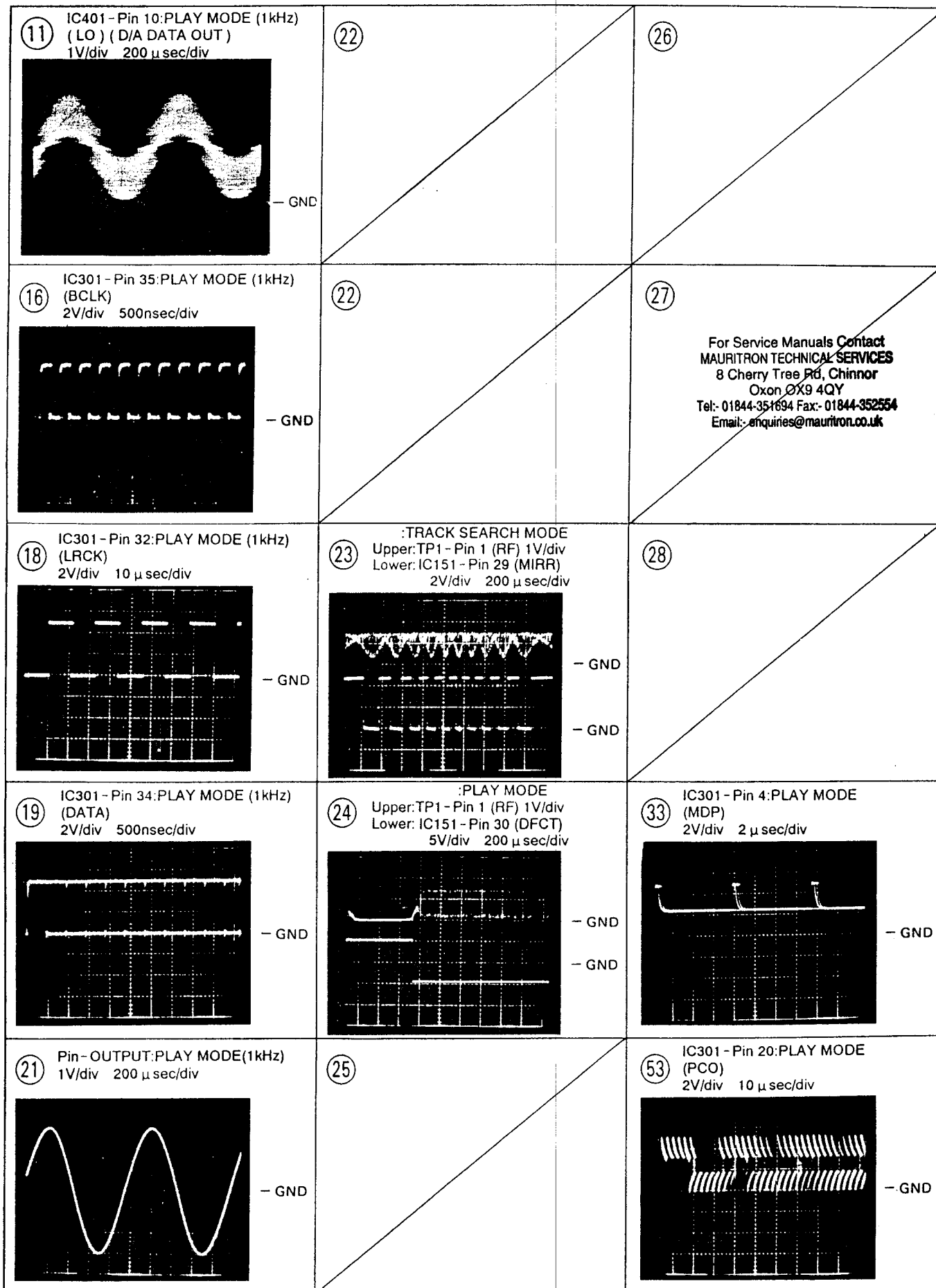
Waveforms

Note: The encircled numbers denote measuring point 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.





● IC401
[PD2026B (L)]

Pin No.	Voltage[V]
1	0
2	0
3	5
4	5
5	2. 4
6	2. 6
7	0
8	0
9	2. 6
10	2. 4
11	5
12	0
13	2. 4
14	2. 4
15	5
16	0
17	5
18	0
19	2
20	5
21	5
22	5
23	5
24	5
25	2. 4
26	2. 4
27	2. 4
28	5

● IC301
(CXD2500BQ)

Pin No.	Voltage[V]	Pin No.	Voltage[V]	Pin No.	Voltage[V]
1	5	31	1.3-2.2	61	0
2	2. 1	32	2. 5	62	2. 5
3	5	33	5	63	0
4	2. 6	34	2. 5	64	0
5	2. 2	35	2. 5	65	0
6	5	36	2. 5	66	3.3-4.8
7	0	37	2. 5	67	5
8	5	38	2. 5	68	0
9	0	39	0	69	2.1-3
10	0	40	5	70	5
11	2. 1	41	2. 5	71	5
12	0	42	5	72	5
13	1	43	2. 5	73	5
14	0.9-1.3	44	0	74	5
15	0	45	5	75	5
16	2	46	4. 4	76	0
17	0	47	0	77	5
18	2. 5	48	0	78	5
19	2. 4	49	0-0.3	79	5
20	2. 4	50	1. 2	80	0
21	0	51	1. 2		
22	2. 5	52	0		
23	5	53	2. 5		
24	2. 5	54	2. 5		
25	0. 2	55	0		
26	0	56	2. 9		
27	2. 5	57	2. 5		
28	0	58	2. 5		
29	0	59	0		
30	0	60	0		

● IC201 (LA6520)

Pin No.	Voltage[V]
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0. 1
12	8. 4
FIN	- 8. 2

● IC202 (LA6520)

Pin No.	Voltage[V]
1	0
2	0
3	0
4	0
5	0
6	0
7	1. 7
8	1. 7
9	0.5-0.8
10	0
11	0. 1
12	8. 4
FIN	- 8. 2

● IC151
(CXA1372Q)

Pin No.	Voltage[V]	Pin No.	Voltage[V]
1	0	25	5
2	0	26	0
3	0	27	5
4	0	28	0
5	-0.3	29	0
6	0	30	-5
7	0.2	31	2.5
8	0	32	2.5
9	0	33	5
10	5	34	-1.5
11	0	35	-1.7
12	0	36	5
13	0	37	-0.7
14	0-0.3	38	-1.5
15	0	39	0
16	-4	40	0.8
17	1.3	41	-5
18	0	42	0
19	-5	43	0
20	5	44	0
21	5	45	0
22	5	46	0
23	5	47	0
24	5	48	0

● IC351
(PD3315A)

Pin No.	Voltage[V]	Pin No.	Voltage[V]	Pin No.	Voltage[V]	Pin No.	Voltage[V]
1	5	21	0	41	-25.7	61	5
2	5	22	0	42	-25.7	62	0
3	5	23	0	43	-25.7	63	5
4	0	24	5	44	-25.7	64	5
5	0	25	5	45	-25.7	65	5
6	0	26	5	46	-25.7	66	0
7	0	27	5	47	-25.7	67	5
8	5	28	0	48	-25.7	68	5
9	0	29	5	49	-25.7	69	5
10	2.3	30	0	50	-25.7	70	5
11	2.3	31	5	51	-25.7	71	5
12	5	32	-25.7	52	5	72	5
13	5	33	-25.7	53	-0.9	73	5
14	0	34	-25.7	54	-0.9	74	0
15	0	35	-25.7	55	-0.9	75	0
16	0	36	-25.7	56	-0.9	76	5
17	0	37	-25.7	57	5	77	0
18	0	38	-25.7	58	5	78	0
19	5	39	-25.7	59	5	79	5
20	0	40	-25.7	60	5	80	5

CMK-P3X

PWZ3070-

S701

S713

S714

S709

S710

RANDOM

ADLC

TIME

MODE

CLEAR

J702

J701

POWER BOARD ASSY

POWER

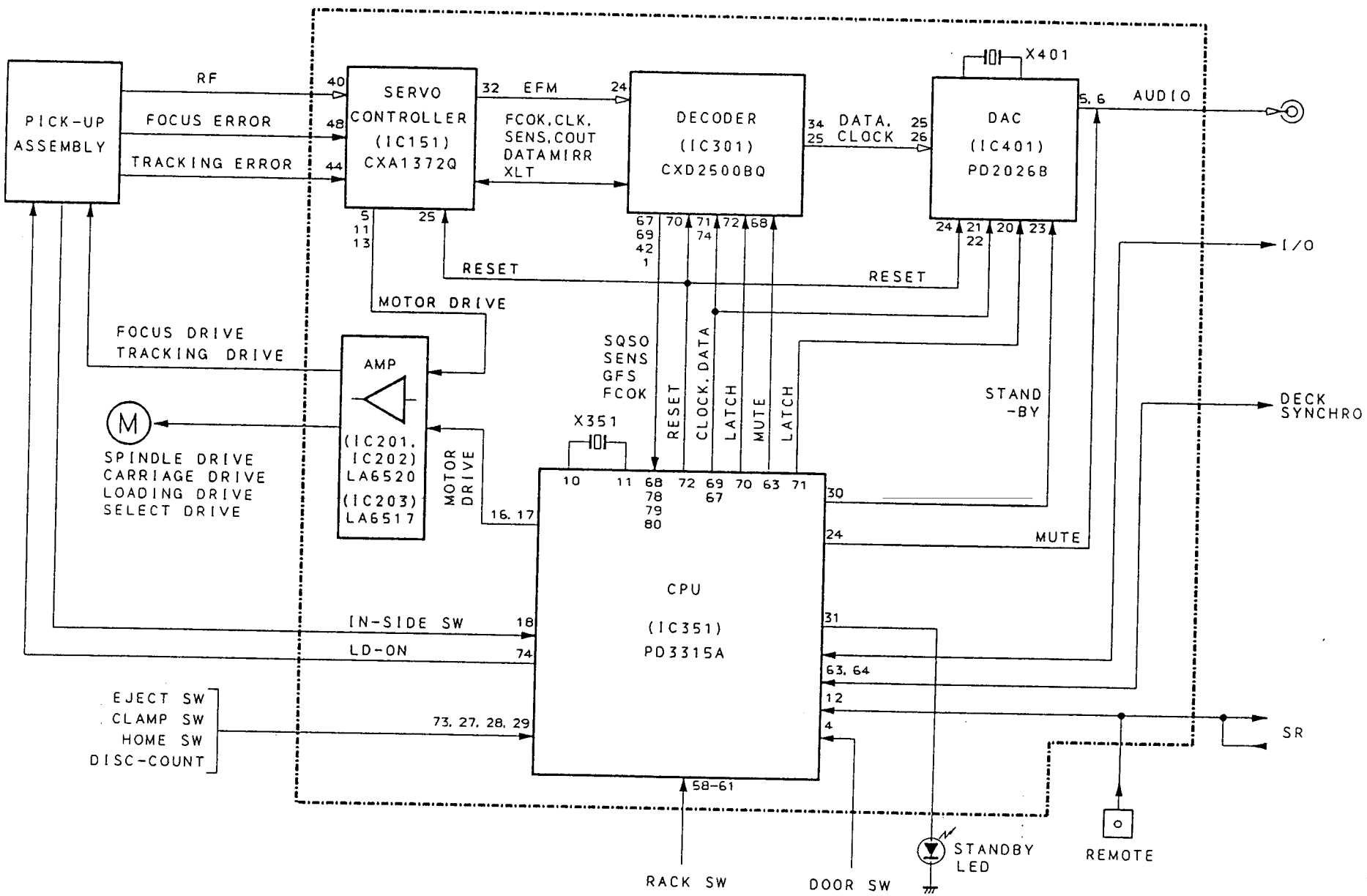
Diagram of the CMK-P3X PWZ3074-1 connector assembly. The assembly consists of a rectangular board with two rows of circular connectors. The top row is labeled CN751 and the bottom row is labeled CN752. The board is labeled CMK-P3X and PWZ3074-1. Arrows indicate FRONT (up) and REAR (down) orientations. A line points from the bottom row of connectors to the text "To MAIN BOARD assy CN351".

Diagram of the ESCUTCHEON BOARD ASSY showing connections to the MAIN BOARD assy. The diagram includes labels for components like D88, R801, C1K-P3X, and CN801, and shows the connection of the board to the main board via a cable labeled CN802.

To MAIN BOARD assy CN11

10. BLOCK DIAGRAM

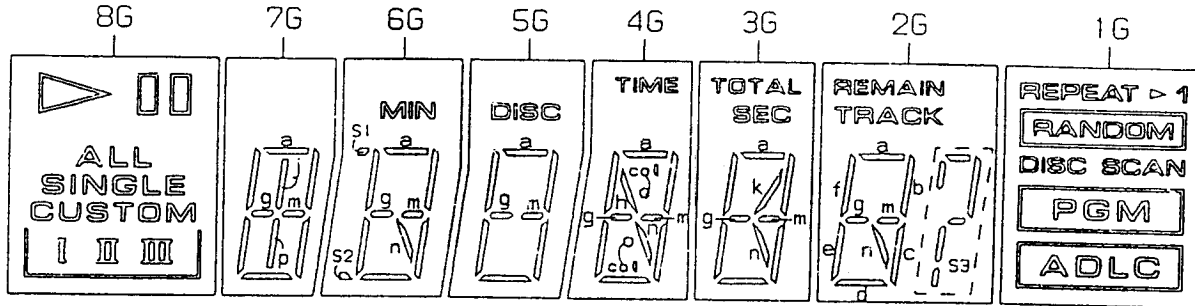
PD-F904



11. FL INFORMATION

■ PEL1079 (V701 : DISPLAY BOARD ASSY)

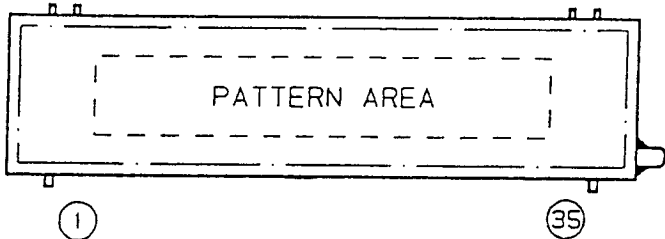
- FL Tube
- Grid Assignment



● Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F	F	N	P	P	P	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	1	1	P	5	6	7	8	1	2	3	4	9	0	1	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2

● Pin Assignment



- NOTE
- 1) F1, F2 --- Filament
 - 2) NP ----- No pin
 - 3) DL ----- Datum Line
 - 4) 1G~8G --- Grid

● Anode Connection

	8G	7G	6G	5G	4G	3G	2G	1G
P1	ALL	a	a	a	a	a	a	RANDOM
P2	SINGLE	b	b	b	b	b	b	-
P3	I	c	c	c	c	c	c	-
P4		d	d	d	d	d	d	ADLC
P5	III	e	e	e	e	e	e	PGM
P6	CUSTOM	f	f	f	f	f	f	DISC
P7	-	g, m	g, m	g, m	g, m	g	g, m	SCAN
P8	-	-	S1, S2	-	col	m	S3	-
P9	III	j, p	n	-	h, n	k, n	n	-
P10	▷	-	MIN	DISC	-	SEC	TRACK	> 1
P11	□	-	-	-	TIME	TOTAL	REMAIN	REPEAT

12. IC INFORMATION

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

■ PD3315A (IC351 : MAIN BOARD ASSY)

● System Control Micro-computer

● Pin Function

No.	Symbol	Pin Name	I/O	Description
1 | 3	P04/AN4 | P06/AN6	P1S1 | P1S3	I	+1 disc detection input (only models +1 disc installed) (Not used)
4	P07/AN7	CLSE	I	
5	AVss	No use	GND	(Reference voltage for A/D converter): GND
6	TEST	No use	GND	(Test terminal for maker): GND
7	X2	No use	—	(Sub clock oscillator connected terminal): OPEN
8	X1	No use	+5V	(Sub clock oscillator connected terminal): Vcc
9	Vss	Vss	GND	GND
10	OSC1	OSC1	—	Connected to System clock oscillator (8MHz)
11	OSC2	OSC2		
12	RES	RST	I	CPU reset (L: Reset)
13	P10/IRQ0	RDMT	I	Remote control data input
14	P11/IRQ1	SCOR	I	Sub code sinc S0 + S1 input
15	P12/IRQ2	DRST	O	Selector output port Right direction (DRST: H, DSLT: L) Left direction (DRST: L, DSLT: H)
16	P13/IRQ3	DSLTL		
17	P14/IRQ4	LIN	O	Loading output port Clump (LIN: L, LOUT: H) Return (LIN: H, LOUT: L)
18	P15/IRQ5 /TMOE	LOUT		
19	P16/EVENT	INSD	I	Slider INSIDE SW input (L: INSIDE)
20 | 22	P33/FS27 | P31/FS25	KD3 | KD1	I	Key • data input
23	P30/FS24	KD0/TEST	I	
24	P47/FS23	MUTB	O	Muting output (L: MUTE)

No.	Symbol	Pin Name	I/O	Description
25	P46/FS22	IN1	O	+1 disc eject output port Eject (IN1: L, OUT1: H) Load (IN1: H, OUT1: L) (only models +1 disc installed) (Not used)
26	P45/FS21	OUT1		
27	P44/FS20	HOME	I	Disc selector home SW (L: Home)
28	P43/FS19	CLMP	I	Clump SW (L: Clump OK)
29	P42/FS18	EJCT	I	Loading out SW (L: Loading out OK)
30	P41/FS17	OSCE	O	OSCE output (H: when Standby)
31	P40/FS16	CLED	O	LED output for PLAY INDICATOR (LED Blinking: Not home)
32 | 35	P50/FS15 | P53/FS12	SEG E | SEG H	O	Segment output for FL drive
36 | 39	P54/FS11 | P57/FS8	SEG A | SEG D		
40	P17/Vdisp	Vdisp	I	—26V
41 | 43	P60/FD0/FS7 | P62/FD2/FS5	SEG I | SEG K	O	Segment output for FL drive
44 | 48	P63/FD3/FS4 | P67/FD7/FS0	D7 | D3	O	Digit output for FL drive
49 | 51	P70/FD8 | P72/FD10	D2 | D0		
52	P73/FD11	RLD1	O	LED output for Rack1 (Not used)
53	P74/FD12	RLD2	O	LED output for Rack2 (Not used)
54	P75/FD13	RLD3	O	LED output for Rack3 (Not used)
55	P76/FD14	RLD4	O	LED output for Rack4 (Not used)
56	P77/FD15	LED	O	Output for LED
57	Vcc	Vcc	—	+5V

No.	Symbol	Pin Name	I/O	Description
58	P80	RRK1	I	Rack1 Yes/No SW (L: No) (only models with 100 discs installed)
59	P81	RRK2	I	Rack2 Yes/No SW (L: No) (only models with 100 discs installed)
60	P82	RRK3	I	Rack3 Yes/No SW (L: No) (Rack1 SW for models with 50 discs installed)
61	P83	RRK4	I	Rack4 Yes/No SW (L: No) (Rack2 SW for models with 50 discs installed)
62	P84	MUTE	O	Muting OUTPUT (H: MUTE) (For I/O INTERFACE)
63	P85	SYC3	O	DECK SYNCHRO signal output (For I/O INTERFACE)
64	P86	SYC1	I	DECK SYNCHRO signal input (For I/O INTERFACE)
65	P87	QSEL	O	Signal output for QDATA discrimination (H: During output of Q DATA) (For I/O INTERFACE)
66	P90/PWM	TRCH	O	Data serial output (For I/O INTERFACE)
67	P91/SCK1	CLOK	O	LSI serial clock output (For I/O INTERFACE)
68	P92/SI1	SQSO	I	Sub code Q data serial input (For I/O INTERFACE)
69	P93/SO1	MDAT	O	LSI control data serial output
70	P94/SCK2	XLAT	O	LSI control data latch pulse
71	P95/SI2/CS	DLAT	O	DAC control data latch pulse
72	P96/SO2	XRST	O	Reset output for each LSI
73	P97/UD	DCNT	I	Disc count pulse input
74	PA0	LDON	O	Laser diode output (L: ON, H: OFF)

No.	Symbol	Pin Name	I/O	Description
75	PA1	B100	I	Switching port for 50/100 discs mount model (H: 50 discs)
76	AVcc	AVcc	+5V	+5V
77	PO0/AN0	LEDS	I	Switching port for CLED (H: Jointly used for standby)
78	PO0/AN1	SENS	I	LSI operating status multi-mode input
79	PO1/AN2	GFS	I	Frame sync lock input (H: OK)
80	PO2/AN3	FCOK	I	Focus OK input (H: OK)

BLOCK DIAGRAM (System Control Section)

