HITACHI
SERVICE MANUAL

DVD PLAYER

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

DO NOT RESELL OR DIVERT IMPROPERLY.

DVD PLAYER

September 2004

Digital Media Division, Tokai
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1-1 LASER BEAM SAFETY PRECAUTIONS

This DVD player uses a pickup that emits a laser beam.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

**Caution:** Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.

**Location:** Top of DVD mechanism.
1-2 IMPORTANT SAFETY PRECAUTIONS

1-2-1 Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a # on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product’s Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

1-2-2 Precautions during Servicing

A. Parts identified by the # symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements. Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation tape
   2) PVC tubing
   3) Spacers
   4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
   The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
   Replacement procedure
   1) Remove the old connector by cutting the wires at a point close to the connector.
   Important: Do not re-use a connector. (Discard it.)
   2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
   3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
   4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.
1-2-3 Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

<table>
<thead>
<tr>
<th>AC Line Voltage</th>
<th>Clearance Distance (d) (d')</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 V</td>
<td>≥ 3.2mm (0.126 inches)</td>
</tr>
</tbody>
</table>

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON):
Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

Table 2: Leakage current ratings for selected areas

<table>
<thead>
<tr>
<th>AC Line Voltage</th>
<th>Load Z</th>
<th>Leakage Current (i)</th>
<th>Earth Ground (B) to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 V</td>
<td>0.15μF CAP &amp; 1.5kΩ RES. Connected in parallel</td>
<td>i≤0.5mA Peak</td>
<td>Exposed accessible parts</td>
</tr>
</tbody>
</table>

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.
1-3 STANDARD NOTES FOR SERVICING

1-3-1 Circuit Board Indications

a. The output pin of the 3 pin Regulator ICs is indicated as shown.

```
Top View
Out In
```

Bottom View

b. For other ICs, pin 1 and every fifth pin are indicated as shown.

```
Pin 1
```

```
1 5 10
```

c. The 1st pin of every male connector is indicated as shown.

```
Pin 1
```

1-3-2 Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.

2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.

![Incorrect Diagram](image)

![Correct Diagram](image)

* Be careful to avoid a short circuit.

1-3-3 Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

1-3-4 Instructions for Handling Semi-conductors

Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

(1) Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.

![Incorrect Diagram](image)

![Correct Diagram](image)
## GENERAL INFORMATION

### 2-1 SPECIFICATIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DVD section</strong></td>
<td></td>
</tr>
<tr>
<td>Output signal format</td>
<td>NTSC color</td>
</tr>
<tr>
<td>Video output impedance</td>
<td>75 Ω</td>
</tr>
<tr>
<td>Video output level</td>
<td>1.0 V P-P</td>
</tr>
<tr>
<td>Audio output level</td>
<td>2.0 Vrms</td>
</tr>
<tr>
<td>Video S/N ratio</td>
<td>60 dB or more</td>
</tr>
<tr>
<td>Disc used</td>
<td>DVD video disc, Music CD disc</td>
</tr>
<tr>
<td>Audio frequency</td>
<td>DVD (linear audio)</td>
</tr>
<tr>
<td>characteristic</td>
<td>20 Hz - 22 kHz (48 kHz sampling frequency)</td>
</tr>
<tr>
<td></td>
<td>20 Hz - 44 kHz (96 kHz sampling frequency)</td>
</tr>
<tr>
<td></td>
<td>Music CD</td>
</tr>
<tr>
<td></td>
<td>20 Hz - 20 kHz (JEITA)</td>
</tr>
<tr>
<td>Signal/Noise (S/N) ratio</td>
<td>CD: 70 dB (JEITA)</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>DVD (linear audio): 70 dB, CD: 70 dB (JEITA)</td>
</tr>
<tr>
<td>Total distortion ratio</td>
<td>DVD: 0.004%, CD: 0.0045%</td>
</tr>
<tr>
<td><strong>Terminal</strong></td>
<td></td>
</tr>
<tr>
<td>Video output</td>
<td>PIN JACK</td>
</tr>
<tr>
<td>Audio output</td>
<td>PIN JACK</td>
</tr>
<tr>
<td>Component video output</td>
<td>PIN JACK</td>
</tr>
<tr>
<td>S Video output</td>
<td>MINI DIN 4PIN JACK (75 Ω)</td>
</tr>
<tr>
<td>Coaxial digital audio output</td>
<td>PIN JACK</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>120 V AC +/- 10%, 60 Hz +/- 0.5%</td>
</tr>
<tr>
<td>Power consumption</td>
<td>10 W (Standby: 0.8 W)</td>
</tr>
<tr>
<td>Temperature range for operation</td>
<td>5 °C - 40 °C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>435(W) mm x 51(H) mm x 211(D) mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.3 kg</td>
</tr>
</tbody>
</table>
## 2-2 COMPARISON OF MODELS

O: Yes, ---: No, ←: Same as on left

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DV-P543U</th>
<th>DV-P533U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPEARANCE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensional</td>
<td>435(W) x 50(H) x 211(D) mm</td>
<td>435(W) x 55(H) x 211(D) mm</td>
</tr>
<tr>
<td>Hot Stamp</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Ultra Vision Badge</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td><strong>GENERAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Speed</td>
<td>1x</td>
<td>←</td>
</tr>
<tr>
<td>Laser</td>
<td>2</td>
<td>←</td>
</tr>
<tr>
<td>DVD/VCD/SVCD/CD-DA</td>
<td>O / --- / --- / O</td>
<td>←</td>
</tr>
<tr>
<td>CD-R/CD-RW/DVD-R (Video Format)</td>
<td>O / O / O</td>
<td>←</td>
</tr>
<tr>
<td>DVD-RAM/DVD-RW (Video Mode)</td>
<td>--- / O</td>
<td>←</td>
</tr>
<tr>
<td>MP3/WMA</td>
<td>O / ---</td>
<td>←</td>
</tr>
<tr>
<td>OSD languages</td>
<td>3 (English, French, Spanish)</td>
<td>←</td>
</tr>
<tr>
<td>Jog Shuttle on Front</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Headphone Jack / Volume</td>
<td>--- / ---</td>
<td>←</td>
</tr>
<tr>
<td><strong>VIDEO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAL Disc NTSC Out</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Video Out Mode NTSC/PAL/PAL60</td>
<td>O / --- / ---</td>
<td>←</td>
</tr>
<tr>
<td>S-Video / Component / Composite</td>
<td>O / O / O</td>
<td>←</td>
</tr>
<tr>
<td>Video D/A Converter</td>
<td>10bit / 54MHz</td>
<td>←</td>
</tr>
<tr>
<td>Black Level Select</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Picture Control</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Progressive Out</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td><strong>AUDIO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio D/A Converter</td>
<td>192kHz / 24bit</td>
<td>←</td>
</tr>
<tr>
<td>Digital Audio Out Optical / Coaxial</td>
<td>--- / O</td>
<td>←</td>
</tr>
<tr>
<td>Dolby Digital 5.1 ch Decode</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>DTS Digital Out</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Virtual Surround</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Dynamic Range Compression (Dolby Digital)</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>DVD Audio</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td><strong>TRICK PLAY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search Speed</td>
<td>2 to 100 (FORWARD/REWIND) (DVD: 2, 8, 50, 100/CD: 16)</td>
<td>←</td>
</tr>
<tr>
<td>Slow Speed</td>
<td>1/16, 1/8, 1/2 (FORWARD/REWIND)</td>
<td>←</td>
</tr>
<tr>
<td>IP Search (Smooth 2x Play)</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>1.5x Play with Audio</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>Step Forward / Reverse</td>
<td>O / ---</td>
<td>←</td>
</tr>
<tr>
<td>Still Picture Select (Frame/Field)</td>
<td>Frame / Field / Auto</td>
<td>Auto Only</td>
</tr>
<tr>
<td>ITEM</td>
<td>DV-P543U</td>
<td>DV-P533U</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>FEATURES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disc Navigation</td>
<td>O</td>
<td>---</td>
</tr>
<tr>
<td>DVD Zoom x2 / x4 / x16</td>
<td>O / O / ---</td>
<td>←</td>
</tr>
<tr>
<td>Program and Random Play of DVD / VCD</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>A-B Repeat</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Repeat</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Resume</td>
<td>O</td>
<td>O (can not effect after Power off)</td>
</tr>
<tr>
<td>Closed Caption for NTSC DVD</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Front Panel Display Dimmer</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Screen Saver</td>
<td>O</td>
<td>←</td>
</tr>
<tr>
<td>Auto Power Off</td>
<td>O (always on)</td>
<td>O</td>
</tr>
<tr>
<td><strong>REMOTE CONTROLLER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jog Shuttle on Remote Controller</td>
<td>---</td>
<td>←</td>
</tr>
<tr>
<td>TV Control</td>
<td>---</td>
<td>←</td>
</tr>
</tbody>
</table>
## 2-3 COMPARISON OF MAIN CONTROL ICS

---: No, ←: Same as on left

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DV-P543U</th>
<th>DV-P533U</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>NC7SB3157P6X / SN74LVC1G3157DCKR (IC201)</td>
<td>NC7SB3157P6X (IC201)</td>
</tr>
<tr>
<td>OP AMP</td>
<td>LM324PWR / LM324PT (IC202)</td>
<td>KIA324F-EL (IC202)</td>
</tr>
<tr>
<td>SERVO DRIVE</td>
<td>SA5694 / FA8024CDTF / BA5954FP-E2 / BA5888FP-E2 (IC301)</td>
<td>SA5694 / BA5954FP-E2 (IC301)</td>
</tr>
<tr>
<td>RESET</td>
<td>PST3229NR (IC461)</td>
<td>PST9127NR / BMR-110527 (IC461)</td>
</tr>
<tr>
<td></td>
<td>BMR-110529 (IC462)</td>
<td>---</td>
</tr>
<tr>
<td>MICRO CONTROLLER</td>
<td>MN35202 (IC101)</td>
<td>MN35102 (IC101)</td>
</tr>
<tr>
<td>SDRAM</td>
<td>K4S641632H-UJC75 (IC503)</td>
<td>K4S643232F-TG60 / HY57V643220CT-(7,55) (IC102)</td>
</tr>
<tr>
<td>LATCH</td>
<td>---</td>
<td>74LVX573MTCX / TC74LVX573FT(EL) (IC104, IC105)</td>
</tr>
<tr>
<td>CLOCK GENERATOR</td>
<td>---</td>
<td>BU2363FV-E2 (IC451)</td>
</tr>
<tr>
<td>AUDIO D/A CONVERTER</td>
<td>PCM1755DBQR (IC601)</td>
<td>PCM1751DBQR (IC601)</td>
</tr>
<tr>
<td>ERROR VOLTAGE DET</td>
<td>EL817B / EL817C / LTV-817B-F / LTV-817C-F / PS2561A-1(W) / PS2561A-1(Q) (IC1001)</td>
<td>LTV-817B-F / LTV-817C-F (IC1001)</td>
</tr>
<tr>
<td>1.2V REG</td>
<td>PQ070XZ5MZP (IC1002)</td>
<td>PQ070XF01SZ (IC1002)</td>
</tr>
<tr>
<td>SHUNT REGULATOR</td>
<td>KIA431-AT / FA431AZXA (IC1006)</td>
<td>KIA431-AT (IC1006)</td>
</tr>
<tr>
<td>AMP</td>
<td>KIA4558P / NJM4558D / RC45800IP (IC1201)</td>
<td>←</td>
</tr>
<tr>
<td>VIDEO DRIVER</td>
<td>MM1637XVBE (IC1402)</td>
<td>MM1622XJBE (IC1402)</td>
</tr>
<tr>
<td></td>
<td>MM1636XWRE (IC1403)</td>
<td>---</td>
</tr>
<tr>
<td>FRONT PANEL CONTROL</td>
<td>PT6313-S-TP / SC16313 (IC2001)</td>
<td>PT6313-S-TP (IC2001)</td>
</tr>
</tbody>
</table>
### List of Abbreviations and Terms for DVD Player

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<th>Abbreviation/Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>AC3</td>
<td>See Dolby AC3.</td>
</tr>
<tr>
<td>C</td>
<td>CD-R</td>
<td>One type of DVD standard disc, to which writing once is possible (recordable type)</td>
</tr>
<tr>
<td></td>
<td>CD-RW</td>
<td>One type of CD standard disc, to which writing up to 1000 times is possible</td>
</tr>
<tr>
<td></td>
<td>Component video</td>
<td>Used for outputs of HDTV video signal format. Since signals for brightness and colors are independently handled for components signals (Y: luminance signal; PR/PB: chrominance signals), degrading of image will be reduced.</td>
</tr>
<tr>
<td></td>
<td>output terminals</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Dolby AC3</td>
<td>Audio coding format developed by Dolby Laboratories in U.S, also simply referred to as AC3 format: Supports 5-channel full-range sound and one channel for sub-woofer sound playback.</td>
</tr>
<tr>
<td></td>
<td>D terminal</td>
<td>This terminal, specified by EIAJ (currently JEITA), can automatically switch &quot;digital hi-vision&quot; programs of BS digital broadcast, and &quot;digital standard broadcast&quot; of current image quality. A tuner and TV can easily be connected to the D terminal. There are 5 types of D terminal, depending on the different format of video signal passing thorough the D terminal.</td>
</tr>
<tr>
<td>L</td>
<td>Linear PCM</td>
<td>Linear Pulse Code Modulation: LPCM is a format that digitizes analog audio signal during recording and converts it back to analog signal during playback.</td>
</tr>
<tr>
<td>M</td>
<td>MPEG</td>
<td>Moving Picture Experts Group: Standard related to compression of digital video and audio. MPEG2 is a higher standard of MPEG and is applied to video (movie) requiring higher quality.</td>
</tr>
<tr>
<td></td>
<td>MPEG Audio Layer 2</td>
<td>One of three audio compression standards (layers 1-3) defined by MPEG</td>
</tr>
<tr>
<td></td>
<td>MP3</td>
<td>MPEG1 Audio Layer-3: Audio data digital compression technology.</td>
</tr>
<tr>
<td>P</td>
<td>Progressive playback</td>
<td>This function converts interlaced images to non-interlaced images and displays them. It can play back 24-frame/second images included in DVD movie software, etc.</td>
</tr>
<tr>
<td>S</td>
<td>SDMI</td>
<td>Secure Digital Music Initiative: This conference was established by hardware makers, the Recording Industry Association of America (RIAA) and music industry companies, to protect copyrights of musical compositions.</td>
</tr>
<tr>
<td>V</td>
<td>Virtual surround</td>
<td>This technology localizes sound at any position using only two front speakers, by subjecting the L and R signals to matrix operation. It uses the four transfer functions from L/R speakers located at specified positions to both ears of listener located in a specified position, taking into account the shape of head and the effect of earlobes, and the two transfer functions from any position to both ears.</td>
</tr>
</tbody>
</table>

2-5
1. **POWER/STANDBY**
   - Switch the player to ON or OFF
   - (As to the indication of the Operate switch, “I” indicates ON and “o” indicates electrical power STANDBY)
2. **SKIP/FR**
   - Go to previous chapter or track during playback; press and hold for 1.5 seconds for a reverse search
3. **PLAY**
   - Start or resume disc playback
4. **FF/SKIP**
   - Go to next chapter or track during playback; press and hold for 1.5 seconds for a forward search
5. **STOP**
   - Stop playback
6. **OPEN/CLOSE**
   - Open/close the disc tray
7. **Disc tray**
8. **Display**
9. **MAIN (AC Power Cord)**
   - Connect to a standard AC outlet
10. **COAXIAL (Digital audio out)**
    - Connect to the AUDIO inputs of a digital (coaxial) audio equipment
11. **AUDIO OUT (Left/Right)**
    - Connect to the AUDIO inputs of an amplifier, receiver or stereo system
12. **VIDEO OUT**
    - Connect to the Video Input of a TV.
13. **COMPONENT VIDEO OUT**
    - Connect to a TV with the Component video in jacks.
14. **S-VIDEO OUT**
    - Connect to a TV with the S-Video inputs

Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the player.
1. **DISPLAY**
   Press to access or remove the display screen during DVD or Audio CD playback.

2. **I/POWER/STANDBY**
   Press to turn the power on and off.
   (As to the indication of the Operate switch, "I" shows ON and "O" shows electrical power stand-by.)

3. **AUDIO**
   Press to select a desired audio language or sound mode.

4. **SUBTITLE**
   Press to select the desired subtitle language.

5. **ANGLE**
   Press to change the camera angle to see the sequence being played back from a different angle.

6. **CLEAR**
   Press to reset the setting.

7. **REPEAT**
   Repeats playback of the current disc, title, chapter or track.

8. **PAUSE/STEP**
   Press to pause Disc playback. Press repeatedly to advance the DVD picture step by step or one frame at a time.

9. **DISC NAVIGATION**
   Press to display the first scenes of each chapter of the title being played.

10. **PLAY**
    Press to begin playback.

11. **REW**
    Press to view the DVD picture in fast reverse motion or to reverse playback of an Audio CD.

12. **TOP MENU**
    Press to call up the title menu.

13. **SETUP**
    Press to enter the setup mode.

14. **MODE**
    Activates program playback or random playback mode when playing CDs or MP3. Sets Black level and virtual surround.

15. **ZOOM**
    Enlarges part of a DVD-reproduced image.

16. **SEARCH MODE**
    Press to access or remove the Search display, which allows you to go directly to a specific Title/Chapter/Track/Time.

17. **OPEN/CLOSE**
    Press to open or close the disc loading tray.

18. **Numerical Buttons**
    Press to directly select a Track (Audio CD or MP3) for playback.

19. **SKIP**
    Press to skip Chapters or Tracks.

20. **FF**
    Press to fast forward the Disc. Press PAUSE/STEP, then press this button to begin slow motion playback. Press this button repeatedly to change the forward speed of slow motion.

21. **STOP**
    Press to stop the disc motion.

22. **MENU**
    Press to display the menu of the Disc.

23. **Arrow Buttons (↑↓←→)**
    Move the cursor and determines its position.

24. **ENTER**
    Press to accept a setting.

25. **RETURN**
    Returns to the previous operation.
3-1 TROUBLESHOOTING

Troubleshooting is how to service for the specifying malfunction or poor parts. Detect malfunction or poor parts and service as the following charts.

FLOW CHART NO.1

The power cannot be turned on.

Is the fuse normal?

Yes

No

See FLOW CHART No.2 <The fuse blows out.>

Is normal state restored when once unplugged power cord is plugged again after several seconds?

Yes

No

Check if there is any leak or short-circuiting on the primary circuit component, and service it if defective. (Q1003, Q1031, T1001, D1001, D1002, D1004, D1005, D1011, C1003, C1005)

Is the EV +3.3V line voltage normal?

Yes

No

Check each rectifying circuit of the secondary circuit and service it if defective.

FLOW CHART NO.2

The fuse blows out.

Check the presence that the primary component is leaking or shorted and service it if defective.

Check the presence that the rectifying diode or circuit is shorted in each rectifying circuit of secondary side, and service it if defective.

After servicing, replace the fuse.

FLOW CHART NO.3

When the output voltage fluctuates.

Does the photo coupler circuit on the secondary side operate normally?

Yes

No

Check IC1001, IC1006, D1048 and their periphery, and service it if defective.

Check IC1001, D1012, D1024 and their periphery, and service it if defective.

FLOW CHART NO.4

When buzz sound can be heard in the vicinity of power circuit.

Check if there is any short-circuit on the rectifying diode and the circuit in each rectifying circuit of the secondary side, and service it if defective. (D1003, D1006, D1008, D1016, D1030, IC1002, Q1002, Q1004, Q1005, Q1011)

FLOW CHART NO.5

-FL is not outputted.

Is approximately -23V voltage supplied to the anode of D1003?

Yes

No

Check if there is any leak or short-circuit on the loaded circuit, and service it if defective.

Check D1003 and periphery circuit, and service it if defective.
FLOW CHART NO.6
P-ON+10V (EV+11V) is not outputted.

Is 11V voltage supplied to the emitter of Q1002? No

Yes

Is the voltage of base on Q1002 lower than the voltage of emitter on Q1002 when turning the power on? No

Check D1030, D1048, C1035, C1048, L1009 and the periphery circuit, and service it if defective.

Yes

Replace Q1002.

FLOW CHART NO.7
P-ON+5V is not outputted. (EV+11V is outputted normally.)

Is the "H" signal inputted into the base of Q1004? No

Yes

Check R1068 and D1046, and service it if defective.

Replace Q1004.

FLOW CHART NO.8
P-ON+3.3V is not outputted. (P-ON+10V is outputted normally.)

Is 3.3V voltage supplied to the collector of Q1011? No

Yes

Check D1008, C1007, C1038, L1007 and the periphery circuit, and service it if defective.

Replace Q1011 or R1067.

FLOW CHART NO.9
EV+5V is not outputted.

Is EV+11V outputted normally? No

Yes

Check D1047 and the periphery circuit, and service it if defective.

Refer to "FLOW CHART NO.6"

<P-ON+10V (EV+11V) is not outputted.>

FLOW CHART NO.10
EV+1.2V is not outputted.

Is 2.5V voltage supplied to Pin(1) of IC1002? No

Yes

Check D1006, C1014, C1050, L1008 and the periphery circuit, and service it if defective.

Replace IC1002.
FLOW CHART NO.11
The fluorescent display tube does not light up.

Is 3.3V voltage supplied to Pins(6,24) of IC2001?

- Yes, check the EV+3.3V line and service it if defective.
- No, check the line between Pin(1) terminal of receiver (RM2001) and Pin(22) of CN1001, and service it if defective.

Is the voltage of approximately -20V supplied to Pin(15) of IC2001?

- Yes, check the -FL (-20V) line and service it if defective.
- No, check PWRCON line, and service it if defective.

Is there 500kHz oscillation at Pin(26) of IC2001?

- Yes, replace the fluorescent display tube.
- No, check the line between Pin(1) terminal of receiver (RM2001) and Pin(22) of CN1001, and service it if defective.

Are the filament voltage supplied between Pins(1, 2) and Pins(29, 30) of the fluorescent display tube? And the negative voltage applied between these pins and GND?

- No, replace the fluorescent display tube.

FLOW CHART NO.12
The key operation is not functioning.

Are the contact point and the installation state of the key switches (SW2101, SW2104-2108) normal?

- No, re-install the switches (SW2101, SW2104-2108) correctly or replace the poor switch.
- Yes, check the switches (SW2101, SW2104-2108) and their periphery, and service it if defective.

When pressing each switches (SW2101-2108), do the voltage of each pin of IC2001 (shown below) increase?

SW2104, 2106, 2107: IC2001 3PIN
SW2101, 2105, 2108: IC2001 4PIN

- No, check the switches (SW2101, SW2104-2108) and their periphery, and service it if defective.

FLOW CHART NO.13
No operation is possible from the remote control unit.

Operation is possible from the DVD, but no operation is possible from the remote control unit.

Is 5V voltage supplied to Pin(3) terminal of the infrared remote control receiver (RM2001)?

- Yes, check EV+5V line and service it if defective.
- No, replace the infrared remote control receiver (RM2001) or replace the remote control unit.

Is the "L" pulse sent out Pin(1) terminal of receiver (RM2001) when the infrared remote control is activated?

- Yes, replace the infrared remote control receiver (RM2001) or replace the remote control unit.
- No, check the line between Pin(1) terminal of receiver (RM2001) and Pin(22) of CN1001, and service it if defective.

Is the "L" pulse supplied to the Pin(22) of CN1001?

- Yes, replace DVD Main CBA.
- No, check the line between Pin(1) terminal of receiver (RM2001) and Pin(22) of CN1001, and service it if defective.
FLOW CHART NO.14
The disc tray cannot be opened and closed. (It can be done using the remote control unit.)

Is the normal control voltage inputted to Pin(4) of IC2001? Refer to "FLOW CHART NO.12" <The key operation is not functioning.>

Yes

Replace the DVD Main CBA.

No improvement can be found. No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

FLOW CHART NO.15
The disc tray cannot be opened and closed.

Replace the DVD Main CBA.

No improvement can be found. No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

FLOW CHART NO.16
[No Disc] indicated. (When the focus error occurs.)

Replace the DVD Main CBA.

No improvement can be found. No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

FLOW CHART NO.17
[No Disc] indicated. (When the focus servo is not functioning.)

Replace the DVD Main CBA.

No improvement can be found. No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.

FLOW CHART NO.18
[No Disc] indicated. (When the laser beam does not light up.)

Replace the DVD Main CBA.

No improvement can be found. No

Original DVD Main CBA is poor.

Yes

Replace the DVD Mecha.
FLOW CHART NO.19
Both functions of picture and sound do not operate normally.
Replace the DVD Main CBA.
No improvement can be found. Yes
Original DVD Main CBA is poor.
Replace the DVD Mecha.

FLOW CHART NO.20
Picture does not appear normally.
Set the disc on the disc tray, and playback.

Are the video signals outputted to each pin of CN1601 on the AV CBA?
CN1601 3PIN S-Y
CN1601 4PIN Cr/Pr
CN1601 6PIN Cb/Pb
CN1601 8PIN Y
CN1601 10PIN S-C
Yes
Are the video signals shown above inputted into each pin of IC1402, IC1403?
IC1402 3PIN Y
IC1402 6PIN Cb/Pb
IC1402 8PIN Cr/Pr
IC1403 3PIN S-Y
IC1403 1PIN S-C
No
Check the line between each pin of CN1601 and each pin of IC1402, IC1403 on the AV CBA, and service it if detective.
CN1601 8PIN → IC1402 3PIN Y
CN1601 6PIN → IC1402 6PIN Cb/Pb
CN1601 4PIN → IC1402 8PIN Cr/Pr
CN1601 3PIN → IC1403 3PIN S-Y
CN1601 10PIN → IC1403 1PIN S-C
Yes
Are the video signals outputted to each pin of IC1402, IC1403?
IC1402 13PIN Y
IC1402 11PIN Cb/Pb
IC1402 10PIN Cr/Pr
IC1403 6PIN CVBS
IC1403 5PIN S-Y
IC1403 7PIN S-C
No
Is 5V voltage applied to the pin(4, 12) of IC1402, pin(4) of IC1403?
No
Replace IC1402, IC1403.
Yes
Check P-ON+5V line and service it if detective.

Are the video signals outputted to the specific output terminal?
Are the luminance signals outputted to the S-OUT terminal (JK1401)?
No
Are the chroma signals outputted to the S-OUT terminal (JK1401)?
No
Are the Y, Cb/Pb, Cr/Pr signals outputted to the COMPONENT OUT terminal (JK1404)?
No
Are the composite video signals outputted to the VIDEO OUT terminal (JK1404)?
No
Check the periphery of JK1401 from Pin(5) of IC1403 and service it if detective.
No
Check the periphery of JK1401 from Pin(7) of IC1403 and service it if detective.
No
Check the periphery of JK1404 from Pins(10, 11, 13) of IC1402 and service it if detective.
No
Check the periphery of JK1404 from Pin(6) of IC1403 and service it if detective.
Audio is not outputted normally.

Set the disc on the disc tray, and playback.

Are the analog audio signals outputted to each pin of CN1601 on AV CBA?
- CN1601 14PIN AUDIO-L
- CN1601 16PIN AUDIO-R

Are the analog audio signals inputted to each pin of IC1201?
- IC1201 2PIN AUDIO-L
- IC1201 6PIN AUDIO-R

Is the "H" level mute signal outputted to CN1601 on AV CBA?
- CN1601 13PIN A-MUTE
- CN1601 15PIN A-R-MUTE

Are the analog audio signals outputted to each pin of IC1201?
- IC1201 1PIN AUDIO-L
- IC1201 7PIN AUDIO-R

Are the audio signals outputted to the specific output terminal?
Are the audio signals outputted to the audio terminal (JK1404)?

Replace the DVD Main CBA or DVD Mecha.

Replace the DVD Main CBA or DVD Mecha.

Replace IC1201.

Check the periphery between Pins(1,7) of IC1201 and JK1404, and service it if detective.
3-2 FIRMWARE RENEWAL MODE

3-2-1 How to Update the Firmware Version

Note:
If the firmware has been changed, etc., we will use Service News, etc. to report on how to obtain new firmware data and create an upgraded disc.

1. Turn the power on and remove the disc on the tray.
2. To put the DVD player into version up mode, press [9], [8], [7], [6], and [SEARCH MODE] buttons on the remote control unit in that order. The tray will open automatically.
   Fig. a appears on the screen and Fig. b appears on the VFD.

3. Load the disc for version up.
4. The DVD player enters the F/W version up mode automatically. Fig. c appears on the screen and Fig. d appears on the VFD. If you enter the F/W for different models, “Disc Error” will appear on the screen, then the tray will open automatically.

5. After programming is finished, the tray opens automatically. Fig. e appears on the screen and the checksum in (*2) of Fig. e appears on the VFD. (Fig. f)

The appearance shown in (*1) of Fig. c is described as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Appearance</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reading...</td>
<td>Sending files into the memory</td>
</tr>
<tr>
<td>2</td>
<td>Erasing...</td>
<td>Erasing previous version data</td>
</tr>
<tr>
<td>3</td>
<td>Programming...</td>
<td>Writing new version data</td>
</tr>
</tbody>
</table>

6. Remove the disc on the tray.
7. Unplug the AC cord from the AC outlet. Then plug it again.
8. Turn the power on by pressing the [ ] button and the tray will close.
9. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
Fig. g appears on the screen.

"*******" differ depending on the models.

Fig. a Version Up Mode Screen

Fig. b VFD in Version Up Mode

The DVD player can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.

3. Load the disc for version up.
4. The DVD player enters the F/W version up mode automatically. Fig. c appears on the screen and Fig. d appears on the VFD. If you enter the F/W for different models, “Disc Error” will appear on the screen, then the tray will open automatically.

"*******" differ depending on the models.

Fig. c Programming Mode Screen

Fig. d VFD in Programming Mode (Example)
   Fig. h appears on the screen.

   “******” differ depending on the models.

   MODEL : *******  
   Version : *.*  
   Region : *  
   EEPROM CLEAR : OK

   EEPROM CLEAR : CLEAR  EXIT: POWER

   Fig. h

   When “OK” appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.

11. To exit this mode, press [O/I] button.

3-2-2 How to Verify the Firmware Version

1. After making sure that no disc is in unit, turn the power on.

2. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order. The Firmware version appears on the VFD and TV screen.

3. Turn the power off to reset the unit.
4-1 CABINET DISASSEMBLY INSTRUCTIONS

4-1-1 Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.

4-1-2 Disassembly Method

About tightening screws

When tightening screws, tighten them with the following torque.

<table>
<thead>
<tr>
<th>Screws</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>(S-1), (S-2), (S-3A), (S-4), (S-5), (S-6)</td>
<td>0.45 ± 0.05 N·m</td>
</tr>
<tr>
<td>(S-3B)</td>
<td>0.38 ± 0.04 N·m</td>
</tr>
</tbody>
</table>

Reference Notes

CAUTION 1: Locking Tabs (L-1), (L-2) and (L-3) are fragile. Be careful not to break them.

1-1. Release four Locking Tabs (L-1). Then, release three Locking Tabs (L-2).

1-2. Release three Locking Tabs (L-3). Then remove the Front Assembly.

CAUTION 2: Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.

To avoid damage of pickup follow next procedures.

2-1. Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)

2-2. Disconnect Connectors (CN301), (CN401) and (CN601). Remove two Screws (S-3A) and (S-3B) and lift the DVD Main CBA Unit. (Fig. D4)

CAUTION 3: When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)
Short the three short lands by soldering. (Either of two places.)

Connectors View for A

Fig. D2

Fig. D3

Fig. D4
HOW TO EJECT MANUALLY (Method 1)

1. Remove the Top Case.
2. Remove the Reinforce Plate.
3. Rotate the roulette in the direction of the arrow as shown below.
HOW TO EJECT MANUALLY (Method 2)

1. Turn the unit over.
2. Insert the shaft less than a diameter of 3 mm (e.g. screwdriver) straightly into the opening as shown.
3. Turn the shaft along with the opening clockwise.
4. Repeat steps 2 and 3 until the tray will open.
5. Pull the tray slowly with a hand.

View for B

Turn the shaft along with the opening clockwise.

Shaft (e.g. screwdriver)
Opening
Note: Components without any numbers in exploded views had not been assigned as service parts as of the date of issue of this manual.
## 5-2 REPLACEMENT PARTS LIST

### 5-2-1 Mechanical Parts List

*Note: Products marked with a ▲ have special characteristics important to safety.*

<table>
<thead>
<tr>
<th>SYMBOL-NO</th>
<th>P-NO</th>
<th>DESCRIPTION</th>
<th>SYMBOL-NO</th>
<th>P-NO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECHANISM SECTION</td>
<td>ACCESSORIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1X</td>
<td>TJ17571</td>
<td>PANEL, FRONT</td>
<td>X1</td>
<td>TS18851</td>
<td>REMOTE HAND SET</td>
</tr>
<tr>
<td>A13</td>
<td>TJ16981</td>
<td>FOOT, REAR</td>
<td>X5</td>
<td>TJ15699</td>
<td>CORD, AV</td>
</tr>
<tr>
<td>A16</td>
<td>TJ17572</td>
<td>CASE, TOP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▲ AC1001</td>
<td>TE15463</td>
<td>CORD, AC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1B1</td>
<td>TJ17573</td>
<td>DVD DRIVE MECHA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2B1</td>
<td>TJ17579</td>
<td>HOLDER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2B5</td>
<td>TJ17574</td>
<td>PLATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>001</td>
<td>TJ17577</td>
<td>PWB ASSY DVD MAIN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 5-2-2 Electrical Parts List

**Note:** Although some parts in the schematic diagrams have different names from those in the parts list, there is no problem in replacing parts.

<table>
<thead>
<tr>
<th>SYMBOL-NO</th>
<th>P-NO</th>
<th>DESCRIPTION</th>
<th>SYMBOL-NO</th>
<th>P-NO</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEMI-CONDUCTORS</strong></td>
<td></td>
<td></td>
<td>Q1352</td>
<td>TC10778</td>
<td>TRANSISTOR KTC3199</td>
</tr>
<tr>
<td>D1001</td>
<td>TC10752</td>
<td>DIODE 1A5</td>
<td>T1001</td>
<td>TJ17594</td>
<td>TRANS.PULS</td>
</tr>
<tr>
<td>D1002</td>
<td>TC10752</td>
<td>DIODE 1A5</td>
<td>L1001</td>
<td>TJ15243</td>
<td>FILTER,LINE</td>
</tr>
<tr>
<td>D1003</td>
<td>TC10791</td>
<td>RECTIFIER DIODE BA157</td>
<td>L1011</td>
<td>TA12554</td>
<td>CORE</td>
</tr>
<tr>
<td>D1004</td>
<td>TC10752</td>
<td>DIODE 1A5</td>
<td>L1350</td>
<td>TA12561</td>
<td>COIL 100UH</td>
</tr>
<tr>
<td>D1005</td>
<td>TC10752</td>
<td>DIODE 1A5</td>
<td>L1351</td>
<td>TA14481</td>
<td>COIL</td>
</tr>
<tr>
<td>D1006</td>
<td>TC10877</td>
<td>DIODE SB140</td>
<td>L1521</td>
<td>TA14471</td>
<td>COIL</td>
</tr>
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Tray Close ~ Play / Play ~ Tray Open
### 6-2 IC PIN FUNCTION DESCRIPTIONS

**IC2001 [ FIP DRIVER ]**

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<th>IN/OUT</th>
<th>Signal Name</th>
<th>Name Function</th>
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<td>IN</td>
<td>FP-STB</td>
<td>Serial Interface Strobe</td>
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<td>3</td>
<td>IN</td>
<td>K1</td>
<td>Key Data 1 Input</td>
</tr>
<tr>
<td>4</td>
<td>IN</td>
<td>K2</td>
<td>Key Data 2 Input</td>
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<td>5</td>
<td>-</td>
<td>VSS</td>
<td>GND</td>
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<tr>
<td>6</td>
<td>-</td>
<td>VDD</td>
<td>Power Supply</td>
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<td>OUT</td>
<td>a / KEY-1</td>
<td>Segment Output / Key Source-1</td>
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<td>8</td>
<td>OUT</td>
<td>b / Key-2</td>
<td>Segment Output / Key Source-2</td>
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<td>OUT</td>
<td>c / Key-3</td>
<td>Segment Output / Key Source-3</td>
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<td>OUT</td>
<td>d / Key-4</td>
<td>Segment Output / Key Source-4</td>
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<td>OUT</td>
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<td>IN</td>
<td>FP-DIN</td>
<td>Serial Data Input</td>
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6-3 LEAD IDENTIFICATIONS

Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
G: Gate
D: Drain
S: Source
WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "\( \triangle \)" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Capacitor Temperature Markings

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<th>Mark</th>
<th>Capacity change rate</th>
<th>Standard temperature</th>
<th>Temperature range</th>
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<td>(B)</td>
<td>±10%</td>
<td>20°C</td>
<td>-25~+85°C</td>
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<tr>
<td>(F)</td>
<td>+30 - 80%</td>
<td>20°C</td>
<td>-25~+85°C</td>
</tr>
<tr>
<td>(SR)</td>
<td>±15%</td>
<td>20°C</td>
<td>-25~+85°C</td>
</tr>
<tr>
<td>(Z)</td>
<td>+30 - 80%</td>
<td>20°C</td>
<td>-10~+70°C</td>
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</table>

Capacitors and transistors are represented by the following symbols.

Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

### [ Resistors ]

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<th>Indication</th>
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<td>Value</td>
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</tr>
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</table>

| Power capacitance | No indication..............1/4W,1/6W All capacitances other than the above are indicated in schematic diagrams. |

### [ Capacitors ]

<table>
<thead>
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<th>Indication</th>
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</table>

| Dielectric strength| No indication..............50V All dielectric strengths other than 50V are indicated in schematic diagrams. |

### [ Coils ]

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S-1
LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:
   For continued protection against fire hazard, replace only with the same type fuse.
   ATTENTION: Pour une protection continue les risques d'Incele n'utiliser que des fusible de même type.
   Risk of fire-replace fuse as marked.

2. CAUTION:
   Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
   If Main Fuse (F1001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:
   (1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
   (2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Voltage indications for PLAY and STOP mode on the schematics are as shown below:

   (Unit: Volt)
   - PLAY mode: 1-D3
   - STOP mode: 1-B1

   The same voltage for both PLAY & STOP modes
   Indicates that the voltage is not consistent here.

5. How to read converged lines

   1-D3 Distinction Area
   Line Number (1 to 3 digits)

   Examples:
   1. "1-D3" means that line number "1" goes to area "D3".
   2. "1-B1" means that line number "1" goes to area "B1".

6. Test Point Information

   - Indicates a test point with a jumper wire across a hole in the PCB.
   - Used to indicate a test point with a component lead on foil side.
   - Used to indicate a test point with no test pin.
   - Used to indicate a test point with a test pin.
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<th>STOP</th>
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- Voltage is not consistent
----- : Not used
Unit : Volts
CAUTION!
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION!
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION: Pour une protection continue les risques d’incendie n’utiliser que des fusible de même type.
Risk of fire — replace fuse as marked.

“This symbol means fast operating fuse.”

“Ce symbole représente un fusible à fusion rapide.”
S-7 AV 2/3 Schematic Diagram
S-9 Waveforms

**WF1** Pin 8 of CN1601

**WF2** Pin 10 of CN1601

**WF3** C1402 PLUS LEAD

**WF4** Pin 14 of CN1601

**WF5** Pin 16 of CN1601

**WF6** Pin 19 of CN1601

**NOTE:**

Input
CD: 1kHz PLAY (WF4~WF6)
DVD: POWER ON (STOP) MODE (WF1~WF3)
C CIRCUIT BOARD DIAGRAMS
C-1 AV CBA Top View

CAUTION !
Fixed voltage ( or Auto voltage selectable ) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, check to see that all components in the power supply
circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION 1
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risques
d’incendie n’utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
“Ce symbole représente un fusible à fuson rapide.”

"This symbol means fast operating fuse."
CAUTION!
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION!
For continued protection against fire hazard, replace only with the same type fuse.

ATTENTION: Pour une protection continue les risques d'Incele n'utiliser que des fusible de même type.

Risk of fire—replace fuse as marked.

“This symbol means fast operating fuse.”

“Ce symbole représente un fusible à fusion rapide.”

NOTE:
For continued protection against fire hazard, replace only with the same type fuse.
C-3 Function CBA Top/Bottom View

FUNCTION CBA Top View

FUNCTION CBA Bottom View
CAUTION!

For continued protection against fire hazard, replace only with the same type fuse. ATTENTION : Pour une protection continue les risques n'utiliser que des fusible de même type.

Risk of fire replace fuse as marked. "This symbol means fast operating fuse."