

Service Manual

COMPACT
disc
DIGITAL AUDIO

DIGITAL

MASH[®]
multi-stage noise shaping

Portable CD Player

SL-XP330

Colour

(K)... Black Type

Area

Suffix for Model No.	Area	Colour
(EB)	Great Britain.	(K)
(EG)	Europe.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	



- ※
- 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: 0.7V (50k Ω) ϕ 3.5
 Frequency response: 20~20000Hz (+0.5dB, -1.5dB)
 Dynamic range: more than 94dB
 S/N ratio: more than 99dB
 Wow and flutter: Below measurable limit
 D/A converter: 1 bit, MASH[®]
 Headphones output level: max 15mW/16 Ω ϕ 3.5 (adjustable)

■ Signal Format

Correction system: Technics New Super Decoding Algorithm

■ Pickup

Type: One beam
 Light source: Semiconductor laser
 Wavelength: 780nm
 Lens: Glass pressed lens

■ General

Power requirement: AC; with an included panasonic AC adaptor
 adaptor [RFEA401B-W (EB)
 RFEA401E-1S (EG)
 RFEA402Z-W (GC)
 RFEA401A-W (GN)]
 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-BP60EY (EB, EG)
 RP-BP60SY-1 (GC, GN)]
 Car Battery; with an optional panasonic car adaptor (SH-CDC9)
 4.5V \oplus \ominus
 DC IN:
 Power consumption:
 AC adaptor; 3W
 Battery; 0.65W (DC 3V)
 Dimensions (W x H x D): 128 x 29 x 148mm
 Weight: 330g (with rechargeable batteries)

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

Weight and dimensions are approximate.

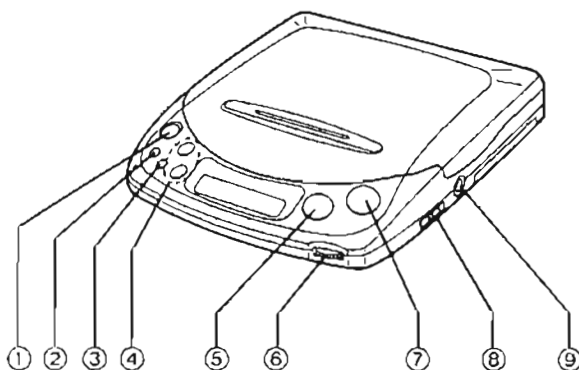
Technics

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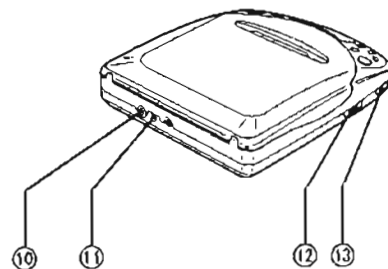
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LOCATION AND FUNCTION OF CONTROLS

Player controls



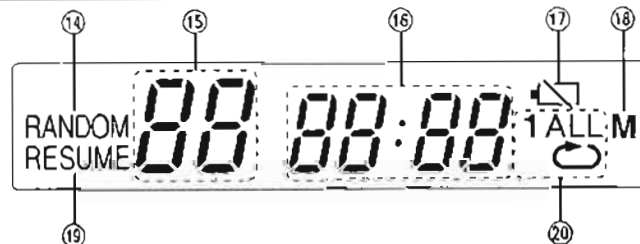
- ① Open button (OPEN)
- ② Memory/recall button (MEMORY/RECALL)
Use to program tracks or to confirm the contents of program.
- ③ Repeat button (REPEAT)
Press to activate the one track repeat and the all repeat functions.
- ④ Skip/search buttons (◀◀-SKIP/-SEARCH ▶▶)
Press to move forward and backward through the tracks on the disc, or to hear the disc sound when searching at high speed while playing.
- ⑤ Stop/operation off button (■ STOP/OPR OFF)
- ⑥ Earphones/headphones' volume control (VOLUME)
- ⑦ Play/pause button (▶ || PLAY/PAUSE)
- ⑧ ASC/S-XBS selector (ASC/S-XBS)
Use to change the tone quality (earphones only).
- ⑨ Earphones/headphones jack () 16Ω φ3.5



- ⑩ Out jack (OUT) 50kΩ φ3.5
- ⑪ DC in jack (DC IN 4.5 V ⚡)
- ⑫ Play mode selector (PLAY MODE)
Use to select the following play modes:
RESUME: Resume function
NORMAL: Sequential and program play
RANDOM: Random play

- ⑬ Hold switch (HOLD)
Use to prevent unintended operation. You cannot open the disc holder and activate functional buttons when player is in the hold state. The display window shows "hold" (hold). Before operating the front panel buttons, be sure to release the player from the hold state.

Display



- ⑭ Random indicator (RANDOM)
Lights during the random play mode.
- ⑮ Track display
Shows the number (up to 99) of the track
- ⑯ Time display
Shows the elapsed playing time of the current track and the total playing time of the disc.
- ⑰ Battery check indicator (⚡)
Flashes on and off when the batteries are weak
- ⑱ Memory indicator (M)
Lights during the program play mode.
- ⑲ Resume Indicator (RESUME)
Lights when the resume mode.
- ⑳ Repeat Indicators
One track repeat indicator (1 ↻)
All track repeat indicator (ALL ↻)

■ 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 Lasereinheit. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

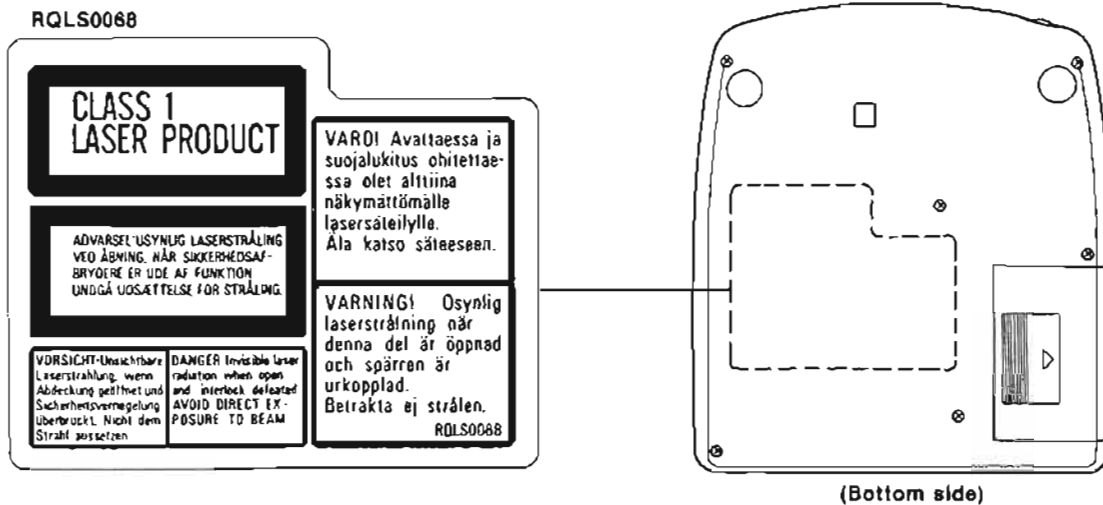
Wellenlänge: 780nm

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE


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

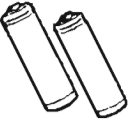
1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Lasereinheit gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.


ADVARSEL: I dette a apparat anvendes laser.




ACCESSORIES

	AC adaptor 1 pc. (RFEA401B-W): (EB) (RFEA401E-1S): (EG) (RFEA402Z-W) (GC) (RFEA401A-W): (GN)
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	Rechargeable batteries 2 pcs. (RP-BP60EY): (EB, EG) (RP-BP60SY-1): (GC, GN)
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	Stereo earphones 1 pc (RP-HV135GY)
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	Stereo connection cable 1 pc. (SJPDS-2K)
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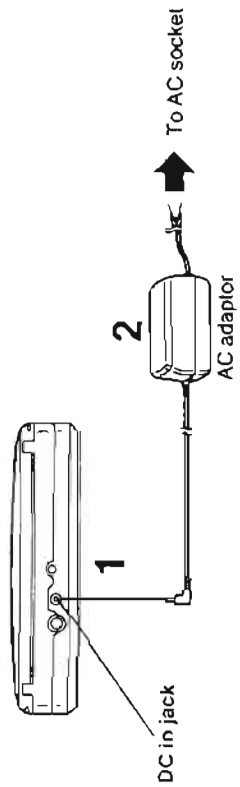
Note:
The configuration of the AC adaptor differs according to area.

POWER SOURCE

This player can operate on any of 4 different power sources: AC adaptor or rechargeable batteries—included; or car adaptor or LR6 dry cell batteries (UM-3)—not included.

AC adaptor

Use only the AC adaptor provided with this player.



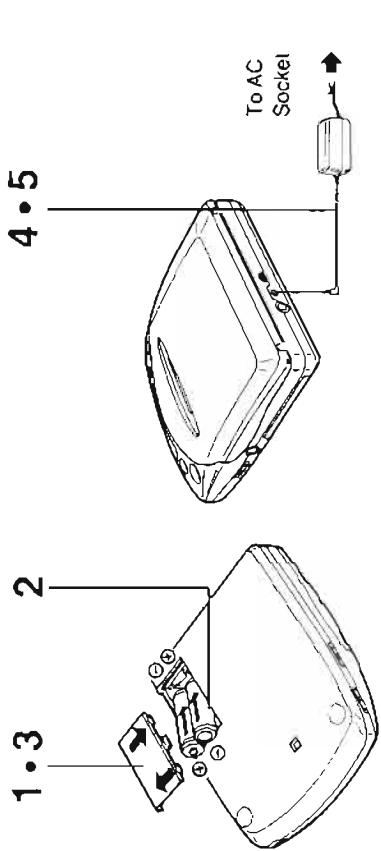
- 1** Insert the plug at the end of the AC adaptor cord into the DC in jack.
- 2** Plug the AC adaptor into your household AC power outlet.

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

CAUTION

- Do not allow metal objects to touch the terminals (A hazardous short circuit may result.)
- 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.
- Avoid recharging or placing the rechargeable battery near sources of heat or humidity. Recharging should be performed at 0°C–40°C.
- While recharging, the AC adaptor and rechargeable batteries may get warm. This is normal.

Rechargeable batteries

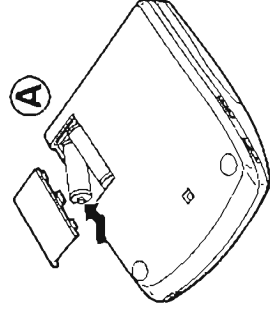


- 1** Open the battery compartment cover.
Press gently and slide the cover out from the cabinet.
- CAUTION**
- Before inserting the rechargeable batteries to charge, be sure to turn off the player.
 - Recharge the rechargeable batteries for 3 hours before using them for the first time and any time they 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 3 more hours.
 - Normally, 3 hour of recharging will give approximately 2.5 hours of play.

- 2** Insert the rechargeable batteries.
- Use the two rechargeable batteries supplied with this player. Be sure to install the batteries.
 - You can operate the player with the AC adaptor while recharging the batteries, but it will lengthen the recharging time.
- 3** Close the battery compartment cover.
- 4** Connect the AC adaptor to the player and to your household AC power outlet.
- 5** Disconnect the AC adaptor in about 3 hours.

Battery removal

Press the batteries toward (A) and remove them.



Rechargeable battery life

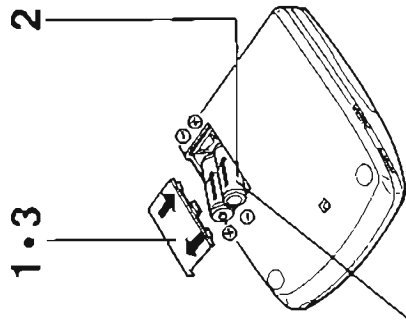
You can recharge these rechargeable batteries about 300 times. After that, their operating time will be shortened, and you will need to replace them.

- 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

Dry cell batteries (optional)



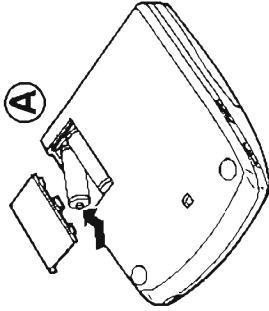
LR6 (UM-3) dry cell batteries

Make sure that the AC adaptor is unplugged from the wall outlet and the player.

- 1** Open the battery compartment cover.
- 2** Insert LR6 (UM-3) batteries.
 - Install the battery first and then push in the direction of the arrow. Batteries installed with incorrect polarities may leak and damage the player.
 - If batteries should leak and the leaking electrolyte comes into contact with skin or clothes, flush with water immediately. If the internal parts of a battery become visible because of damage to the battery, discard it immediately.

Battery removal

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



Car adaptor (optional)

CAUTION

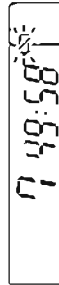
Use only car adaptor, Model SH-CDC9, manufactured by Matsushita Electric Industrial Co., Ltd.

Follow the operating instructions included with the optional car adaptor.

The rechargeable battery can be recharged with the car adaptor.

Please purchase the optional car mounting kit (SH-CDF7) and the car stereo cassette adaptor (SH-CDM7) before using this unit in a car.

- You can also check battery condition by the battery check indicator. The indicator begins flashing on and off when the battery is half-used. Use of alkaline batteries will give approximately 6.5 hours play.



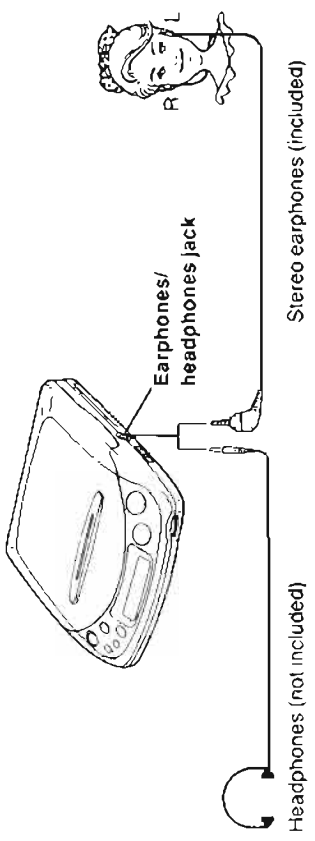
Battery check indicator

- 3** Close the battery compartment cover.

CONNECTIONS

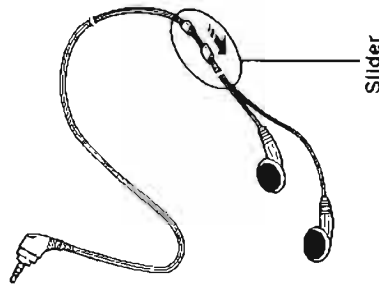
You can use this player through an audio system, portable AM/FM cassette system, and/or stereo earphones/headphones.

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.

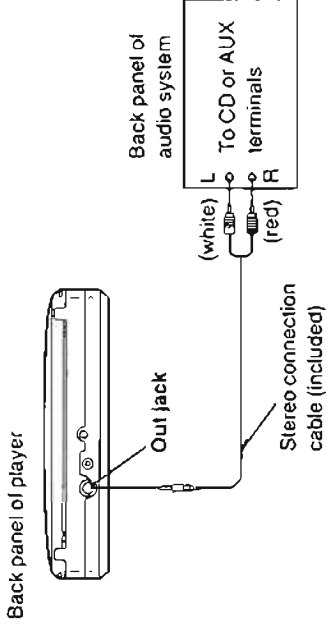


Slides up to prevent entangling of the cord when the stereo earphones are not in use.

Listening through an audio system

Before connecting the player to your audio system or portable AM/FM cassette system, make sure that the power of the player and all other system components are turned off

See the 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 an amplifier/receiver or portable AM/FM cassette system.

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

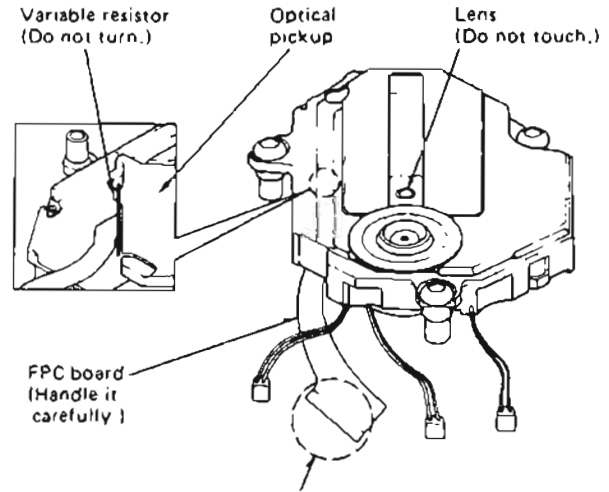
■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

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.

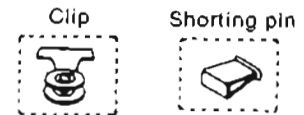
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• 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.

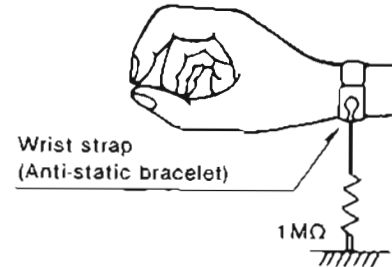


Be sure to short this position.
(Use the shorting pin or clip.)



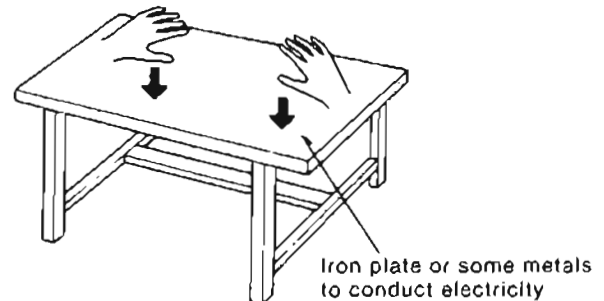
• Grounding for electrostatic breakdown prevention

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).

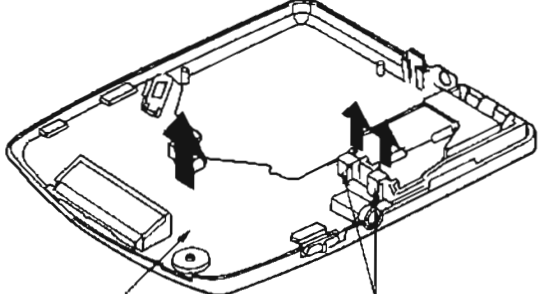
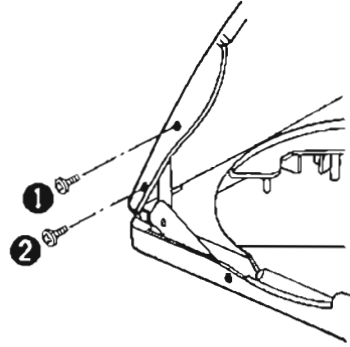
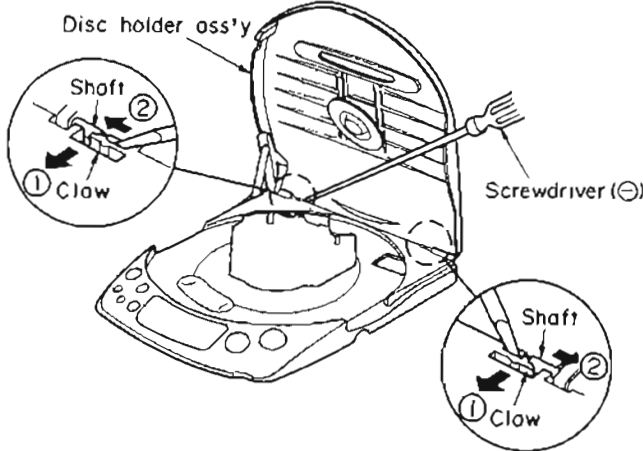
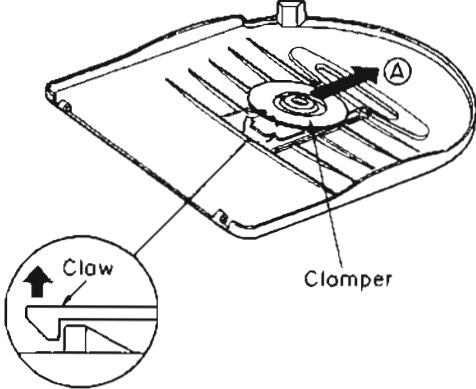
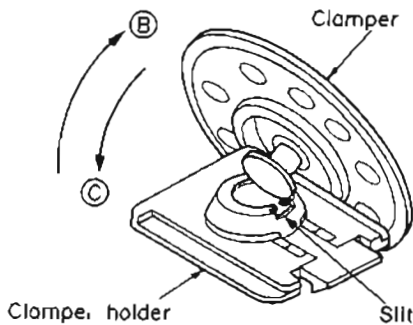
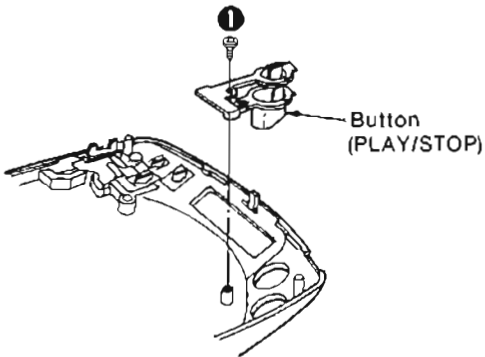


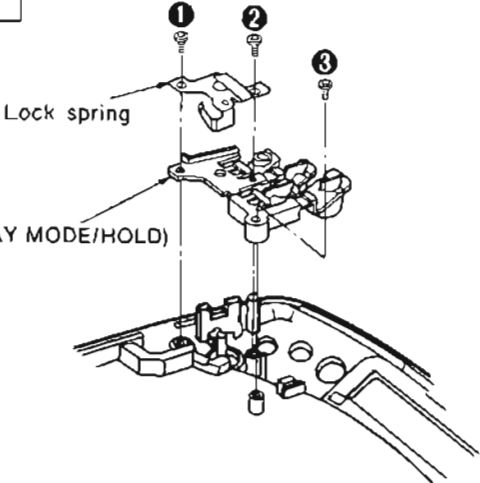
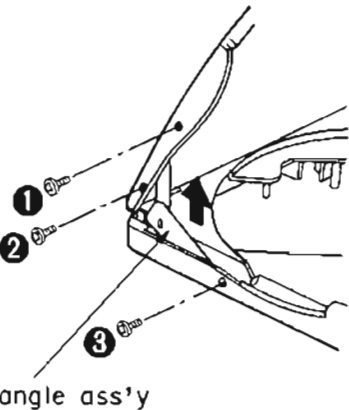
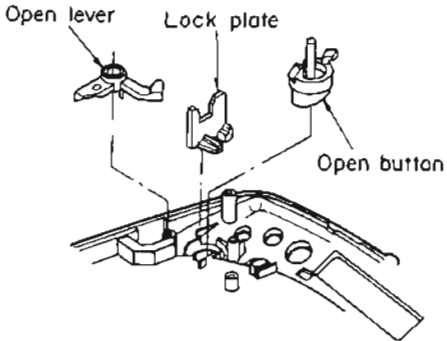
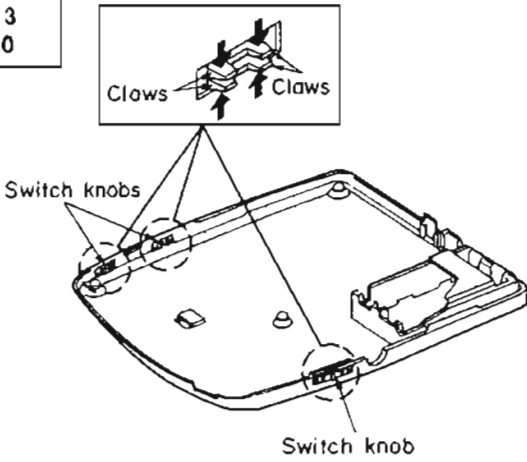
DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

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

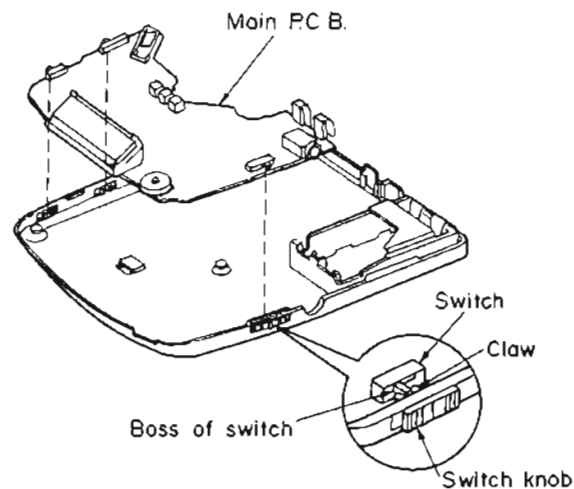
<p>Ref. No. 1</p>	<p>Removal of the intermediate cabinet ass'y</p>	<div data-bbox="185 407 639 779" data-label="Image"> </div> <div data-bbox="827 331 1459 716" data-label="Image"> </div> <div data-bbox="765 695 1146 747" data-label="Text"> <p>Note: Take care not to break a claw.</p> </div> <div data-bbox="90 804 1459 890" data-label="List-Group"> <ol style="list-style-type: none"> 1. Remove the 6 screws (①~⑥). 2. Push the open button and open the disc holder ass'y. 3. Remove the intermediate cabinet ass'y in the direction of arrow. </div>		
<p>Ref. No. 2</p>	<p>Removal of the traverse deck</p>	<p>Ref. No. 3</p>	<p>Removal of the interface P.C.B. and jack P.C.B.</p>	
<p>Procedure 1→2</p>	<div data-bbox="304 1003 754 1318" data-label="Image"> </div> <div data-bbox="90 1346 738 1402" data-label="List-Group"> <ol style="list-style-type: none"> 1. Disconnect the connectors (CN102, CN103, CN301). 2. Pull out the traverse deck in the direction of arrow. </div>	<p>Procedure 1→2→3</p>	<div data-bbox="852 1100 1408 1360" data-label="Image"> </div> <div data-bbox="790 1423 1459 1480" data-label="List-Group"> <ol style="list-style-type: none"> 1. Remove the interface P.C.B. in the direction of arrow with carefully. </div>	
<p>How to remove the FPC board.</p> <ol style="list-style-type: none"> 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. <p>Note: The flat edge of the metal section must be nipped.</p> <ol style="list-style-type: none"> 2. Remove the FPC board in the direction of arrow ②. <div data-bbox="84 1562 476 1780" data-label="Image"> </div>		<div data-bbox="487 1520 769 1738" data-label="Image"> </div> <div data-bbox="573 1772 738 1885" data-label="Image"> </div>	<div data-bbox="868 1562 1417 1835" data-label="Image"> </div>	<div data-bbox="790 1934 1459 1990" data-label="List-Group"> <ol style="list-style-type: none"> 2. Separate the interface P.C.B. and jack P.C.B. in the direction of arrow. </div>
<p>3. Remove the FPC board (CN101).</p> <p>Caution: Insert a short pin into the traverse deck's FPC board. (Refer to "handling precautions for traverse deck" on page 8.)</p>				

<p>Ref. No. 4</p>	<p>Removal of the main P.C.B.</p>	<p>Ref. No. 5</p>	<p>Removal of the disc holder ass'y</p>
<p>Procedure 1→2→3→4</p>		<p>Procedure 1→5</p>	
 <p>Main P.C.B. Battery terminal</p> <p>• Remove the main P.C.B. and battery terminal.</p>		 <p>1. Remove the 2 screws (①, ②).</p>	
<p>Ref. No. 6</p>	<p>Removal of the clamper</p>	 <p>Disc holder ass'y</p> <p>Shaft</p> <p>Claw</p> <p>Screwdriver (⊖)</p> <p>Shaft</p> <p>Claw</p> <p>2. Remove the shaft in the direction of arrow ② by keeping the claw pressed in the direction of arrow ①.</p>	
<p>Procedure 1→5→6</p>	<p>1. Remove the claw. 2. Remove the clamper in the direction of arrow ④.</p>	<p>Ref. No. 7</p>	
 <p>Claw</p> <p>Clamper</p> <p>3. Put together clamper and clamper holder in the direction of slit. 4. Remove the clamper from clamper holder in the direction of arrow ④.</p> <p>Note: When attach the clamper, insert it in the direction of arrow ⑤.</p>		<p>Procedure 1→7</p>	
 <p>Clamper</p> <p>Clamper holder</p> <p>Slit</p> <p>5. Remove the clamper from clamper holder in the direction of arrow ⑤.</p>		 <p>Button (PLAY/STOP)</p> <p>1. Remove the 1 screw (①).</p>	

Ref. No. 8	Removal of the lock spring, button (XBS/PLAY MODE/HOLD), open lever, lock plate and open button	Ref. No. 9	Removal of the link angle ass'y
Procedure 1→8	 <p>1. Remove the 3 screws (①~③).</p> <p>2. Remove the lock spring and operation button (B).</p>	Procedure 1→9	 <p>1. Remove the 3 screws (①~③).</p> <p>2. Remove the link angle in the direction of arrow.</p>
Ref. No. 10	Removal of the switch knobs	Ref. No. 10	Removal of the switch knobs
Procedure 1→2→3 →4→10	 <p>3. Remove the open lever, lock plate and open button.</p>	Procedure 1→2→3 →4→10	 <p>• Push the claws in the direction of arrows, and remove the switch knobs.</p>

NOTES FOR ASSEMBLY

- How to install the main P.C.B.
- 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.)

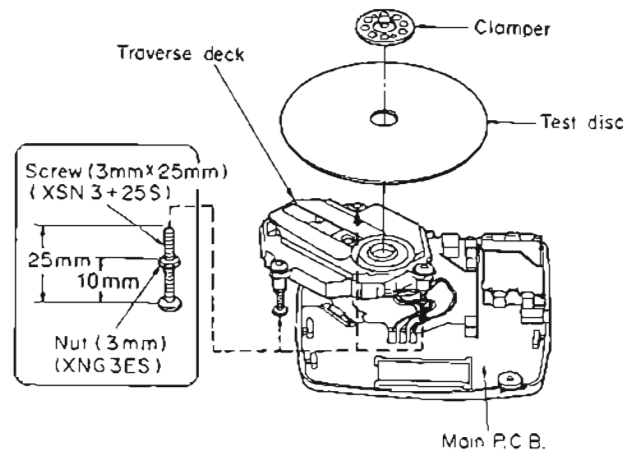


■ HOW TO CHECK THE MAIN P.C.B. (COMPONENT SIDE)

1. Remove the intermediate cabinet ass'y. (See Ref. No. 1 of the disassembly instructions.)
2. Remove the clumper. (See Ref. No. 6 of the disassembly instructions.)
3. Hold up the traverse deck from the unit and then set it on the screw and nut. (Refer to right figure.)
4. Set the test disc and clumper in the traverse deck.
5. Short the short land of the laser ON/OFF SW (S201) by soldering it. (See page 15.)

Note: After checking the P.C.B., remove the solder from the land.

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



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

1. Remove the intermediate cabinet ass'y. (See Ref. No. 1 of the disassembly instructions.)
2. Remove the traverse deck, main P.C.B. and jack P.C.B. from the bottom cabinet ass'y.
3. Short the short land of the laser ON/OFF SW (S201) by soldering it. (See page 15.)

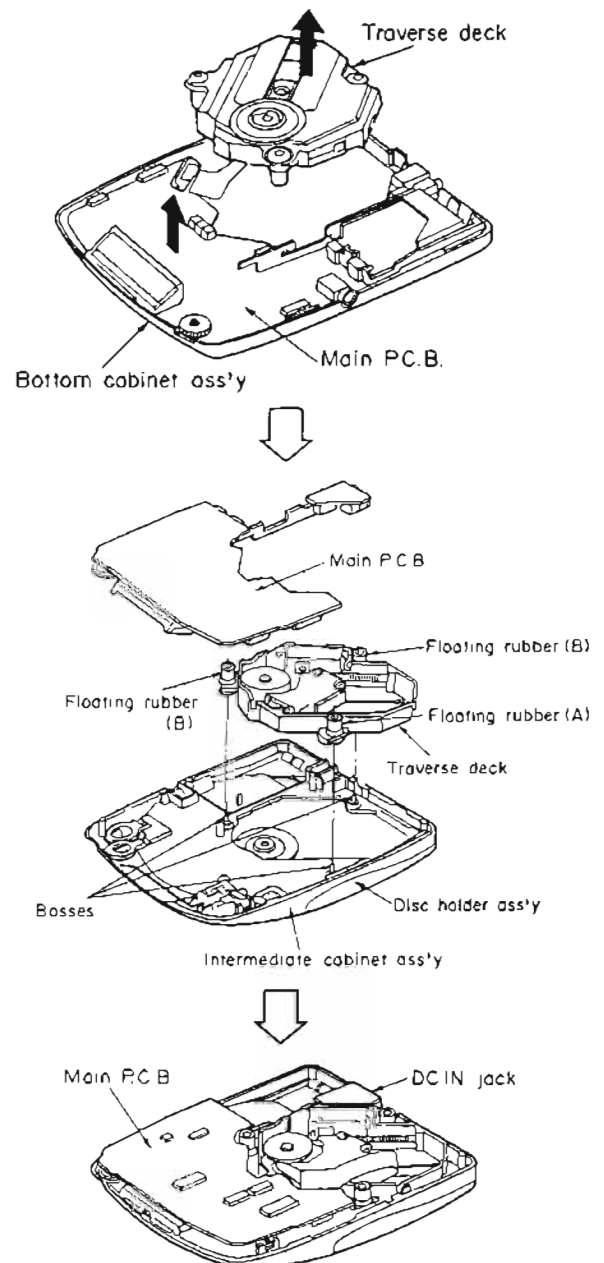
Note: After checking the P.C.B., remove the solder from the short land.

4. Install the traverse deck and P.C.B. in the intermediate cabinet ass'y.
5. Install the unit in place by holding the traverse deck and P.C.B. firmly, and then install the disc.

Note:

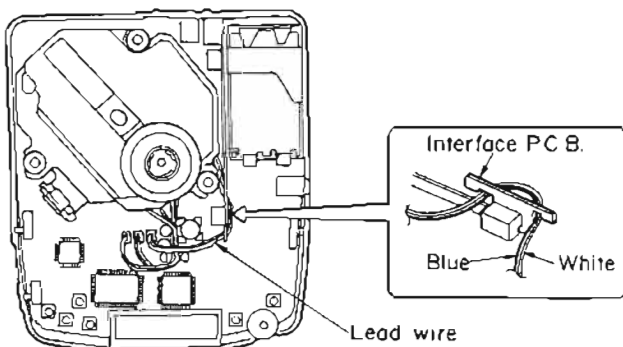
Engage the floating rubber of the traverse deck in the bosses on the intermediate cabinet ass'y.

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



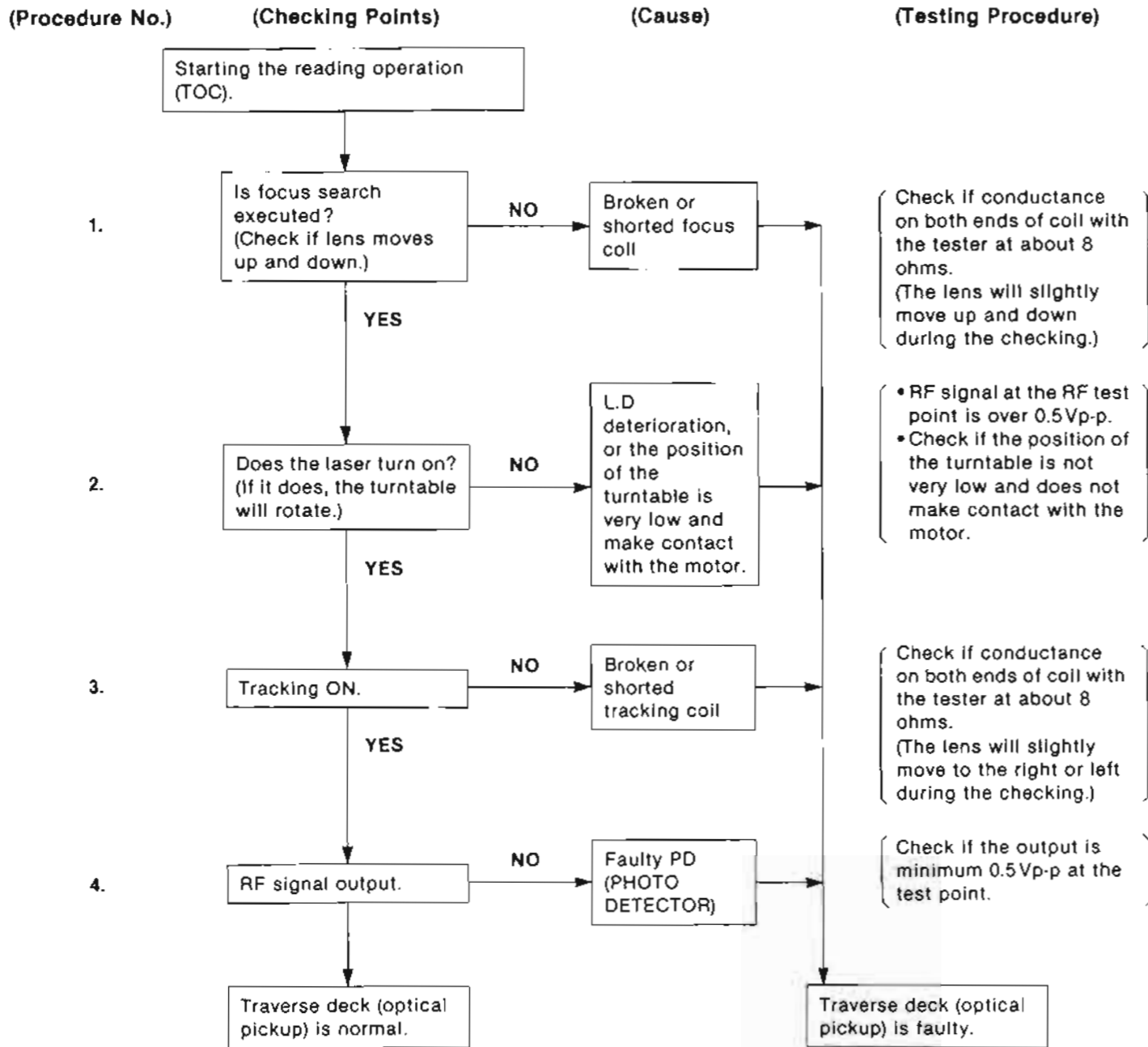
■ ABOUT THE WIRE PROCESSING

- Process the lead wires with the interface P.C.B. as shown below.



■ 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.

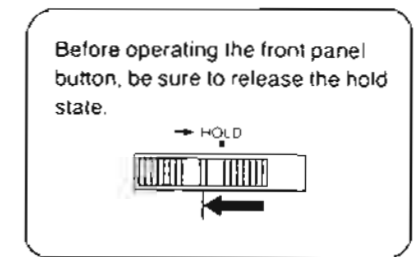
• Check the operations described below on the traverse deck after replacing it.

- * 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 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.
- * 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).

■ NOTE FOR SERVICE

• About hold switch

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

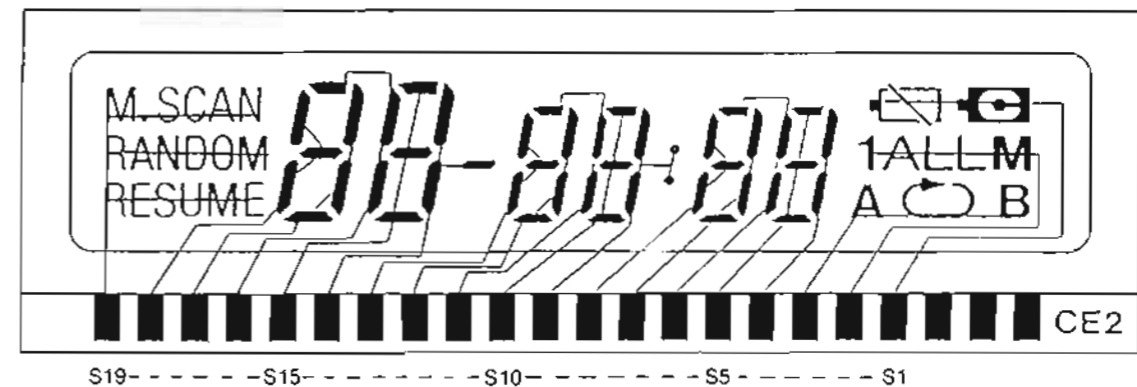


• Connection of the FPC board of the optical pickup

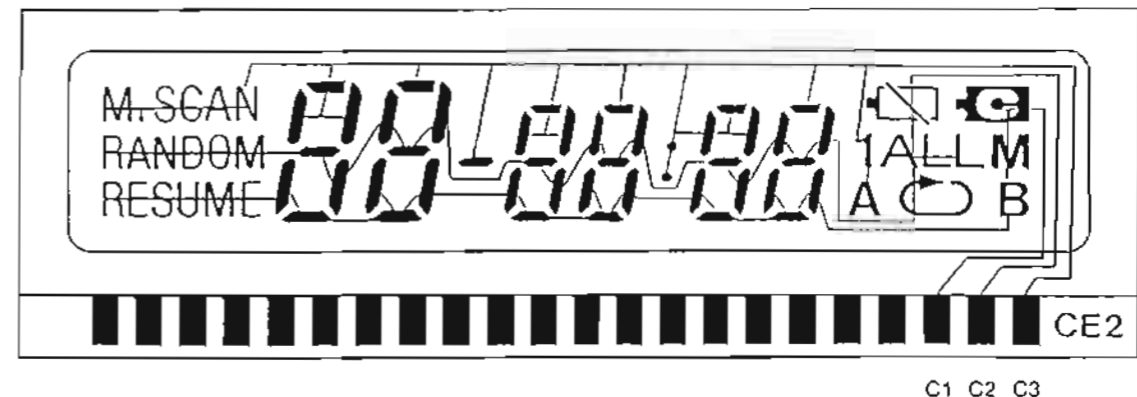
Before you put the power supply to work from the AC adaptor or batteries to check the set's operations and voltage, be sure to connect the FPC board of the optical pickup to the connector CN101 on the main P.C.B. If you disconnected the FPC board from the connector CN101, the protection circuitry may 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 3.

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)
2. Uneven test disc (SZZP1056C)

- Musical program disc (ordinary)
- DC voltmeter
- Lead wire (for test points)

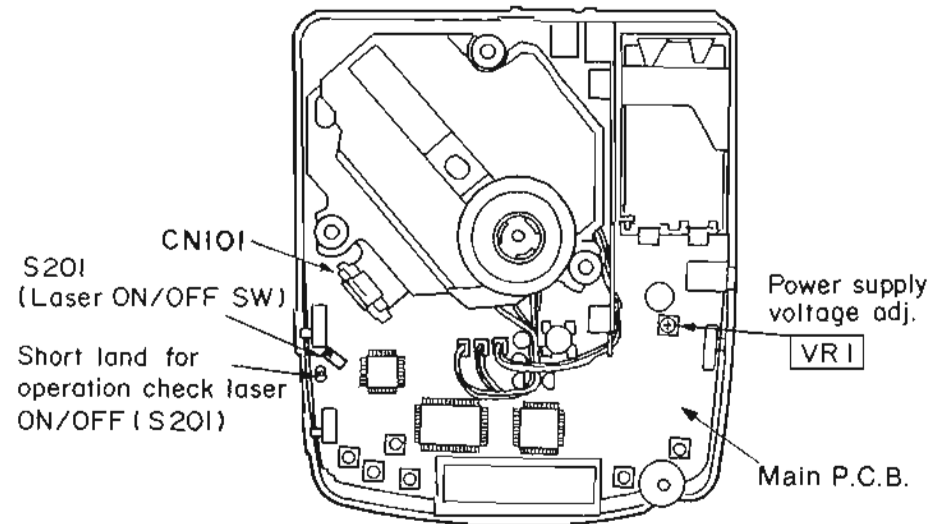
Test short land

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.



Adjustment procedure

(1) POWER SUPPLY VOLTAGE ADJUSTMENT

1. Connect the DC voltmeter to **TP103** (VCC) (+) and **TP104** (GND).
2. Insert the full recharging two rechargeable batteries.
3. Insert the test disc, and switch the player power ON.
4. Adjust **VR1** on the main P.C.B. at $4.05 \pm 0.05V$.

(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.

Automatic adjustment

On our conventional type portable CD player, there were mounted 6 semi-fixed controls for each adjustment. Since the SL-XP330 servo circuit is equipped with an automatic adjusting circuit, these controls are removed from SL-XP330.

On conventional portable CD player

1. Tracking Offset Adjustment VR (TOC)
2. Focus Offset Adjustment VR (FOC)
3. Tracking Gain Adjustment VR (TGC)
4. Focus Gain Adjustment VR (FGC)
5. Tracking Balance Adjustment VR (TBC)
6. Focus Balance Adjustment VR (FBC)

On SL-XP330

Non Adjustment

Automatic Adjusting Circuit

Total 6 Adjustment VRs

No Adjustment VR

Although all discs are manufactured according to the same specifications, their characteristics are not always precisely the same because they are produced by different manufacturers in various lots, or have different warp etc. SL-XP330 automatically controls the servo circuit to obtain optimum performance according to any disc's characteristics. Therefore, no malfunction occurs because of mis-adjustment.

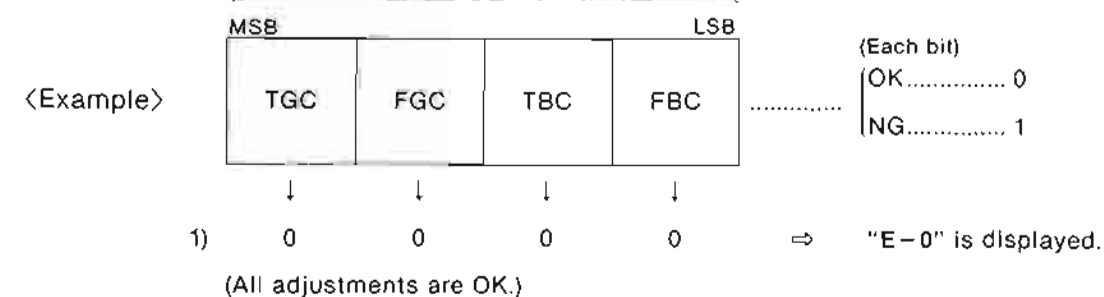
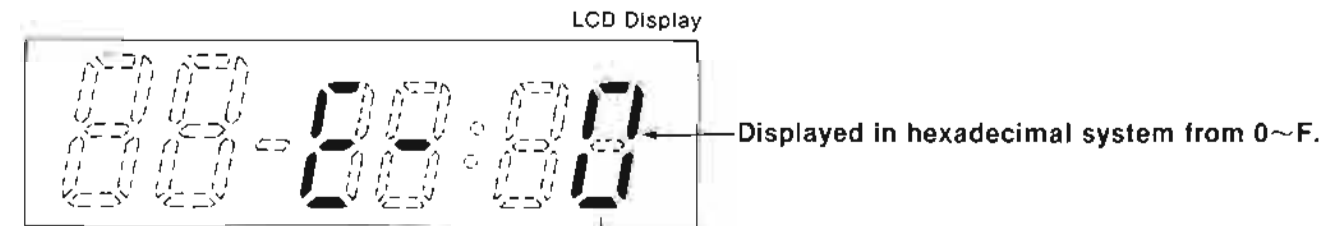
DISPLAY FUNCTION OF AUTOMATICALLY-ADJUSTED RESULTS (SELF-CHECK FUNCTION)

On this unit (SL-XP330), each automatically-adjusted result are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automatically-adjusted result displays (self-check function).

How to display automatically-adjusted results

1. Load the test disc (SZZP1054C).
2. Press the **◀◀** (SKIP/SEARCH) and **▶▶** (SKIP/SEARCH) Buttons simultaneously and hold them, and additionally press the **▶/||** (PLAY/PAUSE) Button.
3. Press the **●** (STOP/POWER OFF) Button once.
4. An automatically-adjusted result is displayed on the LCD. (Refer to the next page.)

Display of automatically-adjusted results (self-check function)



- 2) 0 1 0 0 ⇒ "E-4" is displayed.
(OK) (NG) (OK) (OK)
(Focus gain adjustment is NG (incorrect).)
- 3) 1 0 1 0 ⇒ "E-A" is displayed.
(NG) (OK) (NG) (OK)
(Tracking gain and tracking balance adjustments are NG.)
- 4) 1 1 1 1 ⇒ "E-F" is displayed.
(All adjustments are NG.)

<Example> Follow the below steps when "E-4" is displayed.
(Cause: Focus gain is set beyond the limit.)

- Check if
 - (1) the waveform or voltage of the focus servo circuit is correct,
 - (2) the focus coil of the optical pickup is correct (around 8 ohms), and
 - (3) the optical pickup returns to the normal state by exchanging the traverse deck.

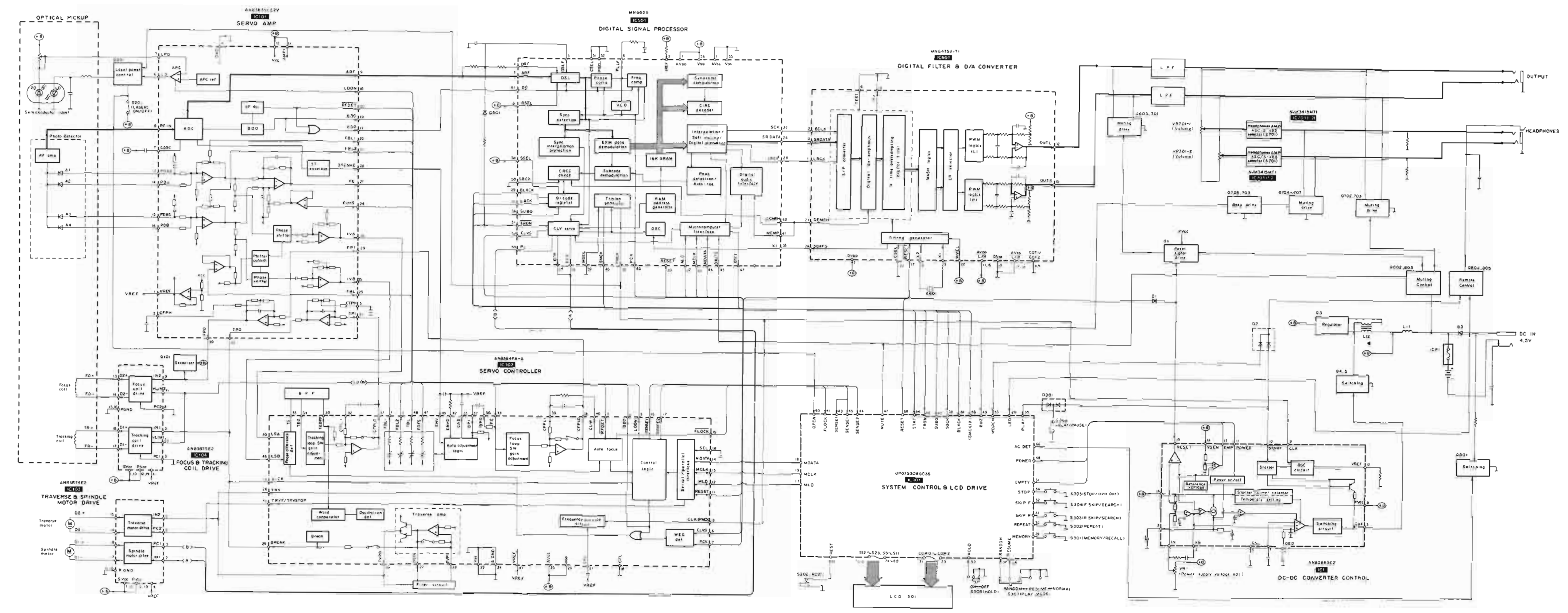
Follow the below steps when "E-1" is displayed.
(Cause: Focus balance is set beyond the limit.)

- Check if
 - (1) R101 (4 resistors) is not defective by measuring the value,
 - (2) the waveform or voltage of the focus servo circuit is correct, and
 - (3) the optical pickup returns to the normal state by exchanging the traverse deck.

Note:
It is not always necessary to exchange the traverse deck when an error message is displayed. Be sure to check if the circuit is defective or not before exchanging the traverse deck.

Note:
If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

■ BLOCK DIAGRAM



Note:
→ Audio signal

SCHEMATIC DIAGRAM

(Parts list on pages 33, 34, 36, 37.)

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

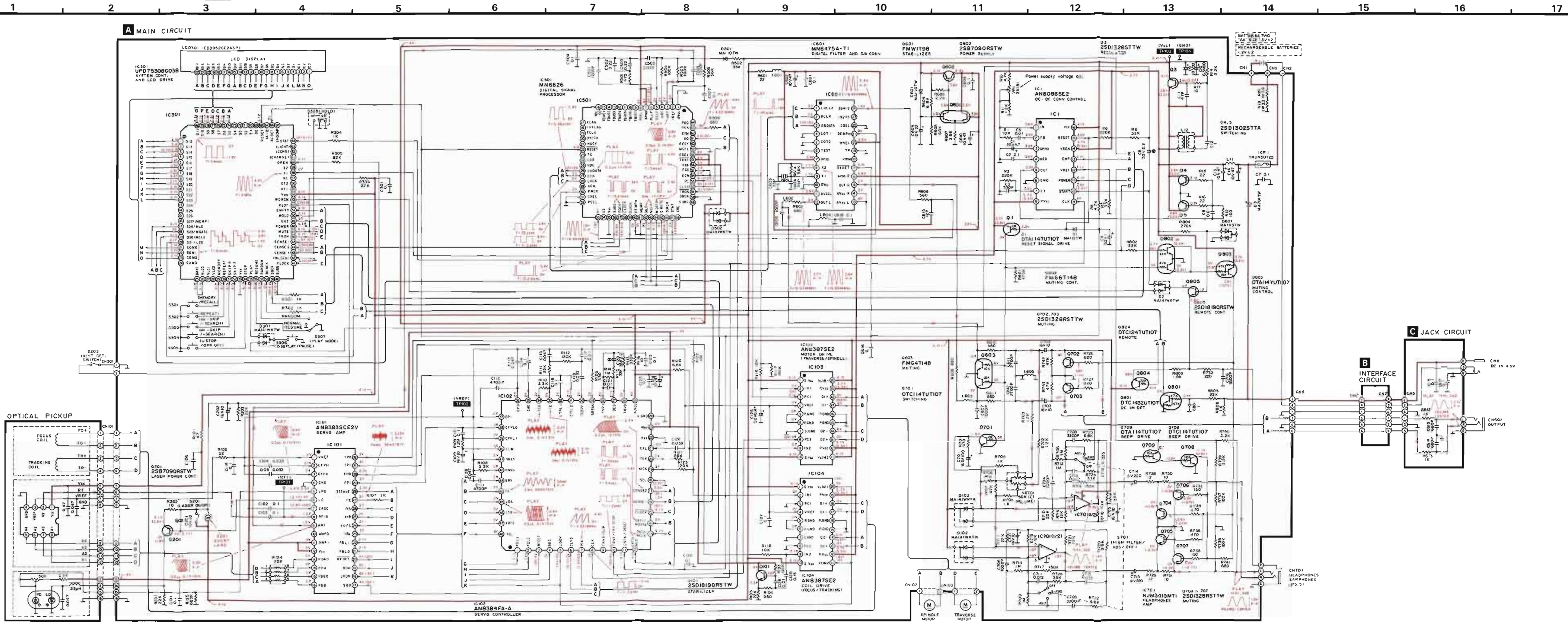
Notes:

- 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 "RESUME" position. (RESUME → NORMAL → RANDOM)
- S308: Hold (HOLD) switch in "OFF" position.
- S701: ASC/S-XBS selector (ASC/S-XBS) switch in "OFF" position. (OFF → S-XBS → ASC)
- 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 (1kHz, L+R, 0dB) in play mode, and the other, for no disc in stop mode.
- * AC adaptor is used for power supply.
- — : 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.



PRINTED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

DIAGRAM (1)
(Upper side)

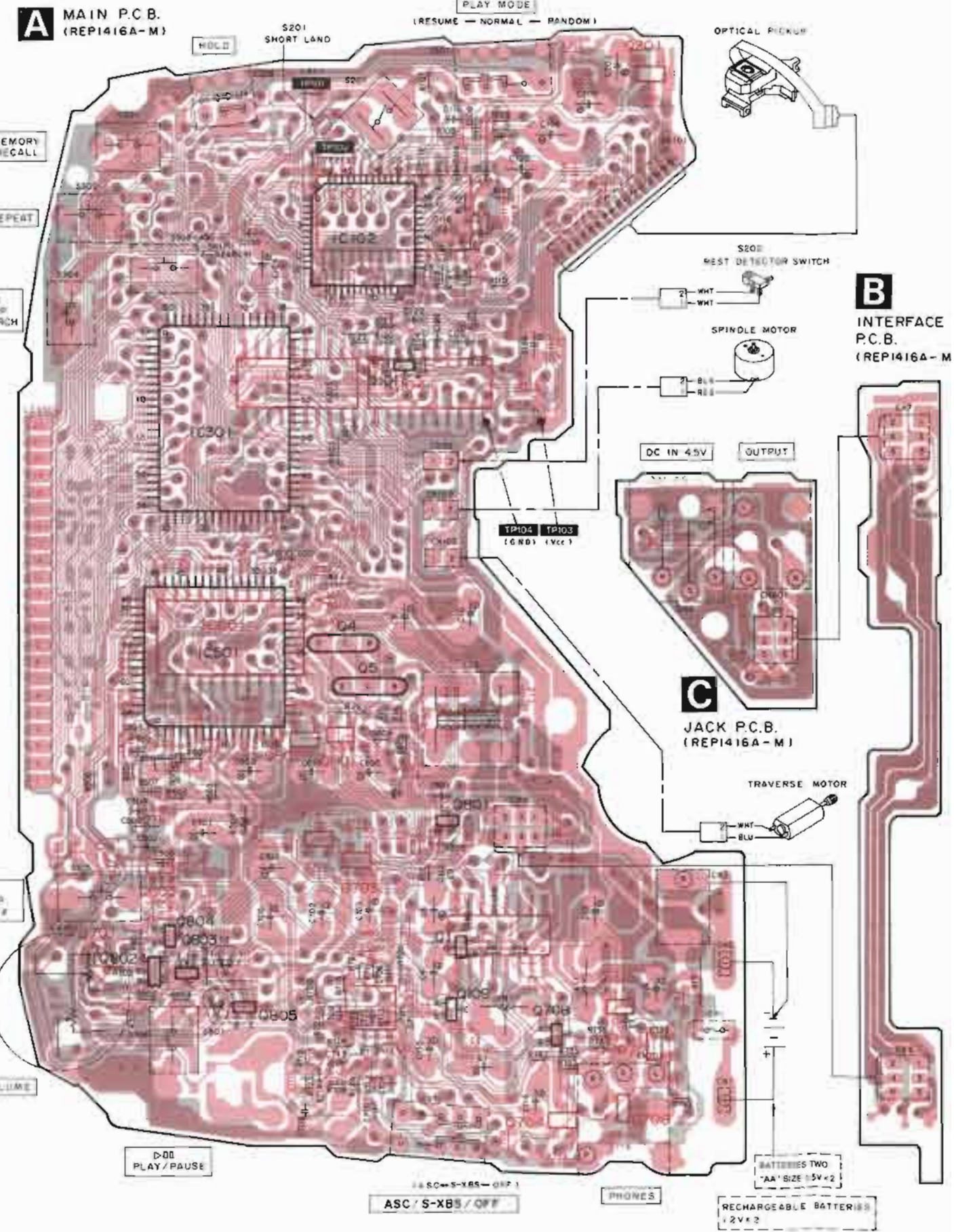
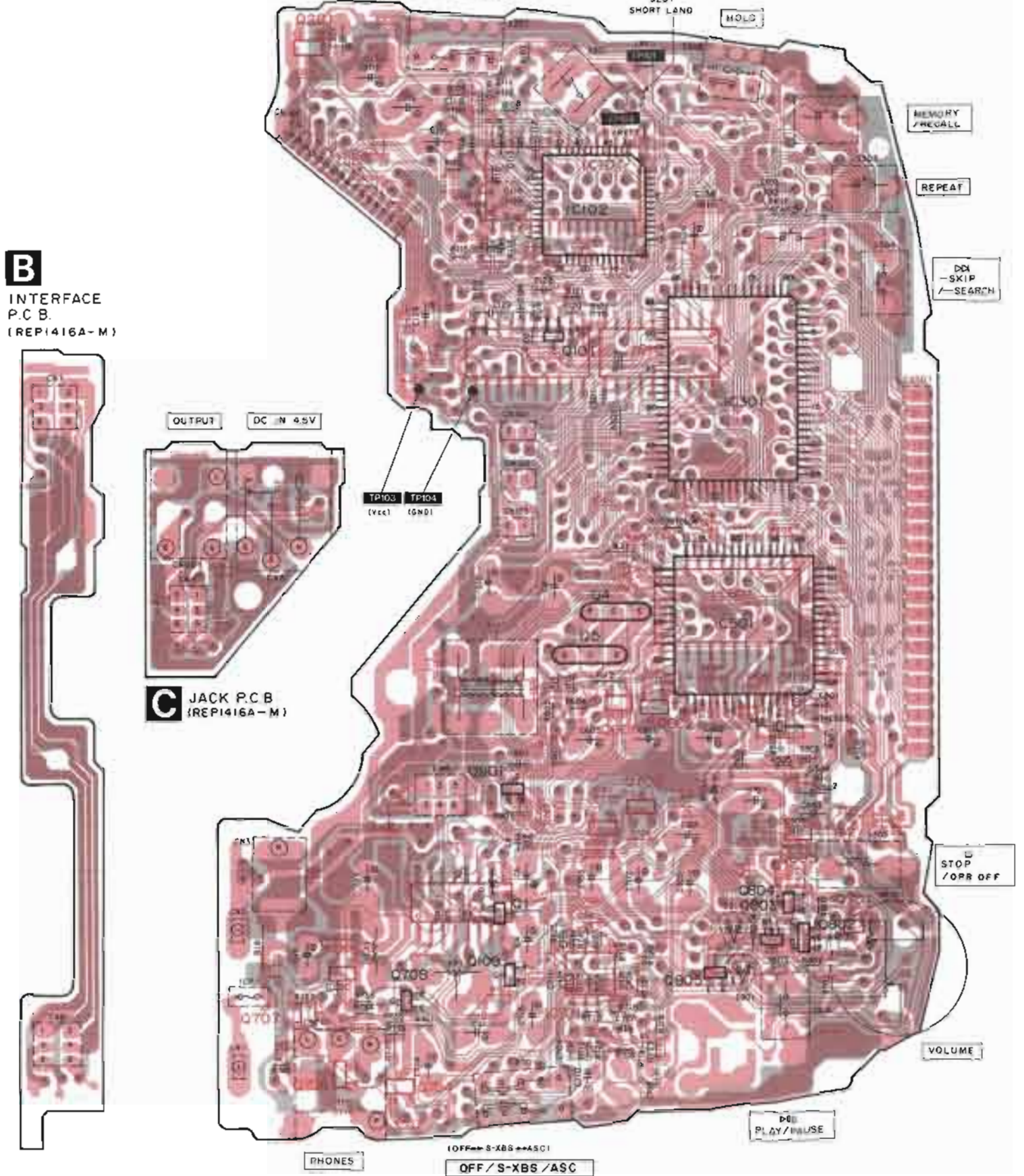




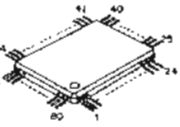
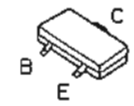
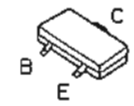
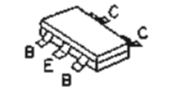

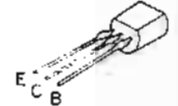


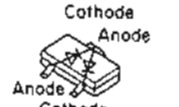
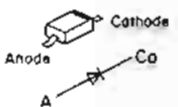
DIAGRAM (2)
(Back side)



- Notes:**
- The diagram (1) shows the view of LCD mounting surface (upper side). And the diagram (2) shows the view of back side surface.
 - The circuit shown in () indicates the upper side of the printed circuit board.
 - The circuit shown in () indicates the back side of the printed circuit board.
 - The symbols () shown in the circuit board indicates connection points between the upper side and back side on the circuit board.

- Notes:**
- REDRed
 - BLKBlack
 - BLUBlue
 - WHTWhite

Terminal guide of IC's, transistors and diodes

 No. 1	NJM3415MT1 8 Pin AN8086SE2 16 Pin AN8387SE2 20 Pin MN6475A-T1 24 Pin AN8383SCE2V 32 Pin	AN8384FA-A 48 Pin MN6626 64 Pin  No. 1	
	UPD75308G038 	DTA114TUT107 DTA114YUT107 DTC114TUT107 DTC124TUT107 DTC143ZUT107 2SB709QRSTW 	2SD1328STTW 2SD1328RSTTW 2SD1819QRSTW 
	FMG6T148 FMW1T98 FMG4T148 	2SD1302STTA 	MA701TW  Cathode Anode A → Co
MA141WKTW  Cathode Anode Anode	MA143TW  Cathode Anode Anode Cathode	MA110TW  Cathode Anode Anode Co	

■ 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 (AN8383SCE2V): 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 (x 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	SDO	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-A): 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	VLIM2	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-		
15	P. GND	—	Ground terminal
16	D1-	O	Spindle motor drive signal output and tracking coil drive signal output
17	D1+		
18	P. VCC	I	Power supply terminal
20	VLIM1	I	Voltage limit terminal

• IC601 (MN6475A-T1): 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	I	Test terminal (Ordinary: L)
5	COT 2		
6	TEST		
7	DV _{DD}	I	Digital power supply terminal
8	X2	O	Clock terminal (f=33.8688MHz)
9	X1	I	Digital GND terminal
10	DV _{SS}	—	Digital GND terminal
11	AV _{DD} L	I	Analog power supply terminal 1
12	OUT. L	O	Analog signal output 1
13	AV _{SS} L	—	Analog GND terminal
14	AV _{SS} R	—	Analog GND terminal
15	OUT. R	O	Analog signal output 2

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	I	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, connected to GND)
23	192FS	O	192fs (8.4672MHz) signal output (Not used, open)
24	384FS	O	Clock output terminal (384FS = 16.9344MHz)

• IC301 (UPD75308G038): System control & LCD drive

Pin No.	Mark	I/O Division	Function
1 } 12	S12 } S23	O	Segment signal output
13 } 16	S24 } S27/MEMP	—	Segment signal output (Not used, open)
17	S28/MLD	O	Command load signal output
18	S29/MDATA	O	Command data signal output
19	S30/MCLK	O	Command clock signal output
20	S31/LED	O	Remote control detection
21 } 23	COM0 } COM2	O	LCD common signal output
24	COM3	—	LCD common signal output (Not used, open)
25	BIAS	O	Power supply terminal for LCD drive (Not used, connected to each other)
26	VLC0	I	Power supply terminal for LCD drive (Not used, open)
27	VLC1	—	
28	VLC2	—	
29	MEMORY	I	Key switch (MEMORY/RECALL) detection terminal
30	REPEAT	I	Key switch (REPEAT) detection terminal
31	SKIP R	I	Key switch (SKIP/SEARCH: Backward) detection terminal
32	SKIP F	I	Key switch (SKIP/SEARCH: Forward) detection terminal
33	VSS	—	GND terminal
34	STOP	I	Key switch (STOP/POWER OFF) detection terminal
35	PLAY	I	Key switch (PLAY/PAUSE) detection terminal
36	RESUME	I	Key switch (PLAY MODE: RESUME) detection terminal
37	RANDOM	I	Key switch (PLAY MODE: RANDOM) detection terminal
38	BLKCK	I	Sub-code block (Q data) clock (75Hz) output
39	SQCK	O	Sub-code Q register clock output
40	SUBQ	I	Sub-code (Q data) output
41	FLOCK	I	Focus lock signal input
42	WLSCN	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		
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	—	Not connected
62	CCHG		
63	LIGHT	O	LED drive command signal (Not used, open)
64	STAT	I	Processing condition (CRC, CUE, CLVS, FCLV, TTSTOP) input
65	CHGCMP	—	Not connected
66	ACDET	I	Power supply detection signal input
67	A - B	—	Not connected
68	RESET	I	Reset detection terminal
69 } 73	S0 } S4	O	Segment signal output (Not used, open)
74 } 80	S5 } S11	O	Segment signal output

• IC501 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLIF	I/O	DSL loop filter terminal
6	PLLIF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 { 16	TBUS7 } TBUS0	O	Test terminal
17	FLAG	O	Flag terminal (Not used, open)
18	IPFLAG	O	Interpolation flag terminal (Not used, open)
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	RESET	I	Reset terminal
23	TX	O	Digital audio signal
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f = 16.9344 MHz) (Not used, open)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f = \frac{1}{192} \times CK = 88.2 \text{ kHz}$)
31	CSEL	I	Test terminal
32	PSEL	I	(Connected to GND)
33	X1	I	Crystal OSC terminal (f = 16.9344 MHz)
34	X2	O	Crystal OSC terminal (f = 16.9344 MHz) (Not used, open)
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock

Pin No.	Mark	I/O Division	Function
38	CLDCK	O	Sub-code frame clock (f = 7.35 kHz) (Not used, open)
39	BLKCK	O	Sub-code block clock (f = 75 Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting Input ("H": MUTE)
46	SMCK	O	System clock (f = 4.2336 MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial input clock (Not used, connected to GND)
51	TRON	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	TEST	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK = 4.2336 MHz) (Connected to GND)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f = 4.3218 MHz)
64	PDO	O	Phase compared signal of EFM and PCK (Not used, open)

REPLACEMENT PARTS LIST

Notes: *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 parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area)

Parts without these indications can be used for all areas.

*Warning This product uses a laser diode. Refer to caution statements on page 3.

*ACHTUNG: Die Lasereinheit nicht zerlegen

Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)					
IC1	AN8086SE2	IC, DC-DC CONV. CONTROL		ICP1	SRUN50T25	IC PROTECTOR	
IC101	AN8383SCE2V	IC, SERVO AMP				VARIABLE RESISTOR(S)	
IC102	AN8384FA-A	IC, SERVO CONTROLLER		VR1	EVNDXAA00B33	V. R. POWER SUPPLY VOLT. ADJ.	
IC103, 104	AN8387SE2	IC, MOTOR/COIL DRIVE		VR701	EVUAMAT43C54	V. R. VOLUME	
IC301	UPD75308G038	IC, SYSTEM CONTROL&LCD DRIVE				COIL(S)	
IC501	MN6626	IC, DIGITAL SIGNAL PROCESSOR		L11	RLQ8330KT-K	COIL	
IC601	MN6475A-T1	IC, DIGITAL FILTER&D/A CONV.		L12	RLZ0007-0	COIL	
IC701	NJM3415M	IC, HEADPHONES AMP		L601-605	RLB0003	COIL	
		TRANSISTOR(S)				OSCILLATOR(S)	
Q1	DTA114TUT107	TRANSISTOR		X601	RSXZ16M9M01T	OSCILLATOR (16.934MHz)	
Q3	2SD1328STW	TRANSISTOR				LCD(S)	
Q4, 5	2SD1302STA	TRANSISTOR		LCD301	EDD052CE2A3P	LCD	
Q101	2SD1819QRSTW	TRANSISTOR				SWITCH(ES)	
Q201	2SB709QRSTW	TRANSISTOR		S201	RSH1A91ZA-A	SW. LASER ON/OFF	
Q601	FMW1T98	TRANSISTOR		S202	SSHDS	SW. REST DETECTOR	
Q602	2SB709QRSTW	TRANSISTOR		S301	EVQ21405R	SW. MEMORY/RECALL	
Q603	FMG4T148	TRANSISTOR		S302	EVQ21405R	SW. REPEAT	
Q701	DTC114TUT107	TRANSISTOR		S303	EVQ21405R	SW. SKIP/SEARCH(B)	
Q702-707	2SD1328RSTW	TRANSISTOR		S304	EVQ21405R	SW. SKIP/SEARCH(F)	
Q708	DTC114TUT107	TRANSISTOR		S305	EVQ21405R	SW. STOP/OPR OFF	
Q709	DTA114TUT107	TRANSISTOR		S306	EVQ21405R	SW. PLAY/PAUSE	
Q801	DTC143ZUT107	TRANSISTOR		S307	ESD11H230	SW. PLAY MODE	
Q802	FMG6T148	TRANSISTOR		S308	ESD11H220	SW. HOLD	
Q803	DTA114YUT107	TRANSISTOR		S701	ESD11H230	SW. ASC/S-XBS	
Q804	DTC124TUT107	TRANSISTOR				CONNECTOR(S) & JACK(S)	
Q805	2SD1819QRSTW	TRANSISTOR		CN1	RJC30002-3	BATTERY TERMINAL (+)	
		DIODE(S)		CN2	RJC30002-3	BATTERY TERMINAL (-)	
D1	MA110TW	DIODE		CN3	RJH5102-1	RECHARGEABLE BATT. TERMINAL	
D2	MA141WKTW	DIODE		CN4, 5	RJT059W006	CONNECTOR(6P)	
D3	MA701TX	DIODE		CN6, 7	RJU059W006	SOCKET(6P)	
D102, 103	MA141WKTW	DIODE		CN8	RJJ4303	DC IN JACK	
D301	MA141WKTW	DIODE		CN101	RJSTAG116	FPC CONNECTOR(16P)	
D501	MA110TW	DIODE				IC PROTECTOR(S)	
D502	MA141WKTW	DIODE					
D601	MA110TW	DIODE					
D801	MA143TW	DIODE					

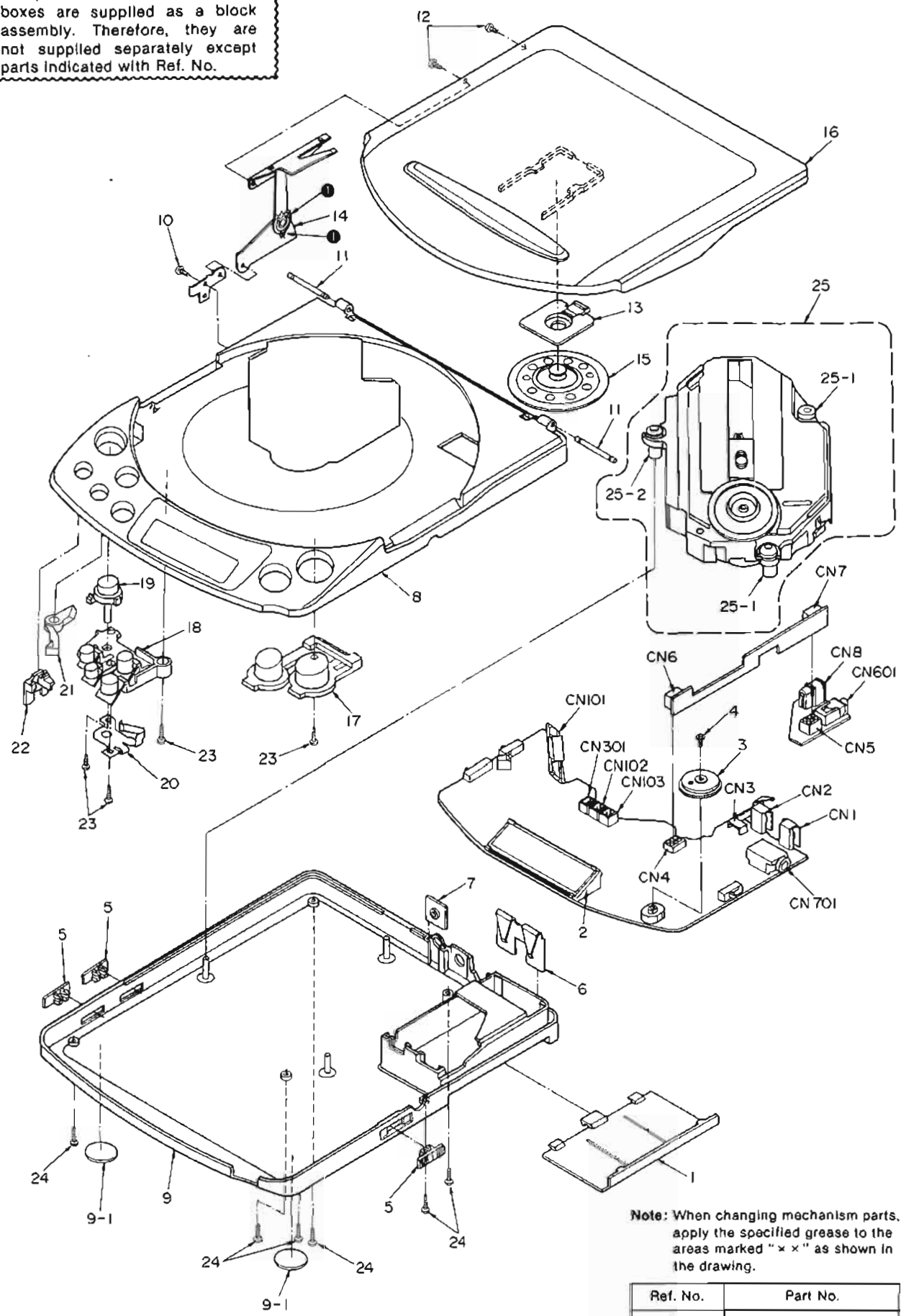
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
CN102, 103	EMCS0255B	CONNECTOR (2P)					
CN301	EMCS0255B	CONNECTOR (2P)				PACKING MATERIAL	
CN601	RJJD355ZA-C	LINE OUT JACK					
CN701	RJJD553MZA-C	HEADPHONES JACK		P1	RPK0342	PACKING CASE	(EB, GC, GN)
				P1	RPK0341	PACKING CASE	(EG)
		CABINET AND CHASSIS		P2	RPQF0045	ACCESSORIES BOX	
1	RKK0009-2K	BATTERY COVER		P3	RPQ0059	SPACER	(EG, GN)
2	RJF0011	LCD HOLDER		P4	SPSD14	PROTECTION SHEET	
3	SBND90ZK0A	KNOB, VOLUME		P5	RPN0609	CUSHION (LOWER)	
4	XQN17-C3FZ	SCREW		P6	RPN0610	CUSHION (UPPER)	
5	RGV0052-K	KNOB, ASC/PLAY MODE/HOLD		P7	SPPD1	PROTECTION BAG	
6	RJC93007	COMMON BATTERY TERMINAL		P8	SQZD7	AREA LABEL	(EB)
7	RMA0110	REAR ORNAMENT		P8	SQZD6	AREA LABEL	(EG)
8	RYK0314A-K	INTERMEDIATE CABINET ASS'Y		P8	RQLA0066	AREA LABEL	(GC)
9	RFKJLXP330EB	BOTTOM CABINET ASS'Y	(EB, GC, GN)	P8	RQLA0067	AREA LABEL	(GN)
9	RFKJLXP330EG	BOTTOM CABINET ASS'Y	(EG)	P9	RPQ0069-1	PAD	(EB, GC)
9-1	SHGD54-1	FOOT		P9	RPQ0072-1	PAD	(EG)
10	RHE5155YA	SCREW		P9	RPQ0070-1	PAD	(GN)
11	RMS0105-1	SHAFT				ACCESSORIES	
12	RHE50972A	SCREW					
13	RMQ0163-1	CLAMPER HOLDER		A1	RQT1567-B	INSTRUCTION MANUAL	(EB, GN)
14	RXA0117	LINK ANGLE ASS'Y		A1	RFKSLXP330EG	INSTRUCTION MANUAL ASS'Y	(EG)
15	RXQ0218	CLAMPER		A1	RQT1565-G	INSTRUCTION MANUAL	(GC)
16	RYF0178A-K	DISC HOLDER ASS'Y		A2	RP-IV135GY	STEREO EARPHONES	
17	RGU0753-K	BUTTON, PLAY/STOP		A3	RFEA401B-W	AC ADAPTOR	(EB) △
18	RGU0754-K	BUTTON, MEMORY/REPEAT/SKIP		A3	RFEA401E-1S	AC ADAPTOR	(EG) △
19	RGU0755-K	BUTTON, OPEN		A3	RFEA402Z-W	AC ADAPTOR	(GC) △
20	RMC0162	LOCK SPRING		A3	RFEA401A-W	AC ADAPTOR	(GN) △
21	RML0260	OPEN LEVER		A4	SJPD5-2K	STEREO CONNECTION CABLE	
22	RMR0560-W	LOCK PLATE		A5	RQA0013	WARRANTY CARD	(EB, EG)
23	XTN17-4J	SCREW		A5	RQX7433ZA	WARRANTY CARD	(GN)
24	XTN17-6GFZ	SCREW		A6	RP-BP60EY	RECHARGEABLE BATTERIES	(EB, EG)
25	S0DD1002	TRAVERSE DECK		A6	RP-BP60SY-1	RECHARGEABLE BATTERIES	(GC, GN)
25-1	SHGD165	FLOATING RUBBER(B)		A7	RQCB0169	SERVICENTER LIST	
25-2	SHGD157	FLOATING RUBBER(A)		A8	RJP120ZDS-K	AC PLUG ADAPTOR	(GC) △
						PRINTED CIRCUIT	
						BOARDS ASS'Y	
				PCB1	REP1416A-M	MAIN P. C. B. /INTERFACE P. C. B. /JACK P. C. B.	(NLA)

1 2 3 4 5

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



Note: When changing mechanism parts, apply the specified grease to the areas marked "x" as shown in the drawing.

Ref. No.	Part No.
①	SZZ0L18

RESISTORS & 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(010M) , 1M=1,000k(010M)

Ref. No.	Part No.	Values & Remarks	Ref No.	Part No.	Values & Remarks	Ref No.	Part No.	Values & Remarks
		RESISTORS	R501	ERJ3GEYJ471V	1/16W 470			
			R502	ERJ6GEYJ333V	1/10W 33K	RJ1.2	ERJ8GEY0R00V	CHIP JUMPER
			R503, 504	ERJ3GEYJ104V	1/16W 100K	RJ3	ERJ6GEY0R00V	CHIP JUMPER
R1	ERJ6GEYJ103V	1/10W 10K	R505	ERJ3GEYJ563V	1/16W 56K	RJ5	ERJ6GEY0R00V	CHIP JUMPER
R2	ERJ6GEYJ224V	1/10W 220K	R506	ERJ3GEYJ681V	1/16W 680	RJ608	ERJ3GEY0R00V	CHIP JUMPER
R3	ERJ6GEYJ333V	1/10W 33K	R601	ERJ6GEYJ220	1/10W 22			CAPACITORS
R5	ERJ6GEYJ472V	1/10W 4.7K	R602	ERJ6GEYJ681V	1/10W 680			
R6	ERJ3GEYJ224V	1/16W 220K	R604	ERJ3GEYJ682V	1/16W 6.8K			
R8	ERJ3GEYJ333V	1/16W 33K	R605	ERJ3GEYJ104V	1/16W 100K	C1	ECEA1EKA4R71	25V 4.7U
R10	ERJ3GEYJ472V	1/16W 4.7K	R606	ERJ6GEYJ222V	1/10W 2.2K	C2	ECUV1C104KBN	16V 0.1U
R11	ERJ6GEYJ122V	1/10W 1.2K	R607	ERJ3GEYJ392V	1/16W 3.9K	C3	ECUV1H331KBN	50V 330P
R12	ERJ3GEYJ101V	1/16W 100	R608	ERJ6GEYJ681V	1/10W 680	C4	ECEA1HKA0101	50V 1U
R14	ERJ6GEYJ222V	1/10W 2.2K	R609-611	ERJ6GEYJ561V	1/10W 560	C5	ECUV1E103KBN	25V 0.01U
R15, 16	ERJ3GEYJ220V	1/16W 22	R612, 613	ERJ6GEYJ102V	1/10W 1K	C6	ECEA1HKN2R21	50V 2.2U
R17	ERJ6GEYJ100	1/10W 10	R614	ERJ6GEYJ562V	1/10W 5.6K	C7	ECUV1C104ZFN	16V 0.1U
R19	ERJ1WYK3R3H	1W 3.3	R701	ERJ6GEYJ471V	1/10W 470	C8	ECUV1E103KBV	25V 0.01U
R20	ERJ1WYK3R9H	1W 3.9	R702, 703	ERJ3GEYJ122V	1/16W 1.2K	C9	RCEA1ASD3301X	10V 33U
R101	ERJ6GEYJ470V	1/10W 47	R704, 705	ERJ6GEYJ102V	1/10W 1K	C10	ECEA0JKA1011	6.3V 100U
R102	ERJ3GEYJ220V	1/16W 22	R706, 707	ERJ6GEYJ473V	1/10W 47K	C11	ECUV1H470KCN	50V 47P
R103	ERJ3GEYJ104V	1/16W 100K	R708, 709	ERJ3GEYJ105V	1/16W 1M	C12	ECUVNC105ZFN	16V 1U
R104	MCR03PZH561	1/16W 560	R710, 711	ERJ3GEYJ223V	1/16W 22K	C13, 14	ECEA1AKA4701	10V 47U
R105	ERJ3GEYJ223V	1/16W 22K	R712, 713	ERJ3GEYJ105V	1/16W 1M	C15	ECUV1C104ZFN	16V 0.1U
R107	ERJ3GEYJ102V	1/16W 1K	R714, 715	ERJ3GEYJ123V	1/16W 12K	C101	ECUV1C104ZFN	16V 0.1U
R108	ERJ3GEYJ332V	1/16W 3.3K	R716, 717	ERJ6GEYJ154V	1/10W 150K	C102, 103	ECUV1C104KBN	16V 0.1U
R109	ERJ3GEYJ125V	1/16W 1.2M	R718	ERJ3GEYJ103V	1/16W 10K	C104, 105	ECUV1C333KBN	16V 0.033U
R110	ERJ3GEYJ332V	1/16W 3.3K	R719, 720	ERJ3GEYJ392V	1/16W 3.9K	C106	ECUV1C105ZFM	16V 1U
R111	ERJ3GEYJ223V	1/16W 22K	R721	ERJ3GEYJ103V	1/16W 10K	C108	ECUV1C473KBN	16V 0.047U
R112	ERJ3GEYJ124V	1/16W 120K	R722, 723	ERJ3GEYJ682V	1/16W 6.8K	C109	ECEA1CKA1001	16V 10U
R113	ERJ3GEYJ334V	1/16W 330K	R724, 725	ERJ3GEYJ333V	1/16W 33K	C110	ECUV1C104KBN	16V 0.1U
R114	ERJ3GEYJ105V	1/16W 1M	R726, 727	ERJ6GEYJ821V	1/10W 820	C111	ECUV1H472MBV	50V 4700P
R115	ERJ3GEYJ333V	1/16W 33K	R728, 729	ERJ6GEYJ120V	1/10W 12	C112	ECUV1H472MBN	50V 4700P
R116	ERJ6GEYJ100	1/10W 10	R730, 731	ERJ6GEYJ100	1/10W 10	C113	ECUV1C473KBN	16V 0.047U
R117	ERJ6GEYJ184V	1/10W 180K	R732	ERJ6GEYJ221V	1/10W 220	C114	ECUV1C104KBN	16V 0.1U
R118	ERJ3GEYJ103V	1/16W 10K	R733	ERJ3GEYJ151V	1/16W 150	C115	ECUV1C473KBN	16V 0.047U
R119	ERJ6GEYJ182V	1/10W 1.8K	R734	ERJ3GEYJ471V	1/16W 470	C116	ECUV1C104KBN	16V 0.1U
R120	ERJ3GEYJ682V	1/16W 6.8K	R735	ERJ3GEYJ151V	1/16W 150	C117	ECUV1E103KBV	25V 0.01U
R121	ERJ3GEYJ563V	1/16W 56K	R736	ERJ3GEYJ471V	1/16W 470	C118	ECUV1C333KBV	16V 0.033U
R122	ERJ3GEYJ103V	1/16W 10K	R737, 738	ERJ6GEYJ104V	1/10W 100K	C119	ECUV1C104ZFN	16V 0.1U
R123	ERJ3GEYJ124V	1/16W 120K	R739, 740	ERJ3GEYJ222V	1/16W 2.2K	C120	ECEA1VKN2R21	35V 2.2U
R124	EXB8V8223J	1/16W 22K	R741	ERJ3GEYJ681V	1/16W 680	C121	ECUV1E103KBV	25V 0.01U
R125	ERJ6GEYJ684V	1/10W 680K	R742, 743	ERJ6GEYJ473V	1/10W 47K	C122	ECUV1C333KBN	16V 0.033U
R126	ERJ6GEYJ331V	1/10W 330	R801	ERJ3GEYJ474V	1/16W 470K	C123	ECUV1C104ZFN	16V 0.1U
R201	ERJ6GEYJ223V	1/10W 22K	R802	ERJ3GEYJ333V	1/16W 33K	C124	ECEA1AKA4701	10V 47U
R202	ERJ6GEYJ100	1/10W 10	R803	ERJ3GEYJ182V	1/16W 1.8K	C125	ECUV1C104ZFN	16V 0.1U
R203	ERJ6GEYJ223V	1/10W 22K	R804	ERJ3GEYJ274V	1/16W 270K	C126	ECEA1HKS471	50V 0.47U
R301, 302	ERJ6GEYJ102V	1/10W 1K	R805	ERJ3GEYJ223V	1/16W 22K	C127	ECUV1C104ZFN	16V 0.1U
R303	ERJ6GEYJ223V	1/8W 22K	R806	ERJ6GEYJ102V	1/10W 1K	C128	ECUV1E103KBV	25V 0.01U
R304	ERJ6GEYJ102V	1/10W 1K				C129	ECUV1C154KBM	16V 0.15U
R305	ERJ3GEYJ823V	1/16W 82K			CHIP JUMPERS	C130	ECUV1C104ZFN	16V 0.1U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C201	ECEA1AKN2201	10V 22U	C603	ECUV1H330KCN	50V 33P	C702, 703	ECEA1CKS1001	16V 10U
C202	ECEA1CKA1001	16V 10U	C604	ECUV1H390KCN	50V 39P	C704	ECUV1H102KBV	50V 1000P
C301	ECUV1C104ZFN	16V 0.1U	C605	ECEA1AKA2201	10V 22U	C705	ECEA1CKS1001	16V 10U
C501	ECUV1H102KBV	50V 1000P	C606, 607	ECUV1H102KBN	50V 1000P	C706	ECUV1H102KBV	50V 1000P
C502, 503	ECUV1C224KBM	16V 0.22U	C609	ECUV1C104ZFN	16V 0.1U	C707	ECEA1CKS1001	16V 10U
C504	ECUV1C104ZFN	16V 0.1U	C610	ECEA1AKA4701	10V 47U	C708, 709	ECUV1H332KBV	50V 3300P
C505	ECUV1E223KBV	25V 0.022U	C611, 612	ECUV1H272KBN	50V 2700P	C710, 711	ECUV1C123MBV	16V 0.012U
C506	ECUV1H102KBV	50V 1000P	C613, 614	ECUV1H681KBN	50V 680P	C712, 713	ECUV1C333KBV	16V 0.033U
C507	ECUV1C104KBN	16V 0.1U	C615	ECUV1H120KCV	50V 12P	C714, 715	ECEA0GPK2211	4V 220U
C601	ECUV1C104ZFN	16V 0.1U	C616-618	ECUV1C104ZFN	16V 0.1U	C716	ECUV1H332ZFN	50V 3300P
C602	ECEA1AKA4701	10V 47U	C701	ECEA0JKS1011	6.3V 100U	C801	ECUV1C105ZFN	16V 1U

PACKAGING

