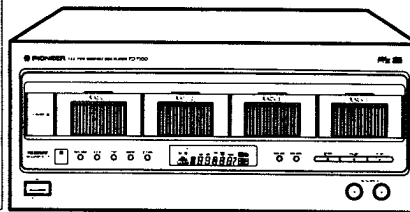


Service Manual



ORDER NO.
RRV1081

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

FILE-TYPE COMPACT DISC PLAYER **PD-F100**

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-F100		
KU/CA	○	AC120V	—
RD	○	AC110-127V/220-230V	With the voltage selector
WEM	○	AC220-240V	—

CONTENTS

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CHAPTER 2

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2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS	2-11
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CHAPTER 1

1.1 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.

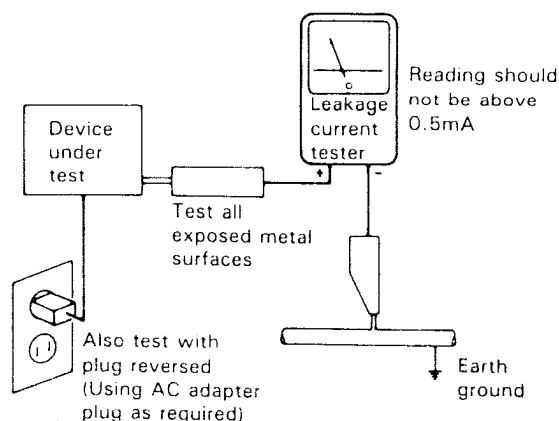
(FOR USA MODEL ONLY)

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 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

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.

(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 UNDGÅ UDSÆTTELSE FOR
STRÅLING.

VARNING!

OSYNLIG LASERSTRÅLNING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRakta 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

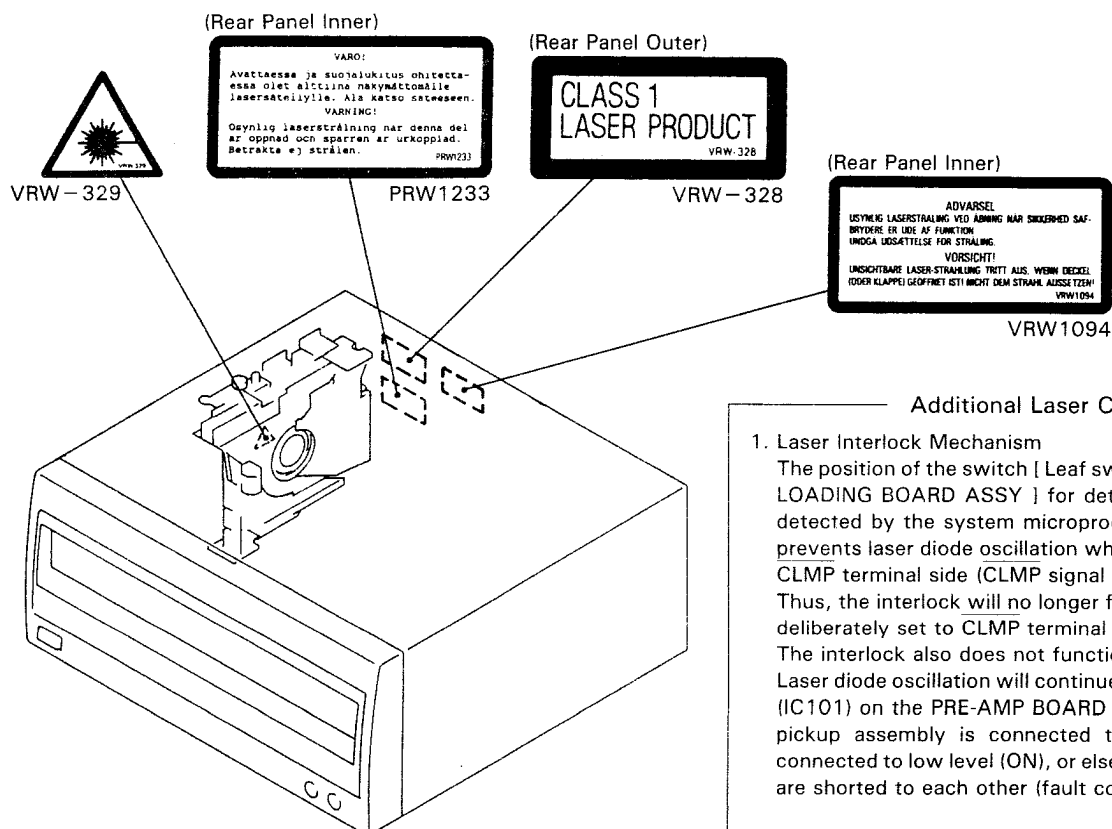
IMPORTANT

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



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 1 - 10.

1.2 SPECIFICATIONS

1. General

Type Compact disc digital audio system

Power requirements

- U.S., Canadian models AC 120 V, 60 Hz
- European models AC 220-240 V, 50/60 Hz
- Other models AC 110-127 V/220-240 V (Switchable) 50/60 Hz

Power consumption 14 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 (except for European models)

CD-DECK SYNCHRO jack

I/O INTERFACE (U.S. and Canadian models only)

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 (except for European models)

5. Display

FL Tube Display

- Play indicator
- Pause 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

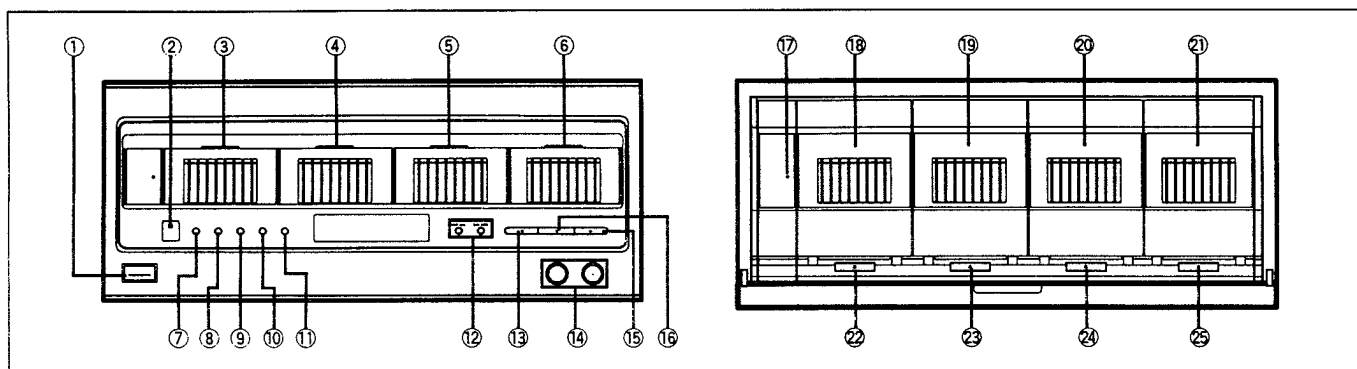
- Remote control unit 1
- AAA/R03 dry cell batteries 2
- Output cable 1
- Control cable (except for European models) 1
- CD liner notes file 2
- Index label sheet 1
- Operating instructions 1

NOTE:

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

1.3 PANEL FACILITIES

FRONT PANEL



- ① **POWER STANDBY/ON switch**
- ② **Remote sensor**
Receives the signal from the remote control unit.
- ③ **Rack 1 indicator**
- ④ **Rack 2 indicator**
- ⑤ **Rack 3 indicator**
- ⑥ **Rack 4 indicator**
- ⑦ **RANDOM button**
- ⑧ **ADLC button**
- ⑨ **TIME button**
- ⑩ **MODE button**
- ⑪ **CLEAR button**
- ⑫ **Track/Manual search buttons**
(◀◀ ◀◀ / ▶▶ ▶▶)
- ⑬ **Stop button (■)**
- ⑭ **DISC NUMBER buttons (-/+)**
- ⑮ **Play button (▶)**
- ⑯ **Pause button (||)**
- ⑰ **STANDBY indicator**
- ⑱ **Rolling RACK 1**
- ⑲ **Rolling RACK 2**
- ⑳ **Rolling RACK 3**
- ㉑ **Rolling RACK 4**
- ㉒ **EJECT button for RACK 1 (▲)**
- ㉓ **EJECT button for RACK 2 (▲)**
- ㉔ **EJECT button for RACK 3 (▲)**
- ㉕ **EJECT button for RACK 4 (▲)**

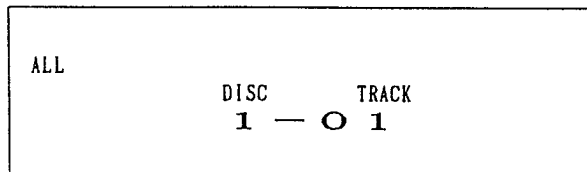
1.4 OPERATING DESCRIPTION

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)

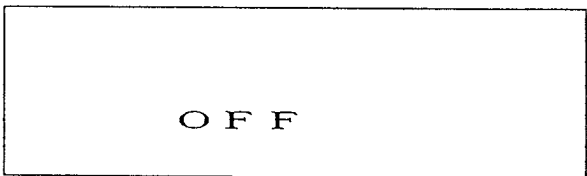


2. POWER ON/OFF (Product, Remote Control)

2.1 POWER — OFF

1. When the <POWER ON/OFF> key is pressed at the time of POWER ON, the entire FL will go out, the standby LED will light, 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.

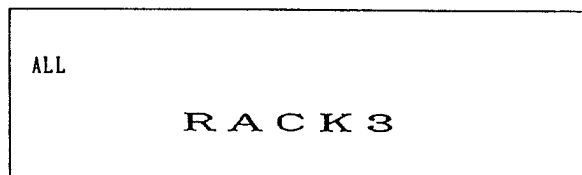
2.2 POWER — ON

1. When the <POWER ON/OFF> key is pressed at the time of POWER OFF, the FL will light, the standby LED will go out, 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.

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.) At this time, the rack LED indicates which rack can not 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.

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.

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

ALL				
	DISC		TRACK	
	2 5	—	0 1	

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

<STOP> key ON (with a program)

	DISC		TRACK	
	7	—	0 1	PGM

(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.)

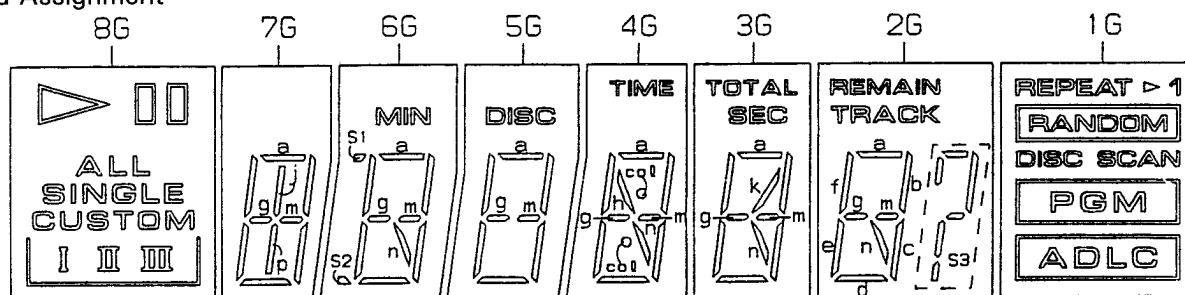
4. When the <STOP> key is pressed during repeat or pause ON, repeat or pause also will be cancelled.

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.

1.5 FL INFORMATION

■ PEL1079 (V701 : DISPLAY BOARD ASSY)

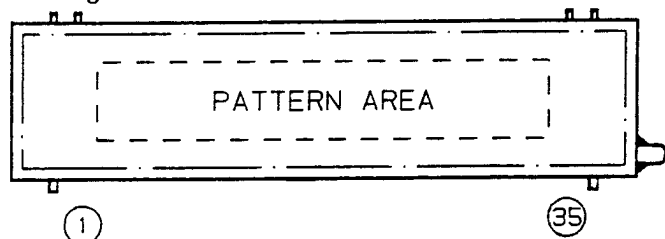
- FL Tube
- Grid Assignment



● Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	2	2	2	2	2	2	2	3	3	3	3	3				
CONNECTION	F	F	N	P	P	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	8	7	6	5	4	3	2	1	N	F	F	
	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	G	G	G	G	G	G	G	P	2	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	II	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

1.6 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 ($39\text{k}\Omega + 0.001\mu\text{F}$)
5. Resistor ($100\text{k}\Omega$)
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

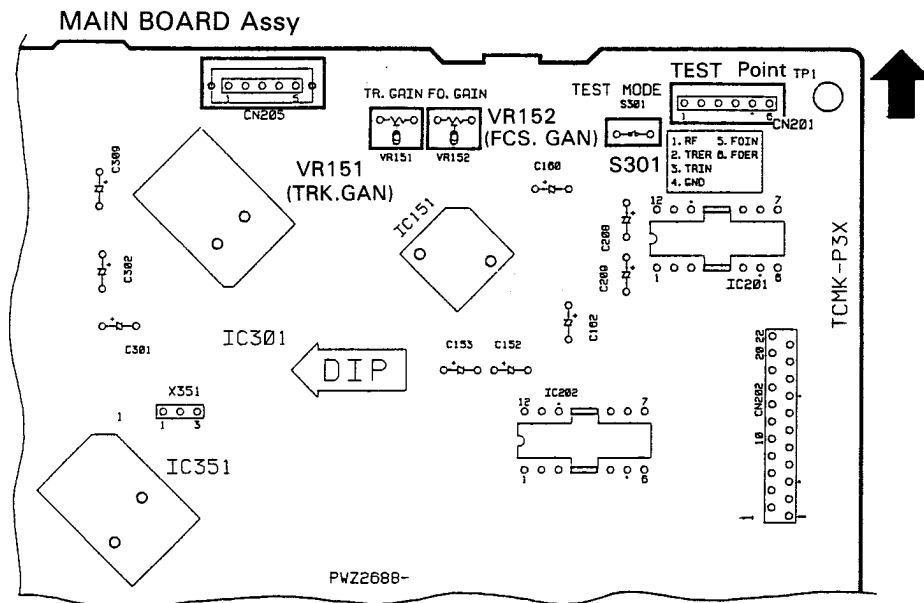


Fig. 1 Adjustment Location

● 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.

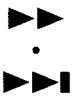
[Release from test mode]

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.

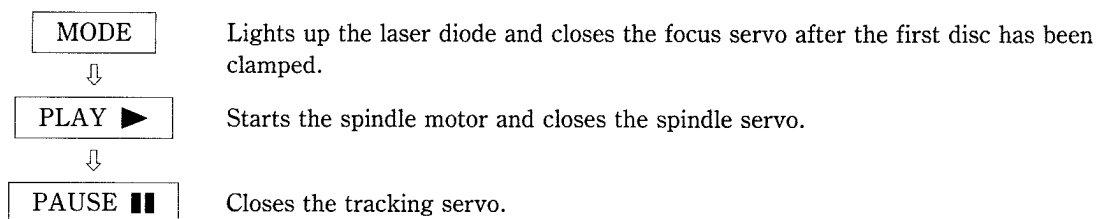
Code	Key Name	Function in Test Mode	Explanation
	TRACK/ MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor 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.

Note:

- Carry out the following procedure only when the microcomputer (IC351) is PD3280A.
 - Advance (TRACK/MANUAL SEARCH key) the carriage after closing the focus servo (MODE key). If the carriage was previously advanced, stop the operation (STOP key) first, then repeat the procedure from the start. (If the operation is not stopped, the focus servo will not close.)
- If the microcomputer (IC351) is PD3280B (or any other besides PD3280A):
 - The focus servo can be closed even if the carriage is previously advanced.

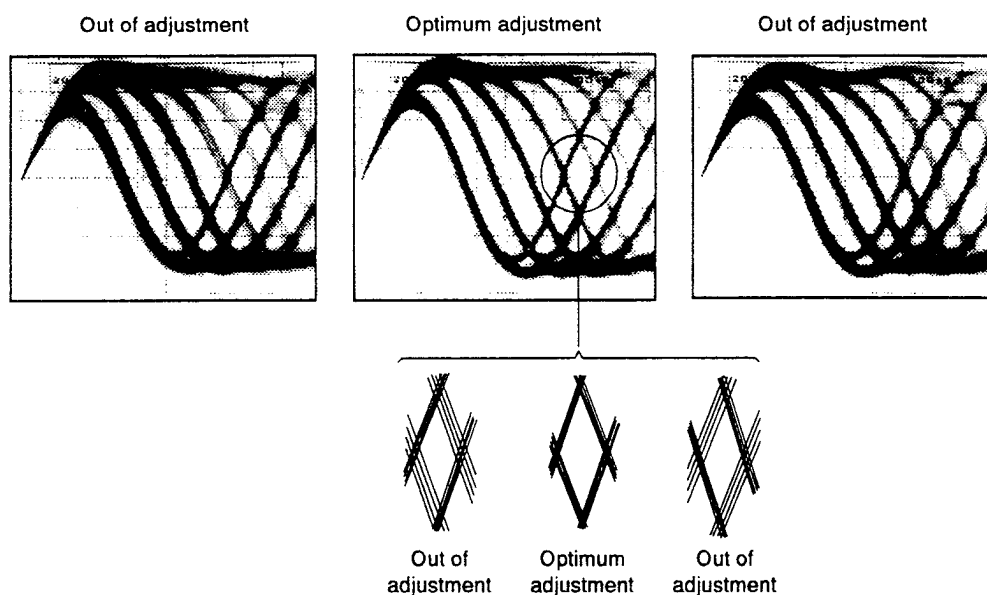


Fig. 3 Eye Pattern

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] 1. 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. 2. Verify the RF signal amplitude is 1.2Vp-p±0.2V.			

■ 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.

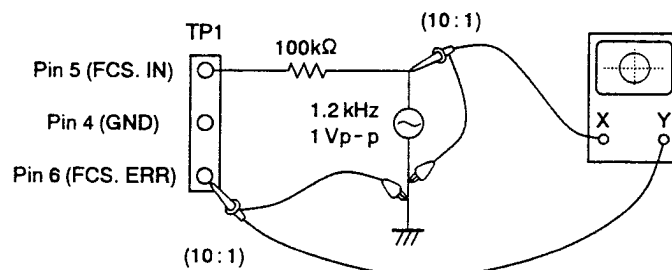
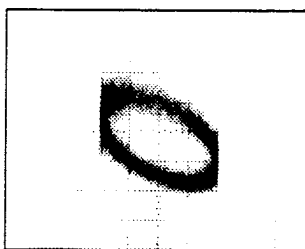
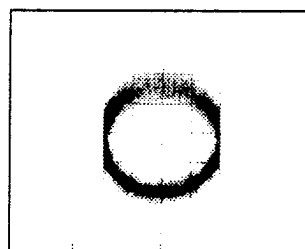


Fig. 4

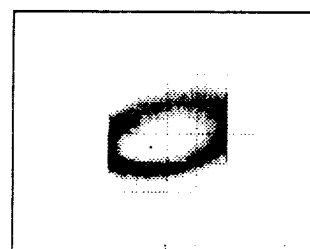
Focus Gain Adjustment



Higher gain



Optimum gain



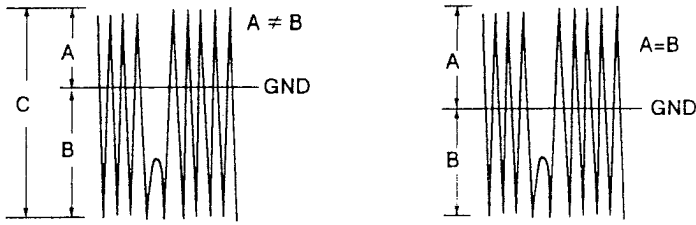
Lower gain

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.

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	

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.

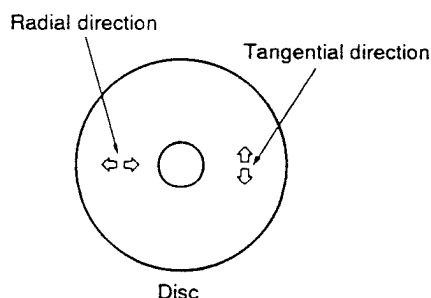
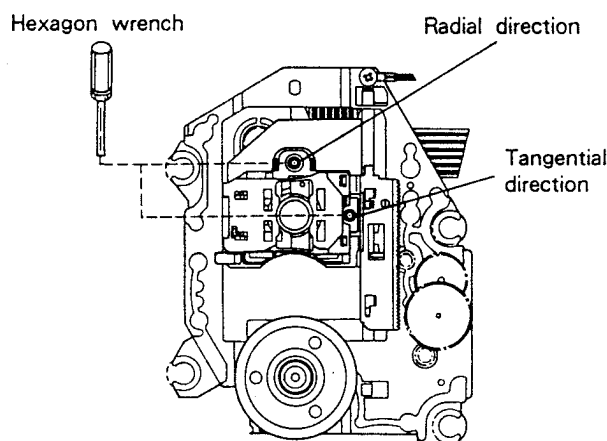


Fig. 2



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.	● Player State	Test mode, play
	[Settings] CH1 50mV/division X-Y mode CH2 20mV/division	● Adjustment Location ● Disc	VR151 (TRK. GAN) YEDS-7

[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.

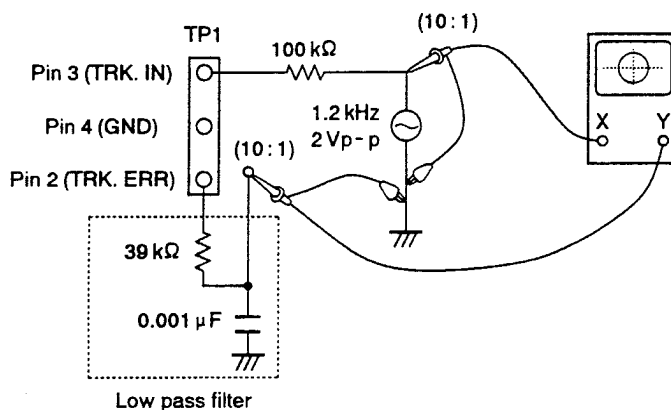
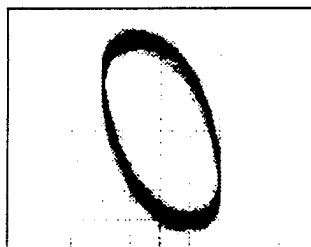
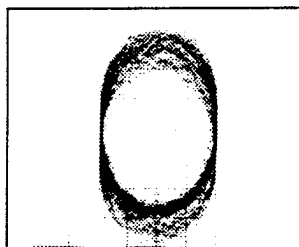


Fig. 5

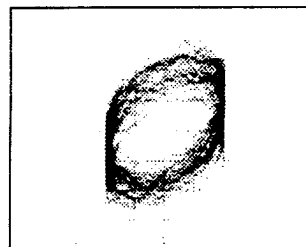
Tracking Gain Adjustment



Higher gain



Optimum gain



Lower gain

1.7 PARTS LIST FOR PACKING AND EXPLODED VIEWS

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.

(1). PACKING

■ CONTRAST OF KU/CA, RD and WEM TYPES

PD-F100/KU/CA, RD and WEM have the same construction except for the following :

Mark	No.	Description	Part No.			Remarks
			PD – F100			
			KU/CA	RD	WEM	
NSP	1	Cord with mini plug	PDE1247	PDE1247	Not used	
	6	Wireless remote control unit	PWW1091	PWW1091	PWW1097	
	7	Battery lid	PZN1010	PZN1010	PZN1014	
	13	Packing case	PHG2047	PHG2058	PHG2058	
	17	Warranty card	ARY1044	Not used	ARY – 088	
	20	Operating instructions (English, Spanish, Chinese)	Not used	PRE1211	Not used	
	21	Operating instructions (English, French, Germany, Italian)	Not used	Not used	PRE1208	
	22	Operating instructions (Dutch, Swedish, Spanish, Portuguese)	Not used	Not used	PRE1209	

■ PARTS LIST FOR KU/CA TYPE

Mark	No.	Description	Parts No.
NSP	1	CORD WITH MINI PLUG	PDE1247
	2	CORD WITH PLUG	PDE1248
	3	JACKET FILE	PHN1047
	4	OPERATING INSTRUCTIONS (English)	PRB1213
	5	INDEX LABEL 100	PRW1360
	6	WIRELESS REMOTE CONTROL UNIT	PWW1091
	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	PHG2047
	14	CAUTION	PRM1033
	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

(2). EXTERIOR

■ CONTRAST OF KU/CA, RD and WEM TYPES

PD-F100/KU/CA, RD and WEM have the same construction except for the following :

Mark	No.	Description	Part No.			Remarks
			PD – F100			
			KU/CA	RD	WEM	
△ △ △ NSP	1	Cord stopper	CM – 22C	CM – 22B	CM – 22B	
	7	AC power cord	PDG1015	PDG1056	PDG1003	
	8	Power transformer	PTT1297	PTT1299	PTT1298	
	9	Cord holder	DNF1128	Not used	Not used	
	14	Rear base	PNA2075	PNA2077	PNA2076	
NSP NSP NSP	48	65 label	ORW1069	Not used	Not used	
	64	MAIN BOARD assy	PWZ2688	PWZ2690	PWZ2689	
	65	OUTPUT BOARD assy	PWZ2708	PWZ2708	PWZ2709	
	66	I/O CONNECTOR assy	PWX1390	Not used	Not used	
	67	POWER BOARD assy	PWZ2720	PWZ2719	PWZ2718	
NSP	85	Caution label	Not used	Not used	PRW1233	
	86	Caution label (F)	Not used	Not used	VRW – 328	
	87	Caution label (B)	Not used	Not used	VRW – 329	
	88	Caution label	Not used	Not used	VRW1094	

■ PARTS LIST FOR KU/CA TYPE

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
△	1	CORD STOPPER (PLASTIC)	CM-22C	NSP	26	SPACER	VEC1596
	2	LEVER SWITCH (S)	DSK1003		27	WIRE SPRING	PBH1182
	3	.....			28	EJECT SPRING	PBH1186
	4	22P F.F.C/30V	PDD1157		29	ROPE UNIT	PBL1003
	5	.....			30	SHAFT	PLA1130
△ NSP	6	34P F.F.C/30V	PDD1159	NSP	31	MAIN BASE	PNA2108
	7	AC POWER CORD	PDG1015		32	REAR ANGLE	PNA2126
	8	POWER TRANSFORMER	PTT1297		33	SELECT GUIDE	PNB1479
	9	CORD HOLDER	DNF1128		34	ANGLE L	PNB1480
	10	CANCEL SPRING	PBH1173		35	SIDE ANGLE R	PNB1481
NSP	11	SUPPORT SPRING	PBH1192	NSP	36	SCREW HOLDER	PNW2489
	12	BONNET CASE	PYY1178		37	DISC RACK ASS'Y	PXA1558
	13	UNDER BASE	PNA2057		38	GUIDE SPRING	PBH1177
	14	REAR BASE (FE)	PNA2075		39	GUIDE PLATE	PNB1476
	15	PCB ANGLE	PNB1468		40	RACK	PNW2404
	16	SIDE ANGLE	PNB1469		41	TOP GUIDE	PNW2405
	17	ESCUTCHEON ANGLE	PNB1502		42	RACK PANEL	PNW2406
	18	FFC HOLDER	PNM1238		43	.....	
	19	INSULATOR	PNW1912		44	RACK WINDOW 1	PAM1643
	20	ROLLER	PNW2468		45	RACK WINDOW 2	PAM1644
NSP	21	SPACER 24 (PLASTIC)	PNW2484	NSP	46	RACK WINDOW 3	PAM1645
NSP	22	SPACER (PLASTIC)	PNY-404		47	RACK WINDOW 4	PAM1646
	23	.....			48	65 LABEL	ORW1069
	24	RIVET (PLASTIC)	RBM-003		49	ADDRESS LABEL	PRW1359
	25	CORD CLAMPER (STEEL)	RNH-184		50	RACK BASE ASS'Y	PXA1534

(3). DOOR PANEL ASS'Y (FOR ALL TYPES)

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	51	RACK BOARD A ASSY	PWZ2779		1	CONTROL BUTTON L	PAC1771
NSP	52	RACK BOARD B ASSY	PWZ2781		2	CONTROL BUTTON R	PAC1772
	53	CONNECTOR ASSY	PDE1236		3	POWER BUTTON D	PAC1773
	54	LOCK SPRING	PBH1178		4	DISC BUTTON	PAC1775
	55	LEVER SPRING	PBH1179		5	CLEAR PLATE	PAM1637
	56	SWITCH PLATE	PBK1131		6	SHEET	PAM1638
	57	RACK BASE	PNW2407		7	SCREW	PBA1071
	58	RACK LOCK	PNW2408		8	DOOR STAY	PNB1470
	59	LOCK LEVER	PNW2409		9	DOOR ANGLE L	PNB1471
	60	SCREW	BPZ26P060FZK		10	DOOR ANGLE R	PNB1472
	61	SCREW	IPZ30P060FMC		11	TILT UNIT	PNB1495
	62	SCREW	PPZ30P060FMC		12	DOOR ARM L	PNB1500
NSP	63	LOADING MECHANISM ASSY	PXA1535		13	DOOR ARM R	PNB1501
	64	MAIN BOARD ASSY	PWZ2688		14	ISOLATION SHEET	PNM1234
NSP	65	OUTPUT BOARD ASSY	PWZ2708		15	ESCUTCHEON	PNW2383
NSP	66	I/O CONNECTOR ASSY	PWX1390		16	DOOR PANEL	PNW2384
	67	POWER BOARD ASSY	PWZ2720		17	FRONT WINDOW	PNW2385
	68	SCREW	BBZ30P080FZK			(KU/CA and RD types)	
	69	SCREW	BBZ30P080FCC		17	FRONT WINDOW (WEM type)	PNW2485
	70	SCREW	IBZ30P060FCC		18	BUTTON RING	PNW2386
	71	SCREW	IBZ30P150FCC		19	LENS A	PNW2467
	72	SCREW	IBZ30P100FCC	NSP	20	REFLECTOR	PRW1369
	73	E RING	YE30FUC		21	MAGNET LATCH	PXA1555
NSP	74	BOTTOM PLATE	PNB1511		22	NAME PLATE (AL)	VAM1032
	75	FFC PLATE	PNM1241		23	DISPLAY BOARD ASSY	PWZ2723
	76	SCREW	PBA1085	NSP	24	SWITCH BOARD ASSY	PWZ2726
	77	DISC GUARD	PNM1245	NSP	25	ESCUTCHEON ASSY	PWZ2729
	78	WASHER	WT30D120D050		26	.....	
	79	EARTH PLATE	PBK1135	NSP	27	LED A BOARD ASSY	PWZ2733
	80	SCREW	IBZ30P080FCC	NSP	28	LED B BOARD ASSY	PWZ2735
	81	SCREW	BBZ26P060FCC		29	34P F.F.C /30	PDD1158
	82	SCREW	FBT40P080FZK		30	SCREW	BBZ30P060FZK
	83	BONNET GUARD	PNM1244		31	SCREW	PPZ30P100FMC
NSP	84	JOINT BOARD ASSY	PWZ2732		32	SCREW	PPZ30P060FMC
					33	WASHER	WT26D070D050
					34	CUSHION	PNM1059
				NSP	35	PROTECTION TAPE	PNM1242
					36	PARALLEL WIRE 3P (J)	D20PYY0360E
				NSP	37	CAUTION LABEL	PRW1361
					38	EARTH LEAD UNIT	PDF1118

(4). LOADING MECHANISM ASSY (FOR ALL TYPES)

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	1	MECHA BOARD ASSY	PWZ2776	56	GEAR L	PNW2412	
NSP	2	SENSOR BOARD ASSY	PWZ2777	57	.....		
NSP	3	LOADING BOARD ASSY	PWZ2778	58	GEAR A	PNW2420	
	4	SELECT MOTOR BOARD ASSY	PWZ2782	59	WORM WHEEL	PNW2421	
	5	LOADING MOTOR BOARD ASSY	PWZ2783	60	WORM	PNW2422	
	6	CONNECTOR ASSY (3P)	PDE1234	61	C CUP	PNW2428	
	7	CONNECTOR ASSY (4P)	PDE1235	62	K LEVER	PNW2430	
	8	SCREW	PBA1090	63	GEAR S	PNW2433	
	9	STOPPER SPRING	PBH1183	64	SYNCHRO GEAR S	PNW2434	
	10	ARM SPRING	PBH1185	65	PULLEY	PNW2460	
	11	BELT	PEB1268	66	MOTOR ASSY	PEA1320	
	12	BELT	PEB1269	67	MOTOR PULLEY	PNW1634	
	13	LEVER RUBBER	PEB1273	68	MOTOR	PXM1002	
	14	CUSHION (ART. SUEDE)	PED-049	69	SCREW	PBA1084	
	15	CUSHION (ART. SUEDE)	PED1016	70	SCREW	PBA1087	
NSP	16	SYNCHRO SHAFT	PLA1131	71	FLOAT SPRING	PBH1180	
	17	SPACER	PLA1133	72	FROAT SPRING B	PBH1188	
NSP	18	LOADING BASE	PNB1483	73	CONNECTOR ASS'Y	PDE1146	
NSP	19	LEVER	PNB1486	74	FLOAT RUBBER	PEB1267	
NSP	20	SLIDE ANGLE	PNB1489	75	RUBBER BUSHING	VEB1138	
NSP	21	K LEVER	PNB1508	76	SCREW	BBZ26P060FZK	
NSP	22	DRIVE LEVER	PNB1509	77	SCREW	BBZ30P050FZK	
	23	ROLLER	PNW2299	78	SCREW	BBZ30P080FCC	
	24	SYNCHRO GEAR	PNW2413	79	SCREW	BPZ30P060FZK	
	25	ARM A	PNW2414	80	SCREW	IBZ30P080FCC	
	26	ARM B	PNW2415	81	SCREW	PMZ20P030FMC	
	27	PULLEY	PNW2416	82	WASHER	WA31D054D013	
	28	SELECT LEVER	PNW2417	83	WASHER	WT17D034D025	
	29	DRIVE PLATE	PNW2418	84	WASHER	WT21D050D025	
	30	CLAMPER	PNW2419	85	WASHER	WT26D047D025	
NSP	31	TENSIONER	PNW2423	86	WASHER	WT26D047D050	
	32	RACK	PNW2424	87	WASHER	WT36D072D025	
	33	SUB GEAR	PNW2425	88	E RING	YE25FUC	
	34	A CUP	PNW2426	89	E RING	YE30FUC	
	35	B CUP	PNW2427	NSP 90	SERVO MECHANISM ASS'Y B	PXA1539	
	36	D CUP	PNW2429	NSP 91	MECHANISM BOARD ASSY	PWX1192	
	37	STOPPER	PNW2431	92	.....		
	38	CLAMPER BASE	PNW2432	93	GUIDE BAR (STEEL)	PLA1094	
	39	BUSHING	PNW2435	94	.....		
	40	DISC GUIDE	PNW2500	NSP 95	SERVO BASE	PNB1477	
	41	ROLLER SHAFT	DLA1520	96	GEAR 1 (POM)	PNW2052	
	42	ROLLER	DNK2391	97	GEAR 2 (POM)	PNW2053	
	43	SEARCH SPRING	PBH1187	98	GEAR 3 (POM)	PNW2054	
	44	BELT A	PEB1244	99	CARRIDGE BASE (FE)	PNW2445	
	45	.....		100	PICK UP ASS'Y	PEA1319	
	46	SIDE ANGLE	PNB1484	101	D.C. MOTOR ASSY (SPINDLE)	PEA1235	
	47	GEAR ANGLE	PNB1485	102	D.C. MOTOR ASSY	PEA1246	
	48	SLIDE LINK	PNB1490		(CARRIAGE)		
	49	P LEVER A	PNB1491	NSP 103	PINION GEAR (POM)	PNW2055	
	50	P LEVER B	PNB1492	104	DC MOTOR	PXM1027	
	51	GEAR ANGLE B	PNB1496	105	DISC TABLE ASS'Y	PEA1314	
	52	SLIDER	PNB1510	106	.....		
	53	GUARD PLATE	PNM1240	107	.....		
	54	ROLLER	PNW1967	108	SCREW	BPZ26P100FNC	
	55	GEAR PULLEY	PNW2411	109	SCREW	JFZ17P025FZK	
				110	SCREW	JFZ20P040FMC	
				111	WASHER	WT12D032D025	
				112	BINDER	RNH-184	

1.8 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 $\begin{bmatrix} 5 & 6 & 1 \end{bmatrix}$ J

47k Ω $\rightarrow$ 47 $\times$ 10³ $\rightarrow$ 473 RD1/4PS $\begin{bmatrix} 4 & 7 & 3 \end{bmatrix}$ J

0.5 Ω $\rightarrow$ 0R5 RN2H $\begin{bmatrix} 0 & R & 5 \end{bmatrix}$ K

1 Ω $\rightarrow$ 010 RS1P $\begin{bmatrix} 0 & 1 & 0 \end{bmatrix}$ 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 $\begin{bmatrix} 5 & 6 & 2 & 1 \end{bmatrix}$ F

Mark	No.	Description	Parts No.
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LIST OF ASSEMBLIES

NSP Δ	MOTHER BOARD ASSY (KU/CA type)	PWM1835
NSP Δ	MOTHER BOARD ASSY (RD type)	PWM1837
NSP Δ	MOTHER BOARD ASSY (WEM type)	PWM1836
	— MAIN BOARD ASSY (KU/CA type)	PWZ2688
	— MAIN BOARD ASSY (RD type)	PWZ2690
	— MAIN BOARD ASSY (WEM type)	PWZ2689
NSP	— OUTPUT BOARD ASSY (KU/CA and RD types)	PWZ2708
NSP	— OUTPUT BOARD ASSY (WEM type)	PWZ2709
NSP	I/O CONNECTOR ASSY (KU/CA type only)	PWX1390
NSP Δ	SUB BOARD ASSY (KU/CA type)	PWX1318
NSP Δ	SUB BOARD ASSY (RD type)	PWX1317
NSP Δ	SUB BOARD ASSY (WEM type)	PWX1316
	— POWER BOARD ASSY (KU/CA type)	PWZ2720
	— POWER BOARD ASSY (RD type)	PWZ2719
	— POWER BOARD ASSY (WEM type)	PWZ2718
	— DISPLAY BOARD ASSY	PWZ2723
NSP	— SWITCH BOARD ASSY	PWZ2726
NSP	— ESCUTCHEON ASSY	PWZ2729
NSP	— JOINT BOARD ASSY	PWZ2732
NSP	— LED A BOARD ASSY	PWZ2733
NSP	— LED B BOARD ASSY	PWZ2735
NSP	RACK BASE ASSY	PXA1534
NSP	— RACK BOARD ASSY	PWX1340
NSP	— RACK BOARD A ASSY	PWZ2779
NSP	— RACK BOARD B ASSY	PWZ2781
NSP	LOADING MECHANISM ASSY	PXA1535
NSP	— LOADING MECHANISM BOARD ASSY	PWX1339
NSP	— MECHA BOARD ASSY	PWZ2776
NSP	— SENSOR BOARD ASSY	PWZ2777
NSP	— LOADING BOARD ASSY	PWZ2778
	— SELECT MOTOR BOARD ASSY	PWZ2782
	— LOADING MOTOR BOARD ASSY	PWZ2783
NSP	— SERVO MECHANISM ASSY B	PXA1539
NSP	— MECHANISM BOARD ASSY	PWX1192

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

MAIN BOARD ASSY SEMICONDUCTORS

	IC151	CXA1372Q
	IC301	CXD2500BQ
Δ	IC201, IC202	LA6520
	IC405	NJM4558M
	IC401	PD2026B (L)
	IC351	PD3280A
	Q391	2SC2412K
	Q403, Q404	2SD2114K
	Q322, Q405	DTC124EK
	D391—D394 (Except WEM type)	1SS133X
	D395—D397	1SS133X

SWITCH

S301	PSG1006
------	---------

COILS AND FILTERS

L351	LFA820K
------	---------

CAPACITORS

C435—C438	CCSQCH050C50
C354	CCSQCH101J50
C393 (Except WEM type)	CCSQCH101J50
C403	CCSQCH120J50
C404	CCSQCH220J50
C429, C430	CCSQCH390J50
C152, C153	CEJA101M10
C433, C434	CEJA220M25
C208, C209, C301, C302, C401	CEJA330M16
C431, C432, C71—C74	CEJA330M16
C351	CEJA331M6R3
C160, C162	CEJA4R7M50
C309	CEJAR47M50
C413, C415, C416, C421	CFTYA104J50
C157, C164, C167, C169, C205	CKSQYB103K50
C210, C215, C218, C219, C225	CKSQYB103K50
C230, C308	CKSQYB103K50
C158, C159, C161, C163, C303	CKSQYB104K25
C306	CKSQYB152K50
C155	CKSQYB182K50
C170	CKSQYB332K50
C156, C168	CKSQYB333K25
C171, C172	CKSQYB472K50
C307	CKSQYB473K25

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	C352, C353, C355, C361, C367 C461 C304, C305, C406, C410, C414 C423, C424, C75-C79		CKSQYF103Z50 CKSQYF103Z50 CKSQYF104Z25 CKSQYF104Z25				
	RESISTORS					CAPACITORS	
	VR151, VR152 (22K) R358 (KU/CA type only) R390 (WEM type only) R391 (Except WEM type) R392 (Except WEM type)		RCP1084 RS1/10S000J RS1/10S000J RS1/10S244J RS1/10S102J		C52 C26 C27, C28		CEAS101M35 CEAS332M16 CEAS471M6R3
	R397-R399 (Except RD type) Other Resistors		RS1/10S000J RS1/10S□□□J		C25 C11, C13, C15-C17		CEAS472M16 CKCYF103Z50
	OTHERS				RESISTORS		
	CN202 CN352 CN353 (KU/CA type only) CN11 CN351		52044-2245 52147-0310 52147-0810 52147-1210 9604S-34C		All Resistors		RD1/6PM□□□J
	X401 (16.9344MHZ) CN201 CN205 CN203 X351		PSS1008 VKN-004 VKN-027 VKN1052 VSS1031		OTHERS		
	OUTPUT BOARD ASSY				△ TERMINAL		RKC-061
	COILS AND FILTERS				DISPLAY BOARD ASSY		
	L391 (Except WEM type) L395, L396		LFA010K LFA010K		SEMICONDUCTORS		
	CAPACITORS				Q701 Q702-Q705 D703, D704 D711-D718		2SA1399 2SA933S 1SS254 PCX1023
	C397, C399 (except WEM type) C441, C442 C398 (except WEM type) C388, C389		CCCCH470J50 CFTXA152J50 CGCYX104K25 CKSQYB104K25		SWITCHES AND RELAYS		
	OTHERS				S703, S707, S708, S711, S712 S715, S716		PSG1006 PSG1006
	JA401 JA393 JA391, JA392 (Except WEM type)		PKB1009 PKN1005 RKN1004		RESISTORS		
	I/O CONNECTOR ASSY				All Resistors		RD1/6PM□□□J
	SEMICONDUCTORS				OTHERS		
	D1301-D1314		1SS254		CN701 V701 FL TUBE		9604S-34F PEL1079
	CAPACITORS				SWITCH BOARD ASSY		
	C1301-C1305 C1306-C1308		CKPUYB101K50 CKPUYF103Z25		SEMICONDUCTORS		
	RESISTORS				D701, D702		1SS254
	R1301-R1307		RD1/6PM471J		SWITCHES AND RELAYS		
	OTHERS				S701, S702, S709, S710 S713, S714		PSG1006 PSG1006
	JA394		PKP-038		OTHERS		
	POWER BOARD ASSY				REMOTE SENSOR		SBX1785
	SEMICONDUCTORS				ESCUTCHEON ASSY		
△	IC31, IC32 (Except KU/CA type)		ICP-N10 NJM79M05FA PQ05RR12 11ES2 MTZJ18B		SEMICONDUCTORS		
△	IC22				D801		SEL6210S
△	IC21				RESISTORS		
△	D11-D14, D52 D54				All Resistors		RD1/6PM□□□J
	SWITCH				OTHERS		
	S5 (RD type only)		PSB1006		CN801 J802		52151-0310 PDE1250
					JOINT BOARD ASSY		
					OTHERS		
					CN751, CN752		9604S-34F
					LED A BOARD ASSY		
					SEMICONDUCTORS		
					D731-D736		SEL2915A
					RESISTORS		
					All Resistors		RD1/6PM□□□J

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

LED B BOARD ASSY
SEMICONDUCTORS

D737-D742

SEL2915A

RESISTORS

All Resistors

RD1/6PM□□□J

RACK BOARD A ASSY
SWITCHES AND RELAYS

S651, S652

DSG1015

OTHERS

CN651

VKN1062

RACK BOARD B ASSY
SWITCHES AND RELAYS

S653, S654

DSG1015

MECHA BOARD ASSY
OTHERS

CN621
CN622
CN624
CN626
CN627

12FMZ-ABT
4-173979-3
6-173979-3
6-173979-4
VKN1060

CN623
CN625

VKN1061
VKN1138

SENSOR BOARD ASSY
SEMICONDUCTORS

Q631

GP1A53HR

SWITCHES AND RELAYS

S631

DSG1016

RESISTORS

All Resistors

RD1/6PM□□□J

OTHERS

CN631

6-173979-4

LOADING BOARD ASSY
SWITCH

REAF SWITCH

VSK1011

OTHERS

CN641

4-173979-3

SELECT MOTOR BOARD ASSY
OTHERS

J627

PDE1244

LOADING MOTOR BOARD ASSY
OTHERS

J624

PDE1245

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

MECHANISM BOARD ASSY
SWITCHES AND RELAYS

S610

DSG1016

OTHERS

CN610

VKN1061

Service Manual

ORDER NO.
RRZ1081

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

FILE-TYPE COMPACT DISC PLAYER

PD-F100

CHAPTER 2

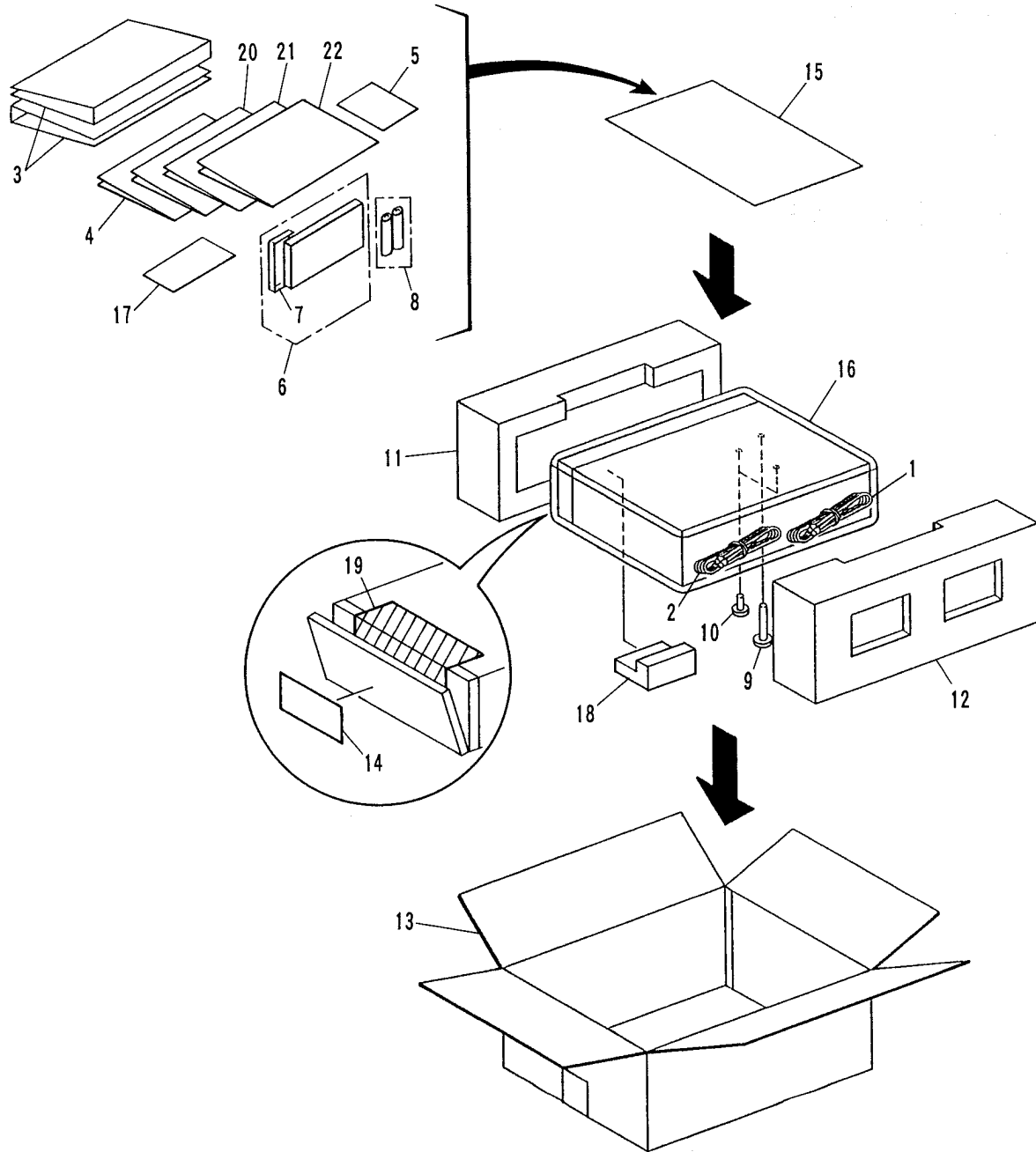
CONTENTS

CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS	2-2
2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS	2-11
2.3 BLOCK DIAGRAM	2-31

2.1 PACKING AND EXPLODED VIEWS

(1). PACKING



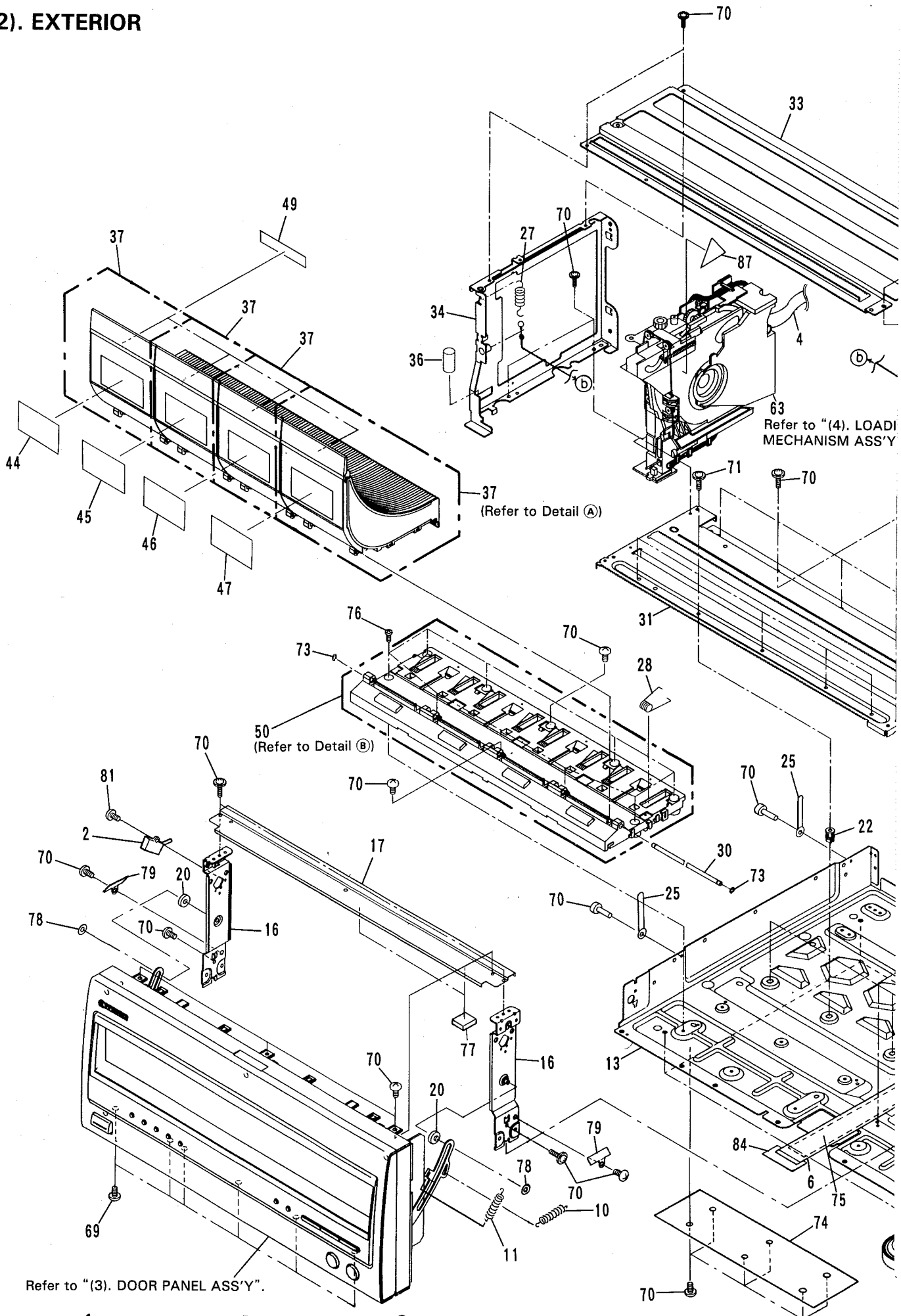
(2). EXTERIOR

A

B

C

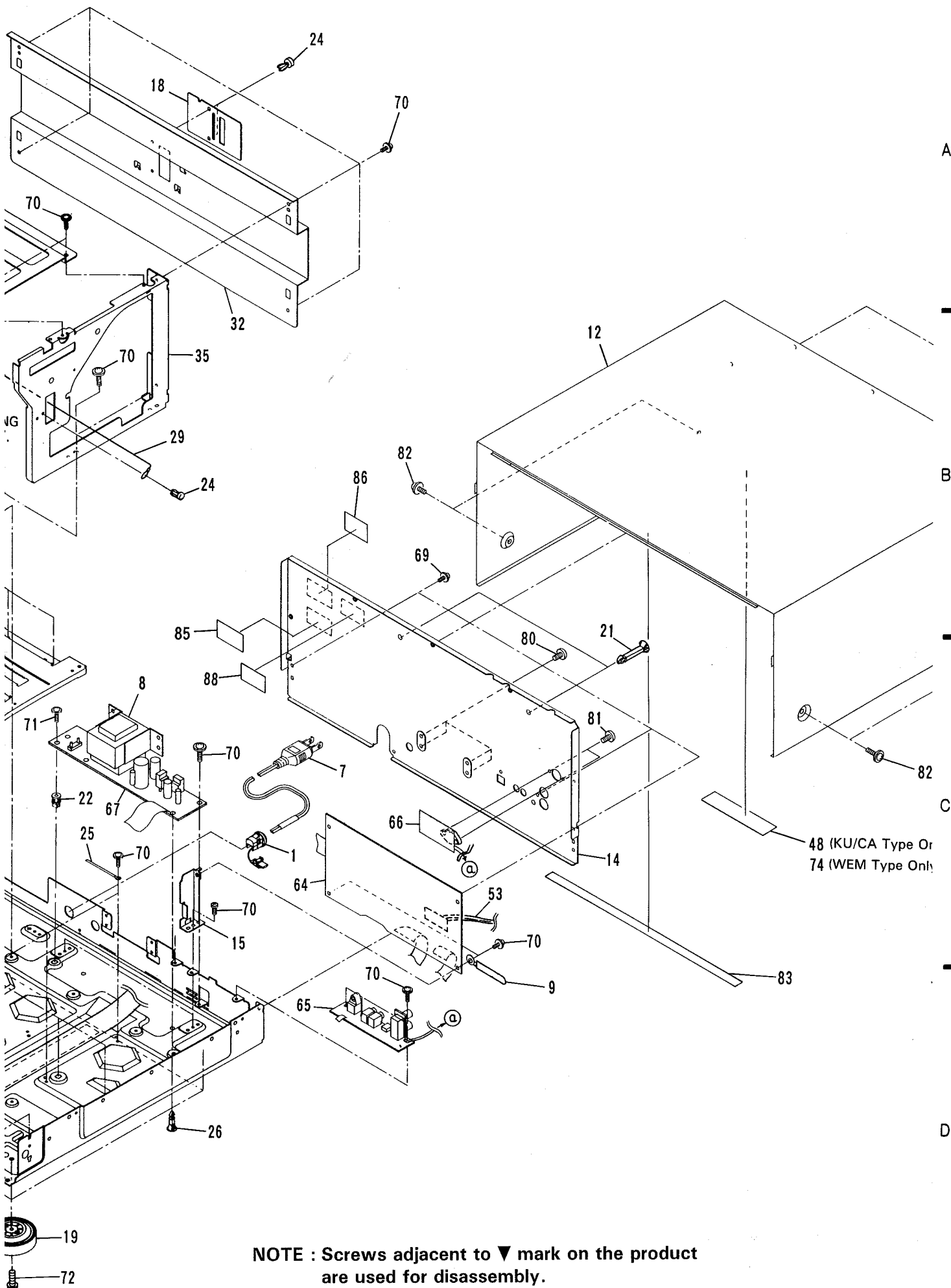
D



4

5

6

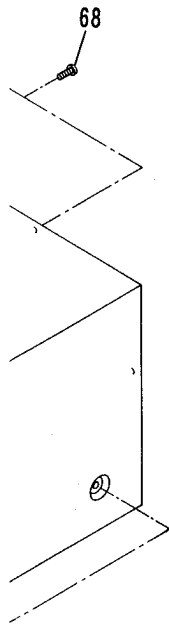


A

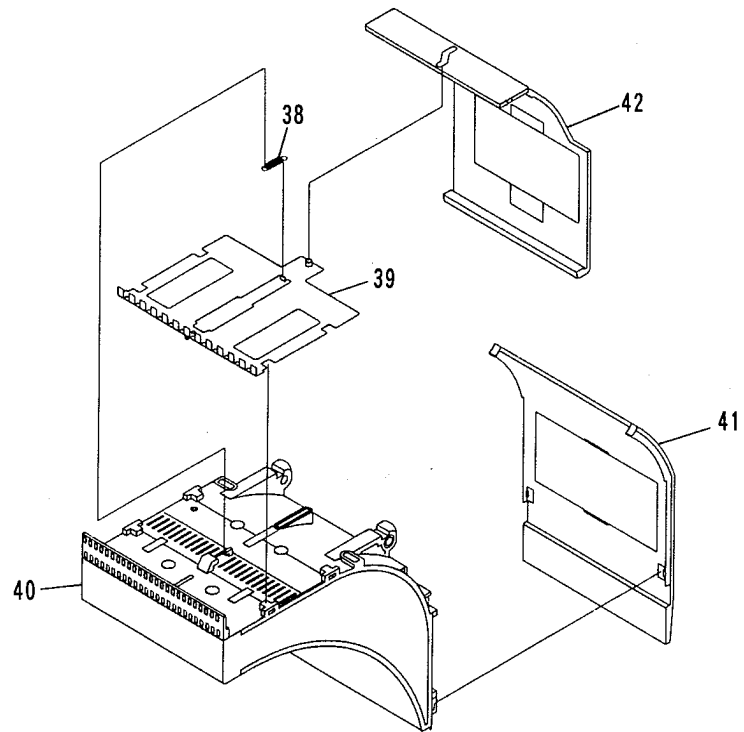
B

C

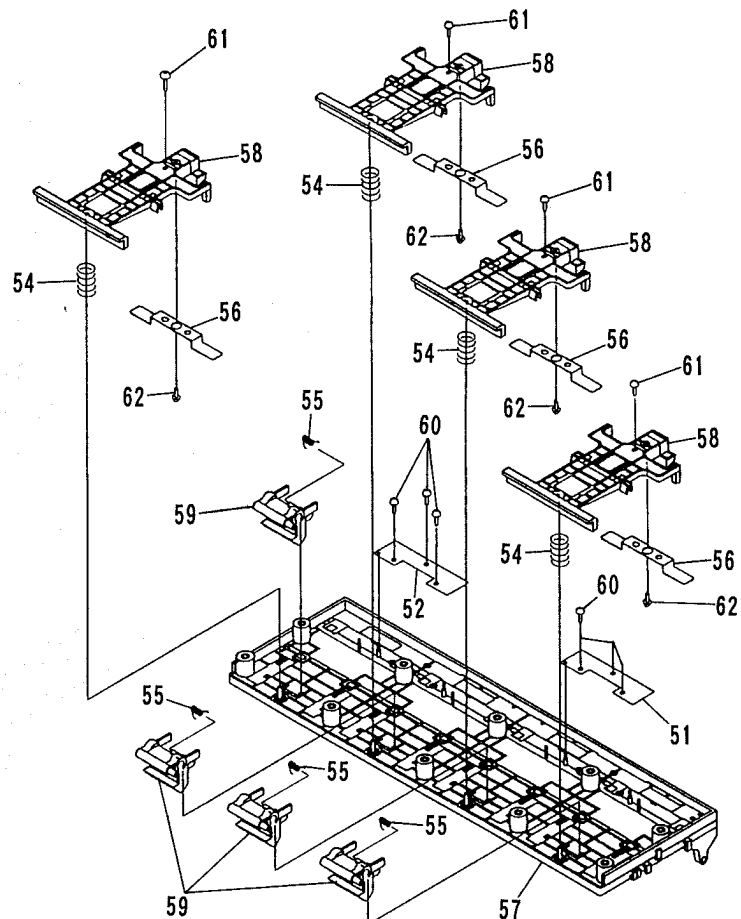
D



● Detail (A)



● Detail (B)



(3). DOOR PANEL ASS'Y

A

A

B

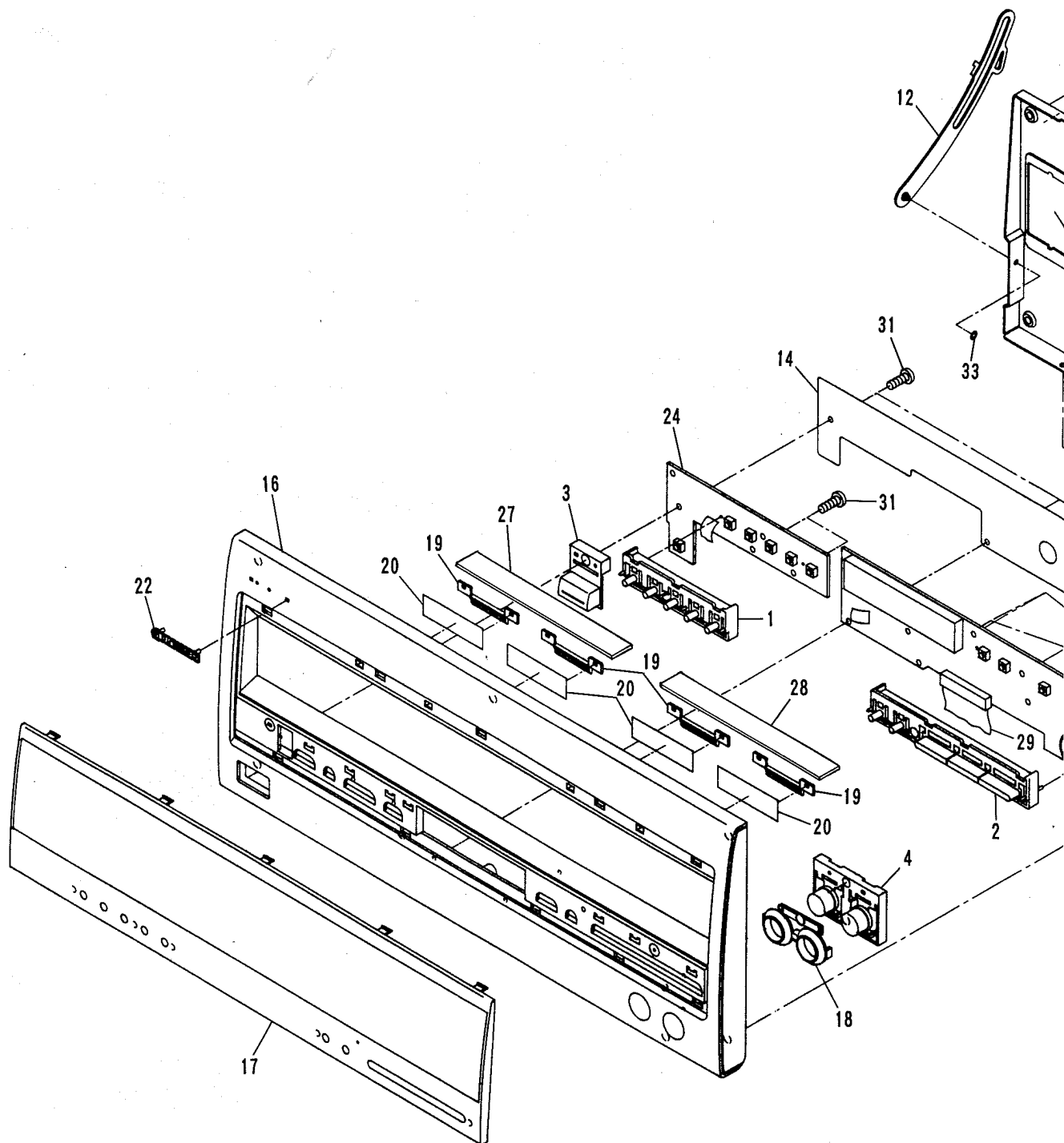
B

C

C

D

D

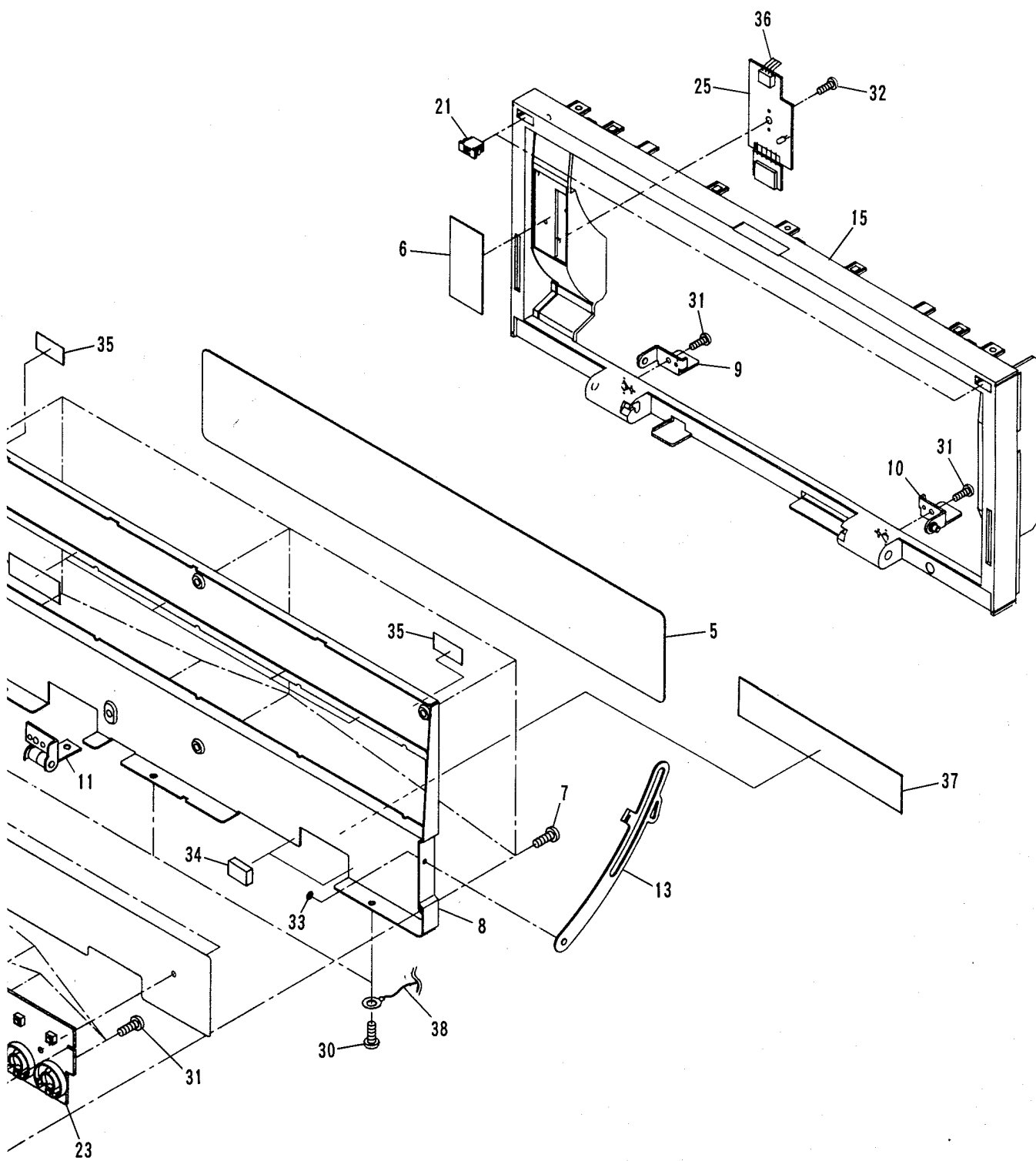


A

B

C

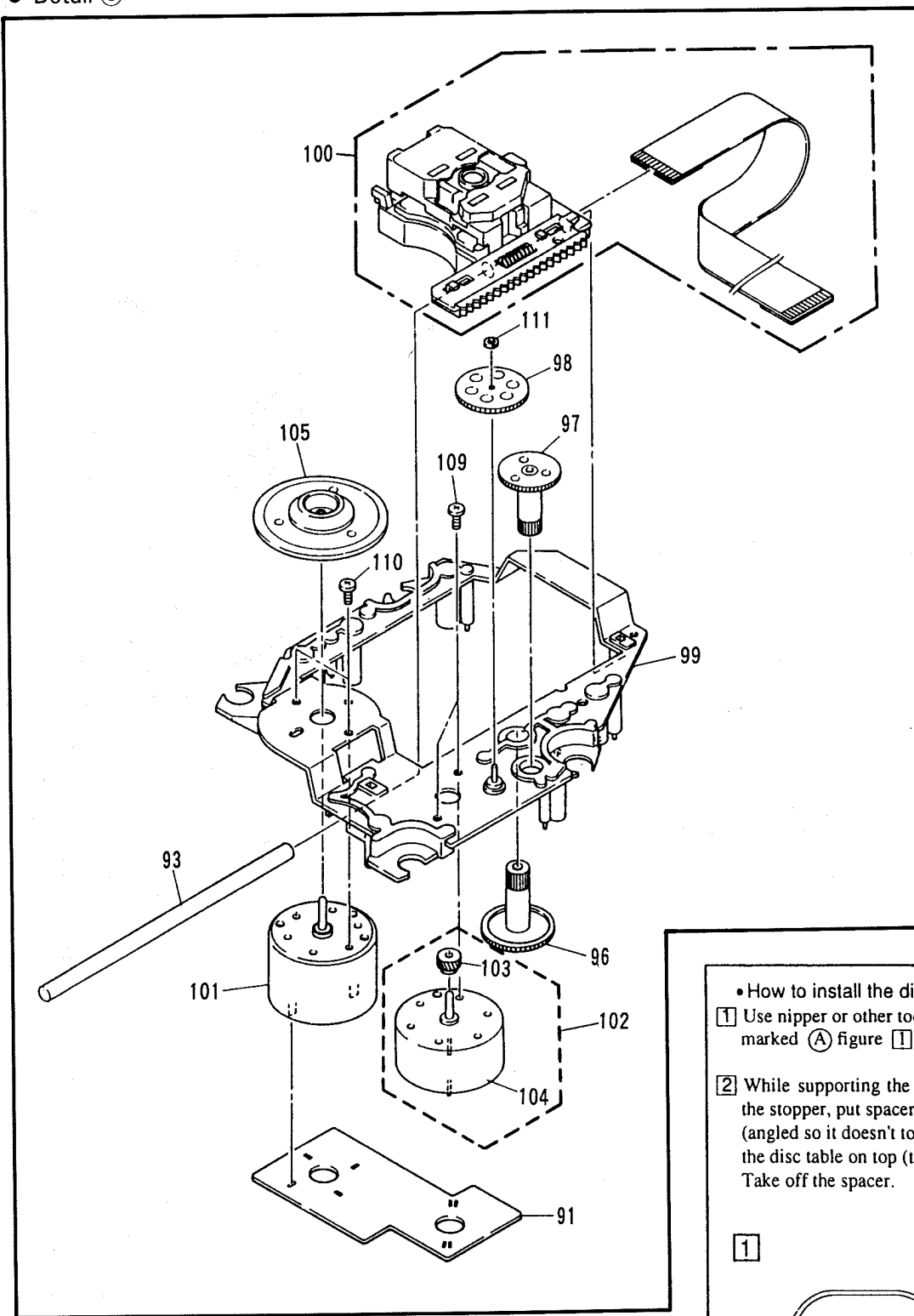
D



(4). LOADING MECHANISM ASS'Y

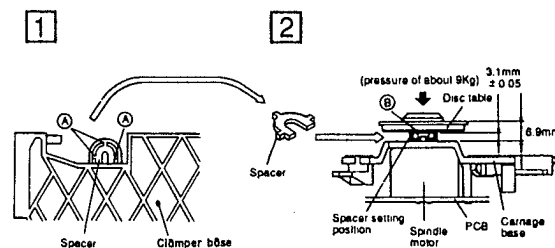
(4) - 1. Exterior (1/2) (Servo Mechanism Assy B)

● Detail ③



• 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.



2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

(1). MECHA BOARD ASSY, SENSOR BOARD ASSY, LOADING BOARD ASSY, SELECT MOTOR BOARD ASSY, LOADING MOTOR BOARD ASSY AND MECHANISM BOARD ASSY

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 Ω , M Ω , or Ω unless otherwise noted.

Rated power: 1/4W, 1/6W, 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: pF or μ F unless otherwise noted.Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.

Rated voltage: 50V except for electrolytic capacitors.

5. COILS:

Unit: mH or μ H 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):

MECHANISM BOARD ASSY

S610 INSIDE SW

MAIN BOARD ASSY

S301 TEST MODE

DISPLAY BOARD ASSY

S703 $\lll$ $\lll$

S707 PAUSE

S708 DISC NUMBER -

S711 $\ggg$ $\ggg$

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

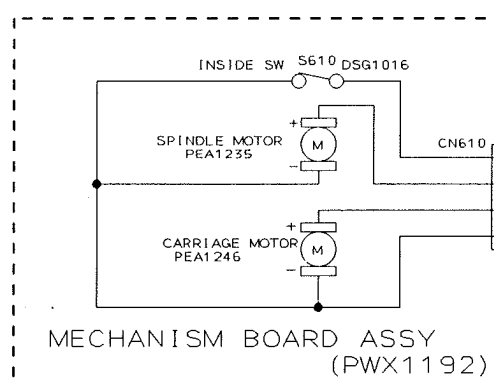
S652 EJECT

RACK BOARD B ASSY

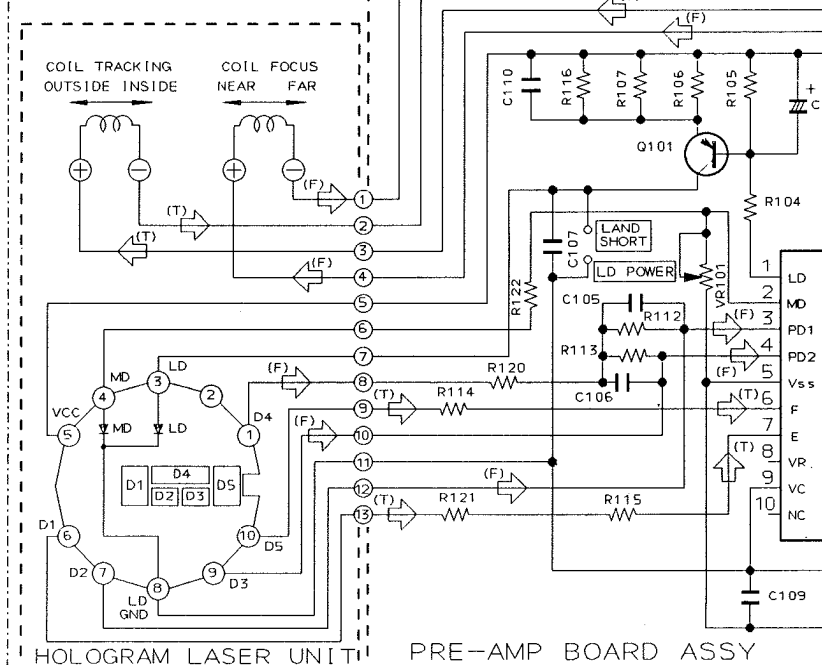
S653 EJECT

S654 EJECT

SERVO MECHANISM ASSY B(PXA1539)

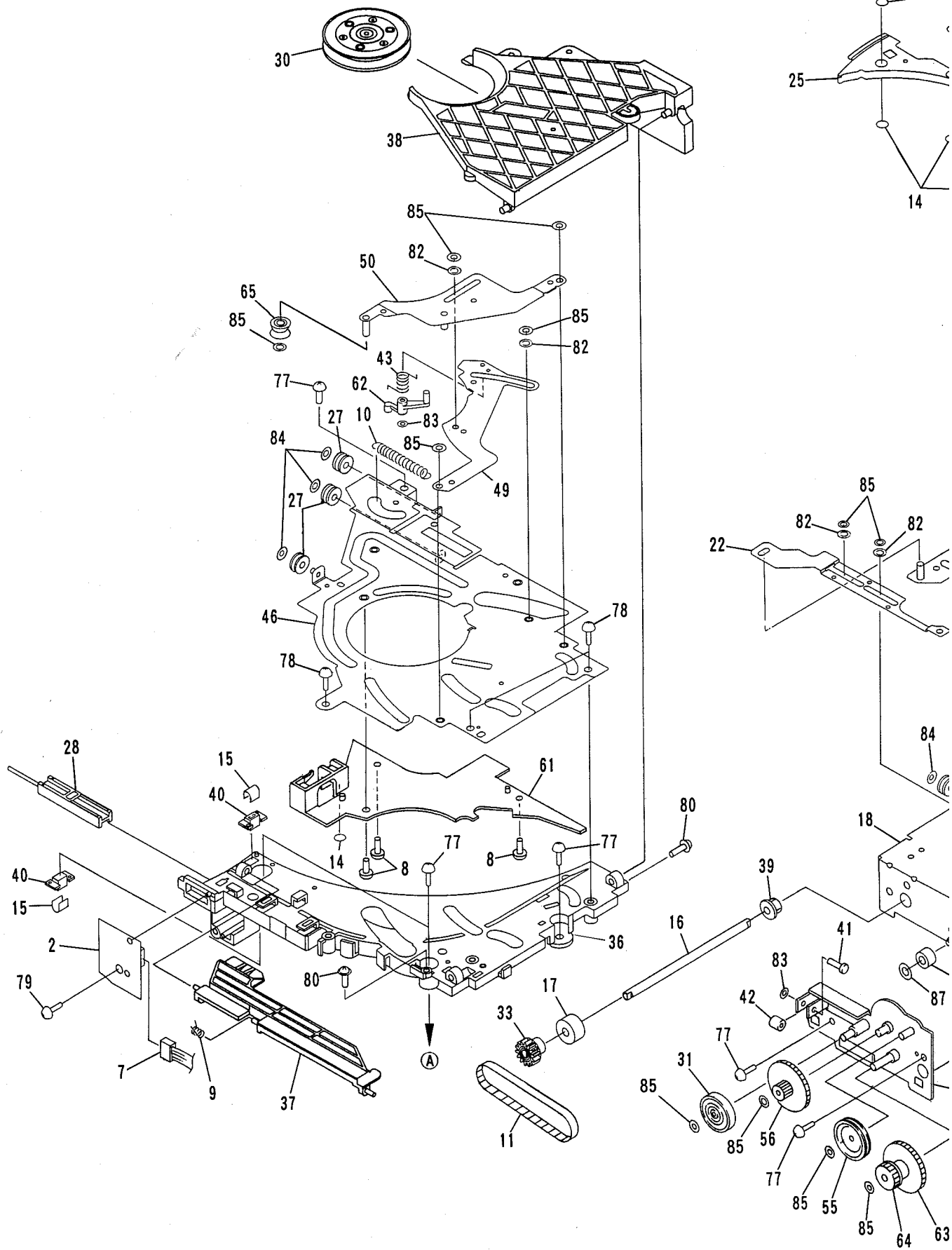


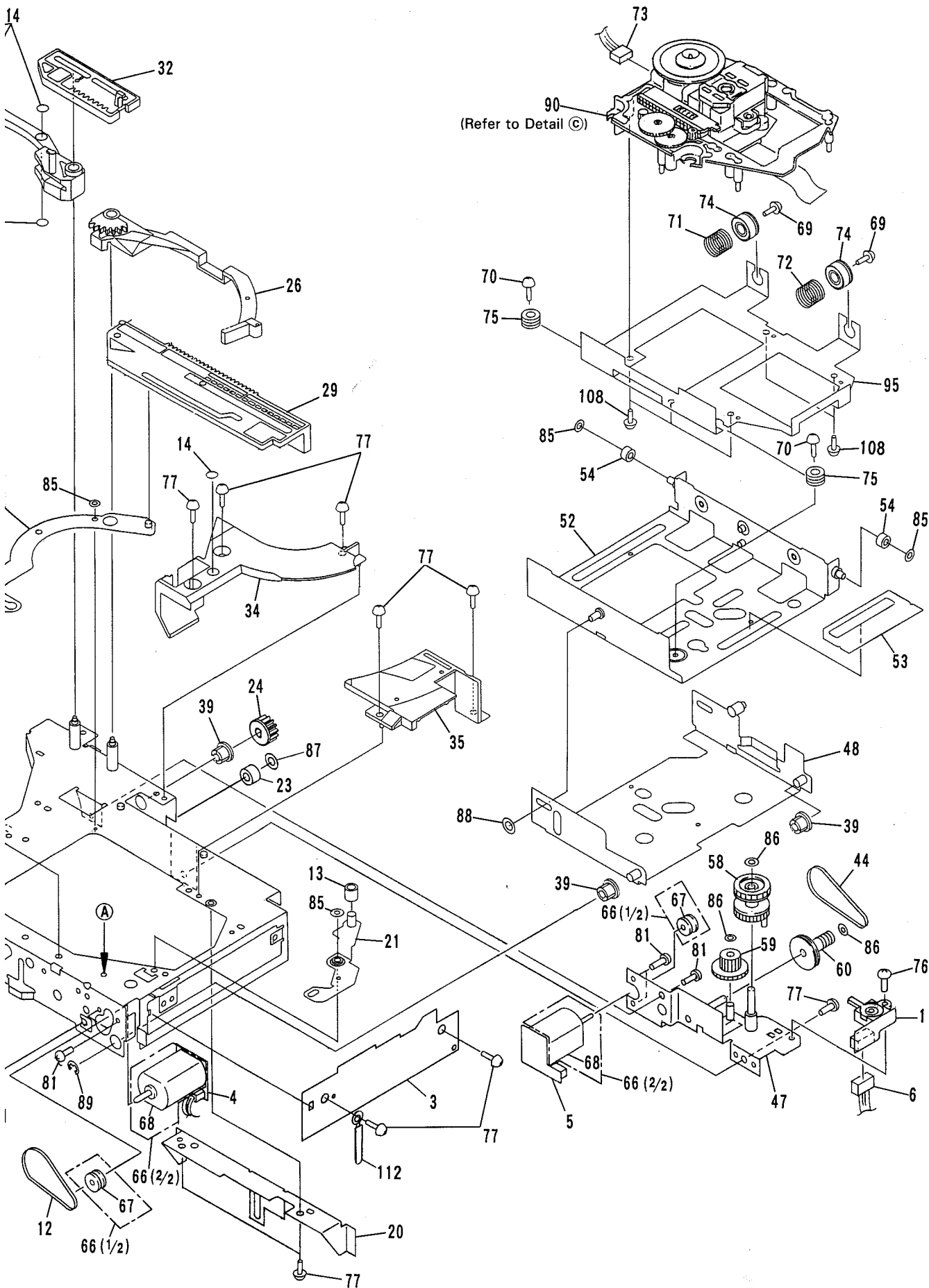
PICKUP ASSY


SCH-1

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

(4)-2. Exterior (2/2)



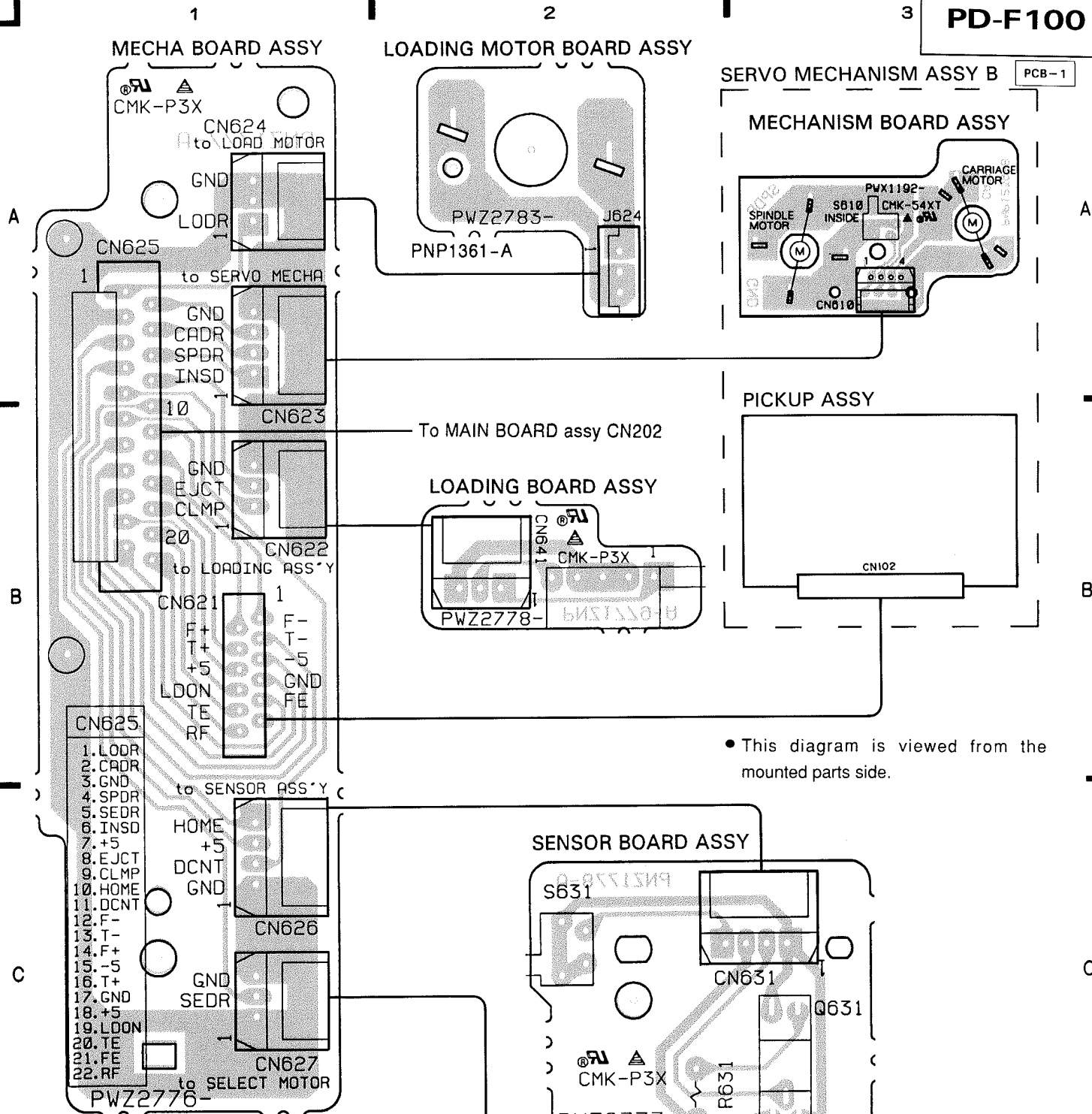


A A

B B

C C

D D



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

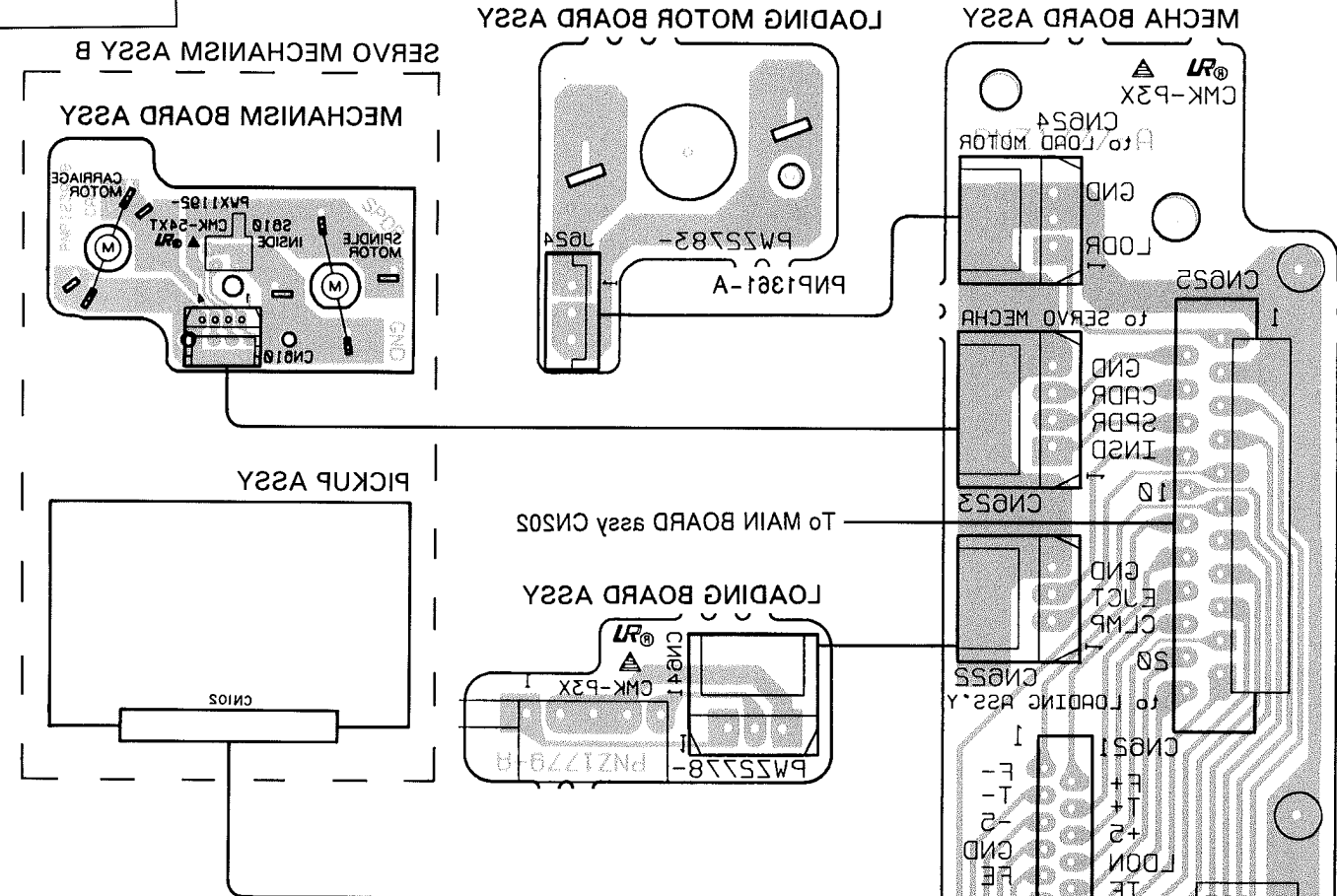
B

C

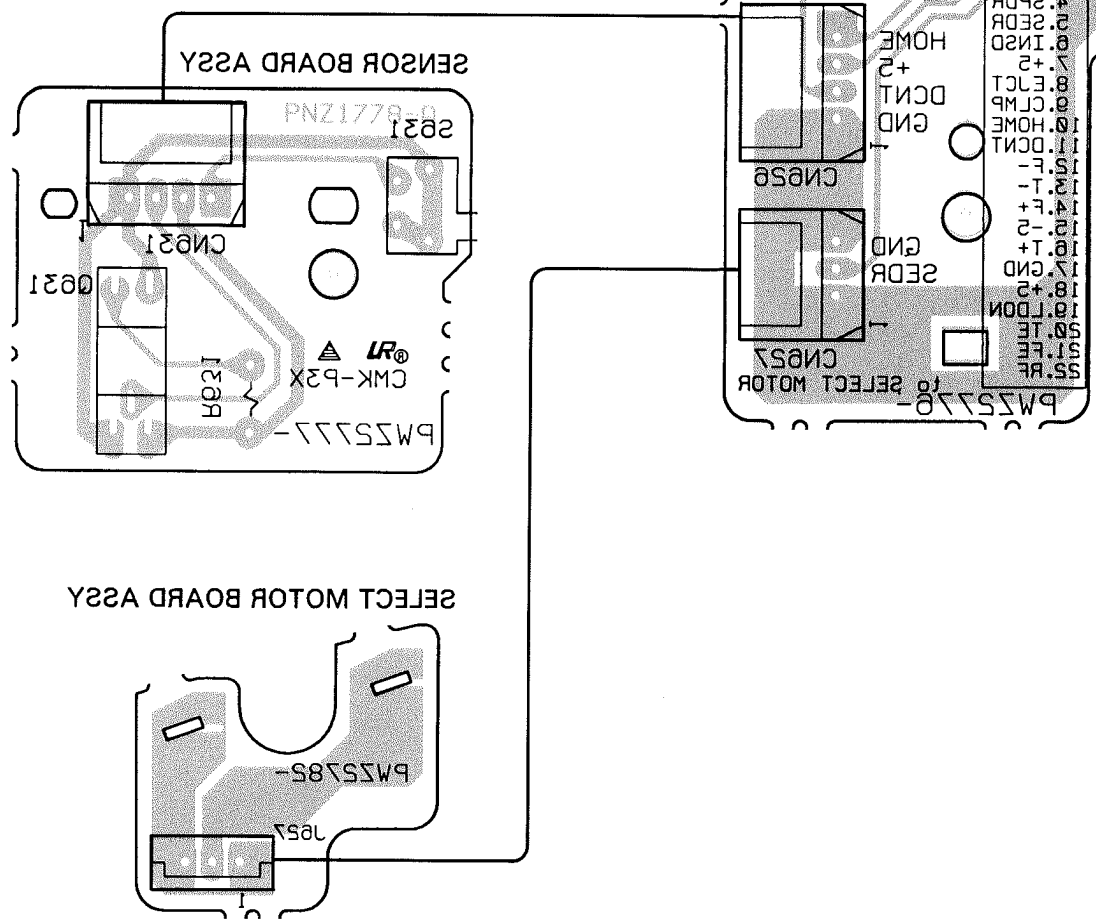
C

D

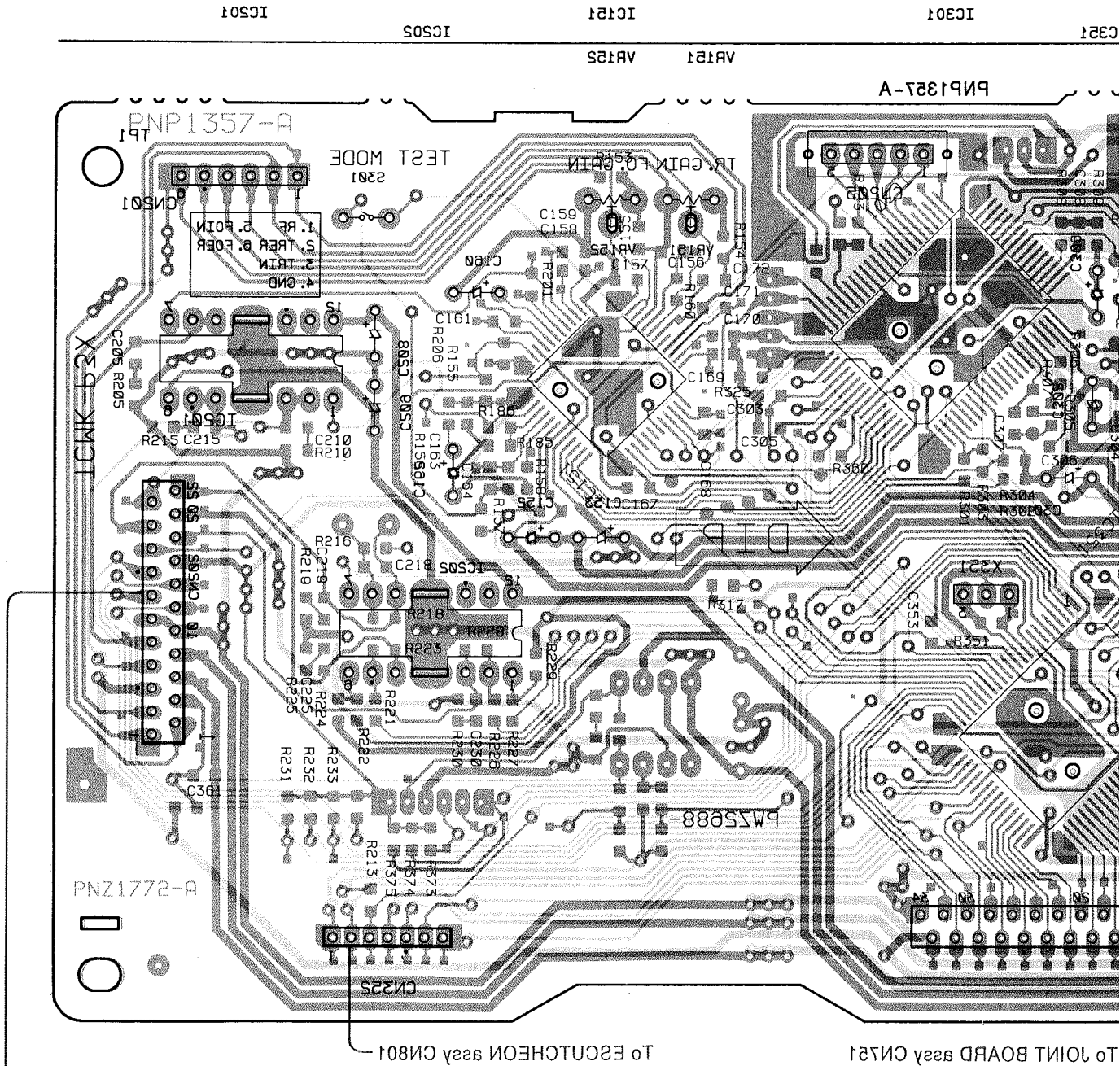
D



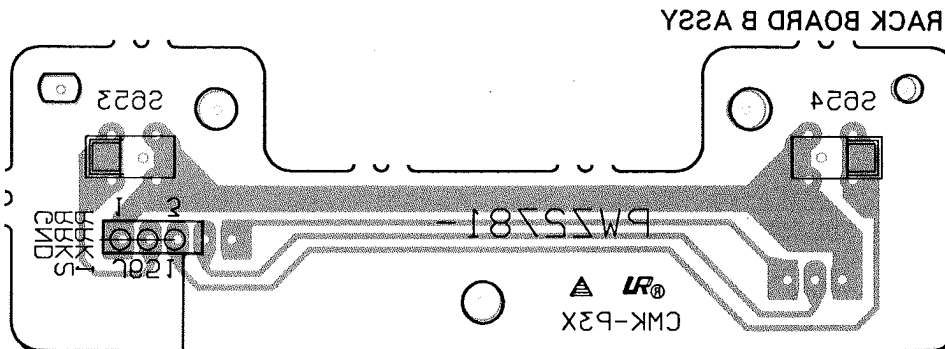
● This diagram is viewed from the foil side.



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



- This diagram is viewed from the foil side.



IC401
Q322

IC201

VR152

PNP1357-A

S301

TR. GAIN FO. GAIN

1. RF 5. FOIN
2. TRER 6. FOER
3. TRIN

TCMK-P3X

PWZ2688

CN352

To JOINT BOARD assy CN751

To ESCUTCHEON assy CN801

To MECHA BOARD assy CN625

- This diagram is viewed from the mounted parts side.

RACK BOARD B ASSY

S654

S653

PWZ2781

CMK-P3X

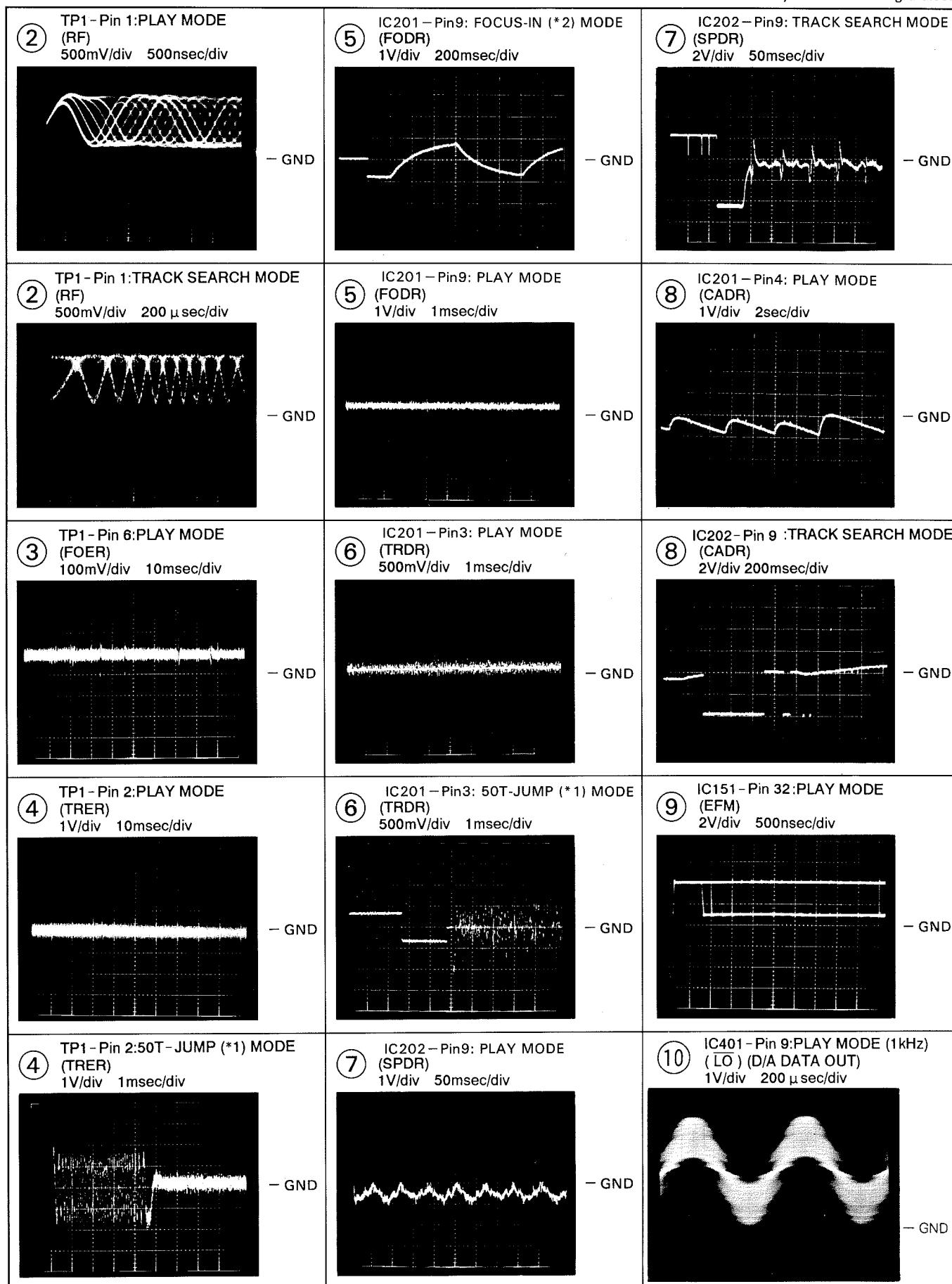
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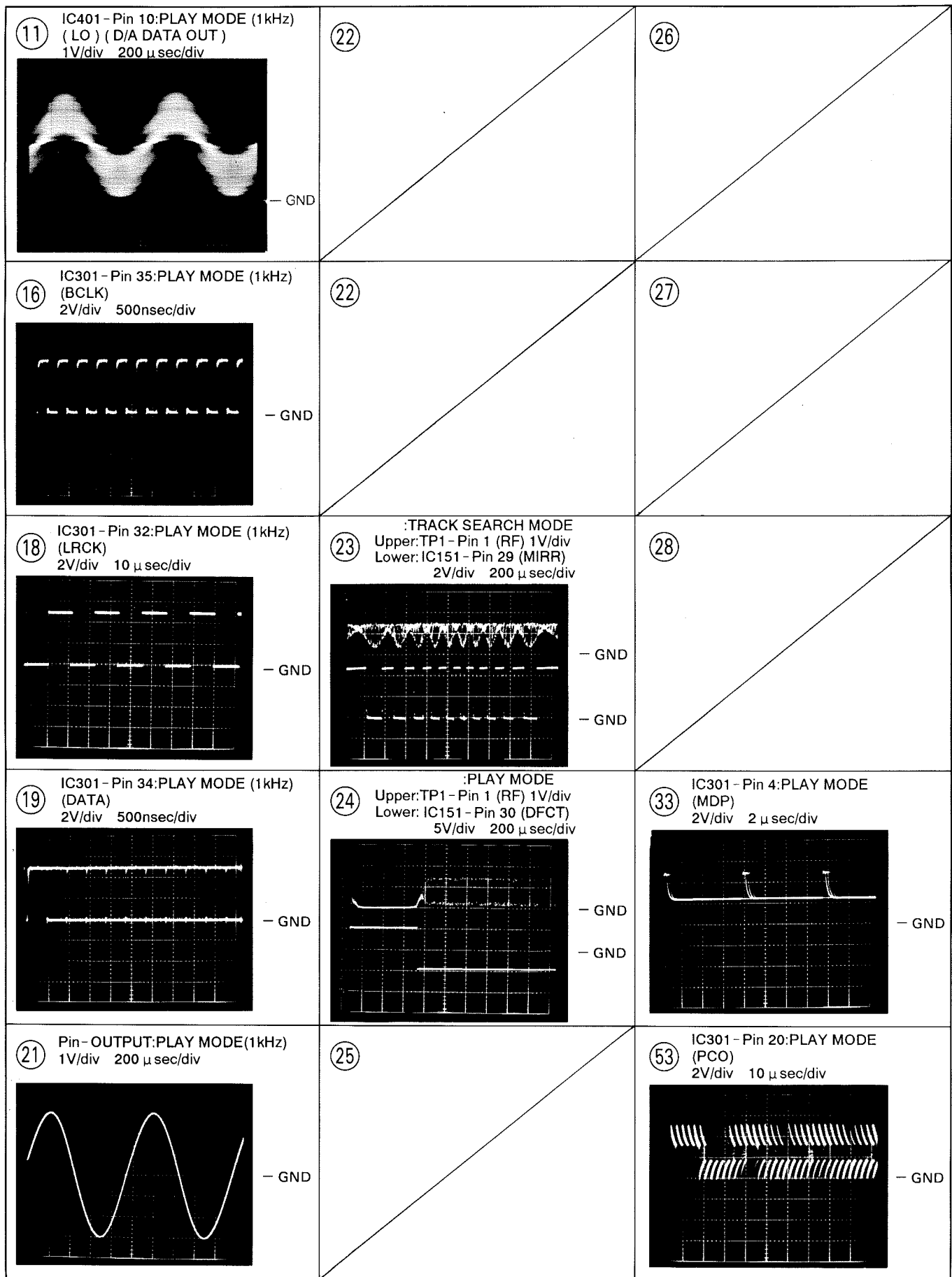
Waveforms

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
(PD3280A)

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

(3). POWER BOARD ASSY, DISPLAY BOARD ASSY, SWITCH BOARD ASSY, ESCUTCHEON ASSY, JOINT BOARD ASSY, LED A BOARD ASSY AND LED B BOARD ASSY

NOTE:

Any diode without part number indicates 1SS254.

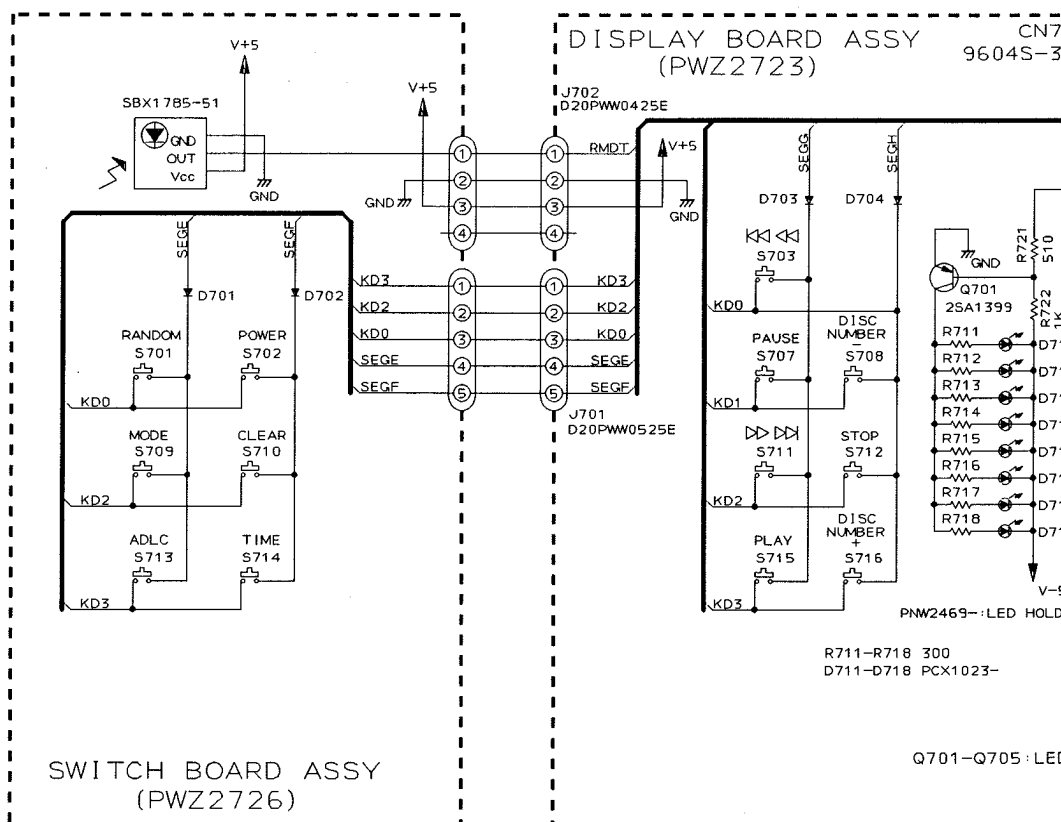
Any tact sw without part number indicates PSG1006.

JOINT BOARD ASSY
(PWZ2732)

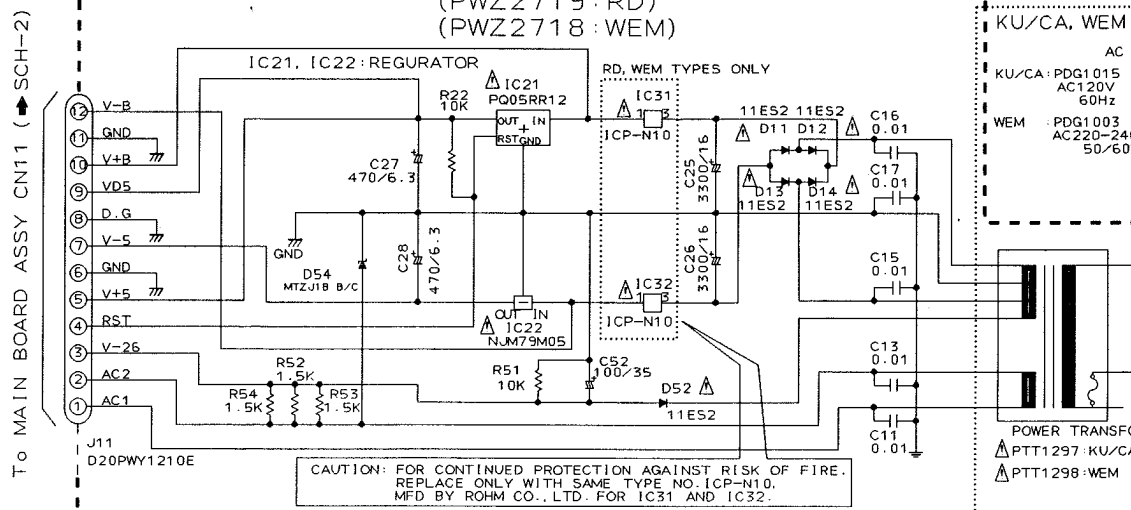
9604S

9604S

PD



POWER BOARD ASSY (PWZ2720: KU/CA)
(PWZ2719: RD)
(PWZ2718: WEM)

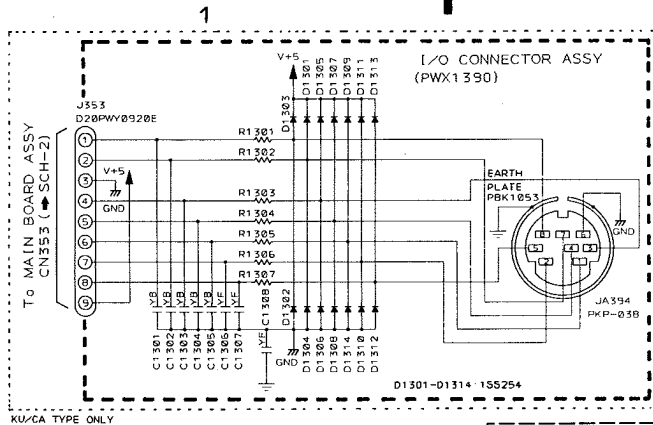


SCH-3

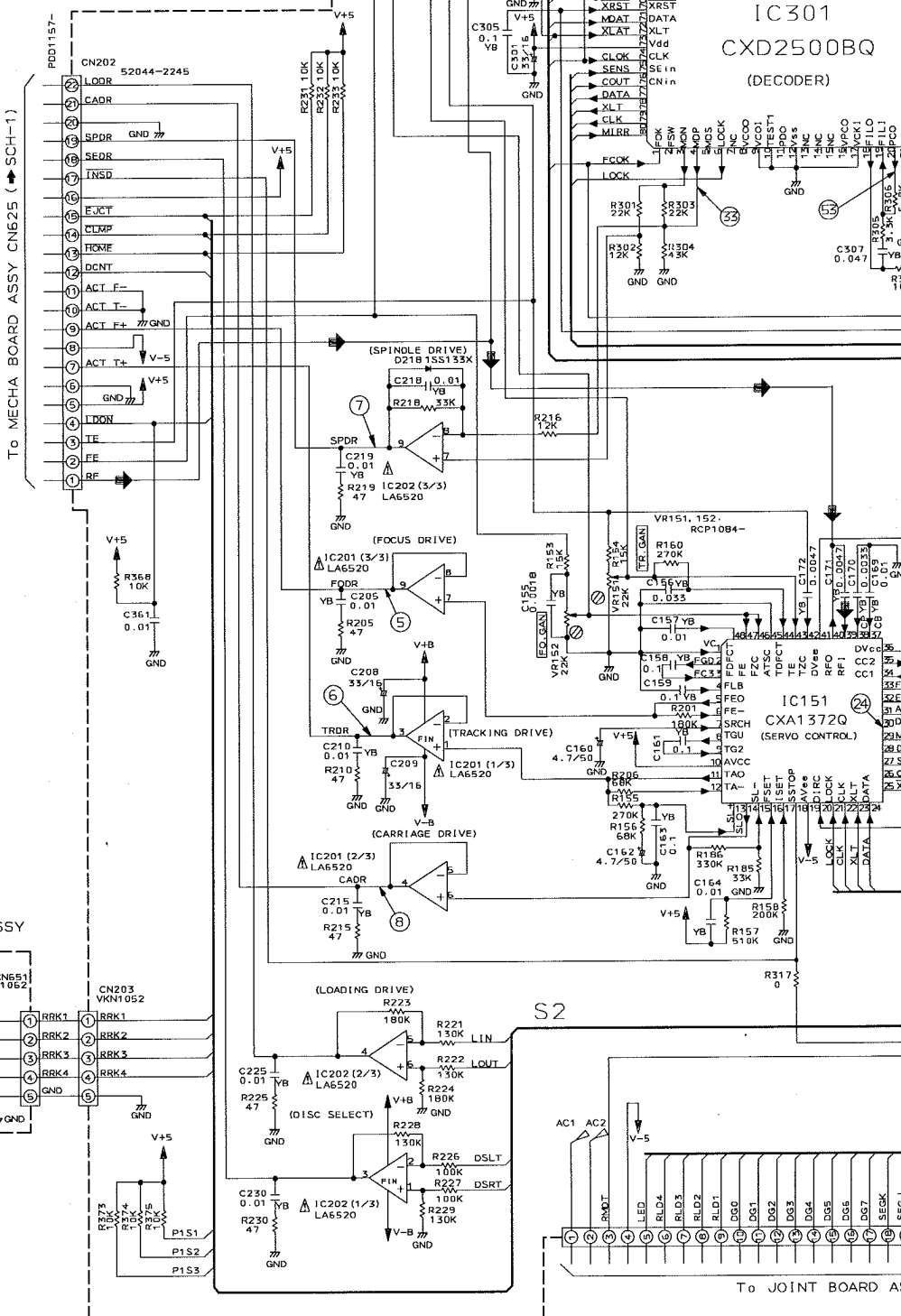
POWER BOARD ASSY, DISPLAY BOARD ASSY,
SWITCH BOARD ASSY, ESCUTCHEON ASSY,
JOINT BOARD ASSY, LED A BOARD ASSY,
LED B BOARD ASSY



SCH-3



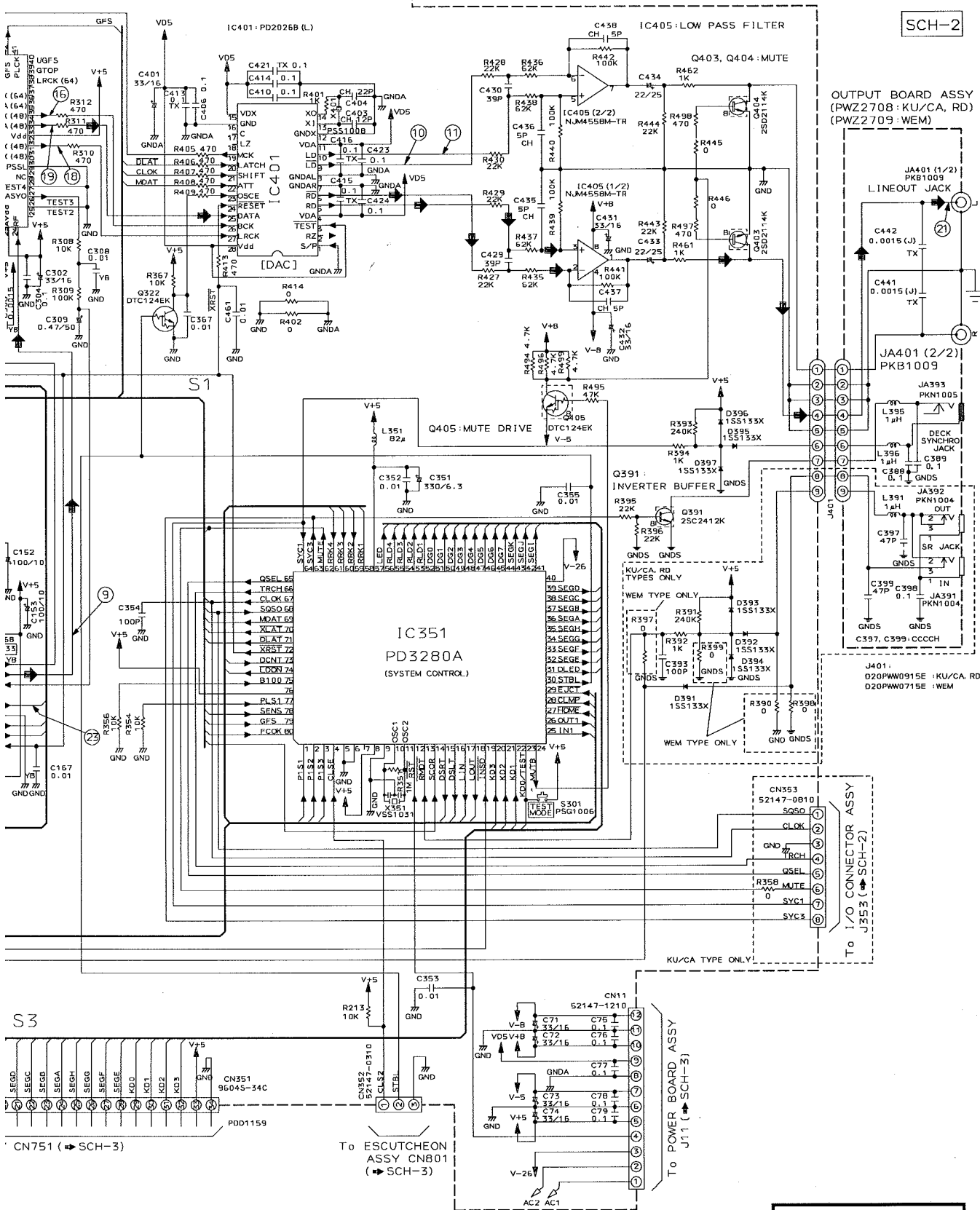
	Voltage [V]		
	Emitter	Collector	Base
Q322	0	5	0
Q391	0	2.6	0.7
Q403	0	0	-5
Q404	0	0	-5
Q405	-5	-5	5
Q451	5	5	0
Q452	5	5	0
Q453	0	0	5
Q454	0	0	5
Q701	0	0	-0.3
Q702	0	-4.4	2.1
Q703	0	0	-0.3
Q704	0	0	-0.3
Q705	0	0	-0.3



SCH-2

MAIN BOARD ASSY, OUTPUT BOARD ASSY,
RACK BOARD A ASSY, RACK BOARD B ASSY
I/O CONNECTOR ASSY

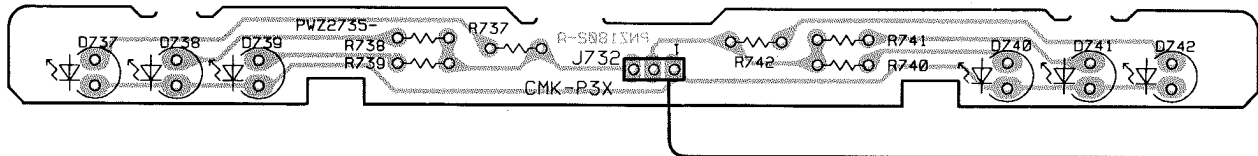
MAIN BOARD ASSY (PWZ2688:KU/CA)
(PWZ2689:WEM)
(PWZ2690:RD)



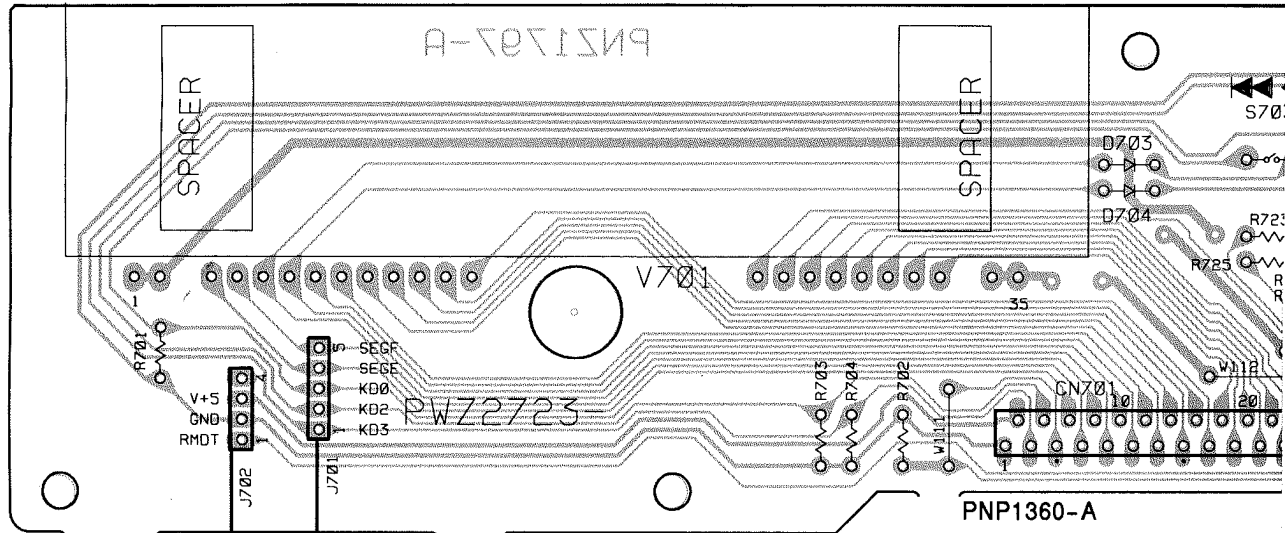
MAIN BOARD ASSY, OUTPUT BOARD ASSY,
RACK BOARD A ASSY, RACK BOARD B ASSY,
I/O CONNECTOR ASSY

SCH-2

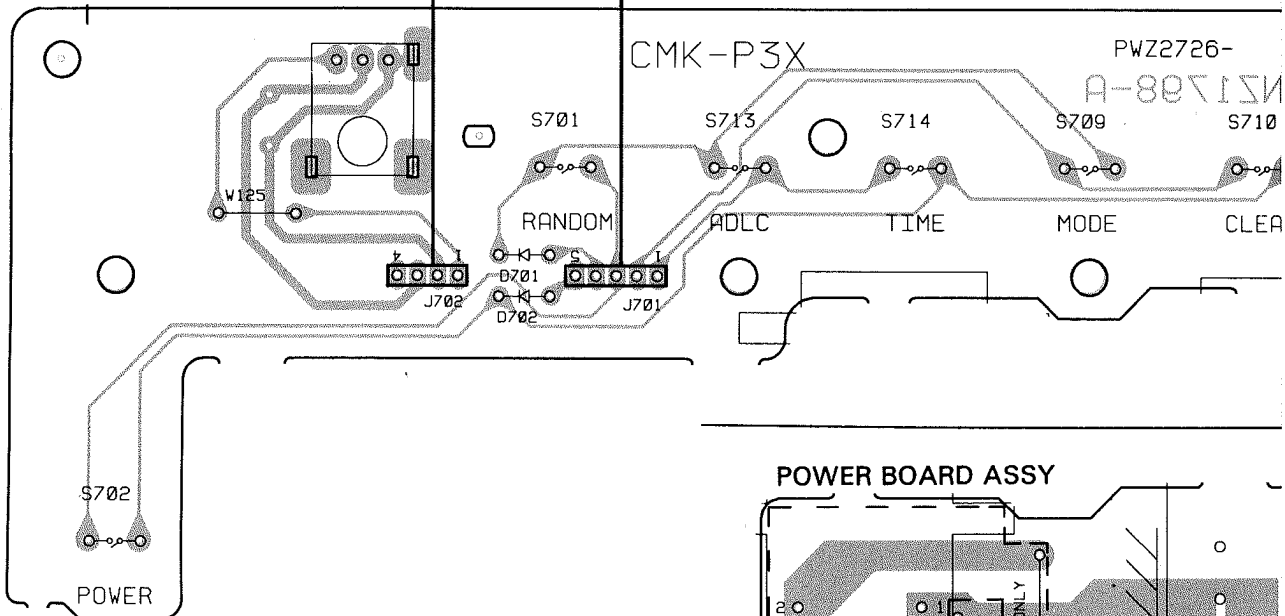
LED B BOARD ASSY



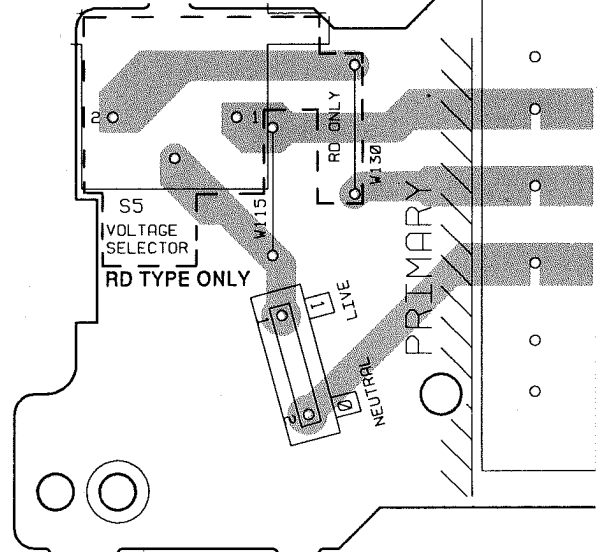
DISPLAY BOARD ASSY



SWITCH BOARD ASSY

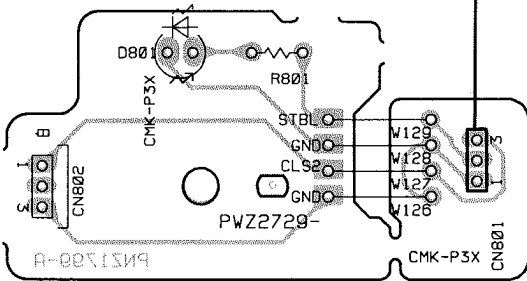


POWER BOARD ASSY

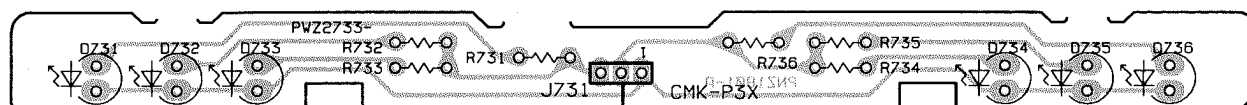


To MAIN BOARD assy CN352

ESCUTCHEON ASSY

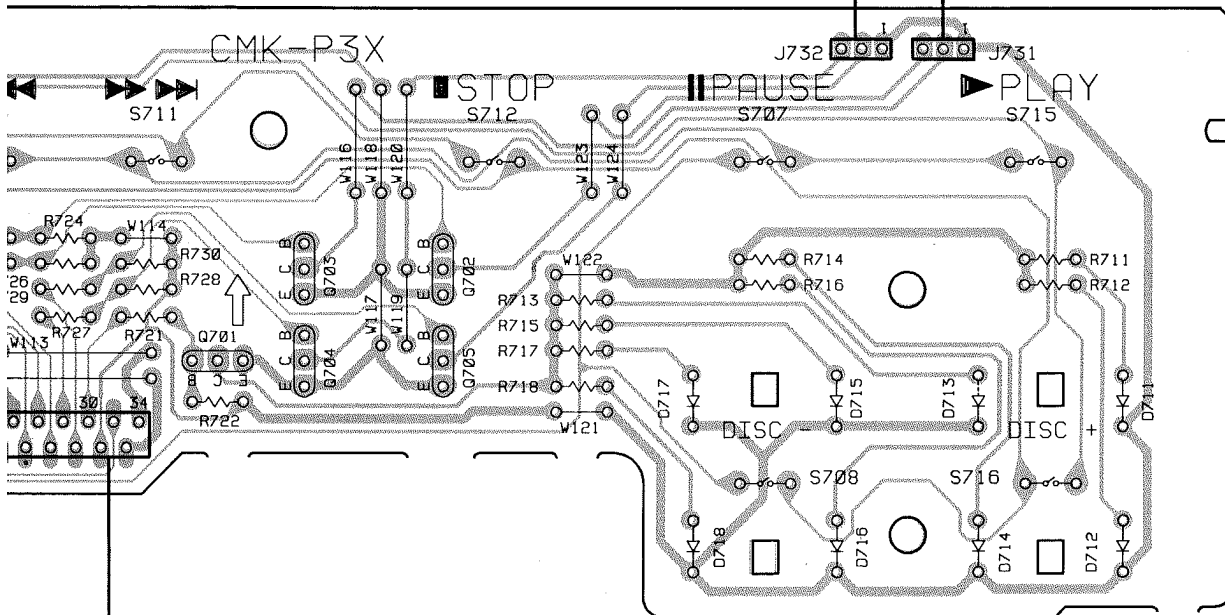


LED A BOARD ASSY



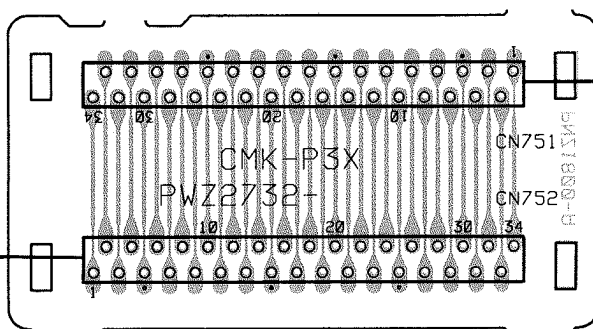
Q701 Q703 Q704 Q702 Q705

A A



B B

JOINT BOARD ASSY

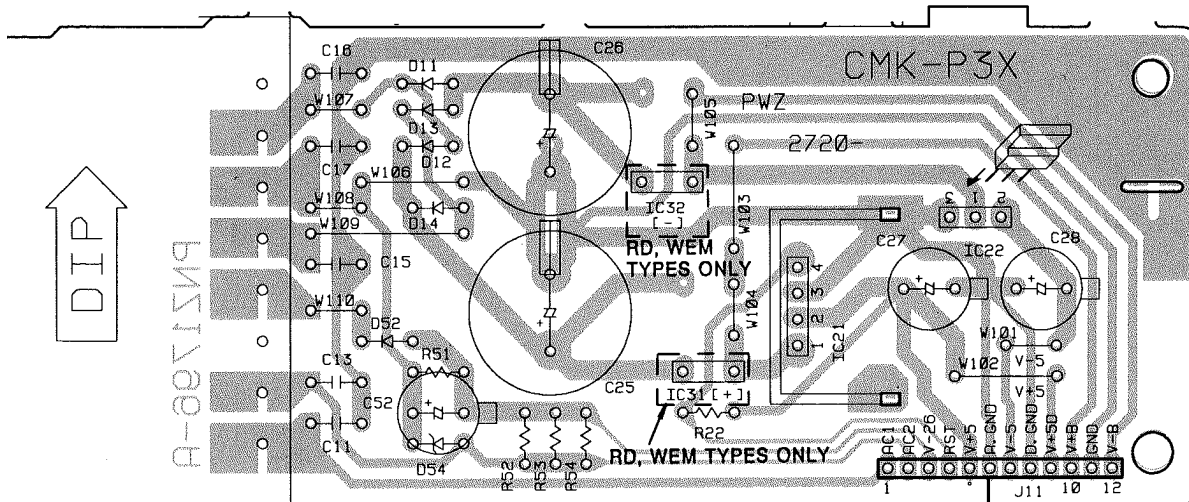


- To MAIN BOARD assy CN351

- This diagram is viewed from the mounted parts side.

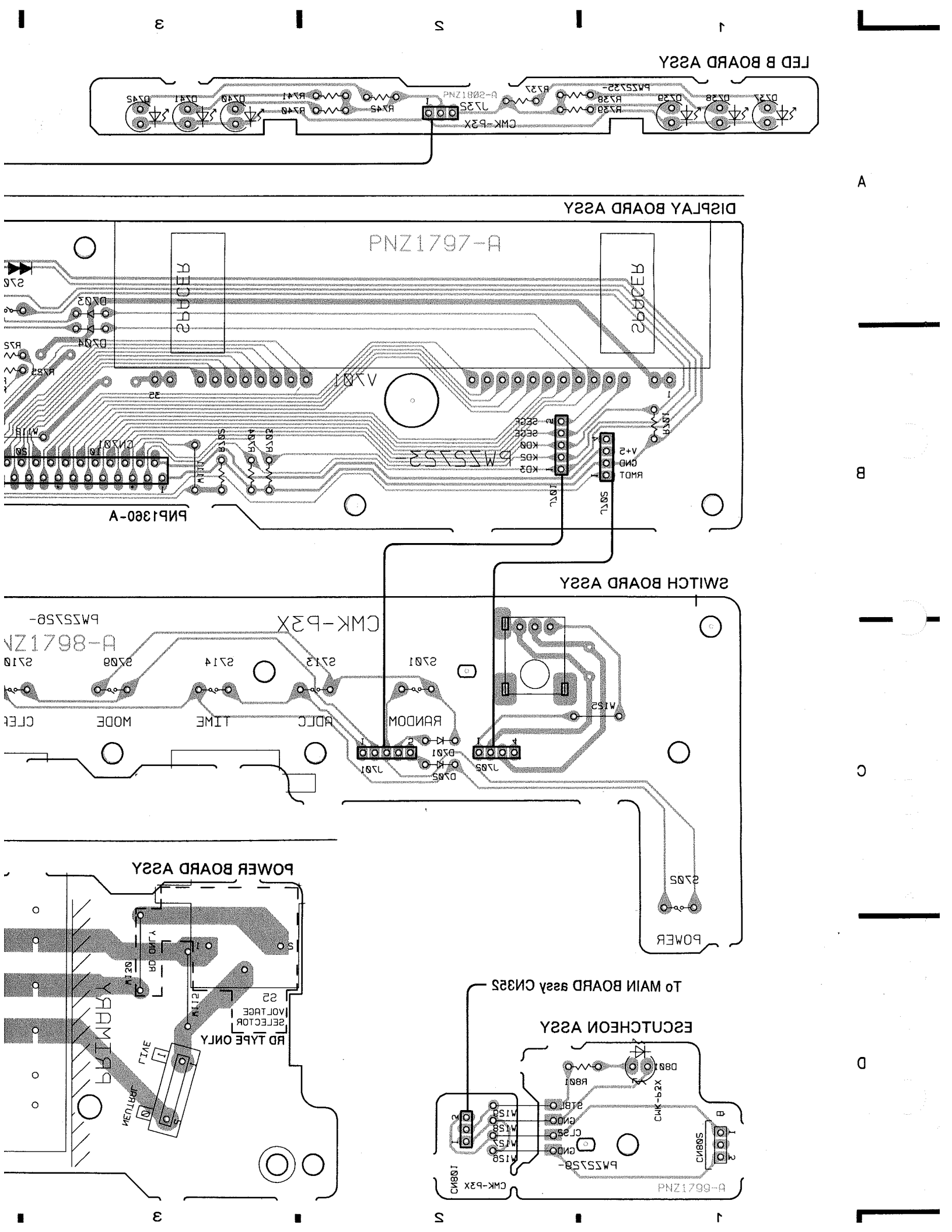
C O

IC32 IC31 IC21 IC22



D d

To MAIN BOARD assy CN11



2.3 BLOCK DIAGRAM

