

Service Manual

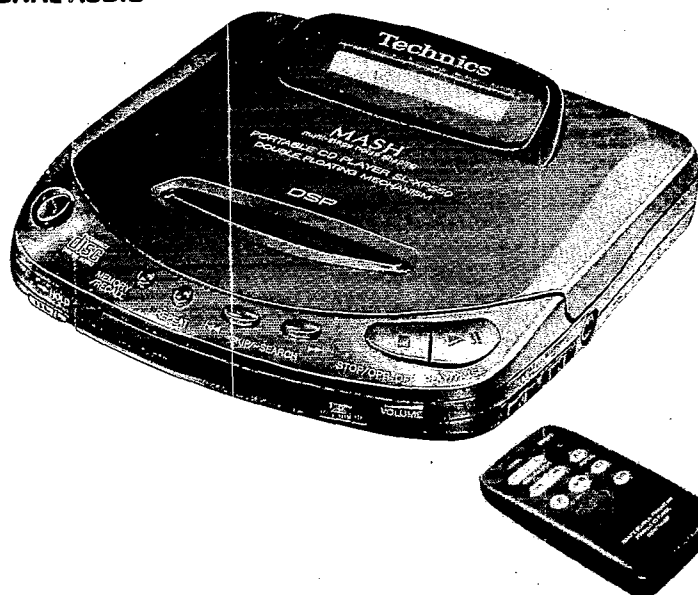
COMPACT
disc
DIGITAL AUDIO

DIGITAL

MASH*
multi-stage noise shaping

Portable CD Player

SL-XP550



Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(GC)	Asia, Latin America, Middle Near East and Africa.	(K)

- ※
- Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
 - MASH is a trademark of NTT.

SL-XP6 MECHANISM SERIES (S0DD100Z)

■ SPECIFICATIONS

■ Audio

No. of channels: 2 channels (left and right, stereo)
Output voltage: 1.0V (50k Ω) ϕ 3.5
Frequency response: 20~20000Hz (+0.5dB, -1.5dB)
Dynamic range: more than 95dB
S/N ratio: more than 100dB
Wow and flutter: Below measurable limit
D/A converter: 1 bit, MASH*
Headphones output level: max. 15mW+15mW/16 Ω ϕ 3.5 (Variable)

■ Signal Format

Correction system: Technics New Super Decoding Algorithm

■ Pickup

Type: One beam
Light source: Semiconductor laser
Wavelength: 780nm
Laser Power: No hazardous radiation is emitted (with safety protection)
Lens: Glass pressed lens

■ General

Power requirement: AC; with an included panasonic AC adaptor (RFEA402Z-W)
 Batteries; 3V (two "AA" size batteries, not included)

(Panasonic UM-3/R6P, AM3/LR6 or equivalent, not included)
 Rechargeable Batteries; DC 2.4V with an included Panasonic Rechargeable Batteries (RP-BP60SY-1)
 Car Battery; with an optional panasonic car adaptor (SH-CDC9)
 4.5V \diamond \ominus \oplus

DC IN:

Power consumption:

AC adaptor; 4W
Battery;: 0.6W

Dimensions (W x H x D):

128 x 30 x 138mm

Weight:

360g with batteries

■ Remote control transmitter

Dimensions (W x H x D): 56 x 19.5 x 105mm

Weight: 70g (including battery)
 50g (without batteries)

Battery:

UM-4, "AAA" (LR03) 1.5V x 2

■ Remote sensor

Dimensions (W x H x D): 31.3 x 15 x 29.3mm (including plug)
 16.3 x 15 x 29.3mm (without plug)

Weight:

6.2g

Note: Design and specifications are subject to change without notice.
 Weight and dimensions are approximate.

Technics

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■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wave length: 780nm

Maximum output radiation power from pickup: 100 μ W/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG: Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

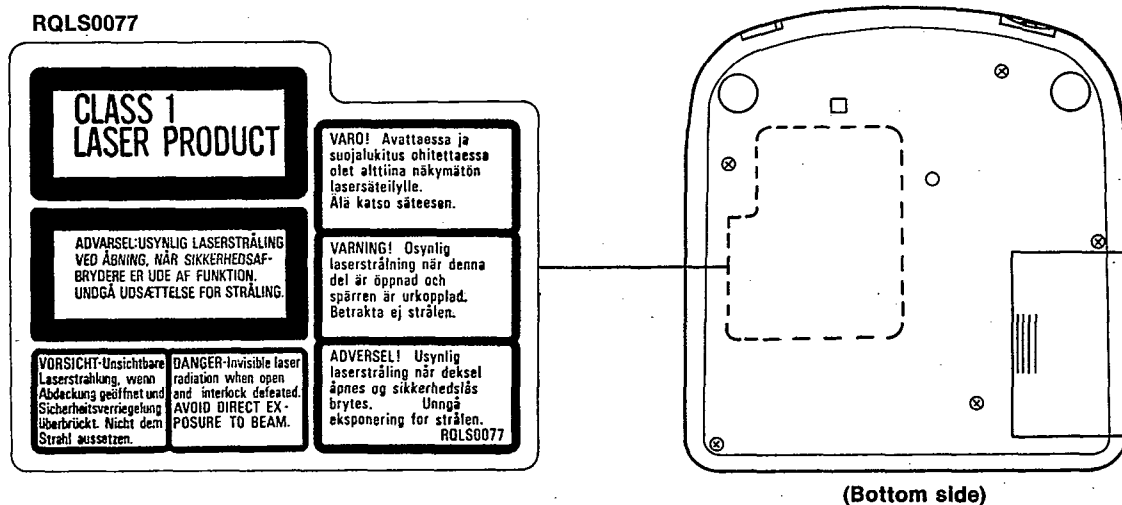
Wellenlänge: 780nm

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.



LOCATION AND FUNCTION OF CONTROLS

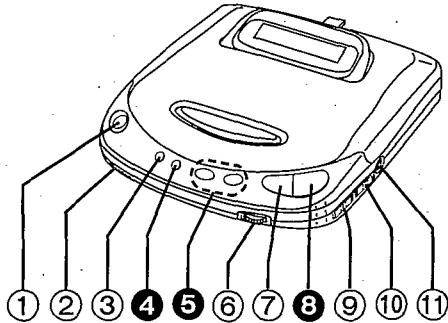
The display and all buttons of this player (except for the open button) are backlit when using the car adaptor or AC adaptor. Before using the remote control, press the light button to light all buttons of remote control (except for the light button) for

5 seconds.

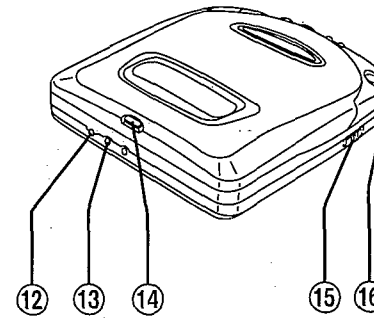
You can enjoy sure, easy operation even when driving at night.

Numbers with black background (for example 4) indicate functions available on the remote control.

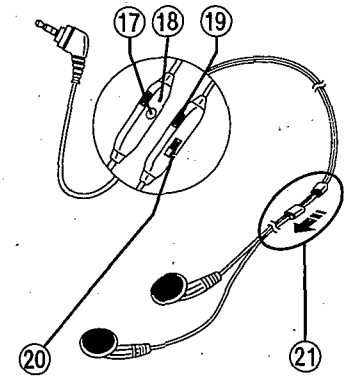
Player controls



- ① **Open button (OPEN)**
- ② **Hold switch (HOLD)**
Use to prevent unintended operation. You cannot open the disc holder or activate functional buttons when player is in the hold state. The display window shows "hold" (except when pressing the open button). Before operating the front panel buttons, be sure to release the hold state.
- ③ **Memory/recall button (MEMORY/RECALL)**
Use to program tracks or to confirm the contents of program.
- ④ **Repeat button (REPEAT)**
Press to activate the one track repeat and the all tracks repeat functions.
- ⑤ **Skip/search buttons (◀◀ -SKIP/-SEARCH ▶▶)**
Press to move forward and backward through the tracks on the disc, or to hear the disc sound when searching at high speed while playing.
- ⑥ **Earphones/headphones' volume control (VOLUME)**
- ⑦ **Stop/operation off button (■ STOP/OPR OFF)**
- ⑧ **Play/pause button (▶ || PLAY/PAUSE)**
- ⑨ **Live switch (LIVE)**
Use to change the tone quality.
- ⑩ **ASC/S-XBS selector (ASC/S-XBS)**
Use to change the tone quality.
- ⑪ **Earphones/headphones jack (🎧) 16Ω φ3.5**

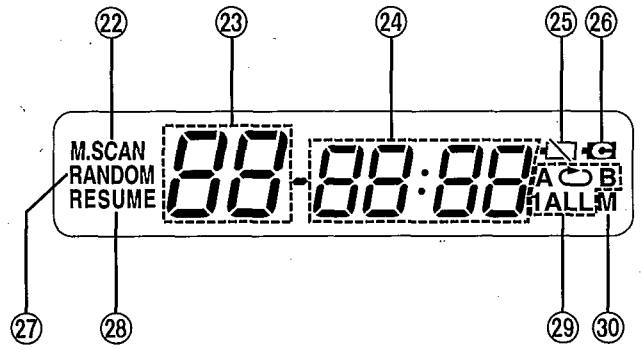


- ⑫ **Out jack (OUT)**
- ⑬ **DC in jack (DC IN 4.5 V ⚡)**
- ⑭ **Pop up button (POP UP)**
Press to rise the display. Please be careful not to put an alien substance under the display. Press the display gently to avoid possible damage to disc and/or the disc play mechanism.
- ⑮ **Play mode selector (PLAY MODE)**
Use to select the following play modes:
RANDOM: Random play
NORMAL: Sequential and program play
RESUME: Resume function
- ⑯ **Remote sensor jack (REMOTE SENSOR)**



- ⑰ **Operation button**
Press to control many of the player's functions. The functions change according to the player's mode of operation and how long you press the button.
- ⑱ **Operation indicator (OPR)**
Lights when the player is in the play mode and flashes in the stop mode.
- ⑲ **Hold switch (HOLD)**
When switched down, the operation button will not function. This prevents unintended operation.
- ⑳ **Volume control (VOL)**
- ㉑ **Slider**
Slides up to prevent entangling of the cord when the stereo earphones are not in use.

Display

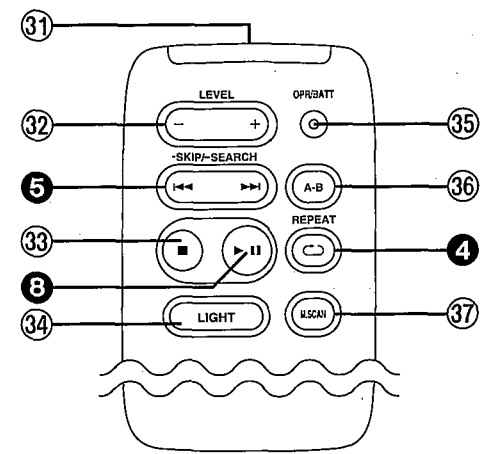


- When using an AC adaptor or car adaptor, the backlight of the display will be on.
- 22 **Music scan indicator (M. SCAN)**
Lights during the music scan mode.
- 23 **Track display**
Shows the total number of tracks and the track number in play (up to 99).
- 24 **Time display**
Shows the elapsed playing time of the current track and the total playing time of the disc.
- 25 **Battery check indicator ()**
Flashes on and off when the batteries are weak.
- 26 **Charge indicator ()**
Flashes and lights while charging.

- 27 **Random indicator (RANDOM)**
Lights during the random play mode.
- 28 **Resume indicator (RESUME)**
Lights in the resume mode.
- 29 **Repeat indicators**
One track repeat indicator (1)
All tracks repeat indicator (ALL)
A-B repeat indicator (A B)
- 30 **Memory indicator (M)**
Lights during the program play mode.

Remote control

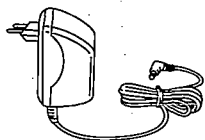
The functions of buttons 4, 5 and 8 are as described "Player controls" on page 3.



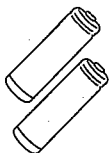
- 31 **Remote control transmission window**
- 32 **Level buttons (LEVEL)**
Adjust the volume level (from 0 dB to -20 dB).
To drop the volume level, press ⊖.
To raise the volume level, press ⊕.
- 33 **Stop/operation off button**
Press to stop play. Press and hold to turn off the player.

- 34 **Light button (LIGHT)**
Press to light all buttons of the remote control (except for this button) for 5 seconds.
- 35 **Operation/battery check indicator (OPR/BATT)**
- 36 **A-B repeat button (A-B REPEAT)**
Use to play the portion of a disc between desired two points (A and B).
- 37 **Music scan button (M. SCAN)**
Press to play the first part of each track in order.

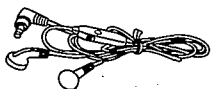
ACCESSORIES



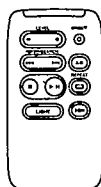
AC adaptor 1 pc.
(RFEA402Z-W)



Rechargeable batteries 2 pcs.
(RP-BP60SY-1)



Stereo earphones 1 pc.
(RFEV102A-K2S)



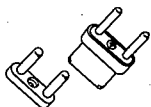
Remote control 1 pc.
(EURNTR1026T)



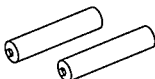
Stereo connection cable 1 pc.
(RJP120ZDS-K)



Remote sensor unit 1 pc.
(RCDNTR1008A)



Power plug adaptor 1 pc.
(RJP120ZDS-K)

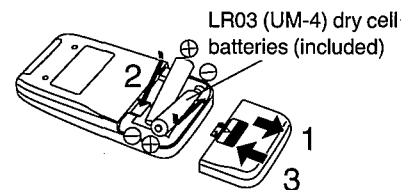


LR03 (UM-4) dry cell batteries 2 pcs.
(For Remote control)

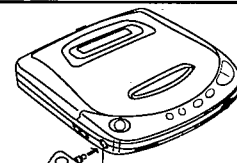
Note:
These are available on sale route.

CONCERNING REMOTE CONTROL

Battery installation



Before using the control provided with this player



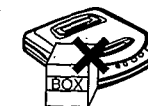
Remote sensor jack
Remote sensor unit

Connect the remote sensor unit supplied to remote sensor jack.

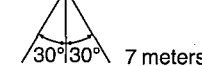
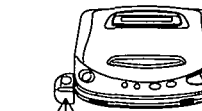
- The remote control provided is designed only for this product.
- When operating from the remote control, the AC adaptor or the optional car adaptor are the recommended power sources.

Operation notes

Aim the remote control transmission window toward the player's sensor. Avoid any obstacles.



Use the remote control within a 60-degree angle and within 7 meters of the player.



Be sure the transmission window and the player's sensor are free from dust. Excessive dust might prevent reception.



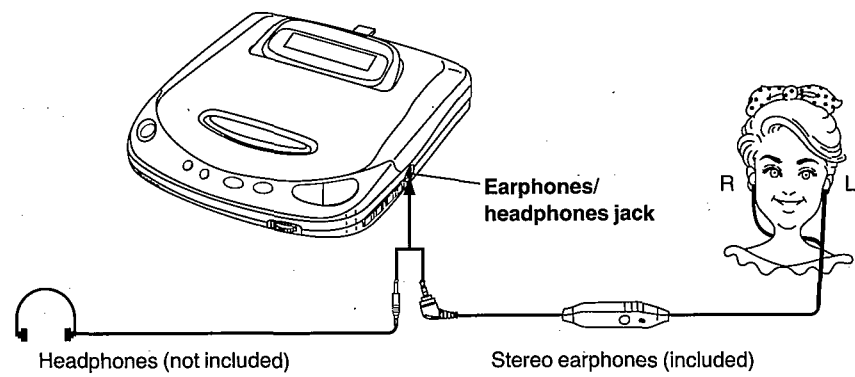
Avoid dust

If direct sunlight or other strong light sources strike the remote control signal sensor part of the player, operation may be impaired. If there is a problem, place the player away from the light source.

■ CONNECTIONS

You can use this player through an audio system, portable AM/FM cassette system, and/or stereo earphones/headphones.

Listening through the stereo earphones (or headphones)



Connect the plug of the stereo earphones (included) or headphones (not included) to the earphones/headphones jack.

Note for stereo earphones:
The right earphone cord is longer than the left and is adjustable for your convenience.

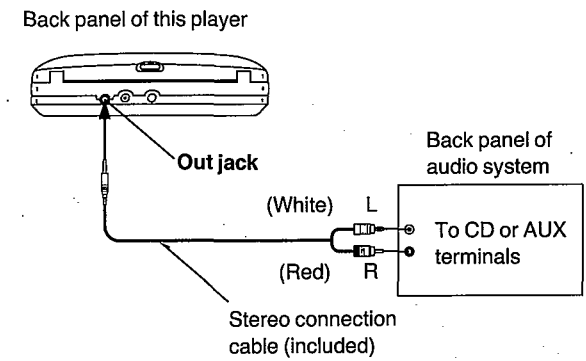
■ Precautions for listening with the headphones

- Do not play your headset at a high volume. Hearing experts advise against continuous extended play.
- If you experience a ringing in your ears, reduce volume or discontinue use.
- Do not use while operating a motorized vehicle. It may create a traffic hazard and is illegal in many areas.
- You should use extreme caution or temporarily discontinue use in potentially hazardous situations.
- Even if your headset is an open-air type designed to let you hear outside sounds, don't turn up the volume so high that you can't hear what's around you.

Listening through an audio system

Before connecting the player to your audio system, make sure to turn off the power on all other system components.

See operating instructions for your system components or portable AM/FM cassette system for details.



Use the stereo connection cable (included) to connect this player to your system components or portable AM/FM cassette system.

Do not connect this player to the PHONO terminals of your system components or portable AM/FM cassette system.

You can change the tone quality by setting the live switch and ASC/S-XBS selector.

POWER SOURCE

AC adaptor

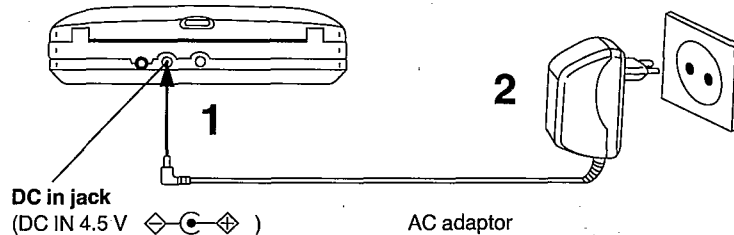
Use only the AC adaptor provided with this player.

Before use

(For areas except Continental Europe, United Kingdom and Australia)

Make sure the preset voltage of your AC adaptor fits to your local voltage before plugging it into the AC power outlet. If it doesn't, turn the AC line-voltage selector with a screwdriver so that it corresponds to your local voltage.

If the power plug will not fit your socket, use the power plug adaptor.



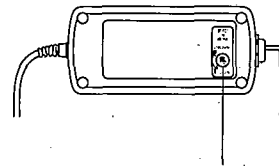
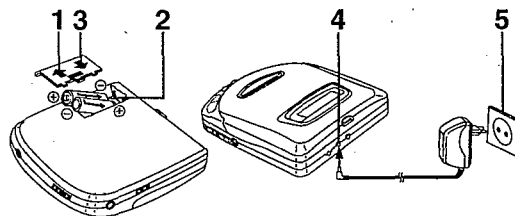
1 Insert the plug at the end of the AC adaptor cord into the DC in jack.

2 Plug the AC adaptor into your household AC power outlet.

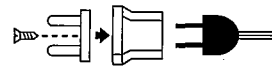
CAUTION

Do not use the AC adaptor provided with this player for other products.

Rechargeable batteries



AC line-voltage selector



Notes:

- To operate on battery power, unplug the AC adaptor from the household AC power outlet and the DC in jack on the player.
- The player is in the standby condition when the AC adaptor is connected. The primary circuit is always "live" as long as the AC adaptor is connected to an electrical outlet.

CAUTION

Before inserting the rechargeable batteries to charge, be sure to turn off the player.

Normally, 1 hour of recharging will give approximately 1.5 hours of play. 3 hours of recharging will give approximately 2.5 hours of play.

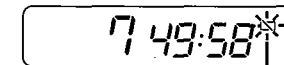
1 Open the battery compartment cover.

2 Install two rechargeable batteries.

Be sure to insert the batteries with correct polarities and then push in the direction of the arrow.

3 Close the battery compartment cover.

- Recharge the rechargeable batteries for 3 hours before using them for the first time and any time they have not been used for a long period (more than three months). If 3 hours recharging does not provide normal operation time (2.5 hours), repeat the recharging for three more hours.
- You can recharge these rechargeable batteries about 300 times. After that, their operating time will be shortened, and you will need to replace them.
- Observe the battery check indicator on the display to determine battery condition. When the batteries are weak, the battery check indicator begins to flash on and off and then the player will be automatically turned off.

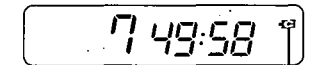


Battery check indicator

- You can operate the player with the AC adaptor while recharging the batteries, but it will lengthen the recharging time.
- While recharging, the AC adaptor and rechargeable batteries may get warm. This is normal.

4 Connect the AC adaptor to the player and to your household AC power outlet.

- The charge indicator will begin flashing. When the indicator stops flashing, the batteries will be good for approximately 1.5 hours of playing time.
- The charge indicator will go out until the batteries are fully charged, providing approximately 2.5 hours of playing time.



Charge indicator

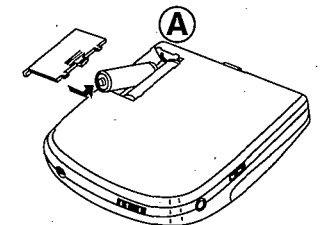
5 When the charging is finished, disconnect the AC adaptor.

CAUTION

- Do not allow metal objects to touch the terminals. (A hazardous short circuit may result.)
- Avoid recharging or placing the rechargeable battery near sources of heat or humidity. Recharging should be performed at 0°C–40°C.
- The batteries supplied with this player are designed for Technics-brand portable audio products only. Use in other products could cause damage or personal injury.

Battery removal

Press the batteries toward **A** and remove them.



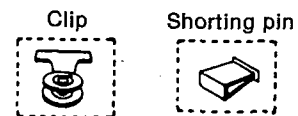
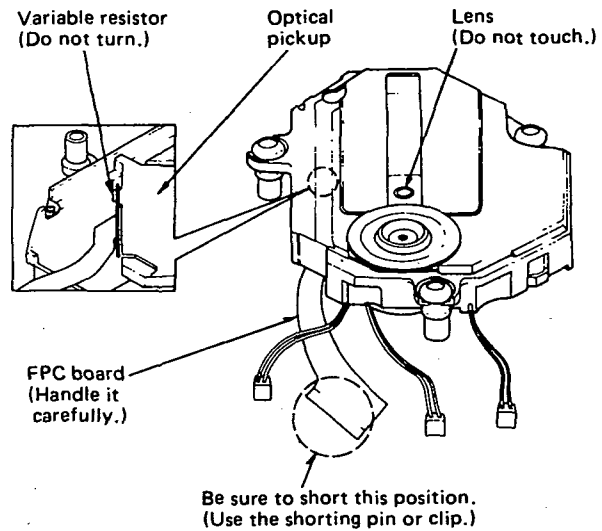
HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.

So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

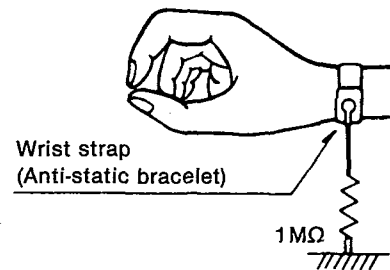
• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic shorting pin is inserted into the flexible board (FPC board).
When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.



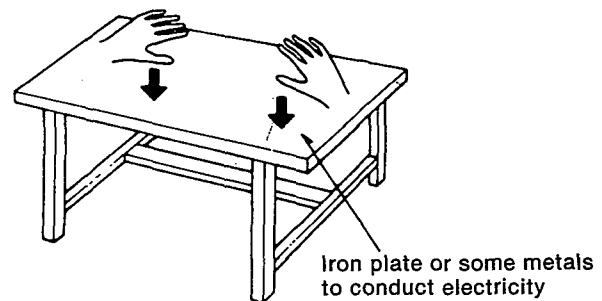
• Grounding for electrostatic breakdown prevention

1. Human body grounding.
Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.



Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



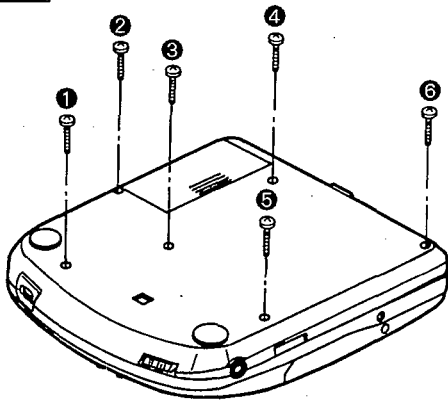
DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 2.

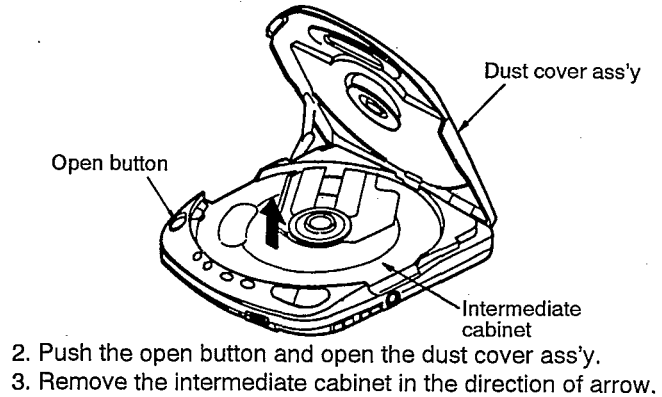
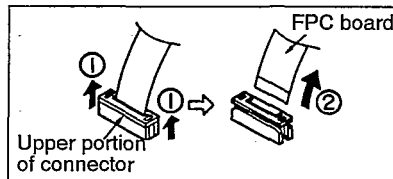
ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

※ This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.

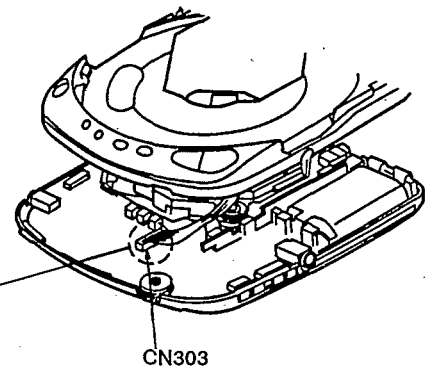
Ref.No. 1	Removal of the intermediate cabinet
Procedure 1	



1. Remove the 6 screws (①~⑥).

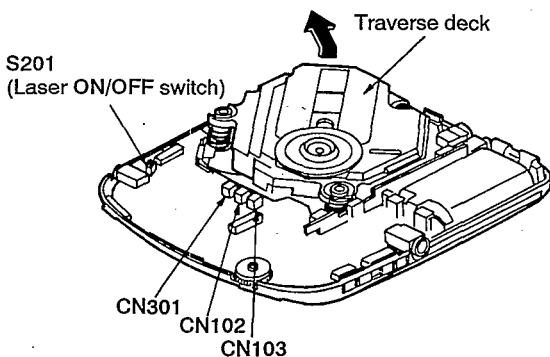


2. Push the open button and open the dust cover ass'y.
3. Remove the intermediate cabinet in the direction of arrow.



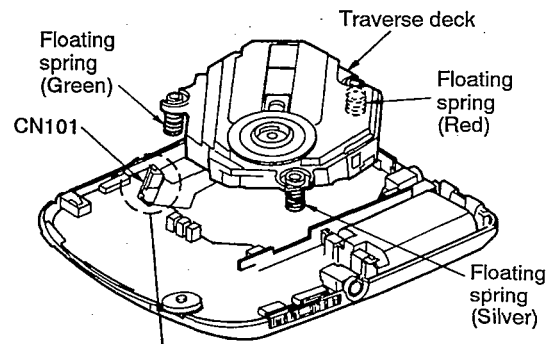
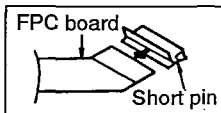
4. Remove the connector (CN303).

Ref.No. 2	Removal of the traverse deck
Procedure 1 → 2	



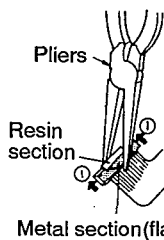
1. Disconnect the connectors. (CN102, CN103, CN301).
2. Pull out the traverse deck in the direction of arrow.

Caution: Insert a short pin into the traverse deck's FPC board. (Refer to "handling precautions for traverse deck" on page 8.)

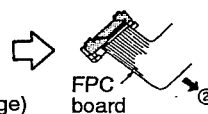


How to remove the FPC board.

1. Nip the metal and resin sections of the connector with a pair of pliers and then move the metal section in the direction of arrows ①.



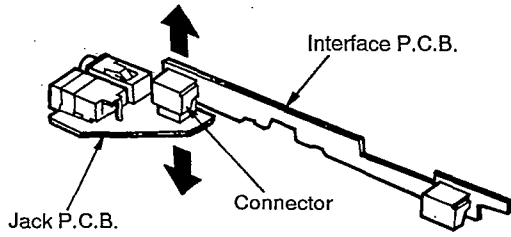
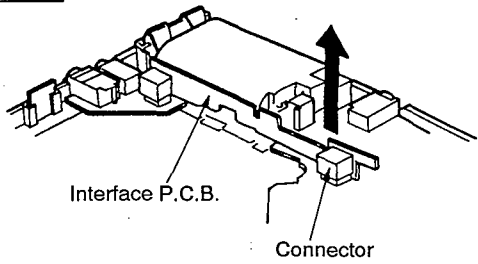
Note: The flat edge of the metal section must be nipped.
2. Remove the FPC board in the direction of arrow ②.



3. Remove the FPC board (CN101).
4. Remove the 3 floating springs.

Ref.No. 3
Removal of the interface P.C.B. and jack P.C.B.

Procedure
 1 → 2 → 3

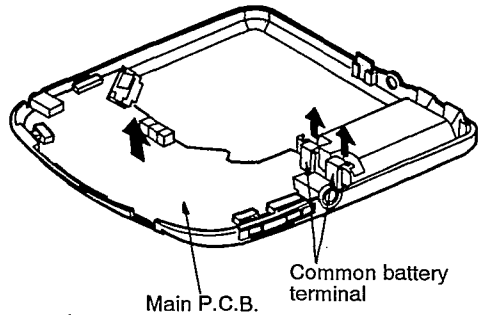
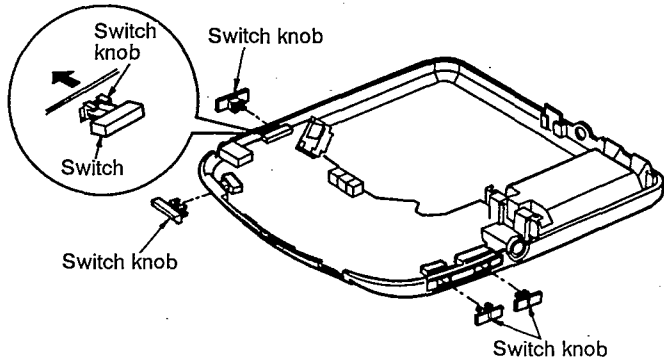


1. Remove the interface P.C.B. in the direction of arrow with care.

2. Separate the interface P.C.B. from jack P.C.B. in the direction of arrow.

Ref.No. 4
Removal of the main P.C.B.

Procedure
 1 → 2 → 3 → 4

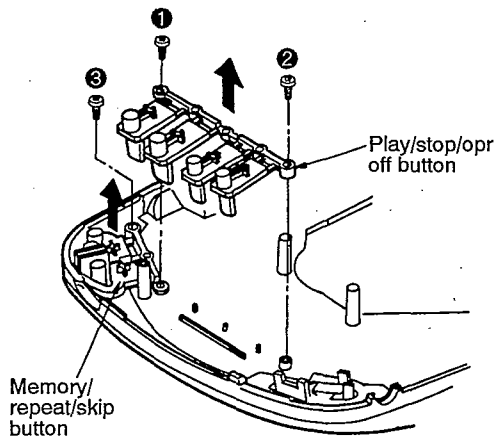


1. Remove the 4 switch knobs.

2. Remove the main P.C.B. and common battery terminal in the direction of arrow.

Ref.No. 5
Removal of the play/stop/opr off button and memory/repeat/skip button

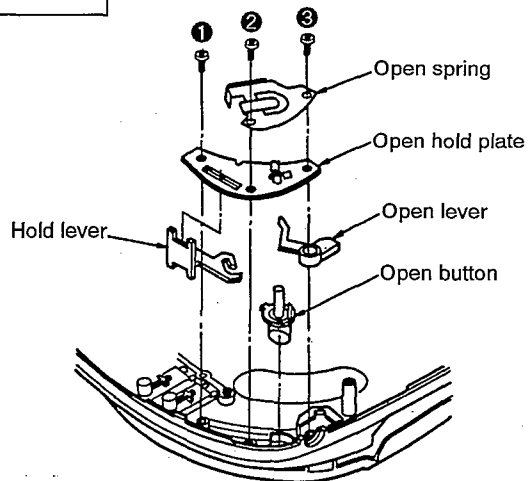
Procedure
 1 → 5



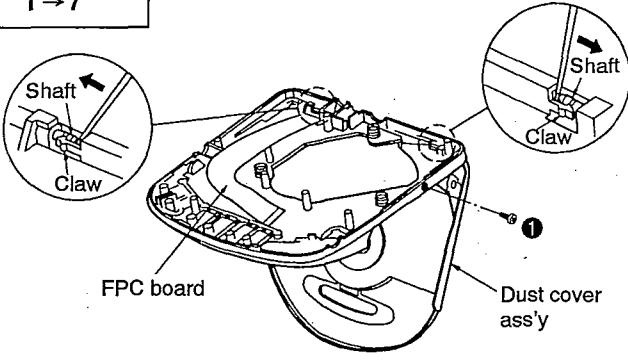
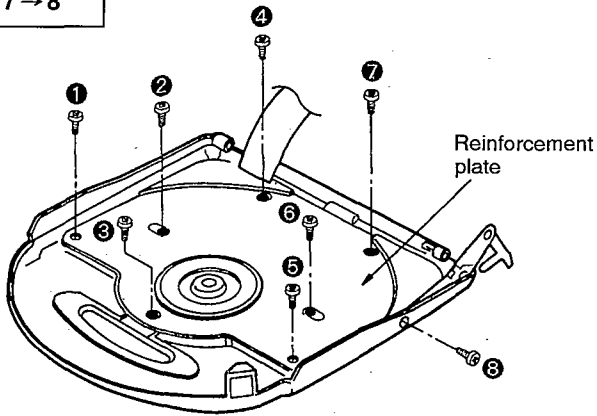
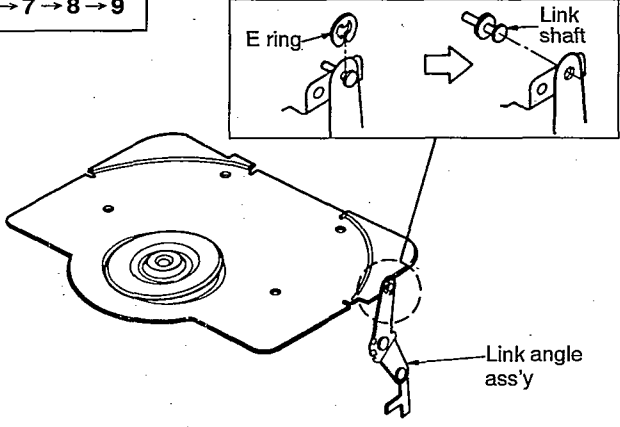
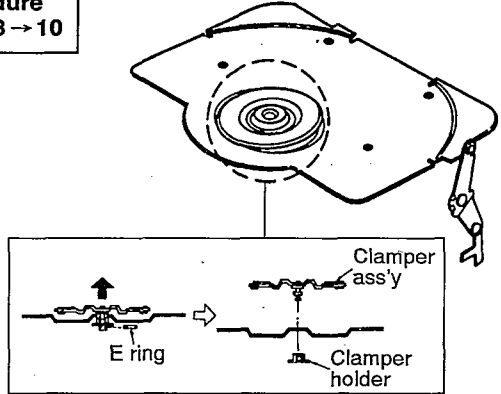
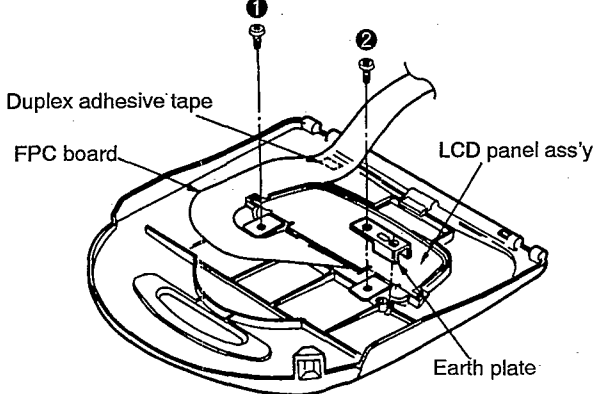
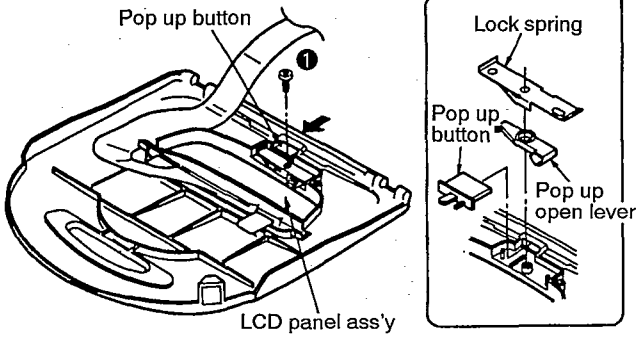
1. Remove the 2 screws (①, ②) and the play/stop/opr off button in the direction of arrow.
 2. Remove the 1 screw (③) and the memory/repeat/skip button in the direction of arrow.

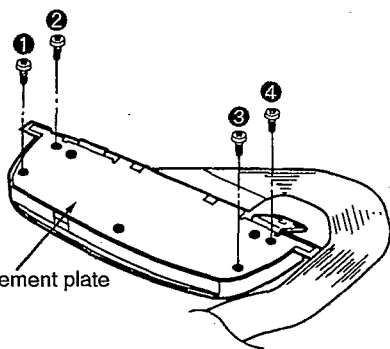
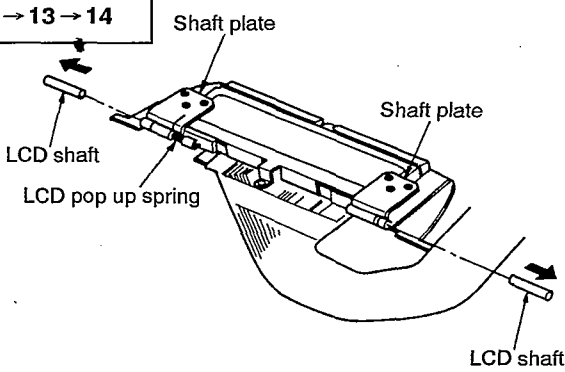
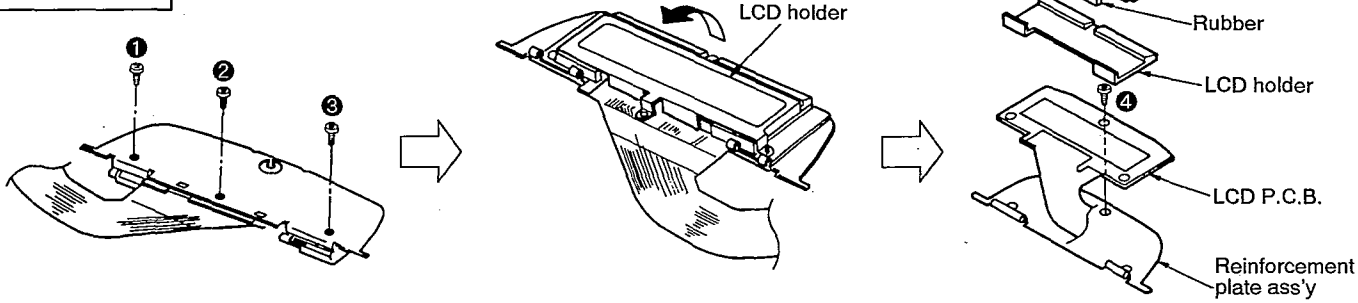
Ref.No. 6
Removal of the open spring, open hold plate, hold lever, open lever and open button

Procedure
 1 → 6



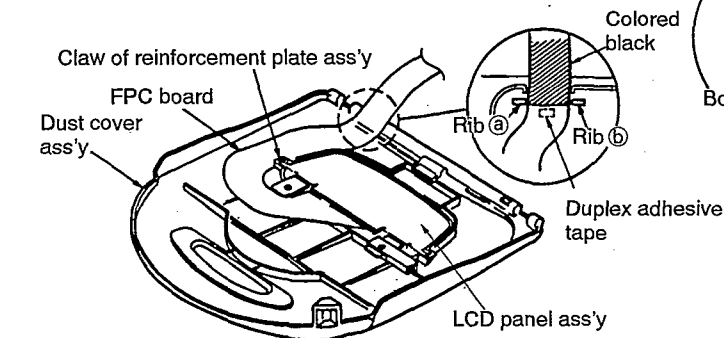
1. Remove the 3 screws (① ~ ③).
 2. Remove the open spring, open hold plate, hold lever, open lever and open button.

Ref.No. 7	Removal of the dust cover ass'y	Ref.No. 8	Removal of reinforcement plate
Procedure 1→7		Procedure 1→7→8	
 <p>1. Remove the 1 screw (①).</p> <p>2. Release the claws and push the shafts in the direction of arrow with a screwdriver(-).</p> <p>Note: Take care not to bend the FPC board.</p>		 <p>• Remove the 8 screws (①~⑧).</p>	
Ref.No. 9	Removal of the link angle ass'y	Ref.No. 10	Removal of the clamber ass'y
Procedure 1→7→8→9		Procedure 1→7→8→10	
 <p>1. Remove the E ring.</p> <p>2. Remove the link shaft.</p>		 <p>1. Remove the E ring.</p> <p>2. Remove the clamber ass'y in the direction of arrow.</p> <p>Note: Take care not to part the clamber holder from the clamber ass'y.</p>	
Ref.No. 11	Removal of the LCD panel ass'y	Ref.No. 12	Removal of the lock spring, pop up open lever and pop up button
Procedure 1→7→8→11		Procedure 1→7→8→12	
 <p>1. Remove the 2 screws (①, ②).</p> <p>2. Remove the earth plate.</p> <p>Note: When removing the FPC board, take care not to bend it because it is fixed with duplex adhesive tape.</p>		 <p>1. Open the LCD panel ass'y with pressing the pop up button in the direction of arrow.</p> <p>2. Remove the 1 screw (①).</p> <p>3. Remove the lock spring, pop up open lever and pop up button.</p>	

<p>Ref.No. 13</p>	<p>Removal of the reinforcement plate ass'y</p>	<p>Ref.No. 14</p>	<p>Removal of the shaft plates</p>
<p>Procedure 1 → 7 → 8 → 11 → 13</p>	 <p>Reinforcement plate ass'y</p> <ul style="list-style-type: none"> Remove the 4 screws (1 ~ 4). 	<p>Procedure 1 → 7 → 8 → 11 → 13 → 14</p>	 <ul style="list-style-type: none"> Pull out the LCD shafts in the direction of arrow.
<p>Ref.No. 15</p>	<p>Removal of LCD P.C.B. LCD401 and rubber</p>	<p>Caution: Be careful not to stick the grease or foreign material to the rubber.</p>	
<p>Procedure 1 → 8 → 9 → 12 → 14 → 15</p>	 <ol style="list-style-type: none"> Remove the 3 screws (1 ~ 3). Remove the LCD holder in the direction of arrow. Remove the 1 screw (4). Remove the LCD401, rubber, LCD holder and LCD P.C.B. 		

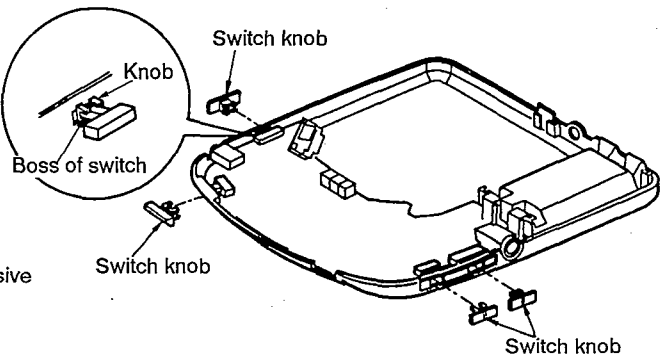
NOTE FOR ASSEMBLY

● **How to Install the LCD Panel ass'y**



- Avoid holding FPC board between claw of LCD reinforcement plate ass'y and dust cover ass'y.
- Stick the end colored black of FPC board along the rib (a) and rib (b) as shown in the figure above.

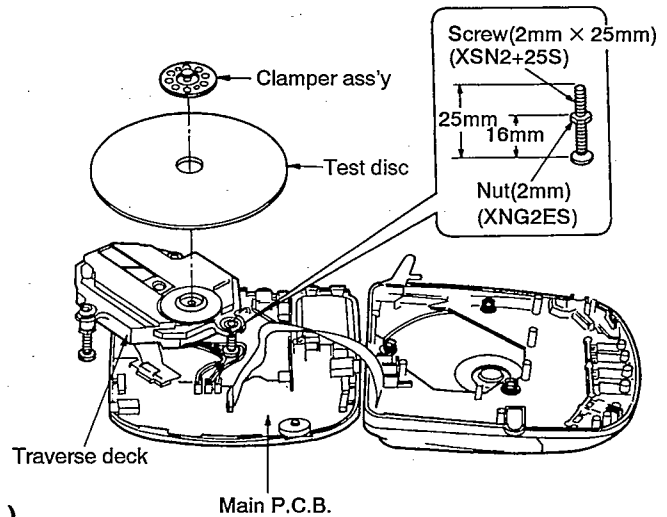
● **How to Install the switch knob**



- Make sure the bosses of the switch are fit in the claws of switch knob when inserting the switch knob.
- * Before installing the switch knob, be sure to check the claws for defects that would render the claws unserviceable. (If a white line like white wax on a claw is found, the claw may be broken when installing the switch knob.)

■ HOW TO CHECK THE MAIN P.C.B.(COMPONENT SIDE)

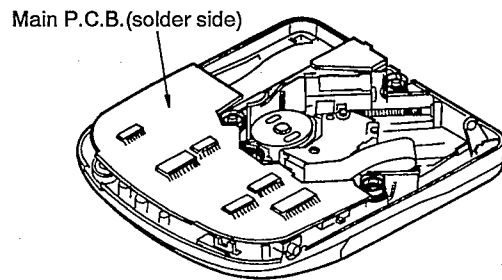
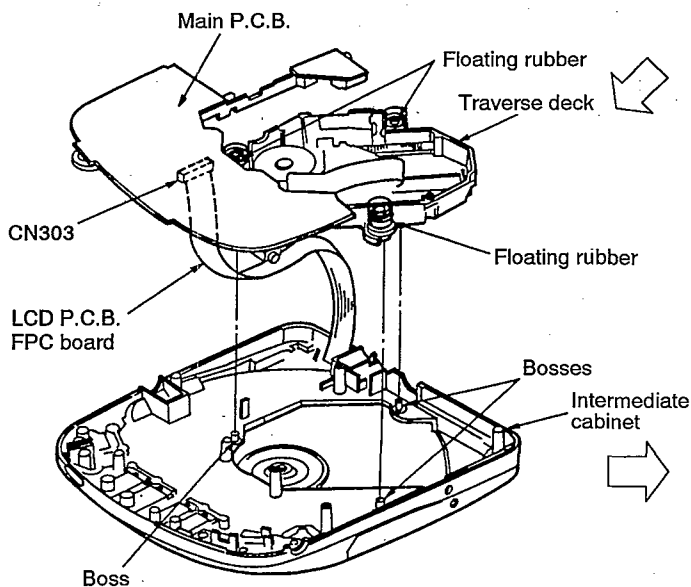
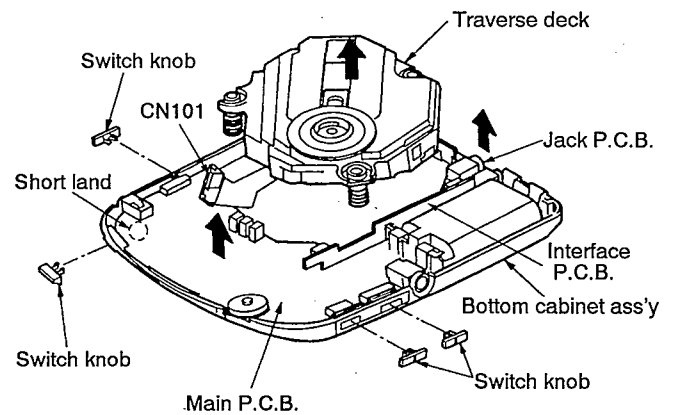
1. Remove the intermediate cabinet according to the disassembly instructions, procedure 1 "Removal of the intermediate cabinet" on page 9.
2. Remove the clamber ass'y according to the disassembly instructions, procedure 10 "Removal of the clamber ass'y" on page 11.
3. Lift up the traverse deck and keep it with 3 screws as shown right.
4. Put the test disc and clamber ass'y on the traverse deck.
5. Check the component side of main P.C.B. as shown right.



■ HOW TO CHECK THE MAIN P.C.B.(SOLDER SIDE)

1. Remove the intermediate cabinet according to the disassembly instructions, procedure 1 "Removal of the intermediate cabinet" on page 9.
2. Remove the 4 switch knobs.
3. Remove the main P.C.B., interface P.C.B., jack P.C.B., traverse deck from the bottom cabinet.
4. Short-circuit the lands of the laser ON/OFF SW(S201) by soldering them.(See page 16.)

Note: After checking the P.C.B., remove the solders from the short lands.



5. Attach the LCD P.C.B. FPC board to the main P.C.B. connector (CN303).
6. Install the traverse deck and main P.C.B. in the intermediate cabinet.
7. Install the unit in place by holding the traverse deck and main P.C.B. firmly, and then install the disc.

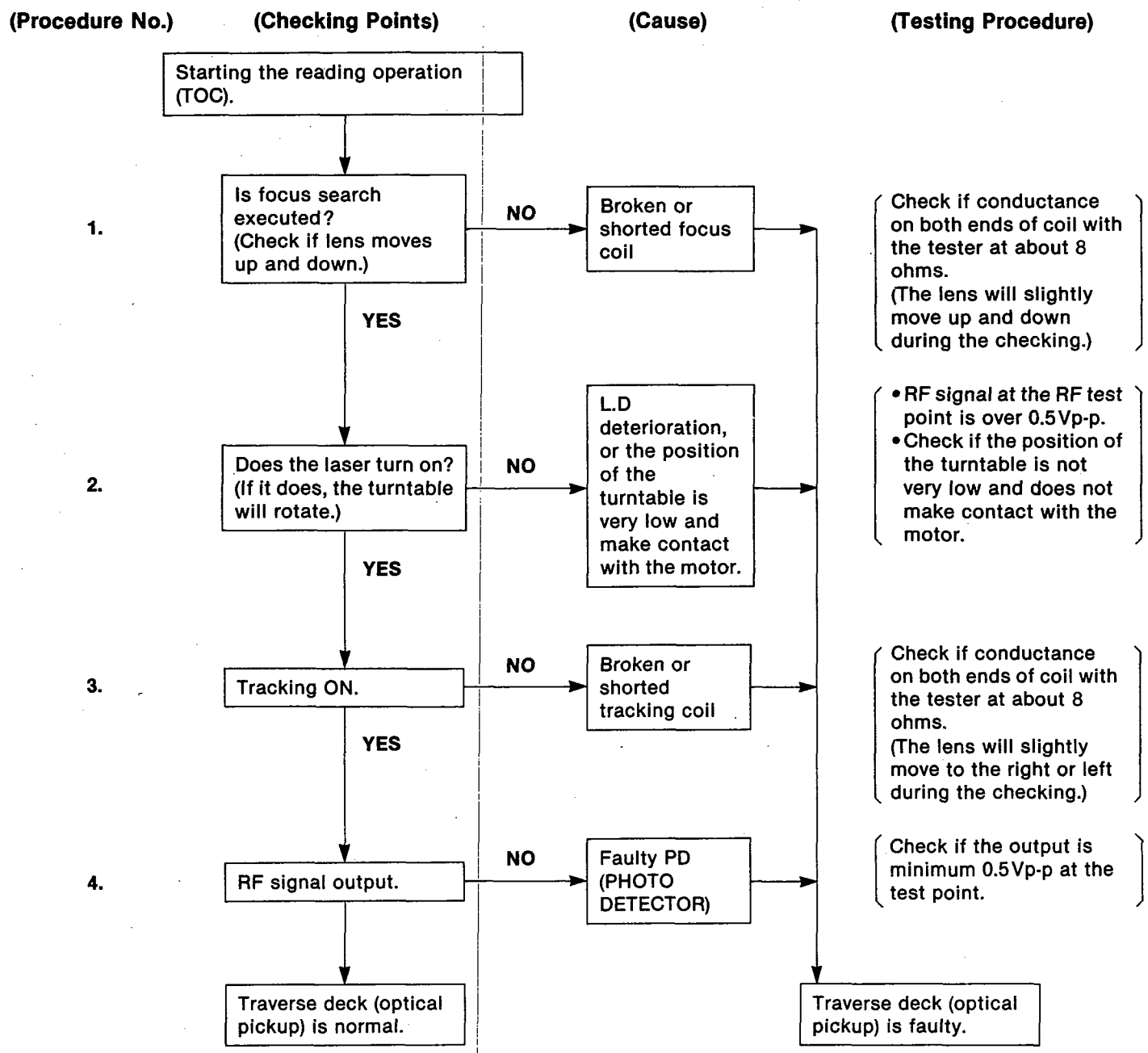
Note: Engage the rubber sections of the traverse deck in the bosses on the intermediate cabinet.

8. With the P.C.B. in place as shown in the figure above, connect the AC adapter to the DC IN jack, press the play button and then check the voltage and waveform.

Note: The connectors(CN101, CN303) must be connected.

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.



- Check electrical circuit.
- Check for flaws on disc or if it is warped or not centered.

※ Replace traverse deck.

• Check the operations described below on the traverse deck after replacing it.

* Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* Checking Playability

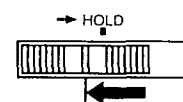
1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

NOTE FOR SERVICE

• About hold switch

Before checking the operation problems and adjustments, be sure to release the hold state.

Before operating the front panel button, be sure to release the hold state.

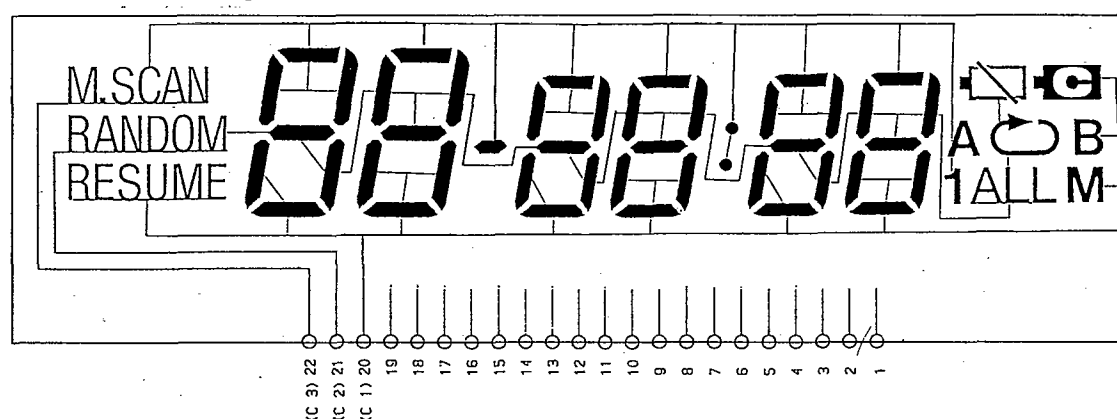


• Connection of the FPC board of the optical pickup

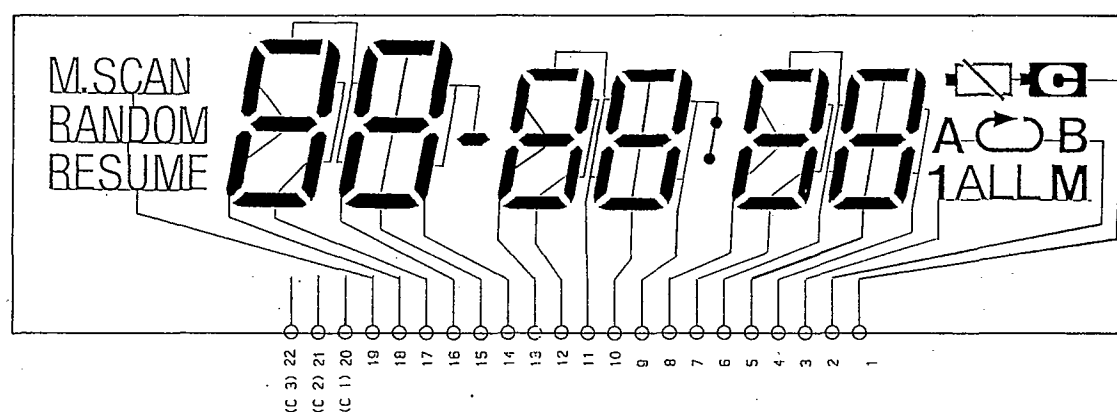
Before you put the power supply to work from the AC adaptor or batteries to check the set's operations and voltage, be sure to connect the FPC board of the optical pickup to the connector CN101 on the main P.C.B. If you disconnected the FPC board from the connector CN101, the protection circuitry may be operated when the PLAY/PAUSE button is pressed with the FPC board disconnected.

INTERNAL CONNECTIONS OF LCD

• Segment connection diagram



• Common connection diagram



MEASUREMENTS AND ADJUSTMENTS

Warning: This product uses a laser diode. Refer to caution statements on page 2.

ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

• Measuring instruments and special tools

• Test discs

- | | |
|--------------------------------------|-----------------------------------|
| 1. Playability test disc (SZZP1054C) | • Musical program disc (ordinary) |
| 2. Uneven test disc (SZZP1056C) | • DC voltmeter |
| | • Lead wire (for test points) |

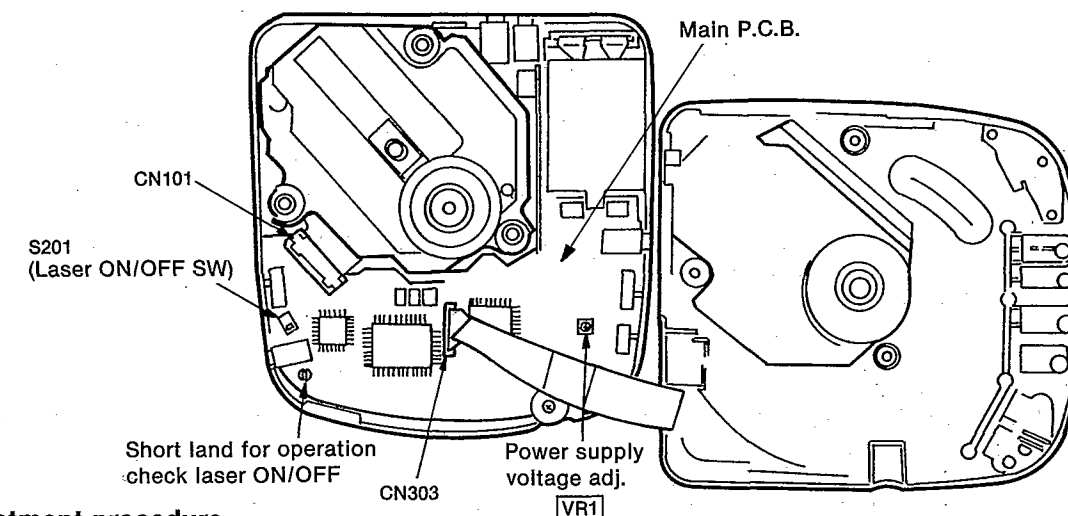
• Test short land

Short-circuit the lands of the laser ON/OFF switch (S201) by soldering them. It turns "ON" position. (Refer to below figure or printed circuit board and wiring connection diagram for short land location.)

Note: Remove the solders from the lands after adjustment.

• Adjustment point

- Notes)** 1. Please refer to the printed circuit board and wiring connection diagram for test point locations.
2. Take care to connect CN101 and CN303.



• Adjustment procedure

(1) POWER SUPPLY VOLTAGE ADJUSTMENT

1. Connect FPC of LCD P.C.B. to CN303.
2. Connect the DC voltmeter to TP3 (LVCC) (+) and TP4 (GND).
3. Connect the AC adaptor cord to the DC (IN) port and move the PLAY switch to the ON position. (Use a new dry cell battery or a rechargeable battery that is fully charged.)
4. Insert the test disc, and switch the player power ON.
5. Adjust VR1 on the main P.C.B. at $3.45 \pm 0.05V$.

(2) CHECK OF PLAY OPERATION

* Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and backward directions).

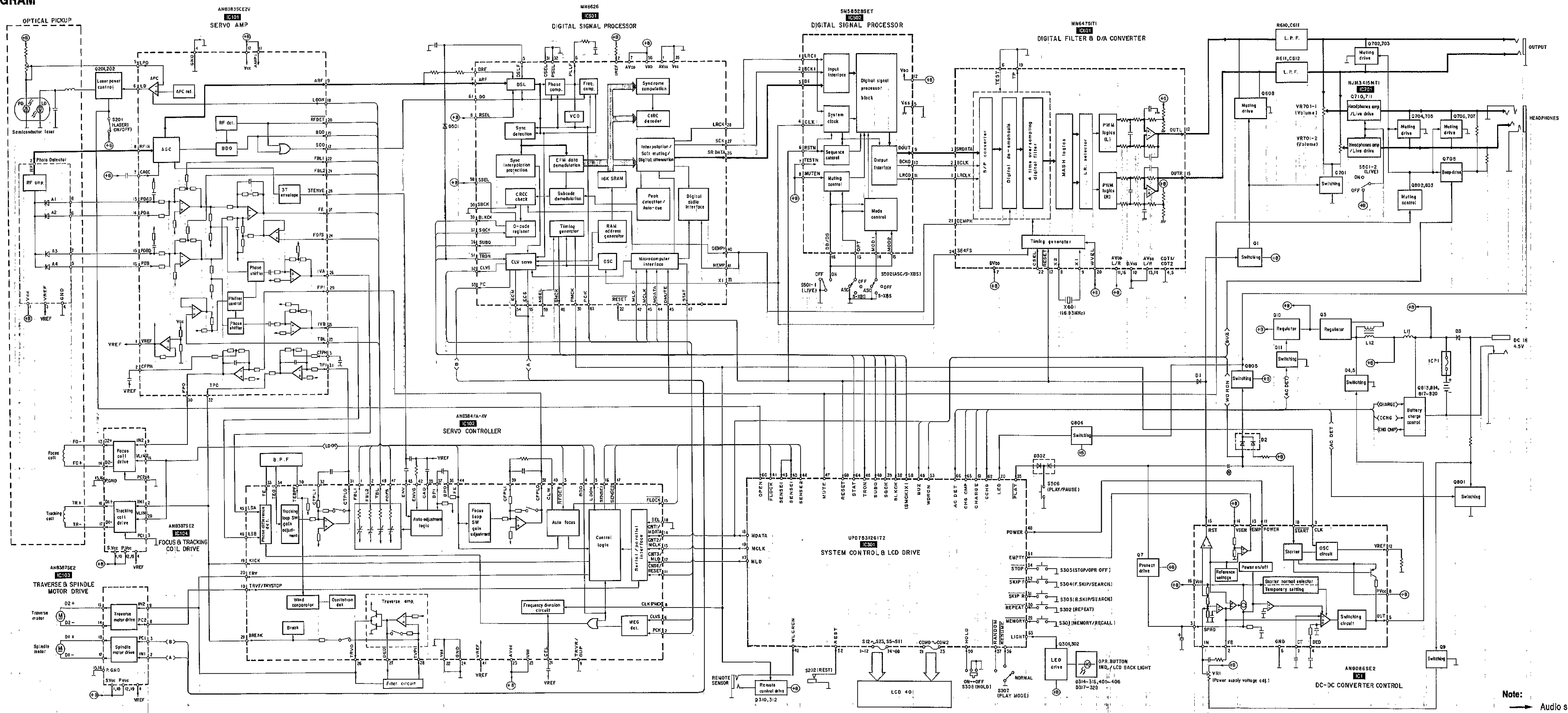
* Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and backward directions).

* Checking Playability

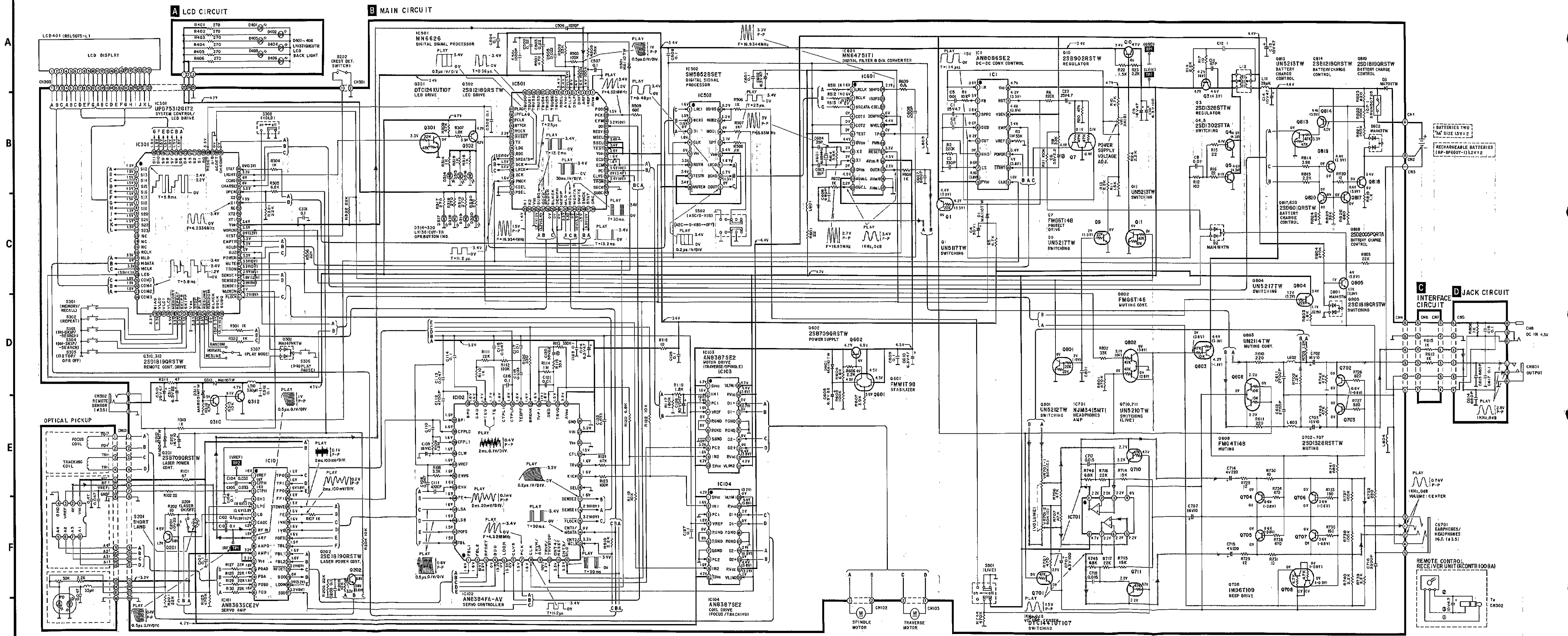
1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

BLOCK DIAGRAM



Note: Audio signal

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



SCHEMATIC DIAGRAM (Parts list on page 36, 37, 39, 40.)

(This schematic diagram may be modified at any time with development of new technology.)

Note:

- S201 : Laser ON/OFF switch in "OFF" position. (It turns "ON" with disc holder closed.)
- S202 : Rest detector in "OFF" position. (It turns "ON" when optical pickup comes to innermost periphery.)
- S301 : Memory/recall (MEMORY/RECALL) switch.
- S302 : Repeat (REPEAT) switch.
- S303 : Skip/search (SKIP-SEARCH) switches.
- S304 (S303: Backward, S304: Forward)
- S305 : Stop/operation off (STOP/OPR OFF) switch.
- S306 : Play/pause (PLAY/PAUSE) switch.
- S307 : Play mode selector (PLAY MODE) switch in "NORMAL" position. (RANDOM ↔ NORMAL ↔ RESUME)
- S308 : Hold (HOLD) switch in "OFF" position.
- S501 : Live (LIVE) switch in "OFF" position.
- S502 : ASC/S-XBS selector (ASC/S-XBS) switch in "OFF" position. (OFF ↔ S-XBS ↔ ASC)

- Positive voltage lines.
- Audio signal lines.
- Important safety notice: Components identified by Δ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.

Part No.	Production Part No.	Supply part No.
IC701	NJM3415MT1	NJM3415M

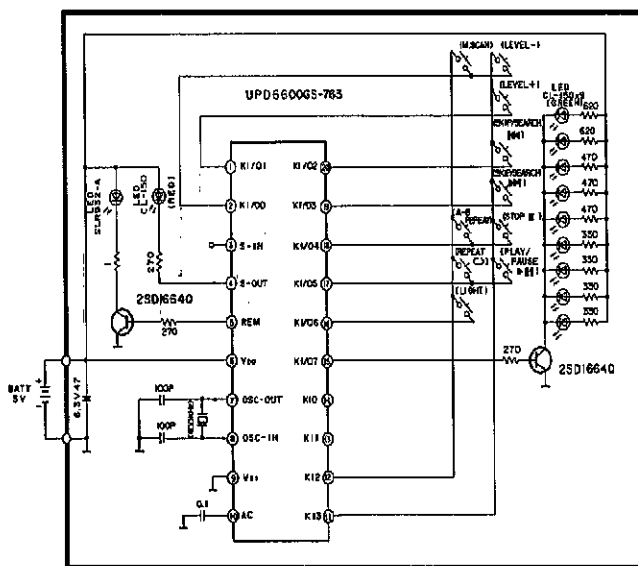
Caution!

- IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.
 * The parenthesized is the voltage for test disc (1 kHz, L+R, 0dB) in play mode, and the other, for no disc in stop mode.
 * AC adaptor is used for power supply.

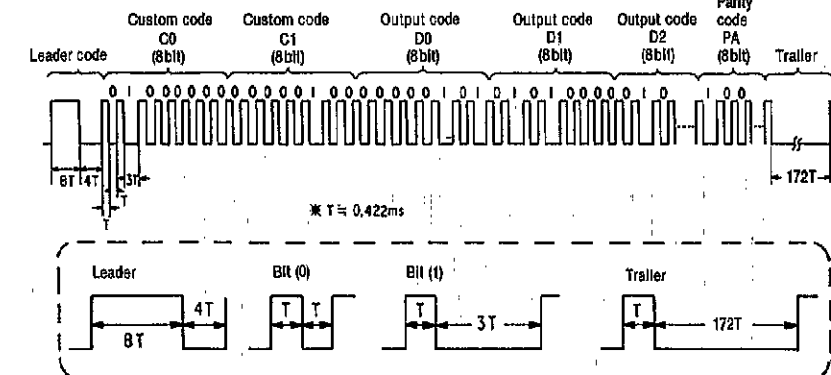
Schematic diagram of remote control

- Remote control (EURNTR1026T)

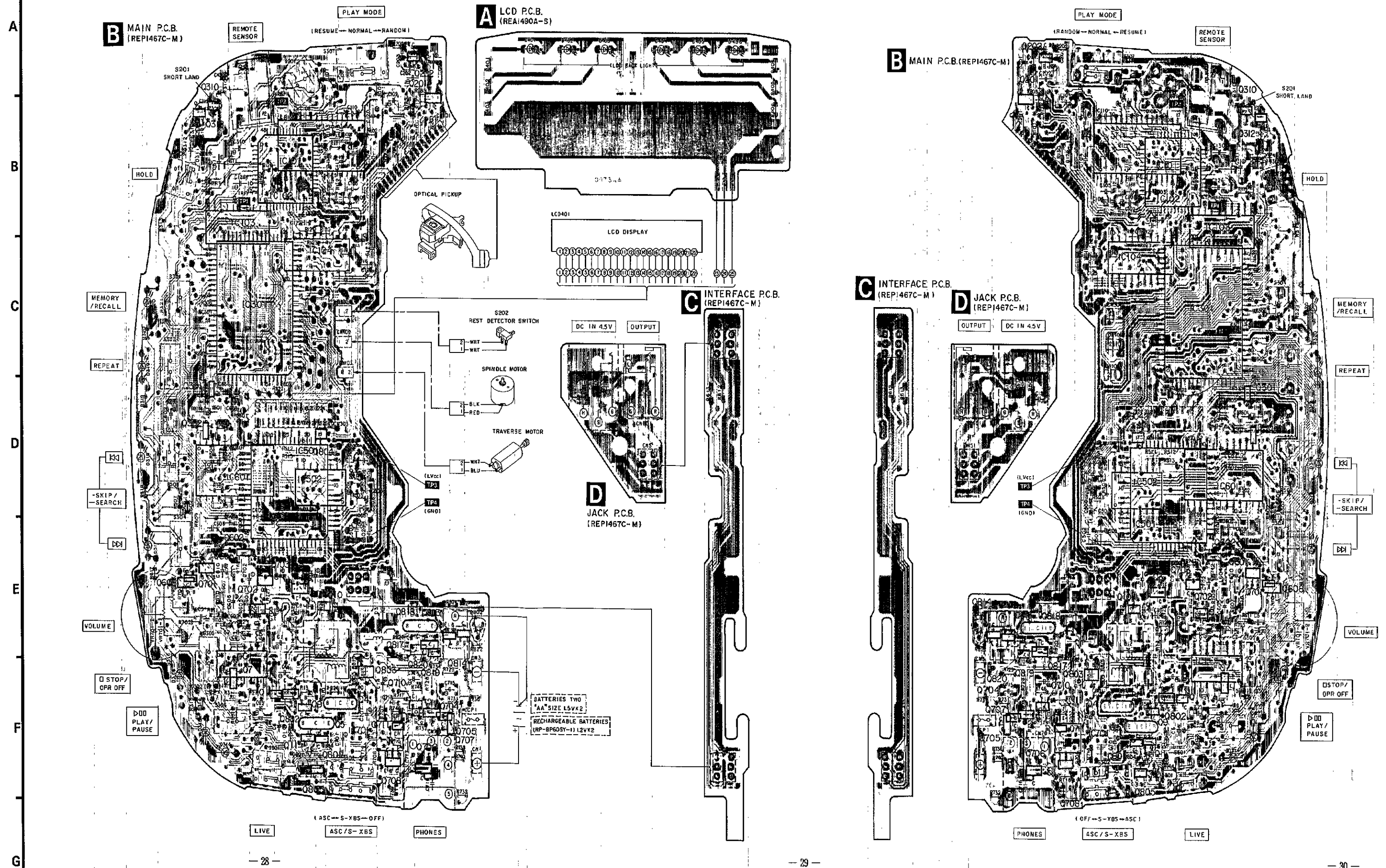


Command	D2	PA
M. SCAN	01100010	00110111
REPEAT	11100010	10110111
LEVEL -	10001000	11010001
LEVEL +	00001000	01010001
SKIP-SEARCH	10010010	11000111
STOP	00000000	01010101
PLAY/PAUSE	01010000	00000101
A-B	00010010	01000111

Remote control data code



PRINTED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



Notes:

- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black. The opposite side is printed in blue.
- The "●" and "●" marks denote the connection points of double-faced foil patterns (through holes) on both sides of the printed circuit board.

TERMINAL FUNCTION OF IC'S

• IC1 (AN8086SE2): DC-DC converter control

Pin No.	Mark	I/O Division	Function
1	IN	I	Error amp input
2	FB	O	Error amp output
3	SPRO	I	Short protect input
4	DED	I	Dead time input
5	OUT	O	Switching output
6	GND	—	Ground terminal
7	CT	I	Triangular wave oscillator capacitor input
8	PVCC	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
9	CLK	I	Clock signal input (f=88.2kHz)
10	START	I	Start detection input
11	POWER	I	Power ON/OFF detection terminal
12	VREF	O	Reference voltage output
13	EMP	O	Empty detection output
14	VSEN	I	Empty detection input
15	RESET	O	Reset signal output
16	VCC	I	Power supply terminal

• IC101 (AN8383CE2V): Servo amp

Pin No.	Mark	I/O Division	Function
1	VREF	O	Reference voltage output
2	CFPH	I	Focus phase compensating capacitor terminal
3	CTPH	I	Tracking phase compensating capacitor terminal
4	GND	—	Ground terminal
5	LPD	I	Non-inverting laser power input
6	LD	O	Laser power auto control output
7	CAGC	I	AGC detecting capacitor terminal
8	RFIN	I	RF signal input
9	ARF	O	RF signal output
10	AMP0	O	RF signal output (Not used, open)
11	AMP1	I	RF signal input (×30 amp)
12	VCC	I	Power supply terminal
13	PDAD	I	Photo detector current input
14	PDA	I	Photo detector current input
15	PDBD	I	Photo detector current input
16	PDB	I	Photo detector current input
17	SDC	O	Dropout detection pulse output
18	LDON	I	Laser ON/OFF control input

Pin No.	Mark	I/O Division	Function
19	BDO	O	Dropout detection output
20	RFDET	O	RF detection signal output
21	FBL2	I	PD balance adjustment terminal (PDB)
22	FBL1	I	PD balance adjustment terminal (PDA)
23	TBL	I	Tracking balance adjustment terminal
24	FOFS	I	Focus offset adjustment terminal
25	IVB	O	Current/voltage conversion output (B)
26	IVA	O	Current/voltage conversion output (A)
27	FE	O	Focus error signal output
28	3TENVE	O	3T envelope signal output
29	FPI	I	Focus phase compensating amp input
30	FPO	O	Focus phase compensating output
31	TPI	I	Tracking phase compensating input
32	TPO	O	Tracking phase compensating output

• IC102 (AN8384FA-AV): Servo controller

Pin No.	Mark	I/O Division	Function
1	FBL1	O	PD balance adjustment (PDA) terminal
2	FBL2	O	PD balance adjustment (PDB) terminal
3	RFDET	I	RF detection signal input
4	BDO	I	Dropout detection input
5	LDON	O	Laser ON/OFF control output
6	CLVS	I	Spindle servo condition det. terminal ("H": CLV, "L": Rough servo)
7	PCK	I	PLL extract clock (f=4.3218MHz)
8	CLK	I	Frequency division clock signal (f=88.2kHz) input
9	TRVR/ GUP	I/O	Traverse backward input/gain up output (Not used, open)
10	TRVF/ TRV STOP	I/O	Traverse forward input/stop output terminal
11	CNT4/ RESET	I/O	CNT4 input/reset signal output terminal
12	CNT3/ MLD	I/O	CNT3 input/command load signal output terminal
13	CNT2/ MCLK	I/O	CNT2 input/command clock signal output terminal
14	CNT1/ MDATA	I/O	CNT1 input/command data signal output terminal
15	FLOCK	O	Focus lock signal output
16	SENSE1	O	Selector output (1) terminal
17	SENSE2	O	Selector output (2) terminal
18	SEL	I	Parallel/serial select terminal (Not used, connected to GND)
19	KICK	O	Track kick F/B control terminal
20	TRV	O	Traverse F/B control terminal
21	CFL	I	Capacitor connection terminal
22	VSS	—	Ground terminal
23	VDD	I	Power supply terminal
24	A. GND	—	Ground terminal
25	A. VCC	I	Power supply terminal
26	TRVO	O	Traverse amp. output terminal (2)

Pin No.	Mark	I/O Division	Function
27	DED	O	Traverse amp. output terminal (1)
28	TVPI	I	Traverse amp. input terminal
29	BREAK	I	Break input terminal
30	TEBPF	I	Tracking error gain detecting filter
31	CTPLO	O	Tracking low level compensation amp. output terminal
32	CTPLI	I	Tracking low level compensation amp. input terminal
33	TE	O	Tracking error output
34	TEG	I	Tracking SW amp. input
35	CAD	O	Auto adjustment multiplier output terminal
36	BPO	O	Focus error for B.P.F. output terminal
37	BPI	I	Focus error for B.P.F. input terminal
38	CFPLO	O	Focus low level compensation amp. output terminal
39	CFPLI	I	Focus low level compensation amp. input terminal
40	CLW	O	Triangular wave oscillator output
41	VREF	I	Reference voltage input
42	ENVG	I	Envelope amp. gain adjustment terminal
43	ENV	I	Envelope amp. input terminal
44	FE	I	Focus SW amp. input terminal
45	LSA	I	Current/voltage conversion input (A)
46	LSB	I	Current/voltage conversion input (B)
47	FOFS	O	Focus offset adjustment output terminal
48	TBL	O	Tracking balance adjustment output terminal

• IC103, 104 (AN8387SE2): Motor/coil drive

Pin No.	Mark	I/O Division	Function
1	S. VCC	I	Power supply terminal
2	IN1	I	Spindle motor drive signal input and tracking coil drive signal input
3	PC1	I	Spindle motor power control signal input
4	VREF	I	Reference voltage input
5	P. GND	—	Ground terminal
6	S. GND	—	Ground terminal
8	PC2	I	Traverse motor power control input (Not used, connected to GND)
9	IN2	I	Traverse motor drive signal input and focus coil drive signal input

Pin No.	Mark	I/O Division	Function
10	S. VCC	I	Power supply terminal
11	VLM2	I	Voltage limit terminal
12	P. VCC	I	Power supply terminal
13	D2+	O	Traverse motor drive signal output and focus coil drive signal output
14	D2-	O	Traverse motor drive signal output and focus coil drive signal output
15	P. GND	—	Ground terminal
16	D1-	O	Spindle motor drive signal output and tracking coil drive signal output
17	D1+	O	Spindle motor drive signal output and tracking coil drive signal output
18	P. VCC	I	Power supply terminal
20	VLM1	I	Voltage limit terminal

• IC601 (MN64751T1): Digital filter & D/A converter

Pin No.	Mark	I/O Division	Function
1	LRCLK	I	L/R discriminating signal
2	BCLK	I	Serial bit clock input
3	SRDATA	I	Serial data output (MSB first)
4	COT 1	—	Test terminal (Ordinary: L)
5	COT 2	—	Test terminal (Ordinary: L)
6	TEST	—	Test terminal (Ordinary: L)
7	DV _{DD}	I	Digital power supply terminal
8	X2	O	Clock terminal (F=16.9344MHz)
9	X1	O	Clock terminal (F=16.9344MHz)
10	DV _{SS}	—	Digital GND terminal
11	AV _{DD} L	I	Analog power supply terminal 1
12	OUT. L	O	Analog signal output 1 (Lch)
13	AV _{SS} L	—	Analog GND terminal
14	AV _{SS} R	—	Analog GND terminal
15	OUT. R	O	Analog signal output 2 (Rch)

Pin No.	Mark	I/O Division	Function
16	AV _{DD} R	I	Analog power supply terminal 2
17	RESET	I	Reset signal input (Active: L)
18	PWM	O	PWM output (TP... "H": output "L": High impedance) (Not used, open)
19	TP	—	Test terminal (ordinary: L)
20	WVEL	I	Double velocity ("H": double, "L": single)
21	DEMPH	I	Digital de-emphasis ON/OFF ("H": ON)
22	CSEL	I	Clock frequency select of CK 192 (Not used, open)
23	192FS	O	192fs (8.4672MHz) signal output (Not used, open)
24	384FS	O	Clock output terminal (384FS=16.9344MHz)

• IC502 (SM5852BSET): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	LRCI	I	L/R discriminating signal input terminal
2	BCKI	I	Bit clock input terminal
3	DI	I	Serial data input terminal
4	CLK	I	Clock input terminal
5	VSS	—	GND terminal
6	RSTN	I	System reset (initialize) terminal; "L" level reset
7	TESTN	I	Test mode terminal; "L" level test
8	MUTEN	I	Mute terminal; "L" level mute
9	DOUT	O	Serial data output terminal

Pin No.	Mark	I/O Division	Function
10	BCKO	O	Bit clock output terminal
11	LRCO	O	L/R discriminating signal output terminal
12	VDD	I	Power supply terminal
13	OPT	I	ASC ON/OFF change terminal ("H" level=OFF/"L" level=ON)
14	MOD1	I	XBS/LIVE low gain select terminal; MOD1: H, MOD2: H → XBS/LIVE: OFF
15	MOD2	I	XBS/LIVE low gain select terminal; MOD1: H, MOD2: H → XBS/LIVE: OFF
16	BD/DS	I	LIVE ON/OFF change terminal; "H" level: OFF/"L" level: ON (MOD1: H, MOD2: H → OFF)

• IC301 (UPD75312G172): System control & LCD drive

Pin No.	Mark	I/O Division	Function
1	S12	O	Segment signal output
12	S23	O	Segment signal output
13	NC	—	Not connected
15	RCLK	O	Remote clock signal output
16	MLD	O	Command load signal output
17	MDATA	O	Command data signal output
18	MCLK	O	Command clock signal output
20	LED	O	Remote control detection
21	GOM0	O	LCD common signal output
22	GOM2	O	LCD common signal output
23	GOM3	—	LCD common signal output (Not used, open)
24	BIAS	O	Power supply terminal for LCD drive (Not used, connected to each other)
25	VLC0	I	Power supply terminal for LCD drive (Not used, open)
26	VLC1	—	Power supply terminal for LCD drive (Not used, open)
27	VLC2	—	Power supply terminal for LCD drive (Not used, open)
28	MEMORY	I	Key switch (MEMORY/RECALL) detection terminal
29	REPEAT	I	Key switch (REPEAT) detection terminal
30	SKIP R	I	Key switch (SKIP/SEARCH: Backward) detection terminal
31	SKIP F	I	Key switch (SKIP/SEARCH: Forward) detection terminal
32	VSS	—	GND terminal
33	STOP	I	Key switch (STOP/POWER OFF) detection terminal
34	PLAY	I	Key switch (PLAY/PAUSE) detection terminal
35	RESUME	I	Key switch (PLAY MODE: RESUME) detection terminal
36	RANDOM	I	Key switch (PLAY MODE: RANDOM) detection terminal
37	BLKCK	I	Sub-code block (Q data) clock (75Hz) output
38	SQCK	O	Sub-code Q register clock output
39	SUBQ	I	Sub-code (Q data) output
40	FLOCK	I	Focus lock signal input
41	WLCRCN	I	Selector Input (1) terminal

Pin No.	Mark	I/O Division	Function
43	SENSE 1	I	Selector input (1) terminal
44	SENSE 2	I	Selector input (2) terminal
45	SENSE 1	I	Selector input (1) terminal
46	TRON	O	Tracking servo ON signal (Tracking servo ON at "L")
47	MUTE	O	Muting signal output ("H": MUTE)
48	POWER	O	Power ON/OFF output terminal
49	BUZ	O	Beep control output terminal
50	HOLD	I	Hold ON/OFF detection terminal
51	EMPTY	I	Empty detection input terminal
52	REST	I	Rest detection terminal
53	WDRCN	O	Remote control signal output
54	VDD	I	Power supply terminal
55	XT1	—	Sub-system clock crystal terminal (Not used, open)
56	XT2	—	Sub-system clock crystal terminal (Not used, open)
57	NC	—	Not connected
58	X1	I	Main-system clock crystal terminal
59	X2	—	Main-system clock crystal terminal (Not used, open)
60	OPEN	I	Disc holder open detection terminal
61	CHARGE	O	Rechargeable control signal output terminal
62	CCHG	O	Rechargeable control signal output terminal
63	LIGHT	O	LED drive command signal (Not used, open)
64	STAT	I	Processing condition (CRC, CUE, CLVS, FCLV, TTSTOP) input
65	CHGOMP	I	Rechargeable detect terminal
66	ACDET	I	Power supply detection signal input
67	A-B	—	Not used, connected GND
68	RESET	I	Reset detection terminal
69	S0	O	Segment signal output (Not used, open)
70	S4	O	Segment signal output (Not used, open)
71	S5	O	Segment signal output (Not used, open)
72	S11	O	Segment signal output (Not used, open)

• IC501 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal	38	CLDCK	O	Sub-code frame clock (f=7.35kHz) (Not used, open)
2	IREF	I	Reference current input	39	BLKCK	O	Sub-code block clock (f=75 Hz)
3	ARF	I	RF signal input	40	DEMPH	O	De-emphasis ON signal ("H": ON)
4	DRF	I	DSL bias terminal (Not used, open)	41	MEMPH	I	Emphasis signal
5	DSLIF	I/O	DSL loop filter terminal	42	MLD	I	Command load signal ("L": LOAD)
6	PLLIF	I/O	PLL loop filter terminal	43	MCLK	I	Command clock signal
7	AVDD	I	Power supply terminal	44	MDATA	I	Command data signal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)	45	D MUTE	I	Muting Input ("H": MUTE)
9 16	TBUS7 TBUS0	O	Test terminal	46	SMCK	O	System clock (f=4.2336MHz)
17	FLAG	O	Flag terminal (Not used, open)	47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
18	IPFLAG	O	Interpolation flag terminal (Not used, open)	48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
19	FCLK	O	Crystal frame clock (Not used, open)	49	SUBC	O	Sub-code serial output data (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)	50	SBCK	I	Sub-code serial input clock (Not used, connected to GND)
21	WDCK	O	Word clock (Not used, open)	51	TRON	I	Tracking servo ON signal ("L": ON)
22	RESET	I	Reset terminal	52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
23	TX	O	Digital audio signal	53	PC	O	Turntable motor ON signal ("L": ON)
24	LDG	O	Lch deglitch signal (Not used, open)	54	ECM	O	Turntable motor drive signal (Forced mode)
25	RDG	O	Rch deglitch signal (Not used, open)	55	ECS	O	Turntable motor drive signal (Servo error signal)
26	SRDATA	O	Serial data output (MSB first)	56	VDD	I	Power supply terminal
27	SCK	O	Serial bit clock output	57	TEST	I	Test terminal (Normal: "H")
28	LRCK	O	L/R discriminating signal	58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
29	XCK	O	Crystal OSC terminal (f=16.9344MHz) (Not used, open)	59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336 MHz) (Connected to GND)
30	PMCK	O	Frequency division clock signal (Not used, open) (f= $\frac{1}{192} \times CK=88.2\text{kHz}$)	60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
31	CSEL	I	Test terminal (Connected to GND)	61	DO	I	Drop-out detection signal ("H": Drop-out)
32	PSEL	I	Test terminal (Connected to GND)	62	EFM	O	EFM signal (Not used, open)
33	X1	I	Crystal OSC terminal (f=16.9344MHz)	63	PCK	O	PLL extract clock (f=4.3218MHz)
34	X2	O	Crystal OSC terminal (f=16.9344MHz) (Not used, open)	64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)
35	VSS	—	GND terminal				
36	SUBQ	O	Sub-code Q data				
37	SQCK	I	Sub-code Q register clock				

■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		Q820	2SD601QRSTW	TRANSISTOR	
						DIODE (S)	
IC1	AN8086SE2	IC, DC-DC CONV. CONTROL		D1	MA110TW	DIODE	
IC101	AN8383SCE2V	IC, SERVO AMP		D2	MA141WKTW	DIODE	
IC102	AN8384FA-AV	IC, SERVO CONTROLLER		D3	MA701TX	DIODE	
IC103, 104	AN8387SE2	IC, MOTOR/COIL DRIVE		D302	MA141WKTW	DIODE	
IC301	UPD75312G172	IC, SYSTEM CONT. /LCD DRIVE		D310	MA8047MTW	DIODE	
IC501	MN6626	IC, DIGITAL SIGNAL PROCESSOR		D311	MA8051MTW	DIODE	
IC502	SM5852BSET	IC, DIGITAL SIGNAL PROCESSOR		D312	MA110TW	DIODE	
IC601	MN64751T1	IC, DIGITAL FILTER&D/A CONV.		D314-320	LN1361CUY-TR	DIODE	
IC701	NJM3415M	IC, HEADPHONES AMP		D401-406	LN1371GH6UTR	DIODE	
		TRANSISTOR (S)		D501	MA110TW	DIODE	
Q1	UN5117TW	TRANSISTOR		D601	MA110TW	DIODE	
Q3	2SD1328STTW	TRANSISTOR		D801, 802	MA143TW	DIODE	
Q4, 5	2SD1302STTA	TRANSISTOR				IC PROTECTOR (S)	
Q7	FMG6T148	TRANSISTOR		ICP1	SRUN50T25	IC PROTECTOR	
Q9	UN5217TW	TRANSISTOR				VARIABLE RESISTOR (S)	
Q10	2SB902RSTW	TRANSISTOR		VR1	EVM1YSX30B33	V. R. POWER SUPPLY VOLT. ADJ	
Q11	UN5213TW	TRANSISTOR		VR701	EVUAMAT43C54	V. R. VOLUME	
Q201	2SB709QRSTW	TRANSISTOR				COIL (S)	
Q202	2SD1819QRSTW	TRANSISTOR		L11	RLQB390KT1-K	COIL	
Q301	DTC124XUT107	TRANSISTOR		L12	RLZ0007-0	COIL	
Q302	2SB1218QRSTW	TRANSISTOR		L310	RLQU331KT-W	COIL	
Q310	2SD1819QRSTW	TRANSISTOR		L601-605	RLB0003	COIL	
Q312	2SD1819QRSTW	TRANSISTOR				OSCILLATOR (S)	
Q601	FMW1T98	TRANSISTOR		X601	RSXZ16M9M01T	OSCILLATOR (16.9344MHz)	
Q602	2SB709QRSTW	TRANSISTOR				LCD (S)	
Q608	FMG4T148	TRANSISTOR		LCD401	RSL5075-L	LCD	
Q701	DTC144TUT107	TRANSISTOR				CONNECTOR (S) AND JACK (S)	
Q702-707	2SD1328RSTTW	TRANSISTOR		CN1	RJC93015	BATTERY TERMINAL (+)	
Q708	IMD6T109	TRANSISTOR		CN2	RJH5102-1	RECHARGEABLE BATT. TERMINAL	
Q710, 711	UN5210TW	TRANSISTOR					
Q801	UN5212TW	TRANSISTOR					
Q802	FMG6T148	TRANSISTOR					
Q803	UN2114TW	TRANSISTOR					
Q804	UN5217TW	TRANSISTOR					
Q805	2SD1819QRSTW	TRANSISTOR					
Q813	UN5213TW	TRANSISTOR					
Q814	2SB1218QRSTW	TRANSISTOR					
Q817	2SD601QRSTW	TRANSISTOR					
Q818	2SD2005PQRTA	TRANSISTOR					
Q819	2SD1819QRSTW	TRANSISTOR					

Ref. No.	Part No.	Part Name & Description	Remarks
CN3	RJC93015	BATTERY TERMINAL (-)	
CN4, 5	RJU059W006	CONNECTOR (6P)	
CN6, 7	RJT059W006	SOCKET (6P)	
CN8	RJJ4303	DC IN JACK	
CN101	RJS1A6116	FPC CONNECTOR (16P)	
CN102, 103	EMCS0255B	CONNECTOR (2P)	
CN301	EMCS0255B	CONNECTOR (2P)	
CN302	RJD3S5ZA-C	REMOTE SENSOR JACK	
CN303	RJS1A8825T	FPC CONNECTOR (25P)	
CN601	RJD3S5ZA-C	OUTPUT JACK	
CN701	RJD5S3MZA-C	HEADPHONES JACK	
		SWITCH (ES)	
S201	RSH1A91ZA-A	SW, LASER ON/OFF	
S202	SSHD5	SW, REST DETECTOR	
S301	EVQ21405R	SW, MEMORY/RECALL	
S302	EVQ21405R	SW, REPEAT	
S303	EVQ21405R	SW, SKIP/SEARCH (B)	
S304	EVQ21405R	SW, SKIP/SEARCH (F)	
S305	EVQ21405R	SW, STOP/OPR OFF	
S306	EVQ21405R	SW, PLAY/PAUSE	
S307	ESD11H230	SW, PLAY MODE	
S308	ESD11H220	SW, HOLD	
S501	ESD11H220	SW, LIVE	
S502	ESD11H230	SW, ASC/S-XBS SELECTOR	
		CABINET AND CHASSIS	
1	RKK0048-K	BATTERY COVER	
2	SBND902K0A	VOLUME KNOB	
3	XQN17+C3FZ	SCREW	
4	RGV0052-K	P. MODE/LIVE/ASC KNOB	
5	RGV0104-H	HOLD KNOB	
6	RJC93007	COMMON BATTERY TERMINAL	
7	RMA0110	REAR ORNAMENT	
8	RFKJLXP550GC	BOTTOM CABINET ASS'Y	
8-1	SHGD54-1	FOOT	
9	RMB0223	FLOATING SPRING (SILVER)	
10	RHE5097ZA	SCREW	
11	RMS0105-1	LCD SHAFT	
12	RFKLLXP550GC	DUST COVER ASS'Y	
13	RGU0778-K	POP UP BUTTON	
14	RHE5079YA	SCREW	
15	RMA0675	EARTH PLATE	
16	RMC0170	LOCK SPRING	
17	RML0273	POP UP OPEN LEVER	
18	RMA0600	REINFORCEMENT PLATE	
19	RMR0513	CLAMPER HOLDER	
20	RMS0336	LINK SHAFT	
21	RXMD035	LINK ANGLE ASS'Y	
22	RXQ0249	CLAMPER ASS'Y	

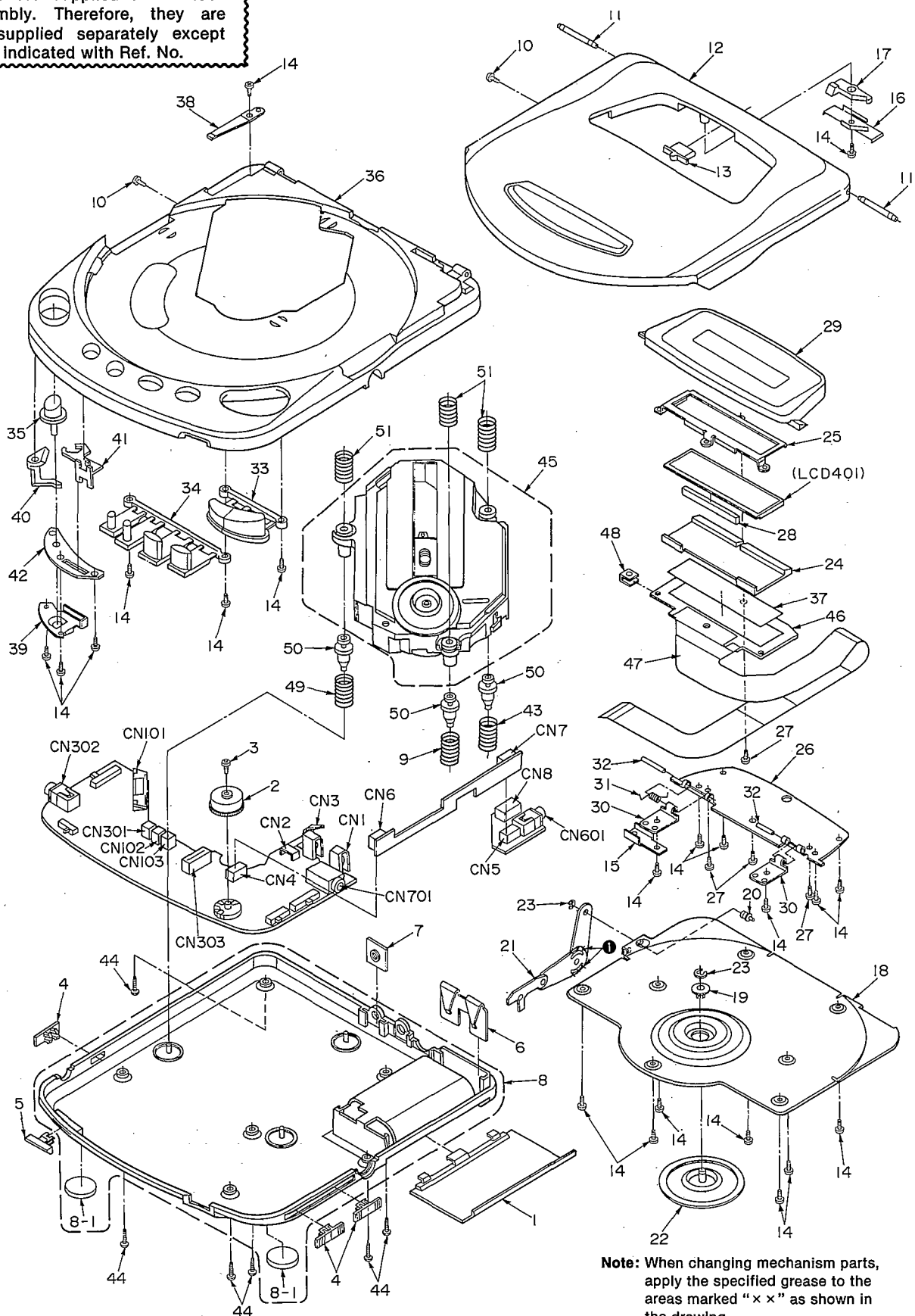
Ref. No.	Part No.	Part Name & Description	Remarks
23	XUC15FY-V	E RING	
24	RJF0012-1	LCD HOLDER	
25	RMA0601	LCD HOLDER SHAFT	
26	RFKJLSS50AK	REINFORCEMENT PLATE ASS'Y	
27	RHE5155YA	SCREW	
28	RSQ0034	RUBBER	
29	RFKJLXP550GC	LCD PANEL ASS'Y	
30	RMA0603	SHAFT PLATE	
31	RMB0270	LCD POP UP SPRING	
32	RMS0368	LCD SHAFT	
33	RGU0775-K	PLAY/STOP/OPR OFF BUTTON	
34	RCU0776-K	MEMORY/REPEAT/SKIP BUTTON	
35	RGU0777-K	OPEN BUTTON	
36	RKM0204A-K	INTERMEDIATE CABINET	
37	RMZ0198	REFLECTION SHEET	
38	RMCO147	POP UP SPRING	
39	RMCO171	OPEN SPRING	
40	RML0274	OPEN LEVER	
41	RMRO588-W	HOLD LEVER	
42	RMRO589-W	OPEN HOLD PLATE	
43	RMB0227	FLOATING SPRING (RED)	
44	XTN17+6GFZ	SCREW	
45 *	SODD100Z	TRAVERSE DECK	
46	REA1490A-S	LCD P.C.B.	
47	RJB0974A	F. P. C. BOARD	
48	RMQ0349	EARTH SHEET	
49	RMB0228	FLOATING SPRING (GREEN)	
50	RMG0229	FLOATING RUBBER	
51	RMB0221	FLOATING SPRING (UPPER)	
		PACKING MATERIALS	
P1	RPK0363	PACKING CASE	
P2	RPQ0057	ACCESSORIES BOX	
P3	RPQ0200-1	PAD	
P4	RQLA0066	AREA LABEL	
P5	RPN0645	CUSHION (UPPER)	
P6	RPN0644	CUSHION (LOWER)	
P7	SPPD1	PROTECTION BAG	
P8	SPSD14	PROTECTION SHEET	
		ACCESSORIES	
A1	RFKSLXP550GC	INSTRUCTION MANUAL ASS'Y	
A2	RFEV102A-K2S	STEREO EARPHONES	
A3	EURNTR1026T	REMOTE CONTROL	
A4	RCNTR1008A	REMOTE SENSOR UNIT	
A5	RFEA402Z-W	AC ADAPTOR	△
A6	RJL2P001X10	STEREO CONNECTION CABLE	
A7	RP-BP60SY-1	RECHARGEABLE BATTERIES	
A8	RJP120ZDS-K	POWER PLUG ADAPTOR	△
A9	RQC0169	SERVICENTER LIST	

***Changing the traverse deck**
 A spare traverse deck (SODD100Z) is supplied combined with a rubber mounting A for the SHGD157 and B for the SHGD165.
 Apply rubber mounting RMB0229 to the traverse deck.

CABINET PARTS LOCATION

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.

A
B
C
D
E
F
G



Ref. No.	Part No.
●	SZZ0L18

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		<PRINTED CIRCUIT BOARDS		PCB1	REP1467C-M	MAIN P. C. B./INTERFACE P. C. B	<RTL>
		ASS'Y>				/JACK P. C. B.	

Note: • The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.

RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R125	ERJ3GEYJ474V	1/16W 470K	R610, 611	ERJ3GEYJ221V	1/16W 220
			R126	ERJ3GEYJ331V	1/16W 330	R612, 613	ERJ6GEYJ102V	1/10W 1K
			R127-130	ERJ3GEYJ223V	1/16W 22K	R614	ERJ3GEYJ562V	1/16W 5.6K
R1	ERJ3GEYJ103V	1/16W 10K	R201	ERJ3GEYJ223V	1/16W 22K	R701	ERJ3GEYJ471V	1/16W 470
R2	ERJ3GEYJ224V	1/16W 220K	R202	ERJ3GEYJ100V	1/16W 10	R702, 703	ERJ3GEYJ122V	1/16W 1.2K
R3	ERJ3GEYJ333V	1/16W 33K	R204, 205	ERJ3GEYJ103V	1/16W 10K	R706, 707	ERJ3GEYJ473V	1/16W 47K
R5	ERJ3GEYJ472V	1/16W 4.7K	R206	ERJ3GEYJ223V	1/16W 22K	R714, 715	ERJ3GEYJ153V	1/16W 15K
R6	ERJ3GEYJ224V	1/16W 220K	R301, 302	ERJ3GEYJ102V	1/16W 1K	R716, 717	ERJ3GEYJ223V	1/16W 22K
R8	ERJ3GEYJ333V	1/16W 33K	R304	ERJ3GEYJ102V	1/16W 1K	R726, 727	ERJ3GEYJ821V	1/16W 820
R10	ERJ3GEYJ472V	1/16W 4.7K	R305	ERJ3GEYJ682V	1/16W 6.8K	R728, 729	ERJ3GEYJ120V	1/16W 12
R11	ERJ3GEYJ152V	1/16W 1.5K	R306	ERJ3GEYJ223V	1/16W 22K	R730, 731	ERJ3GEYJ100V	1/16W 10
R12	ERJ3GEYJ101V	1/16W 100	R307	ERJ3GEYJ182V	1/16W 1.8K	R732	ERJ3GEYJ221V	1/16W 220
R13, 14	ERJ3GEYJ222V	1/16W 2.2K	R309	ERJ3GEYJ473V	1/16W 47K	R733	ERJ3GEYJ151V	1/16W 150
R15, 16	ERJ3GEYJ220V	1/16W 22	R310	ERJ6GEYJ102V	1/10W 1K	R734	ERJ3GEYJ471V	1/16W 470
R17	ERJ3GEYJ100V	1/16W 10	R311	ERJ8GEYJ470V	1/8W 47	R735	ERJ3GEYJ151V	1/16W 150
R20	ERJ3GEYJ473V	1/16W 47K	R312	ERJ3GEYJ472V	1/16W 4.7K	R736	ERJ3GEYJ471V	1/16W 470
R21	ERJ3GEYJ104V	1/16W 100K	R313	ERJ3GEYJ103V	1/16W 10K	R737, 738	ERJ3GEYJ104V	1/16W 100K
R22	ERJ3GEYJ152V	1/16W 1.5K	R314-316	ERJ3GEYJ102V	1/16W 1K	R739, 740	ERJ3GEYJ222V	1/16W 2.2K
R23, 24	ERJ3GEYJ222V	1/16W 2.2K	R317-320	ERJ3GEYJ271V	1/16W 270	R741	ERJ3GEYJ681V	1/16W 680
R101	ERJ3GEYJ470V	1/16W 47	R321	ERJ3GEYJ223V	1/16W 22K	R742, 743	ERJ3GEYJ473V	1/16W 47K
R102	ERJ3GEYJ220V	1/16W 22	R322	ERDS2TJ223	1/4W 22K	R744	ERJ3GEYJ474V	1/16W 470K
R107	ERJ3GEYJ102V	1/16W 1K	R401-406	ERJ3GEYJ271V	1/16W 270	R745, 746	ERJ3GEYJ682V	1/16W 6.8K
R108	ERJ3GEYJ332V	1/16W 3.3K	R501	ERJ3GEYJ471V	1/16W 470	R801	ERJ3GEYJ474V	1/16W 470K
R109	ERJ3GEYJ125V	1/16W 1.2M	R502	ERJ3GEYJ333V	1/16W 33K	R802	ERJ3GEYJ333V	1/16W 33K
R110	ERJ3GEYJ102V	1/16W 1K	R503, 504	ERJ3GEYJ104V	1/16W 100K	R803	ERJ3GEYJ182V	1/16W 1.8K
R111	ERJ3GEYJ223V	1/16W 22K	R505	ERJ3GEYJ563V	1/16W 56K	R804	ERJ3GEYJ274V	1/16W 270K
R112	ERJ3GEYJ124V	1/16W 120K	R506-508	ERJ3GEYJ102V	1/16W 1K	R805	ERJ3GEYJ223V	1/16W 22K
R113	ERJ3GEYJ334V	1/16W 330K	R509	ERJ3GEYJ681V	1/16W 680	R806	ERJ3GEYJ102V	1/16W 1K
R114	ERJ3GEYJ105V	1/16W 1M	R510	ERJ3GEYJ222V	1/16W 2.2K	R814	ERJ3GEYJ392V	1/16W 3.9K
R115	ERJ3GEYJ333V	1/16W 33K	R511-513	ERJ3GEYJ102V	1/16W 1K	R815	ERJ3GEYJ222V	1/16W 2.2K
R116	ERJ6GEYJ100	1/10W 10	R601	ERJ3GEYJ220V	1/16W 22	R819	ERJ12YJ1R2H	1/2W 1.2
R117	ERJ3GEYJ184V	1/16W 180K	R602	ERJ3GEYJ102V	1/16W 1K	R820	ERJ6GEYJ120V	1/10W 12
R118	ERJ3GEYJ103V	1/16W 10K	R604	ERJ3GEYJ682V	1/16W 6.8K	R821	ERJ3GEYJ154V	1/16W 150K
R119	ERJ3GEYJ182V	1/16W 1.8K	R605	ERJ3GEYJ104V	1/16W 100K	R822	ERJ3GEYD104V	1/16W 100K
R120	ERJ3GEYJ682V	1/16W 6.8K	R606	ERJ3GEYJ222V	1/16W 2.2K	R823	ERJ3GEYJ821V	1/16W 820
R121	ERJ3GEYJ473V	1/16W 47K	R607	ERJ3GEYJ392V	1/16W 3.9K	R824	ERJ3GEYJ681V	1/16W 680
R122	ERJ3GEYJ103V	1/16W 10K	R608	ERJ3GEYJ102V	1/16W 1K	R825	ERJ3GEYJ333V	1/16W 33K
R123	ERJ3GEYJ104V	1/16W 100K	R609	ERJ3GEYOR00V	1/16W 0.00	R826	ERJ6GEYJ681V	1/10W 680

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		CAPACITORS	C112	ECUV1H472KBN	50V 4700P	C504	ECUV1C104ZFN	16V 0.1U
			C113	ECUV1C473KBN	16V 0.047U	C505	ECUV1E223KBV	25V 0.022U
			C114	ECUV1C104KBN	16V 0.1U	C506	ECUV1H102KBV	50V 1000P
C1	ECEA1EKA4R7I	25V 4.7U	C115	ECUV1C473KBN	16V 0.047U	C507	ECUV1C104KBN	16V 0.1U
C2	ECUV1C104KBN	16V 0.1U	C116	ECUV1C104KBN	16V 0.1U	C508	ECUV1C104ZFN	16V 0.1U
C3	ECUV1H331KBV	50V 330P	C117	ECUV1E103KBV	25V 0.01U	C601	ECUV1C104ZFN	16V 0.1U
C4	ECEA1HKA010I	50V 1U	C118	ECUV1C333KBV	16V 0.033U	C602	ECEA0JKS470	6.3V 47U
C5	ECUV1E103KBV	25V 0.01U	C120	ECEA1VSN2R2	35V 2.2U	C603, 604	ECUV1H390KCV	50V 39P
C6	ECEA1VSN2R2	35V 2.2U	C121	ECUV1E103KBV	25V 0.01U	C605	ECEA0JKA220	6.3V 22U
C8	ECUV1E103KBV	25V 0.01U	C122	ECUV1C333KBV	16V 0.033U	C606, 607	ECUV1H681KBV	50V 680P
C9	SRX01C470GNJ	16V 47U	C123	ECUV1C104ZFN	16V 0.1U	C608	ECUV1H102KBV	50V 1000P
C10	ECEA0JKS101I	6.3V 100U	C124	ECEA0JKA470I	6.3V 47U	C609	ECUV1C104ZFN	16V 0.1U
C11	ECUV1H470KCV	50V 47P	C125	ECUV1C104ZFN	16V 0.1U	C610	ECEA0JKS470	6.3V 47U
C12	ECUV1C105ZFN	16V 1U	C126	ECEA1HKS47I	50V 0.47U	C611, 612	ECUV1H272MBV	50V 2700P
C13, 14	ECEA1AKA470I	10V 47U	C127	ECUV1C104ZFN	16V 0.1U	C613, 614	ECUV1H681KBN	50V 680P
C15	ECUV1C104ZFN	16V 0.1U	C201	ECEA1AKA220I	10V 22U	C617	ECUV1C104ZFN	16V 0.1U
C23	ECEA1EKS4R7I	25V 4.7U	C202	ECEA1CKA100I	16V 10U	C701	ECEA0JPK101I	6.3V 100U
C101	ECUV1C104ZFN	16V 0.1U	C203	ECUV1C104ZFN	16V 0.1U	C702, 703	ECEA1CPK100I	16V 10U
C102, 103	ECUV1C104KBN	16V 0.1U	C301	ECUV1C104ZFN	16V 0.1U	C707	ECEA1CPK100I	16V 10U
C104, 105	ECUV1C333KBV	16V 0.033U	C302	ECUV1C104ZFN	16V 0.1U	C714, 715	ECEA0GPK221I	4V 220U
C106	ECUV1C104ZFN	16V 0.1U	C310	ECA1ESB4R7I	25V 4.7U	C716	ECUV1H332KBV	50V 3300P
C108	ECUV1C473KBN	16V 0.047U	C311	ECA0JSB220I	6.3V 220U	C717, 718	ECUV1E153MBV	25V 0.015U
C109	ECEA1CKA100I	16V 10U	C312	ECUV1C104ZFN	16V 0.1U	C801	ECUV1C105ZFN	16V 1U
C110	ECUV1C104KBN	16V 0.1U	C501	ECUV1H102KBV	50V 1000P			
C111	ECUV1H472MBV	50V 4700P	C502, 503	ECUV1C224KBM	16V 0.22U			

PACKAGING

