DVP-NS999ES
RMT-D150A/D150P

SERVICE MANUAL

Self Diagnosis Supported model

US Model
Canadian Model
AEP Model
UK Model
Korean model

Photo: Gold type

SPECIFICATIONS

System
Laser: Semiconductor laser
Signal format system:
NTSC: US, CND
PAL/(NTSC): AEP, UK, KR

Audio characteristics
Frequency response: DVD VIDEO (PCM 96 kHz): 2 Hz to 44 kHz (44 kHz: –2 dB ±1 dB), Super Audio CD: 2 Hz to 100 kHz (50 kHz: –3 dB ±1 dB), CD: 2 Hz to 20 kHz (±0.5 dB)
Harmonic distortion: DVD VIDEO/Super Audio CD: 0.0012 %, CD: 0.0016 %
Dynamic range: DVD VIDEO/Super Audio CD: 103 dB, CD: 99 dB
Wow and flutter: Less than detected value (±0.001% W PEAK)

Outputs
(**Jack name:** Jack type/Output level/Load impedance)
AUDIO OUT 1/2: Phono jack/2 Vrms/ 10 kilohms
DIGITAL OUT (OPTICAL): Optical output jack/–18 dBm (wave length: 660 nm)
DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms
5.1CH OUTPUT: Phono jack/2 Vrms/ 10 kilohms

COMPONENT VIDEO OUT(Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p/75 ohms
* BLACK LEVEL is ON
** BLACK LEVEL is OFF
VIDEO OUT 1/2: Phono jack/1.0 Vp-p/ 75 ohms
S VIDEO OUT 1/2: 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p/75 ohms

General
Power requirements:
120 V AC, 60 Hz (US, CND)
220 V – 240 V AC, 50/60 Hz (AEP, UK, KR)
Power consumption:
20 W (US, CND)
23 W (AEP, UK, KR)
Dimensions (approx.):
430 × 113 × 349 mm (17 × 4 ^{1}/$_2$ × 13 ^{3}/$_4$ in.) (width/height/depth) incl. projecting parts
Mass (approx.): 6.4 kg (14 lb 2 oz)
Operating temperature: 5 °C to 35 °C (41 °F to 95 °F)
Operating humidity: 25 % to 80 %

Supplied accessories
Check that you have the following items:
• Audio/video cord (pinplug × 3 ←→ pinplug × 3) (1)
• Power cord (1)
• Remote commander (remote) (1)
• Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

• Abbreviation
CND : Canadian
KR : Korea

CD/DVD PLAYER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following
safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.

3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

6. Check the B+ voltage to see it is at the values specified.

7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Fig. A.   Using an AC voltmeter to check AC leakage.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

This label is located on the side of the player.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

⚑ : LEAD FREE MARK

Unleaded solder has the following characteristics.

• Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!

• Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.

• Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

TABLE OF CONTENTS

SERVICE NOTE

1. DISASSEMBLY

• This set can be disassembled in the order shown below.

```
                          ┌──────────────┐
                          │     Set      │
                          └──────┬───────┘
                                 │
                          ┌──────┴───────┐
                          │  Top Case    │
                          │ (Page 2-1)   │
                          └──────┬───────┘
                                 │
   ┌──────────┬──────────┬───────┼──────────┬──────────┬──────────┐
   │          │          │       │          │          │          │
┌──────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐
│Front     │ │Power    │ │Mechanism│ │IF-98    │ │Power    │ │AU-232   │ │MB-107   │
│Panel     │ │Block    │ │Deck     │ │Board    │ │Trans-   │ │Board    │ │Board    │
│Block     │ │(Page    │ │(Page    │ │(Page    │ │former   │ │(Page    │ │(Page    │
│Assembly  │ │2-1)     │ │2-2)     │ │2-2)     │ │(Page    │ │2-2)     │ │2-3)     │
│(Page 2-1)│ └─────────┘ └────┬────┘ └─────────┘ │2-2)     │ └────┬────┘ └────┬────┘
└────┬─────┘                  │                  └─────────┘      │           │
     │                   ┌────┴────┐                              │           │
┌─────────┐         ┌─────────┐ ┌─────────┐                  ┌─────────┐ ┌─────────┐
│FL-29    │         │CK-119   │ │Loading  │                  │EV-15    │ │VP-58    │
│Board    │         │Board    │ │Assembly │                  │Board    │ │Board    │
│(Page    │         │(Page    │ │(Page    │                  │(Page    │ │(Page    │
│2-1)     │         │2-3)     │ │2-4)     │                  │2-3)     │ │2-3)     │
└─────────┘         └─────────┘ └────┬────┘                  └─────────┘ └─────────┘
                                     │
                               ┌─────────┐
                               │Optical  │
                               │Pick-up  │
                               │(Page    │
                               │2-4)     │
                               └─────────┘
```
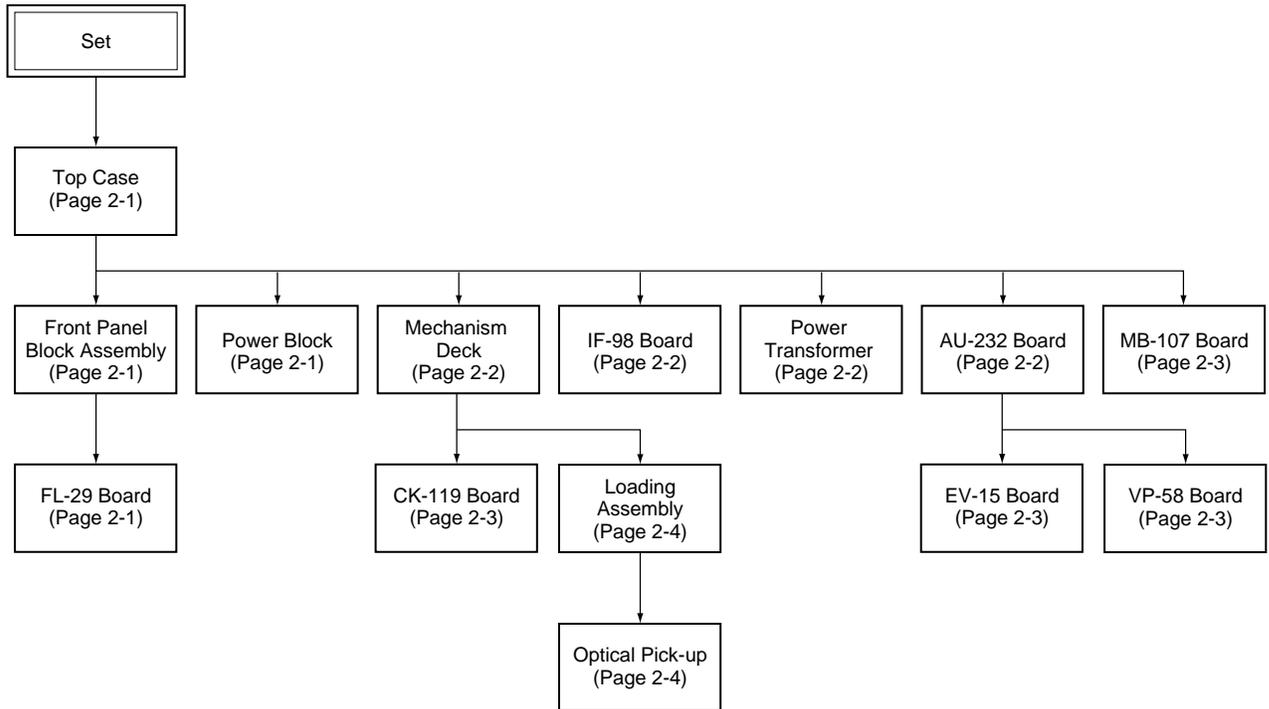
This section is extracted from instruction manual (3-077-160-11).

Precautions

On safety

- Caution – The use of optical instruments with this product will increase eye hazard.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.
- Should any solid object or liquid fall into the cabinet, unplug the player and have it checked by qualified personnel before operating it any further.

On power sources

- The player is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use the player for a long time, be sure to disconnect the player from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.
- Should the AC power cord need to be changed, have it done at a qualified service shop only.

On placement

- Place the player in a location with adequate ventilation to prevent heat build-up in the player.
- Do not place the player on a soft surface such as a rug that might block the ventilation holes.
- Do not place the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.

On operation

- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the player. Should this occur, the player may not operate properly. In this case, remove the disc and leave the player turned on for about half an hour until the moisture evaporates.
- When you move the player, take out any discs. If you don't, the disc may be damaged.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

IMPORTANT NOTICE

Caution: This player is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Projection televisions are especially susceptible to this.

If you have any questions or problems concerning your player, please consult your nearest Sony dealer.

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Example of discs that the player cannot play

The player cannot play the following discs:
- All CD-ROMs (including PHOTO CDs)/ CD-Rs/CD-RWs other than those recorded in the following formats:
  - music CD format
  - video CD format
  - MP3 format that conforms to ISO9660* Level 1/Level 2, or its extended format, Joliet
- Data part of CD-Extras
- DVD-ROMs
- DVD Audios
* A logical format of files and folders on CD-ROMs defined by ISO (International Standards Organization).

Also, the player cannot play the following discs:
- A DVD VIDEO with a different region code.
- A disc recorded in a color system other than NTSC, such as PAL or SECAM (this player conforms to the NTSC color system).
- A disc that has a non-standard shape (e.g., card, heart).
- A disc with paper or stickers on it.
- A disc that has the adhesive of cellophane tape or a sticker still left on it.

Note

Some DVD-Rs, DVD-RWs, CD-Rs, or CD-RWs cannot be played on this player due to the recording quality or physical condition of the disc, or the characteristics of the recording device.
The disc will not play if it has not been correctly finalized. Also, images in DVD-RWs with CPRM* protection may not be played if they contain a copy protection signal. "Copyright lock" appears on the screen. For more information, see the operating instructions for the recording device. Note that discs created in the Packet Write format cannot be played.
* CPRM (Content Protection for Recordable Media) is a coding technology that protects the copyright of images.

Note on playback operations of DVDs and VIDEO CDs

Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

Copyrights

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes about the Discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface.

- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
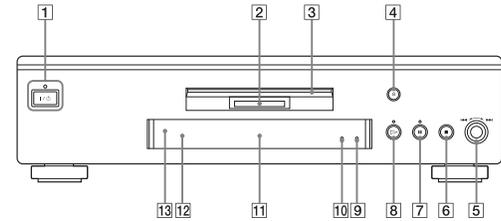
7   8

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Index to Parts and Controls

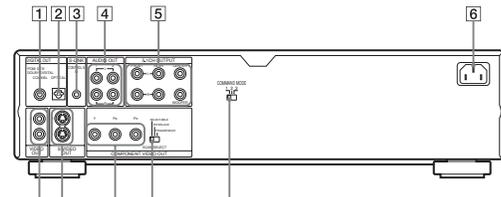For more information, refer to the pages indicated in parentheses.

Front panel

A I/⏻ (on/standby) button/indicator (35)
Lights up in green when the power is on and lights up in red when the player is in standby mode.
B MULTI CHANNEL indicator
Lights up when:
— playing a disc that contains three or more audio signal channels.
— no disc is inserted.
C Disc tray (35)
D ⏏ (open/close) button (35)
E ⏮/⏭ (previous/next) dial (36)

F ■ (stop) button (36)
G ‖ (pause) button (36)
H ▷ (play) button (35)
I FL OFF indicator (10)
J VIDEO OFF indicator (35)
K Front panel display (10)
L SUPER AUDIO CD indicator
Lights up when:
— playing an HD (High Density) layer of Super Audio CDs.
— no disc is inserted.
M ▨ (remote sensor) (17)

Front panel display

When playing back a DVD VIDEO/DVD-RW

Current audio signal (58)

Disc type Playing status Lights up when the player outputs progressive signals (78)

Current audio signal (58) Current play mode (45) Current title and chapter (54) Lights up when you can change the angle (60) Playing time (54)

When playing back a VIDEO CD with Playback Control (PBC) (42)

Disc type Playing status Lights up when the player outputs progressive signals (78)

Current play mode (45) Current scene (54) Playing time (54)

When playing back a CD, Super Audio CD, DATA CD (MP3 audio), or VIDEO CD (without PBC)

Lights up when the player outputs progressive signals (78)
Disc type* Playing status Lights up when playing the multi-channel playback area on Super Audio CDs

Lights up when playing MP3 audio tracks (43) Current play mode (45) Current track and index (54) Playing time (54)
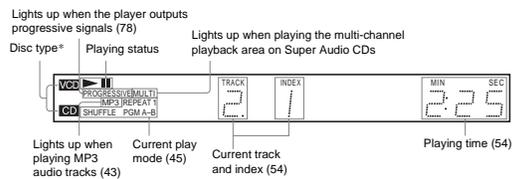
* When playing the HD layer of Super Audio CDs, the disc type is not displayed.

When the front panel display turns off, the FL OFF indicator lights up on the player.

To turn off the front panel display
Toggle the scroll key up or down to display "FL ON/OFF" in the LCD screen. Then point the remote to the player and press down on the scroll key so that 🖥 appears in the LCD screen.

💡 **Hint**
You can adjust the lighting of the front panel display by setting "DIMMER" in "CUSTOM SETUP" (page 79).
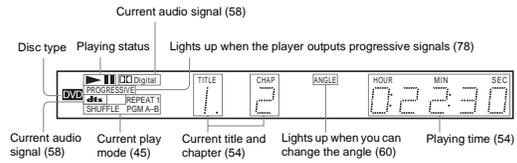
10

Rear panel

A DIGITAL OUT (COAXIAL) jack (27) (28) (29)
B DIGITAL OUT (OPTICAL) jack (27) (28) (29)
C S-LINK/CONTROL S IN jack (21)
D AUDIO OUT L/R 1/2 jacks (26) (27) (28)
E 5.1CH OUTPUT jacks (29)
F AC IN terminal (17)

G COMMAND MODE switch (1, 2, 3) (17)
H COMPONENT VIDEO OUT/SCAN SELECT switch (78)
I COMPONENT VIDEO OUT (Y, P_B, P_R) jacks (21)
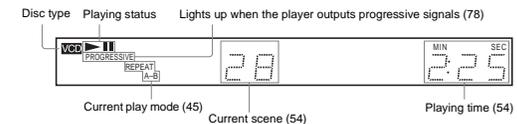**J** S VIDEO OUT 1/2 jacks (21)
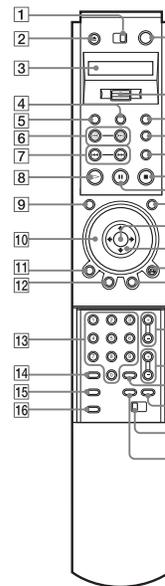**K** VIDEO OUT 1/2 jacks (21)

Remote

I PICTURE NAVI (picture navigation) button (50)
J Click shuttle (37)
K DISPLAY button (14)
L TOP MENU button (39)
M Number buttons (39)
The number 5 button has a tactile dot.*
N CLEAR button (46)
O SEARCH MODE button (49)
P PICTURE MEMORY button (77)
Q I/⏻ (on/standby) button (35) (72)
R Scroll key (13)
S A-B button (48)
T BOOKMARK button (51)
U REPLAY button (36)
V ■ STOP button (36)
W ‖ PAUSE button (36)
X JOG button (38)
Y ENTER button (31)
Z ←/↑/↓/→ button (39)
27 ⏎ RETURN button (36)
28 MENU button (39)
29 CH (channel) +/– buttons (72)
The + button has a tactile dot.*
30 VOL (volume) +/– buttons (72)
The + button has a tactile dot.*
31 ENTER button
32 WIDE MODE button (72)
33 COMMAND MODE switch (DVD 1, 2, 3) (17)
34 TV/VIDEO button (72)
* Use the tactile dot as a reference when operating the player.

A TV/DVD switch (72)
B ⏏ OPEN/CLOSE button (35)
C LCD (Liquid Crystal Display) screen (13)
D PROGRAM button (45)
E VIDEO CONTROL button (62)
F ◀◀/▶▶ SEARCH buttons (37)
G ⏮/⏭ PREV/NEXT (previous/next) buttons (36)
H ▷ PLAY button (35)
The ▷ button has a tactile dot.*

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Guide to the Remote Control LCD Screen

The supplied remote has an LCD (Liquid Crystal Display) screen and scroll key for controlling the player. By pushing the scroll key up or down, you can call up various displays and functions such as "TIME/TEXT" and "SUBTITLE."

LCD screen

Scroll key

`TIME/TEXT`
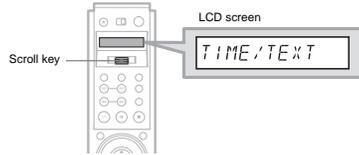
Operating the LCD and scroll key

1 **Toggle the scroll key up or down to select a command.**

The following commands are contained in the LCD. The commands will scroll continuously if you keep the scroll key pushed up or down. For details about each of the command, see the pages in parentheses.

AUDIO (page 57) ↔ TIME/TEXT (page 53) ↔ VIDEO OFF (page 35)

SUBTITLE (page 61) FL ON/OFF (page 10)

ANGLE (page 60) MULTI/2CH (page 41)

SURROUND (page 59) SACD*/CD (page 41)

SHUFFLE (page 46) ← → REPEAT (page 47)

* Super Audio CD.

2 **Point the remote at the ▣ (remote sensor) on the player and press down on the word PUSH imprinted on the scroll key so that ⌖ appears in the LCD screen.**

The player will respond to the selected command as long as the command remains in the LCD screen. Some commands require you to press down on the scroll key repeatedly. The display appears on the TV screen.
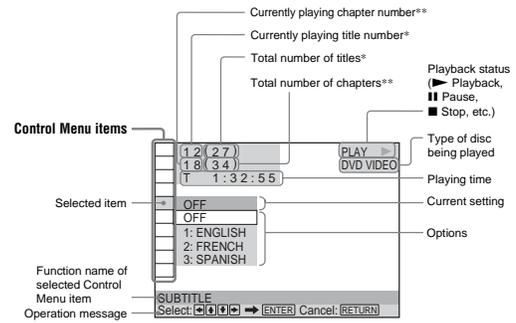
Example: When "ANGLE" is selected.

Selected command icon
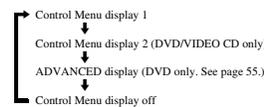
Selected option
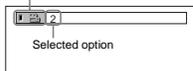
Guide to the Control Menu Display

You can use the Control Menu to select a function and view related information. The Control Menu display shows different items depending on the disc type.
Example: Control Menu display 1 when playing a DVD VIDEO.

Currently playing chapter number**

Currently playing title number*

Total number of titles*

Total number of chapters**

Playback status (► Playback, ▮▮ Pause, ■ Stop, etc.)

Control Menu items

Type of disc being played

Playing time

Selected item

Current setting

Options

Function name of selected Control Menu item

Operation message

* Displays the scene number for VIDEO CDs (PBC is on), track number for VIDEO CDs/Super audio CDs/CDs, album number for DATA CDs.

** Displays the index number for VIDEO CDs/Super audio CDs/CDs, MP3 audio track number for DATA CDs.

Using the Control Menu display

1 **Press DISPLAY repeatedly to turn on or change the Control Menu display as follows:**

Control Menu display 1
↓
Control Menu display 2 (DVD/VIDEO CD only)
↓
ADVANCED display (DVD only. See page 55.)
↓
Control Menu display off

2 **Select the Control Menu item you want to set up for the current disc using ↑/↓, and press ENTER.**

Available options for the selected Control Menu item appear.

3 **Select the option you want by pressing ↑/↓, and press ENTER.**

℧ **Hint**
You can skip the ADVANCED display by setting "OFF" under "ADVANCED" in the Control Menu (page 55).

List of Control Menu items

Following are brief explanations on the Control Menu items. Available options for each item are described on the pages in parentheses.

Item	Item Name, Function, Relevant Disc Type
	TITLE (page 49)/SCENE (page 49)/TRACK (page 49) Selects the title, scene, or track to be played. `DVD-V` `DVD-RW` `VCD`
	CHAPTER (page 49)/INDEX (page 49) Selects the chapter or index to be played. `DVD-V` `DVD-RW` `VCD`
	ALBUM (page 43) Selects the album to be played. `DATA CD`
	TRACK (page 49) Selects the track to be played. `SA-CD` `CD` `DATA CD`
	INDEX (page 49) Selects the index to be played. `SA-CD` `CD`
	ORIGINAL/PLAY LIST (page 40) Selects the type of titles to be played, the ORIGINAL one or an edited PLAY LIST. `DVD-RW`
	TIME/TEXT (page 49, 53) TIME/MEMO (page 49, 66) Checks the elapsed time and the remaining playback time. Input the time code for picture and music searching. Displays the DVD/Super Audio CD/CD text, or the DATA CD's track name. Allows you to name a disc, or displays the label (Disc Memo) you assigned to the disc. `DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`
	MULTI/2CH (page 41) Selects the playback area on Super Audio CDs when available. `SA-CD`
	AUDIO (page 57) Changes the audio setting. `DVD-V` `DVD-RW` `VCD` `CD` `DATA CD`
	SUBTITLE (page 61) Displays the subtitles. Changes the subtitle language. `DVD-V` `DVD-RW`
	ANGLE (page 60) Changes the angle. `DVD-V`
	SURROUND (page 59) Selects the surround functions. Available when 4 to 6 speakers are connected. `DVD-V` `DVD-RW` `VCD` `CD` `DATA CD`
	ADVANCED (page 55) Displays the information (bit rate or layer) of the disc currently playing. `DVD-V` `DVD-RW`
	PARENTAL CONTROL (page 67) Set to prohibit playback on this player. `DVD-V` `VCD` `SA-CD` `CD`

	SETUP (page 75) QUICK Setup (page 31) Use Quick Setup to choose the desired language of the on-screen display, the aspect ratio of the TV, the audio output signal, and the size of the speakers you are using. CUSTOM Setup In addition to the Quick Setup setting, you can adjust various other settings. RESET Returns the settings in "SETUP" to the default setting. `DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`
	PROGRAM (page 45) Selects the title, chapter, or track to play in the order you want. `DVD-V` `VCD` `SA-CD` `CD`
	SHUFFLE (page 46) Plays the title, chapter, or track in random order. `DVD-V` `VCD` `SA-CD` `CD`
	REPEAT (page 47) Plays the entire disc (all titles/all tracks/all albums) repeatedly or one title/chapter/track/album repeatedly. `DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`
	A-B REPEAT (page 48) Specifies the parts you want to play repeatedly. `DVD-V` `DVD-RW` `VCD` `SA-CD` `CD`
	VIDEO CONTROL (page 62) Adjusts the video signal from the player in various ways. Select the setting that suits the program you are watching. Or, make detailed adjustments to each element of the picture qualities, such as brightness, color, noise, sharpness, and many others. `DVD-V` `DVD-RW` `VCD`
	PICTURE NAVIGATION (page 50) Divides the screen into 9 subscreens to help you find the scene you want quickly. `DVD-V` `VCD`

℧ **Hint**
The Control Menu icon indicator lights up in green ▯ (🔲) → ▮ (🔲) when you select any item except "OFF." ("SURROUND," "PROGRAM," "SHUFFLE," "REPEAT," "A-B REPEAT" only). The "ANGLE" indicator lights up in green only when the angles can be changed. The "VIDEO CONTROL" indicator lights up in green when any setting other than "STANDARD" is selected. The "PICTURE NAVIGATION" indicator lights up in green when a bookmark is set.

Quick Overview

A quick overview presented in this guide will give you enough information to start using the player for your enjoyment. To use the surround sound features of this player, refer to "Hookups" on page 21.

Notes

- You cannot connect this player to a TV that does not have a video input jack.
- Be sure to disconnect the power cord of each component before connecting.

Step 1: Unpacking

Check that you have the following items:
- Audio/video cord (pinplug × 3 ←→ pinplug × 3) (1)
- Power cord (1)
- Remote commander (remote) (1)
- Size AA (R6) batteries (2)

Connecting the power cord

Connect the supplied power cord to the AC IN terminal of the player.
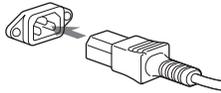
Step 2: Preparing the Remote

You can control the player using the supplied remote. Insert two Size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the compartment. When using the remote, point it at the remote sensor ⬚ on the player.
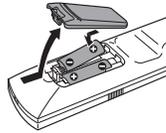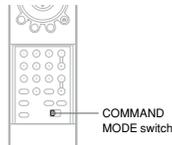
Notes

- Do not leave the remote in an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct light from the sun or a lighting apparatus. Doing so may cause a malfunction.
- If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

When you have more than one Sony DVD player

If the supplied remote interferes with your other Sony DVD player, set the command mode for this player and the supplied remote to one that differs from the other Sony DVD player.
The default command mode setting for this player and the supplied remote is DVD 1.

COMMAND MODE switch

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1 **Slide the COMMAND MODE switch on the remote to select the command mode (DVD 1, DVD 2, or DVD 3) so that the setting for the remote differs from the other DVD players.**
For example, if other DVD players respond to the default command mode setting for the supplied remote (DVD 1), set the remote to DVD 2 or DVD 3.

2 **Slide the COMMAND MODE switch on the rear of the player so it matches that of the supplied remote.**

18

Step 3: TV Hookups

Connect the supplied audio/video cord and the power cords in the order (1~3) shown below. Be sure to connect the power cord last.

TV

1 Audio/video cord (supplied)

to video input

INPUT
VIDEO (yellow)
L (white)
AUDIO
R (red)

to audio input

to VIDEO OUT 1 or 2
to AUDIO OUT L/R 1 or 2

2 Power source

CD/DVD Player

➝ : Signal flow

3 Power source

To change the aspect ratio for the connected TV

Depending on the disc and the TV type (standard 4:3 screen TV or wide screen TV), the image may not fit the TV screen. If this happens, change the aspect ratio (page 77).

When connecting to a TV that accepts progressive (480p) format signals

You need to use the COMPONENT VIDEO OUT jacks to view progressive signals. Hook up your TV using pattern ❸ on page 21, and then run Quick Setup on page 31.

˙ʊˇ Hint

When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the VIDEO OUT 1/2 jack on the player to the TV's video input jack, and connect the AUDIO OUT L/R 1/2 jacks to the TV's audio input jack.

19

Step 4: Playing a Disc

With the playback side facing down

A **Turn on the TV.**

B **Press I/⏻ on the player.**

C **Switch the input selector on your TV so that the signal from the player appears on the TV screen.**

D **Press ⏏ on the player to open the disc tray.**

E **Place the disc on the tray with the playback side facing down.**

F **Press ▷.**
The disc tray closes and the player begins playing the disc.

After step 6
Depending on the disc, a menu may be displayed on the TV screen. If so, select the item you want from the menu and play the DVD VIDEO (page 39) or VIDEO CD (page 42).

To stop playing
Press ■.

To remove the disc
Press ⏏.

To turn off the player
Press I/⏻. The player enters standby mode and the power indicator lights up in red.

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1-4

Hooking Up the Player

Follow steps 1 to 4 to hook up and adjust the settings of the player.
Before you start, disconnect the power cords, check that you have all of the supplied accessories, and insert the batteries into the remote (page 17).

Notes

• Plug cords securely to prevent unwanted noise.
• Refer to the instructions supplied with the components to be connected.

Step 1: Connecting the Video Cords

Connect this player to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the patterns Ⓐ through Ⓒ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver). In order to view progressive signal (480p) pictures with a compatible TV, projector, or monitor, you must use pattern Ⓒ.
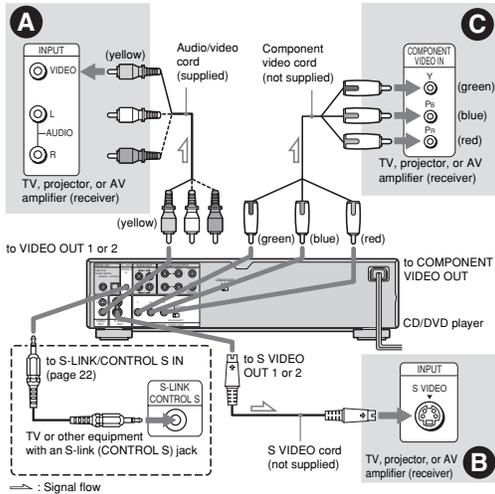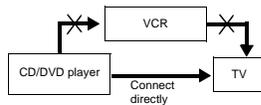
• Consumers should note that not all high definition television sets are fully compatible with this product and may cause artifacts to be displayed in the picture. In the case of progressive scan picture problems, it is recommended that you switch the connection to the standard definition output. If there are questions regarding your Sony TV set's compatibility with this DVD player, please contact our customer service center.

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Ⓐ If you are connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images.
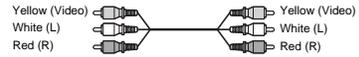
Use the red and white plugs to connect to the audio input jacks (page 26). (Do this if you are connecting to a TV only.)

Ⓑ If you are connecting to an S VIDEO input jack

Connect an S VIDEO cord (not supplied). You will enjoy high quality images.


Ⓒ If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y, P$_B$, P$_R$)

Connect the component via the COMPONENT VIDEO OUT jacks using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images. If your TV accepts progressive (480p) format signals, you must use this connection and set "COMPONENT OUT" to "PROGRESSIVE" in "SCREEN SETUP" (page 78).
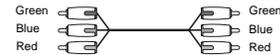
⭆ Hint

If your TV has an S-LINK (CONTROL S) jack, you can control the player by operating the remote toward the TV. This feature is convenient when you placed the player and the TV away from each other. After connecting the player with other components according to the above Ⓐ, Ⓑ, or Ⓒ, connect the TV via the S-LINK/CONTROL S IN jack using an S-link (control S) cord (not supplied). Refer to the instructions supplied with the TV to be connected.

Notes

• Do not connect a VCR, etc. between your TV and the player. If you pass the player signals via the VCR, you may not receive a clear image on the TV screen. If your TV has only one audio/video input jack, connect the player to this jack.

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Step 2: Connecting the Audio Cords

Refer to the chart below to select the connection that best suits your system. Be sure to also read the instructions for the components you wish to connect.

Select a connection

Select one of the following connections, Ⓐ through Ⓓ.

Components to be connected	Connection	Your setup (example)
TV • Surround effects: None	Ⓐ (page 26)	
Stereo amplifier (receiver) and two speakers • Surround effects: None or **MD deck/DAT deck** • Surround effects: None	Ⓑ (page 27)	
AV amplifier (receiver) having a Dolby* Surround (Pro Logic) decoder and 3 to 6 speakers • Surround effects: Dolby Surround (Pro Logic) (page 88)	Ⓒ (page 28)	

AV amplifier (receiver) with 5.1 ch input jacks and 4 to 6 speakers
• Surround effects:
  – Dolby Digital (5.1 ch) (page 88)
  – DTS (5.1 ch) (page 88)
  – Super Audio CD Multi channel (page 90)
or
AV amplifier (receiver) with digital input jacks having a Dolby or DTS** decoder and 6 speakers
• Surround effects:
  – Dolby Digital (5.1ch) (page 88)
  – DTS (5.1ch) (page 88)
	Ⓓ (page 29)	

23   **24**

1-5

⊗ Hint
If you connect an AV amplifier (receiver) that conforms to the 96 kHz sampling frequency, use connection **D**.

* Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories.
** Manufactured under license from Digital Theater Systems, Inc. US Pat. No. 5,451,942, 5,956,674, 5,974,380, 5,978,762 and other world-wide patents issued and pending. "DTS" and "DTS Digital Surround" are registered trademarks of Digital Theater Systems, Inc. Copyright 1996, 2000 Digital Theater Systems, Inc. All rights reserved.

Hookups

A Connecting to your TV

This connection will use your TV speakers for sound.

CD/DVD player

to AUDIO OUT L/R 1 or 2

⇒ : Signal flow
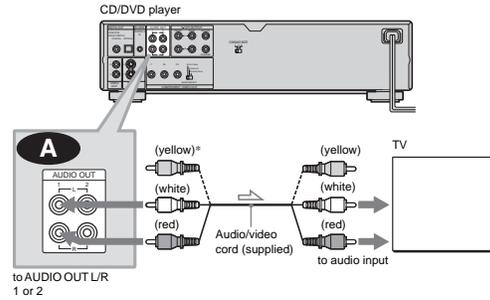
* The yellow plug is used for video signals (page 21).

⊗ Hint
When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the AUDIO OUT L/R 1/2 jacks to the TV's audio input jack.

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B Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

If the stereo amplifier (receiver) has audio input jacks L and R only, use **B-1**. If the amplifier (receiver) has a digital input jack, or when connecting to an MD deck or DAT deck, use **B-2**. In this case, you can also connect the player directly to the MD deck or DAT deck without using your stereo amplifier (receiver).

CD/DVD player

to DIGITAL OUT (COAXIAL or OPTICAL)

to AUDIO OUT L/R 1 or 2

Optical digital cord (not supplied) Remove jack cap before connecting

to coaxial or optical digital input

to audio input

[Speakers]

Stereo amplifier (receiver)

Front (L)

Front (R)

MD deck/DAT deck

⇒ : Signal flow
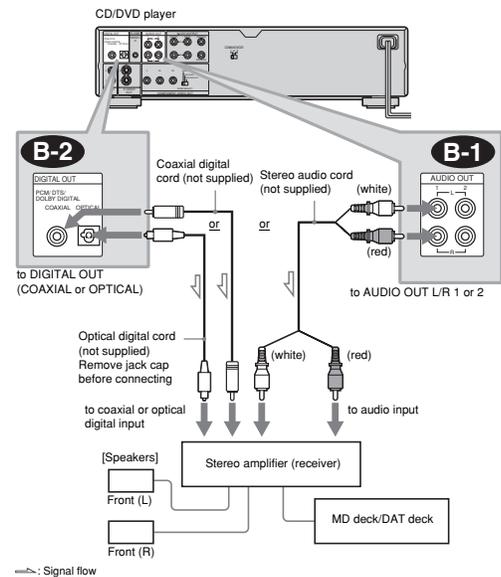
⊗ Hints
• In connection **B-1**, you can use the supplied audio/video cord instead of using a separate stereo audio cord.
• To realize better surround sound effects, make sure that your listening position is in between your speakers.

Note

Super Audio CD audio signals are not output from the digital jack.

Hookups

C Connecting to an AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder and 3 to 6 speakers

You can enjoy Dolby Surround effects only when playing Dolby Surround audio or multi-channel audio (Dolby Digital) discs.
If your amplifier (receiver) has L and R audio input jacks only, use **C-1**. If your amplifier (receiver) has a digital input jack, use **C-2**.

CD/DVD player

to DIGITAL OUT (COAXIAL or OPTICAL)

to AUDIO OUT L/R 1 or 2

Optical digital cord (not supplied) Remove jack cap before connecting

to coaxial or optical digital input

to audio input

[Speakers]

Amplifier (receiver) with Dolby Surround decoder

[Speakers]

Rear (L)

Rear (R)

Subwoofer

Center

Front (L)

Front (R)

Rear (mono)

⇒ : Signal flow
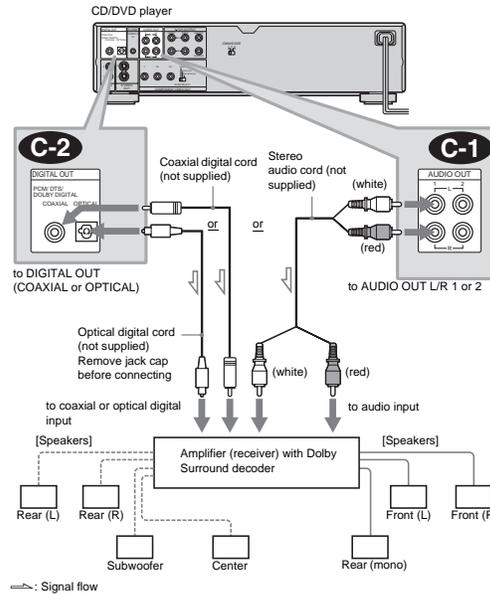
⊗ Hint
For correct speaker location, refer to the operating instructions of the amplifier (receiver).

Notes

• When connecting 6 speakers, replace the monaural rear speaker with a center speaker, 2 rear speakers, and a subwoofer.
• Super Audio CD audio signals are not output from the digital jack.

28

1-6

D **Connecting to an AV amplifier (receiver) with 5.1 ch input jacks and/or a digital input jack and 4 to 6 speakers**

If your AV amplifier (receiver) has 5.1 channel inputs, use **D-1**.
If you want to use the Dolby Digital, or DTS decoder function on your AV amplifier (receiver), connect to its digital input jack using **D-2**. With the following connections, you can enjoy a more realistic audio presence in the comfort of your own home.
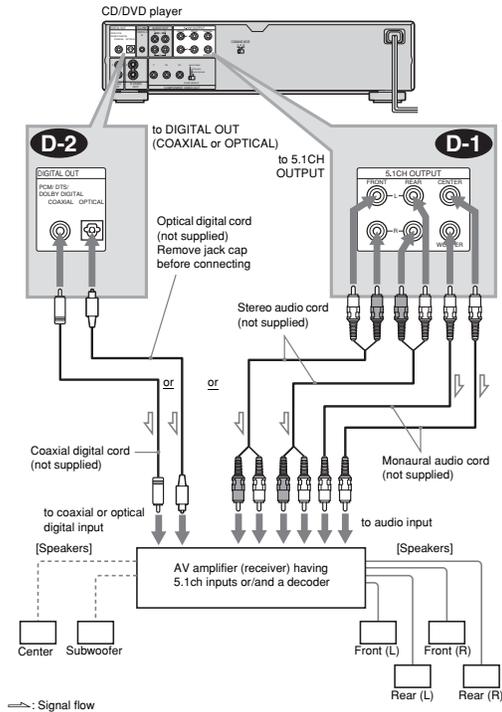
D-1 **: Connecting to the 5.1ch input jacks**
You can enjoy 5.1ch surround sound using the internal Dolby Digital, DTS, or Super Audio CD Multi decoder of this player.

D-2 **: Connecting to a digital jack**
This connection will allow you to use the Dolby Digital, or DTS decoder function of your AV amplifier (receiver). You are not able to enjoy the surround sound effects of this player.

Hints
• **For connection** **D-2**
 For correct speaker placement, refer to the instructions of the connected components.
• To enhance the sound performance:
– Use high-performance speakers.
– Use front, rear, and center speakers of the same size and performance.
– Place the subwoofer between the left and right front speakers.

Notes
For connection **D-2**
• After you have completed the connection, be sure to set "DOLBY DIGITAL" to "DOLBY DIGITAL" and "DTS" to "DTS" in Quick Setup (page 31).
• When you connect an amplifier (receiver) that conforms to the 96kHz sampling frequency, set "48kHz/96kHz PCM" in "AUDIO SETUP" to "96kHz/24bit" (page 82).
• Super Audio CD audio signals are not output from the digital jack.

→continued **29** **30**

Step 3: Connecting the Power Cord

Plug the player and TV power cords into an AC outlet.

Step 4: Quick Setup

Follow the steps below to make the minimum number of basic adjustments for using the player. To skip an adjustment, press ▶▶|. To return to the previous adjustment, press |◀◀.
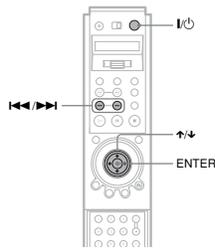
1 **Turn on the TV.**

2 **Press I/⏻.**

3 **Switch the input selector on your TV so that the signal from the player appears on the TV screen.**

"Press [ENTER] to run QUICK SETUP" appears at the bottom of the screen. If this message does not appear, select "QUICK" under "SETUP" in the Control Menu to run Quick Setup (page 76).

4 **Press ENTER without inserting a disc.**

The Setup Display for selecting the language used in the on-screen display appears.
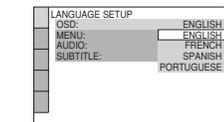
5 **Press ↑/↓ to select a language.**

The player uses the language selected here to display the menu and subtitles as well.

6 **Press ENTER.**

The Setup Display for selecting the aspect ratio of the TV to be connected appears.
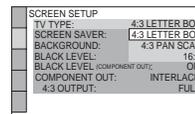
7 **Press ↑/↓ to select the setting that matches your TV type.**

◆ **If you have a 4:3 standard TV**
• 4:3 LETTER BOX or 4:3 PAN SCAN (page 77)

◆ **If you have a wide-screen TV or a 4:3 standard TV with a wide-screen mode**
• 16:9 (page 77)

8 **Press ENTER.**

The Setup Display for selecting the type of video signal appears.
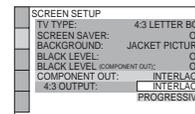
9 **Press ↑/↓ to select the type of signals you wish to output to your TV.**

Select "PROGRESSIVE" only if you have made video pattern **C** (page 21) and wish to view progressive video signals.

◆ **Interlace format TV (standard TV)**
• INTERLACE (pages 78)

◆ **Progressive format TV**
• PROGRESSIVE (pages 78)

10 **Press ENTER.**

The Setup Display for selecting the type of jack used to connect your amplifier (receiver) appears.
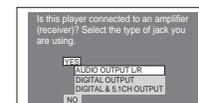
11 **Press ↑/↓ to select the type of jack (if any) you are using to connect to an amplifier (receiver), then press ENTER.**

Choose the item that matches the audio connection you selected on pages 26 to 29 (**A** through **D**).

A
• If you connect just a TV and nothing else, select "NO." Quick Setup is finished and connections are complete.

B-1 **C-1**
• Select "AUDIO OUTPUT L/R." Quick Setup is finished and connections are complete.

B-2 **C-2** **D-2**
• Select "DIGITAL OUTPUT." The Setup Display for "DOLBY DIGITAL" appears.

D-1 **or both** **D-1** **and** **D-2**
• Select "DIGITAL & 5.1CH OUTPUT." The Setup Display for "DOLBY DIGITAL" appears.

12 **Press ↑/↓ to select the type of Dolby Digital signal you wish to send to your amplifier (receiver).**

Choose the signal that matches the audio connection you selected on pages 27 to 29 (**B** through **D**).

→continued **31** **32**

1-7

Downloaded from www.Manualslib.com manuals search engine
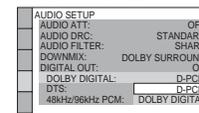
B-2 **C-2**
• D-PCM (page 81)

D-2
• DOLBY DIGITAL (only if the amplifier (receiver) has a Dolby Digital decoder) (page 81)

13 Press ENTER.

"DTS" is selected.

```
AUDIO SETUP
AUDIO ATT:              OFF
AUDIO DRC:              STANDARD
AUDIO FILTER:          SHARP
DOWNMIX:               DOLBY SURROUND
DIGITAL OUT:           ON
  DOLBY DIGITAL:       D-PCM
  DTS:                 D-PCM
  48kHz/96kHz PCM:     D-PCM
                       DTS
```

14 Press ↑/↓ to select the type of DTS signal sent to your amplifier (receiver).

Choose the item that matches the audio connection you selected on pages 27 to 29 (**B** through **D**).

B-2 **C-2**
• D-PCM (page 82)

D-2
• DTS (only if the amplifier (receiver) has a DTS decoder) (page 82)

15 Press ENTER.

◆ **When "DIGITAL OUTPUT" is selected in step 11**
• Quick Setup is finished and connections are complete.

◆ **When "DIGITAL & 5.1CH OUTPUT" is selected in step 11**
• The Setup Display for "SPEAKER SETUP" appears.

16 Press ↑/↓ to select the size of the center speaker.

If no center speaker is connected, select "NONE" (page 83).

```
SPEAKER SETUP (DVD)
SIZE:
DISTANCE:
LEVEL(FRONT):
LEVEL(REAR):
TEST TONE:          OFF
   FRONT:           LARGE
   CENTER:          LARGE
   REAR:            LARGE
   SUBWOOFER:       SMALL
                    NONE
```
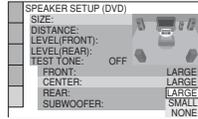
17 Press ENTER.

"REAR" is selected.

```
SPEAKER SETUP (DVD)
SIZE:
DISTANCE:
LEVEL(FRONT):
LEVEL(REAR):
TEST TONE:          OFF
   FRONT:           LARGE
   CENTER:          LARGE
   REAR:            LARGE
   SUBWOOFER:       LARGE
                    SMALL
                    NONE
```
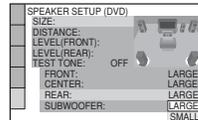
18 Press ↑/↓ to select the size of the rear speakers.

If no rear speaker is connected, select "NONE."

19 Press ENTER.

"SUBWOOFER" is selected.

```
SPEAKER SETUP (DVD)
SIZE:
DISTANCE:
LEVEL(FRONT):
LEVEL(REAR):
TEST TONE:          OFF
   FRONT:           LARGE
   CENTER:          LARGE
   REAR:            LARGE
   SUBWOOFER:       YES
                    YES
                    NONE
```
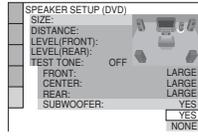
20 Press ↑/↓ to select whether or not you have connected a subwoofer.

21 Press ENTER.

Quick Setup is finished. All connections and setup operations are complete.

34

Enjoying the surround sound effects

To enjoy the surround sound effects of this player or your amplifier (receiver), set the following items as described below for the audio connection you selected on pages 27 to 29 (**B** and **D**). Each of these is the default setting and does not need to be adjusted when you first connect the player. Refer to page 75 for using the Setup Display.

Audio Connection (pages 26 to 29)

A
• No additional settings are needed.

B-1 **C-1**
• Set "DOWNMIX" to "DOLBY SURROUND" (page 81).

B-2 **C-2** **D-2**
• Set "DOWNMIX" to "DOLBY SURROUND" (page 81).
• Set "DIGITAL OUT" to "ON" (page 81).

D-1
• Set "DISTANCE," "LEVEL (FRONT)," and "LEVEL (REAR)" according to the connected speakers (page 83).

۞ Hints
• **For connections** **B-1** **C-1** **D-1**
If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 80).
• **For connections** **B-2** **C-2** **D-2**
Set "48kHz/96kHz PCM" to "96kHZ/24bit" only if you connect an amplifier (receiver) that conforms to the 96 kHz sampling frequency (page 82).

Playing Discs

Playing Discs

Playing Discs DVD-V

DVD-RW   VCD   SA-CD   CD
DATA CD

Depending on the DVD or VIDEO CD, some operations may be different or restricted. Refer to the operating instructions supplied with your disc.

Power indicator   ⏏ |◀◀/▶▶|

◀|/(¹)   VIDEO OFF ▷
                  indicator

Scroll key

▷
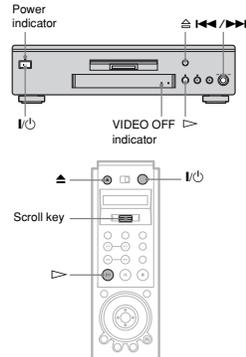
1 Turn on your TV.

2 Press |/(¹).

The player turns on and the power indicator lights up in green.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

◆ **When using an amplifier (receiver)**
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the player.

4 Press ⏏ on the player, and place a disc on the disc tray.

With the playback side facing down

5 Press ▷.

The disc tray closes, and the player starts playback (continuous play). Adjust the volume on the TV or the amplifier (receiver).
Depending on the disc, a menu may appear on the TV screen. For DVD VIDEOs, see page 39. For VIDEO CDs, see page 42.

To enjoy the clarity of Super Audio CD/CD sound more

You can minimize the effect of the video output by switching it off.
Toggle the scroll key up or down to display "VIDEO OFF" in the LCD screen. Then point the remote to the player and press down on the scroll key once so that 🔺 appears in the LCD screen.
When no video signal is output from the player, the VIDEO OFF indicator lights up on the player.

To turn off the player
Press |/(¹). The player enters standby mode.

۞ Hint
You can have the player turn off automatically whenever you leave it in stop mode for more than 30 minutes. To turn on this function, set "AUTO POWER OFF" in "CUSTOM SETUP" to "ON" (page 79).

Note
Super Audio CD audio signals are not output from the digital jack.

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Additional operations

⏏
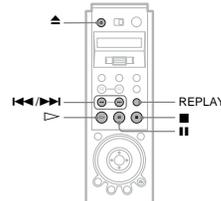
|◀◀/▶▶| REPLAY
▷   ■
                                     ❚❚

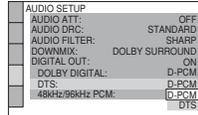| To	Operation
Stop	Press ■
Pause	Press ❚❚
Resume play after pause	Press ❚❚ or ▷
Go to the next chapter, track, or scene in continuous play mode	Press ▶▶| on the remote, or briefly turn the Playback Control on the player clockwise
Go back to the previous chapter, track, or scene in continuous play mode	Press |◀◀ on the remote, or briefly turn the Playback Control on the player counterclockwise
Stop play and remove the disc	Press ⏏
Replay the previous scene (DVD VIDEO only)	Press REPLAY

۞ Hint
The Replay function is useful when you want to review a scene or dialog that you missed.

Note
You may not be able to use the Replay function with some scenes.

Locking the disc tray (Child Lock)

You can lock the disc tray to prevent children from opening it.

|/(¹)
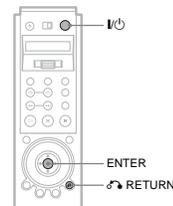
ENTER
↩ RETURN

When the player is in standby mode, press ↩ RETURN, ENTER, and then |/(¹) on the remote.

The player turns on and "LOCKED" appears on the front panel display.
The ⏏ button on the player or the remote does not work while the Child Lock is set.

To unlock the disc tray
When the player is in standby mode, press ↩ RETURN, ENTER, and then |/(¹) again.

Note
Even if you select "RESET" under "SETUP" in the Control Menu (page 76), the disc tray remains locked.

1-8

Searching for a Particular Point on a Disc (Search, Shuttle mode, Jog mode)

You can quickly locate a particular point on a disc by monitoring the picture or playing back slowly.

JOG

Click shuttle
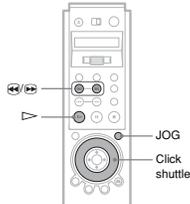
Note
Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described.

Locating a point quickly (Search)
`DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`

During playback, keep pressing ⏩ to locate a point in the playback direction or keep pressing ⏪ to locate a point in the opposite direction. When you find the point you want, release the button to return to normal playback speed.

Using the click shuttle on the remote (Shuttle mode)
`DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`

Turn the click shuttle on the remote. The playback speed changes depending on the turning direction and degree of rotation as follows:

◆**During playback**

FF2▶▶ Fast forward (faster than FF1▶▶)
↕
FF1▶▶ Fast forward
↕
×2▶ (DVD VIDEO/Super Audio CD/CD only)
↕
PLAY▶ (normal speed)
↕
×2◀ (DVD VIDEO only)
↕
FR1◀◀ Fast reverse
↕
FR2◀◀ Fast reverse (faster than FR1◀◀)

If you turn the click shuttle quickly, the playback speed goes to "FF2▶▶" or "FR2◀◀" immediately.

◆**During pause mode (DVD VIDEO, DVD-RW, VIDEO CD only)**

SLOW1▶ (playback direction)
↕
SLOW2▶ (playback direction – slower than SLOW1▶)
↕
PAUSE⏸
↕
SLOW2◀⏸ (opposite direction – slower than SLOW1◀⏸) (DVD only)
↕
SLOW1◀⏸ (opposite direction) (DVD only)

To return to normal play
Press ▷.

Playing Discs

Playing a disc frame by frame using the click shuttle (Jog mode) `DVD-V` `DVD-RW` `VCD`

1 Press JOG on the remote.
"JOG" appears in the LCD screen.

2 Turn the click shuttle.
Depending on the turning speed, playback goes to frame-by-frame playback in the direction that the click shuttle is turned. Turn the click shuttle clockwise to go forward, and counterclockwise to go backwards (DVD only). If you turn the click shuttle at a constant speed for a while, the playback speed goes to slow or normal.

To return to normal play
Press ▷.

To turn off the Jog mode
Press JOG again so that "JOG" disappears from the LCD screen.

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Resuming Playback From the Point Where You Stopped the Disc (Multi-disc Resume) `DVD-V` `VCD`

The player stores the point where you stopped the disc for up to 300 discs and resumes playback the next time you insert the same disc. When you store a resume playback point for the 301st disc, the resume playback point for the first disc is deleted.
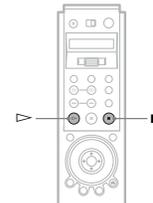
1 While playing a disc, press ■ to stop playback.
"RESUME" appears on the front panel display.

2 Press ▷.
The player starts playback from the point where you stopped the disc in step 1.

✎ Hints
• To play from the beginning of the disc, press ■ twice, then press ▷.
• For DVD-RWs in VR mode, CDs, Super Audio CDs, and DATA CDs, the player remembers the resume playback point for the current disc unless the disc tray is opened, the power cord is disconnected, or only for DATA CDs, the player enters standby mode.

Notes
• "MULTI-DISC RESUME" in "CUSTOM SETUP" must be set to "ON" (default) for this function to work (page 80).
• The resume playback point for the current disc is cleared when:
– you change the play mode.
– you change the settings on the Setup Display.
• Resume Play does not work during Shuffle Play and Program Play.
• This function may not work with some discs.

Using the DVD's Menu `DVD-V`

A DVD is divided into long sections of a picture or a music feature called "titles." When you play a DVD which contains several titles, you can select the title you want using the TOP MENU button.
When you play DVDs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.

←/↑/↓/→
ENTER
TOP MENU
MENU
Number buttons
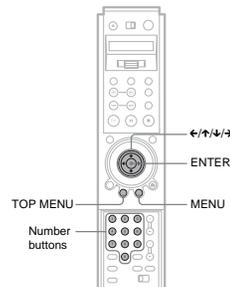
1 Press TOP MENU or MENU.
The disc's menu appears on the TV screen.
The contents of the menu vary from disc to disc.

2 Press ←/↑/↓/→ or the number buttons to select the item you want to play or change.

3 Press ENTER.

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Playing Discs

Selecting "ORIGINAL" or "PLAY LIST" on a DVD-RW `DVD-RW`

Some DVD-RWs in VR (Video Recording) mode have two types of titles for playback: originally recorded titles (ORIGINAL) and titles that can be created on recordable DVD players for editing (PLAY LIST). You can select the type of titles to be played.
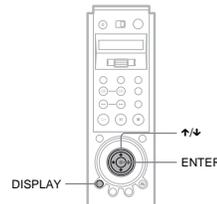
↑/↓
ENTER
DISPLAY

1 Press DISPLAY while the player is stopped.
The Control Menu appears.

2 Press ↑/↓ to select [ ] (ORIGINAL/PLAY LIST), then press ENTER.
The options for "ORIGINAL/PLAY LIST" appear.

```
12(27)
18(34)          STOP
PLAY LIST        DVD-RW
PLAY LIST
ORIGINAL
```

---
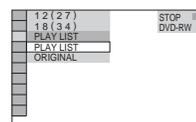
3 Press ↑/↓ to select the setting.
• PLAY LIST: plays the titles created from "ORIGINAL" for editing.
• ORIGINAL: plays the titles originally recorded.

4 Press ENTER.

To turn off the Control Menu
Press DISPLAY repeatedly until the Control Menu is turned off.

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1-9

Selecting a Playback Area for a Super Audio CD SA·CD
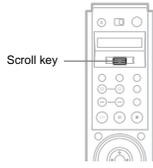
Selecting a playback area on a 2 channel + Multi-channel Super Audio CD

Some Super Audio CDs consist of a 2 channel playback area and a multi-channel playback area. You can select the playback area you want to listen to.

1 Toggle the scroll key up or down while the player is stopped to display "MULTI/2CH" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that appears in the LCD screen.
The following display appears.

    2CH

3 Press down on the scroll key repeatedly to select "MULTI" for a multi-channel playback area or "2CH" for a 2 channel playback area.
The "MULTI" indicator in the front panel display lights up when playing a multi-channel playback area.

Hint
You can also select "MULTI/2CH" from the Control Menu (page 14).

Selecting a playback layer of hybrid Super Audio CDs

Some Super Audio CDs consist of an HD layer and a CD layer. You can select the playback layer you want to listen to.

1 Toggle the scroll key up or down while the player is stopped to display "SACD/CD" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that appears in the LCD screen.

3 Press down on the scroll key repeatedly to select "SACD" for an HD layer or "CD" for a CD layer.
When playing a CD layer, the "CD" indicator in the front panel display lights up.

Notes
• For details about Super Audio CD discs, see page 90.
• Each play mode function works only within the selected layer or playback area.

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(vertical tab: Playing Discs)

Playing VIDEO CDs With PBC Functions (PBC Playback) VCD

PBC (Playback Control) allows you to play VIDEO CDs interactively by following the menu on the TV screen.

ENTER
RETURN
Number buttons
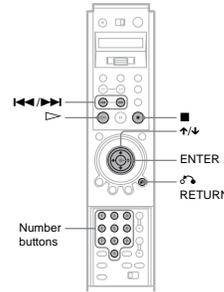
1 Start playing a VIDEO CD with PBC functions.
The menu for your selection appears.

2 Select the item number you want by pressing ↑/↓ or the number buttons.

3 Press ENTER.

4 Follow the instructions in the menu for interactive operations.
Refer to the instructions supplied with the disc, as the operating procedure may differ depending on the VIDEO CD.

To return to the menu
Press ⮌ RETURN.

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Hint
To play without using PBC, press ⏮/⏭ or the number buttons while the player is stopped to select a track, then press ▷ or ENTER.
"Play without PBC" appears on the TV screen and the player starts normal play. You cannot play still pictures such as a menu.
To return to PBC playback, press ■ twice then press ▷.

Note
Depending on the VIDEO CD, "Press ENTER" in step 3 may appear as "Press SELECT" in the instructions supplied with the disc. In this case, press ▷.

Playing an MP3 Audio Track DATA CD

You can play back DATA CDs (CD-ROMs/CD-Rs/CD-RWs) recorded in MP3 (MPEG1 Audio Layer 3) format.

←/↑/↓/→
ENTER
RETURN
MENU
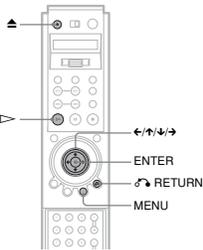
1 Press ⏏ and place a DATA CD on the disc tray.

2 Press ▷.
The disc tray closes, and the player starts to play the first MP3 audio track in the first album on the disc.

Notes
• The player can play MP3 audio tracks recorded in the following sampling frequencies: 32 kHz, 44.1 kHz, 48 kHz.
• The playback order may be different from the edited order. See "The playback order of MP3 audio tracks" for details (page 44).

Selecting an album and track

1 Press MENU.
The list of MP3 albums recorded on the DATA CD appears.

    1(30)
    ROCK BEST HIT
    KARAOKE
    JAZZ
    R&B
    MY FAVORITE SONGS
    CLASSICAL
    SALSA OF CUBA
    BOSSANOVA

2 Select an album using ↑/↓ and press ENTER.
The list of tracks contained in the album appears.

    JAZZ
    1(90)
    01 SHE IS SPECIAL
    02 ALL YOU NEED IS ...
    03 SPICY LIFE
    04 HAPPY HOUR
    05 RIVER SIDE
    06 ********5
    07 TAKE TIME,TAKE TIME

3 Select a track using ↑/↓ and press ENTER.
The selected track starts playing.
When a track or album is being played, its title is shaded.

To go to the next or previous page
Press → or ←.

To return to the previous display
Press ⮌ RETURN.

To turn off the display
Press MENU.

Notes
• Only the letters in the alphabet and numbers can be used for album or track names. Anything else is displayed as "∗."
• ID3 tags cannot be displayed.

About MP3 audio tracks

You can play MP3 audio tracks on CD-ROMs, CD-Rs, or CD-RWs. However, the discs must be recorded according to ISO9660 level 1, level 2, or Joliet format for the player to recognize the tracks.
You can also play discs recorded in Multi Session.

(vertical tab: Playing Discs)

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See the instructions of the CD-R/RW device or recording software (not supplied) for details on the recording format.

To play a Multi Session CD
This player can play Multi Session CDs when an MP3 audio track is located in the first session. Any subsequent MP3 audio tracks, recorded in the later sessions, can also be played back.
When audio tracks and images in music CD format or video CD format are recorded in the first session, only the first session will be played back.

Notes
• If you put the extension ".MP3" to data not in MP3 format, the player cannot recognize the data properly and will generate a loud noise which could damage your speaker system.
• The player cannot play audio tracks in MP3PRO format.

The playback order of MP3 audio tracks
The playback order of albums and tracks recorded on a DATA CD is as follows:

◆Structure of disc contents

Tree 1 Tree 2 Tree 3 Tree 4 Tree 5

    ROOT Ⓐ
              ①
              Ⓑ
                  ②
                  Ⓒ
                      ③
                  Ⓔ   Ⓓ
                      Ⓕ   ④
                          ⑤
                  Ⓖ
                      ⑥
                      ⑦
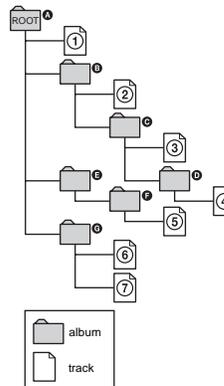
    📁 album
    📄 track

When you insert a DATA CD and press ▷, the numbered tracks are played sequentially, from ① through ⑦. Any sub-albums/tracks contained within a currently selected album take priority over the next album in the same tree. (Example: Ⓒ contains Ⓓ so ④ is played before ⑤.)
When you press MENU and the list of MP3 albums appears (page 43), the albums are arranged in the following order: Ⓐ → Ⓑ → Ⓒ → Ⓓ → Ⓔ → Ⓕ → Ⓖ. Albums that do not contain tracks (such as album Ⓔ) do not appear in the list.

Hints
• If you add numbers (01, 02, 03, etc.) to the front of the track file names, the tracks will be played in that order.
• Since a disc with many trees takes longer to start playback, it is recommended that you create albums of no more than two trees.

Notes
• Depending on the software you use to create the DATA CD, the playback order may differ from the illustration above.
• The playback order above may not be applicable if there are more than a total of 999 albums and tracks in the DATA CD.
• The player can recognize up to 499 albums (the player will count just albums, including albums that do not contain MP3 audio tracks). The player will not play any albums beyond the first 499 albums. Of the first 499 albums, the player will play no more than a combined total of 999 albums and tracks.

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1-10

Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

You can set the following play modes:
• Program Play (page 45)
• Shuffle Play (page 46)
• Repeat Play (page 47)
• A-B Repeat Play (page 48)

Note

The play mode is canceled when:
– you open the disc tray.
– the player enters standby mode by pressing **I/⏻**.

Creating your own program (Program Play) DVD-V VCD SA-CD CD

You can play the contents of a disc in the order you want by arranging the order of the titles, chapters, or tracks on the disc to create your own program. You can program up to 99 titles, chapters, and tracks.

PROGRAM

▷

↑/↓/→

ENTER

Number buttons

CLEAR
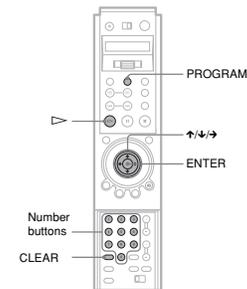
1 Press PROGRAM.
The display for programming appears.

"TRACK" is displayed when you play a VIDEO CD, Super Audio CD, or CD.

```
PROGRAM
ALL CLEAR              T
1 TITLE                --
2 TITLE  --           01
3 TITLE  --           02
4 TITLE  --           03
5 TITLE  --           04
6 TITLE  --           05
7 TITLE  --
```

Titles or tracks recorded on a disc
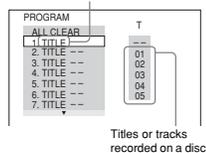
2 Press →.
The cursor moves to the title or track row "T" (in this case, "01").

```
PROGRAM
ALL CLEAR         T     C
1 TITLE  --
2 TITLE  --     01    ALL
3 TITLE  --     02    01
4 TITLE  --     03    02
5 TITLE  --     04    03
6 TITLE  --     05    04
7 TITLE  --           05
                      06
```

Chapters recorded on a disc
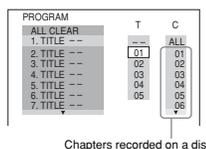
3 Select the title, chapter, or track you want to program.

◆ **When playing a DVD VIDEO**
For example, select chapter "03" of title "02."
Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.

```
PROGRAM
ALL CLEAR         T     C
1 TITLE  --     01    ALL
2 TITLE  --     02    01
3 TITLE  --     03    02
4 TITLE  --     04    03
5 TITLE  --     05    04
6 TITLE  --           05
7 TITLE  --           06
```
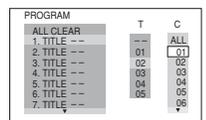
Next, press ↑/↓ or the number buttons to select "03" under "C," then press ENTER.

navigation→continued **45**

```
PROGRAM
ALL CLEAR              T
1 TITLE  02-03        --
2 TITLE               01
3 TITLE  --           02
4 TITLE  --           03
5 TITLE  --           04
6 TITLE  --           05
7 TITLE  --
```
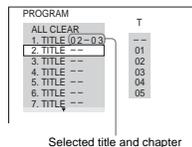
Selected title and chapter

◆ **When playing a VIDEO CD, Super Audio CD, or CD**
For example, select track "02."
Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.
The track number may be displayed in 3 digits for a Super Audio CD.

Selected track

```
PROGRAM           0:15:30
ALL CLEAR              T
1 TRACK  02           --
2 TRACK               01
3 TRACK  --           02
4 TRACK  --           03
5 TRACK  --           04
6 TRACK  --           05
7 TRACK  --
```
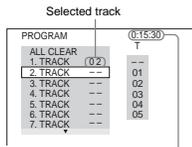
Total time of the programmed tracks

4 To program other titles, chapters, or tracks, repeat steps 2 to 3.
The programmed titles, chapters, and tracks are displayed in the selected order.

5 Press ▷ to start Program Play.
Program Play begins.
When the program ends, you can restart the same program again by pressing ▷.

To return to normal play
Press CLEAR during playback. To play the same program again, select "ON" in step 2.

To turn off the display
Press PROGRAM repeatedly until the display is turned off.

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To change or cancel a program

1 Press PROGRAM.

2 Select the program number of the title, chapter, or track you want to change or cancel using ↑/↓ or the number buttons, and press →.

3 Follow step 3 of "Creating your own program (Program Play)" (page 45) for new programming. To cancel a program, select "--" under "T," then press ENTER.

To cancel all the titles, chapters, or tracks in the programmed order

1 Press PROGRAM.

2 Press ↑ and select "ALL CLEAR."

3 Press ENTER.

Hints
• You can do Repeat Play or Shuffle Play of the programmed titles, chapters, or tracks. During Program Play, follow the steps of "Repeat Play" (page 47) or "Shuffle Play" (page 46).
• You can select "PROGRAM" from the Control Menu (page 14).

Playing in random order (Shuffle Play) DVD-V VCD SA-CD CD

You can have the player "shuffle" titles, chapters, or tracks. Subsequent "shuffling" may produce a different playing order.

Scroll key

▷

CLEAR

---
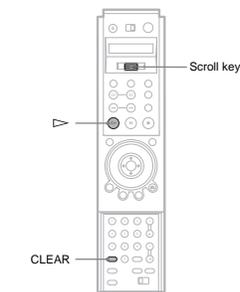
1 Toggle the scroll key up or down to display "SHUFFLE" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that ☈ appears in the LCD screen.
The following display appears.

```
🔀 TITLE
```
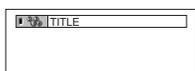
3 Press down on the scroll key repeatedly to select the item to be shuffled.

◆ **When playing a DVD VIDEO**
• TITLE
• CHAPTER

◆ **When playing a VIDEO CD, Super Audio CD, or CD**
• TRACK

◆ **When Program Play is activated**
• ON: shuffles titles, chapters, or tracks selected in Program Play.

To return to normal play
Press CLEAR, or select "OFF" in step 3.

Hints
• You can set Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press ▷. Shuffle Play starts.
• Up to 200 chapters in a disc can be played in random order when "CHAPTER" is selected.
• You can also select "SHUFFLE" from the Control Menu (page 14).

Playing repeatedly (Repeat Play) DVD-V DVD-RW VCD SA-CD CD DATA CD

You can play all of the titles or tracks on a disc or a single title, chapter, or track repeatedly.
You can use a combination of Shuffle or Program Play modes.

Scroll key

▷

CLEAR
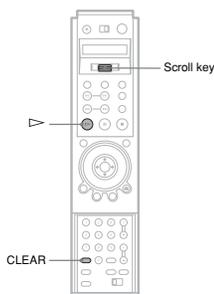
1 Toggle the scroll key up or down to display "REPEAT" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that ☈ appears in the LCD screen.
The following display appears.

```
🔁 DISC
```
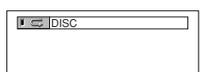
3 Press down on the scroll key repeatedly to select the item to be repeated.

◆ **When playing a DVD VIDEO**
• DISC: repeats all of the titles.
• TITLE: repeats the current title on a disc.
• CHAPTER: repeats the current chapter.

◆ **When playing a DVD-RW**
• DISC: repeats all the titles of the selected type, "ORIGINAL" or "PLAY LIST" (page 40).
• TITLE: repeats the current title on a disc.
• CHAPTER: repeats the current chapter.

◆ **When playing a VIDEO CD, Super Audio CD, or CD**
• DISC: repeats all of the tracks.
• TRACK: repeats the current track.

◆ **When playing a DATA CD (MP3 audio)**
• DISC: repeats all of the albums.
• ALBUM: repeats the current album.
• TRACK: repeats the current track.

◆ **When Program Play or Shuffle Play is activated**
• ON: repeats Program Play or Shuffle Play.

To return to normal play
Press CLEAR, or select "OFF" in step 3.

Hints
• You can set Repeat Play while the player is stopped. After selecting the "REPEAT" option, press ▷. Repeat Play starts.
• You can also select "REPEAT" from the Control Menu (page 14).

Repeating a specific portion (A-B Repeat Play) DVD-V DVD-RW VCD SA-CD CD

You can play a specific portion of a title, chapter, or track repeatedly. This function is useful when you want to memorize lyrics, etc.

A-B

ENTER

CLEAR

---
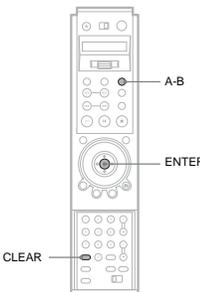
1 During playback, when you find the starting point (point A) of the portion to be played repeatedly, press A-B.
The starting point (point A) is set.

```
A-B REPEAT

Set point B with ENTER .

         CHAPTER  TIME
      A: 18 - 1 : 32 : 55
```
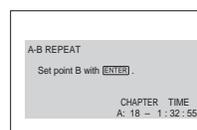
2 When you reach the ending point (point B), press ENTER or press A-B again.
The set points are displayed and the player starts repeating this specific portion.

To return to normal play
Press CLEAR.

Hint
You can also select "A-B REPEAT" from the Control Menu (page 14).

Notes
• When you set A-B Repeat Play, the settings for Shuffle Play, Repeat Play, and Program Play are canceled.
• A-B Repeat Play does not work for titles containing still pictures on a DVD-RW in VR mode.
• A-B Repeat Play does not work across multiple titles on a DVD-RW in VR mode.

navigation→continued **47**

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1-11

Playing Discs

boilerplate Downloaded from www.Manualslib.com manuals search engine

Searching for a Title/ Chapter/Track/Index/ Scene (Search mode) `DVD-V`

`DVD-RW` `VCD` `SA-CD` `CD`
`DATA CD`

You can search a DVD by title or chapter, and you can search a VIDEO CD/Super Audio CD/CD by track, index, or scene. As titles and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code.

ENTER

Number
buttons
CLEAR
SEARCH
MODE
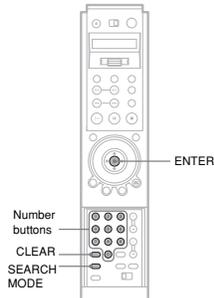
1 Press SEARCH MODE.

The following display appears.
"-- (∗∗)" appears next to the icon (∗∗ refers to a number).
The number in parentheses indicates the total number of titles, tracks, indexes, scenes, etc., of the disc.

--(10)
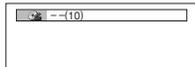
2 Press SEARCH MODE repeatedly to select the search method.

◆ When playing a DVD VIDEO/DVD-RW
  TITLE
  CHAPTER
  TIME/TEXT
  TIME/MEMO
Select "TIME/TEXT" or
"TIME/MEMO" to search for a starting point by inputting the time code.

◆ When playing a VIDEO CD
  TRACK
  INDEX

◆ When playing a VIDEO CD with PBC Playback
  SCENE
  INDEX

◆ When playing a Super Audio CD/CD
  TRACK
  INDEX

◆ When playing a DATA CD (MP3 audio)
  ALBUM
  TRACK

3 Select the number of the title, track, scene, time code, etc. you want by pressing the number buttons to select the digit.

For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, select "TIME/TEXT" or "TIME/MEMO" in step 2 and enter "21020."

If you make a mistake
Cancel the number by pressing CLEAR, then select another number.

4 Press ENTER.

The player starts playback from the selected number.

To turn off the display
Press SEARCH MODE repeatedly until the display is turned off.

☞ Hints
• You can display the first scenes of titles, chapters or tracks recorded on the disc on a screen divided into 9 sections. You can start playback directly by selecting one of the scenes. See "Searching by Scene (PICTURE NAVIGATION)" below.
• You can also select "TITLE," "CHAPTER," "TRACK," "INDEX," "SCENE," "TIME/ TEXT" ("TIME/MEMO"), or "ALBUM" from the Control Menu (page 14).
• You can search for a chapter (DVD VIDEO/ DVD-RW) or track (Super Audio CD/CD) by pressing the number buttons and ENTER.

Note
You cannot search for a still picture on a DVD-RW in VR mode.

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Searching by Scene
(PICTURE NAVIGATION)

You can divide the screen into 9 subscreens and find a desired scene quickly.

BOOKMARK

PICTURE
NAVI
←/↑/↓/→
ENTER
RETURN

CLEAR
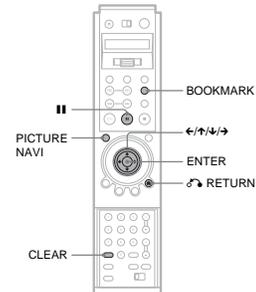
1 Press PICTURE NAVI during playback.

The following display appears.
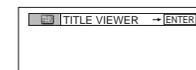
TITLE VIEWER →ENTER

2 Press PICTURE NAVI repeatedly to select the item.

Refer to the explanations given for each item in the following sections.
• TITLE VIEWER (DVD VIDEO only)
• CHAPTER VIEWER (DVD VIDEO only)
• BOOKMARK (DVD VIDEO/VIDEO CD only)
• TRACK VIEWER (VIDEO CD only)
• STROBE PLAYBACK (DVD VIDEO/ VIDEO CD only)
• ANGLE VIEWER (DVD VIDEO only)

3 Press ENTER.

To return to normal play
Press RETURN.

☞ **Hint**
You can also select "PICTURE NAVIGATION" from the Control Menu (page 14).

Notes
• Depending on the disc, you may not be able to select all functions.
• The sound is muted when using this function.

Scanning the title, chapter, or track (TITLE VIEWER, CHAPTER VIEWER, TRACK VIEWER) `DVD-V` `VCD`

You can divide the screen into 9 subscreens and display the first scenes of titles, chapters, or tracks.

You can also play back from the selected title, chapter, or track. After performing step 3 of "Searching by Scene (PICTURE NAVIGATION)" above, select the scene using ←/↑/↓/→, and press ENTER.

☞ **Hint**
If there are more than 9 titles, chapters, or tracks, ▼ is displayed at the bottom right.
To display the additional titles, chapters, or tracks, select the bottom right scene (the position 9) and press ↓. To return to the previous scene, select the top left scene (the position 1) and press ↑.

1	2	3	
4	5	6	
7	8	9	▼
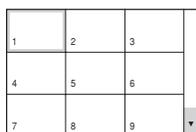
Setting and selecting a favorite scene (Bookmark) `DVD-V` `VCD`

You can have the player store specific portions of the disc in memory and play them immediately whenever you want (Bookmark). Up to 9 bookmarks per disc for a total of 300 discs can be stored in memory.

You can play back from the bookmarked scene. After performing step 3 of "Searching by Scene (PICTURE NAVIGATION)" above, select the bookmark using ←/↑/↓/→, then press ENTER.

To set a bookmark
During playback, press BOOKMARK when you find a scene to be bookmarked.

To reset the bookmark
After displaying the bookmarks with the PICTURE NAVIGATION function, select the bookmark you want to reset using ←/↑/↓/ →, then press CLEAR.

To reset all the bookmarks for the player
Select "BOOKMARK RESET →" of "CUSTOM SETUP" in the Setup Display (page 80).

☞ **Hint**
The number of the bookmark you selected is displayed on the front panel display.

Note
The player can store the bookmarks of up to 300 discs in memory. When you have the player store over 300 discs in memory, bookmarks of the oldest disc are erased.

Dividing a scene into 9 sections (STROBE PLAYBACK) `DVD-V` `VCD`

You can display 9 consecutive moving pictures on the screen.

When you press II after performing step 3 of "Searching by Scene (PICTURE NAVIGATION)" above, the moving pictures pause.

Displaying different angles simultaneously (ANGLE VIEWER) `DVD-V`

If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, you can display all of the angles recorded on the disc on the screen divided into 9 sections.

You can also play back from the selected angle. After performing step 3 of "Searching by Scene (PICTURE NAVIGATION)" above, select the angle using ←/↑/↓/→, and press ENTER.

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1-12

Checking the Playing Time and Remaining Time `DVD-V` `DVD-RW` `VCD` `SA-CD` `CD` `DATA CD`

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the Disc Memo, DVD/Super Audio CD/CD text, or track/album name (MP3 audio) recorded on the disc.
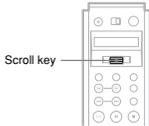
Scroll key

1 Toggle the scroll key up or down during playback to display "TIME/TEXT" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that 🔊 appears in the LCD screen.
The following display appears.

```
T 1:01:57      PLAY ▶
```
Time information
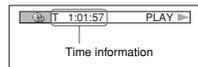
3 Press down on the scroll key repeatedly to change the time information.
The display and the kind of time information that you can check depend on the disc you are playing.

◆ **When playing a DVD VIDEO or DVD-RW**
• T ✳:✳:✳ (hours: minutes: seconds)
  Playing time of the current title
• T–✳:✳:✳
  Remaining time of the current title
• C ✳:✳:✳
  Playing time of the current chapter
• C–✳:✳:✳
  Remaining time of the current chapter

◆ **When playing a VIDEO CD (with PBC functions)**
• ✳:✳ (minutes: seconds)
  Playing time of the current scene

◆ **When playing a VIDEO CD (without PBC functions), Super Audio CD, or CD**
• T ✳:✳ (minutes: seconds)
  Playing time of the current track
• T–✳:✳
  Remaining time of the current track
• D ✳:✳
  Playing time of the current disc
• D–✳:✳
  Remaining time of the current disc

◆ **When playing a DATA CD (MP3 audio)**
• ✳:✳ (minutes: seconds)
  Playing time of the current track

To check the Disc Memo, DVD/Super Audio CD/CD text, or track/album names (MP3 audio)
Press down on the scroll key repeatedly in step 3 to display the Disc Memo or text recorded on the DVD/Super Audio CD/CD/DATA CD. The DVD/Super Audio CD/CD text appears only when text is recorded in the disc. You cannot change the text. If disc does not contain text, "NO TEXT" appears. In this case, you can label the disc. To label the disc, see page 66.

```
BRAHMS  SYMPHONY
```

For DATA CDs, the track/album names of the MP3 audio track appears (page 56).

Checking the information on the front panel display

You can view the time information and text displayed on the TV screen also on the front panel display. The information on the front panel display changes as follows when you change the time information on your TV screen.

When playing a DVD VIDEO or DVD-RW

Title playing time and the current title and chapter number
```
1, 2    1:03:24
```
↓
Remaining time of the current title
```
1, 2    -1:15:36
```
↓
Playing time and number of the current chapter
```
2    0:22:30
```
↓
Remaining time of the current chapter
```
2    -0:13:20
```
↓
Text
```
SONY HITS/S
```

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When playing a VIDEO CD (without PBC functions), Super Audio CD, or CD

Track playing time and the current track and index number
```
2 1    2:25
```
↓
Remaining time of the current track
```
2 1    -1:50
```
↓
Playing time of the disc
```
32:12
```
↓
Remaining time of the disc
```
-20:18
```
↓
Text
```
SONY HITS/S
```
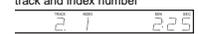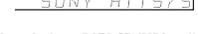
When playing a DATA CD (MP3 audio)

Track playing time and the current track and album number
```
10 21    2:25
```
↓
Track name
```
01HAPPY BIRT
```
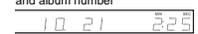
💡 **Hints**
• When playing VIDEO CDs with PBC functions, the scene number and the playing time are displayed.
• Long text that does not fit in a single line will scroll across the front panel display.
• You can check the time information and text using the Control Menu (page 14).

Notes
• Depending on the type of disc being played, the disc's text or track name may not be displayed.
• The player can only display the first level of the disc's text, such as the disc name or title.
• Playing time of MP3 audio tracks may not be displayed correctly.

Checking the Play Information

You can check information such as the bit rate or the disc layer that is being played.

Scroll key

DISPLAY

↑/↓
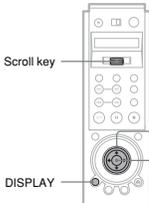
ENTER

Checking the play information of a DVD (ADVANCED) `DVD-V` `DVD-RW`

1 Press DISPLAY during playback.
The Control Menu is displayed.

2 Press ↑/↓ to select [🎵] (ADVANCED), then press ENTER.
The options for "ADVANCED" appear.

```
 12(27)           PLAY
 18(34)           DVD VIDEO
 T   1:32:55

 BIT RATE      BIT RATE
 OFF                      384kbps
 BIT RATE      ▮▮▮▮▮▮▮   Mbps
 LAYER          0   5    10
```
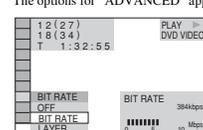
3 Press ↑/↓ to select items.
For each item, see "Display of each item" below.
• BIT RATE: displays the bit rate.
• LAYER: displays the layer and the pick-up point.

4 Press ENTER.

To turn off the ADVANCED display
Select "OFF" in step 3.

To turn off the Control Menu
Press DISPLAY repeatedly until the Control Menu is turned off.

Display of each item
By pressing DISPLAY repeatedly, you can display either "BIT RATE" or "LAYER," whichever was selected in "ADVANCED."

◆ **BIT RATE**

```
BIT RATE
              384kbps  ── Audio
▮▮▮▮▮▮▮▮
0    5    10   Mbps    ── Video
```
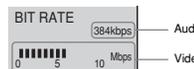
Bit rate refers to the amount of video/audio data per second in a disc. While playing a disc, the approximate bit rate of the playback picture is displayed as Mbps (megabits per second) and the audio as kbps (kilobits per second). The higher the bit rate, the larger the amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

◆ **LAYER**
Appears when the DVD has dual layers

```
Layer 1
```
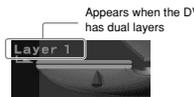
Indicates the approximate point where the disc is playing.
If it is a dual-layer DVD, the player indicates which layer is being read ("Layer 0" or "Layer 1").
For details on the layers, see page 88 (DVD VIDEO).

Checking the play information of a DATA CD `DATA CD`

You can display the audio bit rate (the amount of data per second of the current audio) on the TV screen.

1 While playing MP3 audio tracks on a DATA CD, toggle the scroll key up or down to display "TIME/TEXT" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that 🔊 appears in the LCD screen.
The audio bit rate appears on the TV screen.

Bit rate
```
T   17:30  128k  PLAY ▶

JAZZ
RIVER SIDE
```
Album name   Track name

56
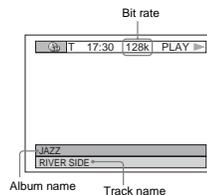
Changing the Sound

`DVD-V` `DVD-RW` `VCD` `CD`
`DATA CD`

When playing a DVD VIDEO recorded in multiple audio formats (PCM, Dolby Digital, or DTS), you can change the audio format. If the DVD VIDEO is recorded with multilingual tracks, you can also change the language.
With CDs, DATA CDs, or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can hear the instruments from both speakers by selecting the left channel.

Scroll key

↑/↓
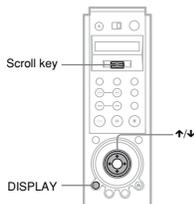
DISPLAY

1 **Toggle the scroll key up or down during playback to display "AUDIO" in the LCD screen.**

2 **Point the remote at the player and press down on the scroll key so that appears in the LCD screen.**

The following display appears.

1:ENGLISH
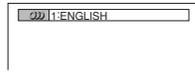
3 **Press down on the scroll key repeatedly to select one of the audio options.**

◆ **When playing a DVD VIDEO**
Depending on the DVD VIDEO, the choice of language varies.
When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 92 to see which language the code represents.
When the same language is displayed two or more times, the DVD VIDEO is recorded in multiple audio formats.

◆ **When playing a DVD-RW**
The types of sound tracks recorded on a disc are displayed. The default setting is underlined.
Example:
• 1: MAIN (main sound)
• 1: SUB (sub sound)
• 1: MAIN+SUB (main and sub sound)

◆ **When playing a VIDEO CD, CD, or DATA CD (MP3 audio)**
The default setting is underlined.
• STEREO: The standard stereo sound
• 1/L: The sound of the left channel (monaural)
• 2/R: The sound of the right channel (monaural)

Hint
You can also select "AUDIO" from the Control Menu (page 14).

Note
You cannot change the sound for Super Audio CDs.

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(sidebar: Sound Adjustments)

Displaying the audio information of the disc `DVD-V`

Press DISPLAY during playback to display the Control Menu. Select "AUDIO" using ↑/↓. The channels being played are displayed on the screen.
For example, in Dolby Digital format, multiple signals ranging from monaural to 5.1 channel signals can be recorded on a DVD VIDEO. Depending on the DVD VIDEO, the number of the recorded channels may differ.

Current audio format*

```
1 2 ( 2 7 )          PLAY ▶
1 8 ( 3 4 )          DVD VIDEO
T    1 : 3 2 : 5 5
1 : ENGLISH
                     PROGRAM FORMAT
                     DOLBY DIGITAL 3/2.1

                     L   C   R
                         LFE
                     LS      RS
```

Currently playing program format**
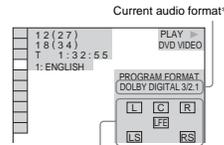
*"PCM," "DTS," or "DOLBY DIGITAL" is displayed.
In the case of "DOLBY DIGITAL," the channels in the playing track are displayed by numbers as follows:

For Dolby Digital 5.1 ch:

Rear component 2

DOLBY DIGITAL 3 / 2 . 1

Front component 2+ Center component 1   LFE (Low Frequency Effect) component 1
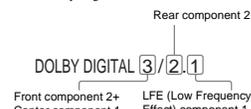
**The letters in the program format display indicate the following sound components:
L: Front (left)
R: Front (right)
C: Center
LS: Rear (left)
RS: Rear (right)
S: Rear (monaural): The rear component of the Dolby Surround processed signal and the Dolby Digital signal
LFE: Low Frequency Effect signal

Hint
When playing Dolby Digital or DTS sound tracks, "LFE" is enclosed in a dotted line when the LFE signal is not being output.

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SURROUND Mode Settings `DVD-V` `DVD-RW` `VCD` `CD` `DATA CD`

You can enjoy surround sound while playing discs recorded in the Dolby Surround (Pro Logic) format.
This function is available when you connect 4 or more speakers and set "REAR" in "SIZE" of "SPEAKER SETUP" to any setting other than "NONE."
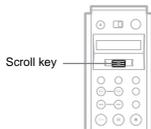
Scroll key

1 **Toggle the scroll key up or down during playback to display "SURROUND" in the LCD screen.**

2 **Point the remote at the player and press down on the scroll key so that appears in the LCD screen.**

The following display appears.
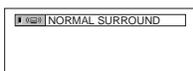
NORMAL SURROUND

3 **Press down on the scroll key repeatedly to select one of the surround modes.**

• NORMAL SURROUND
Discs with 2 channel audio signals are decoded with the Dolby Surround (Pro Logic) decoder to create surround effects. The rear speakers will emit identical monaural sounds. If you are using a center speaker, the appropriate sounds for the center speaker will be delivered.

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• ENHANCED SURROUND
Provides a greater sense of presence from a Dolby Surround (Pro Logic) source with a monaural rear channel signal. Produces a stereo like effect in the rear channels.

L   R

LS   RS
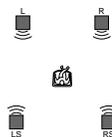
L: Front speaker (left)
R: Front speaker (right)
LS: Rear speaker (left)
RS: Rear speaker (right)

(sidebar: Sound Adjustments)

To cancel the setting
Select "OFF" in step 3.

Hint
You can also select "SURROUND" from the Control Menu (page 14).

Notes
• If you use the DIGITAL OUT (OPTICAL or COAXIAL) jack and set "DOLBY DIGITAL" to "DOLBY DIGITAL," and "DTS" to "DTS" in "AUDIO SETUP," sound will come from your speakers but it will not have the surround effect.
• If the player is set up to output the signal from the DIGITAL OUT (OPTICAL or COAXIAL) jack, the surround effect will not be heard when you play a CD.

Changing the Angles `DVD-V`

If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, "ANGLE" appears in the front panel display. This means that you can change the viewing angle.
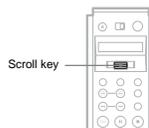
Scroll key

1 **Toggle the scroll key up or down during playback to display "ANGLE" in the LCD screen.**

2 **Point the remote at the player and press down on the scroll key so that appears in the LCD screen.**

The following display appears.

2

3 **Press down on the scroll key repeatedly to select an angle.**

The scene changes to the selected angle.

Hints
• You can display all the angles on a screen divided into 9 sections and start playback directly from the chosen angle. (page 52)
• You can also select "ANGLE" from the Control Menu (page 14).

Note
Depending on the DVD VIDEO, you may not be able to change the angles even if multi-angles are recorded on the disc.

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1-14

Displaying the Subtitles

DVD-V **DVD-RW**

If subtitles are recorded on the discs, you can change the subtitles or turn them on and off whenever you want while playing a DVD.
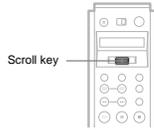
Scroll key

1 Toggle the scroll key up or down during playback to display "SUBTITLE" in the LCD screen.

2 Point the remote at the player and press down on the scroll key so that 📶 appears in the LCD screen.

The following display appears.

```
 1:ENGLISH
```
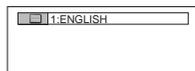
3 Press down on the scroll key repeatedly to select a setting.

◆ **When playing a DVD VIDEO**
Select the language.
Depending on the DVD VIDEO, the choice of language varies.
When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 92 to see which language the code represents.

◆ **When playing a DVD-RW**
Select "ON."

To turn off the subtitles
Select "OFF" in step 3.

Note
Depending on the DVD VIDEO, you may not be able to change the subtitles even if multilingual subtitles are recorded on it. You also may not be able to turn them off.

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Adjusting the Picture

(VIDEO CONTROL) **DVD-V** **DVD-RW** **VCD**

You can adjust the video signal of DVD or VIDEO CD from the player to obtain the picture quality you want.
Choose the preset Video Control setting that best suits the program you are watching, or select "MEMORY" to adjust individual picture items, such as color, brightness, etc., creating a fixed set of picture item adjustments for the disc in either case.
As long as "PLAYBACK MEMORY" in "CUSTOM SETUP" is set to "ON" (default), the Video Control settings for up to 300 discs remain in the player's memory, and will be automatically applied whenever you play the same disc. When you store a Video Control setting for the 301st disc, the setting for the 1st disc is canceled.

VIDEO
CONTROL
⏮/⏭

←/↑/↓/→

ENTER

RETURN
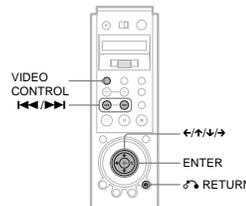
1 Press VIDEO CONTROL during playback.

The following display appears.

```
 DYNAMIC 1
```
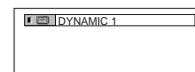
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---

2 Press VIDEO CONTROL repeatedly to select the setting you want.

The default setting is underlined.
- STANDARD: Displays a standard picture.
- DYNAMIC 1: Produces a bold dynamic picture by increasing the picture contrast and the color intensity.
- DYNAMIC 2: Produces a more dynamic picture than DYNAMIC 1 by further increasing the picture contrast and the color intensity.
- CINEMA 1: Enhances details in dark areas by increasing the black level.
- CINEMA 2: White colors become brighter and black colors become richer, and the color contrast is increased.
- MEMORY: Adjusts the picture in greater detail.

Hints
- When you watch a movie, "CINEMA 1" or "CINEMA 2" is recommended.
- You can also select "VIDEO CONTROL" from the Control Menu (page 14).

Note
Video Control settings for DVD-RWs in VR mode will be canceled when you open the disc tray or when the player enters standby mode.

Adjusting the picture items in "MEMORY"

You can adjust each element of the picture qualities individually.
- DVE (digital video enhancer): Sharpens or softens the outlines of the images. "SOFT" is available only for DVDs.
- BNR (block noise reduction): Reduces "block noise" or mosaic like patterns in the picture.
- Y NR (luminance noise reduction): Reduces noise contained in the luminance element of the video signal.
- C NR (chroma noise reduction): Reduces noise contained in the color element of the video signal.

- **CHROMA DELAY:**
Adjusts colors that appear to have shifted horizontally.
- **AV ALIGNMENT:**
Adjusts delay between the picture and sound.
- **PROGRESSIVE 1:**
Sets a threshold at which the player determines the progressive conversion method.
When "COMPONENT OUT" in "SCREEN SETUP" is set to "PROGRESSIVE," the player automatically detects whether the software is video based or film based, and converts the video signals in the corresponding progressive conversion method. When the set point is closer to "VIDEO," the video based software conversion is more likely to be selected; when closer to "FILM," the film based conversion is the likely choice. When set specifically to "VIDEO," the video based software conversion will be always applied regardless of the software type.
See "Glossary" for details about the video based software and film based software (page 88).
- **PROGRESSIVE 2:**
Adjusts the progressive video signals processed under the video based software conversion. Set closer to "STILL" for software containing static pictures such as scenery. Or, set closer to "MOVE" for software containing dynamic moving pictures such as a car chase.
- **PICTURE:**
Changes the contrast.
- **BRIGHTNESS:**
Changes the overall brightness.
- **COLOR:**
Makes the colors deeper or lighter.
- **HUE:**
Changes the color balance.
- **GAMMA:**
Adjusts the brightness of selected areas. See "Adjusting the brightness of selected areas (Gamma Correction)" for details (page 64).

---

1 Press VIDEO CONTROL repeatedly to select "MEMORY," then press ENTER.

The "DVE" adjustment bar appears.

```
 DVE   OFF 1 2 3 SOFT
```

2 Press ←/→ to adjust the outline, then press ENTER.

The adjustment is saved, and the "BNR" adjustment bar appears.

3 Repeat step 2 to adjust "BNR" and the other items such as "Y NR," and "C NR."

4 When you reach the "GAMMA" adjustment bar, press ↓.

Video Control display 1 appears. To go to Video Control display 2, press ↓ again. You can check all the adjustments other than "GAMMA."

Video Control display 1

```
DVE            OFF 1 2 3 SOFT
BNR            OFF 1 2 3
Y NR                      OFF
C NR                      OFF
CHROMA DELAY   0 1 2
AV ALIGNMENT              120ms
```

Video Control display 2

```
PROGRESSIVE1  FILM ――― VIDEO – 4
PROGRESSIVE2  STILL ――― MOVE – 0
PICTURE                        0
BRIGHTNESS                     0
COLOR                          0
HUE                            0
                     RESET
```

To turn off the display
Press RETURN.

→continued **63**
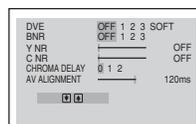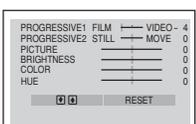
Enjoying Movies

Hints
- To reset the picture items to the default values, press → after step 4 to select "RESET" in Video Control display 2 and press ENTER.
- You can skip the adjustment without saving by pressing ↑/↓ in step 2.
- Video based software, such as TV drama, animation, and live music software are more adequately processed under the video based conversion. Film based software such as movies are better processed under the film based conversion.

Notes
- If the outlines of the images on your screen should become blurred, set "BNR" to "OFF."
- Depending on the disc or the scene being played, the "BNR," "Y NR," or "C NR" effect may be hard to discern.
- Depending on the disc or the scene being played, noise found in the disc may become more apparent. If this happens, it is recommended that you use the BNR function with the DVE function. If the condition still does not improve, reduce the DVE level, or select "SOFT" (DVD only).
- Some DVDs contain both video based and film based sections. For example, a DVD may contain a movie taken on film, and a "Making of" sequence taken on video.
- If the progressive format image becomes unclear or unnatural when "MEMORY" is set to "PROGRESSIVE 1" or "PROGRESSIVE 2," try viewing with "PROGRESSIVE 1" set to "VIDEO." If this does not improve the picture, view the images in Interlace format through the COMPONENT VIDEO OUT jacks (page 78), or switch to another jack.

Adjusting the brightness of selected areas (Gamma Correction)

Depending on your TV or viewing environment, images on the screen may lose definition when a certain area of the image is so light that it appears washed out, or so dark that it blends into the surrounding dark areas. By correcting the Gamma value, you can adjust the brightness of selected areas to get a clearer image. While the "BRIGHTNESS" adjustment controls the brightness of the entire image, the "GAMMA" adjustment is useful when only some portions of the image need adjusting.

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Example: You are watching a movie that is rich in shadows and you want to see the hidden details of the scenery.
If you use the "BRIGHTNESS" adjustment, the entire image will become brighter, losing definition in the areas that were initially bright. The "GAMMA" adjustment enables you to select the dark part and gradually increase its brightness without sacrificing the overall definition.

1 After step 3 of "Adjusting the picture items in MEMORY," press ↑/↓ to display the "GAMMA," adjustment bar, and press ENTER or →.

The "GAMMA" adjustment display appears.

```
0%
          32
          64
          96
50        128
          160
          192
          224
100
 └RESET
```
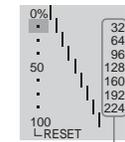
Current Gamma setup value

2 Press ↑/↓ to select areas of an image.

The upper region adjusts the dark areas and the lower region adjusts the light areas.

Dark areas → 0%
                         32
                         64
Selected areas   96
of an image   128
                   50   160
                         192
                         224
Light areas →   100
                   └RESET

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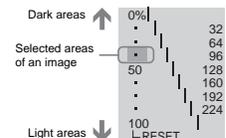
3 Press ←/→ to adjust the brightness level of the area that you selected.

← decreases the level (darkens the area), and → increases the level (lightens the area). The level can be adjusted between 16 and 235. The level for the dark areas can never be greater than the light areas.
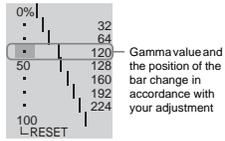
```
0%|
        . |
        . |   32
        . |   64
        . |   120
    50  |   128   Gamma value and
        . |   160   the position of the
        . |   192   bar change in
        . |   224   accordance with
   100 |         your adjustment
   ∟RESET

   ←           →
  Darken      Lighten
```

4 Repeat steps 2 and 3 to adjust the brightness level of other areas that you select.

Try to keep the line that connects the brightness level of each area as smooth and straight as possible, as shown below.

How to lighten the dark areas of an image

```
0%|
        . |
   ▪    . |   58
        . |   89
        . |   94
    50  |   128
        . |   160
        . |   192
        . |   224
   100 |
   ∟RESET
```

How to darken the light areas of an image

```
0%|
        . |
        . |   35
        . |   64
        . |   105
    50  |   128
        . |   150
        . |   159
   ▪    . |   174
   100 |
   ∟RESET
```
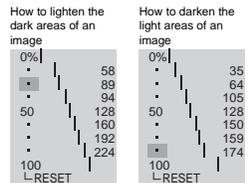
To prevent the image from appearing overly altered, do not give the line any sharp changes. Gradually make the adjustments while viewing the image on your TV screen.
Press ♂⟲ RETURN to stop making adjustments to the image.

5 Press ENTER.

The "GAMMA" adjustment bar appears and the adjusted gamma values are stored in memory.

To reset only the gamma value to the default setting
Select "RESET" in the "GAMMA" adjustment display by pressing ↑/↓, and press ENTER.

Ö Hint
You can move the gamma adjustment display horizontally by pressing ⏮/⏭.

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Labeling the Disc DVD-V
VCD SR·CD CD

You can label a disc if no text is recorded on the disc (Disc Memo).
You can put a personal title of up to 20 characters on the disc. The Disc Memo can be anything you like, such as a title, musician's name, category, or date of purchase.

Scroll key

⏮/⏭

Click shuttle   ←/↑/↓/→
                 ENTER
DISPLAY

CLEAR
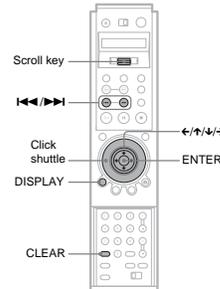
1 Insert the disc you want to label.

2 Press DISPLAY.

The Control Menu appears.

3 Press ↑/↓ to select 🕐 (TIME/MEMO) and press ENTER.

"DISC MEMO INPUT →" appears.

```
1 2 ( 2 7 )        PLAY    ▷
1 8 ( 3 4 )        DVD VIDEO
T   - - : - - : - -
DISC MEMO INPUT →
```

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---
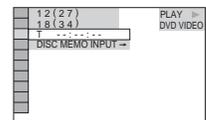
4 Press ↓ to select "DISC MEMO INPUT →" and press ENTER.

The "DISC MEMO INPUT" display appears.

```
DISC MEMO INPUT
_____

ABCDEFGHIJKLMNOPQRSTUVWX
YZ 0123456789<>+−*/=?\ _@
                   SAVE
```
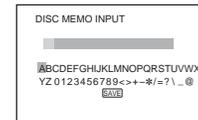
5 Select a character by pressing ←/↑/↓/→, or by turning the click shuttle.

The selected character changes the color.

6 Press ENTER.

```
DISC MEMO INPUT
B_____

ABCDEFGHIJKLMNOPQRSTUVWX
YZ 0123456789<>+−*/=?\ _@
                   SAVE
```
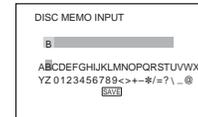
7 Repeat steps 5 and 6 to input other characters.

8 When you have entered all the characters for a Disc Memo, select "SAVE" by pressing ←/↑/↓/→, and press ENTER.

The Disc Memo is stored.

To turn off the display
Press ♂⟲ RETURN.

To erase a character

1 Press ⏮ or ⏭ to move the cursor to the character you want to erase.

2 Press CLEAR.

To insert or overwrite a character

1 Press ⏮ or ⏭ to move the cursor to the insertion point or the character you want to correct.

2 Select a correct character by pressing ←/↑/↓/→ or turning the click shuttle.

3 **To insert a character**, press ENTER.
To overwrite, press ⏮ or ⏭.

To check the Disc Memo
Toggle the scroll key up or down to display "TIME/TEXT" in the LCD screen. Then point the remote at the player and press down on the scroll key so that 📶 appears in the LCD screen. Press down on the scroll key repeatedly until the Disc Memo appears at the bottom of the TV screen.

Note

You can label up to 300 discs. When you have the player store over 300 discs in memory, each new Disc Memo erases the oldest Disc Memo from those first stored.

Locking Discs (CUSTOM PARENTAL CONTROL, PARENTAL CONTROL)

You can set two kinds of playback restrictions for the desired disc.
• Custom Parental Control
  You can set playback restrictions so that the player will not play inappropriate discs.
• Parental Control
  Playback of some DVD VIDEOs can be limited according to a predetermined level, such as the age of the users. Scenes may be blocked or replaced with different scenes. The same password is used for both Parental Control and Custom Parental Control.

Custom Parental Control DVD-V
VCD SR·CD CD

You can set the same Custom Parental Control password for up to 300 discs. When you set the 301st-disc, the first disc is canceled.

■
↑/↓

ENTER
DISPLAY

Number buttons
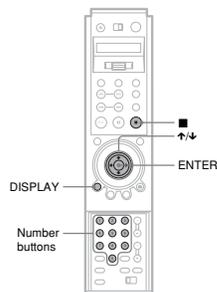
1 Insert the disc you want to lock.

If the disc is playing, press ■ to stop playback.

2 Press DISPLAY while the player is stopped.

The Control Menu appears.

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---

3 Press ↑/↓ to select 🔒 (PARENTAL CONTROL), then press ENTER.

The options for "PARENTAL CONTROL" appear.

```
1 2 ( 2 7 )        STOP
1 8 ( 3 4 )        DVD VIDEO
T   1 : 3 2 : 5 5

ON →
PLAYER →
PASSWORD →
OFF
```
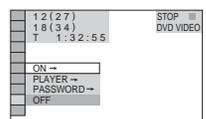
4 Press ↑/↓ to select "ON →," then press ENTER.

◆ If you have not entered a password
The display for registering a new password appears.

```
PARENTAL CONTROL

Enter a new 4-digit password, then
press ENTER.

▪    ▪    ▪    ▪
```

Enter a 4-digit password using the number buttons, then press ENTER.
The display for confirming the password appears.

◆ When you have already registered a password
The display for entering the password appears.

```
PARENTAL CONTROL

Enter password, then press ENTER.

▪    ▪    ▪    ▪
```
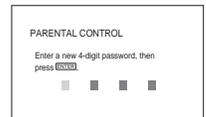
5 Enter or re-enter your 4-digit password using the number buttons, then press ENTER.

"Custom parental control is set." appears and then the screen returns to the Control Menu.

To turn off the Custom Parental Control function

1 Follow steps 1 through 3 of "Custom Parental Control."

2 Press ↑/↓ to select "OFF →," then press ENTER.

3 Enter your 4-digit password using the number buttons, then press ENTER.

To play a disc for which Custom Parental Control is set

1 Insert the disc for which Custom Parental Control is set.
The "CUSTOM PARENTAL CONTROL" display appears.

```
CUSTOM PARENTAL CONTROL

Custom parental control is already
set. To play, enter your password
and press ENTER.

▪    ▪    ▪    ▪
```
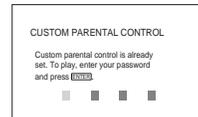
2 Enter your 4-digit password using the number buttons, then press ENTER.
The player is ready for playback.

Ö Hint
If you forget your password, enter the 6-digit number "199703" using the number buttons when the "CUSTOM PARENTAL CONTROL" display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

Parental Control (limited playback) DVD-V

Playback of some DVD VIDEOs can be limited according to a predetermined level such as the age of the users. The "PARENTAL CONTROL" function allows you to set a playback limitation level.
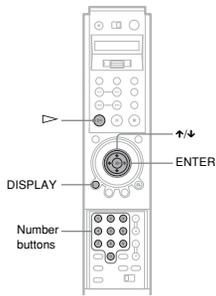
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1-16

1 Press DISPLAY while the player is stopped.
The Control Menu appears.

2 Press ↑/↓ to select ⊞ (PARENTAL CONTROL), then press ENTER.
The options for "PARENTAL CONTROL" appear.

```
12 ( 27 )            STOP
18 ( 34 )            DVD VIDEO
T    1:32:55

ON →
PLAYER →
PASSWORD →
OFF
```
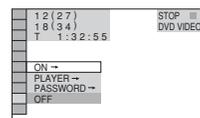
3 Press ↑/↓ to select "PLAYER →," then press ENTER.

◆ If you have not entered a password
The display for registering a new password appears.

```
PARENTAL CONTROL

Enter a new 4-digit password, then
press ENTER.

■  ■  ■  ■
```

Enter a 4-digit password using the number buttons, then press ENTER.

The display for confirming the password appears.

◆ When you have already registered a password
The display for entering the password appears.

```
PARENTAL CONTROL

Enter password, then press ENTER.

■  ■  ■  ■
```

4 Enter or re-enter your 4-digit password using the number buttons, then press ENTER.
The display for setting the playback limitation level appears.

```
PARENTAL CONTROL
LEVEL:                OFF
STANDARD:             USA
```
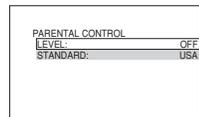
5 Press ↑/↓ to select "STANDARD," then press ENTER.
The selection items for "STANDARD" are displayed.

```
PARENTAL CONTROL
LEVEL:                OFF
STANDARD:             USA
                     USA
                     OTHERS →
```
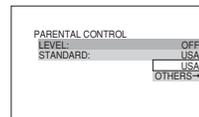
6 Press ↑/↓ to select a geographic area as the playback limitation level, then press ENTER.
The area is selected.
When you select "OTHERS →," select and enter a standard code in the table on page 70 using the number buttons.

7 Press ↑/↓ to select "LEVEL," then press ENTER.

→continued **69**

The selection items for "LEVEL" are displayed.

```
PARENTAL CONTROL
LEVEL:                OFF
STANDARD:             OFF
  8:
  7:   NC17
  6:   R
  5:
```
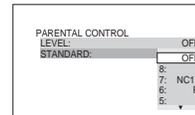
8 Select the level you want using ↑/↓, then press ENTER.
Parental Control setting is complete.

```
PARENTAL CONTROL
LEVEL:            4:   PG13
STANDARD:             USA
```
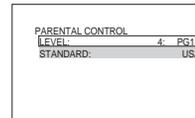
The lower the value, the stricter the limitation.

To turn off the Parental Control function
Set "LEVEL" to "OFF" in step 8.

To play a disc for which Parental Control is set

1 Insert the disc and press ▷.
The display for entering your password appears.

2 Enter your 4-digit password using the number buttons, then press ENTER.
The player starts playback.

ϔ Hint
If you forget your password, remove the disc and repeat steps 1 to 3 of "Parental Control (limited playback)." When you are asked to enter your password, enter "199703" using the number buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password, replace the disc in the player and press ▷. When the display for entering your password appears, enter your new password.

Notes
• When you play discs which do not have the Parental Control function, playback cannot be limited on this player.

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• Depending on the disc, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is canceled, the level returns to the previous level.

Area Code

Standard	Code number
Argentina	2044
Australia	2047
Austria	2046
Belgium	2057
Brazil	2070
Canada	2079
Chile	2090
China	2092
Denmark	2115
Finland	2165
France	2174
Germany	2109
India	2248
Indonesia	2238
Italy	2254
Japan	2276
Korea	2304
Malaysia	2363
Mexico	2362
Netherlands	2376
New Zealand	2390
Norway	2379
Pakistan	2427
Philippines	2424
Portugal	2436
Russia	2489
Singapore	2501
Spain	2149
Sweden	2499
Switzerland	2086
Thailand	2528
United Kingdom	2184

Changing the password

1 Press DISPLAY while the player is stopped.
The Control Menu appears.

2 Press ↑/↓ to select ⊞ (PARENTAL CONTROL), then press ENTER.
The options for "PARENTAL CONTROL" appear.

3 Press ↑/↓ to select "PASSWORD →," then press ENTER.
The display for entering the password appears.

4 Enter your 4-digit password using the number buttons, then press ENTER.

5 Enter a new 4-digit password using the number buttons, then press ENTER.

6 To confirm your password, re-enter it using the number buttons, then press ENTER.

If you make a mistake entering your password
Press ← before you press ENTER and input the correct number.

If you make a mistake
Press ↩ RETURN.

To turn off the display
Press DISPLAY repeatedly until the display is turned off.

Operation Sound Effects

(Sound Feedback)

The player beeps when the following operations are performed.
The default setting of the Sound Feedback function is set to off.

Operation	Operation sound
Power is turned on	One beep
Power is turned off	Two beeps
▷ is pressed	One beep
‖ is pressed	Two beeps
Playback is stopped	One long beep
Operation is not possible	Three beeps

Setting Sound Feedback
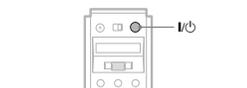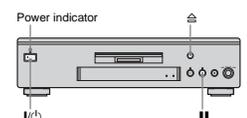
1 Press I/⏻ on the player or the remote.
The power indicator lights up in green.
When there is a disc in the player, press ⏏ and remove the disc. Then press ⏏ again to close the disc tray.

2 Press and hold ‖ on the player for more than two seconds.
You will hear one beep and the Sound Feedback function is turned on.

To turn off the Sound Feedback function
When there is no disc in the player, press and hold ‖ on the player for more than two seconds. You will hear two beeps and the Sound Feedback function is turned off.

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Controlling Your TV or AV Amplifier (Receiver) With the Supplied Remote

By adjusting the remote signal, you can control your TV with the supplied remote.
If you connect the player to an AV amplifier (receiver), you can control the volume with the supplied remote.

Notes
• Depending on the connected unit, you may not be able to correctly control your TV or AV amplifier (receiver) using some of the buttons below.
• If you enter a new code number, the code number previously entered will be erased.
• When you replace the batteries of the remote, the code number you have set may be reset to the default setting. Set the appropriate code number again.

Controlling TVs with the remote

1 Slide the TV/DVD switch to TV.

2 While holding down I/⏻, press down on the scroll key.
"TV P-1" (default) appears in the LCD screen.

3 Release I/⏻.

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---

4 Toggle the scroll key up or down to select your TV's manufacturer code (see "Code numbers of controllable TVs" below).

5 Press down on the scroll key.
The manufacturer code flashes and the remote is set.
When the TV/DVD switch is set to TV, the remote performs the following:

I/⏻	Turns the TV on or off
VOL +/–	Adjusts the volume of the TV
WIDE MODE	Switches to or from the wide mode of a Sony wide TV
TV/VIDEO	Switches the TV's input source between the TV and other input sources
CH +/–, number buttons and ENTER	Selects the channel of the TV

Code numbers of controllable TVs
If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number
Sony (default)	1
Akai	4
AOC	4
Centurion	12
Coronado	3
Curtis-Mathes	12
Daytron	12
Emerson	3,4,14
Fisher	11
General Electric	6,10
Gold Star	3,4,17
Hitachi	2,3
J.C.Penney	4,12
JVC	9
KMC	3
Magnavox	3,8,12
Marantz	4,13

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MGA/Mitsubishi	4,12,13,17
NEC	4,12
Panasonic	6,19
Philco	3,4
Philips	8,21
Pioneer	16
Portland	3
Proscan	10
Quasar	6,18
Radio Shack	5,14
RCA	4,10
Sampo	12
Samsung	3,12,20
Sanyo	11,14
Scott	12
Sears	7,10,11
Sharp	3,5,18
Sylvania	8,12
Teknika	3,8,14
Toshiba	7
Wards	3,4,12
Yorx	12
Zenith	15

Controlling the volume of your AV amplifier (receiver) with the remote

TV/DVD switch

Scroll key

I/⏻

VOL +/–
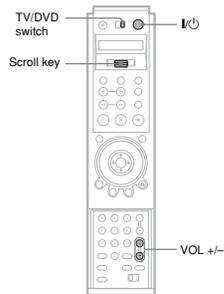
1 Slide the TV/DVD switch to DVD.

2 While holding down I/⏻, press down on the scroll key.
"AV P-90" (default) appears in the LCD screen.

3 Release I/⏻.

4 Toggle the scroll key up or down to select your AV amplifier (receiver)'s manufacturer code (see "Code numbers of controllable AV amplifiers (receivers)" below).

5 Press down on the scroll key.
The manufacturer code flashes and the remote is set. The VOL +/– buttons control the AV amplifier's volume.

◆ **If you want to control the TV's volume**
Slide the TV/DVD switch to TV.

Using Various Additional Functions

Code numbers of controllable AV amplifiers (receivers)
If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

Manufacturer	Code number
Sony	80, 88, 89, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

ᄬ **Hint**
If you want to control the TV's volume even when the TV/DVD switch is set to DVD, repeat steps 1 through 5 and enter the code number 90 (default).

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Using the Setup Display

By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item, see pages from 76 to 84.

Note

Playback settings stored in the disc take priority over the Setup Display settings and not all the functions described may work.

↑/↓
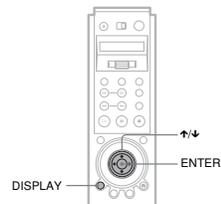
ENTER

DISPLAY

1 Press DISPLAY while the player is stopped.
The Control Menu appears.

2 Press ↑/↓ to select ▣ (SETUP), then press ENTER.
The options for "SETUP" appear.

(47)   STOP ■
DVD VIDEO

QUICK
CUSTOM
RESET
QUICK
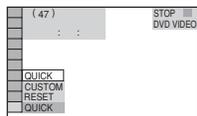
3 Press ↑/↓ to select "CUSTOM," then press ENTER.
The Setup Display appears.

LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH
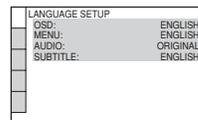
4 Press ↑/↓ to select the setup item from the displayed list:
"LANGUAGE SETUP," "SCREEN SETUP," "CUSTOM SETUP," "AUDIO SETUP," or "SPEAKER SETUP." Then press ENTER.
The Setup item is selected.
Example: "SCREEN SETUP"

Selected item

SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON
COMPONENT OUT: INTERLACE
4:3 OUTPUT: FULL

Setup items
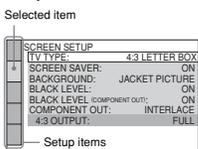
5 Select an item using ↑/↓, then press ENTER.
The options for the selected item appear.
Example: "TV TYPE"

SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
BLACK LEVEL: 16:9
BLACK LEVEL (COMPONENT OUT): ON
COMPONENT OUT: INTERLACE
4:3 OUTPUT: FULL

Options
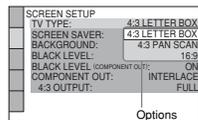
6 Select a setting using ↑/↓, then press ENTER.
The setting is selected and setup is complete.
Example: "16:9"

Settings and Adjustments

Selected setting

SCREEN SETUP
TV TYPE: 16:9
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE
BLACK LEVEL: ON
BLACK LEVEL (COMPONENT OUT): ON
COMPONENT OUT: INTERLACE
4:3 OUTPUT: FULL
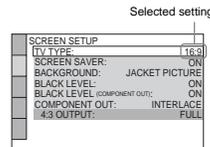
To turn off the display
Press DISPLAY repeatedly until the display is turned off.

To enter the Quick Setup mode
Select "QUICK" in step 3. Follow from step 5 of the Quick Setup explanation to make basic adjustments (page 31).

To reset all the "SETUP" settings

1 Select "RESET" in step 3 and press ENTER.

2 Select "YES" using ↑/↓.
You can also quit the process and return to the Control Menu by selecting "NO" here.

3 Press ENTER.
All the settings explained on pages 76 to 84 return to the default settings. Do not press I/⏻ while resetting the player, which takes a few seconds to complete.

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Setting the Display or Sound Track Language
(LANGUAGE SETUP)

"LANGUAGE SETUP" allows you to set various languages for the on-screen display or sound track.

Select "LANGUAGE SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 75).

LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH
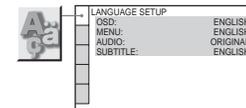
◆ **OSD (On-Screen Display)**
Switches the display language on the screen.

◆ **MENU (DVD VIDEO only)**
Switches the language for the disc's menu.

◆ **AUDIO (DVD VIDEO only)**
Switches the language of the sound track.
When you select "ORIGINAL," the language given priority in the disc is selected.

◆ **SUBTITLE (DVD VIDEO only)**
Switches the language of the subtitle recorded on the DVD VIDEO.
When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language you selected for the sound track.

ᄬ **Hint**
If you select "OTHERS ➜" in "MENU," "SUBTITLE," or "AUDIO," select and enter a language code from "Language Code List" on page 92 using the number buttons.

Note

When you select a language in "MENU," "SUBTITLE," or "AUDIO" that is not recorded on a DVD VIDEO, one of the recorded languages will be automatically selected.

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Settings for the Display
(SCREEN SETUP)

Choose settings according to the TV to be connected.

Select "SCREEN SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 75).
The default settings are underlined.

```
SCREEN SETUP
TV TYPE:                    4:3 LETTER BOX
SCREEN SAVER:                         ON
BACKGROUND:             JACKET PICTURE
BLACK LEVEL:                          ON
BLACK LEVEL (COMPONENT OUT):          ON
COMPONENT OUT:                INTERLACE
4:3 OUTPUT:                         FULL
```
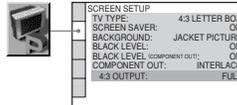
◆ **TV TYPE**
Selects the aspect ratio of the connected TV (4:3 standard or wide).

4:3 LETTER BOX	Select this when you connect a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 PAN SCAN	Select this when you connect a 4:3 screen TV. Automatically displays a wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when you connect a wide-screen TV or a TV with a wide mode function.

4:3 LETTER BOX

4:3 PAN SCAN

16:9

To store a picture in memory
The player can store one scene in memory for the background.
During playback, when you find a scene to be stored in memory, press PICTURE MEMORY.
The picture is stored in memory.

Note
Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

◆ **SCREEN SAVER**
The screen saver image appears when you leave the player in pause or stop mode for 15 minutes, or when you play back a Super Audio CD, CD, or DATA CD (MP3 audio) for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press ▷ to turn off the screen saver image.

ON	Turns on the screen saver function.
OFF	Turns off the screen saver function.

◆ **BACKGROUND**
Selects the background color or picture that appears on the TV screen when the player is in stop mode or playing a Super Audio CD, CD, or DATA CD (MP3 audio).

JACKET PICTURE	The jacket picture (still picture) appears, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
PICTURE MEMORY	Your favorite picture appears in the background. To store a scene in memory, see "To store a picture in memory" below.
GRAPHICS	A preset picture stored in the player appears.
BLUE	The background color is blue.
BLACK	The background color is black.

➜ continued **77**

Note
If you operate the player while the picture is being stored in memory, the player will fail to store the picture.

◆ **BLACK LEVEL**
Selects the black level (setup level) for the video (NTSC) signals output from the jacks other than COMPONENT VIDEO OUT.

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

◆ **BLACK LEVEL (COMPONENT OUT)**
Selects the black level (setup level) for the video (NTSC) signals output from the COMPONENT VIDEO OUT jacks. You cannot select this when "PROGRESSIVE" is selected in "COMPONENT OUT" (see below).

ON	Sets the black level of the output signal to the standard level.
OFF	Lowers the standard black level. Use this when the picture becomes too white.

◆ **COMPONENT OUT**
Selects the type of signal output from the COMPONENT VIDEO OUT jacks on the player. See page 89 for more information about the different types.

INTERLACE	Select this when you are connected to a standard (interlace format) TV.
PROGRESSIVE	Select this when you have a TV that can accept progressive signals.

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PICTURE MEMORY

To switch the video signal format
If you have selected "PROGRESSIVE" for a TV that does not accept signals in progressive format 480p, or if the software's video signals are not suited for progressive video signal conversion, view the image in Interlace format.

1 Set the COMPONENT VIDEO OUT/ SCAN SELECT switch on the rear panel of the player to "INTERLACE."

2 Set "COMPONENT OUT" to "INTERLACE."

3 Reset the COMPONENT VIDEO OUT/ SCAN SELECT switch to "SELECTABLE."
Normally leave the switch in this position when using the COMPONENT VIDEO OUT jacks.

When "PROGRESSIVE" is selected in "COMPONENT OUT"
• 4:3 OUTPUT
Adjust this when you watch progressive signals on a standard 4:3 aspect ratio television. If you can change the aspect ratio on your progressive format (480p) compatible TV, change the setting on your TV, not the player.

FULL	Select this when you can change the aspect ratio on your TV.
NORMAL	Select this when you cannot change the aspect ratio on your TV. Shows a 16:9 aspect ratio signal with black bands on left and right sides of the image, and a 4:3 aspect ratio signal with black bands on all sides of the image.
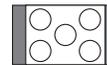
16:9 aspect ratio TV   4:3 aspect ratio TV

Custom Settings (CUSTOM SETUP)

Use this to set up playback related and other settings.

Select "CUSTOM SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 75).
The default settings are underlined.

```
CUSTOM SETUP
AUTO POWER OFF:                   OFF
AUTO PLAY:                        OFF
DIMMER:                        BRIGHT
PAUSE MODE:                      AUTO
PLAYBACK MEMORY:                   ON
TRACK SELECTION:                  OFF
MULTI-DISC RESUME:                 ON
BOOKMARK RESET                      →
CD DIRECT:                        OFF
```
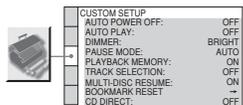
◆ **AUTO POWER OFF**
Switches the Auto Power Off setting on or off.

OFF	Switches this function off.
ON	The player enters standby mode when left in stop mode for more than 30 minutes.

◆ **AUTO PLAY**
Switches the Auto Play setting on or off. This function is useful when the player is connected to a timer (not supplied).

OFF	Switches this function off.
ON	Automatically starts playback when the player is turned on.

◆ **DIMMER**
Adjusts the lighting of the front panel display.

BRIGHT	Makes the lighting bright.
DARK	Makes the lighting dark.
AUTO DARK	Makes the lighting dark if you do not operate the player or the remote for a short while.
AUTO OFF	Turns off the lighting if you do not operate the player or the remote for a short while.
OFF	Turns off the lighting.

◆ **PAUSE MODE (DVD VIDEO/DVD-RW only)**
Selects the picture in pause mode.

AUTO	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
FRAME	The picture, including subjects that do not move dynamically, is output in high resolution.

◆ **PLAYBACK MEMORY**
The player can store "SUBTITLE" and other settings of each disc for up to 300 discs (Playback Memory).
Set this function "ON" or "OFF."

ON	Stores the settings in memory when you eject the disc.
OFF	Does not store the settings in memory.

The following settings are stored in memory.
– ANGLE (page 60)*
– AUDIO (page 57)*
– BOOKMARK (page 51)**
– DISC MEMO (page 66)***
– VIDEO CONTOROL (page 62)**
– SUBTITLE (page 61)*
* DVD VIDEO only
** DVD VIDEO/VIDEO CD only
*** DVD VIDEO/VIDEO CD/Super Audio CD/ CD only

Note
The player can store the settings of up to 300 discs. When you store the setting of disc number 301, the first disc setting is canceled.

◆ **TRACK SELECTION (DVD VIDEO only)**
Gives the sound track which contains the highest number of channels priority when you play a DVD VIDEO on which multiple audio formats (PCM, DTS, or Dolby Digital format) are recorded.

OFF	No priority given.
AUTO	Priority given.

➜ continued **79**

Notes
• When you set the item to "AUTO," the language may change. The "TRACK SELECTION" setting has higher priority than the "AUDIO" settings in "LANGUAGE SETUP" (page 76).
• If PCM, DTS, and Dolby Digital sound tracks have the same number of channels, the player selects PCM, DTS, and Dolby Digital sound tracks in this order.

◆ **MULTI-DISC RESUME (DVD VIDEO/ VIDEO CD only)**
Switches the Multi-disc Resume setting on or off. Resume playback point can be stored in memory for up to 300 different DVD VIDEO/ VIDEO CD discs (page 38).

ON	Stores the resume settings in memory for up to 300 discs (The settings remain in memory even if you select OFF.)
OFF	Does not store the resume settings in memory. Playback restarts at the resume point only for the current disc in the player.

◆ **BOOKMARK RESET→**
Resets the bookmarks. Select this and press ENTER. The "BOOKMARK RESET" display appears. Press ENTER again to erase all of the bookmarks in all of the discs.

◆ **CD DIRECT**
Eliminates the use of unnecessary circuits when playing CDs. This setting will be activated when you open or close the disc tray.
This function affects the output from the following jacks:
– AUDIO OUT L/R 1/2 jacks
– 5.1CH OUTPUT jacks

OFF	Select this when playing CD discs, including CDs with DTS tracks.
ON	Eliminates the use of unnecessary circuits when playing CDs.

Note
If you select "ON" when playing CDs with DTS tracks, the sound will become noisy.

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Settings for the Sound
(AUDIO SETUP)

"AUDIO SETUP" allows you to set the sound according to the playback and connection conditions.

Select "AUDIO SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 75).
The default settings are underlined.

```
AUDIO SETUP
AUDIO ATT:                         OFF
AUDIO DRC:                    STANDARD
AUDIO FILTER:                    SHARP
DOWNMIX:              DOLBY SURROUND
DIGITAL OUT:                        ON
DOLBY DIGITAL:                   D-PCM
DTS:                             D-PCM
48kHz/96kHz PCM:          48kHz/16bit
```
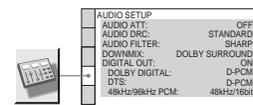
◆ **AUDIO ATT (attenuation)**
If the playback sound is distorted, set this item to "ON." The player reduces the audio output level.
This function affects the output of the following jacks:
– AUDIO OUT L/R 1/2 jacks
– 5.1CH OUTPUT jacks

OFF	Normally select this position.
ON	Select this when the playback sound from the speakers is distorted.

◆ **AUDIO DRC (Dynamic Range Control) (DVD VIDEO/DVD-RW only)**
Allows smaller sound to be heard at low volume when playing a DVD that conforms to "AUDIO DRC." This affects the output from the following jacks:
– AUDIO OUT L/R 1/2 jacks
– 5.1CH OUTPUT jacks
– DIGITAL OUT (OPTICAL or COAXIAL) jack only when "DOLBY DIGITAL" is set to "D-PCM" (page 81).

STANDARD	Normally select this position.
TV MODE	Makes the low sounds clear even if you turn the volume down.
WIDE RANGE	Gives you the feeling of being at a live performance.

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Settings and Adjustments

◆ **AUDIO FILTER (except Super Audio CD)**

Selects the digital filter to reduce noise above 22.05 kHz (Sampling frequency (Fs) of the audio source is 44.1 kHz), 24 kHz (Fs is 48 kHz), or 48 kHz (Fs is above 96 kHz).

SHARP	Provides a wide frequency range and spatial feeling.
SLOW	Provides smooth and warm sound.

Note

There may be little effect by changing the digital filter depending on the disc or playback environment.

◆ **DOWNMIX (DVD VIDEO/DVD-RW only)**

Switches the method for mixing down to 2 channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see "Displaying the audio information of the disc" (page 58). This function affects the output of the following jacks:
– AUDIO OUT L/R 1/2 jacks
– DIGITAL OUT (OPTICAL or COAXIAL) jack when "DOLBY DIGITAL" and "DTS" is set to "D-PCM" (page 81).

DOLBY SUR-ROUND	Select this when the player is connected to an audio component that conforms to Dolby Surround (Pro Logic).
NORMAL	Select this when the player is connected to an audio component that does not conform to Dolby Surround (Pro Logic).

◆ **DIGITAL OUT**

Select this if audio signals are to be output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

ON	Normally select this position. When you select "ON," see "To set the digital output signal" for further settings.
OFF	The influence of the digital circuit upon the analog circuit is minimal.

Note

Super Audio CD audio signals are not output from a digital jack.

To set the digital output signal

The following switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) or MD deck with a digital input jack.
For connection details, see page 24.
Select "DOLBY DIGITAL," "DTS," and "48 kHz/96 kHz PCM" after setting "DIGITAL OUT" to "ON."

```
AUDIO SETUP
AUDIO ATT:              OFF
AUDIO DRC:         STANDARD
AUDIO FILTER:         SHARP
DOWNMIX:      DOLBY SURROUND
DIGITAL OUT:            ON
  DOLBY DIGITAL:       D-PCM
  DTS:               D-PCM
  48kHz/96kHz PCM:  48kHz/16bit
```

If you connect a component that does not conform to the selected audio signal, a loud noise (or no sound) will come out from the speakers, damaging your ears or speakers.
• DOLBY DIGITAL (DVD VIDEO/DVD-RW only)
Selects the type of Dolby Digital signal.

D-PCM	Select this when the player is connected to an audio component without a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the "DOWNMIX" item in "AUDIO SETUP" (page 81).
DOLBY DIGITAL	Select this when the player is connected to an audio component with a built-in Dolby Digital decoder.

• DTS (DVD VIDEO only)
Selects the type of DTS signal.

D-PCM	Select this when the player is connected to an audio component without a built-in DTS decoder.
DTS	Select this when the player is connected to an audio component with a built-in DTS decoder.

• 48kHz/96kHz PCM (DVD VIDEO only)
Selects the sampling frequency of the audio signal.

48kHz/16bit	The audio signals of DVD VIDEOs are always converted to 48kHz/16bit.
96kHz/24bit	All types of signals including 96kHz/24bit are output in their original format. However, if the signal is encrypted for copyright protection purposes, the signal is only output as 48kHz/16bit.

Notes

• Even if you set "48kHz/96kHz PCM" to "96kHz/24bit," the sampling frequency is converted to 48kHz/16bit when a "SURROUND" mode (page 59) is selected.
• The analog signals from the AUDIO OUT L/R jacks and 5.1CH OUTPUT jacks are not affected by this setting and keep their original sampling frequency level.

Settings for the Speakers
(SPEAKER SETUP)

To obtain the best possible surround sound, set the size of the speakers you have connected and their distance from your listening position. Then use the test tone to adjust the volume of the speakers to the same level.
This setting is effective when connecting the speaker with 5.1 CH OUTPUT jacks (page 29).

You can create two different Speaker Setup settings, one for Super Audio CDs and one for all other types of discs.
When nothing is set in "SUPER AUDIO CD," the "DVD" setting you have set becomes effective when you play Super Audio CDs.

1 Follow steps 1 through 4 of "Using the setup display" (page 75) to select "SPEAKER SETUP" in the Setup display.

```
SPEAKER SETUP
DVD:               ➔
SUPER AUDIO CD:    ➔
```
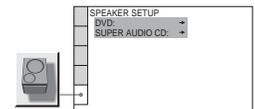
2 Select "DVD" or "SUPER AUDIO CD" using ↑/↓, then press ENTER.

Example: when "DVD" is selected.

```
SPEAKER SETUP (DVD)
SIZE:
DISTANCE:
LEVEL(FRONT):
LEVEL(REAR):
TEST TONE:      OFF
  FRONT:        LARGE
  CENTER:       LARGE
  REAR:         LARGE
  SUBWOOFER:      YES
```
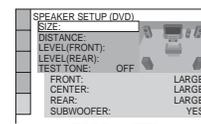
3 Set the following items in the order that they are explained below.

The default settings are underlined.

To return to the default setting

Select the item, then press CLEAR. Note that only the "SIZE" setting does not return to the default setting.

◆ **SIZE**

Selects the size of the speakers.
• FRONT

LARGE	Normally select this position.
SMALL	Select this when the speaker cannot reproduce adequate bass frequencies.

• CENTER

LARGE	Normally select this position.
SMALL	Select this when the speaker cannot reproduce adequate bass frequencies.
NONE	Select this if you do not connect a center speaker.

• REAR

LARGE	Normally select this position.
SMALL	Select this when the speaker cannot reproduce adequate bass frequencies.
NONE	Select this if you do not connect rear speakers.

• SUBWOOFER

YES	Select this if you connect a subwoofer to output the LFE (low frequency effect) signals from the subwoofer.
NONE	Select this if you do not connect a subwoofer.

Notes

• The cut off frequency for the subwoofer is fixed at 120 Hz.
• If your speakers are too small to reproduce low bass frequencies, utilize a subwoofer for low frequency sound. When you set the speaker settings to "SMALL," the bass redirection circuitry will be activated and the bass frequencies for the speakers are output from the subwoofer.
• Even if there are fewer than 6 speakers connected, the player distributes the audio signal components to the front speakers.

◆ **DISTANCE**

Sets the distance from your listening position to the speakers.
Set the distance to your front speakers in "FRONT" first (Ⓐ). Values in "CENTER" (center speaker), "REAR" (rear speaker), and "SUBWOOFER" will automatically change to the same value (Ⓑ, Ⓒ, and Ⓓ). Then adjust these values to reflect the actual distance to your center speaker, rear speakers, and subwoofer.
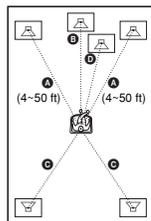
Be sure to change the value in the Setup Display each time you move the speakers.
Start from the front speaker. The default adjustments are in parentheses.

FRONT (10 ft)	Set this between 4 and 50 feet in 0.25 foot increments.
CENTER (10 ft)	Set this within ±6 feet of the "FRONT" setting in 0.25 foot increments. For example, if "FRONT" is set to 6 feet, "CENTER" can be set between 0 and 12 feet.

REAR (10 ft)	Set this within –18 feet and +6 feet of the "FRONT" setting in 0.25 foot increments. For example, if "FRONT" is set to 17 feet, "REAR" can be set between –1 and 23 feet.
SUBWOOFER (10 ft)	Set this within –18 and +6 feet of the "FRONT" setting in 0.25 foot increments. For example, if "FRONT" is set to 18 feet, "REAR" can be set between 0 and 24 feet.

Note

If each of the front or rear speakers are not placed at an equal distance from your listening position, set the distance according to the closest speaker.

◆ **LEVEL (FRONT)**

Varies the level of the front speakers. Be sure to set "TEST TONE" to "ON" for easy adjustment.
The default adjustments are in parentheses.

L (0 dB)	Set this between –6 dB and 0 dB in 0.5 dB increments.
R (0 dB)	Set this between –6 dB and 0 dB in 0.5 dB increments.
CENTER (0 dB)	Set this between –12 dB and 0 dB in 0.5 dB increments.
SUBWOOFER (DVD: –5 dB/ SUPER AUDIO CD: 0 dB)	For DVDs: (When "SIZE" are set to the default settings): Set this between –10 dB and +10 dB in 0.5 dB increments. (When "SIZE" are not set to the default settings): Set this between –15 dB and +5 dB in 0.5 dB increments. For Super Audio CDs: Set this between –10 dB and +10 dB in 0.5 dB increments.

◆ **LEVEL (REAR)**

Varies the level of the rear speakers. Be sure to set "TEST TONE" to "ON" for easy adjustment.
The default adjustments are in parentheses.

L (0 dB)	Set this between –12 dB and 0 dB in 0.5 dB increments.
R (0 dB)	Set this between –12 dB and 0 dB in 0.5 dB increments.

To adjust the volume of all the speakers at one time

Use the amplifier's (receiver's) volume control.

◆ **TEST TONE**

The speakers will emit a test tone. Use this when you use the 5.1CH OUTPUT jacks and adjust "LEVEL (FRONT)" and "LEVEL (REAR)."

OFF	The test tone is not emitted from the speakers.
ON	The test tone is emitted from each speaker in sequence while adjusting level.

Adjusting the speaker volume and level

1 Select "SPEAKER SETUP" in the Setup Display.

2 Select "TEST TONE" and set to "ON."

You will hear the test tone from each speaker in sequence.

3 From your listening position, select "LEVEL (FRONT)" or "LEVEL (REAR)" and adjust the value using ↑/↓.

The test tone is emitted from both left and right speakers simultaneously.

4 Select "TEST TONE" and set to "OFF" to turn off the test tone.

Note

The test tone signals are not output from the digital jack.

Settings and Adjustments

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power is not turned on.

➜ Check that the AC power cord is connected securely.

Picture

There is no picture/picture noise appears.

➜ Re-connect the connecting cord securely.
➜ The connecting cords are damaged.
➜ Check the connection to your TV (page 21) and switch the input selector on your TV so that the signal from the player appears on the TV screen.
➜ The disc is dirty or flawed.
➜ If the picture output from your player goes through your VCR to get to your TV or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience problems even when you connect your player directly to your TV, please try connecting your player to your TV's S VIDEO input (page 21).
➜ You have set "COMPONENT OUT" in "SCREEN SETUP" to "PROGRESSIVE" even though your TV cannot accept the signal in progressive format. In this case, set the COMPONENT VIDEO OUT/SCAN SELECT switch on the rear panel of the player to INTERLACE. Then set "COMPONENT OUT" to "INTERLACE" after you can see the TV screen correctly, and reset the COMPONENT VIDEO OUT/ SCAN SELECT switch to SELECTABLE.

➜ Even if your TV is compatible with progressive format 480p signals, the image may be affected when you set "COMPONENT OUT" to "PROGRESSIVE." In this case, set "COMPONENT OUT" to "INTERLACE."
➜ You have selected VIDEO OFF (page 35).

The picture does not fill the screen, even though the aspect ratio is set in "TV TYPE" under "SCREEN SETUP."

➜ The aspect ratio of the disc is fixed on your DVD.

Sound

There is no sound.

➜ Re-connect the connecting cord securely.
➜ The connecting cord is damaged.
➜ The player is connected to the wrong input jack on the amplifier (receiver) (page 27, 28, 29).
➜ The amplifier (receiver) input is not correctly set.
➜ The player is in pause mode or in Slow-motion Play mode.
➜ The player is in fast forward or fast reverse mode.
➜ If the audio signal does not come through the DIGITAL OUT (OPTICAL or COAXIAL) jack, check the audio settings (page 81).
➜ Super Audio CD audio signals are not output from the digital jack.

Sound distortion occurs.

➜ Set "AUDIO ATT" in "AUDIO SETUP" to "ON" (page 80).

The sound volume is low.

➜ The sound volume is low on some DVDs. The sound volume may improve if you set "AUDIO DRC" to "TV MODE" (page 80).
➜ Set "AUDIO ATT" in "AUDIO SETUP" to "OFF" (page 80).

The surround effect is difficult to hear when you are playing a Dolby Digital, or DTS sound track.

➜ Check the speaker connections and setting (page 29, 31, 81).
➜ The 5.1 channel sound is not recorded on the disc being played.

The sound comes from the center speaker only.

➜ Depending on the disc, the sound may come from the center speaker only.

Operation

The remote does not function.

➜ The batteries in the remote are weak.
➜ There are obstacles between the remote and the player.
➜ The distance between the remote and the player is too far.
➜ The remote is not pointed at the remote sensor on the player.
➜ The command mode setting on the remote does not match the setting on the player (page 17).

The disc does not play.

➜ The disc is turned over. Insert the disc with the playback side facing down on the disc tray.
➜ The disc is skewed.
➜ The player cannot play certain discs (page 6).
➜ The region code on the DVD does not match the player.
➜ Moisture has condensed inside the player (page 3).
➜ The player cannot play DVD-Rs, DVD-RWs, CD-Rs, or CD-RWs that are not finalized (page 7).

The MP3 audio track cannot be played (page 43).

➜ The DATA CD is not recorded in the MP3 format that conforms to ISO9660 Level 1/ Level 2 or Joliet.
➜ The MP3 audio track does not have the extension ".MP3."
➜ The data is not formatted in MP3 even though it has the extension ".MP3."
➜ The data is not MPEG1 Audio Layer 3 data.
➜ The player cannot play audio tracks in MP3PRO format.

"Copyright lock" appears and the screen turns blue when playing a DVD-RW disc.

➜ Images taken from digital broadcasts, etc., may contain copy protection signals, such as complete copy protection signals, single copy signals, and restriction-free signals. When images that contain copy protection signals are played, a blue screen may appear

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instead of the images. It may take a while when looking for playable images.

The title of the MP3 audio album or track is not correctly displayed.

➜ The player can only display numbers and alphabet. Other characters are displayed as "*."

The disc does not start playing from the beginning.

➜ Program Play, Shuffle Play, Repeat Play, or A-B Repeat Play has been selected (page 45).
➜ Resume play has taken effect (page 38).

The player starts playing the disc automatically.

➜ The disc features an auto playback function.
➜ "AUTO PLAY" in "CUSTOM SETUP" is set to "ON" (page 79).

Playback stops automatically.

➜ While playing discs with an auto pause signal, the player stops playback at the auto pause signal.

Some functions such as Stop, Search, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play cannot be performed.

➜ Depending on the disc, you may not be able to do some of the operations above. See the operating manual that comes with the disc.

The language for the sound track cannot be changed.

➜ Try using the DVD's menu instead of the scroll key on the remote (page 39).
➜ Multilingual tracks are not recorded on the DVD being played.
➜ The DVD prohibits the changing of the language for the sound track.

The subtitle language cannot be changed or turned off.

➜ Try using the DVD's menu instead of the scroll key on the remote (page 39).
➜ Multilingual subtitles are not recorded on the DVD being played.
➜ The DVD prohibits the changing of the subtitles.

The angles cannot be changed.

➜ Try using the DVD's menu instead of the scroll key on the remote (page 39).
➜ Multi-angles are not recorded on the DVD being played.
➜ The angle can only be changed when the "ANGLE" indicator lights up on the front panel display (page 10).
➜ The DVD prohibits changing of the angles.

The player does not operate properly.

➜ When static electricity, etc., causes the player to operate abnormally, unplug the player.

Nothing is displayed on the front panel display.

➜ "DIMMER" in "CUSTOM SETUP" is set to "OFF" or "AUTO OFF." Set "DIMMER" to any setting other than "OFF" or "AUTO OFF" (page 79).

5 numbers or letters are displayed on the screen and on the front panel display.

➜ The self-diagnosis function was activated. (See the table on page 87.)

The disc tray does not open and "LOCKED" appears on the front panel display.

➜ Child Lock is set (page 36).

The disc tray does not open and "TRAY LOCKED" appears on the front panel display.

➜ Contact your Sony dealer or local authorized Sony service facility.

"Data error" appears on the TV screen when playing a DATA CD.

➜ The MP3 audio track you want to play is broken.
➜ The data is not MPEG1 Audio Layer 3 data.

Self-diagnosis Function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the player from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four digits appears on the screen and the front panel display. In this case, check the following table.

C:13:50

First three characters of the service number	Cause and/or corrective action
C 13	The disc is dirty. ➜Clean the disc with a soft cloth (page 8).
C 31	The disc is not inserted correctly. ➜Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the player has performed the self-diagnosis function. ➜Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10

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Glossary

Chapter (page 10)

Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Dolby Digital (page 29, 81)

Digital audio compression technology developed by Dolby Laboratories. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same 5.1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems. Good channel separation is realized because all of the channel data are recorded discretely and little deterioration is realized because all channel data processing is digital.

Dolby Surround (Pro Logic) (page 28)

Audio signal processing technology that Dolby Laboratories developed for surround sound. When the input signal contains a surround component, the Pro Logic process outputs the front, center, and rear signals. The rear channel is monaural.

DTS (page 29, 82)

Digital audio compression technology that Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides 5.1 discrete channels of high quality digital audio. Good channel separation is realized because all of the channel data is recorded discretely and little deterioration is realized because all channel data processing is digital.

DVD VIDEO (page 6)

A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD. The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5

GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17GB. The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence. Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

DVD-RW (page 6)

A DVD-RW is a recordable and rewritable disc with the same size as the DVD VIDEO. The DVD-RW can be recorded in two different modes: VR mode and Video mode. VR (Video Recording) mode enables various programming and editing functions, some of which are limited in the case of Video mode. Video mode complies with DVD VIDEO format. A disc recorded in Video mode can be played on other DVD players, while a disc recorded in VR mode can only be played on DVD-RW compliant players. "DVD-RW" appearing in this manual, and the on-screen displays refer to DVD-RWs in VR mode.

Film based software, Video based software (page 62)

DVDs can be classified as Film based or Video based software. Film based DVDs contain the same images (24 frames per second) that are shown at movie theaters. Video based DVDs, such as television dramas or sit-coms, displays images at 30 frames (or 60 fields) per second.

Index (CD)/Video Index (VIDEO CD) (page 10)

A number that divides a track into sections to easily locate the point you want on a CD or VIDEO CD. Depending on the disc, no index may be recorded.

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Interlace format (page 78)

Interlace format shows every other line of an image as a single "field" and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

Progressive conversion method (page 62)

• Video based software conversion
Video shows an image by alternately displaying every other line of an image (field) at 30 frames (60 fields) per second (Interlace format).

The Interlace format displays 30 frames (60 fields) per second by displaying every other line of the image, causing scanning lines to appear across the image. Furthermore, since only half of the image is shown at once, the amount of information contained in an image is limited.
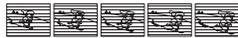
The Progressive format displays 60 entire frames per seconds. The player accomplishes this by converting each field into a frame by using either a field-based conversion method or a frame-based conversion method. The appropriate method is automatically selected by the player according to the movement of the images on the screen. If the movement on the screen is slow, the frame-based conversion method borrows adjacent field information to fill in the missing information. If the movement on the screen is rapid, the field-based conversion method creates the missing information by predicting the movement of the images on the screen from field to field. The end result is an image that is higher in quality when compared to the Interlace format.

Interlace pictures

Converted progressive pictures
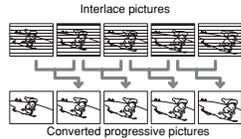
• Film based software conversion
Film shows an image by displaying an entire image at 24 frames per second. When you watch a film on television, the television displays every other line of the frame as a field, thus reducing information level and the clarity of the film image.

Interlace pictures
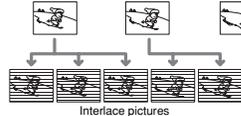
This player solves this problem by increasing the speed at which the frames are displayed, consecutively showing 3 identical frames followed by 2 identical frames in the time that it normally takes to show 2 consecutive frames. The end result is that the 24 frames per second are increased to 60 frames per second, which is the speed at which Progressive video signals are shown.

Converted progressive pictures
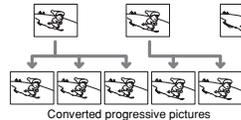
This not only allows film to be shown in a frame based format, it also increases the clarity and sharpness which is unique to Progressive format images.

Additional Information

Progressive format (page 78)

Compared to the Interlace format that alternately shows every other line of an image (field) to create one frame, the Progressive format shows the entire image at once as a single frame. This means that while the Interlace format can show 30 frames (60 fields) in one second, the Progressive format can show 60 frames in one second. The overall picture quality increases and still images, text, and horizontal lines appear sharper.

Scene (page 10)

On a VIDEO CD with PBC (playback control) functions, the menu screens, moving pictures and still pictures are divided into sections called "scenes."

Super Audio CD (page 6)

A Super Audio CD disc can reproduce sounds that are extremely faithful to the original sound by use of DSD (Direct Stream Digital) technology. This technology utilizes a sampling frequency of 2.8224 MHz, which is 64 times that of a conventional CD, and 1-bit quantization that enables the disc to hold 4 times the amount of information that a standard PCM format CD can hold. Super Audio CDs are divided into the following types.

• Super Audio CD (single layer disc)
This disc consists of a single HD layer*.
*High density signal layer for the Super Audio CD

HD (high density) layer

• Super Audio CD (dual layer disc)
This disc consists of dual HD layers and is capable of extended play over long periods. Also, as the dual layer disc consists of dual HD layers on one side only, you do not have to turn the disc over during playback.

HD layer
HD layer

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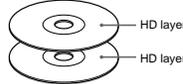
• Super Audio CD + CD (Hybrid disc)
This disc consists of an HD layer and a CD layer. Also, as the dual layers are on one side only, you do not have to turn the disc over during playback. You can play the CD layer using a conventional CD player.

CD layer
HD layer
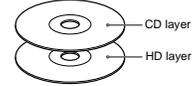
• 2 channel + Multi-channel Super Audio CD
This disc consists of the 2 channel playback area and the multi-channel playback area.

2 channel playback area
Multi-channel playback area
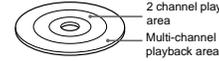
Title (page 10)

The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 10)

Sections of a picture or a music feature on a CD or VIDEO CD (the length of a song).

Language Code List

For details, see pages 57, 61, 76.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1183	Irish	1347	Maori	1507	Samoan
1028	Abkhazian	1186	Scots Gaelic	1349	Macedonian	1508	Shona
1032	Afrikaans	1194	Galician	1350	Malayalam	1509	Somali
1039	Amharic	1196	Guarani	1352	Mongolian	1511	Albanian
1044	Arabic	1203	Gujarati	1353	Moldavian	1512	Serbian
1045	Assamese	1209	Hausa	1356	Marathi	1513	Siswati
1051	Aymara	1217	Hindi	1357	Malay	1514	Sesotho
1052	Azerbaijani	1226	Croatian	1358	Maltese	1515	Sundanese
1053	Bashkir	1229	Hungarian	1363	Burmese	1516	Swedish
1057	Byelorussian	1233	Armenian	1365	Nauru	1517	Swahili
1059	Bulgarian	1235	Interlingua	1369	Nepali	1521	Tamil
1060	Bihari	1239	Interlingue	1376	Dutch	1525	Telugu
1061	Bislama	1245	Inupiak	1379	Norwegian	1527	Tajik
1066	Bengali;	1248	Indonesian	1393	Occitan	1528	Thai
	Bangla	1253	Icelandic	1403	(Afan)Oromo	1529	Tigrinya
1067	Tibetan	1254	Italian	1408	Oriya	1531	Turkmen
1070	Breton	1257	Hebrew	1417	Punjabi	1532	Tagalog
1079	Catalan	1261	Japanese	1428	Polish	1534	Setswana
1093	Corsican	1269	Yiddish	1435	Pashto;	1535	Tonga
1097	Czech	1283	Javanese		Pushto	1538	Turkish
1103	Welsh	1287	Georgian	1436	Portuguese	1539	Tsonga
1105	Danish	1297	Kazakh	1463	Quechua	1540	Tatar
1109	German	1298	Greenlandic	1481	Rhaeto-	1543	Twi
1130	Bhutani	1299	Cambodian		Romance	1557	Ukrainian
1142	Greek	1300	Kannada	1482	Kirundi	1564	Urdu
1144	English	1301	Korean	1483	Romanian	1572	Uzbek
1145	Esperanto	1305	Kashmiri	1489	Russian	1581	Vietnamese
1149	Spanish	1307	Kurdish	1491	Kinyarwanda	1587	Volapük
1150	Estonian	1311	Kirghiz	1495	Sanskrit	1613	Wolof
1151	Basque	1313	Latin	1498	Sindhi	1632	Xhosa
1157	Persian	1326	Lingala	1501	Sangho	1665	Yoruba
1165	Finnish	1327	Laothian	1502	Serbo-	1684	Chinese
1166	Fiji	1332	Lithuanian		Croatian	1697	Zulu
1171	Faroese	1334	Latvian;	1503	Singhalese		
1174	French		Lettish	1505	Slovak		
1181	Frisian	1345	Malagasy	1506	Slovenian	1703	Not specified

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SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

2-1. TOP CASE REMOVAL

④ Top case

① Two flat head screws (TP)

② Screw (BV3 3-CR)

③ Two flat head screws (TP)

2-3. FL-129 BOARD REMOVAL

① Connector (CN201)

⑩ FL-129 board

③ Screw (BV3 3-CR)

⑧ Flexible flat cable (CN203)

⑨ LD-115 board

④ Screw (BV3 3-CR)

⑤

⑥ Connector (CN202)

② Flexible flat cable (CN501)

⑦ FR-190 board
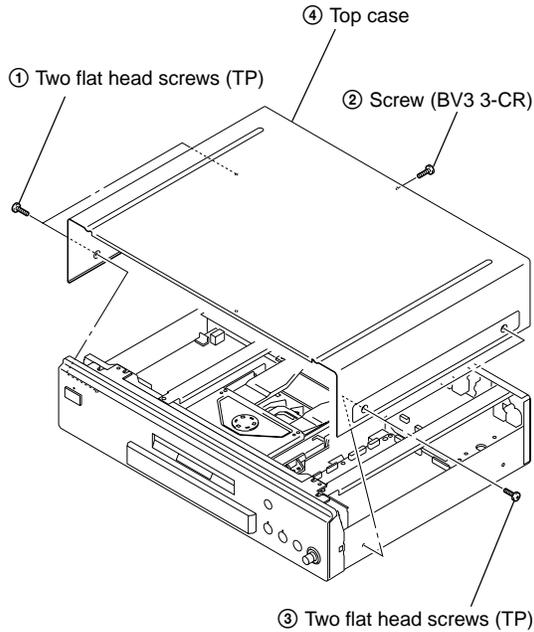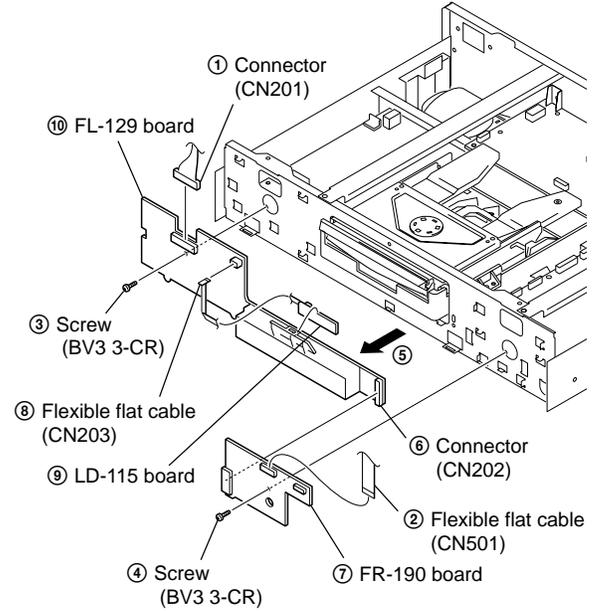
2-2. FRONT PANEL BLOCK ASSEMBLY REMOVAL

① Two screws (BV3 3-CR)

② Two claws

③

⑤ Front panel block assembly

④ Connector (CN503)

2-4. POWER BLOCK REMOVAL

① Connector (CN102)

④ Four screws (BV3 3-CR)

⑤ Power block

③ Connector (CN201)

② Connector (CN101)

2-1

2-5. IF-98 BOARD REMOVAL

① Connector (CN105)

② Connector (CN104)

⑥ Two screws (BV3 3-CR)

③ Connector (CN102)

④ Connector (CN103)

⑦ IF-98 board

⑤ Connector (CN201)
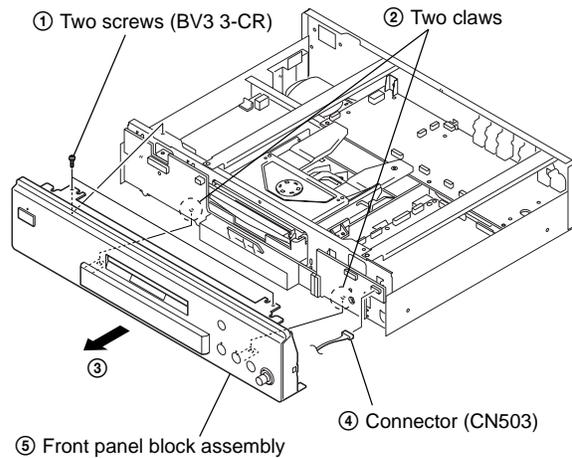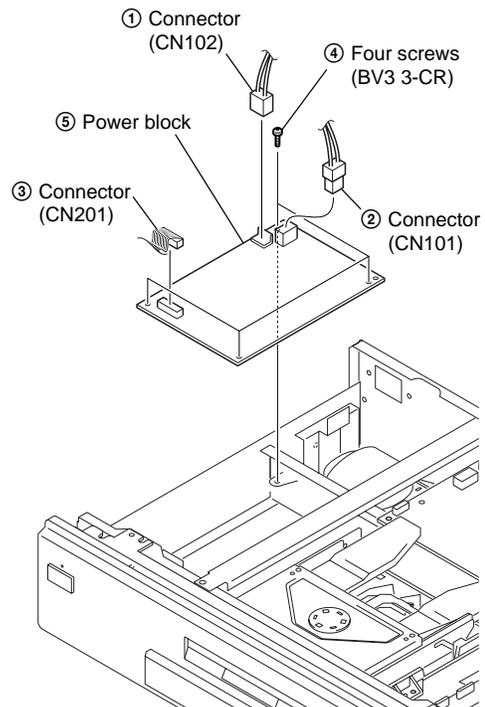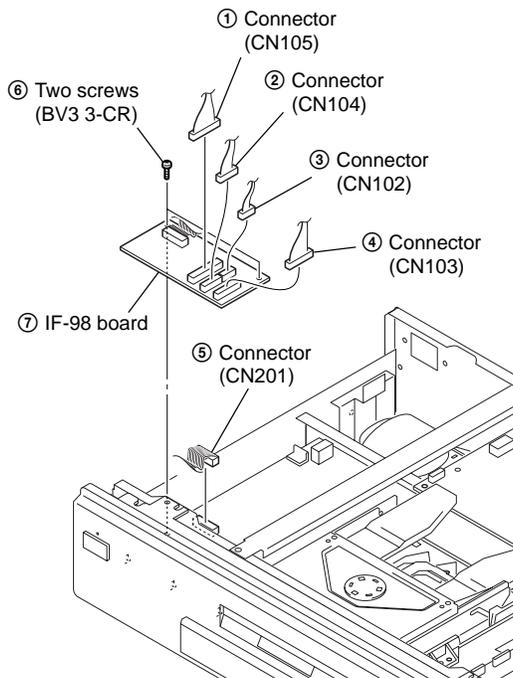
2-7. MECHANISM DECK REMOVAL

③ Stay (FR)

⑦ Three screws (BV3 3-CR)

② Four screws (BV3 3-CR)

⑧ Mechanism deck

① Screw (B type +BV3)

⑤ Flat flexible cable (CN204)

④ Connector (CN201)

⑥ Flat flexible cable (CN203)
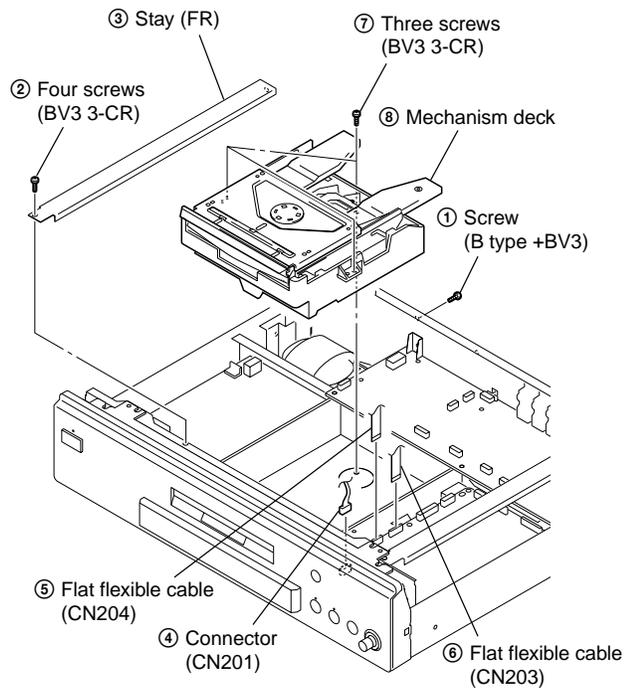
2-6. POWER TRANSFORMER REMOVAL

③ Four screws (BV3 3-CR)

④ Power transformer

① Connector (CN101)

② Connector (CN102)

2-8. AU-232 BOARD REMOVAL

⑦ Flexible flat cable (CN105)

AEP, UK

④ Connector (CN101)

⑪ Two screws (BV3 3-CR)

⑥ Connector (CN107)

⑤ Connector (CN106)

⑬ Five screws (BV3 3-CR)

⑭ AU-232 board

③ Stay (FR)

② Screw (BV3 3-CR)

① Screw (B type +BV3)

⑫

⑩ Seven screws (B type +BV3)

⑧ Connector (CN502)

⑨ Connector (CN503)

2-2
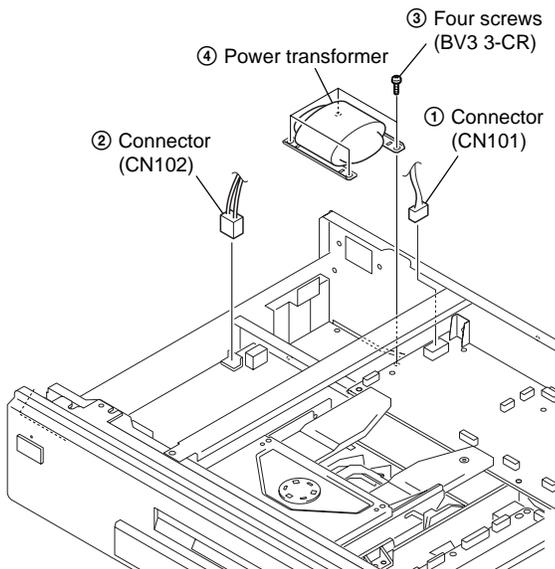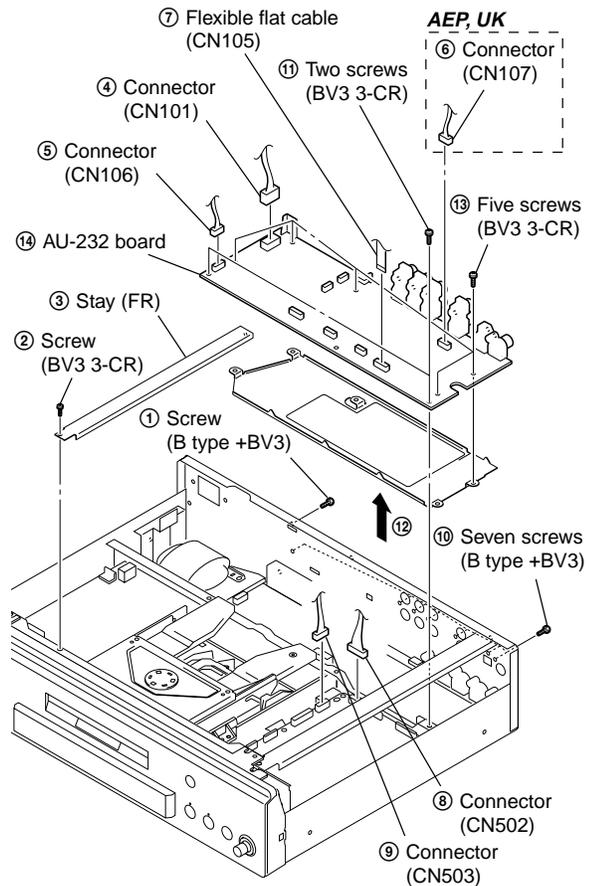
2-9. EV-15 BOARD REMOVAL (AEP, UK)

④ Two screws (BV3 3-CR)

⑤ EV-15 board

① Connector (CN102)

② Flexible flat cable (CN101)

③ Nine screws (sumitite B3)

2-11. MB-107 BOARD REMOVAL

④ Connector (CN101)

③ Flexible flat cable (CN203)

② Flexible flat cable (CN204)

① Connector (CN201)

⑪ MB-107 board

⑤ Connector (CN503)

⑥ Connector (CN502)

⑦ Flexible flat cable (CN501)

⑧ Flexible flat cable (CN601)

⑩ Five screws (BV3 3-CR)

⑨ Flexible flat cable (CN103)
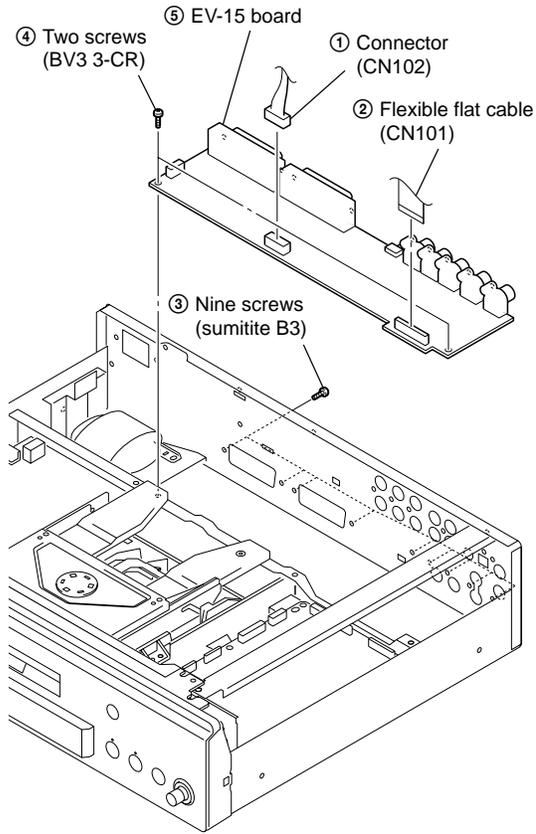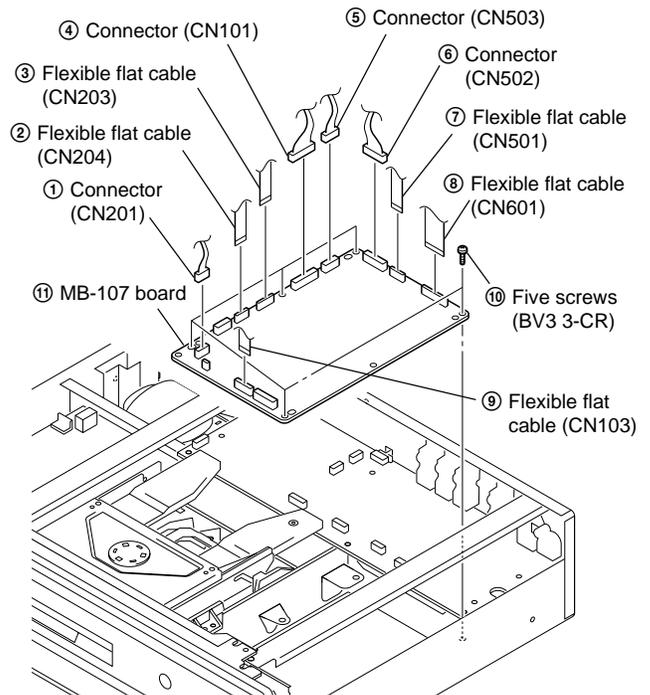
2-10. VP-58 BOARD REMOVAL (US, CND, KR)

① Connector (CN102)

② Flexible flat cable (CN101)

④ Four screws (BV3 3-CR)

⑤ VP-58 board

③ Five screws (sumitite B3)

2-12. CK-119 BOARD REMOVAL

③ CK-119 board

② Screw (BV3)

① Flat flexible cable (CN601)

2-3
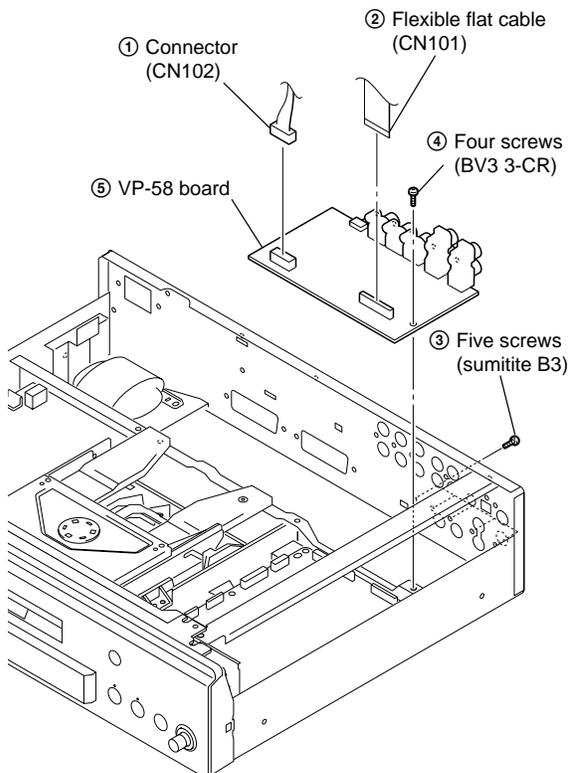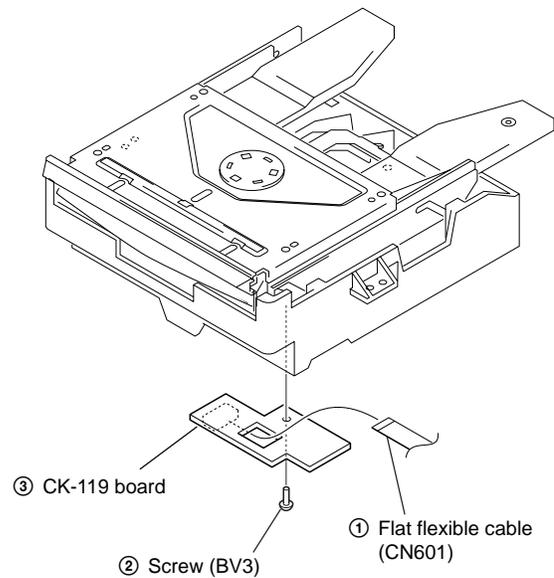
2-13. LOADING ASSEMBLY REMOVAL

② Screw
(B3 × 8)

⑤ Loading assembly

④ Tray assembly

③ Slide the slider (R) and lift up the loading assembly.

① Flexible flat cable (CN602)
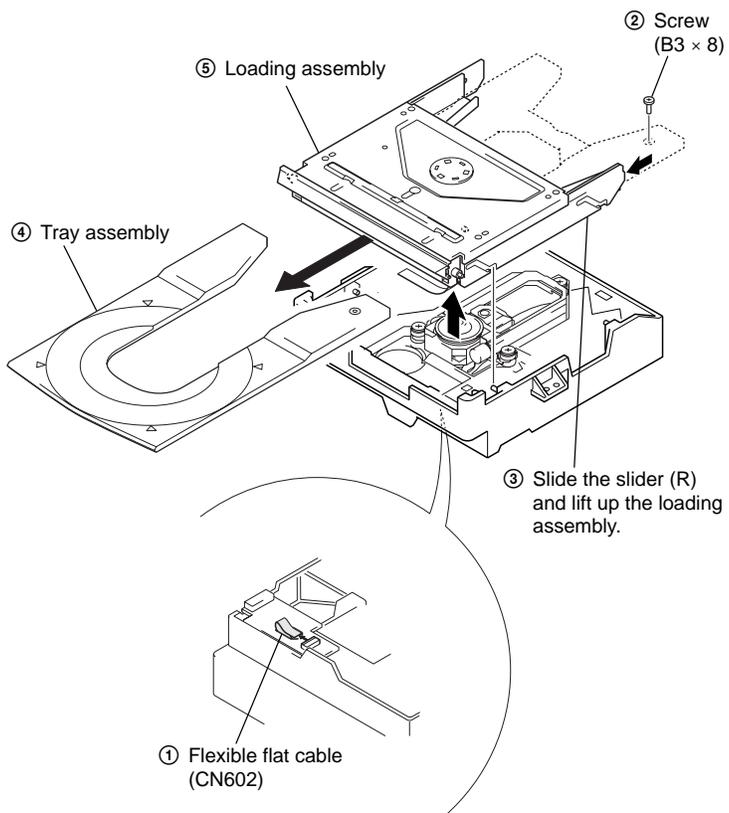
2-14. OPTICAL PICK-UP REMOVAL

① Three step screws

② Optical pick-up

2-4
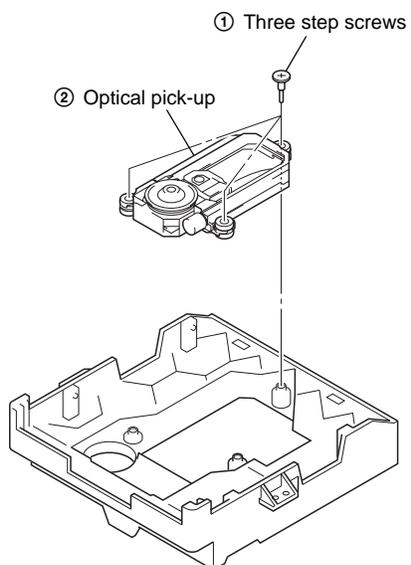
DC motor (loading)
1-763-397-21

KHM-270AAA
Service assembly
A-6062-709-A

2-16. CIRCUIT BOARDS LOCATION

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

IF-98
(INTER FACE)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

FR-190
(FUNCTION SWITCH)

SW-381
(PUSH ENTER SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

VP-58
(VIDEO OUT)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

MB-107 BOARD (SEE PAGE 4-9 to 4-34)

VP-58 BOARD (SEE PAGE 4-41 to 4-44)

US, CND, KR

BASE UNIT KHM-270AAA/ SERVICE ASSY

OPTICAL DEVICE

DVD/CD PD IC

IC201 DVD/CD RF AMP, SERVO ERROR PROCESS

IC303 16M DRAM

IC301 ARP, SERVO DSP

IC406 64M SDRAM

IC403 AV DECODER

IC602 I/P CONVERTER

IC603 16M SDRAM

IC604 VIDEO ENCORDER

IC103
IC104
IC105 VIDEO BUFFER

J103 Y
J104 Ps
J105 Pn

COMPONENT VIDEO OUT

IC109
IC110
IC111 VIDEO BUFFER

J101

J102

2 1 VIDEO OUT

2 1 S1 VIDEO OUT

AEP, UK

IC103
IC104
IC105 VIDEO BUFFER

J103 Y
J104 Ps/Cs
J105 Pn/Cn

COMPONENT VIDEO OUT

IC102 VIDEO BUFFER

J101 VIDEO OUT

J102 S VIDEO OUT

IC501 AUDIO DSP   SPDIF

IC905 SACD DECODER

IC906 AMP

IC903 16M SDRAM

IC107 (IC106) ROM

IC801 AUDIO DELAY

IC802 16M SDRAM

IC301
IC302
IC303
IC304 VIDEO BUFFER, SELECT SW

RY301 – 303, 306 SW

RY304, 305 SW

CN302 LINE 2

CN303 LINE 1 (RGB) –TV

EV-15 BOARD (SEE PAGE 4-61 to 4-66)

S101 SCAN SELECT SELECTABLE INTERLACE PROGRESSIVE

FOCUS COIL

TRACKING COIL

INLIMIT SW

SPINDLE MOTOR M

SLED MOTOR M

IC202 FOCUS/ TRACKING COIL DRIVE, SPINDLE/ SLED/ LOADING MOTOR DRIVE

PARALLEL BUS

IC702 64M NAND FLASH

IC701 NAND FLASH I/F, EXTENSION I/O

IC108 1M SRAM

IC104 SYSTEM CONTROL

SERIAL BUS

IIC BUS

IC503 AUDIO D/A CONVERTER

IC107 COAXIAL DIGIATAL OUT BUFFER

IC108

J107

COAXIAL   DIGITAL OUT

OPTICAL

IC106 AUDIO AMP

J105 L R AUDIO OUT AEP, UK

J101 L R AUDIO 2
J102 L R AUDIO 1 US, CND, KR

IC101 EEPROM

IC502 AUDIO D/A CONVERTER

IC102
IC103
IC104 5.1CH AUDIO AMP

J102 R L FRONT
J103 R L REAR
J104 WOOFER CENTER 5.1CH OUTPUT

M001 LOADING MOTOR M

PH101 CHUCK DETECT

PH102 TRAY DETECT

MS-113 BOARD (SEE PAGE 4-36)

FR-190 BOARD (1/2) (SEE PAGE 4-55)

CK-119 BOARD (SEE PAGE 4-36)

S101 COMMAND MODE

+5V +12V –12V REG

AU-232 BOARD (SEE PAGE 4-47)

J106 CONTROL S IN US, CND

D803, 804 MULTI CHANNEL

LD-115 BOARD (SEE PAGE 4-68)

• Abbreviation
CND : Canadian
KR : Korea

R-CORE TRANS

REG

AC IN

SWITCHING REG

SW+3.3V
SW+3.3V
SW+5V
SW+11V
P-CONT

ND201 FLUORESCENT INDICATOR TUBE

IC203 IF CON

IC201 S-LINK US, CND

IC201 REMOTE COMMANDER RECEIVER

FUNCTION LED

FUNCTION KEY

SW-381 BOARD (SEE PAGE 4-55)

PUSH ENTER

POWER BLOCK (ZSSR107G: US, CND) (SEE PAGE 4-71) (ZSSR107H: AEP, UK, KR) (SEE PAGE 4-75)

S201

IF-98 BOARD (SEE PAGE 4-68)

FL-129 BOARD (SEE PAGE 4-51)

FR-190 BOARD (2/2) (SEE PAGE 4-55)

3-1

3-2

DVP-NS999ES

3-2. RF/SERVO BLOCK DIAGRAM

3-3. SIGNAL PROCESSOR BLOCK DIAGRAM

DVP-NS999ES

3-4. SYSTEM CONTROL BLOCK DIAGRAM

3-5. VIDEO (1) BLOCK DIAGRAM

DVP-NS999ES

3-6. VIDEO (2) BLOCK DIAGRAM

3-7. VIDEO (3) BLOCK DIAGRAM

AEP, UK

EV-15 BOARD
(SEE PAGE 4-61 to 4-66)

IC106
VIDEO AMP

IC102 ⑬   IC102 ⑭   IC102 ⑮
2.4 Vp-p (H)   2.0 Vp-p (H)   1.8 Vp-p (H)

CN101

VIDEO OUT
J101
J102
S VIDEO OUT

IC102
VIDEO BUFFER

V 9   Q105 BUFFER   FL106 L.P.F   Q116 ATT   V   VIN VOUT
SY 15   Q103 BUFFER   FL104 L.P.F   Q114 ATT   Y   YIN YOUT
SC 11   Q104 BUFFER   FL105 L.P.F   Q115 ATT   C   CIN COUT
MUTE 1

Q141 ATT   RY307
Q143 ATT
Q142 ATT   Q322 MUTE
Q122 ATT

IC304 VIDEO BUFFER
IC304 ⑦   IC304 ⑦ (LINE : S VIDEO mode)
2.4 Vp-p (H)   2.0 Vp-p (H)
V/Y

RY303

Q315 RELAY DRIVE
Q316 MUTE DRIVE
Q317 MUTE DRIVE
D327   D326

Q319 MUTE   IC301 VIDEO BUFFER
IC301 ⑦ (LINE : RGB mode)   IC301 ⑦ (LINE : S VIDEO mode)
1.4 Vp-p (H)   1.7 Vp-p (H)

IC302 VIDEO BUFFER   IC302 ⑦ (LINE : RGB mode)
Q120 ATT   Q320 MUTE   R/C   1.4 Vp-p (H)   G

RY301

EUROVY 3   Q314 SWITCH

Q121 ATT   Q321 MUTE   B
RGBSEL 4   Q131, 133 RGB/YCb Cr SWITCH   D325   Q318 MUTE DRIVE   IC303 VIDEO BUFFER   IC303 ⑦ (LINE : RGB mode)   1.4 Vp-p (H)

RY302

DISC/EXT 2   Q306, 307 LINE SELECT CONTROL   Q309 RELAY DRIVE

Q301, 302 BLANKING SIGNAL GENERATOR   D302   Q303 ～ 305 FUNCTION SIGNAL GENETRATOR   Q313 RELAY DRIVE

RY306

WIDE 7   Q130, 135 WIDE SWITCH

V IN
V/Y OUT
BLANKING OUT
R/C OUT
G OUT
FUNCTION SW OUT
B OUT
AVLINKO
A(L)IN
A(L)OUT
A(R)IN
A(R)OUT
CN303 LINE 1 (RGB) –TV

V IN
V OUT
BLANKING IN
R IN
G IN
FUNCTION SW IN
B IN
AVLINKI
A(L)IN
A(L)OUT
A(R)IN
A(R)OUT
CN302 LINE 2

VIDEO 1 (SEE PAGE 3-10)

Q106 BUFFER   FL107 L.P.F   Q117 ATT   RY101
Y/G 17   Q124 BUFFER   FL111 L.P.F   Q127 ATT   Y
Cb/B 19   Q107 BUFFER   FL108 L.P.F   Q118 ATT   RY102
Q125 BUFFER   FL112 L.P.F   Q128 ATT   B-Y
Cr/R 21   Q108 BUFFER   FL109 L.P.F   Q119 ATT
Q123 BUFFER   FL110 L.P.F   Q126 ATT   R-Y   Q132, 136 RELAY DRIVE

IC103 VIDEO BUFFER   J103   Y
Q138 MUTE   IC103 ⑦   J104   PB/CB   COMPONENT VIDEO OUT
2.0 Vp-p (H)   J105   PR/CR

IC104 VIDEO BUFFER
Q139 MUTE   IC104 ⑦
1.3 Vp-p (H)

Q140 MUTE   IC105 ⑦
1.3 Vp-p (H)
IC105 VIDEO BUFFER

RY304

RY305

DSEL 6   Q129 SWITCH
IP_SW 5   Q137 MUTE DRIVE

EURO L   CN301   Q312 RELAY DRIVE
EURO R

AUDIO (SEE PAGE 3-18)

INTERFACE CONTROL (SEE PAGE 3-19)   V_MUTE 1   CN102   Q101, 102 MUTE DRIVE   D110
Q134 SWTCH   D109
05

+5V   S101 SCAN SELECT
SELECTABLE
INTERLACE
PROGRESSIVE

3-13   3-14

DVP-NS999ES

3-8. AUDIO (1) BLOCK DIAGRAM

3-9. AUDIO (2) BLOCK DIAGRAM

DVP-NS999ES

DVP-NS999ES

3-10. INTERFACE CONTROL BLOCK DIAGRAM

FR-190 BOARD (1/2)
(SEE PAGE 4-55)

FL-129 BOARD
(SEE PAGE 4-51)

- Abbreviation
  CND : Canadian
  KR : Korea

SYSTEM CONTROL
(SEE PAGE 3-8)

CN501
CN502
(1/2)

SI0
SO0
SC0
XIFCS
IFBSY
XFRRST

CN202
(1/2)

SI0
SO0
SC0
XIFCS
IFBSY

XFRRST

SO
SI
/SC
/CS
BUSY

/FRRST

BUZ 21
BZ201 BUZZER

AD6 36
S201 I/⏻

FR-190 BOARD (2/2)
(SEE PAGE 4-55)

AUDIO 2
(SEE PAGE 3-17)

CN102
CN105

A_MUTE
S_LINK
MODE

CN201

A_MUTE
S_LINK
MODE
V_MUTE

/AMUTE
AD1
/VMUTE

US, CND, KR
VIDEO 2
(SEE PAGE 3-11)
VIDEO 3
(SEE PAGE 3-13)

CN104

IF-98 BOARD
(SEE PAGE 4-68)

AEP, UK

+5V
D216
Q211 LED DRIVE
SUPER AUDIO CD
LED_SACD

+3.3V
D212
VIDEO OFF
LED_VOFF

D213
FL OFF
LED_FLOFF

LED_PLAY 43
LED_PAUSE 42

CN202 (2/2)

PLAY_LED
PAUSE_LED

CN502 (2/2)

Q502 LED DRIVE
Q501 LED DRIVE

+3.3V
D502
D501

LD-115 BOARD
(SEE PAGE 4-68)

D803, 804
+5V
MULTI CHANNEL
CN801

LED_MULT
CN203

Q213 LED DRIVE
LED_MULT

STATUS

AD5 35
AD4 34

AD5
AD4

S501

S502 S503 S505

IC202 S-LINK

Q207, 208 IR BUFFER

US, CND

SW-381 BOARD
(SEE PAGE 4-55)

IC201
REMOTE COMMANDER RECEIVER

OUT
IR

ACS_CW 29
ACS_CCW 28
CURSOR 37

ACS_CW
ACS_CCW
ENTER

CN503

ACS_CW
ACS_CCW
ENTER

CN401

S401
PUSH ENTER

ND201
FLUORESCENT INDICATOR TUBE

SEG 1 – 18

DIG 1 – 13

IC205 RESET

VOUT
/RST

XIN 2
XOUT 3

X201 8MHz

IC203 ⑤

3.4 Vp-p (8 MHz)

IC203 IF CON

Q5

3-19

3-20

3-11. POWER (1) BLOCK DIAGRAM

• Abbreviation
CND : Canadian
KR : Korea

3-21

3-22

DVP-NS999ES

3-12. POWER (2) BLOCK DIAGRAM

US, CND, KR

AEP, UK

VP-58 BOARD
(SEE PAGE 4-41 to 4-44)

EV-15 BOARD
(SEE PAGE 4-61 to 4-66)

• Abbreviation
 CND : Canadian
 KR : Korea

POWER 1
(SEE PAGE 3-22)

CN102

SW+5V   7   FL113 FILTER   RY101, 102 RELAY

+8V   5   FL101 FILTER   IC101   Q112 +5V REG   IC109 / IC110 / IC111   VIDEO BUFFER

V_OFF   2   Q109 ~ 111 VIDEO ON/OFF

IC103 / IC104 / IC105   VIDEO BUFFER

−8V   3   FL102 FILTER   Q113 −5V REG

+3.3V   6   FL103 FILTER   Q101

POWER 1
(SEE PAGE 3-22)

CN102

SW+5V   7   FL113 FILTER   RY101, 102, RY301 – 307 RELAY   FL114 FILTER   IC301 / IC302 / IC303 / IC304 VIDEO BUFFER

+8V   5   FL101 FILTER   IC101   Q112 +5V REG   IC106 VIDEO AMP

V_OFF   2   Q109 ~ 111 VIDEO ON/OFF   IC102 VIDEO BUFFER

IC103 / IC104 / IC105 VIDEO BUFFER

−8V   3   FL102 FILTER   Q113 −5V REG

+3.3V   6   FL103 FILTER   Q101, 131   FL115 FILTER

CN501   11   A+3.3V   POWER 3 (SEE PAGE 3-25)

MB-107 BOARD
(SEE PAGE 4-9 to 4-34)

POWER 3 (SEE PAGE 3-26)   A+5V   CN503   1   FL503 FILTER   IC502 AUDIO D/A CONVERTER

IC503 AUDIO D/A CONVERTER

IC504 OR

POWER 1 (SEE PAGE 3-22)   3.3V MNT   CN103   1

FL501 FILTER / FL502 FILTER   IC501 AUDIO DSP

FL109 FILTER   IC108 1M SRAM

FL106 FILTER   IC104 SYSTEM CONTROL

FL102 FILTER   IC101 EEPROM

FL105 FILTER   IC107 (IC106) ROM

IC102 +3.3V REG   VIN VOUT   IC103 PLL

FL905 FILTER   IC906 AMP   FL404 FILTER   IC406 64M SDRAM

IC803 +3.3V REG   VIN VOUT   IC801 AUDIO DELAY / IC802 16M SDRAM

FL403 FILTER

IC401 +1.8V REG   VIN VOUT   IC403 AV DECODER

FL402 FILTER

CN204   5   LED   INLIMIT SENSOR

POWER 1 (SEE PAGE 3-22)   CN101   +3.3V   9/10   FL108 FILTER

+5V   7   FL103 FILTER

+1.8V   5   FL104 FILTER

M+11V   1/2   FL107 FILTER   IC202 FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED/LOADING MOTOR DRIVE

FL201 FILTER   CN203   10/11   VCC MOD   OPTICAL DEVICE

IC201 DVD/CD RF AMP, DIGITAL SERVO

IC605 +2.5V REG   VIN VOUT   IC604 VIDEO ENCORDER

FL901 FILTER / FL903 FILTER   IC905 SACD DECODER

IC303 16M DRAM

POWER 3 (SEE PAGE 3-25)   +5V   CN201   3   FL701 FILTER   IC701 NAND FLASH I/F, EXTENSION I/O

IC603 16M SDRAM

IC901 +2.5V REG   VIN VOUT

IC702 64M NAND FLASH

IC601 +2.5V REG   VIN VOUT   IC602 I/P CONVERTER

FL902 FILTER   IC903 16M SDRAM

IC302 +3.3V REG   VIN VOUT   IC301 ARP, SERVO DSP

05

3-23   3-24

3-13. POWER (3) BLOCK DIAGRAM

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

For printed wiring boards:
- ○——— : indicates a lead wire mounted on the component side.
- ●——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ▓▓▓▓ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side A)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side B)	Parts on the parts face side seen from the parts face are indicated.

For schematic diagram:
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, $1/4$ W (Chip resistors : $1/10$ W) unless otherwise specified.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊣▭⊢ : nonflammable resistor.
- ⊣▭⊢ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- [B +] : B+ Line.
- [B −] : B− Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal on DVD reference disc and when playing CD reference disc.
- Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Abbreviation
  CND : Canadian model
  KR : Korean model

4-1. FRAME SCHEMATIC DIAGRAM
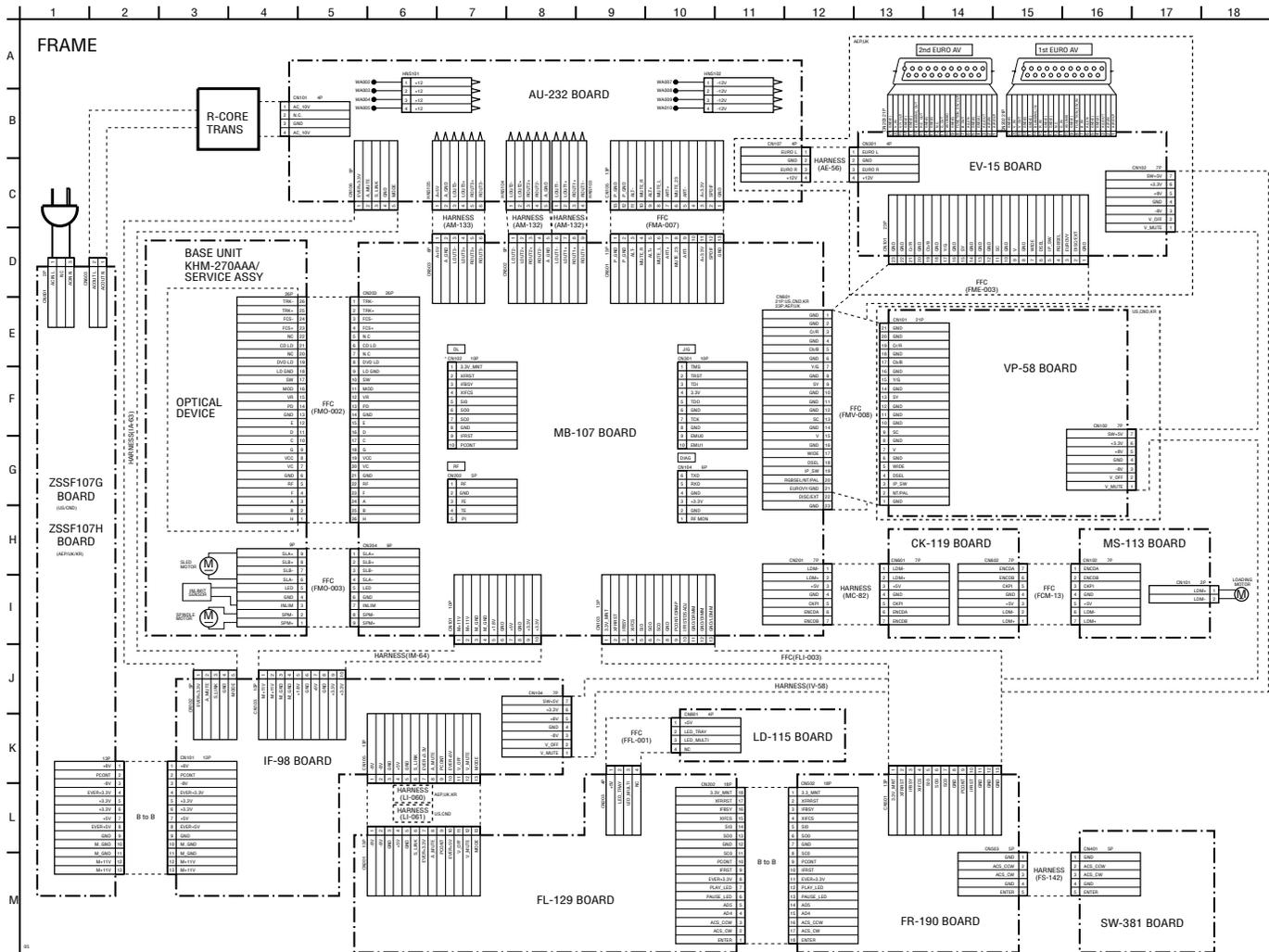
DVP-NS999ES

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MB-107 (SIGNAL PROCESS, SERVO) PRINTED WIRING BOARD
– Ref. No.: MB-107 board; 3,000 series –
⚡ : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.

MB-107 BOARD (A SIDE)

CN101	A-11
CN102	G-1
CN103	D-1
CN104	A-4
CN201	B-2
CN203	A-8
CN501	D-15
CN601	F-15
IC103	D-6
IC104	H-3
IC108	I-6
IC301	E-3
IC403	G-9
IC501	E-12
IC603	I-11
IC604	H-13
IC701	G-6
IC803	B-9
IC905	C-8

MB-107 BOARD (SIDE A)

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

FR-190
(FUNCTION SWITCH)

SW-381
(PUSH ENTER SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

VP-58
(VIDEO OUT)

SIGNAL PROCESS, SERVO
MB-107

4-5

4-6

MB-107 BOARD (SIDE B)

MB-107 BOARD (B SIDE)

D501	D-15
D502	D-15
D503	D-15
IC101	H-2
IC102	E-6
IC107	H-4
IC201	B-5
IC202	B-3
IC302	C-4
IC303	E-3
IC401	F-7
IC404	G-8
IC405	H-8
IC406	H-8
IC502	C-14
IC503	E-14
IC504	C-15
IC601	I-14
IC602	H-12
IC605	H-14
IC702	F-6
IC801	D-10
IC802	B-12
IC901	E-9
IC903	C-8
IC906	B-8
Q201	C-6
Q202	D-6

4-7

4-8

SIGNAL PROCESS, SERVO
MB-107

DVP-NS999ES

MB-107 (RF AMP, SERVO) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MB-107 BOARD (1/13)

NO MARK:PB MODE

IC201
SERVO ERROR
PROCESS
IC201
SP3728ACB

SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
PB		

SPINDLE SERVO(SPEED AND PHASE)
TRACKING SERVO DVD/CD CDV
SLED SERVO DVD/CD
FOCUS SERVO

• **Waveforms**

❶ IC201 ② (DVD play) 200 mV/DIV 50 ns/DIV — 570 mVp-p

❶ IC201 ② (CD play) 200 mV/DIV 200 ns/DIV — 550 mVp-p

❷ IC201 ⑤⑨ (DVD play) 500 mV/DIV 50 ns/DIV — 1.4 Vp-p

❷ IC201 ⑤⑨ (CD play) 500 mV/DIV 200 ns/DIV — 1.4 Vp-p

❸ IC201 ㊷ (DVD play) 100 mV/DIV 50 ms/DIV — 180 mVp-p

❸ IC201 ㊷ (CD play) 500 mV/DIV 50 ms/DIV — 860 mVp-p

❹ IC201 ㊶ (DVD play) 500 mV/DIV 50 ms/DIV — 1.5 Vp-p

❹ IC201 ㊶ (CD play) 500 mV/DIV 200 ms/DIV — 1.7 Vp-p

RF AMP, SERVO
MB-107 (1/13)

4-9   4-10
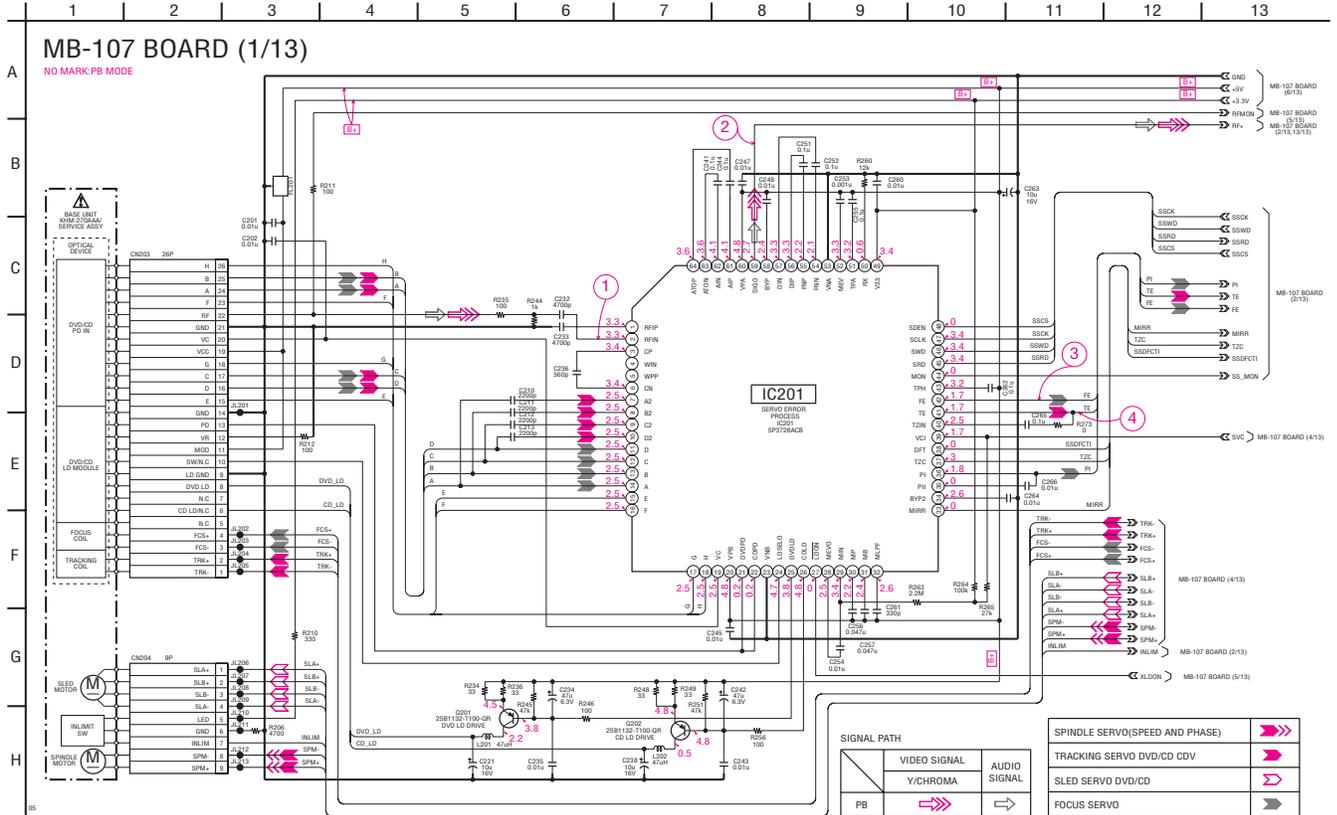
MB-107 (ARP, SERVO DSP) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (2/13)

NO MARK:PB MODE

IC302

IC301
ARP/SERVO DSP
IC301
CXD9152R

IC303
NM4 DRAM
GMT73T9365KT187R

SIGNAL PATH

	VIDEO SIGNAL	AUDIO
	Y/CHROMA	SIGNAL
PB		

SPINDLE SERVO(SPEED AND PHASE)	
TRACKING SERVO DVD/CD CDV	
SLED SERVO DVD/CD	
FOCUS SERVO	

• Waveforms

❶ IC301 ⑪ (DVD play)
500 mV/DIV 100 ns/DIV

❷ IC301 ⑪ (CD play)
500 mV/DIV 200 ns/DIV

❸ IC301 ⑭ (DVD play)
500 mV/DIV 50 ms/DIV

❸ IC301 ⑭ (CD play)
500 mV/DIV 200 ms/DIV

❹ IC301 ⑮ (DVD play)
100 mV/DIV 50 ms/DIV

❹ IC301 ⑮ (CD play)
500 mV/DIV 50 ms/DIV

1.4 Vp-p

1.4 Vp-p

1.4 Vp-p

1.7 Vp-p

160 mVp-p

860 mVp-p

4-11

4-12

ARP, SERVO DSP
MB-107 (2/13)

DVP-NS999ES

MB-107 (AV DECODER) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**

– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (3/13)

NO MARK:PB MODE

MB-107 (MOTOR DRIVE) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (4/13)

NO MARK:PB MODE

SIGNAL PATH

SPINDLE SERVO(SPEED AND PHASE)	
TRACKING SERVO DVD/CD CDV	
SLED SERVO DVD/CD	
FOCUS SERVO	

IC202
FOCUS/TRACKING
COIL DRIVE
SPINDLE/SLED/
LOADING
MOTOR DRIVE
IC202
FAN8034L

MOTOR DRIVE
MB-107 (4/13)

DVP-NS999ES

MB-107 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (5/13)

NO MARK:PB MODE
D:DVD PLAY
C:CD PLAY
P: PAL DVD PLAY
N:NTSC DVD PLAY
S:SACD PLAY

IC101
EEPROM

IC104
SYSTEM CONTROL
CXP**

IC106

IC107

IC108
1M SRAM

SYSTEM CONTROL
MB-107 (5/13)

4-17

4-18

• Waveform
❶ IC104 ⑤④

1.7 Vp-p (16.5 MHz)

MB-107 (CLOCK GENERATOR) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

• Waveforms

MB-107BOARD (6/13)

NO MARK:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

IC102
+3.3V REG
IC102
TK11133CSCL-G
CONT VIN
GND
VOUT

IC103
PLL
IC103 CY24233ZCT
VDD   N.C
VSS   33-1OUT
27-1OUT   FSEL
27-2OUT   33-2OUT
VDD   VDD
VSS   VSS
XTI   512-1OUT
XTO   512-2OUT

MB-107 BOARD (9/13) 27M38
MB-107 BOARD (3/13) 27MAVD

MB-107 BOARD (10/13) 512FS8CH
MB-107 BOARD (12/13) 512FSADY

MB-107 BOARD(10/13) 512FS2CH
MB-107 BOARD(3/13) 512FSAVD
MB-107 BOARD(2/13) 33MARP

MB-107 BOARD (9/13) 512FS38
MB-107 BOARD (13/13) 33MSA

MB-107 BOARD (5/13)

CN102 10P
1 3.3V_MNT
2 XFRRST
3 IFBSY
4 XIFCS
5 SIO
6 SOO
7 SCO
8 GND
9 IFRST
10 PCONT
CHECK

CN103 13P
1 3.3V_MNT
2 XFRRST
3 IFBSY
4 XIFCS
5 SIO
6 SOO
7 SCO
8 GND
9 PCONT/DRMP
10 IFRST/DSADJ
11 GND/DRMM
12 GND/DIMM
13 GND/LDMM
FR-190 BOARD
CN501
(SEE PAGE 4-55)

CN101 10P
10 +3.3V
9 +3.3V
8 GND
7 +5V
6 GND
5 +1.8V
4 M_GND
3 M_GND
2 M+11V
1 M+11V
IF-98 BOARD
CN103
(SEE PAGE4-68)

MB-107 BOARD
(1/13,2/13,3/13,4/13,5/13,7/13,8/13,
10/13,11/13,12/13,13/13)
+3.3V
GND
MB-107 BOARD
(1/10,4/10,12/13,13/13)
+5V
MB-107 BOARD (1/13,5/13)
5+5V
+1.8V
MB-107 BOARD (2/13,3/13,5/13)
+11V
MB-107 BOARD (4/13)
M_GND

❶ IC103 ③, ④
3.5 Vp-p (27 MHz)

❷ IC103 ⑥
1.5 Vp-p (27 MHz)

❸ IC103 ⑨, ⑩
DVD : 3.3 Vp-p (24.57 MHz)
CD : 3.3 Vp-p (22.58 MHz)

❹ IC103 ⑬, ⑮
3.2 Vp-p (33.87 MHz)

CLOCK GENERATOR
MB-107 (6/13)

4-19   4-20

MB-107 (I/P CONVERTER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (7/13)
NO MARK:PB MODE

IC602
I/P CONVERTER
IC602
CXD9698R

IC601
+2.5V REG
IC601
TK11125CSCL-G

IC603
16M SDRAM
IC603
HY57V161610DTC-7TR

MB-107 BOARD
(5/13)   SDA
         SCL

MB-107 BOARD (5/13)   XRST
27MCLK

MB-107 BOARD (3/13)
DVD0
DVD1
DVD2
DVD3
DVD4
DVD5
DVD6
DVD7

PO7
PO6
PO5
PO4

PO3
PO2
PO1
PO0

MB-107 BOARD (6/13)   +3.3V
                      GND

MB-107 BOARD (8/13)

SIGNAL PATH

VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
PB	⇒	⇒	⇒⇒

• Waveform

❶ IC602

1.6 Vp-p (66 MHz)

I/P CONVERTER
MB-107 (7/13)

4-21

4-22
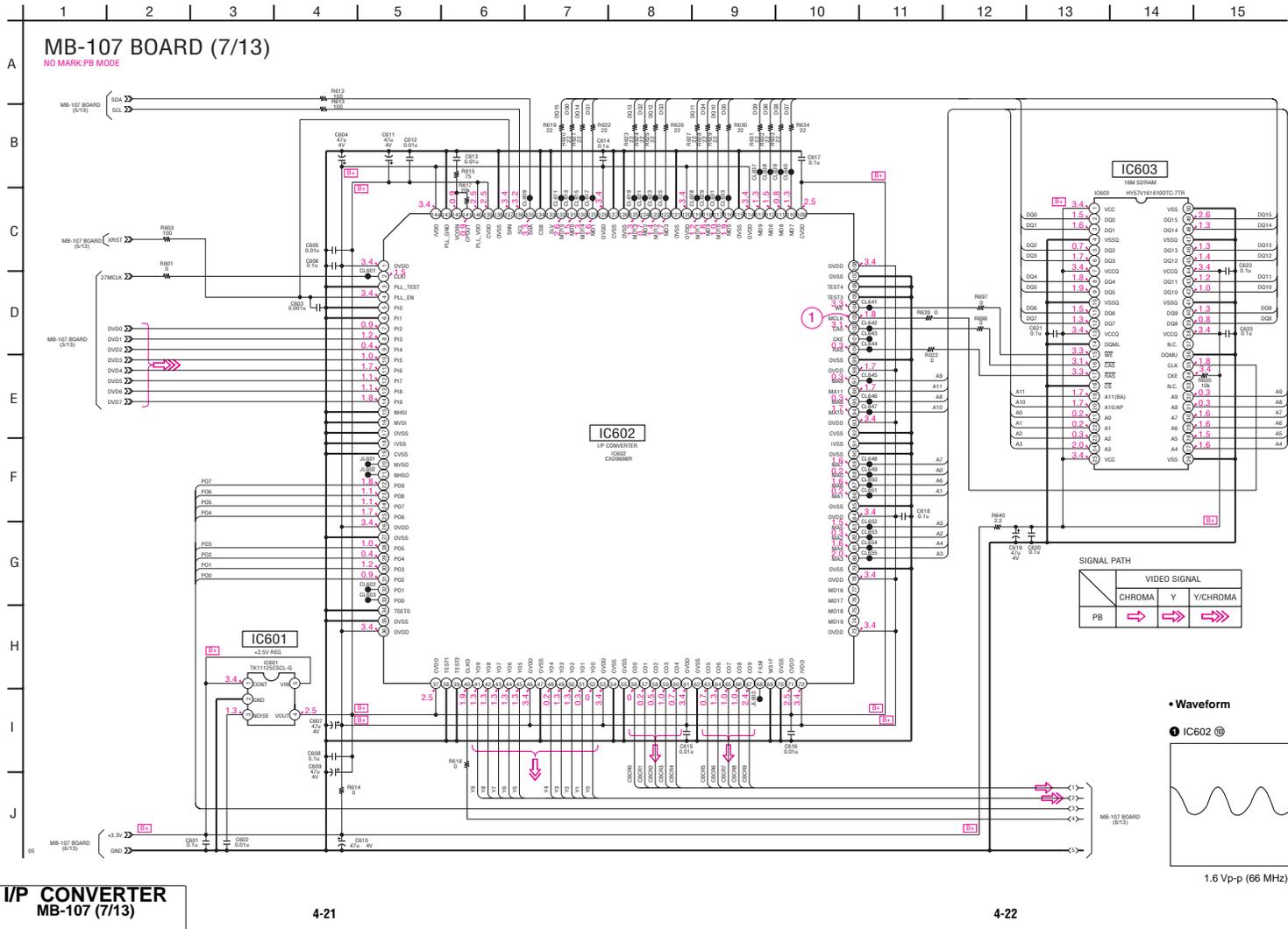
MB-107 (VIDEO ENCODER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (8/13)

NO MARK:PB MODE

IC604
VIDEO ENCODER
IC604
ADV7300AKST

IC605
+2.5V REG
IC605
TK11125CSCL-G

• Waveforms

❶ IC604 ㉜	❷ IC604 ㊷	❸ IC604 ㊸	❹ IC604 ㊹	❺ IC604 ㊲	❻ IC604 ㊳	❼ IC604 ㊴
3.4 Vp-p (27 MHz)	850 mVp-p (H)	950 mVp-p (H)	1.1 Vp-p (H)	650 mVp-p (H)	650 mVp-p (H)	950 mVp-p (H)

SIGNAL PATH

VIDEO SIGNAL		
CHROMA	Y	Y/CHROMA
PB		

4-23

4-24

VIDEO ENCODER
MB-107 (8/13)

DVP-NS999ES

MB-107 (AUDIO DSP) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (9/13)

NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
P:PAL DVD PLAY
N:NTSC DVD PLAY
S:SACD PLAY

IC501
AUDIO DSP
IC501
CXD1938AR

SIGNAL PATH

AUDIO
SIGNAL

PB

• Waveforms

❶ IC501

4.1 Vp-p (3.1 MHz)

❷ IC501

DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❸ IC501

3.5 Vp-p (27 MHz)

❹ IC501

DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

❺ IC501

DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.9 MHz)

AUDIO DSP
MB-107 (9/13)

4-25

4-26

MB-107 (2ch/6ch DAC) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

• Waveforms

MB-107 BOARD (10/13)

NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
P:PAL DVD PLAY
N:NTSC DVD PLAY

IC503

IC502
6ch DAC
IC502
CXD9675R-L

IC504
BUS BUFFER
IC504
TC7W32RU(TE12R)

SIGNAL PATH

AUDIO
SIGNAL

PB

❶ IC503 ④, IC502 ⑰

DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

❷ IC503 ②, IC502 ⑨

DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.9 MHz)

❸ IC503 ①, IC502 ⑩

DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❹ IC503 ⑨, IC502 ㉓

4 Vp-p (2.84 MHz)

4-27

4-28

2ch/6ch DAC
MB-107 (10/13)

DVP-NS999ES

MB-107 (NAND FLASH I/F, EXTENSION I/O) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (11/13)

NO MARK:PB MODE
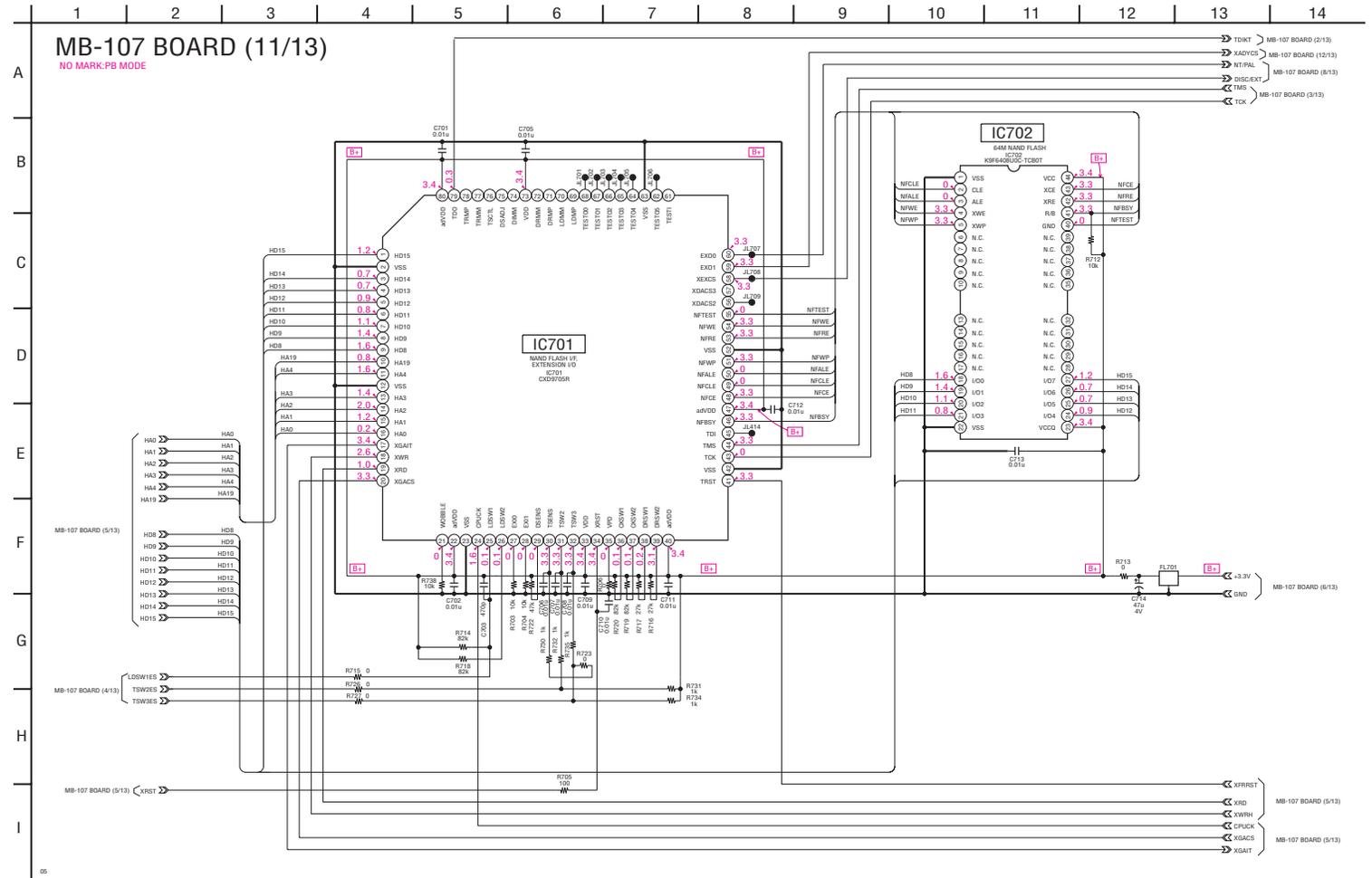
4-29

NAND FLASH I/F, EXTENSION I/O
MB-107 (11/13)

4-30

MB-107 (AUDIO DELAY) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**
– Ref. No.: MB-107 board; 3,000 series –

• **Waveforms**

MB-107 BOARD (12/13)

NO MARK:PB MODE
D:DVD PLAY
C:CD PLAY

SIGNAL PATH
AUDIO SIGNAL
PB

IC801
AUDIO DELAY
IC801
CXD9722TQ

IC802
16M SDRAM
IC802
M5M5V16160P-10T47M1

IC803
+3.3V REG
IC803
TK11133CSCL-G

❶ IC801 ㊾
DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

❷ IC801 ㊿
DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.9 MHz)

❸ IC801 ㊿
DVD: 3.3 Vp-p (24.57 kHz)
CD : 3.3 Vp-p (22.581 kHz)

❹ IC801 ㊿
4 Vp-p (2.84 MHz)

❺ IC801 ⑮
4.9 Vp-p (33.78 MHz)

4-31

4-32

AUDIO DELAY
MB-107 (12/13)
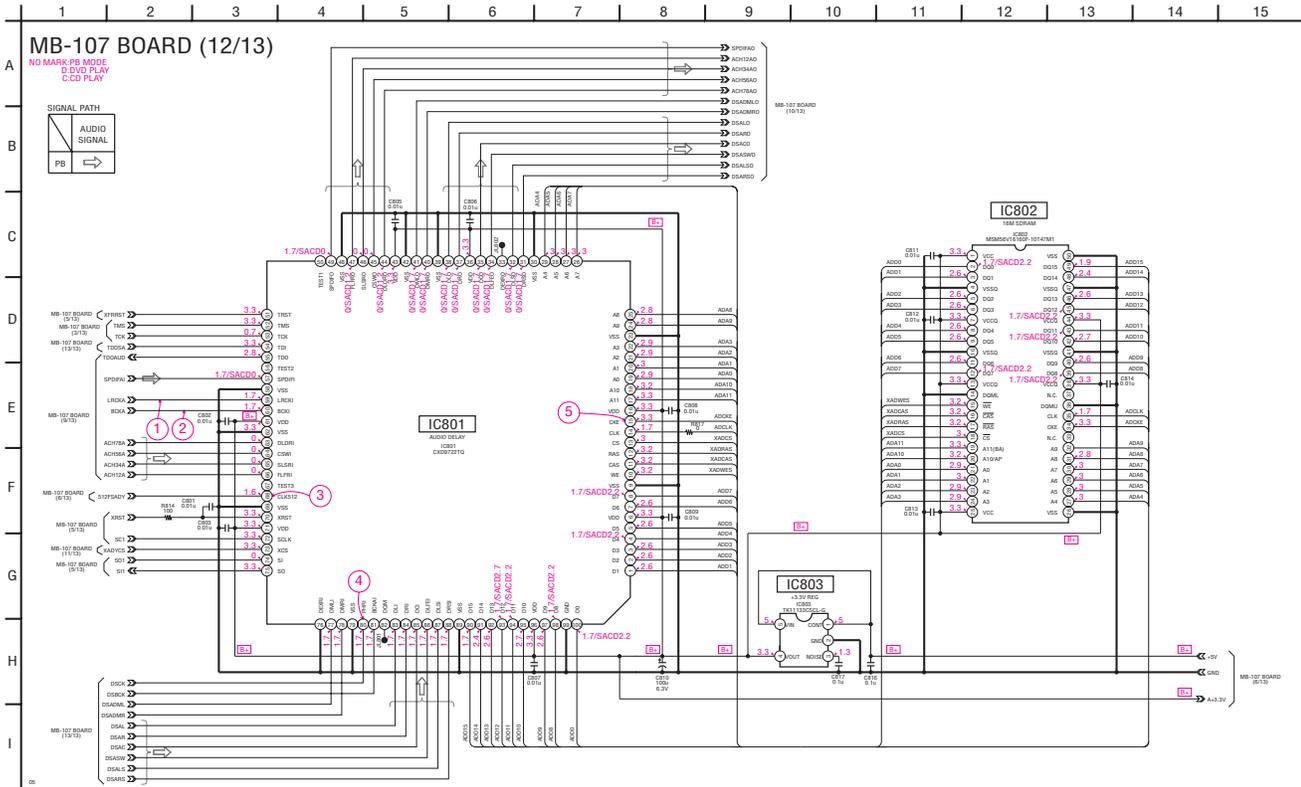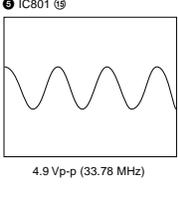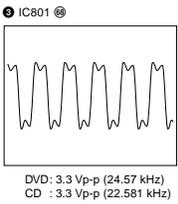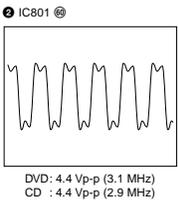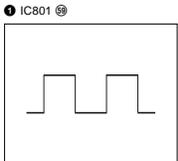
MB-107 (SACD DECODER) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**
– Ref. No.: MB-107 board; 3,000 series –

MB-107 BOARD (13/13)

NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
*:IMPOSSIBLE TO MEASURE THE
VOLTAGE AT THE MARKED POINTS.

IC906
IC903
IC905
SACD DECODER
IC905
CXD2753R
IC901

• **Waveforms**

❶ IC905 ⑪

DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❷ IC905 ⑱

4.5 Vp-p (4.2 MHz)

❸ IC905 ⑱
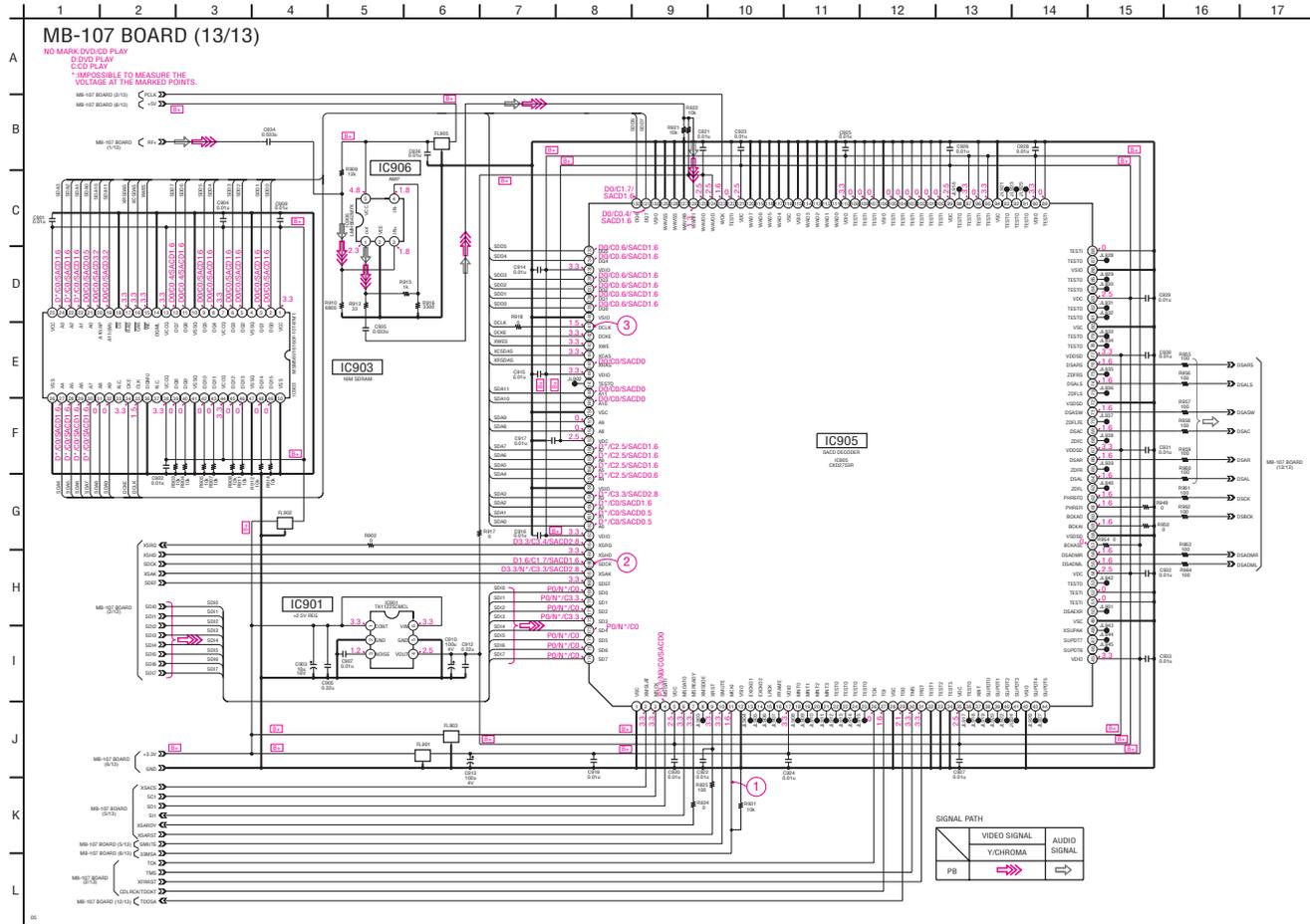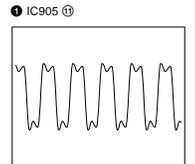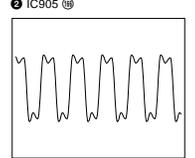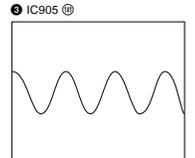
4.9 Vp-p (33.78 MHz)

SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
PB		

SACD DECODER
MB-107 (13/13)

4-33

4-34

MS-113 (LOADING MOTOR), CK-119 (SENSOR) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM
– Ref. No.: MS-113 board; 4,000 series, CK-119 board; 2,000 series –

There are a few cases that the part isn't mounted in this model is printed on this diagram.

⚡ : Uses unleaded solder.

MS-113 BOARD

05
1-685-805-
11
(11)

CK-119 BOARD

11
1-685-804-
(11)

	1	2	3	4	5	6

MS-113 BOARD

NO MARK:PB MODE

CK-119 BOARD

05

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

VP-58
(VIDEO OUT)

MB-107
(SIGNAL PROCESS SERVO)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

FR-190
(FUNCTION SWITCH)

LOADING MOTOR/SENSOR
MS-113/CK-119

4-35

4-36
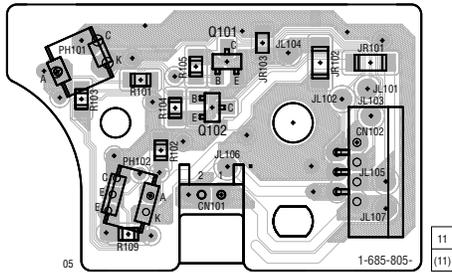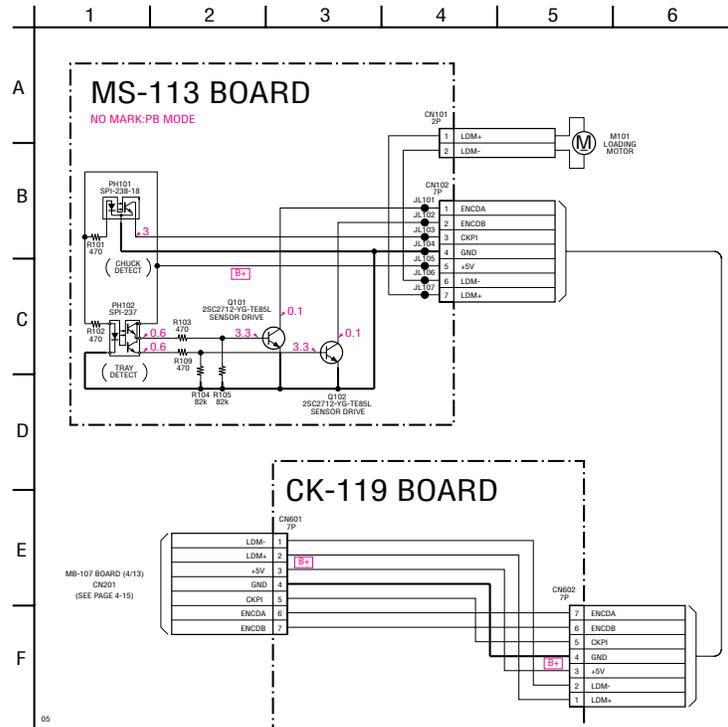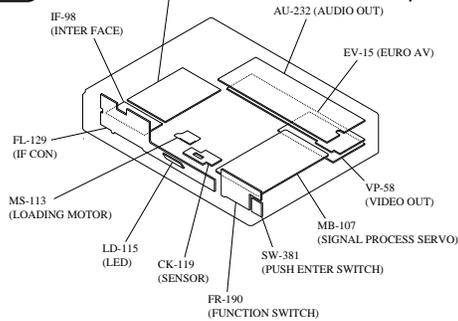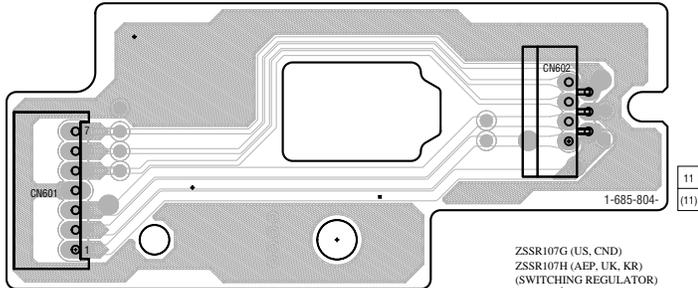
DVP-NS999ES

VP-58 (VIDEO OUT) PRINTED WIRING BOARD
– Ref. No.: VP-58 board; 5,000 series –

– US, CND, KR –

🔲 : Uses unleaded solder.

VP-58 BOARD (SIDE A)

CN101	G-11
CN102	G-2
D101	E-3
D105	E-7
D106	E-5
IC101	E-2
IC103	B-7
IC104	B-6
IC105	B-5
IC109	C-11
IC110	C-13
IC111	C-10
Q101	G-3
Q102	F-3
Q103	F-11
Q104	F-12
Q105	F-13
Q106	F-11
Q107	F-10
Q108	F-10
Q109	F-3
Q110	F-3
Q114	D-11
Q115	D-12
Q116	D-13
Q117	D-10
Q118	D-9
Q119	D-9
Q123	F-9
Q124	F-9
Q125	F-9
Q126	F-5
Q127	F-7
Q128	F-6
Q129	F-9
Q130	E-4
Q132	E-7
Q134	D-4
Q135	D-4
Q136	E-6
Q137	E-5
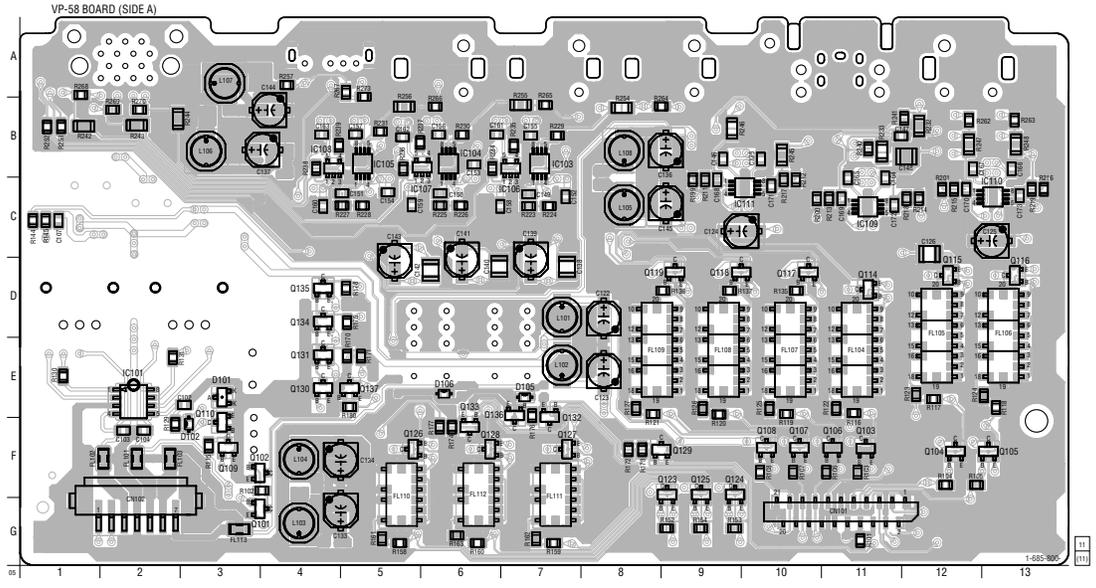
VP-58 BOARD (SIDE A)

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

FR-190
(FUNCTION SWITCH)

VP-58
(VIDEO OUT)

MB-107
(SIGNAL PROCESS SERVO)

VIDEO OUT
VP-58

4-37

4-38

DVP-NS999ES

VP-58 BOARD (SIDE B)

VIDEO OUT

S1 VIDEO

COMPONENT VIDEO OUT

Y   PʙCʙ   PʀCʀ

SCAN SELECT

SELECTABLE — INTERLACE — PROGRESSIVE

D102

CN103
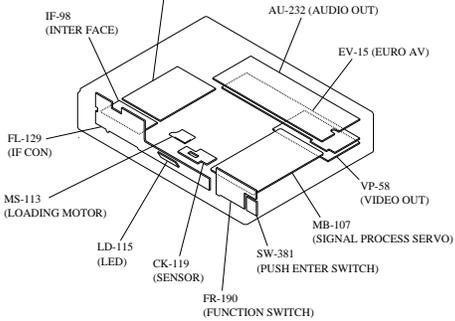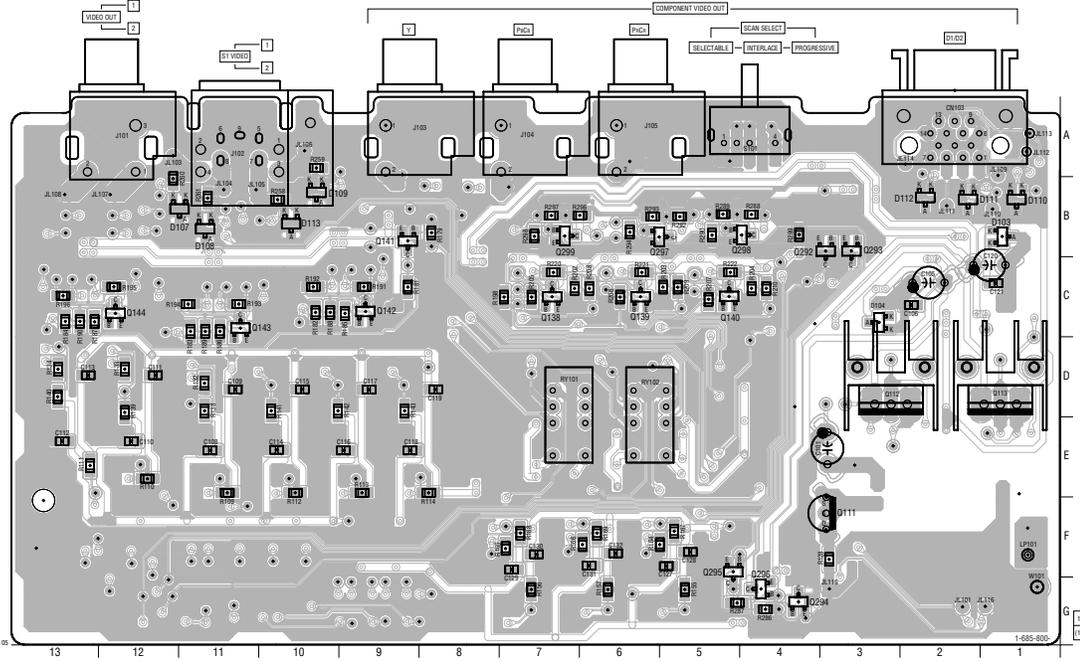
VP-58 BOARD (SIDE B)

D107	B-12
D108	B-11
D109	B-10
D113	B-10
Q111	F-3
Q112	D-3
Q113	D-1
Q138	C-7
Q139	C-6
Q140	C-5
Q141	B-9
Q142	C-9
Q143	C-11
Q144	C-12

1-685-800-

13   12   11   10   9   8   7   6   5   4   3   2   1

A B C D E F G

VIDEO OUT
VP-58

DVP-NS999ES

VP-58 (VIDEO BUFFER) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.
– Ref. No.: VP-58 board; 5,000 series –

– US, CND, KR –

VP-58 BOARD (1/2)

• Waveforms

❶ IC110 ①, ⑦

❷ IC109 ①, ⑦

❸ IC111 ①, ⑦

2.4 Vp-p (H)   1.8 Vp-p (H)   2.0 Vp-p (H)

VIDEO BUFFER
VP-58 (1/2)

4-41   4-42
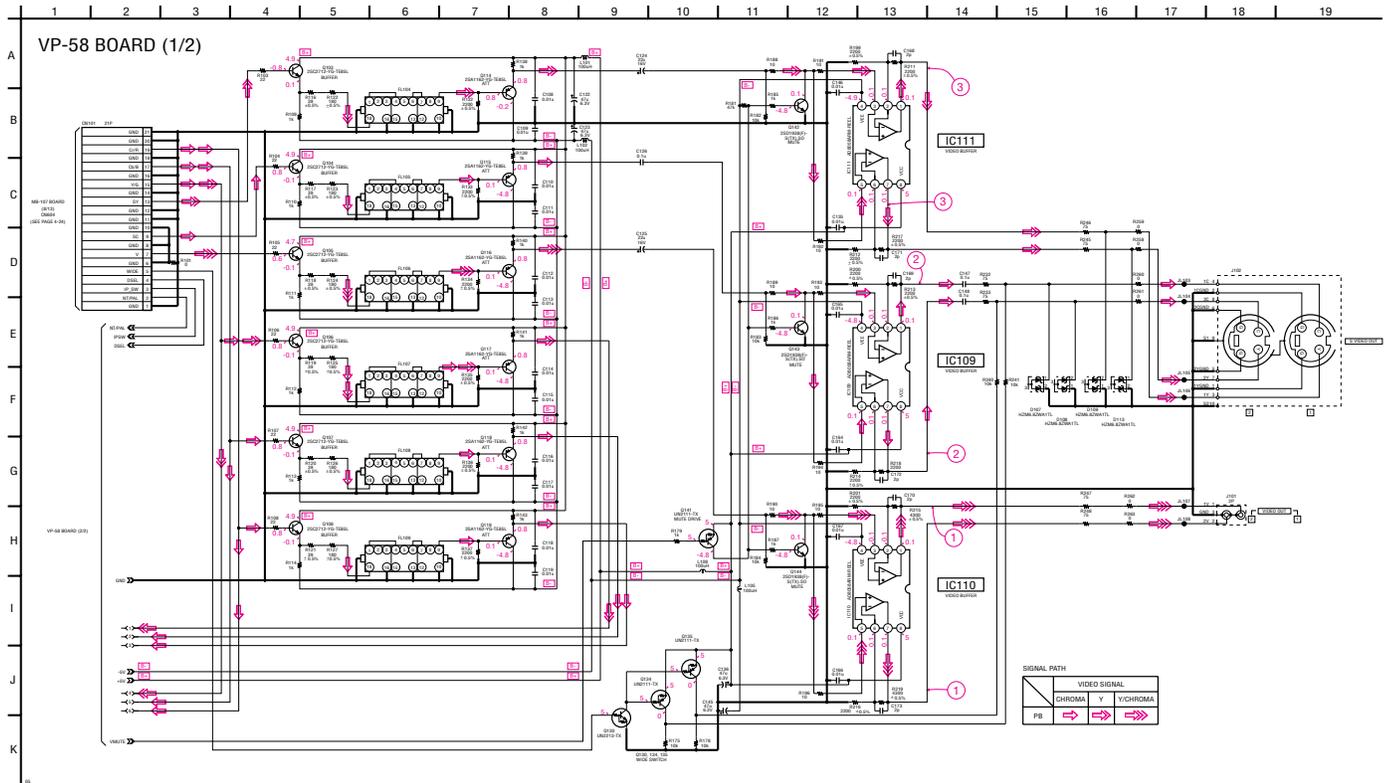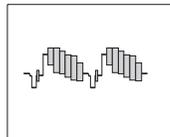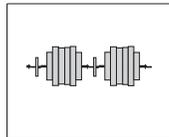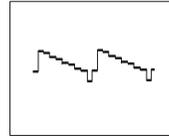
VP-58 (VIDEO AMP) SCHEMATIC DIAGRAM • **See page 4-37 for printed wiring board.**
– Ref. No.: VP-58 board; 5,000 series –

– US, CND, KR –

VP-58 BOARD (2/2)
NO MARK:PB MODE

• **Waveforms**

❹ IC103 ⑦	❺ IC104 ⑦	❻ IC105 ⑦
2.0 Vp-p (H)	1.3 Vp-p (H)	1.3 Vp-p (H)

4-43   4-44

VIDEO AMP
VP-58 (2/2)
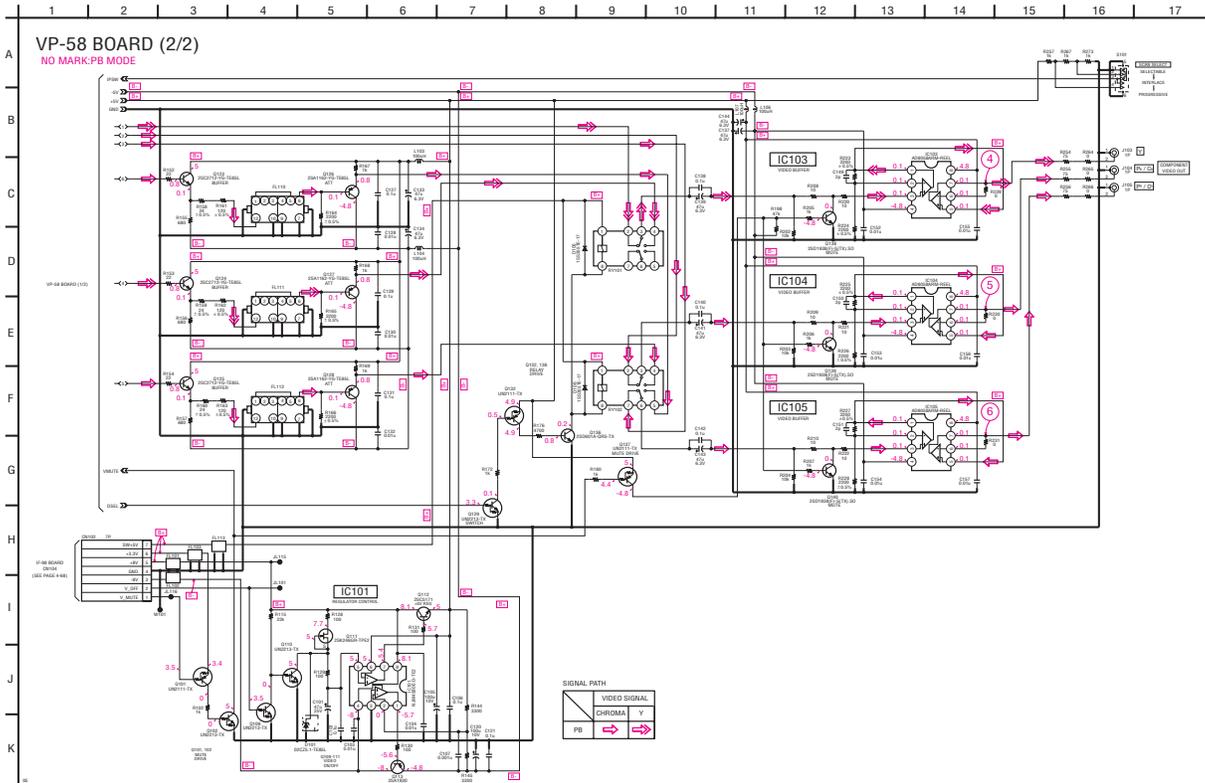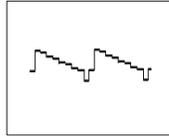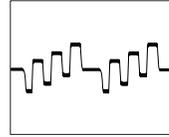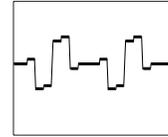
DVP-NS999ES

AU-232 (AUDIO OUT) PRINTED WIRING BOARD
– Ref. No.: AU-232 board; 1,000 series –
⚡ : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.
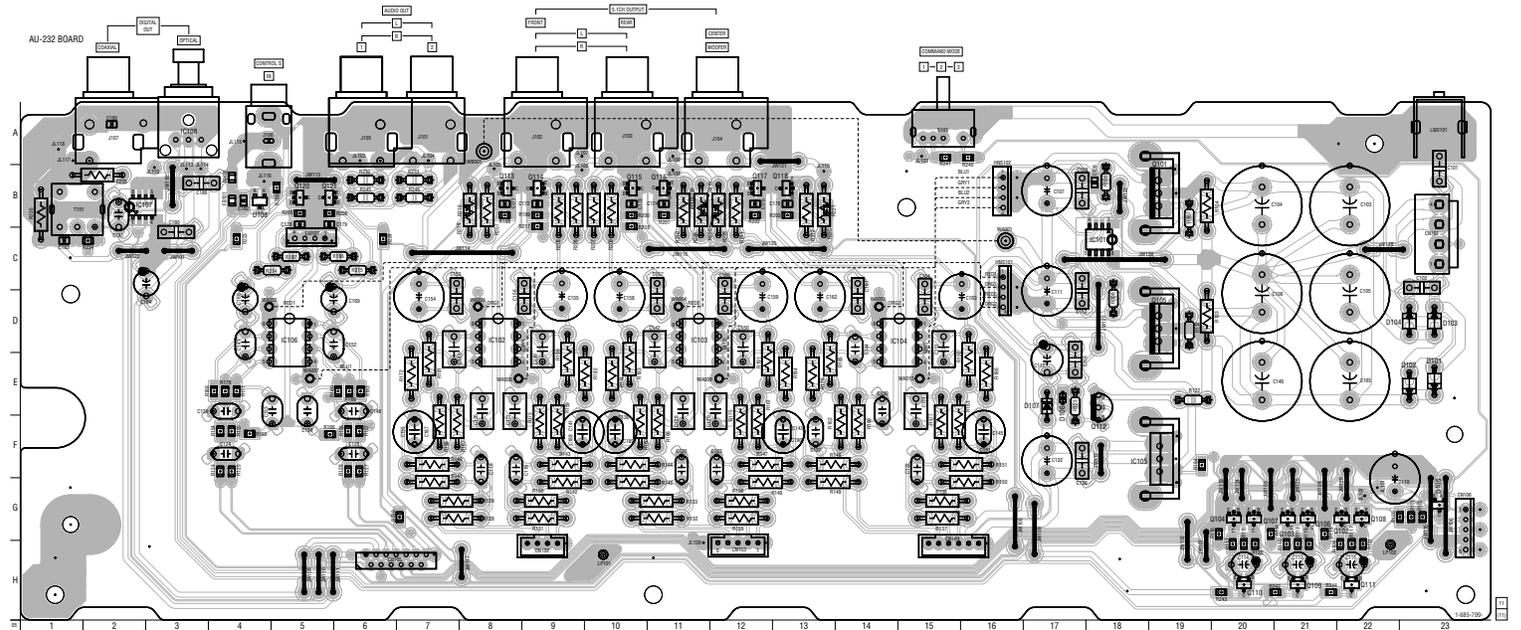
AU-232 BOARD

CN101	C-23	Q101	A-19
CN105	H-7	Q102	G-22
CN106	A-8	Q103	G-21
CN501	G-23	Q104	G-20
CN107	C-5	Q105	D-19
		Q106	G-21
D101	E-23	Q107	G-20
D102	E-23	Q108	G-22
D103	D-23	Q109	H-21
D104	D-23	Q110	H-20
D105	G-23	Q111	H-22
D106	E-17	Q112	F-18
D107	E-17	Q113	B-8
		Q114	B-9
IC101	C-18	Q115	B-10
IC102	D-8	Q116	B-11
IC103	D-11	Q117	B-12
IC104	D-15	Q118	B-13
IC105	F-19	Q120	B-5
IC106	D-5	Q121	B-5
IC107	B-2		
IC108	A-3		

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

FR-190
(FUNCTION SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

VP-58
(VIDEO OUT)

AUDIO OUT
AU-232

4-45

4-46

AU-232 (AUDIO OUT) SCHEMATIC DIAGRAM

– Ref. No.: AU-232 board; 1,000 series –

AU-232 BOARD
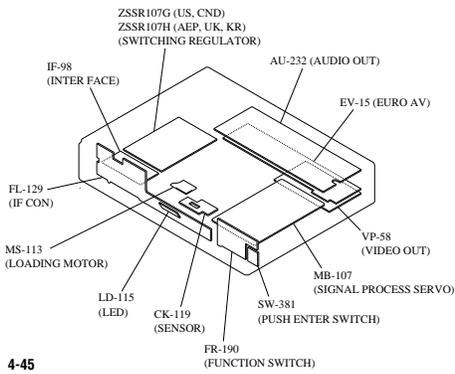
AUDIO OUT
AU-232

DVP-NS999ES

FL-129 (IF CON) PRINTED WIRING BOARD
– Ref. No.: FL-129 board; 4,000 series –

: Uses unleaded solder.

FL-129 BOARD (SIDE A)

D216	E-11
IC202	B-10
IC203	C-8
IC205	C-6

FL-129 BOARD (SIDE B)

CN201	B-5
CN202	E-24
D204	B-2
D205	B-10
D206	E-4
D207	E-4
D208	E-4
D209	E-4
D210	D-6
D211	E-6
D212	E-23
D213	E-24
IC201	E-10
Q203	B-3
Q204	A-2
Q205	D-4
Q206	D-3
Q207	A-10
Q208	A-9
Q209	E-6
Q211	E-7
Q212	A-2
Q213	B-10

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

IF-98 (INTER FACE)

FL-129 (IF CON)

MS-113 (LOADING MOTOR)

VP-58 (VIDEO OUT)

MB-107 (SIGNAL PROCESS SERVO)

LD-115 (LED)

CK-119 (SENSOR)

SW-381 (PUSH ENTER SWITCH)

FR-190 (FUNCTION SWITCH)

FL-129 BOARD (SIDE A)

FL-129 BOARD (SIDEB)

IF CON
FL-129

4-49

4-50
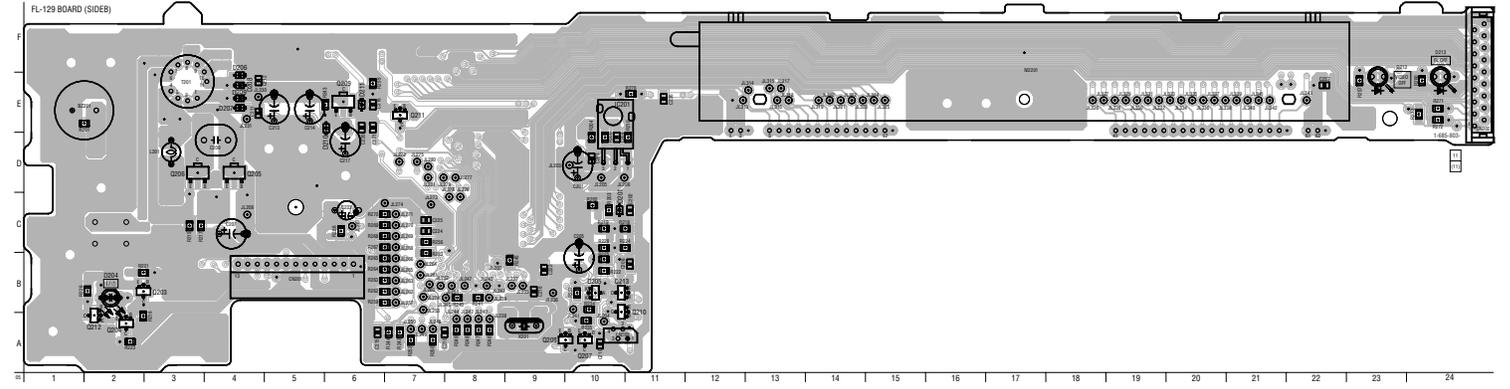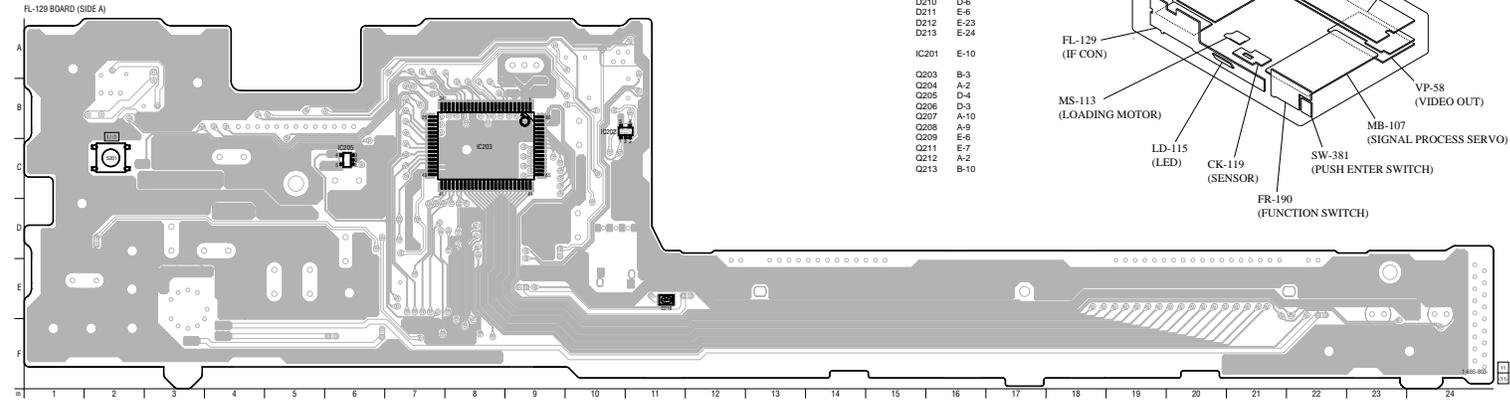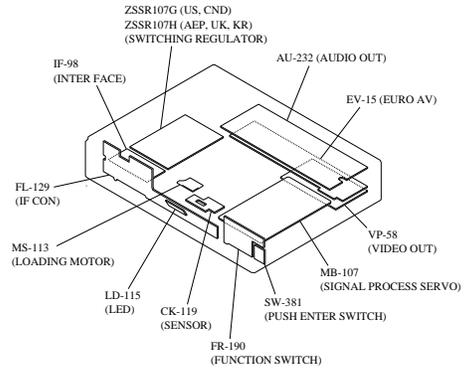
DVP-NS999ES

FL-129 (IF CON) SCHEMATIC DIAGRAM
– Ref. No.: FL-129 board; 4,000 series –

FL-129 BOARD

NO MARK:DVD/CD PLAY
x :IMPOSSIBLE TO MEASURE THE
VOLTAGE AT THE MARKED POINTS.

IC203
IF CON

IC201
REMOTE
COMMANDER
RECEIVER

IC202

IC205

• Waveforms

❶ IC203 ③

3.4 Vp-p (8 MHz)

IF COM
FL-129
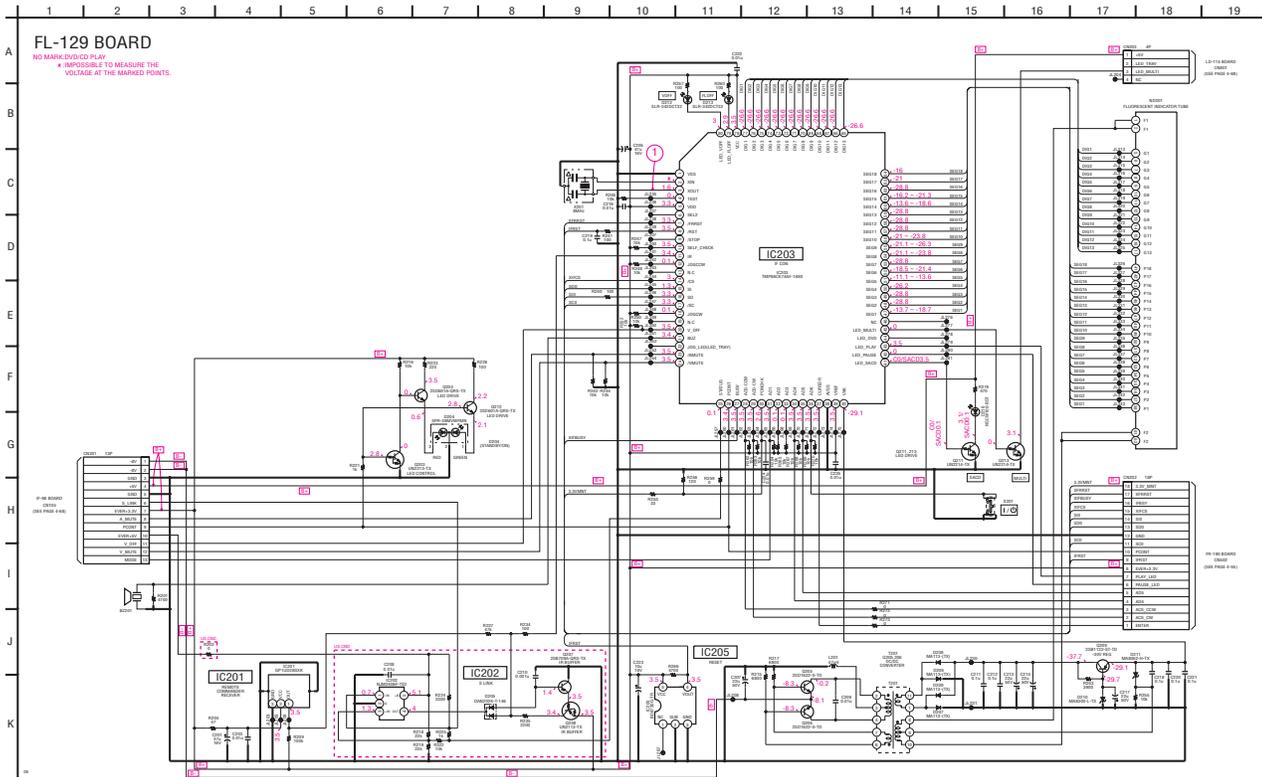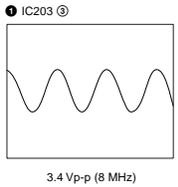
DVP-NS999ES

FR-190 (FUNCTION SWITCH), SW-381 (PUSH ENTER SWITCH) PRINTED WIRING BOARD
– Ref. No.: FR-190, SW-381 board; 2,000 series –

⧄ : Uses unleaded solder.
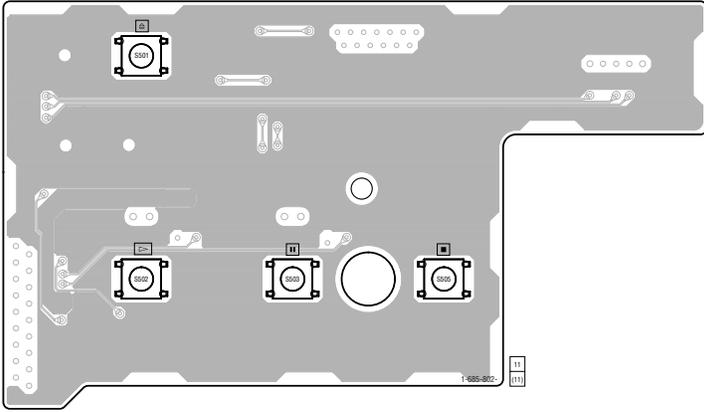
FR-190 BOARD (SIDE A)

FR-190 BOARD (SIDE B)

SW-381 BOARD

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

FR-190
(FUNCTION SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

VP-58
(VIDEO OUT)

4-53

FUNCTION SWITCH/PUSH ENTER SWITCH
FR-190/SW-381

4-54
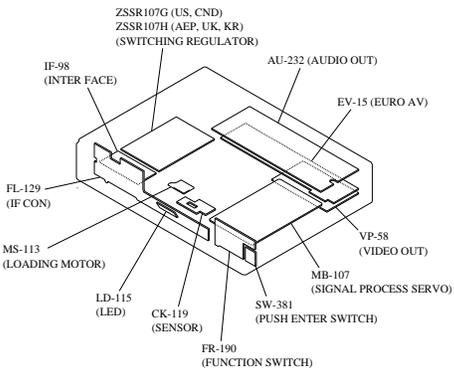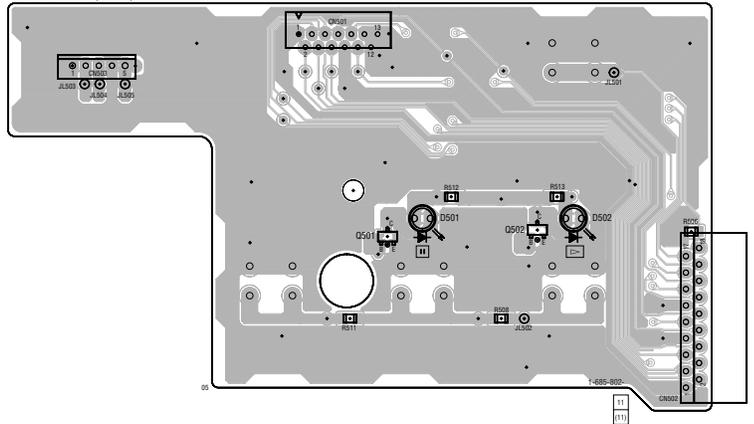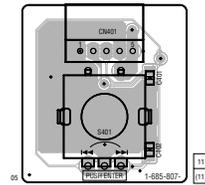
FR-190 (FUNCTION SWITCH), SW-381 (PUSH ENTER SWITCH) SCHEMATIC DIAGRAM
– Ref. No.: FR-190, SW-381 board; 2,000 series –

FR-190 BOARD

NO MARK:PB MODE

SW-381 BOARD
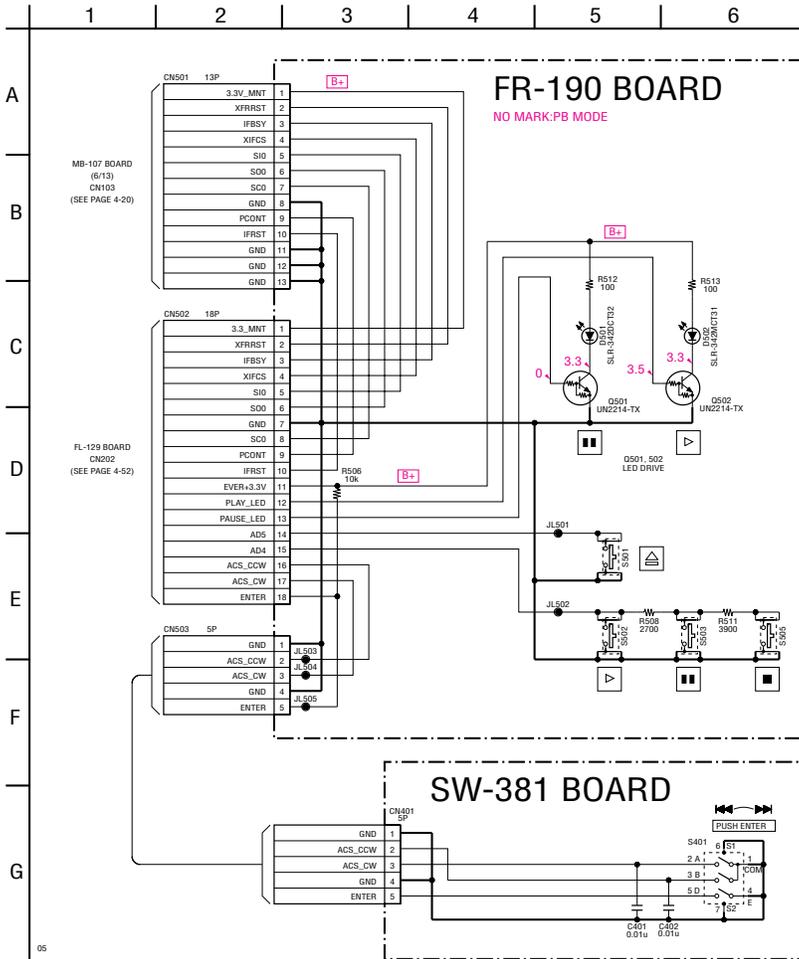
DVP-NS999ES

EV-15 (EURO AV) PRINTED WIRING BOARD
– Ref. No.: EV-15 board; 2,000 series –

– AEP, UK –

⏚ : Uses unleaded solder.
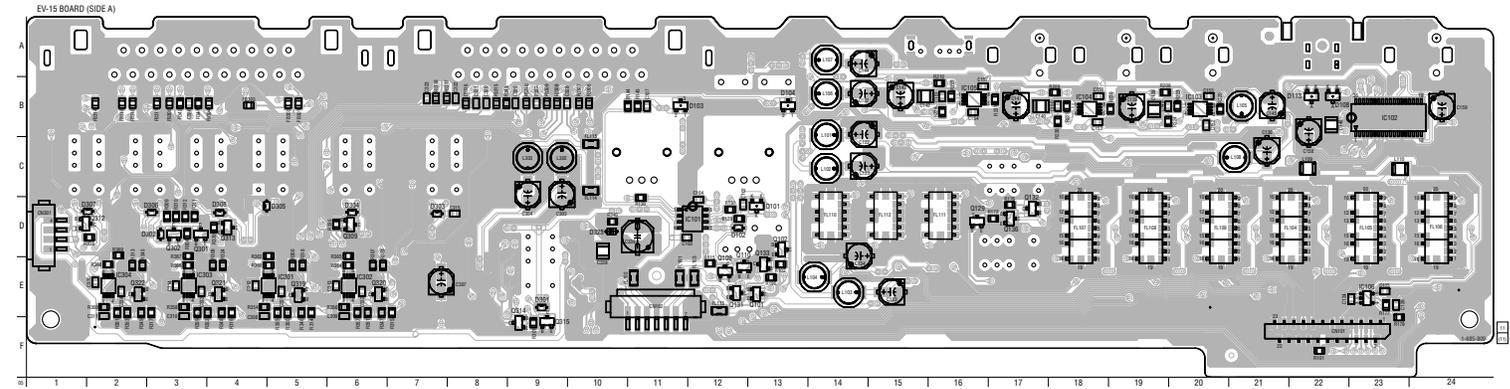
EV-15 BOARD (SIDE A)

EV-15 BOARD (SIDE A)

CN101	F-22	Q101	E-13
CN102	E-11	Q102	D-13
CN301	D-1	Q109	E-12
		Q110	E-12
D101	D-13	Q129	D-16
D108	B-22	Q131	E-12
D113	B-22	Q132	D-17
D301	E-9	Q133	D-13
D302	D-3	Q136	D-17
D303	D-7	Q301	D-3
D304	D-6	Q302	D-3
D305	D-5	Q309	D-6
D306	D-3	Q312	D-2
D307	D-2	Q313	D-4
D308	D-4	Q314	E-9
		Q315	F-9
IC101	D-12	Q319	E-5
IC102	B-23	Q320	E-6
IC103	B-20	Q321	E-4
IC104	B-18	Q322	E-2
IC105	B-16		
IC106	E-23		
IC301	E-5		
IC302	E-6		
IC303	E-3		
IC304	E-23		

EURO AV
EV-15

4-57   4-58

EV-15 BOARD (SIDEB)

IF-98
(INTER FACE)

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

VP-58
(VIDEO OUT)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

FR-190
(FUNCTION SWITCH)
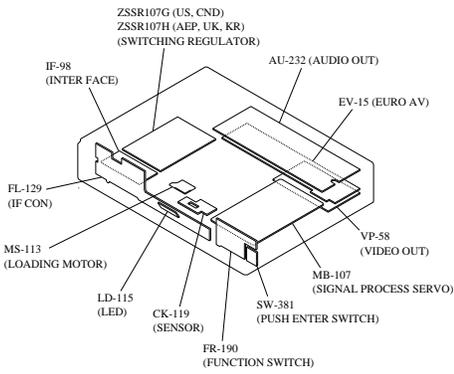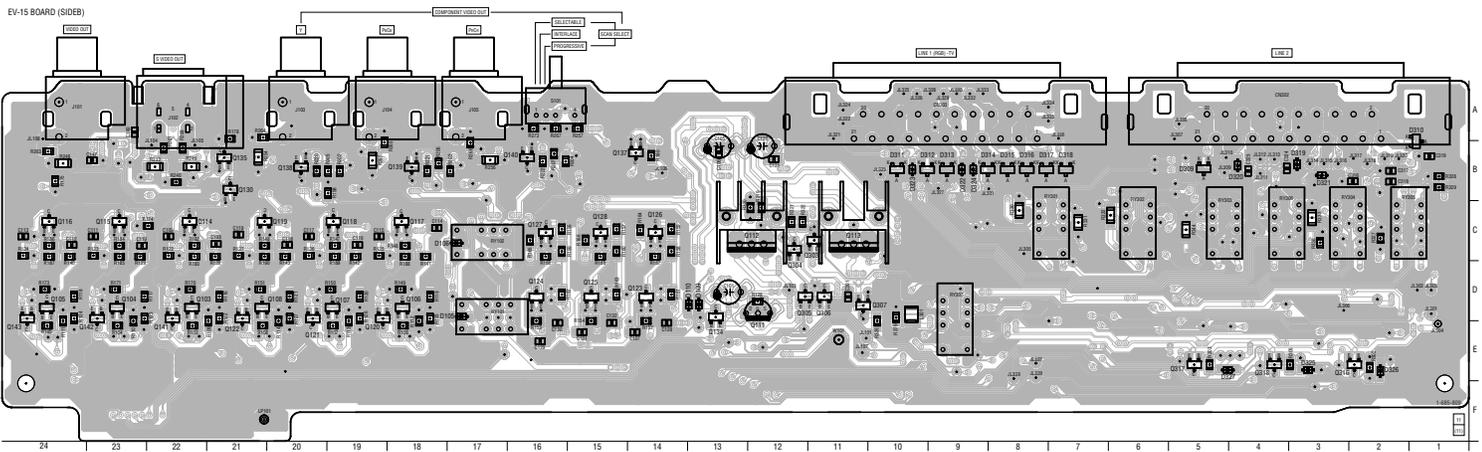
EV-15 BOARD(SIDE B)

CN302	A-4	Q114	C-22
CN303	A-9	Q115	C-23
		Q116	C-24
D105	D-17	Q117	C-18
D106	C-18	Q118	C-19
D109	D-13	Q119	C-20
D110	D-13	Q120	E-19
D309	B-5	Q121	E-20
D310	A-1	Q122	E-21
D311	B-10	Q123	D-14
D312	B-9	Q124	D-16
D313	B-9	Q125	D-15
D314	B-8	Q126	C-14
D315	B-8	Q127	C-16
D316	B-8	Q128	C-15
D317	B-8	Q130	B-21
D318	B-7	Q134	E-13
D320	B-4	Q135	B-21
D321	B-3	Q136	D-17
D323	B-10	Q137	B-15
D324	B-9	Q138	B-20
D325	E-3	Q139	B-18
D326	E-2	Q140	B-16
D327	E-4	Q141	E-22
		Q142	E-23
Q103	D-22	Q143	E-24
Q104	D-23	Q303	C-11
Q105	D-24	Q304	D-12
Q106	D-19	Q305	D-12
Q107	D-19	Q306	D-11
Q108	D-20	Q307	D-10
Q111	E-12	Q316	E-3
Q112	C-12	Q317	E-5
Q113	C-11	Q318	E-4

4-59

4-60

EURO AV
EV-15

DVP-NS999ES

EV-15 (EURO AV1) SCHEMATIC DIAGRAM   • See page 4-57 for printed wiring board.
– Ref. No.: EV-15 board; 2,000 series –

– AEP, UK –

EV-15 BOARD (1/3)
NO MARK:PB MODE

IC106

IC102

• Waveforms

❶ IC102 ㉝

❷ IC102 ㉛

❸ IC102 ㉙

2.4 Vp-p (H)

1.8 Vp-p (H)

2.0 Vp-p (H)

EURO AV1
EV-15 (1/3)

4-61

4-62
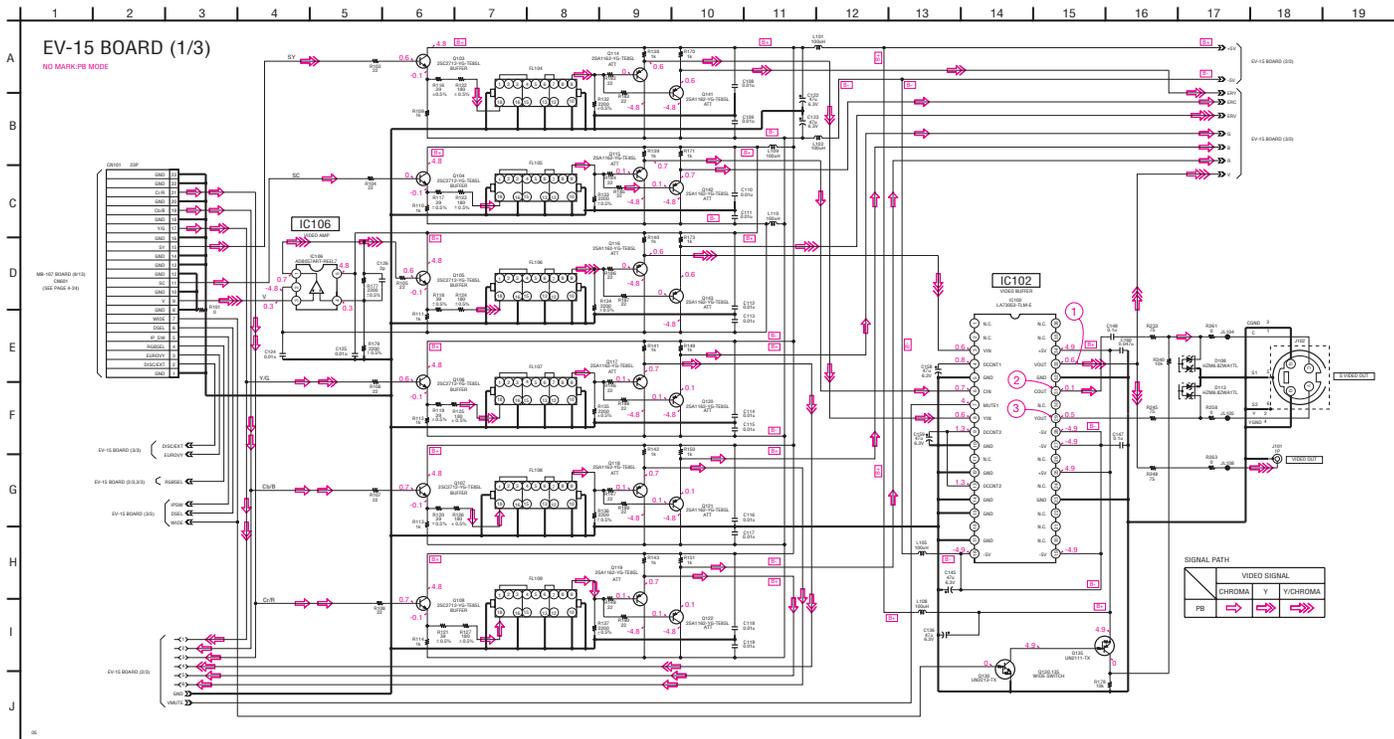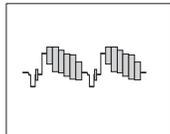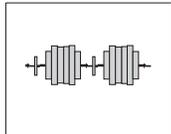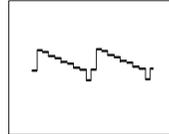
EV-15 (EURO AV2) SCHEMATIC DIAGRAM • See page 4-57 for printed wiring board.
– Ref. No.: EV-15 board; 2,000 series –

– AEP, UK –

EV-15 BOARD (2/3)
NO MARK:PB MODE

• Waveforms

④ IC103 ⑦

2.0 Vp-p (H)

⑤ IC104 ⑦

1.3 Vp-p (H)

⑥ IC105 ⑦

1.3 Vp-p (H)

❼ IC301 ⑦ (LINE : RGB mode)

1.4 Vp-p (H)

❼ IC301 ⑦ (LINE : S VIDEO mode)

1.7 Vp-p (H)

❽ IC302 ⑦ (LINE : RGB mode)

1.4 Vp-p (H)

❾ IC303 ⑦ (LINE : RGB mode)

1.4 Vp-p (H)

❿ IC304 ⑦

2.4 Vp-p (H)

❿ IC304 ⑦ (LINE : S VIDEO mode)

2.0 Vp-p (H)

SIGNAL PATH

SIGNAL PATH		
	VIDEO SIGNAL	
	CHROMA	Y
PB	⇒	⇒

4-63

4-64
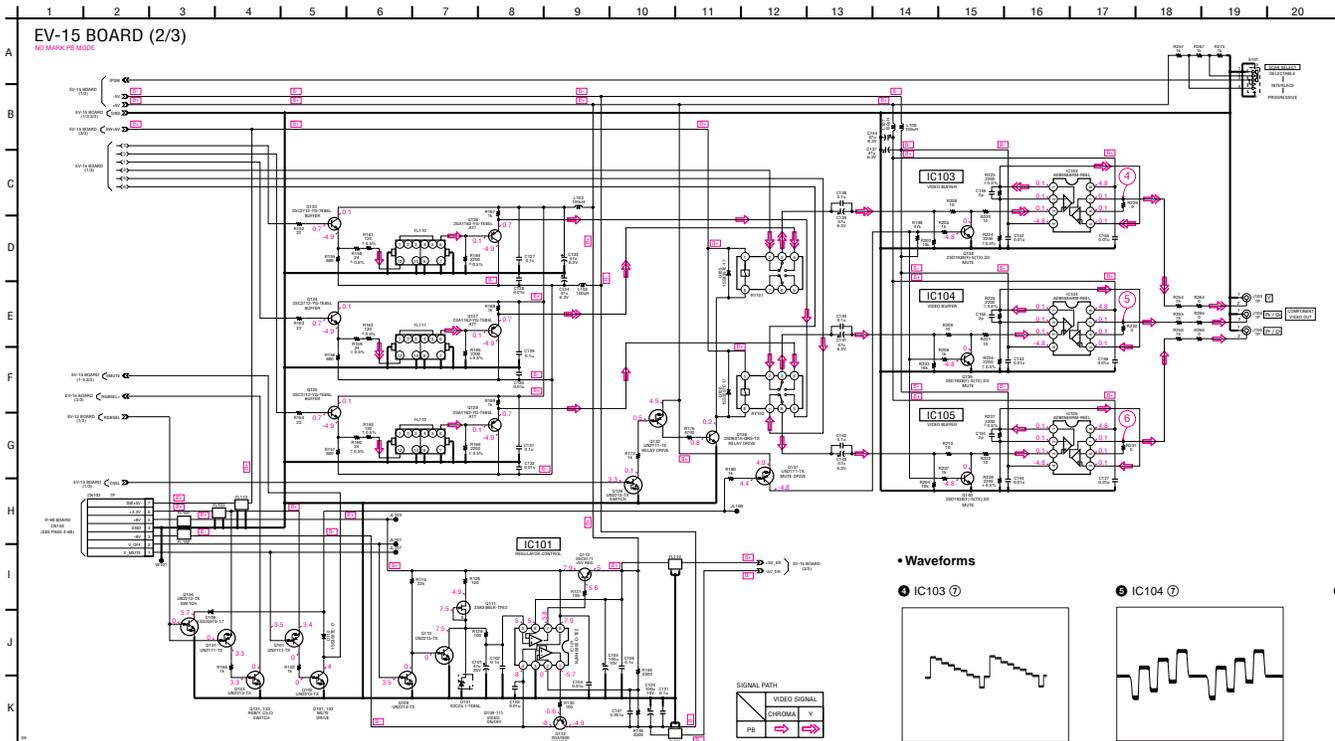
EURO AV2
EV-15 (2/3)

DVP-NS999ES
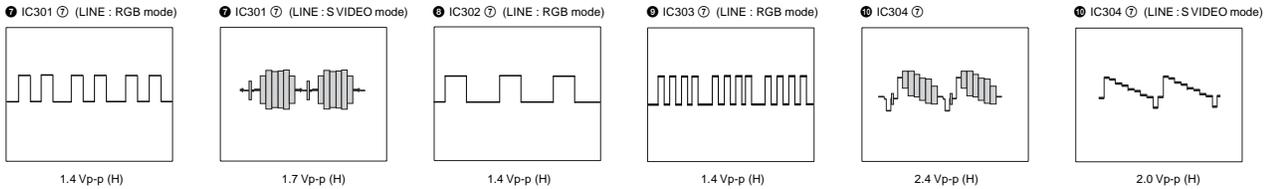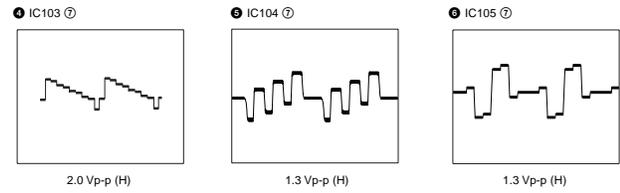
EV-15 (EURO AV3) SCHEMATIC DIAGRAM • See page 4-57 for printed wiring board, and see page 4-63 for waveforms.
– Ref. No.: EV-15 board; 2,000 series –

EV-15 BOARD (3/3)
NO MARK:PB MODE
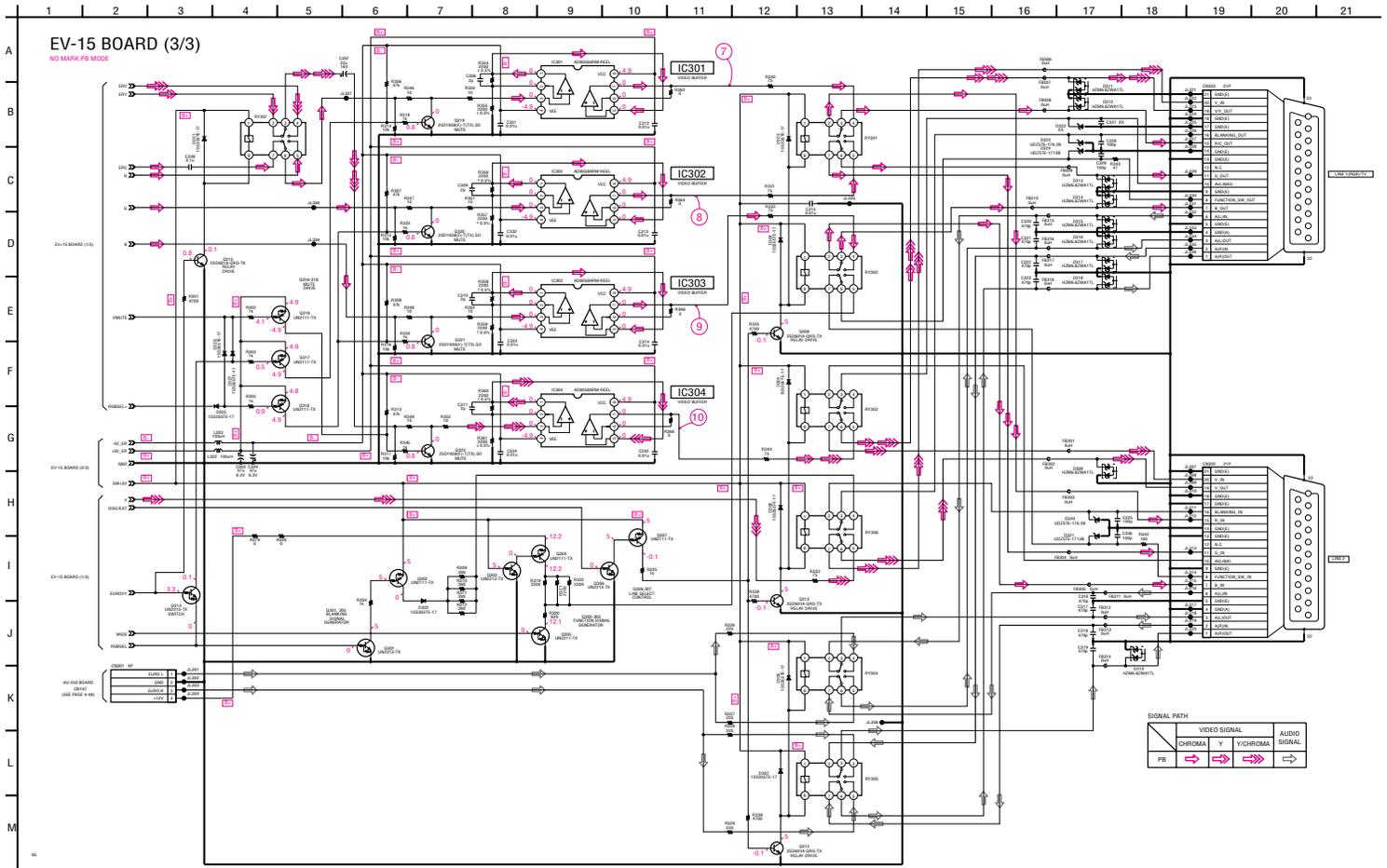
IF-98 (INTERFACE), LD-115 (LED) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
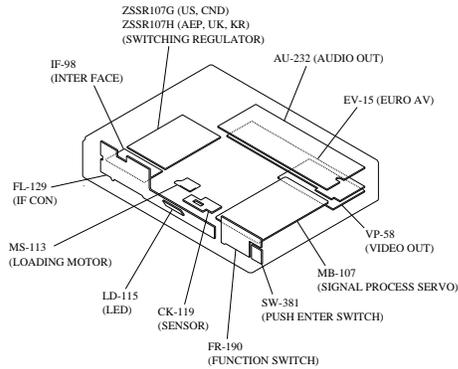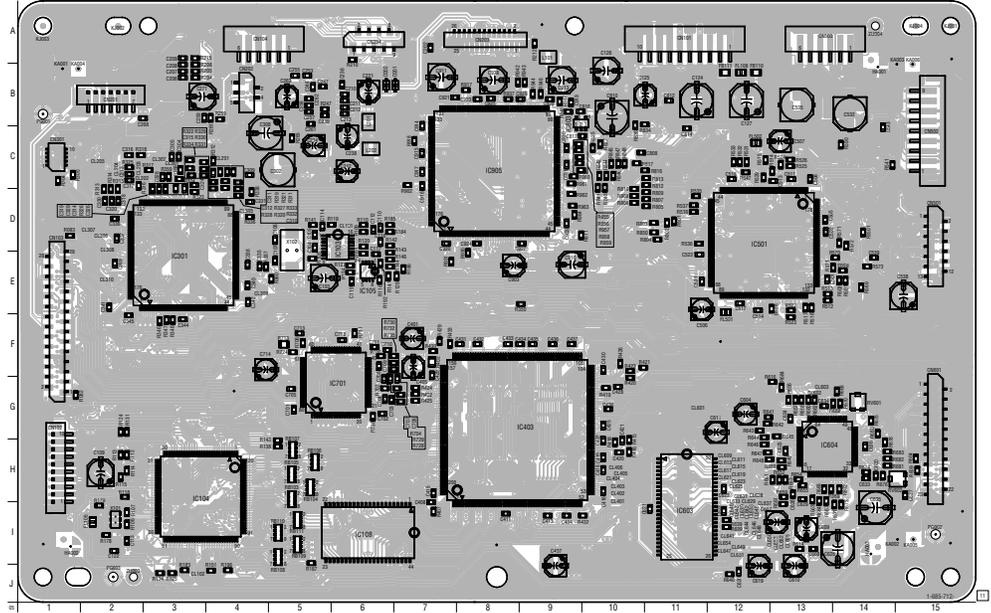– Ref. No.: IF-98 board; 4,000 series, LD-115 board; 1,000 series –

: Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.

IF-98 BOARD

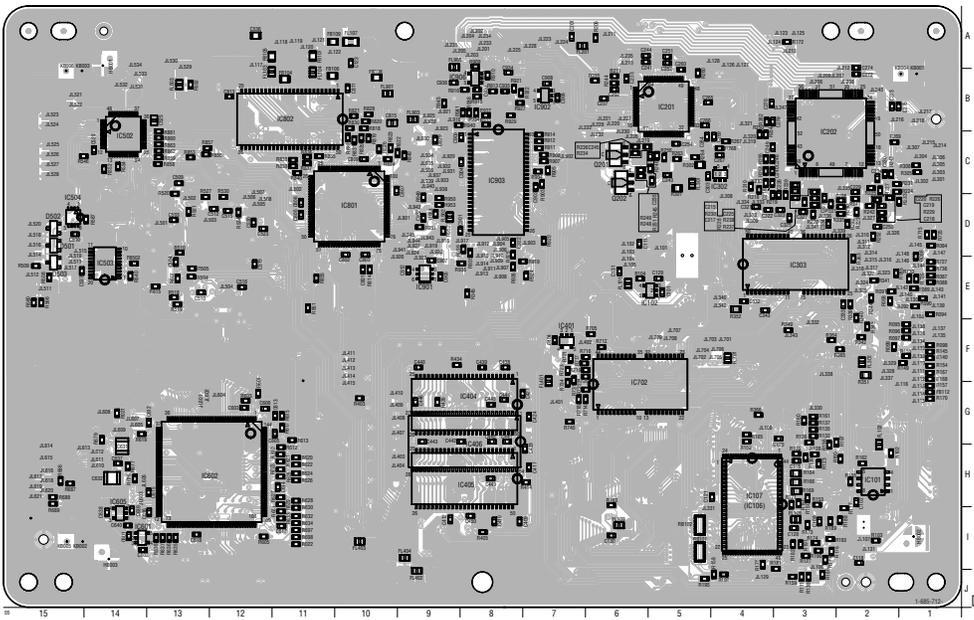LD-115 BOARD (SIDE A)

LD-115 BOARD (SIDE B)

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

LD-115
(LED)

CK-119
(SENSOR)

FR-190
(FUNCTION SWITCH)

SW-381
(PUSH ENTER SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

VP-58
(VIDEO OUT)

4-67

IF-98 BOARD

IC101

LD-115 BOARD

INTERFACE/LED
LF-98/LD-115

4-68
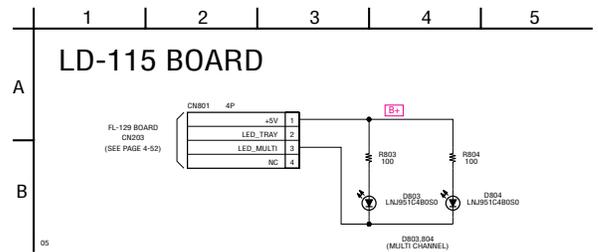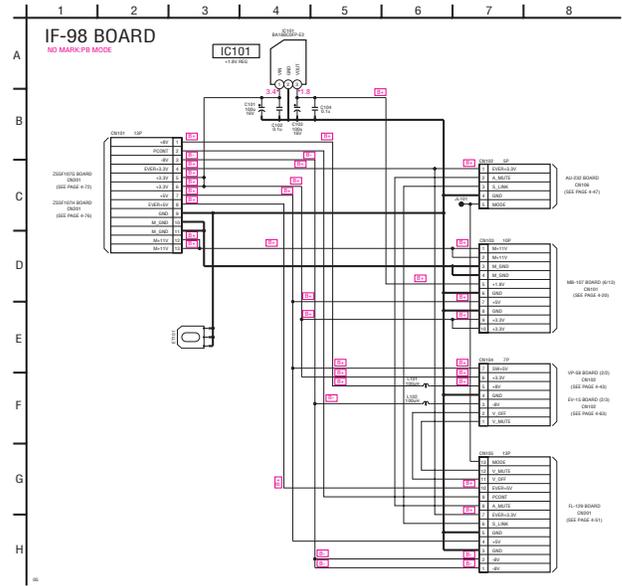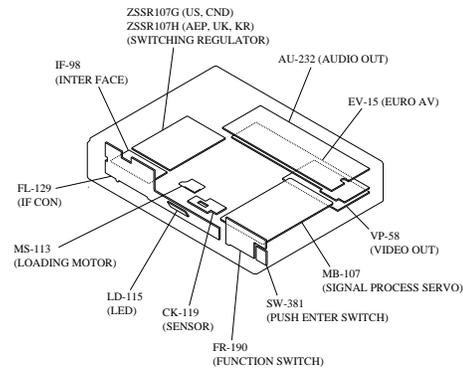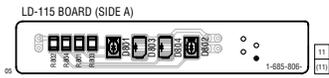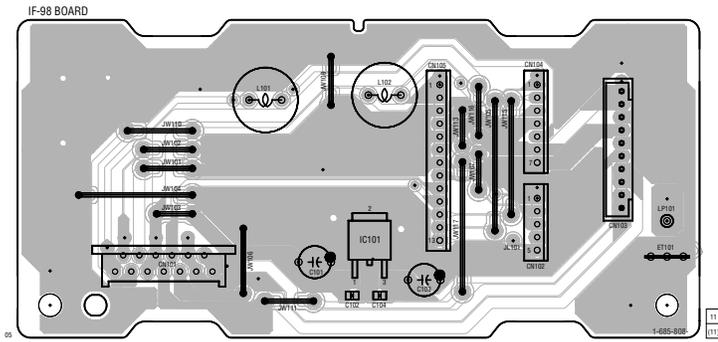
DVP-NS999ES

ZSSR107G (SWITCHING REGULATOR) PRINTED WIRING BOARD
– Ref. No.: ZSSR107G board; 6,000 series –

– US, CND –

: Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.

ZSSR107G BOARD

CN102

CN101

F101

L101

C101

C107   C105

C102

L102

RJ103

RL101

R102

D406

D108

R104

R106

PC101

C112

C114

R105

RJ108

D102

D104   D101

D103

D109

C113

IC101

C110

D107

C109

C108

D105   D106   C111

R103

T101

RJ120

D501   L502

R105

RJ107

C502

C402

C501

C404

R401

R402

RJ115

R403
R405

R501
R502

C503

R420

IC401

L503

D503

Q501

R416

R415

IP501

Q402

D502
Q403

D405

Q405

R419

C412

Q404
R418

RJ117
RJ118
CN201
RJ116

RJ119

R417
R413
R411
R410
R409

R412

IP401   IP201

R303

R406   Q301
R301

R408
R410
C408
C403

D303   R302

R202

D202

Q401   C407

G D S

IP402

R201

Q201

C401

RJ106

L401

L403

RJ104

C201
C301

C202

L201
L301

C203
RJ105

L203

L303

D201

C402

C403

D302

C303

RJ101

D301

D404

Q102
RJ102

C302

D202

R201

05

1-468-686-

11

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

IF-98
(INTER FACE)

AU-232 (AUDIO OUT)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

VP-58
(VIDEO OUT)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

MB-107
(SIGNAL PROCESS SERVO)

FR-190
(FUNCTION SWITCH)

SWITCHING REGULATOR
ZSSR107G   4-69

4-70

ZSSR107G (SWITCHING REGULATOR) SCHEMATIC DIAGRAM
– Ref. No.: ZSSR107G board; 6,000 series –

– US, CND –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
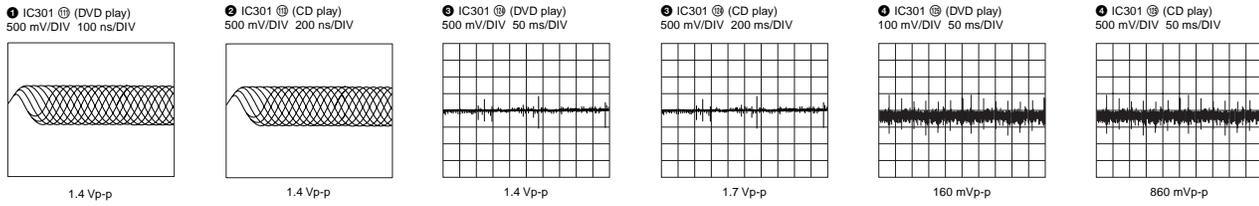
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ZSSR107G BOARD

NO MARK: PB MODE

TO R-CORE TRANS (SEE PAGE 4-47)

IF-98 BOARD CN101 (SEE PAGE 4-68)
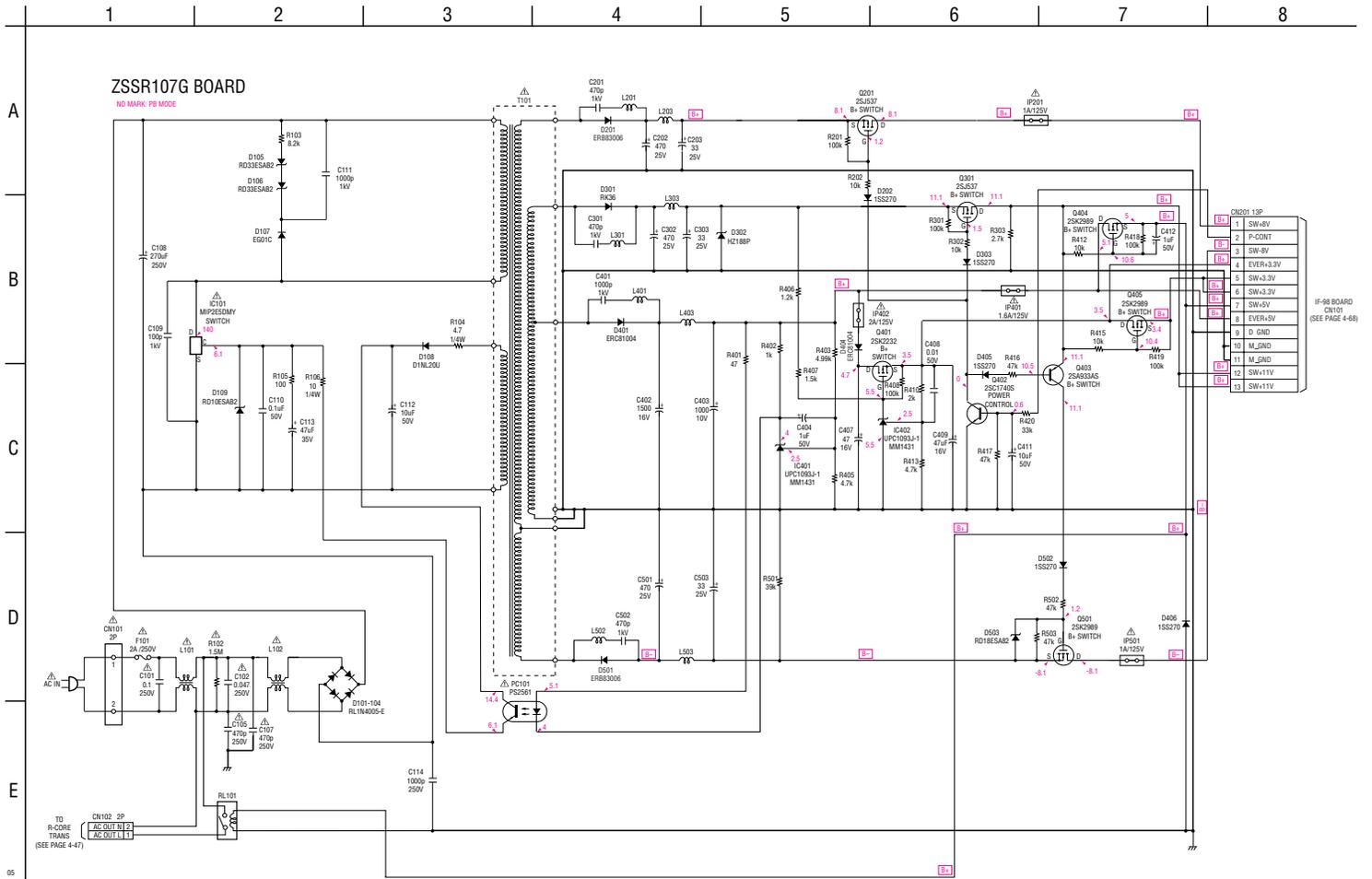
CN201 13P	
1	SW+8V
2	P-CONT
3	SW-8V
4	EVER+3.3V
5	SW+3.3V
6	SW+3.3V
7	SW+5V
8	EVER+5V
9	D_GND
10	M_GND
11	M_GND
12	SW+11V
13	SW+11V

4-71

4-72

SWITCHING REGULATOR
ZSSR107G

DVP-NS999ES

ZSSR107H (SWITCHING REGULATOR) PRINTED WIRING BOARD
– Ref. No.: ZSSR107H board; 7,000 series –

– AEP, UK, KR –

🔓 : Uses unleaded solder.

ZSSR107H BOARD

ZSSR107G (US, CND)
ZSSR107H (AEP, UK, KR)
(SWITCHING REGULATOR)

AU-232 (AUDIO OUT)

IF-98
(INTER FACE)

EV-15 (EURO AV)

FL-129
(IF CON)

MS-113
(LOADING MOTOR)

VP-58
(VIDEO OUT)

MB-107
(SIGNAL PROCESS SERVO)

LD-115
(LED)

CK-119
(SENSOR)

SW-381
(PUSH ENTER SWITCH)

FR-190
(FUNCTION SWITCH)
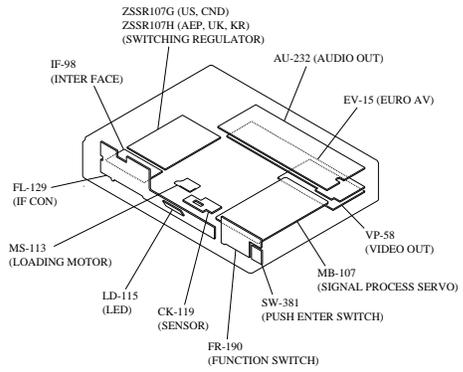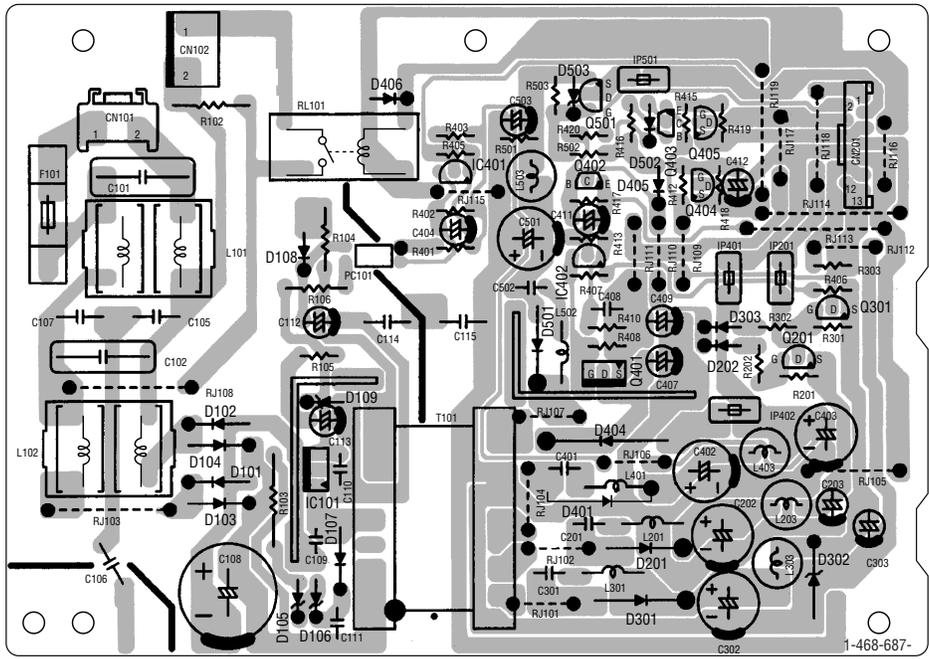
SWITCHING REGULATOR
ZSSR107H

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ZSSR107H (SWITCHING REGULATOR) SCHEMATIC DIAGRAM
– Ref. No.: ZSSR107H board; 7,000 series –

– AEP, UK, KR –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ZSSR107H BOARD
NO MARK: PB MODE

SWITCHING REGULATOR
ZSSR107H

SECTION 5
IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL PIN FUNCTION (MB-107 BOARD IC104)

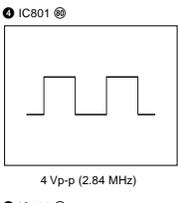| Pin No.	Pin name	I/O	Function
1-5	HA17-HA21	O	Address bus A17-A21
6	HA22	-	Not used
7	WP	O	I2C EEPROM write protect output
8	XSACS	O	SACD DEC Chip select signal output
9	AVCC	-	Power supply (+3.3 V)
10	AVRH	-	Reference power supply (+3.3 V)
11	AVSS	-	Ground
12	AN0	I	Set of mode 0
13	AN1	I	Set of mode 1
14	AN2	I	Set of mode 2
15	AN3	I	Set of mode 3 (SCAN SELECT switch input)
16	INT0	I	AV DEC Interrupt input
17	INT1	I	ARP Interrupt input
18	INT2	I	SDSP Interrupt input
19	INT3	I	NAND FLASH I/F, EXTENSION I/O Interrupt input
20	INT4	I	IF CON Interrupt input
21	INT5	I	ADSP Interrupt input
22	INT6	I	ADSP Interrupt input
23	INT7	I	SACD DEC Interrupt input
24	VCC	-	Power supply (+3.3 V)
25	SI0	I	Serial bus 0 (data input)
26	SO0	O	Serial bus 0 (data output)
27	SC0	O	Serial bus 0 (clock output)
28	SI1	I	Serial bus 1 (data input)
29	SO1	O	Serial bus 1 (data output)
30	SC1	O	Serial bus 1 (clock output)
31	SI2	I	Serial bus 2 (data input)
32	SO2	O	Serial bus 2 (data output)
33	DVD/SACD	O	DVD/SACD Select signal output
34	VSS	-	Ground
35	XRST	O	System reset signal output
36	WIDE	O	WIDE Select signal output
37	RGBSEL	O	VIDEO Select signal output (AEP, UK model only)
38	SDA	I/O	I2C data input/output

Pin No.	Pin name	I/O	Function
39	SCL	O	I2C clock output
40	XSARST	O	SACD DEC Reset signal output
41	EUROV/Y	O	VIDEO Select signal output (AEP, UK model only)
42	DSEL	O	I/P select signal output
43	MD0	I	Input of mode select 0 (fixed at "H")
44	MD1	I	Input of mode select 1 (fixed at "L")
45	MD2	I	Input of mode select 2 (fixed at "L")
46	DREQ0	I	AV DEC DMA –REQ0 input
47	DACK0	O	AV DEC DMA –ACK0 output
48	XDRVMUTE	O	Drive mute signal output
49	DREQ1	I	AV DEC DMA –REQ1 input
50	DACK1	O	AV DEC DMA –ACK1 output
51	XIFCS	O	IF CON Chip select signal output
52	VSS	-	Ground
53	X1	O	Clock output (16.5 MHz)
54	X2	I	Clock input (16.5 MHz)
55	VCC	-	Power supply (+3.3 V)
56	CKSW1	I	Chuck Sensor input (Not used in this set)
57	OCSW1	I	Tray Sensor input (Not used in this set)
58	CS0X	O	External ROM chip select signal output
59	CS1X	O	Extranal RAM chip select signal output
60	CS2X	O	AV DEC Chip select signal output
61	CS3X	O	AV DEC Chip select signal output
62	CS4X	O	ARP Chip select signal output
63	CS5X	O	SDSP Chip select signal output
64	VCCI	-	Power supply (+1.8 V)
65	CS6X	O	NAND FLASH I/F, EXTENSION I/O chip select signal output
66	CS7X	-	Not used
67	XWAIT	I	Wait signal input
68	BGRNTX	I	Test terminal (fixed at "H")
69	BRQ	I	Test terminal (fixed at "L")
70	XRD	O	Read enable signal output
71	XWRH	O	Upper byte write enable signal output

5-1

Pin No.	Pin name	I/O	Function
72	XWRL	O	Lower byte write enable signal output
73	NMIX	I	Non Maskable Interrupt input (fixed at "H")
74	VCCI	-	Power supply (+1.8 V)
75	VSS	-	Ground
76	XFRRST	I	IF CON Reset signal input
77	CPUCK	O	CPU clock signal output
78	SMUTE	O	SACD mute signal output
79	XDACS	O	DAC (2ch, 6ch) chip select signal output
80	X38CS	O	ADSP chip select signal ouptut
81	48/44.1K	O	PLL FS control signal output
82	XLDON	O	Laser diode mute signal output
83	MA_MUTE	O	Audio mute signal output
84	XSRWE	O	SRAM write enable signal output
85-92	HD0-HD7	I/O	Data bus D0-D7 (16 bit only)
93-100	HD8-HD15	I/O	Data bus D8-D15 (16 bit) , D0-D7 (8 bit)
101	VSS	-	Ground
102-109	HA0-HA7	O	Address bus A00-A07
110	VCC	-	Power supply (+3.3 V)
111-118	HA8-HA15	O	Address bus A08-A15
119	VSS	-	Ground
120	HA16	O	Address bus A16

5-2 E

SECTION 6
TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press the TOP MENU , CLEAR , I/⏻ keys on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then "DIAG START" will be displayed on the fluorescent display tube and the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed. Last Off at the lower right of screen indicates the information code concerning the last power off.
To execute each function, select the desired menu and press its number on the remote commander.
To exit from the Test Mode, press the I/⏻ key.

```
           Test Mode Menu

   0. Syscon Diagnosis
   1. Drive Auto Adjustment
   2. Drive Manual Operation
   3. Mecha Aging
   4. Emargency Hisory
   5. Version Information
   6. Video Level Adjustment
                   Exit: Power Key

   _
   Model   :DPX-16xxxx
   Revision:x.xxx    Last Off: xx
```

Power Off Information Code List

00 : Primary Power Off
01 : Power Off Request from SYSTEM CONTROL
02 : Power Off by Emergency Power Off Command from SYSTEM CONTROL
      (if information is sent from SYSTEM CONTROL)
03 : IF CON Judged that SYSTEM CONTROL is Faulty
04 : Power Off from Diagnosis Mode of IF CON
05 : Forced Power Off by the User
06 : Power Off by Power Supply Voltage Monitor

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.
On the Test Mode Menu screen, press 0 key on the remote commander, and the following check menu will be displayed.

```
   ### Syscon Diagnosis ###
           Check Menu
   0. Quit
   1. All
   2. Version
   3. Peripheral
   4. Servo
   5. Supply
   6. AV Decoder
   7. Video
   8. Audio

   _
```

0. Quit
Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All
All items continuous check
This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```
   ### Syscon Diagnosis ###

       Diag All Check
       No. 2 Version

    2-3. ROM Check Sum
   Check Sum = xxxx


   Press NEXT Key to Continue
   Press PREV Key to Repeat

   _
```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.
Following the message, press ▶▶I key to go to the next item, or I◀◀ key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press ■ or ENTER key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```
   ### Syscon Diagnosis ###


    3-3. EEPROM Check
   Error 03: EEPROM Write/Reed N
   Address   : 00000001
   Write Data : 2492
   Read Data : 2490
   Press NEXT Key to Continue
   Press PREV Key to Repeat

   _
```

Press ■ key to quit the diagnosis, or I◀◀ key to repeat the same item where an error occurred, or ▶▶I key to continue the check from the item next to faulty item.

Submenu

Selecting 2 and subsequent items calls the submenu screen of each item.
Indication of "—" in the submenu means the check is not supported with the model.
For example, if "5. Supply" is selected, the following submenu will be displayed.

```
    ### Syscon Diagnosis ###
          Check Menu
           No. 5 Supply
0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check

—
```

0. Quit
Quit the submenu and return to the main menu.

1. All
All submenu items continuous check.
This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.
Selecting 2 and subsequent items executes respective menus and outputs the results.
For the contents of each submenu, see "General Description of Checking Method" and "Check Items List".

General Description of Checking Method

2. Version
(2-2) Revision
        ROM revision number is displayed.
        Error: Not detected.
        The revision number defined in the source file of ROM (IC106 or 107) is displayed with four digits.

(2-3) ROM Check Sum
        Check sum is calculated.
        Error: Not detected.
        8-bit data are added up to the ROM (IC106 or 107) address 0x000F0000 to 0x002EFFFF, and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.
(2-4) Model Type
        Model code is displayed.
        Error: Not detected.
        The model code read from the EEPROM is displayed with 2-digit hexadecimal number.

(2-5) Region
        Region code is displayed.
        Error: Not detected.
        The region code determined from the model code is displayed.

(2-6) M't check
        Error 22: region code discord.
        Accordance between region codes, one is detected with model resistance and destination resistance, and the other is detected with region resistance, is check.
        If an error is detected, the region code determined with region resistance is displayed at "write data" and the region code determined with model resistance and destination resistance is displayed at "read data".

3. Peripheral
(3-2) EEPROM Check
        Data write → read, and accord check
        Error 03: EEPROM write/read discord.
        0x9249, 0x2942 and 0x4294 are written to the address 0x00 to 0xFF of the EEPROM and then read for checking. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-3) Gate Array Check
        Data write → read, and accord check
        Error 02: Gate Array write/read discord
        Data of 0x00 to 0xFF is written sequentialy to the address 0xF and then read for checking.

(3-4) NAND FLASH Check
        Data delete → write → read, and accord check
        Error 04: delete error
        Error 05: write error
        Error 06: read data discord
        Error 21: more than ten blocks are defective
        Deleting, writing and checking read data are executed to the zeroth block of Flash memory.
        If any detective block is found, the address is displayed. When more than ten blocks are defective, it is considered as an error.

(3-5) SACD check
        Device reset → internal organs RAM check
        Error 50: Write and read data discord.

(3-6) VENC Check
        Data write → read, and accord check
        Error 52: Write and read data discord.
        Accessing to the SYSCON may be defective.

(3-7) ———— (not support)

(3-8) EX RAM Check
        Test Data write → read, and accord check
        Error 02: The external RAM used in the system control is checked.

4. Servo
(4-2) Servo DSP Check
        Data write → read, and accord check
        Error 12: Read data discord
        0x9249, 0x2942 and 0x4294 are written to the RAM address 0x602 of the Servo DSP and then read for checking. Also, OPT type "1 LASER" or "2 LASER" is displayed.

(4-3) ———— (not support)

6-2

(4-4) RF Amp (SSI) W/R Check
Date write → read and accord check
Error 13: RF Amp resister write, and read data discord.
After 0x01 is shifted to register which can read and write
RF Amp for 8 bit operation, if write and read data are dis-
cord once, the check is performed unsuccessfully.
There may be a single piece of hardware is defective,
mounted imperfect or not mounted.

5. Supply

(5-2) ARP Register Check
Data write → read, and accord check
Error 08: ARP register write, and read data discord
Data 0x00 to 0xFF is written sequentially to the ARP TMAX
register (address 0xC6) and then read for checking.

(5-3) ARP to RAM Data Bus
Data write → read, and accord check
Error 09: ARP ←→ RAM data bus error
Data 0x0001 to 0x8000 where one bit each is set to 1 are
written to the address 0 of RAM (IC303) connected to the
ARP (IC301) through the bus, then they are read and
checked. In case of discord, written bit pattern and read
data are displayed. If data where multiple bits are 1 are
read, the bits concerned may touch each other. Further, if
data where certain bit is always 1 or 0 regardless of written
data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus
Data write → other address read discord check
Error 10: ARP ←→ RAM address bus error
Caution: Address and data display in case of an error is
different from the display of other diagnosis (de-
scribed later).
Before starting the test, all addresses of RAM (IC303) are
cleared to 0x0000.
First, 0xA55A is written to the address 0x00000, and the
address data are read and checked from addresses 0x00001
to 0x80000 while shifting 1 bit each. Next, the data at that
address is cleared, and it is written to the address 0x00001,
and read and checked in the same manner. This check is
repeated up to the address 0x80000 while shifting the ad-
dress data by 1 bit each.
If data other than 0 is read at the addresses except written
address, an error is given because all addresses were al-
ready cleared to 0. In this check, the error display pattern is
different from that of other diagnosis; read data, written
address, and read address are displayed in this order. How-
ever, the message uses same template, and accordingly ex-
change Address and Data when reading. The following dis-
play, for example,

```
   ### Syscon Diagnosis ###



 5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address    : 0000A55A
Write Data : 00000000
Read Data  : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat

_
```

shows the data 0xA55A was read from address 0x00080000
though it was written to the address 0x00000000. This im-

plies that these addresses are in the form of shadow. Also,
if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check
Data write → read, and accord check
Error 11: ARP RAM read data discord
The program code data stored in ROM are copied to all
areas of RAM (IC303) connected to the ARP (IC301)
through the bus, then they are read and checked if they ac-
cord. If the detail check was selected initially, the data are
written to all areas and read, then the same test is conducted
once again with the data where all bits are inverted between
1 and 0. If discord is detected, faulty address, written data,
and read data are displayed following the error code 11,
and the test is suspended.

6. AV Decoder

(6-2) 1935 RAM
Data write → read, and accord check
Error 14: AVD RAM read data discord
The program code data stored in ROM (IC106 or 107) are
copied to all areas of RAM (IC406) connected to the AVD
(IC403) through the bus, then they are read and checked if
they accord. Further, the same test is conducted once again
with the data where all bits are inverted between 1 and 0. If
discord is detected, faulty address, written data, and read
data are displayed following the error code 14, and the test
is suspended.
During the test, OSD display becomes blank as the OSD
area is also checked.

(6-3) 1935 SP
ROM → AVD RAM → Video OUT
Error: Not detected.
The data including sub picture streams in ROM (IC106 or
IC107) are transferred to the RAM (IC406) in AVD (IC403),
and output as video signals from the AVD (IC403).
Though OSD display becomes blank, the output of video
signals continues until the key is pressed.
They are output from all video terminals (Composite, Y/
C, Component) except EURO AV terminal.

7. Video

(7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

(7-3) Composite Out
AVD color bar command write → Video (Composite, Y/C) OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

(7-4) Y/C Out
AVD color bar command write → Video (Composite Y/C) OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

(7-5) RGB Out (AEP, UK Model)
EURO-AV RGB video output check
AVD color bar command write → Video (EURO-AV RGB) OUT
Error: Not detected.
With the RGB of video output turned on, the color bar signals are output from the EURO-AV terminal.

(7-6) ——— (not support)

(7-7) Euro AV Through (AEP, UK Model)
AV Through output On/Off
Error: Not detected.
AV Through output is turned on.

8. Audio

(8-2) ARP → 1935
Error 15 : ARP → 1935 video NG
      16 : ARP → 1935 audio NG

(8-3) Audy
Register check of Audy (IC801) and DRAM (IC802) check are performed. After above checks are performed, transit to the next test tone (8-4).

(8-4) Test Tone
Test signal is output form AVD (IC403) to the digital out (optical) jack and analog audio out L/R jack through DSP (IC501) and Audy (IC801).
Error: Not detected
After outputting to the audio out jack, outputting to 5.1 CH output is performed.

Check Items List

2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region
(2-6) M't Check

3) Peripheral
(3-2) EEPROM Check
(3-3) Gate Array Check
(3-4) NAND FLASH Check
(3-5) SACD Check
(3-6) VENC Check
(3-7) ——— (not support)
(3-8) EX RAM check

4) Servo
(4-2) Servo DSP Check
(4-3) ——— (not support)
(4-4) RF Amp (SSI) W/R Check

5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check

6) AV Decoder
(6-2) 1935 RAM
(6-3) 1935 SP

7) Video
(7-2) Color Bar
(7-3) Composite Out
(7-4) Y/C Out
(7-5) RGB Out (AEP, UK Model)
(7-6) ——— (not support)
(7-7) Euro AV Through (AEP, UK Model)

8) Audio
(8-2) ARP → 1935
(8-3) Audy
(8-4) Test Tone

Error Codes List

00: Error not detected
01: RAM write/read data discord
02: Gate array NG
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
07: 2725 read data discord
08: ARP register read data discord
09: ARP ←→ RAM data bus error
10: ARP ←→ RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: RF Amp NG
14: 1935 SDRAM NG
15: ARP → 1935 video NG
16: ARP → 1935 audio NG
19: 1901UCODE Download NG
1A: System call error (function not supported)
1B: System call error (parameter error)
1C: System call error (illegal ID number)
20: System call error (time out)
21: more than ten blocks of NAND FLASH memory are defective
22: Resistance incorrect mounting
50: SACD Decoder W/R NG
52: Video Encoder W/R NG
55: External RAM W/R NG
90: Error occurred
91: User verification NG
92: Diagnosis cancelled.

6-4. DRIVE AUTO ADJUSTMENT

DVD reference disc
    Single Layer
        HLX-503 (J-6090-069-A) (NTSC) OR
        HLX-504 (J-6090-088-A) (NTSC)
    Dual Layer
        HLX-501 (J-6090-071-A) (NTSC) OR
        HLX-505 (J-6090-089-A) (NTSC)

TEST CD
    YEDS-18 (3-702-101-01)

On the Test Mode Menu screen, press 1 key on the remote com-
mander, and the drive auto adjustment menu will be displayed.

On the Test Mode Menu screen, press 1 key on the remote com-
mander, and the drive auto adjustment menu will be displayed.

```
   ## Drive Auto Adjustment ##

        Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. LCD


_

                    Exit: RETURN
```

Normally, 0 is selected to adjust DVD (single layer), CD, DVD
(dual layer) in this order. But, individual items can be adjusted for
the case where adjustment is suspended due to an error. In this
mode, the adjustment can be made easily through the operation
following the message displayed on the screen. Which disc is cur-
rently adjusted is displayed on the fluorescent display tube.
The disc used for adjustment must be the one specified for adjust-
ment.

0. ALL
You will be asked if EEPROM data are initialized or not, and for
this prompt, select 0 and press the ENTER key. First , the servo
setting data in EEPROM, Emergency History and Hour Meter are
cleared to initialize. Then, 1. DVD-SL disc, 2. CD disc, and
3. DVD-DL disc are adjusted in this order. Each time one disc was
adjusted, it is ejected, and therefore exchange the disc following
the message. You can exit the adjustment by pressing the ■ button.
In adjusting each disc, the mirror time is measured to check the
disk type. In the auto adjustment, whether the disc type is correct
is not checked unlike conventional models, and accordingly, take
care not to insert a different type of disc.

1. DVD-SL (single layer)
Select 1, insert DVD single layer disc, and press ENTER key,
and the adjustment will be made through the following steps, then
adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory SL
3. Set Disc Type SL
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Focus ON 0 with PI Level Musure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto Focus Balance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. EQ Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. RF Level Measure
21. Jitter Measure
22. Eep Copy Loop Filter Offset
23. All Servo Stop

6-6

2. CD

Select $\boxed{2}$, insert CD disc, and press $\boxed{\text{ENTER}}$ key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Reset
2. Disc Check Memory CD
3. Set Disc Type CD
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Fcs ON 0 with PI Level Mesure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto focus Blance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. Eq Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. Copy Adjustment Data to LCD
21. RF Level Measure
22. Jitter Measure
23. All Servo Stop

3. DVD-DL (dual layer)

Select $\boxed{3}$, insert DVD dual layer disc, and press $\boxed{\text{ENTER}}$ key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory DL
3. Set Disc Type DL
   DVD DL Layer 1 Adjust
4. Spdl Start
5. LD ON
6. Fcs ON 1 with PI Level Mesure
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Clva ON
10. Sled ON
11. Auto Focus Balance Adjust
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
14. Eq Boost Adjust L1
15. Auto Track Gain Adjust L1
16. Jitter Measure
    DVD DL Layer 0 Adjust
17. Focus Jump (L1 → L0)
18. Auto Track Offset Adjust L0
19. Tracking ON
20. Clva ON
21. Sled ON
22. Auto Focus Balance Adjust
23. Auto Focus Gain Adjust L0
24. Auto Focus Balance Adjust L0
25. Eq Boost Adjust L0
26. Auto Track Gain Adjust L0
27. Jitter Measure
28. All Servo Stop

4. LCD (SACD)

No adjustments, because the adjusted data of CD are reflected to LCD disc and the adjusted data of CD and DVD-DL are reflected to SACD (hybrid disc).

6-7

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select $\boxed{2}$, and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
   ## Drive Manual Operation ##

        Operation Menu
1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check

0. Disc Check Memory

_
                   Exit: RETURN
```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

```
1.  Set correctly the disc type to be used on the Disc Type
    screen.
    The disc type must be set after a disc was loaded.
    The set disc type is cleared when the tray is opened.
2.  After power ON, if the Drive Manual Operation was se-
    lected, first perform "Reset SLED TILT" by opening 1.
    Disc Type screen.
3.  In case of an alarm, immediately press the ■ button to
    stop the servo operation, and turn the power OFF.
```

Basic operation (controllable from front panel or remote commander)

I/⏻	Power OFF
■	Servo stop
⏏	Stop+Eject/Loading
↻ RETURN	Return to Operation Menu or Test Mode Menu
▶▶I , I◀◀	Transition between sub modes of menu
1 to 9, 0	Selection of menu items
Cursor ↓ / ↑	Increase/Decrease in manually adjusted value

0. Disc Check Memory

```
            Disc Check



1. SL Disc Check
2. CD Disc Check
3. DL Disc Check



0. Reset SLED TILT

```

On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press $\boxed{1}$, then set a CD disc and press $\boxed{2}$, and finally set a DVD DL disc and press $\boxed{3}$. The measured mirror time is displayed respectively.

The adjustment must be executed more than once after default data were written.

From this screen, you can go to another mode by pressing $\boxed{\blacktriangleright\blacktriangleright\text{I}}$ or $\boxed{\text{I}\blacktriangleleft\blacktriangleleft}$ key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```
         Disc Type
1. Disc Type Auto Check
2. DVD SL   12cm
3. DVD DL   12cm
4. CD       12cm
5. LCD      12cm
6. DVD SL    8cm
7. DVD DL    8cm
8. CD        8cm
9. LCD       8cm
0. Reset SLED TILT
_                     EMG. 00
  0. Reset SLED TILT
```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting $\boxed{1}$ automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.

In performing manual operation, the disc type must be set.

Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```
          Disc Type
1. Disc Type Auto Check
2. DVD SL      12cm
3. DVD DL      12cm
4. CD          12cm
5. LCD         12cm
6. DVD SL       8cm
7. DVD DL       8cm
8. CD           8cm
9. LCD          8cm
0. Reset SLED TILT
        SA.------ SI.-- EMG.00
DVD SL 12cm
```

Display when DVD SL 12cm disc was selected

6-8

```
            Disc Type
1. Disc Type Auto Check
2. DVD SL    12cm
3. DVD DL    12cm
4. CD        12cm
5. LCD       12cm
6. DVD SL     8cm
7. DVD DL     8cm
8. CD         8cm
9. LCD        8cm
0. Reset SLED TILT
_             TC. --:--:-- EMG.00
CD        12cm
```

Display when CD 12cm disc was selected

0̄ Reset SLED TILT   Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)

1̄ Disc Type Auto Check   Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct.
If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).

2̄ to 9̄   Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if 1̄ was selected.

2. Servo Control

```
          Servo Control
1. LD        Off R. Sled FWD
2. SP        Off L. Sled REV
3. Focus     Off
4. TRK.      Off
5. Sled      Off
6. CLVA      Off
7. FCS. Srch Off


0. Reset SLED TILT
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked.
The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

0̄ Reset SLED TILT   Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)

1̄ LD   Turn ON/OFF the laser.

2̄ SP   Turn ON/OFF the spindle.

3̄ Focus   Search the focus and turn on the focus.

4̄ TRK   Turn ON/OFF the tracking servo.

5̄ Sled   Turn ON/OFF the sled servo.
If PLL is not locked (or can not be locked), the sled servo does not be turned ON. (Indication remains as OFF)

6̄ CLVA   Turn ON/OFF normal servo of spindle servo.

7̄ FCS. Srch   Apply same voltage as that of focus search to the focus drive to check the focus drive system.

→ Sled FWD   Move the sled outward. Perform this operation with the tracking servo turned off.

← Sled REV   Move the sled inward. Perform this operation with the tracking servo turned off.

3. Track/Layer Jump

```
       Track/Layer Jump
1.   1Tj FWD R. Fj (L1 -> L0)
2.   1Tj REV L. Fj (L0 -> L1)
3.   2Tj FWD U. Lj (L1 -> L0)
4.   2Tj REV D. Lj (L0 -> L1)
5.   NTj FWD
6.   NTj REV
7. 500Tj FWD
8. 500Tj REV
9. 10k/20k FWD
0. 10k/20k REV
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, track jump, etc. can be performed. Only for the DVD-DL, the focus jump and layer jump are displayed in the right field.

1̄ 1Tj FWD   1-track jump forward.

2̄ 1Tj REV   1-track jump reverse.

3̄ 2Tj FWD   2-track jump forward.

4̄ 2Tj REV   2-track jump reverse.

5̄ NTj FWD   N-track jump forward.

6̄ NTj REV   N-track jump reverse.

7̄ 500Tj FWD   Fine search forward.

8̄ 500Tj REV   Fine search reverse.

9̄ 10k/20k FWD   Direct search forward.

0̄ 10k/20k REV   Direct search reverse.

– The following commands are valid for DVD-DL disc only –

→ Fj (L1 → L0)   Focus jump forward.
(Trk/Sled Servo OFF)

←	Fj (L0 → L1)	Focus jump reverse. (Trk/Sled Servo OFF)
↑	Lj (L1 → L0)	Layer jump forward. (Trk/Sled Servo ON)
↓	Lj (L0 → L1)	Layer jump reverse. (Trk/Sled Servo ON)

4. Manual Adjustment

```
   Manual Adjustment:Up/Down
1. TRK.  Offset
2. Focus Gain
3. TRK.  Gain
4. Focus Offset
5. Focus Balance
6. L.F.  Offset
7. Analog FRSW
8. PLL Dac Gain
9. EQ    BOOST
0. GD    ADJ
     SA. ------ SI. -- EMG. 00
DVD SL 12cm          Jitter FF
```

On this screen, each item can be adjusted manually. Select the desired number 1 to 0 from the remote commander, and current setting for the selected item will be displayed, then increase or decrease numeric value with $↑$ key or $↓$ key. This value is stored in the EEPROM. If CLV has been applied, the jitter is displayed for reference for the adjustment.

1	TRK. Offset	Adjusts tracking offset.
2	Focus Gain	Adjusts focus gain.
3	TRK. Gain	Adjusts track gain.
4	Focus Offset	Adjusts focus offset.
5	Focus Balance	Adjusts focus balance.
6	L.F. Offset	Adjusts loop filter offset.
7	Analog FRSW	Sets the shifting switch for analog feedback circuit.
8	PLL Dac Gain	Adjusts PLL D/A converter gain.
9	EQ BOOST	Adjusts amount of boost of equalizer.
0	GD ADJ	Adjusts amount of group delay

5. Auto Adjustment

```
      Auto Adjustment
1. Auto TRK. Offset
2. Auto FCS Balance
3. Auto Focus Offset
4. Auto Focus Gain
5. Auto TRK. Gain
6. Auto EQ.
7. Auto L.F. Offset
8. Auto Group Delay


_      SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, each item can be adjusted automatically. Select the desired number 1 to 8 from the remote commander, and selected item is adjusted automatically.

1	Auto TRK. Offset	Adjusts tracking offset.
2	Auto FCS Balance	Adjusts focus balance.
3	Auto Focus Offset	Adjusts focus offset.
4	Auto Focus Gain	Adjusts focus gain.
5	Auto TRK. Gain	Adjusts track gain.
6	Auto EQ	
7	Auto L.F. Offset	Adjusts loop filter offset.
8	Auto Group Delay	

6. Memory Check

Display images are shown as follows, and all three screens are able to switch.

```
EEPROM Data 1          -- DL --
            CD LCD   SL L0 L1
Focus Gain   xx xx    xx xx xx
TRK.  Gain   xx xx    xx xx xx
FCS Balance  xx xx    xx xx xx
Focus Bias   xx xx    xx xx xx
TRV.  Offset xx xx    xx xx xx
L.F.  Offset xx xx    xx xx xx
EQ.   Boost  xx xx    xx xx xx

_ UP   : Last Data
  DOWN : Next Data
  CLEAR: Default Set  page.1/3
```

```
EEPROM Data 2          -- DL --
            CD LCD   SL L0 L1
RF   Jitter  xx --    xx xx xx
RF   Level   xx --    xx -- --
FE   Level   xx --    xx -- --
FE Balance   xx --    xx -- --
TRV. Level   xx --    xx -- --
TE   Gain    xx xx    -- -- --
PI   Level   xx --    xx xx --

_ UP   : Prev Data
  DOWN : Next Data
  CLEAR: Default Set  page.2/3
```

```
EEPROM Data 3          -- DL --
              CD LCD   SL L0 L1
Analog FRSW  xx xx    xx xx xx
PLL Dac Gain xx xx    xx xx xx
Mirror Time  xx xx    xx xx xx


THR A&L:      xx xx xx/xx xx xx




_  UP   : PREV Data
   DOWN : First Data
   CLEAR: Default Set  page.3/3
```

On this screen, current servo adjusted data stored in the EEPROM are displayed. The adjusted data are initialized by pressing the ⌐CLEAR⌐ key, but be careful that they are not recoverable after initialization.

Before clearing the adjusted data, make a note of the set data. This screen will also appear if ⌐0⌐ All is selected in the Drive Auto Adjustment. In this case, default setting cannot be made.

Data of "THR A & L" on page 3/3 can not be changed if default set is done.

6-6. MECHA AGING

```
      ### Mecha Aging ###




Press OPEN key
_



Abort: STOP key

```

On the Test Mode Menu screen, selecting ⌐3⌐ executes the aging of mechanism. First, open the tray and load a disc. Press the ⌐▷⌐ key, and the aging will start. During aging, the repeat cycle is displayed. Aging can be aborted at any time by pressing the ⌐■⌐ key. After the operation has stopped, unload the disc and press again the ⌐■⌐ key or the ⌐↪ RETURN⌐ key to return to the Test Mode Menu.

6-7. EMERGENCY HISTORY

```
      ### EMG. History ###

Laser Hours     CD   xxh xxm
                DVD  xxh xxm

 1.  00 00 00 00  00 00 00 00
     00 00 00 00  00 00 00 00

 2.  00 00 00 00  00 00 00 00
     00 00 00 00  00 00 00 00
_
Select: 1-9    Scroll:UP/DOWN
(1: Last EMG.)   Exit:RETURN
```

On the Test Mode Menu screen, selecting ⌐4⌐ displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with ⌐↑⌐ key or ⌐↓⌐ key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information
◎ Clearing laser hours
   Press ⌐DISPLAY⌐ and ⌐CLEAR⌐ keys in this order.
   Both CD and DVD data are cleared.
◎ Clearing emergency history
   Press ⌐TOP MENU⌐ and ⌐CLEAR⌐ keys in this order.
◎ Initializing set up data
   Press ⌐MENU⌐ and ⌐CLEAR⌐ keys in this order.
   The data have been initialized when "Set Up Initialized" message is displayed. The EMG. History screen will be restored soon.

6-11

6-8. VERSION INFORMATION

```
     ## Version Information ##

IF con.      Ver:x.xxx(xxxx)
      Group       xx

SYScon.      Ver:x.xxx(xxxx)
      Model       xx
      Region      0x

 Servo DSP Ver: x.xxx
 AVD ucode Ver: xxxxxxxx
 OPT TYPE : x LASER
                  Exit : RETURN
```

The ROM version, region code, OPT type, etc. are displayed if 5 is selected in the Test Mode Menu.
The parenthesized hexadecimal number in the version number field indicates the checksum value of the ROM.

Note : After down loading ROM data, sometimes it happens that checksum is not the same as that of ROM data which has been down loaded. In such a case, go back to the menu and select "0. Syscon Diagnosis", then select "1. All" in "2. Version". If the result of this operation does not give an agreement, it must be either Down Load error or ROM error.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting 6 displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. FL-129 BOARD (IF CON) TEST MODE

The front board test mode is the IF CON self diagnostic mode. The IF CON can diagnose the functions of the front panel boards that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the Test mode, the following functions can be checked.
1. Button function
2. Remote commander receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Click shuttle function
5. Fluorescent display tube lighting check
   Grid check
   Anode check
6. LED control function
7. ACS function
8. Dimmer function

In the Test mode, the set operates same as usual, except voltage monitoring, communication monitoring, display of fluorescent display tube, and LED control.
1. The routine that monitors +3.3 V (P-CONT) of MB-107 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The set is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube (normally, display is made following the commands from SYSTEM CONTROL)
4. LED control (normally, control is made following the commands from SYSTEM CONTROL)

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

2-1. Self Check Mode Transition Processing

At the AC Power ON after IF CON (IC203) was reset, the input to 10pin (SELF CHECK) is judged and if "Low" is entered, the main unit transits to the Self Check mode. In this port input judgment, the result of 3-time attempts must be same (assuming that the MB-107 board is not connected). While pressing the ■ key on the main unit with the IF CON in STANDBY mode, enter ⤺ RETURN → DISPLAY (or SET UP) on the remote commander, and the unit transits to the Self Check Mode. The Self Check mode terminates when the IF CON transits to the STANDBY mode.

2-2. Operation of Auto Self Check

When the Self Check mode becomes active at the AC Power ON or by key input, the test display of the following steps (1) to (4) is repeated.

(1) FLD and LED all ON (for 5 seconds)
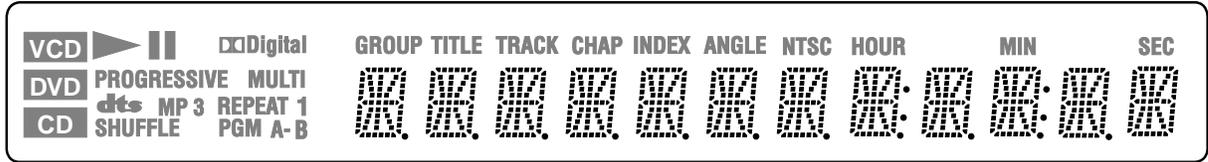
(2) MODEL display (for 2 seconds)
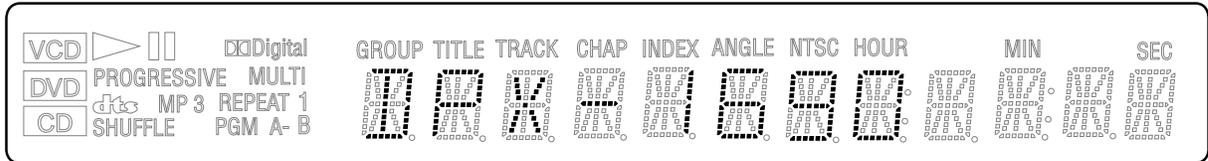
(3) Version display (for 2 seconds)
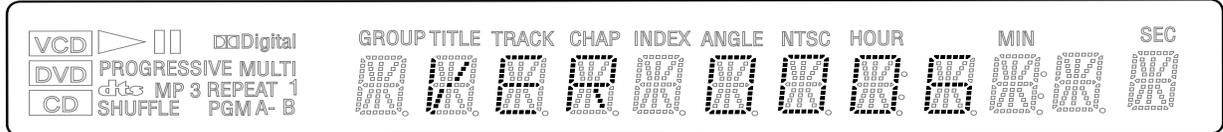
(4) ROM creation date display (for 2 seconds)

6-13
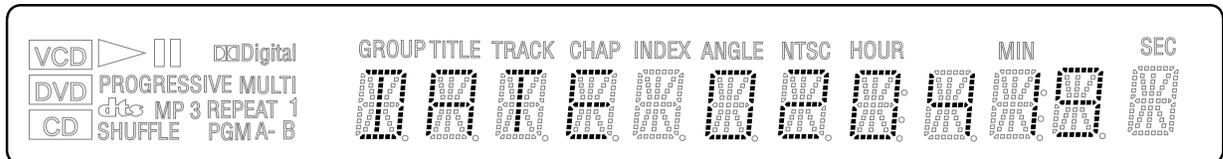
2-3. Each Self Check Function

Each Self Check function tests the FLD display, LED display, and key input.

Input Voltage [V]	IC203: Pin No. (Signal)						
	Pin ㉛ (AD1)	Pin ㉜ (AD2)	Pin ㉝ (AD3)	Pin ㉞ (AD4)	Pin ㉟ (AD5)	Pin ㊱ (AD6)	Pin ㊲ (CURSOR)
0 – 0.2	DVD1	–	–	PLAY	OPEN/CLOSE	POWER	ENTER
0.6 – 0.82	DVD3	–	–	PAUSE	–	–	–
1.16 – 1.47	DVD2	–	–	STOP	–	–	–
1.8 – 2.12	DVD1	–	–	–	–	–	–
2.48 – 2.7	DVD1	–	–	–	–	–	–
3.3	–	–	–	–	–	–	–

2-3-1. FLD and LED All ON
2-3-1-1. Transition Keys in Self Check Mode
- ■ key and ⏏ key on the main unit
- ← key on the remote commander

2-3-1-2. Operation and Display
In this mode, all LEDs except STANDBY LED and all segments of FLD turn ON.
Example of FLD all ON
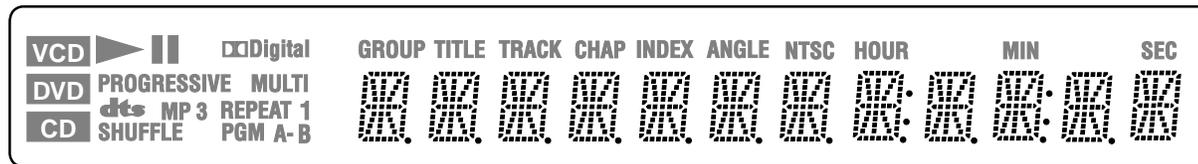
2-3-2. Main Unit Key Name Display and Key Code Display
2-3-2-1. Transition Keys in Self Check Mode
- Keys on main unit except keys transited in self check

2-3-2-2. Operation and Display
When a key on the main unit is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. "NOTHING" is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

FLD display (at input of ▷ key on the main unit)

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Key code display (at input of ▷ key, Key code: 0Ah)

VCD ▷∥ ᴰᴰDigital	GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR	MIN	SEC
DVD PROGRESSIVE MULTI	KEY NO OA		
ᵈᵗˢ MP 3 REPEAT 1			
CD SHUFFLE PGM A- B			
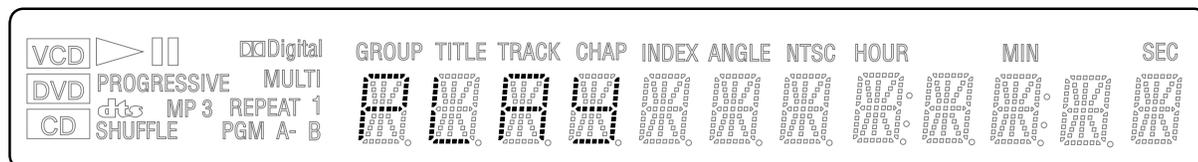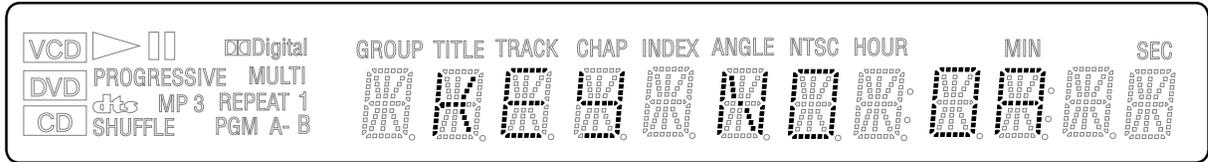
At input of faulty voltage

VCD ▷∥ ᴰᴰDigital	GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR	MIN	SEC
DVD PROGRESSIVE MULTI	ERROR		
ᵈᵗˢ MP 3 REPEAT 1			
CD SHUFFLE PGM A- B			
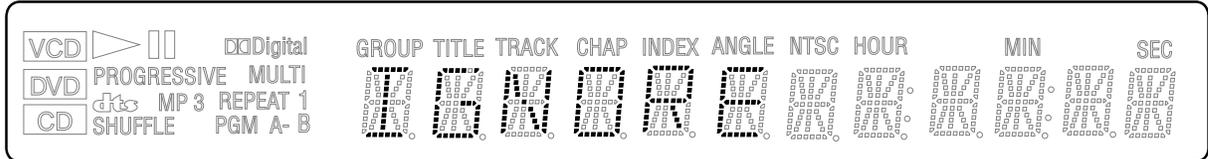
When two keys are pressed

VCD ▷∥ ᴰᴰDigital	GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR	MIN	SEC
DVD PROGRESSIVE MULTI	DOUBLE		
ᵈᵗˢ MP 3 REPEAT 1			
CD SHUFFLE PGM A- B			
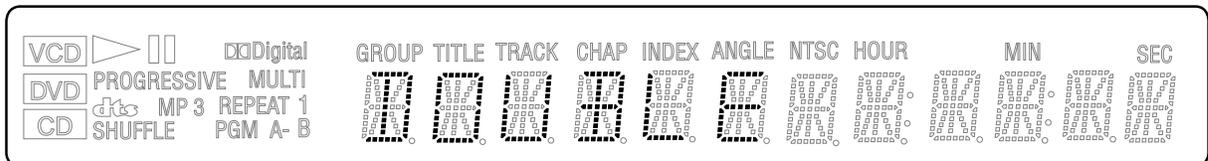
2-3-3. Remote Commander Key Name Display and Key Code Display
2-3-3-1. Transition Keys in Self Check Mode
• Remote commander keys except keys transited in self check

2-3-3-2. Operation and Display
When a key on the remote commander is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. "NOTHING" is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

Remote commander key name display (at input of ∥ key)

VCD ▷∥ ᴰᴰDigital	GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR	MIN	SEC
DVD PROGRESSIVE MULTI	PAUSE		
ᵈᵗˢ MP 3 REPEAT 1			
CD SHUFFLE PGM A- B			
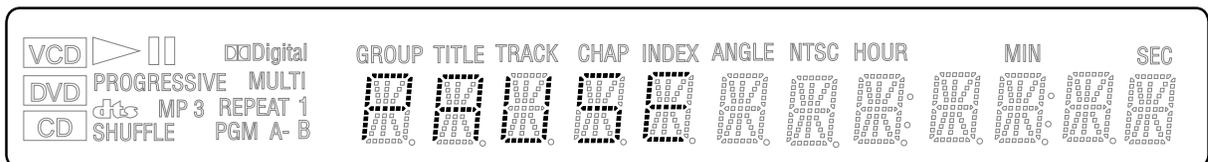
Remote commander key code display (at input of ∥ key, Key code: 39h)

VCD ▷∥ ᴰᴰDigital	GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR	MIN	SEC
DVD PROGRESSIVE MULTI	REMO 39		
ᵈᵗˢ MP 3 REPEAT 1			
CD SHUFFLE PGM A- B			

6-15
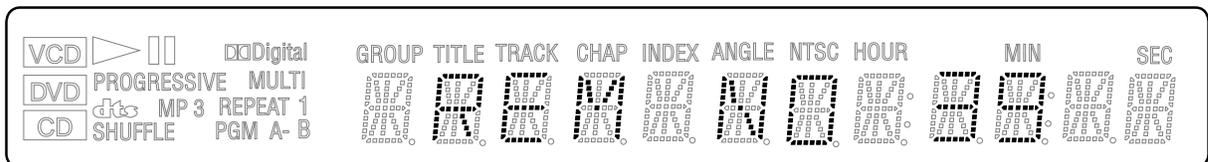
2-3-4. Communication Monitoring Display

The communication state is monitored and displayed while the key name on the main unit and the remote commander is displayed. When the communication to the System Controller failed, VIDEO CD, DVD, and CD segments turn on.

Communication error display (at no key input)
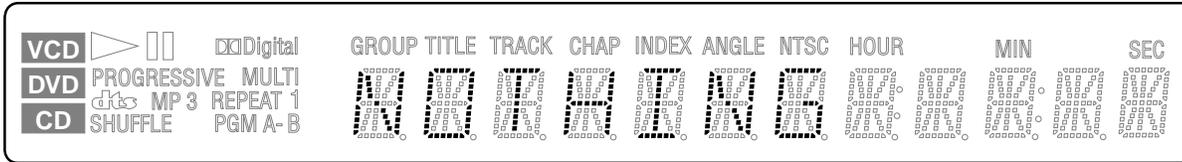
Communication error display (at code display without input of the remote commander)
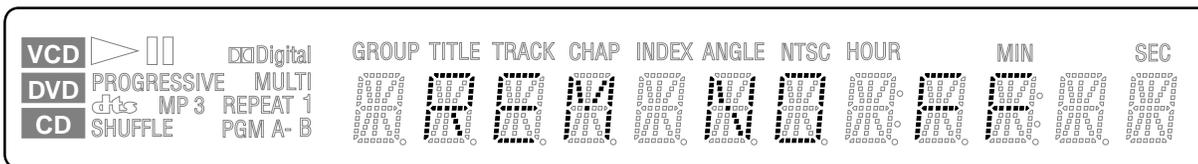
2-3-5. FLD Anode Test Display and SHUTTLE Click Operation Test

2-3-5-1. Transition Keys in Self Check Mode

- → on the remote commander
- SHUTTLE on the remote commander during Anode Test display

2-3-5-2. Operation and Display

The Self Check mode transits to this mode when → key is entered. Only the first segment of each grid of FLD turns on, and each time the SHUTTLE is entered, the segment of each grid is switched in order. When SHUTTLE input is clockwise, the segment switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each segment turns on individually.

Display at the start of Anode Test

↓ (Input in CW direction)

6-16
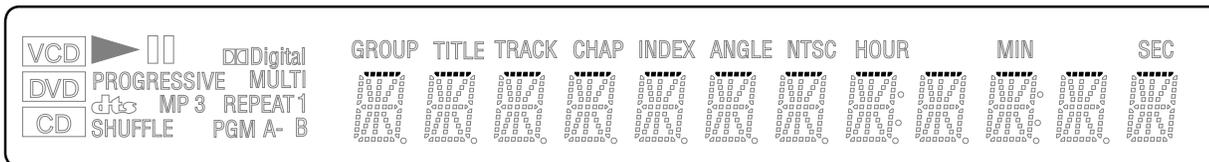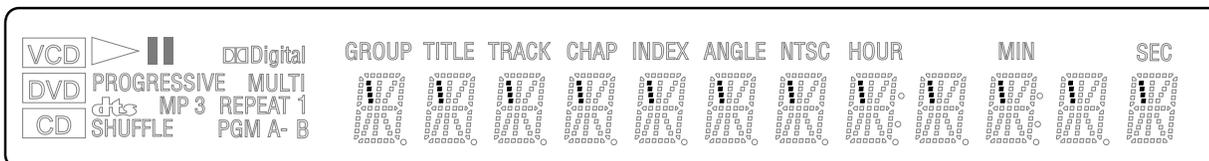
2-3-6. FLD Grid Test Display and SHUTTLE Click Operation Test

2-3-6-1. Transition Keys in Self Check Mode

- ↑ on the remote commander
- SHUTTLE on the remote commander during Grid Test display

2-3-6-2. Operation and Display

The Self Check mode transits to this mode when ↑ key is entered. The first grid of FLD all turns on and other grids turn off. Each time the SHUTTLE is entered, the grid is switched in order. When SHUTTLE input is clockwise, the grid switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each grid turns on individually.

Display at the start of Grid Test
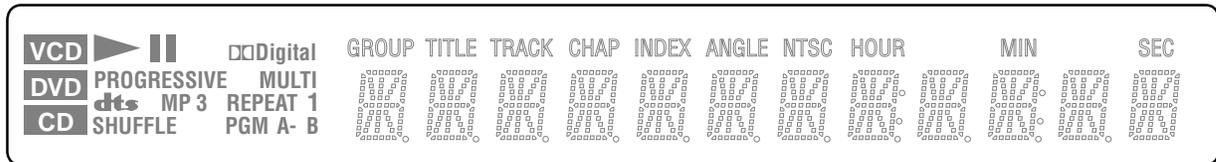
↓ (Input in CW direction)
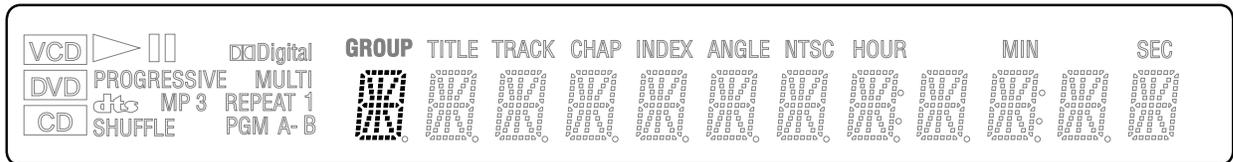
2-3-7. LED Test Display

2-3-7-1. Transition Keys in Self Check Mode

- ↓ on the remote commander
- SHUTTLE on the remote commander during LED Test display

2-3-7-2. Operation and Display

LED is switched in order by the input of JOG/SHUTTLE. Also, LED ON/OFF is switched by the input of same key as the function that turns on the LED concerned.

FLD display during LED Test
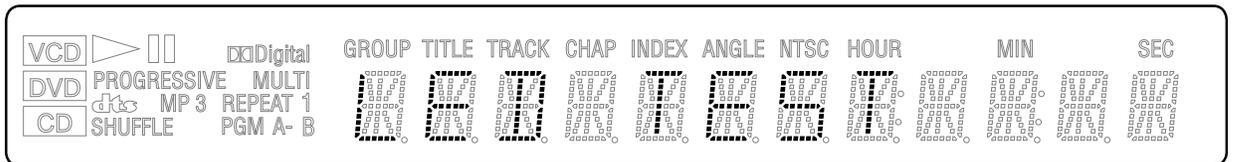
2-3-8. ACS Test Display

2-3-8-1. Transition Keys in Self Check Mode

- |◀◀ /▶▶| dial on the main unit

2-3-8-2. Operation and Display

The self check mode is transited by pressing |◀◀ /▶▶| dial. When |◀◀ /▶▶| is rotated clockwise or counterclockwise, the displayed pattern is switched depending on the direction that the dial is rotated.

Display at the start of ACS Test

6-17
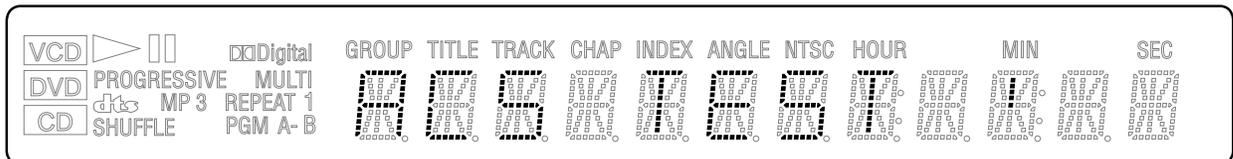
2-3-9. Dimmer Test Mode
2-3-9-1. Transition Keys in Self Check Mode

• ◄◄/►► dial on the main unit

2-3-9-2. Operation and Display

The self check mode transits to the dimmer test mode when ◄◄/
►► dial is pressed more than 2 seconds. The indication is switched
as follows when ◄◄/►► dial is rotated.

(bright) ──► (dark)

Mode 0 → Mode 1 → Mode 2 → Mode 3 → Mode 4 → Mode 5 → Mode 6 → (OFF)
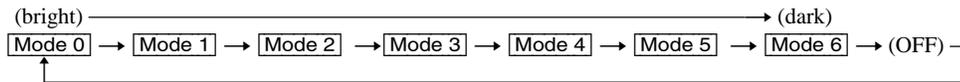
2-3-10. Beep Sound Test
2-3-10-1. Transition Keys in Self Check Mode

• Input of a key on main unit

2-3-10-2. Operation and Display

In the Self Check mode, each time a key on the main unit is en-
tered, a beep sound of 1kHz (100ms) is generated.

6-18

13G   12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G

VCD ▷ ‖ ◻Digital GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
DVD PROGRESSIVE MULTI
 dts MP 3 REPEAT 1
CD SHUFFLE   PGM A- B
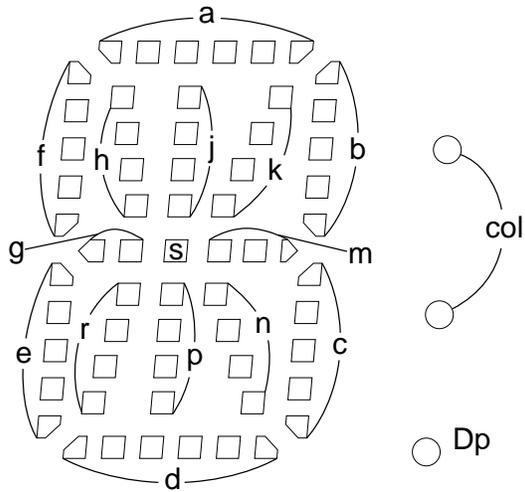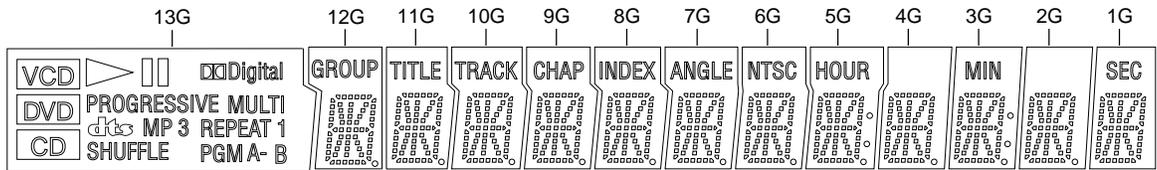
(12G~1G)

ANODE CONNECTION

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷	a	a	a	a	a	a	a	a	a	a	a	a
P2	‖	h	h	h	h	h	h	h	h	h	h	h	h
P3	—	j	j	j	j	j	j	j	j	j	j	j	j
P4	◻ Digital	k	k	k	k	k	k	k	k	k	k	k	k
P5	PROGRESSIVE	b	b	b	b	b	b	b	b	b	b	b	b
P6	—	f	f	f	f	f	f	f	f	f	f	f	f
P7	MULTI	m	m	m	m	m	m	m	m	m	m	m	m
P8	dts	s	s	s	s	s	s	s	s	s	s	s	s
P9	MP 3	g	g	g	g	g	g	g	g	g	g	g	g
P10	REPEAT	e	e	e	e	e	e	e	e	e	e	e	e
P11	1	n	n	n	n	n	n	n	n	n	n	n	n
P12	SHUFFLE	p	p	p	p	p	p	p	p	p	p	p	p
P13	PGM	r	r	r	r	r	r	r	r	r	r	r	r
P14	A-	c	c	c	c	c	c	c	c	c	c	c	c
P15	B	d	d	d	d	d	d	d	d	d	d	d	d
P16	VCD	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	-
P17	DVD	-	-	-	-	-	-	-	col	-	col	-	-
P18	CD	GROUP	TITLE	TRACK	CHAP	INDEX	ANGLE	NTSC	HOUR	-	MIN	-	SEC

6-19

6-11. TROUBLESHOOTING
6-11-1. Cannot Enter Test Mode

You cannot enter the Test mode when either button has been pressed by any reason with the board assembled in the front panel. In this state, the power does not turn on even under normal condition (the unit is kept in standby state), and also no button is active and the remote commander is not accepted. In this case, disconnect the MB-107 board and with the SELF CHECK (pin ⑩) of IF CON (IC203) on the FL-129 board kept in low state, supply AC, and the IF CON self-diagnosis mode will be forcibly activated. The IF CON (IC203) checks the SELF CHECK port only after the power on reset (only at AC supply, not in standby state). If any button is pressed, its name is displayed on the fluorescent display tube. But, if other than "NOTHING" is displayed though no button is pressed, it means that any button has been pressed.

6-11-2. Faults in Test Mode (MB-107 board)
1. The test mode menu is not displayed.
1-1. Board visual check

Check that the ICs of SYSCON (IC104), ROM (IC106 or IC107), AVD (IC403), ARP & SERVO (IC301) are working correctly.
Check that outside appearance of the ICs is normal.
Check that IC pins are not short-circuited.
Check that there is no soldering error.
Check that outside appearance of the capacitors and resistors is normal.

1-2. Power supply voltage check

Check the power voltage of the power connector (CN101).
Check the power voltage of SYSCON (IC104).
Check the power voltage of ROM (IC106 or IC107).
Check the power voltage of AVD (IC403).
Check the power voltage of ARP & SERVO (IC301).
If the power voltage has any abnormality →
  Check that the power supply lines are not shorted.
  Check that there is no soldering error.
If any abnormality cannot be found still →
  Check that each IC is working normally.

1-3. Clock signal check

Measure the clock signal frequency at CPUCK (CL102) of SYSCON (IC104) with an oscilloscope.
If the 8.25 MHz signal appears. → Check the machine according to section 1-3-1
If the 33 MHz signal appears. → Check the machine according to section 1-3-2.
If other frequencies are output.
  R106 and R107 have defective soldering, X101 crystal oscillator is defective.
If the measurement point is fixed to either "H" or "L". →
  Observe XFRRST (pin-⑦⑥) of SYSCON (IC104) with an oscilloscope.
  If the measurement point is "L", check the following items.
If the IC has defective soldering, if the IC is short-circuited.
If the measurement point is "H",
    → Component X101 or SYSCON (IC104) is defective.

1-3-1. When the 8.25 MHz signal appears at CPUCK
• Check the XRD, XWRH and CS0X signal.
  Observe XRD (pin-⑦⓪), XWRH (pin-⑦①), and CS0X (pin-⑤⑧) of SYSCON (IC104) with an oscilloscope.
  If these pins are fixed to either "L" (0V) or "H" (3.3V), or if these pins stay in the center voltage, check the followings.
    Check if the signal line does not have the defective soldering.
    Check if the signal line is short-circuited with other signal lines.
    If you cannot find any problem → SYSCON (IC104) is defective.
• HA [0 to 21] signal and HD [0 to 15] signal check
  Observe HA [0 to 21] (pins-⑩② to ⑩⑨, ⑪① to ⑪⑧, ⑫⓪, ①① to ⑤) of SYSCON (IC104) and HD [0 to 15] (pins-⑧⑤ to ⑩⓪) with an oscilloscope.
  If these pins are fixed to either "L" (0V) or "H" (3.3V), or if the HA pin stays in the center voltage, check the followings. (HD stays in the center voltage when it is normal.)
    → Check if the signal line does not have the defective soldering, or is short-circuited with other signal line or SYSCON (IC104) is defective.
• Reset signal check
  Check if XFRRST (pin-⑦⑥) of SYSCON (IC104) normal or not.
  The signal starts up at the same time as Vcc → Defective soldering.

If the trouble does not apply to any of the above-described phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

1-3-2. When the 33 MHz signal appears at CPUCK

• WAIT signal check

Observe XWAIT (pin-㊼) of SYSCON (IC104) with an oscilloscope.

If it is fixed to "L" (0V). → Observe CS2X to CS5X (pins-⑥⓪ to ⑥③).

If CS2X or CS3X is "L". → AVD (IC403) has defective soldering or AVD is defective.

If CS4x or CS5X is "L". → ARP & SERVO (IC301) has defective soldering or ARP & SERVO is defective.

If any one of the above is not "L". → XWAIT or CSnX is short-circuited or has the defective soldering or AVD (IC403) is defective or ARP & SERVO (IC301) is defective.

Center voltage → The XWAIT line has defective soldering or is short-circuited or AVD (IC403) is defective or ARP & SERVO (IC301) is defective or SYSCON (IC104) is defective.

• CSnX signal check

Observe CS0X to CS5X (pins-⑤⑧ to ⑥③) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or if to center voltage → Check that the ICs do not have the defective soldering or is short-circuited with the other signal lines or SYSCON (IC104) is defective.

  CS0X: ROM (IC106 or IC107)
  CS2X, CS3X: AVD (IC403)
  CS4X, CS5X: ARP & SERVO (IC301)

If the trouble symptom does not apply to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

2. Test mode menu is displayed but the machine stops when menu is selected
2-1. AVD (IC403) check

Observe SDCLKO (pin-⑫⑦) of AVD (IC403) with an oscilloscope.

95 MHz → No problem

27 MHz → Observe the XRST, HA, HD, XRD, XWRH INT and CS signal waveform at the respective pins of AVDEC, AVD (IC403) is defective.

If the signal is other than the above frequencies → AVD (IC403) 27MHz signal line (CLKI (pin-⑮⑧), SCLKIN (pin-⑯⓪)) is short-circuited, IC mount is defective, AVD (IC403) is defective, PLL (IC103) is defective.

2-2. INT signal check

Observe INT0 to 2 (pins-⑯ to ⑱) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or fixed to the center voltage → Check that the ICs do not have the defective soldering, or are short-circuited, SYSCON (IC104) is defective, or the following ICs are not defective.

  INT0: AVD (IC403)
  INT1, INT2: ARP & SERVO (IC301)

2-3. If any abnormality cannot be confirmed by the above-described checks, check the CS signal that is currently output.

The CS signal other than CS0X is being output. → IC mount is defective or the IC is defective depending on the moving CS signal.

  CS2X, CS3X: AVD (IC403)
  CS4X, CS5X: ARP & SERVO (IC301)

If the trouble is not applicable to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

3. If the message "SDSP No Ack" appears after the menu is displayed.

3-1. ARP & SERVO clock signal check

Check frequency of CLKIN (pin-⑮⓪)

33 MHz → Normal

Frequency other than 33 MHz → CLKIN is short-circuited or defective soldering or PLL (IC103) is defective or ARP & SERVO (IC301) is defective

3-2. ARP & SERVO (IC301) PLL oscillation check

Observe PLCKO (pin-⑧⑦) of ARP & SERVO (IC301) with an oscilloscope.

If the pin is fixed to either "L" (0V) or "H" (3.3V).

If XRST if fixed to "L". XRST has the defective soldering, In all other cases. ARP & SERVO (IC301) is defective

If it is oscillating.

HA [0 to 7] are HD [8 to 15] are short-circuited, check XSDSPIT and XSDSPCS or ARP & SERVO (IC301) is defective.

4. If trouble occurs at the specific item of the "Diag All Check".

IC mount of the NG item is defective or IC is defective.

5. Picture and audio are not output.

Check connection of CN601

Check for the defective connection of flat cable and check of damage of the flat cable.

6. Picture is output but audio is not output.

Check the audio data output (at pins-㉔, ㉘, and ㉙) of AVD (IC403)

The audio data is not output. → AVD (IC403) or audio DAC (IC502, 503) mount is defective or power supply is defective or AVD (IC403) or audio DAC (IC502, 503) is defective.

PLL (IC103) 512fs output check

If the frequency or waveform has abnormality. → The signal line has defective soldering or the signal line is short-circuited with other signal lines or PLL (IC103) is defective.

7. Audio is output but picture is not output.

Observe pins-㊲, ㊳, ㊴, ㊷, ㊸ and ㊹ of VDAC (IC604) with an oscilloscope.

If the analog signal is not output. → The signal line has the defective soldering or is short-circuited or parts are defective or VDAC (IC604) is defective.

6-11-3. Drive Auto Adjustment stops due to error.

6-21

The ARP & SERVO (IC301) analog circuit of MB-107 board is defective or RF-Amp (IC201) or M-Driver (IC202) peripheral circuit is defective or optical pickup block is defective or flat cable connection is defective

6-11-4. The product itself is defective.

• If MB-107 does not have any problem,

The board other than MB-107 board is defective or connection is defective or optical pickup block is defective or mechanism deck is defective

1. Power LED does not light in Red when the AC power is turned on.

Check the SW-8V (pin-③), EVER+3.3V (pin-④), EVER+5 (pin-⑧) voltage of the power supply block CN201.
If voltage is abnormal. → The power supply block is defective.

2. Power LED does not light in green after transmitting the POWER on command. It remains lighting in red (in the STANDBY mode).

2-1. Check the SW-8V (pin-③), EVER+3.3V (pin-④), EVER+5 (pin-⑧) voltage at CN201 of the power supply block/

If voltage is abnormal. → The power supply block is defective.

2-2. Check if the fuse on the power block has blown of not.

If the fuse has blown → Replace the fuse.

2-3. Check the P-CONT (pin-⑨) at CN201 of the FL-129 board when the POWER button is pressed.

If it remains at "L",
→ The signal line has the defective soldering or it is short-circuited with other signal lines or capacitor or resistor is defective or IFCON is defective or connection between the power supply block and the IF-98 board is defective, or connection between the IF-98 and the FL-129 board is defective, or connector installation is defective, or the power supply block is defective.

2-4. Check if the button is kept depressed in the IFCON self mode.

If the button is kept depressed. → The front panel is defective, or FL-129 board is defective.

2-5. Check PONCHK (pin-㉚) of IFCON (IC203) on the FL-129 board.

If it is 0.5 V or more. → The power supply is defective, or FL-129 board is defective.

3. Power LED becomes red (STANDBY mode) in at once through Power LED lights in Green once when the POWER button is pressed.

3-1. Check CN201 voltage of the power supply block when the LED lights in green.

If voltage is abnormal. → The power supply block is defective, or the FL-129 board is defective, or MB-107 is defective.

3-2. Check XFRRST (pin-②) at CN103 on the MB-107 board.

If it is fixed to "L". → The signal line has defective soldering, or is short-circuited with other signal lines, or parts are defective.

3-3. Check IFBSY (pin-③), XIFCS (pin-④), SI0 (pin-⑤), SO0 (pin-⑥) and SC0 (pin-⑦) at CN103

If they are fixed to "H" or "L".
→ The signal line has defective soldering, or is short-cuited with other signal line, or parts are defective, or SYSCON (IC104) is defective
If they change between "L/H".
Connector installation is defective, or the FL-129 board is defective, or SYSCON (IC104) is defective.
If they stay in the center voltage.
Poor connection of flexible wiring board such as it is inserted in an angle diagonally, or defective soldering, or is short-cuited with other signal line.

3-4. Check PONCHK (pin-㉚) of IFCON (IC203) on the FL-129 board.

If rise-up time from 0.5 V to 1.5 V or more takes longer time, or it does not exceed 1.5 V or more. → The FL board is defective.

4. The LED lights in green but the FL display does not light when the POWER button is pressed.

Connection between the power supply block and the IF-98 board is defective, or connector installation is defective, or the FL-129 board is defective.

5. Both picture and audio are not output.

Connection between the power supply block and the IF-98 board is defective, or connection between the IF-98 board and the AU-232/VP-58/EV-15 board is defective, or connection between the AU-232/VP-58/EV-15 board and the MB-107 board is defective, or connector installation is defective, or AU-232/VP-58/EV-15 board is defective.

6. Picture is not normal. (Block noise or others appear.)

The MB-107 board AVD (IC403) or SDRAM (IC406) is defective, or ARP & SERVO (IC301) is defective.

6-22 E

SECTION 7
ELECTRICAL ADJUSTMENT

In making adjustment, refer to 7-6. Adjustment
Related Parts Arrangement.

Note: During diagnostic check, the characters and color bars can
be seen only with the NTSC monitor. Therefore, for diag-
nostic check, use the monitor that supports both NTSC and
PAL modes.
Use the reference disc for PAL for check, and use the refer-
ence disc for NTSC for adjustment.

This section describes procedures and instructions necessary for
adjusting electrical circuits in this set.

Instruments required:
1) Color monitor TV
2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz,
   with delay mode
3) Frequency counter (over 8 digits)
4) Digital voltmeter
5) Standard commander (RMT-D150A/D150P)
6) DVD reference disc
   HLX-501 (J-6090-071-A) (dual layer) (NTSC)
   HLX-503 (J-6090-069-A) (single layer) (NTSC)
   HLX-504 (J-6090-088-A) (single layer) (NTSC)
   HLX-505 (J-6090-089-A) (dual layer) (NTSC)
   HLX-506 (J-6090-077-A) (single layer) (PAL)
   HLX-507 (J-6090-078-A)(dual layer) (PAL)
7) SACD reference disc
   HLXA-509 (J-6090-090-A)
8) Extention Cable (J-6090-107-A)

7-1. POWER SUPPLY CHECK

1. ZSSR107G Board : US, CND
ZSSR107H Board : AEP, UK, KR

Mode	E-E
Instrument	Digital voltmeter
EVER +3.3 V Check	
Test point	CN201 pin ④
Specification	3.6 ± 0.2 Vdc
SW +3.3 V Check	
Test point	CN201 pin ⑤, ⑥
Specification	3.4 ± 0.2 Vdc
SW+5 V Check	
Test point	CN201 pin ⑦
Specification	5.0 ± 0.2 Vdc
SW +11 V Check	
Test point	CN201 pin ⑫, ⑬
Specification	11.0 ± 1.0 Vdc
EVER +5 Check	
Test point	CN201 pin ⑧
Specification	5.1 ± 0.2 Vdc
SW –8 V Check	
Test point	CN201 pin ③
Specification	–8.0 ± 0.5 Vdc
SW +8 V Check	
Test point	CN201 pin ①
Specification	8.0 ± 0.5 Vdc

Checking method:
1) Confirm that each voltage satisfies the specification.

* However, do not measure, it in VIDEO OFF mode.
   Since power of the VIDEO board (VP-58, EV-15) is shut off in
   the VIDEO OFF mode, load is reduced and voltage is changed.
   Especially SW + 8V.

ⓘ**Caution**
Never touch the heat sink that is the primary part. It is feared that
you may get an electric shock.

• Abbreviation
   CND   : Canadian model
   KR   : Korean model

7-2. ADJUSTMENT OF VIDEO SYSTEM

1. Composite Video Level Adjustment (MB-107 BOARD)

\<Purpose\>

This adjustment is made to satisfy the NTSC standard, and if not adjusted correctly, the brightness will be too large or small.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	VIDEO OUT connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV601
Specification	$1.00^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV601 to attain $1.00^{+0.04}_{-0.02}$ Vp-p.

$1.00^{+0.04}_{-0.02}$ Vp-p
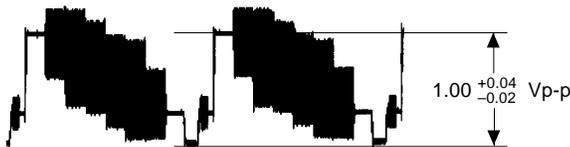
Figure 7-1

2. Component Video Level Adjustment (MB-107 BOARD)

\<Purpose\>

This adjustments component video output. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV602
Specification	$1.00^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV602 to attain $1.00^{+0.04}_{-0.02}$ Vp-p

$1.00^{+0.04}_{-0.02}$ Vp-p
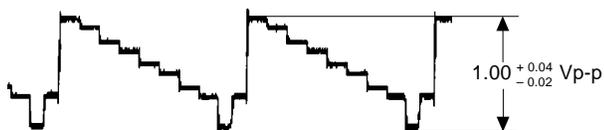
Figure 7-2

3. Checking S Video Output S-Y

\<Purpose\>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-Y level is 1.00 ± 0.05 Vp-p.

1.00 ± 0.05 Vp-p

Figure 7-3

4. Checking S Video Output S-C

\<Purpose\>

This checks whether the S-C satisfies the NTSC/PAL Standard. If it is not correct, the colors will be too dark or light.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-C) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 286 ± 30 mVp-p (NTSC) A = 300 ± 100 mVp-p (PAL)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is "A".

A
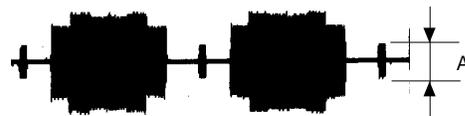
Figure 7-4

5. Checking Component Video Output Y
\<Purpose\>
This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:
1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the Y level is 1.00 ± 0.05 Vp-p.

1.00 ± 0.05 Vp-p
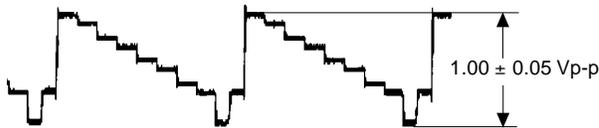
Figure 7-5

6. Checking Component Video Output B-Y
\<Purpose\>
This checks component video output B-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_B/C_B) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 648 ± 50 mVp-p (For US, Canadian) A = 700 ± 50 mVp-p (Others)

Checking method:
1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the B-Y level is A.

A
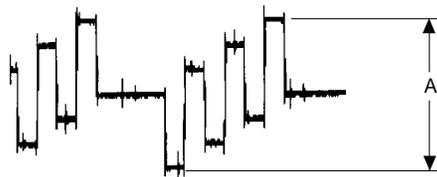
Figure 7-6

7. Checking Component Video Output R-Y
\<Purpose\>
This checks component video output R-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_R/C_R) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	B = 648 ± 50 mVp-p (For US, Canadian) B = 700 ± 50 mVp-p (Others)

Checking method:
1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the R-Y level is B.

B

Figure 7-7

8. Checking RGB Output R (AEP, UK Model)
\<Purpose\>
This checks RGB output R. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with an EURO AV connecting cord.

Mode	Play
Signal	Check the Color-bar (100%) signal on DVD reference disc
Test point	LINE 1 (RGB)-TV connector pin ⑮ (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 100 mVp-p

Checking method:
1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the R level is 700 ± 50 mVp-p.

700 ± 100 mVp-p
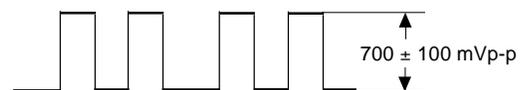
Figure 7-8

9. Checking RGB Output G (AEP, UK Model)

<Purpose>

This checks RGB output G. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with an EURO AV connecting cord.

Mode	Play
Signal	Check the Color-bar (100%) signal on DVD reference disc
Test point	LINE 1 (RGB)-TV connector pin ⑪ (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 100 mVp-p

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the G level is 700 ± 100 mVp-p.

700 ± 100 mVp-p
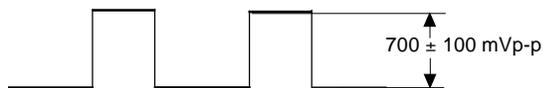
Figure 7-9

10. Checking RGB Output B (AEP, UK Model)

<Purpose>

This checks RGB output B. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with an EURO AV connecting cord.

Mode	Play
Signal	Check the Color-bar (100%) signal on DVD reference disc
Test point	LINE 1 (RGB)-TV connector pin ⑦ (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 100 mVp-p

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the B level is 700 ± 100 mVp-p.

700 ± 100 mVp-p

Figure 7-10

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-107 BOARD (SIDE A)

RV601
COMPOSITE
VIDEO LEVEL

CN601
1   2

RV601
⊕

IC604

IC403

RV602
⊕

RV602
COMPONENT
VIDEO LEVEL

23   22

ZSSR107G/ZSSR107H BOARD (SIDE B)

CN201
2   1

12   13

7-6 E

SECTION 8
REPAIR PARTS LIST

8-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)

  Parts Color Cabinet's Color

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

> The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.
>
> Les composants identifié par une marque ⚠ sont critiquens pour la séurité
> Ne les remplacer que par une pièe portant le numéo spéifié

- Abbreviation
  CND : Canadian model
  KR : Korean model

8-1-1. FRONT PANEL ASSEMBLY

chassis assembly-1

not supplied

supplied with S401

Ref. No.	Part No.	Description	Remark
1	X-3952-712-1	BUTTON ASSY (B), FUNCTION (BLACK)	(US, CND)
1	X-3952-736-1	BUTTON ASSY (G), FUNCTION (GOLD)	(AEP, UK, KR)
2	4-230-638-11	INDICATOR BUTTON PLAY	
3	3-077-317-01	WINDOW, FL (US, CND)	
3	3-077-317-11	WINDOW, FL (AEP, UK, KR)	
4	X-3952-720-1	WINDOW ASSY (B), TRAY (BLACK) (US, CND)	
4	X-3952-742-1	WINDOW ASSY (G), TRAY (GOLD)	(AEP, UK, KR)
5	X-3952-713-1	PANEL ASSY (B), AL (BLACK) (US, CND)	
5	X-3952-734-1	PANEL ASSY (G), AL (GOLD) (AEP, UK, KR)	
6	3-077-311-01	BUTTON, POWER (BLACK) (US, CND)	
6	3-077-311-11	BUTTON, POWER (GOLD) (AEP, UK, KR)	
7	3-077-331-01	+BV3 (3-CR)	
8	3-831-441-11	CUSHION (F)	
9	1-477-327-11	REMOTE COMMANDER (RMT-D150A)	(US, CND, KR)
9	1-477-327-31	REMOTE COMMANDER (RMT-D150P)	(AEP, UK)

Ref. No.	Part No.	Description	Remark
10	3-071-120-51	DOOR, SLIDE (US, CND, KR)	
10	3-071-120-71	DOOR, SLIDE (AEP, UK)	
11	3-071-119-01	COVER, BATTERY	
12	4-227-843-02	SCREW (TP), FLAT HEAD (US, CND)	
12	4-227-843-12	SCREW (TP), FLAT HEAD (AEP, UK, KR)	
13	3-077-307-01	CASE, TOP (BLACK) (US, CND)	
13	3-077-307-11	CASE, TOP (GOLD) (AEP, UK, KR)	
14	4-942-568-31	EMBLEM (NO.5), SONY (US, CND)	
15	X-3952-714-1	PANEL ASSY (B), FRONT (BLACK) (US, CND)	
15	X-3952-735-1	PANEL ASSY (G), FRONT (GOLD)	(AEP, UK, KR)
16	X-3952-715-1	KNOB ASSY (B), AMS (BLACK) (US, CND)	
16	X-3952-741-1	KNOB ASSY (G), AMS (GOLD) (AEP, UK, KR)	
17	3-078-314-01	WASHER, WAVE	
18	4-951-514-01	WASHER (DIA.15)	
19	3-077-331-01	+BV3 (3-CR) (AEP, UK, KR)	
19	4-227-843-02	SCREW (TP), FLAT HEAD (US, CND)	

8-1-2. CHASSIS ASSEMBLY-1

57

mechanism deck

not supplied **54**

54

55

not supplied

57

56

54

not supplied

59

59

53

54

chassis assembly-2

52

not supplied

54

58

52

54

not supplied

58

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
52	X-3952-918-1	FOOT ASSY (AEP, UK, KR)		55	A-6061-105-A	AU-232 (EC1) BOARD, COMPLETE (AEP, UK)	
52	X-4949-759-2	FOOT ASSY (US, CND)		55	A-6061-111-A	AU-232 (KR2) BOARD, COMPLETE (KR)	
53	A-6061-088-A	FL-129 (UC2) BOARD, COMPLETE (US, CND)		56	1-816-880-12	INLET ASSY, AC (US, CND)	
53	A-6061-106-A	FL-129 (EC1) BOARD, COMPLETE		56	1-816-880-22	INLET ASSY, AC (AEP, UK, KR)	
			(AEP, UK, KR)	57	3-970-608-51	SUMITITE (B3), +BV	
54	3-077-331-01	+BV3 (3-CR)					
				58	3-066-209-11	S TYPE +P4 SWPW	
55	A-6061-082-A	AU-232 (UC2) BOARD, COMPLETE (US, CND)		59	3-068-321-01	B TYPE +BV3 (CU)	

8-2

8-1-3. CHASSIS ASSEMBLY-2

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	A-6061-079-A	MB-107 (UC2) BOARD, COMPLETE (US, CND)	
101	A-6061-102-A	MB-107 (EC1) BOARD, COMPLETE (AEP, UK)	
101	A-6061-108-A	MB-107 (KR2) BOARD, COMPLETE (KR)	
102	3-077-331-01	+BV3 (3-CR)	
103	1-468-686-11	POWER BLOCK (ZSSR107G) (US, CND)	
103	1-468-687-11	POWER BLOCK (ZSSR107H) (AEP, UK, KR)	

Ref. No.	Part No.	Description	Remark
104	A-6061-094-A	VP-58 (UC2) BOARD, COMPLETE (US, CND, KR)	
105	3-970-608-51	SUMITITE (B3), +BV	
106	A-6061-092-A	EV-15 BOARD, COMPLETE (AEP, UK)	
⚠T901	1-437-496-21	TRANSFORMER, POWER (US, CND)	
⚠T901	1-437-497-21	TRANSFORMER, POWER (AEP, UK, KR)	

8-1-4. MECHANISM DECK ASSEMBLY
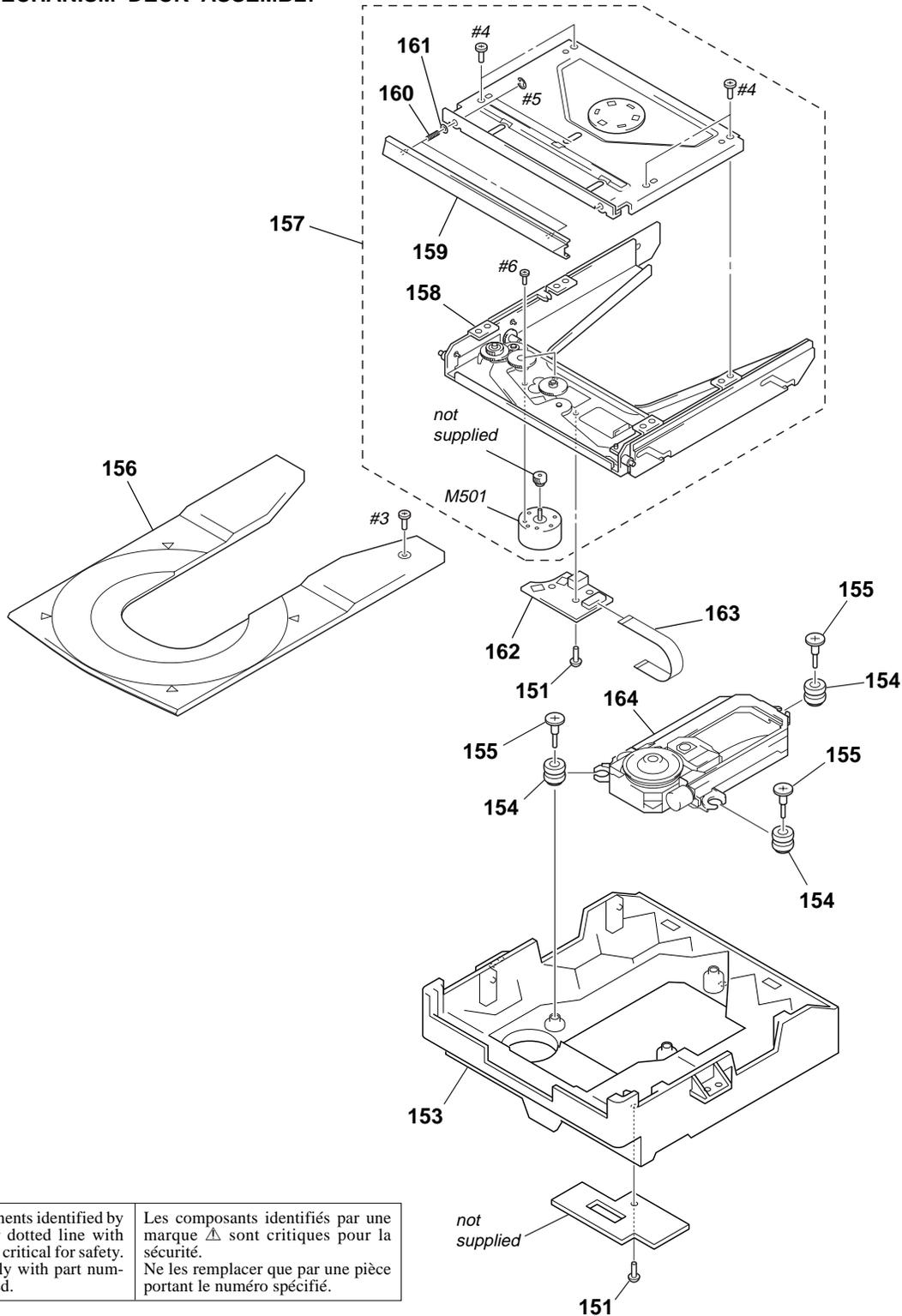
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	3-077-331-01	+BV3 (3-CR)5	
153	X-3952-716-2	MECHA BASE ASSY	
154	3-053-847-11	INSULATOR	
155	3-074-729-01	SCREW, INS	
156	X-3952-718-3	TRAY ASSY	
157	A-6061-128-D	LOADING ASSY	
158	X-3952-719-1	BASE ASSY, LOADING	

Ref. No.	Part No.	Description	Remark
159	X-3952-717-3	DOOR ASSY	
160	3-077-324-01	SPRING, COMPRESSION	
* 161	3-367-419-01	WASHER (SUS)	
162	A-6061-086-A	MS-113 BOARD, COMPLETE	
163	1-757-068-12	CABLE, FLEXIBLE FLAT (FCM-13)	
⚠ 164	A-6062-709-A	SERVICE ASSY, KHM-270AAA	
M501	1-763-397-21	MOTOR, DC (RF-300FA-12350)	

8-4

8-2. ELECTRICAL PARTS LIST

NOTE:
• Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
• -XX and -X mean standardized parts, so they may have some difference from the original one.
• RESISTORS
    All resistors are in ohms.
    METAL: Metal-film resistor.
    METAL OXIDE: Metal oxide-film resistor.
    F: nonflammable
• Not all of the parts for POWER BLOCK (ZSSR107G/ZSSR107H) are listed.

• Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• SEMICONDUCTORS
    In each case, u: μ, for example:
    uA. .   : μA. .   uPA. .   : μPA. .
    uPB. .   : μPB. .   uPC. .   : μPC. .
    uPD. .   : μPD. .
• CAPACITORS
    uF: μF
• COILS
    uH: μH
• Abbreviation
    CND : Canadian model
    KR   : Korea model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-6061-082-A	AU-232 (UC2) BOARD, COMPLETE (US, CND)			
	A-6061-105-A	AU-232 (EC1) BOARD, COMPLETE (AEP, UK)			
	A-6061-111-A	AU-232 (KR2) BOARD, COMPLETE (KR)			
		*****************************			
		(Ref. No. 1, 000 Series)			
	7-682-148-15	SCREW, TR			
	4-902-345-01	HEAT SINK			
		< CAPACITOR >			
C102	1-136-850-11	MYLAR	0.1uF	5%	63V
C103	1-119-814-21	ELECT	1000uF	20%	35V
C104	1-119-814-21	ELECT	1000uF	20%	35V
C105	1-119-814-21	ELECT	1000uF	20%	35V
C106	1-119-814-21	ELECT	1000uF	20%	35V
C107	1-109-857-11	ELECT	47uF	20%	63V
C108	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V
C109	1-136-850-11	MYLAR	0.1uF	5%	63V
C110	1-127-721-91	ELECT	1000PF	20%	16V
C111	1-109-857-11	ELECT	47uF	20%	63V
C112	1-136-850-11	MYLAR	0.1uF	5%	63V
C113	1-119-820-11	ELECT	1uF	20%	50V
C114	1-119-820-11	ELECT	1uF	20%	50V
C115	1-119-820-11	ELECT	1uF	20%	50V
C116	1-136-850-11	MYLAR	0.1uF	5%	63V
C117	1-119-799-11	ELECT	47uF	20%	25V
C118	1-130-474-00	MYLAR	0.0018uF	5%	50V
C119	1-130-474-00	MYLAR	0.0018uF	5%	50V
C120	1-130-474-00	MYLAR	0.0018uF	5%	50V
C122	1-130-474-00	MYLAR	0.0018uF	5%	50V
C123	1-130-474-00	MYLAR	0.0018uF	5%	50V
C124	1-130-474-00	MYLAR	0.0018uF	5%	50V
C125	1-130-474-00	MYLAR	0.0018uF	5%	50V
C126	1-136-810-11	FILM	220PF	5%	100V
C127	1-136-810-11	FILM	220PF	5%	100V
C128	1-136-810-11	FILM	220PF	5%	100V
C129	1-136-810-11	FILM	220PF	5%	100V
C130	1-130-467-00	MYLAR	470PF	5%	50V
C131	1-136-810-11	FILM	220PF	5%	100V
C132	1-109-857-11	ELECT	47uF	20%	63V
C133	1-137-605-11	MYLAR	0.00022uF	5%	50V
C134	1-137-605-11	MYLAR	0.00022uF	5%	50V
C135	1-128-654-21	FILM	2200PF	5%	50V
					(AEP, UK, KR)

Ref. No.	Part No.	Description			Remark
C136	1-128-654-21	FILM	2200PF	5%	50V
					(AEP, UK, KR)
C137	1-130-477-00	MYLAR	0.0033uF	5%	50V
C138	1-136-850-11	MYLAR	0.1uF	5%	63V
C139	1-106-351-00	MYLAR	2200PF	5%	200V
C140	1-136-810-11	FILM	220PF	5%	100V
C141	1-128-654-21	FILM	2200PF	5%	50V
					(AEP, UK, KR)
C142	1-136-810-11	FILM	220PF	5%	100V
C143	1-128-654-21	FILM	2200PF	5%	50V
					(AEP, UK, KR)
C144	1-130-467-00	MYLAR	470PF	5%	50V
C145	1-128-654-21	FILM	2200PF	5%	50V
					(AEP, UK, KR)
C146	1-119-814-21	ELECT	1000uF	20%	35V
C147	1-137-605-11	MYLAR	0.00022uF	5%	50V
C148	1-106-351-00	MYLAR	2200PF	5%	200V
C149	1-136-810-11	FILM	220PF	5%	100V
C150	1-136-810-11	FILM	220PF	5%	100V
C151	1-136-810-11	FILM	220PF	5%	100V
C152	1-137-605-11	MYLAR	0.00022uF	5%	50V
C153	1-136-850-11	MYLAR	0.1uF	5%	63V
C154	1-109-857-11	ELECT	47uF	20%	63V
C155	1-109-857-11	ELECT	47uF	20%	63V
C156	1-136-850-11	MYLAR	0.1uF	5%	63V
C157	1-136-850-11	MYLAR	0.1uF	5%	63V
C158	1-109-857-11	ELECT	47uF	20%	63V
C159	1-109-857-11	ELECT	47uF	20%	63V
C160	1-136-850-11	MYLAR	0.1uF	5%	63V
C161	1-136-850-11	MYLAR	0.1uF	5%	63V
C162	1-109-857-11	ELECT	47uF	20%	63V
C163	1-109-857-11	ELECT	47uF	20%	63V
C164	1-136-850-11	MYLAR	0.1uF	5%	63V
C165	1-119-814-21	ELECT	1000uF	20%	35V
C168	1-127-718-91	ELECT	100uF	20%	16V
C169	1-127-718-91	ELECT	100uF	20%	16V
C171	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C172	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C173	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C174	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C175	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C176	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C178	1-163-259-91	CERAMIC CHIP	220PF	5%	50V

8-5

Ref. No.	Part No.	Description			Remark
C179	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C180	1-136-850-11	MYLAR	0.1uF	5%	63V
C181	1-104-645-11	CERAMIC	1uF	20%	50V
C182	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V (US, CND)
C183	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C184	1-119-824-31	ELECT	10uF	20%	50V
C185	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C186	1-136-850-11	MYLAR	0.1uF	5%	63V
C187	1-106-351-00	MYLAR	2200PF	5%	200V (US, CND)
C188	1-106-351-00	MYLAR	2200PF	5%	200V (US, CND)
C189	1-106-351-00	MYLAR	2200PF	5%	200V (US, CND)
C190	1-106-351-00	MYLAR	2200PF	5%	200V (US, CND)
C191	1-106-351-00	MYLAR	2200PF	5%	200V (US, CND)

< CONNECTOR >

Ref. No.	Part No.	Description	
* CN101	1-564-241-11	PIN, CONNECTOR (3.96MM PITCH)4P	
CN105	1-785-695-11	CONNECTOR, FFC/FPC 13P	
* CN106	1-506-470-11	PIN, CONNECTOR 5P	
CN107	1-506-469-11	PIN, CONNECTOR 4P (AEP, UK)	

< DIODE >

Ref. No.	Part No.	Description	
D101	8-719-210-21	DIODE	11EQS04-TA1B
D102	8-719-210-21	DIODE	11EQS04-TA1B
D103	8-719-210-21	DIODE	11EQS04-TA1B
D104	8-719-210-21	DIODE	11EQS04-TA1B
D105	8-719-914-43	DIODE	DAN202K-T-146
D106	8-719-988-61	DIODE	1SS355TE-17
D107	8-719-933-74	DIODE	RD12JS-T2AB

< FERRITE BEAD >

Ref. No.	Part No.	Description	
FB101	1-414-553-11	FERRITE	0uH (US, CND)
FB102	1-414-553-11	FERRITE	0uH (US, CND)

< IC >

Ref. No.	Part No.	Description	
IC101	8-759-711-85	IC	NJM4580E-D-TE2
IC102	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)
IC102	8-759-712-02	IC	NJM2114D (US, CND)
IC103	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)
IC103	8-759-712-02	IC	NJM2114D (US, CND)
IC104	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)
IC104	8-759-712-02	IC	NJM2114D (US, CND)
IC105	8-759-231-53	IC	M5F7805L
IC106	8-759-145-58	IC	BA4558
IC107	8-759-242-70	IC	TC7WU04F (TE12R)
IC108	6-600-005-01	IC	GP1FA351TZ

< JACK >

Ref. No.	Part No.	Description
J101	1-784-430-11	JACK, PIN 4P (AUDIO OUT) (US, CND, KR)
J105	1-785-868-21	JACK, PIN 2P (AUDIO OUT) (AEP, UK)
J106	1-764-188-21	JACK (SMALL TYPE) (DIA. 3.5) (CONTROL S) (US, CND)
J107	1-784-689-11	JACK, PIN 1P (DIGITAL OUT)

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q101	8-729-052-94	TRANSISTOR	2SA1930

Ref. No.	Part No.	Description	
Q102	8-729-421-19	TRANSISTOR	UN2213-TX
Q103	8-729-421-19	TRANSISTOR	UN2213-TX
Q104	8-729-421-19	TRANSISTOR	UN2213-TX
Q105	8-729-052-95	TRANSISTOR	2SC5171
Q106	8-729-027-53	TRANSISTOR	DTC124TKA-T146
Q107	8-729-027-53	TRANSISTOR	DTC124TKA-T146
Q108	8-729-027-53	TRANSISTOR	DTC124TKA-T146
Q109	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX
Q110	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX
Q111	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX
Q112	8-729-224-62	TRANSISTOR	2SK246GR-TPE2
Q113	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q114	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q115	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q116	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q117	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q118	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q120	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO
Q121	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO

< RESISTOR >

Ref. No.	Part No.	Description			
R101	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R102	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R103	1-249-963-11	CARBON	47K	5%	1/4W
R104	1-249-963-11	CARBON	47K	5%	1/4W
R105	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R106	1-259-440-11	CARBON	3.3K	5%	1/6W
R107	1-259-404-11	CARBON	100	5%	1/6W
R108	1-259-440-11	CARBON	3.3K	5%	1/6W
R109	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R110	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R111	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R112	1-259-404-11	CARBON	100	5%	1/6W
R113	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R114	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R115	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R116	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R117	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R118	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R119	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R120	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R121	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R122	1-259-404-11	CARBON	100	5%	1/6W
R123	1-259-466-11	CARBON	39K	5%	1/6W
R124	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R125	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R126	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R127	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R128	1-249-929-11	CARBON	1.8K	5%	1/4W
R129	1-249-929-11	CARBON	1.8K	5%	1/4W
R130	1-249-929-11	CARBON	1.8K	5%	1/4W
R131	1-249-929-11	CARBON	1.8K	5%	1/4W
R132	1-249-929-11	CARBON	1.8K	5%	1/4W
R133	1-249-929-11	CARBON	1.8K	5%	1/4W
R136	1-249-929-11	CARBON	1.8K	5%	1/4W
R137	1-249-929-11	CARBON	1.8K	5%	1/4W
R138	1-249-929-11	CARBON	1.8K	5%	1/4W
R139	1-249-929-11	CARBON	1.8K	5%	1/4W
R140	1-249-929-11	CARBON	1.8K	5%	1/4W
R141	1-249-929-11	CARBON	1.8K	5%	1/4W
R142	1-249-929-11	CARBON	1.8K	5%	1/4W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
						R210	1-249-915-11	CARBON	470	5%	1/4W
R143	1-249-929-11	CARBON	1.8K	5%	1/4W	R211	1-249-915-11	CARBON	470	5%	1/4W
R144	1-249-929-11	CARBON	1.8K	5%	1/4W						
R145	1-249-929-11	CARBON	1.8K	5%	1/4W	R212	1-249-915-11	CARBON	470	5%	1/4W
R146	1-249-929-11	CARBON	1.8K	5%	1/4W	R214	1-259-420-11	CARBON	470	5%	1/6W
R147	1-249-929-11	CARBON	1.8K	5%	1/4W	R215	1-259-420-11	CARBON	470	5%	1/6W
						R216	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R148	1-249-926-11	CARBON	1.3K	5%	1/4W	R217	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R149	1-249-926-11	CARBON	1.3K	5%	1/4W						
R150	1-249-929-11	CARBON	1.8K	5%	1/4W	R218	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R151	1-249-929-11	CARBON	1.8K	5%	1/4W	R219	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R154	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W	R220	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
						R221	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R155	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W	R223	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R156	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W						
R157	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W	R224	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R158	1-249-938-11	CARBON	4.3K	5%	1/4W	R225	1-249-405-11	CARBON	100	5%	1/4W
R159	1-249-938-11	CARBON	4.3K	5%	1/4W	R226	1-249-405-11	CARBON	100	5%	1/4W
						R227	1-249-405-11	CARBON	100	5%	1/4W
R160	1-249-938-11	CARBON	4.3K	5%	1/4W	R228	1-249-405-11	CARBON	100	5%	1/4W
R161	1-249-938-11	CARBON	4.3K	5%	1/4W						
R162	1-249-941-11	CARBON	5.6K	5%	1/4W	R229	1-249-405-11	CARBON	100	5%	1/4W
R163	1-249-938-11	CARBON	4.3K	5%	1/4W	R230	1-249-405-11	CARBON	100	5%	1/4W
R165	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W	R232	1-259-404-11	CARBON	100	5%	1/6W
						R233	1-259-404-11	CARBON	100	5%	1/6W
R166	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W	R234	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R167	1-249-925-11	CARBON	1.2K	5%	1/4W						
R168	1-249-925-11	CARBON	1.2K	5%	1/4W	R235	1-249-995-11	CARBON	1M	5%	1/4W
R169	1-249-929-11	CARBON	1.8K	5%	1/4W	R236	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R171	1-208-784-11	METAL CHIP	1.2K	0.5%	1/10W						(US, CND)
						R238	1-249-525-11	CARBON	75	5%	1/4W
R172	1-249-925-11	CARBON	1.2K	5%	1/4W	R240	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R173	1-249-925-11	CARBON	1.2K	5%	1/4W	R241	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R174	1-249-925-11	CARBON	1.2K	5%	1/4W						
R175	1-249-925-11	CARBON	1.2K	5%	1/4W	R242	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R176	1-249-929-11	CARBON	1.8K	5%	1/4W	R243	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
						R244	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R177	1-249-925-11	CARBON	1.2K	5%	1/4W	R245	1-259-404-11	CARBON	100	5%	1/6W
R179	1-208-784-11	METAL CHIP	1.2K	0.5%	1/10W						(US, CND, KR)
R180	1-208-784-11	METAL CHIP	1.2K	0.5%	1/10W	R246	1-259-404-11	CARBON	100	5%	1/6W
R181	1-249-938-11	CARBON	4.3K	5%	1/4W						(US, CND, KR)
R182	1-249-925-11	CARBON	1.2K	5%	1/4W						
R183	1-249-938-11	CARBON	4.3K	5%	1/4W			< SWITCH >			
R184	1-249-925-11	CARBON	1.2K	5%	1/4W	S101	1-692-989-11	SWITCH, SLIDE (COMMAND MODE)			
R185	1-249-941-11	CARBON	5.6K	5%	1/4W						
R186	1-249-925-11	CARBON	1.2K	5%	1/4W			< TRANSFORMER >			
R188	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W						
						T101	1-416-701-11	COIL (WITH CORE)			
R189	1-208-784-11	METAL CHIP	1.2K	0.5%	1/10W						
R190	1-249-938-11	CARBON	4.3K	5%	1/4W						
R191	1-249-938-11	CARBON	4.3K	5%	1/4W			CK-119 BOARD			
R192	1-249-938-11	CARBON	4.3K	5%	1/4W			************			
R193	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W			(Ref. No. 2, 000 Series)			
R196	1-259-404-11	CARBON	100	5%	1/6W			< CONNECTOR >			
					(AEP, UK)						
R197	1-259-404-11	CARBON	100	5%	1/6W	CN601	1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P			
					(AEP, UK)	CN602	1-784-612-11	CONNECTOR, FFC/FPC (ZIF) 7P			
R198	1-208-822-11	METAL CHIP	47K	0.5%	1/10W						
R199	1-208-822-11	METAL CHIP	47K	0.5%	1/10W						
R200	1-208-822-11	METAL CHIP	47K	0.5%	1/10W		A-6061-092-A	EV-15 BOARD, COMPLETE (AEP, UK)			
								********************			
R201	1-208-822-11	METAL CHIP	47K	0.5%	1/10W			(Ref. No. 2, 000 Series)			
R202	1-208-822-11	METAL CHIP	47K	0.5%	1/10W						
R203	1-208-822-11	METAL CHIP	47K	0.5%	1/10W		7-685-871-01	SCREW +BVTT 3X6 (S)			
R205	1-208-822-11	METAL CHIP	47K	0.5%	1/10W						
R206	1-208-822-11	METAL CHIP	47K	0.5%	1/10W			< CAPACITOR >			
R207	1-249-915-11	CARBON	470	5%	1/4W	C101	1-165-732-31	ELECT	47uF	20%	25V
R208	1-249-915-11	CARBON	470	5%	1/4W	C102	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
R209	1-249-915-11	CARBON	470	5%	1/4W	C103	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

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Ref. No.	Part No.	Description			Remark
C104	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C105	1-165-722-31	ELECT	100uF	20%	10V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C107	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V
C108	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C111	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C112	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C113	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C114	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C115	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C116	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C117	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C118	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C119	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C120	1-165-722-31	ELECT	100uF	20%	10V
C121	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C122	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C123	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C124	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C125	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C126	1-163-085-00	CERAMIC CHIP	2PF		50V
C127	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C128	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C129	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C130	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C131	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C132	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C133	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C134	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C136	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C137	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C138	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C139	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C140	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C141	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C142	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C143	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C144	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C145	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C147	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C148	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C149	1-163-085-00	CERAMIC CHIP	2PF		50V
C150	1-163-085-00	CERAMIC CHIP	2PF		50V
C151	1-163-085-00	CERAMIC CHIP	2PF		50V
C152	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C153	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C154	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C155	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C156	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C157	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C158	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C159	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C160	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C303	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C304	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C307	1-126-395-11	ELECT CHIP	22uF	20%	16V
C308	1-163-085-00	CERAMIC CHIP	2PF		50V
C309	1-163-085-00	CERAMIC CHIP	2PF		50V

Ref. No.	Part No.	Description			Remark
C310	1-163-085-00	CERAMIC CHIP	2PF		50V
C311	1-163-085-00	CERAMIC CHIP	2PF		50V
C312	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C313	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C314	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C315	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C316	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C317	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C318	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C319	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C320	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C321	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C322	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C323	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C325	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C326	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C328	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C329	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C330	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C331	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C332	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C333	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C334	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C338	1-127-956-21	FILM CHIP	0.1uF	5%	16V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN101	1-779-343-11	CONNECTOR, FFC/FPC 23P	
CN102	1-770-215-11	PIN, CONNECTOR (PC BOARD) 7P	
CN301	1-778-063-41	PIN, CONNECTOR (PC BOARD) 4P	
CN302	1-816-044-11	CONNECTOR, SQUARE TYPE 21P (LINE 2)	
CN303	1-816-044-11	CONNECTOR, SQUARE TYPE 21P	
		(LINE 1 (RGB) -TV)	

< DIODE >

Ref. No.	Part No.	Description	
D101	8-719-025-29	DIODE	02CZ5.1-TE85L
D105	8-719-988-61	DIODE	1SS355TE-17
D106	8-719-988-61	DIODE	1SS355TE-17
D108	8-719-071-15	DIODE	HZM6.8ZWA1TL
D109	8-719-988-61	DIODE	1SS355TE-17
D110	8-719-988-61	DIODE	1SS355TE-17
D113	8-719-071-15	DIODE	HZM6.8ZWA1TL
D301	8-719-988-61	DIODE	1SS355TE-17
D302	8-719-988-61	DIODE	1SS355TE-17
D303	8-719-988-61	DIODE	1SS355TE-17
D304	8-719-988-61	DIODE	1SS355TE-17
D305	8-719-988-61	DIODE	1SS355TE-17
D306	8-719-988-61	DIODE	1SS355TE-17
D307	8-719-988-61	DIODE	1SS355TE-17
D308	8-719-988-61	DIODE	1SS355TE-17
D309	8-719-071-15	DIODE	HZM6.8ZWA1TL
D310	8-719-071-15	DIODE	HZM6.8ZWA1TL
D311	8-719-071-15	DIODE	HZM6.8ZWA1TL
D312	8-719-071-15	DIODE	HZM6.8ZWA1TL
D313	8-719-071-15	DIODE	HZM6.8ZWA1TL
D314	8-719-071-15	DIODE	HZM6.8ZWA1TL
D315	8-719-071-15	DIODE	HZM6.8ZWA1TL
D316	8-719-071-15	DIODE	HZM6.8ZWA1TL
D317	8-719-071-15	DIODE	HZM6.8ZWA1TL
D318	8-719-071-15	DIODE	HZM6.8ZWA1TL
D320	8-719-069-56	DIODE	UDZSTE-176.2B

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Ref. No.	Part No.	Description	Remark
D321	8-719-083-63	DIODE UDZSTE-1713B	
D323	8-719-069-56	DIODE UDZSTE-176.2B	
D324	8-719-083-63	DIODE UDZSTE-1713B	
D325	8-719-988-61	DIODE 1SS355TE-17	
D326	8-719-988-61	DIODE 1SS355TE-17	
D327	8-719-988-61	DIODE 1SS355TE-17	
		< FERRITE BEAD >	
FB301	1-414-553-11	FERRITE 0uH	
FB302	1-414-553-11	FERRITE 0uH	
FB303	1-414-553-11	FERRITE 0uH	
FB304	1-414-553-11	FERRITE 0uH	
FB305	1-414-553-11	FERRITE 0uH	
FB306	1-414-553-11	FERRITE 0uH	
FB307	1-414-553-11	FERRITE 0uH	
FB308	1-414-553-11	FERRITE 0uH	
FB309	1-414-553-11	FERRITE 0uH	
FB310	1-414-553-11	FERRITE 0uH	
FB311	1-414-553-11	FERRITE 0uH	
FB312	1-414-553-11	FERRITE 0uH	
FB313	1-414-553-11	FERRITE 0uH	
FB314	1-414-553-11	FERRITE 0uH	
FB315	1-414-553-11	FERRITE 0uH	
FB316	1-414-553-11	FERRITE 0uH	
FB317	1-414-553-11	FERRITE 0uH	
FB318	1-414-553-11	FERRITE 0uH	
		< FILTER >	
FL101	1-233-893-21	FILTER, CHIP EMI	
FL102	1-233-893-21	FILTER, CHIP EMI	
FL103	1-233-893-21	FILTER, CHIP EMI	
FL104	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL105	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL106	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL107	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL108	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL109	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
FL110	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
FL111	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
FL112	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
FL113	1-233-893-21	FILTER, CHIP EMI	
FL114	1-233-893-21	FILTER, CHIP EMI	
FL115	1-233-893-21	FILTER, CHIP EMI	
		< IC >	
IC101	8-759-711-85	IC NJM4580E-D-TE2	
IC102	6-701-820-01	IC LA73053-TLM-E	
IC103	8-759-684-23	IC AD8058ARM-REEL	
IC104	8-759-684-23	IC AD8058ARM-REEL	
IC105	8-759-684-23	IC AD8058ARM-REEL	
IC106	8-759-684-21	IC AD8057ART-REEL7	
IC301	8-759-684-23	IC AD8058ARM-REEL	
IC302	8-759-684-23	IC AD8058ARM-REEL	
IC303	8-759-684-23	IC AD8058ARM-REEL	
IC304	8-759-684-23	IC AD8058ARM-REEL	
		< JACK >	
J101	1-785-867-21	JACK, PIN 1P (VIDEO OUT)	
J102	1-794-198-21	CONNECTOR, S TERMINAL (S VIDEO OUT)	
J103	1-794-731-11	JACK, PIN 1P (COMPONENT VIDEO OUT Y)	
J104	1-794-732-11	JACK, PIN 1P (COMPONENT VIDEO OUT P_B/C_B)	

Ref. No.	Part No.	Description	Remark
J105	1-794-733-11	JACK, PIN 1P (COMPONENT VIDEO OUT P_R/C_R)	
		< COIL >	
L101	1-419-387-21	INDUCTOR 100uH	
L102	1-419-387-21	INDUCTOR 100uH	
L103	1-419-387-21	INDUCTOR 100uH	
L104	1-419-387-21	INDUCTOR 100uH	
L105	1-419-387-21	INDUCTOR 100uH	
L106	1-419-387-21	INDUCTOR 100uH	
L107	1-419-387-21	INDUCTOR 100uH	
L108	1-419-387-21	INDUCTOR 100uH	
L109	1-412-064-11	INDUCTOR 100uH	
L110	1-412-064-11	INDUCTOR 100uH	
L302	1-419-387-21	INDUCTOR 100uH	
L303	1-419-387-21	INDUCTOR 100Uh	
		< TRANSISTOR >	
Q101	8-729-424-08	TRANSISTOR UN2111-TX	
Q102	8-729-421-19	TRANSISTOR UN2213-TX	
Q103	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q104	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q105	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q106	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q107	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q108	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q109	8-729-421-19	TRANSISTOR UN2213-TX	
Q110	8-729-421-19	TRANSISTOR UN2213-TX	
Q111	8-729-224-62	TRANSISTOR 2SK246GR-TPE2	
Q112	8-729-052-95	TRANSISTOR 2SC5171	
Q113	8-729-052-94	TRANSISTOR 2SA1930	
Q114	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q115	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q116	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q117	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q118	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q119	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q120	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q121	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q122	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q123	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q124	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q125	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q126	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q127	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q128	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q129	8-729-421-19	TRANSISTOR UN2213-TX	
Q130	8-729-421-19	TRANSISTOR UN2213-TX	
Q131	8-729-424-08	TRANSISTOR UN2111-TX	
Q132	8-729-424-08	TRANSISTOR UN2111-TX	
Q133	8-729-421-19	TRANSISTOR UN2213-TX	
Q134	8-729-421-19	TRANSISTOR UN2213-TX	
Q135	8-729-424-08	TRANSISTOR UN2111-TX	
Q136	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q137	8-729-424-08	TRANSISTOR UN2111-TX	
Q138	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
Q139	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
Q140	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
Q141	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q142	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
Q143	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	

Ref. No.	Part No.	Description			Remark
Q301	8-729-421-19	TRANSISTOR	UN2213-TX		
Q302	8-729-424-08	TRANSISTOR	UN2111-TX		
Q303	8-729-421-19	TRANSISTOR	UN2213-TX		
Q304	8-729-424-08	TRANSISTOR	UN2111-TX		
Q305	8-729-421-22	TRANSISTOR	UN2211-TX		
Q306	8-729-421-19	TRANSISTOR	UN2213-TX		
Q307	8-729-424-08	TRANSISTOR	UN2111-TX		
Q309	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q312	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q313	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q314	8-729-421-19	TRANSISTOR	UN2213-TX		
Q315	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q316	8-729-424-08	TRANSISTOR	UN2111-TX		
Q317	8-729-424-08	TRANSISTOR	UN2111-TX		
Q318	8-729-424-08	TRANSISTOR	UN2111-TX		
Q319	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
Q320	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
Q321	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
Q322	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R101	1-216-295-91	SHORT CHIP	0		
R102	1-216-049-11	RES-CHIP	1K	5%	1/10W
R103	1-216-009-91	RES-CHIP	22	5%	1/10W
R104	1-216-009-91	RES-CHIP	22	5%	1/10W
R105	1-216-009-91	RES-CHIP	22	5%	1/10W
R106	1-216-009-91	RES-CHIP	22	5%	1/10W
R107	1-216-009-91	RES-CHIP	22	5%	1/10W
R108	1-216-009-91	RES-CHIP	22	5%	1/10W
R109	1-216-049-11	RES-CHIP	1K	5%	1/10W
R110	1-216-049-11	RES-CHIP	1K	5%	1/10W
R111	1-216-049-11	RES-CHIP	1K	5%	1/10W
R112	1-216-049-11	RES-CHIP	1K	5%	1/10W
R113	1-216-049-11	RES-CHIP	1K	5%	1/10W
R114	1-216-049-11	RES-CHIP	1K	5%	1/10W
R115	1-216-081-00	RES-CHIP	22K	5%	1/10W
R116	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R117	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R118	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R119	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R120	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R121	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R122	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R123	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R124	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R125	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R126	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R127	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R128	1-216-025-11	RES-CHIP	100	5%	1/10W
R129	1-216-025-11	RES-CHIP	100	5%	1/10W
R130	1-216-025-11	RES-CHIP	100	5%	1/10W
R131	1-216-025-11	RES-CHIP	100	5%	1/10W
R132	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R133	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R134	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R135	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R136	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R137	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R138	1-216-049-11	RES-CHIP	1K	5%	1/10W
R139	1-216-049-11	RES-CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R140	1-216-049-11	RES-CHIP	1K	5%	1/10W
R141	1-216-049-11	RES-CHIP	1K	5%	1/10W
R142	1-216-049-11	RES-CHIP	1K	5%	1/10W
R143	1-216-049-11	RES-CHIP	1K	5%	1/10W
R144	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R145	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R146	1-216-009-91	RES-CHIP	22	5%	1/10W
R147	1-216-009-91	RES-CHIP	22	5%	1/10W
R148	1-216-009-91	RES-CHIP	22	5%	1/10W
R149	1-216-049-11	RES-CHIP	1K	5%	1/10W
R150	1-216-049-11	RES-CHIP	1K	5%	1/10W
R151	1-216-049-11	RES-CHIP	1K	5%	1/10W
R152	1-216-009-91	RES-CHIP	22	5%	1/10W
R153	1-216-009-91	RES-CHIP	22	5%	1/10W
R154	1-216-009-91	RES-CHIP	22	5%	1/10W
R155	1-216-045-00	RES-CHIP	680	5%	1/10W
R156	1-216-045-00	RES-CHIP	680	5%	1/10W
R157	1-216-045-00	RES-CHIP	680	5%	1/10W
R158	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R159	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R160	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R161	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R162	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R163	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R164	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R165	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R166	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R167	1-216-049-11	RES-CHIP	1K	5%	1/10W
R168	1-216-049-11	RES-CHIP	1K	5%	1/10W
R169	1-216-049-11	RES-CHIP	1K	5%	1/10W
R170	1-216-049-11	RES-CHIP	1K	5%	1/10W
R171	1-216-049-11	RES-CHIP	1K	5%	1/10W
R172	1-216-049-11	RES-CHIP	1K	5%	1/10W
R173	1-216-049-11	RES-CHIP	1K	5%	1/10W
R176	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R177	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R178	1-216-073-91	RES-CHIP	10K	5%	1/10W
R179	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R180	1-216-049-11	RES-CHIP	1K	5%	1/10W
R182	1-216-009-91	RES-CHIP	22	5%	1/10W
R183	1-216-009-91	RES-CHIP	22	5%	1/10W
R184	1-216-009-91	RES-CHIP	22	5%	1/10W
R185	1-216-009-91	RES-CHIP	22	5%	1/10W
R186	1-216-009-91	RES-CHIP	22	5%	1/10W
R187	1-216-009-91	RES-CHIP	22	5%	1/10W
R188	1-216-009-91	RES-CHIP	22	5%	1/10W
R189	1-216-009-91	RES-CHIP	22	5%	1/10W
R190	1-216-009-91	RES-CHIP	22	5%	1/10W
R196	1-216-049-11	RES-CHIP	1K	5%	1/10W
R198	1-216-089-91	RES-CHIP	47K	5%	1/10W
R202	1-216-073-91	RES-CHIP	10K	5%	1/10W
R203	1-216-073-91	RES-CHIP	10K	5%	1/10W
R204	1-216-073-91	RES-CHIP	10K	5%	1/10W
R205	1-216-049-11	RES-CHIP	1K	5%	1/10W
R206	1-216-049-11	RES-CHIP	1K	5%	1/10W
R207	1-216-049-11	RES-CHIP	1K	5%	1/10W
R208	1-216-001-00	RES-CHIP	10	5%	1/10W
R209	1-216-001-00	RES-CHIP	10	5%	1/10W
R210	1-216-001-00	RES-CHIP	10	5%	1/10W
R220	1-216-001-00	RES-CHIP	10	5%	1/10W

Ref. No.	Part No.	Description			Remark
R221	1-216-001-00	RES-CHIP	10	5%	1/10W
R222	1-216-001-00	RES-CHIP	10	5%	1/10W
R223	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R224	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R225	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R226	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R227	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R228	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R229	1-216-295-91	SHORT CHIP	0		
R230	1-216-295-91	SHORT CHIP	0		
R231	1-216-295-91	SHORT CHIP	0		
R240	1-216-073-91	RES-CHIP	10K	5%	1/10W
R257	1-216-049-11	RES-CHIP	1K	5%	1/10W
R258	1-216-295-91	SHORT CHIP	0		
R261	1-216-295-91	SHORT CHIP	0		
R263	1-216-295-91	SHORT CHIP	0		
R264	1-216-295-91	SHORT CHIP	0		
R265	1-216-295-91	SHORT CHIP	0		
R266	1-216-295-91	SHORT CHIP	0		
R267	1-216-049-11	RES-CHIP	1K	5%	1/10W
R273	1-216-049-11	RES-CHIP	1K	5%	1/10W
R301	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R302	1-216-049-11	RES-CHIP	1K	5%	1/10W
R303	1-216-049-11	RES-CHIP	1K	5%	1/10W
R304	1-216-049-11	RES-CHIP	1K	5%	1/10W
R305	1-216-049-11	RES-CHIP	1K	5%	1/10W
R306	1-216-089-91	RES-CHIP	47K	5%	1/10W
R307	1-216-089-91	RES-CHIP	47K	5%	1/10W
R308	1-216-089-91	RES-CHIP	47K	5%	1/10W
R309	1-216-039-00	RES-CHIP	390	5%	1/10W
R310	1-216-039-00	RES-CHIP	390	5%	1/10W
R311	1-216-039-00	RES-CHIP	390	5%	1/10W
R312	1-216-039-00	RES-CHIP	390	5%	1/10W
R313	1-216-089-91	RES-CHIP	47K	5%	1/10W
R314	1-216-073-91	RES-CHIP	10K	5%	1/10W
R315	1-216-073-91	RES-CHIP	10K	5%	1/10W
R316	1-216-073-91	RES-CHIP	10K	5%	1/10W
R317	1-216-073-91	RES-CHIP	10K	5%	1/10W
R318	1-216-049-11	RES-CHIP	1K	5%	1/10W
R319	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R320	1-216-047-91	RES-CHIP	820	5%	1/10W
R321	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R322	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R323	1-216-049-11	RES-CHIP	1K	5%	1/10W
R324	1-216-049-11	RES-CHIP	1K	5%	1/10W
R325	1-216-049-11	RES-CHIP	1K	5%	1/10W
R326	1-216-033-00	RES-CHIP	220	5%	1/10W
R327	1-216-033-00	RES-CHIP	220	5%	1/10W
R328	1-216-033-00	RES-CHIP	220	5%	1/10W
R329	1-216-033-00	RES-CHIP	220	5%	1/10W
R335	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R338	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R339	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R340	1-216-295-91	SHORT CHIP	0		
R342	1-216-025-11	RES-CHIP	100	5%	1/10W
R343	1-216-017-91	RES-CHIP	47	5%	1/10W
R345	1-216-049-11	RES-CHIP	1K	5%	1/10W
R346	1-216-001-00	RES-CHIP	10	5%	1/10W
R347	1-216-001-00	RES-CHIP	10	5%	1/10W
R348	1-216-001-00	RES-CHIP	10	5%	1/10W

Ref. No.	Part No.	Description			Remark
R349	1-216-001-00	RES-CHIP	10	5%	1/10W
R350	1-216-001-00	RES-CHIP	10	5%	1/10W
R351	1-216-001-00	RES-CHIP	10	5%	1/10W
R352	1-216-001-00	RES-CHIP	10	5%	1/10W
R353	1-216-001-00	RES-CHIP	10	5%	1/10W
R354	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R355	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R356	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R357	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R358	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R359	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R360	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R361	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R362	1-216-295-91	SHORT CHIP	0		
R364	1-216-295-91	SHORT CHIP	0		
R366	1-216-295-91	SHORT CHIP	0		
R368	1-216-295-91	SHORT CHIP	0		
R379	1-216-295-91	SHORT CHIP	0		

< RELAY >

Ref. No.	Part No.	Description
RY101	1-755-184-11	RELAY
RY102	1-755-184-11	RELAY
RY301	1-755-184-11	RELAY
RY302	1-755-184-11	RELAY
RY303	1-755-184-11	RELAY
RY304	1-755-184-11	RELAY
RY305	1-755-184-11	RELAY
RY306	1-755-184-11	RELAY
RY307	1-755-184-11	RELAY

< SWITCH >

Ref. No.	Part No.	Description
S101	1-692-989-11	SWITCH, SLIDE (COMMAND MODE)

	A-6061-088-A	FL-129 (UC2) BOARD, COMPLETE (US, CND)
	A-6061-106-A	FL-129 (EC1) BOARD, COMPLETE (AEP, UK, KR)

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(Ref. No. 4, 000 Series)

	3-077-308-01	HOLDER, FL
	3-077-329-01	HOLDER, LED

< BUZZER >

Ref. No.	Part No.	Description
BZ201	1-529-986-11	BUZZER, VOLTAGE

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C201	1-124-589-11	ELECT	47uF	20%	16V
C203	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C205	1-124-589-11	ELECT	47uF	20%	16V
C207	1-128-131-11	ELECT	22uF	20%	50V
C208	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V (US, CND)
C209	1-137-150-11	FILM	0.01uF	5%	100V
C210	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V (US, CND)
C211	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C212	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C213	1-128-131-11	ELECT	22uF	20%	50V
C214	1-128-131-11	ELECT	22uF	20%	50V
C216	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

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FL-129

Ref. No.	Part No.	Description			Remark
C217	1-128-131-11	ELECT	22uF	20%	50V
C218	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C219	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C220	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C221	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C222	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C223	1-126-157-11	ELECT	10uF	20%	16V
C224	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C225	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN201	1-506-492-11	PIN, CONNECTOR 13P
CN202	1-750-199-11	CONNECTOR, BOARD TO BOARD 18P

< DIODE >

Ref. No.	Part No.	Description
D204	8-719-075-69	DIODE SPR-39MVWFMN (I/⏻)
D205	8-719-914-43	DIODE DAN202K-T-146 (US, CND)
D206	8-719-041-97	DIODE MA113- (TX)
D207	8-719-041-97	DIODE MA113- (TX)
D208	8-719-041-97	DIODE MA113- (TX)
D209	8-719-041-97	DIODE MA113- (TX)
D210	8-719-042-70	DIODE MA8300-L-TX
D211	8-719-422-67	DIODE MA8062-H-TX
D212	8-719-056-06	DIODE SLR-342DCT32 (VIDEO OFF)
D213	8-719-056-06	DIODE SLR-342DCT32 (FL OFF)
D216	8-719-081-64	DIODE NSCW100-BST

< IC >

Ref. No.	Part No.	Description
IC201	8-749-019-10	IC GP1UD28SXK
IC202	8-759-710-82	IC NJM2406F-TE2 (US, CND)
IC203	6-801-920-01	IC TMP86CK74AFG-4FC2
IC205	6-702-526-01	IC BD4730G-TR

< COIL >

Ref. No.	Part No.	Description	
L201	1-400-096-21	INDUCTOR	47uH

< FLUORESCENT INDICATOR >

Ref. No.	Part No.	Description
ND201	1-518-806-21	TUBE, FLUORESCENT INDICATOR

< TRANSISTOR >

Ref. No.	Part No.	Description
Q203	8-729-421-19	TRANSISTOR UN2213-TX
Q204	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX
Q205	8-729-808-01	TRANSISTOR 2SD1622-S-TD
Q206	8-729-808-01	TRANSISTOR 2SD1622-S-TD
Q207	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX (US, CND)
Q208	8-729-424-18	TRANSISTOR UN2113-TX (US, CND)
Q209	8-729-804-41	TRANSISTOR 2SB1122-ST-TD
Q211	8-729-900-52	TRANSISTOR UN2214-TX
Q212	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX
Q213	8-729-900-52	TRANSISTOR UN2214-TX

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R201	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R203	1-216-295-91	SHORT CHIP	0 (US, CND)		
R204	1-216-017-91	RES-CHIP	47	5%	1/10W
R209	1-216-097-11	RES-CHIP	100K	5%	1/10W
R215	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R216	1-216-073-91	RES-CHIP	10K	5%	1/10W
R217	1-216-069-00	RES-CHIP	6.8K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R218	1-216-081-00	RES-CHIP	22K	5%	1/10W (US, CND)
R219	1-216-081-00	RES-CHIP	22K	5%	1/10W (US, CND)
R221	1-216-049-11	RES-CHIP	1K	5%	1/10W
R222	1-216-073-91	RES-CHIP	10K	5%	1/10W (US, CND)
R223	1-216-033-00	RES-CHIP	220	5%	1/10W
R224	1-216-061-91	RES-CHIP	3.3K	5%	1/10W (US, CND)
R225	1-216-049-11	RES-CHIP	1K	5%	1/10W (US, CND)
R226	1-216-025-11	RES-CHIP	100	5%	1/10W
R227	1-216-089-91	RES-CHIP	47K	5%	1/10W
R234	1-216-025-11	RES-CHIP	100	5%	1/10W
R235	1-216-057-00	RES-CHIP	2.2K	5%	1/10W (US, CND)
R240	1-216-025-11	RES-CHIP	100	5%	1/10W
R241	1-216-025-11	RES-CHIP	100	5%	1/10W
R242	1-216-073-91	RES-CHIP	10K	5%	1/10W
R243	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R244	1-216-073-91	RES-CHIP	10K	5%	1/10W
R245	1-216-073-91	RES-CHIP	10K	5%	1/10W
R247	1-216-073-91	RES-CHIP	10K	5%	1/10W
R248	1-216-073-91	RES-CHIP	10K	5%	1/10W
R250	1-216-073-91	RES-CHIP	10K	5%	1/10W
R252	1-216-073-91	RES-CHIP	10K	5%	1/10W
R253	1-216-013-00	RES-CHIP	33	5%	1/10W
R255	1-216-073-91	RES-CHIP	10K	5%	1/10W
R256	1-216-027-00	RES-CHIP	120	5%	1/10W
R257	1-216-025-11	RES-CHIP	100	5%	1/10W
R259	1-216-295-91	SHORT CHIP	0		
R260	1-216-025-11	RES-CHIP	100	5%	1/10W
R262	1-216-073-91	RES-CHIP	10K	5%	1/10W
R263	1-216-073-91	RES-CHIP	10K	5%	1/10W
R264	1-216-073-91	RES-CHIP	10K	5%	1/10W
R265	1-216-073-91	RES-CHIP	10K	5%	1/10W
R266	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R267	1-216-073-91	RES-CHIP	10K	5%	1/10W
R268	1-216-073-91	RES-CHIP	10K	5%	1/10W
R269	1-216-073-91	RES-CHIP	10K	5%	1/10W
R270	1-216-073-91	RES-CHIP	10K	5%	1/10W
R271	1-216-295-91	SHORT CHIP	0		
R272	1-216-295-91	SHORT CHIP	0		
R273	1-216-295-91	SHORT CHIP	0		
R276	1-216-041-00	RES-CHIP	470	5%	1/10W

< SWITCH >

Ref. No.	Part No.	Description
S201	1-762-799-11	SWITCH, KEYBOARD (I/⏻)

< TRANSFORMER >

Ref. No.	Part No.	Description
T201	1-437-887-21	TRANSFORMER, DC-DC CONVERTER

< VIBRATOR >

Ref. No.	Part No.	Description
X201	1-781-472-21	VIBRATOR, CERAMIC (8MHz)

Ref. No.	Part No.	Description			Remark
		FR-190 BOARD			
		************			
					(Ref. No. 2, 000 Series)
		< CONNECTOR >			
CN501	1-794-506-11	CONNECTOR, FFC/FPC 13P			
CN502	1-750-190-11	CONNECTOR, BOARD TO BOARD 18P			
* CN503	1-506-470-11	PIN, CONNECTOR 5P			
		< DIODE >			
D501	8-719-056-06	DIODE SLR-342DCT32 (▐▌)			
D502	8-719-056-07	DIODE SLR-342MCT31 (▷)			
		< TRANSISTOR >			
Q501	8-729-900-52	TRANSISTOR UN2214-TX			
Q502	8-729-900-52	TRANSISTOR UN2214-TX			
		< RESISTOR >			
R506	1-216-073-91	RES-CHIP	10K	5%	1/10W
R508	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R511	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R512	1-216-025-11	RES-CHIP	100	5%	1/10W
R513	1-216-025-11	RES-CHIP	100	5%	1/10W
		< SWITCH >			
S501	1-762-799-11	SWITCH, KEYBOARD (⏏)			
S502	1-762-799-11	SWITCH, KEYBOARD (▷)			
S503	1-762-799-11	SWITCH, KEYBOARD (▐▌)			
S505	1-762-799-11	SWITCH, KEYBOARD (■)			
		IF-98 BOARD			
		************			
					(Ref. No. 4, 000 Series)
		< CAPACITOR >			
C101	1-126-933-11	ELECT	100uF	20%	16V
C102	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C103	1-126-933-11	ELECT	100uF	20%	16V
C104	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN101	1-778-317-11	CONNECTOR, BOARD TO BOARD 13P			
* CN102	1-506-470-11	PIN, CONNECTOR 5P			
* CN103	1-564-712-11	PIN, CONNECTOR (SMALL TYPE)10P			
CN104	1-506-472-11	PIN, CONNECTOR 7P			
CN105	1-506-478-11	PIN, CONNECTOR 13P			
		< EARTH TERMINAL >			
* ET101	1-537-738-21	TERMINAL, EARTH			
		< IC >			
IC101	8-759-832-05	IC BA18BC0FP-E2			
		< COIL >			
L101	1-456-154-21	INDUCTOR	100uH		
L102	1-456-154-21	INDUCTOR	100uH		

Ref. No.	Part No.	Description			Remark
		LD-115 BOARD			
		************			
					(Ref. No. 1, 000 Series)
		< DIODE >			
D803	8-719-080-49	DIODE LNJ951C4B0S0 (MULTI CHANNEL)			
D804	8-719-080-49	DIODE LNJ951C4B0S0 (MULTI CHANNEL)			
		< RESISTOR >			
R803	1-216-025-11	RES-CHIP	100	5%	1/10W
R804	1-216-025-11	RES-CHIP	100	5%	1/10W
A-6061-079-A		MB-107 (UC2) BOARD, COMPLETE (US, CND)			
A-6061-102-A		MB-107 (EC1) BOARD, COMPLETE (AEP, UK)			
A-6061-108-A		MB-107 (KR2) BOARD, COMPLETE (KR)			
		****************************			
					(Ref. No. 3, 000 Series)
		< CAPACITOR >			
C101	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C103	1-126-209-11	ELECT CHIP	100uF	20%	4V
C104	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C106	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C107	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-126-209-11	ELECT CHIP	100uF	20%	4V
C111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C122	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C124	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C125	1-126-607-11	ELECT CHIP	47uF	20%	4V
C126	1-137-765-21	ELECT	47uF	20%	16V
C127	1-126-246-11	ELECT CHIP	220uF	20%	4V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C129	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C130	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C210	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C211	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C212	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C213	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C214	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C215	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C216	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C218	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C219	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C220	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C221	1-124-779-00	ELECT CHIP	10uF	20%	16V
C225	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C226	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C228	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C229	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C230	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V

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Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C232	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C327	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C233	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C328	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C234	1-165-708-11	ELECT	47uF	20%	6.3V	C329	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C235	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C330	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C236	1-164-739-11	CERAMIC CHIP	560PF	5%	50V	C332	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C238	1-124-779-00	ELECT CHIP	10uF	20%	16V	C333	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C240	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C334	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C241	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C335	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C242	1-165-708-11	ELECT	47uF	20%	6.3V	C337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C243	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C244	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C339	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C245	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C246	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C343	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C247	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C344	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C248	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C401	1-126-193-11	ELECT CHIP	1uF	20%	50V
C249	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C250	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C405	1-124-779-00	ELECT CHIP	10uF	20%	16V
C251	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C407	1-124-779-00	ELECT CHIP	10uF	20%	16V
C252	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C408	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C253	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C255	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C256	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C257	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C258	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C417	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C259	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C418	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C260	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C261	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	C420	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C262	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C423	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C263	1-124-779-00	ELECT CHIP	10uF	20%	16V	C424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C264	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C426	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C265	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C427	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C429	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C270	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C430	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C271	1-137-765-21	ELECT	47uF	20%	16V	C431	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C272	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C432	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C273	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C433	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C302	1-165-881-21	ELECT CHIP	120uF	20%	6.3V	C436	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C303	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C437	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C444	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C305	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C445	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C308	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	C446	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C309	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C449	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C310	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C501	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C311	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C312	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V	C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C313	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C317	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C318	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C511	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C319	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C512	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C320	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C514	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C322	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C323	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C516	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C324	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C517	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C325	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C518	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C326	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C519	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C520	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C709	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C521	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C710	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C522	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C711	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C523	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C712	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C525	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C713	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C528	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C714	1-126-607-11	ELECT CHIP	47uF	20%	4V
C530	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C801	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C532	1-165-881-21	ELECT CHIP	120uF	20%	6.3V	C802	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C535	1-165-881-21	ELECT CHIP	120uF	20%	6.3V	C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C537	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V	C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C538	1-165-492-21	ELECT	100uF	20%	10V	C806	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C539	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C807	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C543	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C808	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C601	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C809	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C602	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C810	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C603	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C811	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C604	1-126-607-11	ELECT CHIP	47uF	20%	4V	C812	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C605	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C813	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C606	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C607	1-126-607-11	ELECT CHIP	47uF	20%	4V	C816	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C608	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C817	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C609	1-126-607-11	ELECT CHIP	47uF	20%	4V	C901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C610	1-126-607-11	ELECT CHIP	47uF	20%	4V	C902	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C611	1-126-607-11	ELECT CHIP	47uF	20%	4V	C903	1-124-779-00	ELECT CHIP	10uF	20%	16V
C612	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C904	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C905	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C907	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C615	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C909	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C616	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C910	1-126-209-11	ELECT CHIP	100uF	20%	4V
C617	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C912	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C618	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C913	1-126-209-11	ELECT CHIP	100uF	20%	4V
C619	1-126-607-11	ELECT CHIP	47uF	20%	4V	C914	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C620	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C915	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C621	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C916	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C622	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C917	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C623	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C919	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C624	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C920	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C625	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C921	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C626	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	C922	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C627	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C923	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C628	1-164-315-11	CERAMIC CHIP	470PF	5%	50V	C924	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C629	1-164-315-11	CERAMIC CHIP	470PF	5%	50V	C925	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C630	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V	C926	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C631	1-127-956-21	FILM CHIP	0.1uF	5%	16V	C927	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C632	1-127-956-21	FILM CHIP	0.1uF	5%	16V	C928	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C633	1-164-733-11	CERAMIC CHIP	820PF	10%	50V	C929	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C634	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C930	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C635	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	C931	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C636	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C932	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C637	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C933	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C638	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	C934	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C639	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C935	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C640	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C936	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C701	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V			< CONNECTOR >			
C702	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V						
C703	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	* CN101	1-770-468-21	PIN, CONNECTOR (PC BOARD) 10P			
C705	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	CN102	1-766-382-21	PIN, CONNECTOR (1.5MM) (SMD)10P			
C706	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	CN103	1-778-274-11	CONNECTOR, FFC/FPC 13P			
						* CN104	1-770-470-21	PIN, CONNECTOR (PC BOARD) 6P			
C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	* CN201	1-764-177-11	PIN, CONNECTOR (SMD) (1.5MM) 7P			
C708	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V						

Ref. No.	Part No.	Description	Remark
CN203	1-815-507-21	CONNECTOR, FFC/FPC 26P	
CN501	1-778-274-11	CONNECTOR, FFC/FPC 13P	
CN502	1-816-296-21	PIN, CONNECTOR (PC BOARD) 9P	
* CN503	1-770-470-21	PIN, CONNECTOR (PC BOARD) 6P	
CN601	1-774-333-11	CONNECTOR, FFC/FPC 21P (US, CND, KR)	
CN601	1-779-343-11	CONNECTOR, FFC/FPC 23P (AEP, UK)	
		< DIODE >	
D501	8-719-914-44	DIODE DAP202K-T-146	
D502	8-719-914-44	DIODE DAP202K-T-146	
D503	8-719-914-44	DIODE DAP202K-T-146	
		< FERRITE BEAD >	
FB104	1-469-324-21	FERRITE 0uH	
FB105	1-469-324-21	FERRITE 0uH	
FB106	1-469-324-21	FERRITE 0uH	
FB107	1-469-324-21	FERRITE 0uH	
FB108	1-469-324-21	FERRITE 0uH	
FB109	1-469-324-21	FERRITE 0uH	
FB110	1-469-324-21	FERRITE 0uH	
FB111	1-469-324-21	FERRITE 0uH	
FB112	1-469-784-11	FERRITE 0uH	
FB501	1-469-784-11	FERRITE 0uH	
FB502	1-469-784-11	FERRITE 0uH	
		< FILTER >	
FL102	1-234-177-21	FERRITE 0uH	
FL103	1-234-177-21	FERRITE 0uH	
FL104	1-234-177-21	FERRITE 0uH	
FL105	1-234-177-21	FERRITE 0uH	
FL106	1-234-177-21	FERRITE 0uH	
FL107	1-233-893-21	FILTER, CHIP EMI	
FL108	1-234-177-21	FERRITE 0uH	
FL109	1-234-177-21	FERRITE 0uH	
FL201	1-234-177-21	FERRITE 0uH	
FL402	1-234-177-21	FERRITE 0uH	
FL403	1-234-177-21	FERRITE 0uH	
FL404	1-234-177-21	FERRITE 0uH	
FL501	1-234-177-21	FERRITE 0uH	
FL502	1-234-177-21	FERRITE 0uH	
FL503	1-234-177-21	FERRITE 0uH	
FL701	1-234-177-21	FERRITE 0uH	
FL901	1-234-177-21	FERRITE 0uH	
FL902	1-234-177-21	FERRITE 0uH	
FL903	1-234-177-21	FERRITE 0uH	
FL905	1-234-177-21	FERRITE 0uH	
		< IC >	
IC101	8-759-640-40	IC BR24C04F-WE2	
IC102	6-702-302-01	IC TK11133CSCL-G	
IC103	6-701-879-01	IC CY24233ZCT	
IC104	6-701-837-01	IC MB91307RPFV-G-BND-E1	
IC107		IC ROM	
(IC106)			
IC108	6-701-874-01	IC IDT71V016SA15PH8 (SCD2994)	
IC201	6-701-700-01	IC SP3728ACB	
IC202	6-701-878-01	IC FAN8034L	
IC301	6-701-876-01	IC CXD9703R	
IC302	6-702-302-01	IC TK11133CSCL-G	
IC303	8-759-643-10	IC GM71V18160CT-6TR	

Ref. No.	Part No.	Description			Remark
IC401	6-702-300-01	IC TK11118CSCL-G			
IC403	8-752-416-45	IC CXD1935Q			
IC406	6-700-098-01	IC HY57V641620HGT-P-TR-V			
IC501	8-752-418-21	IC CXD1938AR			
IC502	6-700-534-01	IC CXD9675R-L			
IC503	6-700-533-01	IC CXD9674TN-E2			
IC504	8-759-082-59	IC TC7W32FU (TE12R)			
IC601	6-702-301-01	IC TK11125CSCL-G			
IC602	6-701-814-01	IC CXD9698R			
IC603	6-702-610-01	IC MSM56V16160F-10T47M1			
IC605	6-702-301-01	IC TK11125CSCL-G			
IC701	6-702-287-01	IC CXD9705R			
IC702	6-702-439-01	IC K9F6408U0C-TCB0T			
IC801	6-702-288-01	IC CXD9722TQ			
IC802	6-702-610-01	IC MSM56V16160F-10T47M1			
IC803	6-702-302-01	IC TK11133CSCL-G			
IC901	6-702-299-01	IC TK11225CMCL			
IC903	6-702-610-01	IC MSM56V16160F-10T47M1			
IC905	8-752-416-77	IC CXD2753R			
IC906	6-702-231-01	IC LMH6642MFX/NOPB			
		< COIL >			
L101	1-414-410-21	INDUCTOR 10uH			
L201	1-412-031-11	INDUCTOR CHIP 47uH			
L202	1-412-031-11	INDUCTOR CHIP 47uH			
		< TRANSISTOR >			
Q201	8-729-903-46	TRANSISTOR 2SB1132-T100-QR			
Q202	8-729-903-46	TRANSISTOR 2SB1132-T100-QR			
		< RESISTOR >			
R021	1-216-833-11	METAL CHIP	10K	5%	1/10W
R022	1-216-864-11	SHORT CHIP	0		
R101	1-216-864-11	SHORT CHIP	0		
R102	1-216-833-11	METAL CHIP	10K	5%	1/10W
R103	1-216-864-11	SHORT CHIP	0		
R105	1-216-864-11	SHORT CHIP	0		
R106	1-216-821-11	METAL CHIP	1K	5%	1/10W
R107	1-216-837-11	METAL CHIP	22K	5%	1/10W
R108	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R109	1-216-797-11	METAL CHIP	10	5%	1/10W
R110	1-216-805-11	METAL CHIP	47	5%	1/10W
R111	1-216-821-11	METAL CHIP	1K	5%	1/10W
R112	1-216-845-11	METAL CHIP	100K	5%	1/10W
R113	1-216-845-11	METAL CHIP	100K	5%	1/10W
R114	1-216-821-11	METAL CHIP	1K	5%	1/10W
R115	1-216-821-11	METAL CHIP	1K	5%	1/10W
R116	1-216-797-11	METAL CHIP	10	5%	1/10W
R117	1-216-833-11	METAL CHIP	10K	5%	1/10W
R118	1-216-833-11	METAL CHIP	10K	5%	1/10W
R119	1-216-797-11	METAL CHIP	10	5%	1/10W
R120	1-216-797-11	METAL CHIP	10	5%	1/10W
R121	1-216-797-11	METAL CHIP	10	5%	1/10W
R122	1-216-797-11	METAL CHIP	10	5%	1/10W
R123	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R124	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R125	1-216-833-11	METAL CHIP	10K	5%	1/10W
R126	1-216-833-11	METAL CHIP	10K	5%	1/10W
R129	1-216-797-11	METAL CHIP	10	5%	1/10W
R133	1-216-833-11	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R138	1-216-809-11	METAL CHIP	100	5%	1/10W	R210	1-216-815-11	METAL CHIP	330	5%	1/10W
						R211	1-216-809-11	METAL CHIP	100	5%	1/10W
R139	1-216-833-11	METAL CHIP	10K	5%	1/10W	R212	1-216-809-11	METAL CHIP	100	5%	1/10W
R140	1-216-864-11	SHORT CHIP	0			R218	1-216-846-11	METAL CHIP	120K	5%	1/10W
R141	1-216-797-11	METAL CHIP	10	5%	1/10W	R219	1-216-846-11	METAL CHIP	120K	5%	1/10W
R142	1-216-797-11	METAL CHIP	10	5%	1/10W						
R144	1-216-797-11	METAL CHIP	10	5%	1/10W	R220	1-216-847-11	METAL CHIP	150K	5%	1/10W
						R221	1-216-847-11	METAL CHIP	150K	5%	1/10W
R145	1-216-864-11	SHORT CHIP	0			R222	1-216-842-11	METAL CHIP	56K	5%	1/10W
R146	1-216-797-11	METAL CHIP	10	5%	1/10W	R223	1-216-842-11	METAL CHIP	56K	5%	1/10W
R147	1-216-797-11	METAL CHIP	10	5%	1/10W	R224	1-216-850-11	METAL CHIP	270K	5%	1/10W
R148	1-216-809-11	METAL CHIP	100	5%	1/10W						
R150	1-216-827-11	METAL CHIP	3.3K	5%	1/10W	R225	1-216-833-11	METAL CHIP	10K	5%	1/10W
						R226	1-216-853-11	METAL CHIP	470K	5%	1/10W
R151	1-216-805-11	METAL CHIP	47	5%	1/10W	R227	1-216-846-11	METAL CHIP	120K	5%	1/10W
R152	1-216-833-11	METAL CHIP	10K	5%	1/10W	R229	1-216-833-11	METAL CHIP	10K	5%	1/10W
R153	1-216-827-11	METAL CHIP	3.3K	5%	1/10W	R230	1-216-839-11	METAL CHIP	33K	5%	1/10W
R154	1-216-809-11	METAL CHIP	100	5%	1/10W						
R156	1-216-827-11	METAL CHIP	3.3K	5%	1/10W	R231	1-216-855-11	METAL CHIP	680K	5%	1/10W
						R232	1-216-839-11	METAL CHIP	33K	5%	1/10W
R157	1-216-809-11	METAL CHIP	100	5%	1/10W	R233	1-216-853-11	METAL CHIP	470K	5%	1/10W
R159	1-216-833-11	METAL CHIP	10K	5%	1/10W	R234	1-216-803-11	METAL CHIP	33	5%	1/10W
R160	1-216-809-11	METAL CHIP	100	5%	1/10W	R235	1-216-809-11	METAL CHIP	100	5%	1/10W
R163	1-216-864-11	SHORT CHIP	0								
R164	1-216-033-00	RES-CHIP	220	5%	1/10W (KR)	R236	1-216-803-11	METAL CHIP	33	5%	1/10W
						R238	1-216-839-11	METAL CHIP	33K	5%	1/10W
						R239	1-216-839-11	METAL CHIP	33K	5%	1/10W
R164	1-216-075-00	RES-CHIP	12K	5%	1/10W (AEP, UK)	R240	1-216-839-11	METAL CHIP	33K	5%	1/10W
						R241	1-216-839-11	METAL CHIP	33K	5%	1/10W
R165	1-216-833-11	METAL CHIP	10K	5%	1/10W						
R166	1-216-033-00	RES-CHIP	220	5%	1/10W	R242	1-216-849-11	METAL CHIP	220K	5%	1/10W
R167	1-216-809-11	METAL CHIP	100	5%	1/10W	R243	1-216-853-11	METAL CHIP	470K	5%	1/10W
R168	1-216-864-11	SHORT CHIP	0			R244	1-216-821-11	METAL CHIP	1K	5%	1/10W
						R245	1-216-841-11	METAL CHIP	47K	5%	1/10W
R169	1-216-081-00	RES-CHIP	22K	5%	1/10W (KR)	R246	1-216-809-11	METAL CHIP	100	5%	1/10W
R169	1-216-089-91	RES-CHIP	47K	5%	1/10W (AEP, UK)	R248	1-216-803-11	METAL CHIP	33	5%	1/10W
						R249	1-216-803-11	METAL CHIP	33	5%	1/10W
R170	1-216-864-11	SHORT CHIP	0			R250	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R171	1-216-833-11	METAL CHIP	10K	5%	1/10W	R251	1-216-841-11	METAL CHIP	47K	5%	1/10W
R172	1-216-821-11	METAL CHIP	1K	5%	1/10W	R252	1-216-839-11	METAL CHIP	33K	5%	1/10W
R173	1-216-829-11	METAL CHIP	4.7K	5%	1/10W	R253	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R175	1-216-864-11	SHORT CHIP	0			R254	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R176	1-216-809-11	METAL CHIP	100	5%	1/10W	R255	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R177	1-216-809-11	METAL CHIP	100	5%	1/10W	R256	1-216-809-11	METAL CHIP	100	5%	1/10W
R178	1-216-809-11	METAL CHIP	100	5%	1/10W	R259	1-216-833-11	METAL CHIP	10K	5%	1/10W
R179	1-216-809-11	METAL CHIP	100	5%	1/10W	R260	1-216-834-11	METAL CHIP	12K	5%	1/10W
R180	1-216-809-11	METAL CHIP	100	5%	1/10W	R261	1-216-833-11	METAL CHIP	10K	5%	1/10W
R181	1-216-801-11	METAL CHIP	22	5%	1/10W	R262	1-216-815-11	METAL CHIP	330	5%	1/10W
R182	1-216-801-11	METAL CHIP	22	5%	1/10W	R263	1-216-861-11	METAL CHIP	2.2M	5%	1/10W
R183	1-216-809-11	METAL CHIP	100	5%	1/10W	R264	1-216-845-11	METAL CHIP	100K	5%	1/10W
R184	1-216-864-11	SHORT CHIP	0			R265	1-216-838-11	METAL CHIP	27K	5%	1/10W
R185	1-216-864-11	SHORT CHIP	0			R269	1-216-833-11	METAL CHIP	10K	5%	1/10W
R187	1-216-809-11	METAL CHIP	100	5%	1/10W	R301	1-216-295-91	SHORT CHIP	0		
R188	1-216-809-11	METAL CHIP	100	5%	1/10W	R302	1-216-295-91	SHORT CHIP	0		
R189	1-216-809-11	METAL CHIP	100	5%	1/10W	R310	1-216-821-11	METAL CHIP	1K	5%	1/10W
R190	1-216-809-11	METAL CHIP	100	5%	1/10W	R311	1-216-809-11	METAL CHIP	100	5%	1/10W
R192	1-216-864-11	SHORT CHIP	0			R312	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R193	1-216-809-11	METAL CHIP	100	5%	1/10W	R313	1-216-817-11	METAL CHIP	470	5%	1/10W
R194	1-216-864-11	SHORT CHIP	0			R314	1-216-817-11	METAL CHIP	470	5%	1/10W
R195	1-216-809-11	METAL CHIP	100	5%	1/10W	R315	1-216-817-11	METAL CHIP	470	5%	1/10W
R196	1-216-809-11	METAL CHIP	100	5%	1/10W	R316	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R197	1-216-797-11	METAL CHIP	10	5%	1/10W	R317	1-216-833-11	METAL CHIP	10K	5%	1/10W
R198	1-216-809-11	METAL CHIP	100	5%	1/10W	R318	1-216-817-11	METAL CHIP	470	5%	1/10W
R199	1-216-809-11	METAL CHIP	100	5%	1/10W	R319	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R206	1-216-829-11	METAL CHIP	4.7K	5%	1/10W	R320	1-218-883-11	METAL CHIP	33K	0.5%	1/10W

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Ref. No.	Part No.	Description			Remark		Ref. No.	Part No.	Description			Remark
R321	1-218-879-11	METAL CHIP	22K	0.5%	1/10W		R605	1-216-833-11	METAL CHIP	10K	5%	1/10W
R322	1-218-847-11	METAL CHIP	1K	0.5%	1/10W		R612	1-216-809-11	METAL CHIP	100	5%	1/10W
R323	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W		R613	1-216-809-11	METAL CHIP	100	5%	1/10W
R324	1-216-833-11	METAL CHIP	10K	5%	1/10W		R614	1-216-864-11	SHORT CHIP	0		
R325	1-218-867-11	METAL CHIP	6.8K	5%	1/10W		R615	1-218-285-11	METAL CHIP	75	5%	1/10W
R326	1-216-833-11	METAL CHIP	10K	5%	1/10W		R617	1-218-292-11	METAL CHIP	20K	5%	1/10W
R327	1-218-871-11	METAL CHIP	10K	0.5%	1/10W		R618	1-216-864-11	SHORT CHIP	0		
R328	1-216-838-11	METAL CHIP	27K	5%	1/10W		R619	1-216-801-11	METAL CHIP	22	5%	1/10W
R329	1-216-825-11	METAL CHIP	2.2K	5%	1/10W		R620	1-216-801-11	METAL CHIP	22	5%	1/10W
R330	1-216-825-11	METAL CHIP	2.2K	5%	1/10W		R621	1-216-801-11	METAL CHIP	22	5%	1/10W
R331	1-216-825-11	METAL CHIP	2.2K	5%	1/10W		R622	1-216-801-11	METAL CHIP	22	5%	1/10W
R332	1-216-825-11	METAL CHIP	2.2K	5%	1/10W		R623	1-216-801-11	METAL CHIP	22	5%	1/10W
R333	1-216-847-11	METAL CHIP	150K	5%	1/10W		R624	1-216-801-11	METAL CHIP	22	5%	1/10W
R334	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W		R625	1-216-801-11	METAL CHIP	22	5%	1/10W
R335	1-216-829-11	METAL CHIP	4.7K	5%	1/10W		R626	1-216-801-11	METAL CHIP	22	5%	1/10W
R337	1-216-833-11	METAL CHIP	10K	5%	1/10W		R627	1-216-801-11	METAL CHIP	22	5%	1/10W
R338	1-216-801-11	METAL CHIP	22	5%	1/10W		R628	1-216-801-11	METAL CHIP	22	5%	1/10W
R349	1-216-833-11	METAL CHIP	10K	5%	1/10W		R629	1-216-801-11	METAL CHIP	22	5%	1/10W
R351	1-216-295-91	SHORT CHIP	0				R630	1-216-801-11	METAL CHIP	22	5%	1/10W
R352	1-216-295-91	SHORT CHIP	0				R631	1-216-801-11	METAL CHIP	22	5%	1/10W
R358	1-216-833-11	METAL CHIP	10K	5%	1/10W		R632	1-216-801-11	METAL CHIP	22	5%	1/10W
R359	1-216-833-11	METAL CHIP	10K	5%	1/10W		R633	1-216-801-11	METAL CHIP	22	5%	1/10W
R360	1-216-809-11	METAL CHIP	100	5%	1/10W		R634	1-216-801-11	METAL CHIP	22	5%	1/10W
R364	1-216-864-11	SHORT CHIP	0				R639	1-216-864-11	SHORT CHIP	0		
R366	1-216-801-11	METAL CHIP	22	5%	1/10W		R640	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R402	1-216-295-91	SHORT CHIP	0				R659	1-216-809-11	METAL CHIP	100	5%	1/10W
R407	1-216-809-11	METAL CHIP	100	5%	1/10W		R661	1-216-809-11	METAL CHIP	100	5%	1/10W
R414	1-216-833-11	METAL CHIP	10K	5%	1/10W		R663	1-216-864-11	SHORT CHIP	0		
R416	1-218-867-11	METAL CHIP	6.8K	5%	1/10W		R664	1-216-864-11	SHORT CHIP	0		
R418	1-216-822-11	METAL CHIP	1.2K	5%	1/10W		R665	1-216-864-11	SHORT CHIP	0		
R419	1-216-797-11	METAL CHIP	10	5%	1/10W		R674	1-216-819-11	METAL CHIP	680	5%	1/10W
R426	1-216-833-11	METAL CHIP	10K	5%	1/10W		R675	1-216-821-11	METAL CHIP	1K	5%	1/10W
R430	1-216-833-11	METAL CHIP	10K	5%	1/10W		R676	1-216-821-11	METAL CHIP	1K	5%	1/10W
R432	1-216-864-11	SHORT CHIP	0				R677	1-216-809-11	METAL CHIP	100	5%	1/10W
R434	1-216-797-11	METAL CHIP	10	5%	1/10W		R678	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R502	1-216-864-11	SHORT CHIP	0				R679	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R503	1-216-864-11	SHORT CHIP	0				R680	1-218-830-11	METAL CHIP	200	0.5%	1/10W
R504	1-216-864-11	SHORT CHIP	0									(US, CND, KR)
R505	1-216-864-11	SHORT CHIP	0				R680	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R508	1-216-864-11	SHORT CHIP	0									(AEP, UK)
							R681	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R511	1-216-864-11	SHORT CHIP	0				R682	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R520	1-216-809-11	METAL CHIP	100	5%	1/10W							
R524	1-216-864-11	SHORT CHIP	0				R683	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R525	1-216-833-11	METAL CHIP	10K	5%	1/10W		R686	1-216-864-11	SHORT CHIP	0 (US, CND, KR)		
R527	1-216-833-11	METAL CHIP	10K	5%	1/10W		R687	1-216-864-11	SHORT CHIP	0 (AEP, UK)		
							R688	1-216-864-11	SHORT CHIP	0 (US, CND, KR)		
R528	1-216-864-11	SHORT CHIP	0				R689	1-216-864-11	SHORT CHIP	0 (AEP, UK)		
R530	1-216-833-11	METAL CHIP	10K	5%	1/10W							
R531	1-216-833-11	METAL CHIP	10K	5%	1/10W		R697	1-216-864-11	SHORT CHIP	0		
R532	1-216-833-11	METAL CHIP	10K	5%	1/10W		R698	1-216-864-11	SHORT CHIP	0		
R540	1-216-864-11	SHORT CHIP	0				R703	1-216-833-11	METAL CHIP	10K	5%	1/10W
							R704	1-216-833-11	METAL CHIP	10K	5%	1/10W
R541	1-216-864-11	SHORT CHIP	0				R705	1-216-809-11	METAL CHIP	100	5%	1/10W
R546	1-216-864-11	SHORT CHIP	0									
R547	1-216-833-11	METAL CHIP	10K	5%	1/10W		R706	1-216-864-11	SHORT CHIP	0		
R566	1-216-864-11	SHORT CHIP	0				R712	1-216-833-11	METAL CHIP	10K	5%	1/10W
R569	1-216-864-11	SHORT CHIP	0				R713	1-216-295-91	SHORT CHIP	0		
							R714	1-216-844-11	METAL CHIP	82K	5%	1/10W
R573	1-216-809-11	METAL CHIP	100	5%	1/10W		R715	1-216-821-11	METAL CHIP	1K	5%	1/10W
R590	1-216-797-11	METAL CHIP	10	5%	1/10W							
R601	1-216-864-11	SHORT CHIP	0				R716	1-216-838-11	METAL CHIP	27K	5%	1/10W
R603	1-216-809-11	METAL CHIP	100	5%	1/10W		R717	1-216-838-11	METAL CHIP	27K	5%	1/10W
R604	1-216-864-11	SHORT CHIP	0				R718	1-216-844-11	METAL CHIP	82K	5%	1/10W
							R719	1-216-844-11	METAL CHIP	82K	5%	1/10W

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Ref. No.	Part No.	Description			Remark
R720	1-216-844-11	METAL CHIP	82K	5%	1/10W
R722	1-216-841-11	METAL CHIP	47K	5%	1/10W
R723	1-216-864-11	SHORT CHIP	0		
R726	1-216-864-11	SHORT CHIP	0		
R727	1-216-864-11	SHORT CHIP	0		
R730	1-216-821-11	METAL CHIP	1K	5%	1/10W
R731	1-216-821-11	METAL CHIP	1K	5%	1/10W
R732	1-216-821-11	METAL CHIP	1K	5%	1/10W
R734	1-216-821-11	METAL CHIP	1K	5%	1/10W
R735	1-216-821-11	METAL CHIP	1K	5%	1/10W
R738	1-216-833-11	METAL CHIP	10K	5%	1/10W
R814	1-216-809-11	METAL CHIP	100	5%	1/10W
R817	1-216-864-11	SHORT CHIP	0		
R902	1-216-864-11	SHORT CHIP	0		
R903	1-216-833-11	METAL CHIP	10K	5%	1/10W
R904	1-216-833-11	METAL CHIP	10K	5%	1/10W
R905	1-216-833-11	METAL CHIP	10K	5%	1/10W
R907	1-216-833-11	METAL CHIP	10K	5%	1/10W
R908	1-216-833-11	METAL CHIP	10K	5%	1/10W
R909	1-216-834-11	METAL CHIP	12K	5%	1/10W
R910	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R911	1-216-833-11	METAL CHIP	10K	5%	1/10W
R912	1-216-833-11	METAL CHIP	10K	5%	1/10W
R913	1-216-803-11	METAL CHIP	33	5%	1/10W
R914	1-216-833-11	METAL CHIP	10K	5%	1/10W
R915	1-216-821-11	METAL CHIP	1K	5%	1/10W
R916	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R917	1-216-864-11	SHORT CHIP	0		
R918	1-216-864-11	SHORT CHIP	0		
R921	1-216-833-11	METAL CHIP	10K	5%	1/10W
R922	1-216-833-11	METAL CHIP	10K	5%	1/10W
R924	1-216-864-11	SHORT CHIP	0		
R925	1-216-809-11	METAL CHIP	100	5%	1/10W
R931	1-216-833-11	METAL CHIP	10K	5%	1/10W
R949	1-216-864-11	SHORT CHIP	0		
R950	1-216-864-11	SHORT CHIP	0		
R954	1-216-864-11	SHORT CHIP	0		
R955	1-216-809-11	METAL CHIP	100	5%	1/10W
R956	1-216-809-11	METAL CHIP	100	5%	1/10W
R957	1-216-809-11	METAL CHIP	100	5%	1/10W
R958	1-216-809-11	METAL CHIP	100	5%	1/10W
R959	1-216-809-11	METAL CHIP	100	5%	1/10W
R960	1-216-809-11	METAL CHIP	100	5%	1/10W
R961	1-216-809-11	METAL CHIP	100	5%	1/10W
R962	1-216-809-11	METAL CHIP	100	5%	1/10W
R963	1-216-809-11	METAL CHIP	100	5%	1/10W
R964	1-216-809-11	METAL CHIP	100	5%	1/10W

< COMPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description			Remark
* RB102	1-233-270-11	NETWORK, RES (8 GANG) 10K			
RB103	1-233-576-11	RES, CHIP NETWORK 100			
RB104	1-233-576-11	RES, CHIP NETWORK 100			
RB105	1-233-576-11	RES, CHIP NETWORK 100			
RB106	1-233-576-11	RES, CHIP NETWORK 100			
RB107	1-233-576-11	RES, CHIP NETWORK 100			
RB108	1-233-576-11	RES, CHIP NETWORK 100			
RB109	1-233-576-11	RES, CHIP NETWORK 100			
RB110	1-233-576-11	RES, CHIP NETWORK 100			

Ref. No.	Part No.	Description			Remark
RB111	1-233-576-11	RES, CHIP NETWORK 100			

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description			Remark
RV601	1-223-583-11	RES, ADJ, CARBON 1K			
		(COMPOSITE VIDEO LEVEL)			
RV602	1-223-583-11	RES, ADJ, CARBON 1K			
		(COMPONENT VIDEO LEVEL)			

< VIBRATOR >

Ref. No.	Part No.	Description			Remark
X101	1-795-174-11	VIBRATOR, CERAMIC (16.5MHz)			
X102	1-795-540-21	VIBRATOR, CRYSTAL (27MHz)			

A-6061-086-A MS-113 BOARD, COMPLETE
****
(Ref. No. 4, 000 Series)

< CONNECTOR >

Ref. No.	Part No.	Description			Remark
CN101	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P			
CN102	1-784-612-11	CONNECTOR, FFC/FPC (ZIF) 7P			

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR101	1-216-296-11	SHORT CHIP	0		
JR102	1-216-296-11	SHORT CHIP	0		
JR103	1-216-295-91	SHORT CHIP	0		

< PHOTO INTERRUPTER >

Ref. No.	Part No.	Description			Remark
PH101	8-749-014-69	IC SPI-238-18			
PH102	8-749-017-89	IC SPI-237			

< TRANSISTOR >

Ref. No.	Part No.	Description			Remark
Q101	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L			
Q102	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L			

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R101	1-216-041-00	RES-CHIP	470	5%	1/10W
R102	1-216-041-00	RES-CHIP	470	5%	1/10W
R103	1-216-041-00	RES-CHIP	470	5%	1/10W
R104	1-216-095-00	RES-CHIP	82K	5%	1/10W
R105	1-216-095-00	RES-CHIP	82K	5%	1/10W
R109	1-216-041-00	RES-CHIP	470	5%	1/10W

SW-381 BOARD
****
(Ref. No. 2, 000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C401	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C402	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

< CONNECTOR >

Ref. No.	Part No.	Description			Remark
CN401	1-506-484-11	PIN, CONNECTOR 5P			

< SWITCH >

Ref. No.	Part No.	Description			Remark
S401	1-467-818-21	ENCODER, ROTARY (◄◄/►►I PUSH ENTER)			

VP-58

Ref. No.	Part No.	Description			Remark
	A-6061-094-A	VP-58 (UC2) BOARD, COMPLETE			
					(US, CND, KR)
		***************************			
					(Ref. No. 5, 000 Series)
	7-685-871-01	SCREW +BVTT 3X6 (S)			
		< CAPACITOR >			
C101	1-165-732-31	ELECT	47uF	20%	25V
C102	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C103	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C104	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C105	1-165-722-31	ELECT	100uF	20%	10V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C107	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V
C108	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C111	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C112	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C113	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C114	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C115	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C116	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C117	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C118	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C119	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C120	1-165-722-31	ELECT	100uF	20%	10V
C121	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C122	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C123	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C124	1-126-395-11	ELECT CHIP	22uF	20%	16V
C125	1-126-395-11	ELECT CHIP	22uF	20%	16V
C126	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C127	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C128	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C129	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C130	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C131	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C132	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C133	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C134	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C135	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C136	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C137	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C138	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C139	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C140	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C141	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C142	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C143	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C144	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C145	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C146	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C147	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C148	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C149	1-163-085-00	CERAMIC CHIP	2PF		50V
C150	1-163-085-00	CERAMIC CHIP	2PF		50V
C151	1-163-085-00	CERAMIC CHIP	2PF		50V
C152	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C153	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

Ref. No.	Part No.	Description			Remark
C154	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C155	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C156	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C157	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C164	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C165	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C166	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C167	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C168	1-163-085-00	CERAMIC CHIP	2PF		50V
C169	1-163-085-00	CERAMIC CHIP	2PF		50V
C170	1-163-085-00	CERAMIC CHIP	2PF		50V
C171	1-163-085-00	CERAMIC CHIP	2PF		50V
C172	1-163-085-00	CERAMIC CHIP	2PF		50V
C173	1-163-085-00	CERAMIC CHIP	2PF		50V
		< CONNECTOR >			
CN101	1-774-333-11	CONNECTOR, FFC/FPC 21P			
CN102	1-770-215-11	PIN, CONNECTOR (PC BOARD) 7P			
		< DIODE >			
D101	8-719-025-29	DIODE 02CZ5.1-TE85L			
D105	8-719-988-61	DIODE 1SS355TE-17			
D106	8-719-988-61	DIODE 1SS355TE-17			
D107	8-719-071-15	DIODE HZM6.8ZWA1TL			
D108	8-719-071-15	DIODE HZM6.8ZWA1TL			
D109	8-719-071-15	DIODE HZM6.8ZWA1TL			
D113	8-719-071-15	DIODE HZM6.8ZWA1TL			
		< FILTER >			
FL101	1-233-893-21	FILTER, CHIP EMI			
FL102	1-233-893-21	FILTER, CHIP EMI			
FL103	1-233-893-21	FILTER, CHIP EMI			
FL104	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL105	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL106	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL107	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL108	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL109	1-795-708-21	FILTER, LOW PASS (6.75MHz)			
FL110	1-795-280-11	FILTER, LOW PASS (13.5MHz)			
FL111	1-795-280-11	FILTER, LOW PASS (13.5MHz)			
FL112	1-795-280-11	FILTER, LOW PASS (13.5MHz)			
FL113	1-233-893-21	FILTER, CHIP EMI			
		< IC >			
IC101	8-759-711-85	IC NJM4580E-D-TE2			
IC103	8-759-684-23	IC AD8058ARM-REEL			
IC104	8-759-684-23	IC AD8058ARM-REEL			
IC105	8-759-684-23	IC AD8058ARM-REEL			
IC109	8-759-684-23	IC AD8058ARM-REEL			
IC110	8-759-684-23	IC AD8058ARM-REEL			
IC111	8-759-684-23	IC AD8058ARM-REEL			
		< JACK >			
J101	1-793-475-11	JACK, PIN 2P (VIDEO OUT)			
J102	1-694-484-11	TERMINAL, S (2P.V) (S VIDEO OUT)			
J103	1-794-731-11	JACK, PIN 1P (COMPONENT VIDEO Y)			
J104	1-794-732-11	JACK, PIN 1P (COMPONENT VIDEO P_B/C_B)			
J105	1-794-733-11	JACK, PIN 1P (COMPONENT VIDEO P_R/C_R)			

Ref. No.	Part No.	Description			Remark
		< COIL >			
L101	1-419-387-21	INDUCTOR	100uH		
L102	1-419-387-21	INDUCTOR	100uH		
L103	1-419-387-21	INDUCTOR	100uH		
L104	1-419-387-21	INDUCTOR	100uH		
L105	1-419-387-21	INDUCTOR	100uH		
L106	1-419-387-21	INDUCTOR	100uH		
L107	1-419-387-21	INDUCTOR	100uH		
L108	1-419-387-21	INDUCTOR	100uH		
		< TRANSISTOR >			
Q101	8-729-424-08	TRANSISTOR	UN2111-TX		
Q102	8-729-421-19	TRANSISTOR	UN2213-TX		
Q103	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q104	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q105	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q106	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q107	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q108	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q109	8-729-421-19	TRANSISTOR	UN2213-TX		
Q110	8-729-421-19	TRANSISTOR	UN2213-TX		
Q111	8-729-224-62	TRANSISTOR	2SK246GR-TPE2		
Q112	8-729-052-95	TRANSISTOR	2SC5171		
Q113	8-729-052-94	TRANSISTOR	2SA1930		
Q114	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q115	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q116	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q117	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q118	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q119	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q123	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q124	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q125	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L		
Q126	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q127	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q128	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L		
Q129	8-729-421-19	TRANSISTOR	UN2213-TX		
Q130	8-729-421-19	TRANSISTOR	UN2213-TX		
Q132	8-729-424-08	TRANSISTOR	UN2111-TX		
Q134	8-729-424-08	TRANSISTOR	UN2111-TX		
Q135	8-729-424-08	TRANSISTOR	UN2111-TX		
Q136	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q137	8-729-424-08	TRANSISTOR	UN2111-TX		
Q138	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO		
Q139	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO		
Q140	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO		
Q141	8-729-424-08	TRANSISTOR	UN2111-TX		
Q142	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
Q143	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
Q144	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO		
		< RESISTOR >			
R101	1-216-295-91	SHORT CHIP	0		
R102	1-216-049-11	RES-CHIP	1K	5%	1/10W
R103	1-216-009-91	RES-CHIP	22	5%	1/10W
R104	1-216-009-91	RES-CHIP	22	5%	1/10W
R105	1-216-009-91	RES-CHIP	22	5%	1/10W
R106	1-216-009-91	RES-CHIP	22	5%	1/10W
R107	1-216-009-91	RES-CHIP	22	5%	1/10W
R108	1-216-009-91	RES-CHIP	22	5%	1/10W

Ref. No.	Part No.	Description			Remark
R109	1-216-049-11	RES-CHIP	1K	5%	1/10W
R110	1-216-049-11	RES-CHIP	1K	5%	1/10W
R111	1-216-049-11	RES-CHIP	1K	5%	1/10W
R112	1-216-049-11	RES-CHIP	1K	5%	1/10W
R113	1-216-049-11	RES-CHIP	1K	5%	1/10W
R114	1-216-049-11	RES-CHIP	1K	5%	1/10W
R115	1-216-081-00	RES-CHIP	22K	5%	1/10W
R116	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R117	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R118	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R119	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R120	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R121	1-211-966-11	METAL CHIP	39	0.5%	1/10W
R122	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R123	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R124	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R125	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R126	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R127	1-216-633-11	METAL CHIP	180	0.5%	1/10W
R128	1-216-025-11	RES-CHIP	100	5%	1/10W
R129	1-216-025-11	RES-CHIP	100	5%	1/10W
R130	1-216-025-11	RES-CHIP	100	5%	1/10W
R131	1-216-025-11	RES-CHIP	100	5%	1/10W
R132	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R133	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R134	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R135	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R136	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R137	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R138	1-216-049-11	RES-CHIP	1K	5%	1/10W
R139	1-216-049-11	RES-CHIP	1K	5%	1/10W
R140	1-216-049-11	RES-CHIP	1K	5%	1/10W
R141	1-216-049-11	RES-CHIP	1K	5%	1/10W
R142	1-216-049-11	RES-CHIP	1K	5%	1/10W
R143	1-216-049-11	RES-CHIP	1K	5%	1/10W
R144	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R145	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R152	1-216-009-91	RES-CHIP	22	5%	1/10W
R153	1-216-009-91	RES-CHIP	22	5%	1/10W
R154	1-216-009-91	RES-CHIP	22	5%	1/10W
R155	1-216-045-00	RES-CHIP	680	5%	1/10W
R156	1-216-045-00	RES-CHIP	680	5%	1/10W
R157	1-216-045-00	RES-CHIP	680	5%	1/10W
R158	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R159	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R160	1-211-961-91	METAL CHIP	24	0.5%	1/10W
R161	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R162	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R163	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R164	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R165	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R166	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R167	1-216-049-11	RES-CHIP	1K	5%	1/10W
R168	1-216-049-11	RES-CHIP	1K	5%	1/10W
R169	1-216-049-11	RES-CHIP	1K	5%	1/10W
R172	1-216-049-11	RES-CHIP	1K	5%	1/10W
R175	1-216-073-91	RES-CHIP	10K	5%	1/10W
R176	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R178	1-216-073-91	RES-CHIP	10K	5%	1/10W
R179	1-216-049-11	RES-CHIP	1K	5%	1/10W

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Ref. No.	Part No.	Description			Remark
R180	1-216-049-11	RES-CHIP	1K	5%	1/10W
R181	1-216-089-91	RES-CHIP	47K	5%	1/10W
R182	1-216-073-91	RES-CHIP	10K	5%	1/10W
R183	1-216-073-91	RES-CHIP	10K	5%	1/10W
R184	1-216-073-91	RES-CHIP	10K	5%	1/10W
R185	1-216-049-11	RES-CHIP	1K	5%	1/10W
R186	1-216-049-11	RES-CHIP	1K	5%	1/10W
R187	1-216-049-11	RES-CHIP	1K	5%	1/10W
R188	1-216-001-00	RES-CHIP	10	5%	1/10W
R189	1-216-001-00	RES-CHIP	10	5%	1/10W
R190	1-216-001-00	RES-CHIP	10	5%	1/10W
R191	1-216-001-00	RES-CHIP	10	5%	1/10W
R192	1-216-001-00	RES-CHIP	10	5%	1/10W
R193	1-216-001-00	RES-CHIP	10	5%	1/10W
R194	1-216-001-00	RES-CHIP	10	5%	1/10W
R195	1-216-001-00	RES-CHIP	10	5%	1/10W
R196	1-216-001-00	RES-CHIP	10	5%	1/10W
R198	1-216-089-91	RES-CHIP	47K	5%	1/10W
R199	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R200	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R201	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R202	1-216-073-91	RES-CHIP	10K	5%	1/10W
R203	1-216-073-91	RES-CHIP	10K	5%	1/10W
R204	1-216-073-91	RES-CHIP	10K	5%	1/10W
R205	1-216-049-11	RES-CHIP	1K	5%	1/10W
R206	1-216-049-11	RES-CHIP	1K	5%	1/10W
R207	1-216-049-11	RES-CHIP	1K	5%	1/10W
R208	1-216-001-00	RES-CHIP	10	5%	1/10W
R209	1-216-001-00	RES-CHIP	10	5%	1/10W
R210	1-216-001-00	RES-CHIP	10	5%	1/10W
R211	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R212	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R213	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R214	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R215	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W
R216	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R217	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R218	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R219	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W
R220	1-216-001-00	RES-CHIP	10	5%	1/10W
R221	1-216-001-00	RES-CHIP	10	5%	1/10W
R222	1-216-001-00	RES-CHIP	10	5%	1/10W
R223	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R224	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R225	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R226	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R227	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R228	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R229	1-216-295-91	SHORT CHIP	0		
R230	1-216-295-91	SHORT CHIP	0		
R231	1-216-295-91	SHORT CHIP	0		
R240	1-216-073-91	RES-CHIP	10K	5%	1/10W
R241	1-216-073-91	RES-CHIP	10K	5%	1/10W
R257	1-216-049-11	RES-CHIP	1K	5%	1/10W
R258	1-216-295-91	SHORT CHIP	0		
R259	1-216-295-91	SHORT CHIP	0		
R260	1-216-295-91	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remark
R261	1-216-295-91	SHORT CHIP	0		
R262	1-216-295-91	SHORT CHIP	0		
R263	1-216-295-91	SHORT CHIP	0		
R264	1-216-295-91	SHORT CHIP	0		
R265	1-216-295-91	SHORT CHIP	0		
R266	1-216-295-91	SHORT CHIP	0		
R267	1-216-049-11	RES-CHIP	1K	5%	1/10W
R273	1-216-049-11	RES-CHIP	1K	5%	1/10W

< RELAY >

RY101	1-755-184-11	RELAY	
RY102	1-755-184-11	RELAY	

< SWITCH >

S101	1-692-989-11	SWITCH, SLIDE (SCAN SELECT)

1-468-686-11   POWER BLOCK (ZSSR107G) (US, CND)
****
(Ref. No. 6, 000 Series)

< FUSE >

⚠ F101	9-885-025-02	FUSE (2A/250V)	
⚠ IP201	9-885-025-05	FUSE (1A/125V)	
⚠ IP401	9-885-025-04	FUSE (1.6A/125V)	
⚠ IP402	9-885-025-03	FUSE (2A/125V)	
⚠ IP501	9-885-025-05	FUSE (1A/125V)	

1-468-687-11   POWER BLOCK (ZSSR107H) (AEP, UK, KR)
****
(Ref. No. 7, 000 Series)

< FUSE >

F101	9-885-028-42	FUSE (2A/250V)	
IP201	9-885-025-05	FUSE (1A/125V)	
IP401	9-885-025-04	FUSE (1.6A/125V)	
IP402	9-885-025-03	FUSE (2A/125V)	
IP501	9-885-025-05	FUSE (1A/125V)	

MISCELLANEOUS
****

56	1-816-880-12	INLET ASSY, AC (US, CND)
56	1-816-880-22	INLET ASSY, AC (AEP, UK, KR)
103	1-468-686-11	POWER BLOCK (US, CND)
103	1-468-687-11	POWER BLOCK (AEP, UK, KR)
163	1-757-068-12	CABLE, FLEXIBLE FLAT (FCM-13)
⚠ 164	A-6062-709-A	SERVICE ASSY, KHM-270AAA
M501	1-763-397-21	MOTOR, DC (RF-300FA-12350)
⚠ T901	1-437-496-21	TRANSFORMER, POWER (US, CND)
⚠ T901	1-437-497-21	TRANSFORMER, POWER (AEP, UK, KR)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-22

Ref. No.	Part No.	Description	Remark

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HARDWARE LIST
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#1	7-682-946-09	SCREW +PSW 3X5	
#3	7-682-548-09	SCREW +B 3X8	
#4	7-682-546-09	SCREW +B 3X5	
#5	7-624-102-04	STOP RING 1.5, TYPE -E	
#6	7-627-852-38	SCREW, PRECISION +P1.7X1.8TYPE3	

ACCESSORIES
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	1-477-327-11	REMOTE COMMANDER (RMT-D150A)	
			(US, CND, KR)
	1-477-327-31	REMOTE COMMANDER (RMT-D150P)	
			(AEP, UK)
⚠	1-551-631-61	CORD, POWER (AEP)	
⚠	1-551-812-41	CORD, POWER (US, CND)	
	1-575-795-81	CORD, CONNECTION	
			(STEREO AV CABLE 1.5m)
⚠	1-824-532-11	POWER-SUPPLY CORD (UK)	
⚠	1-824-533-11	POWER-SUPPLY CORD (KR)	
	3-071-119-01	COVER, BATTERY (for RMT-D150A/D150P)	
	3-071-120-51	DOOR, SLIDE (US, CND, KR)	
	3-071-120-71	DOOR, SLIDE (AEP, UK)	
	3-077-160-11	MANUAL, INSTRUCTION (ENGLISH)	
			(US, CND)
	3-077-160-21	MANUAL, INSTRUCTION (FRENCH) (US, CND)	
	3-077-160-31	MANUAL, INSTRUCTION (ENGLISH) (UK)	
	3-077-160-41	MANUAL, INSTRUCTION (FRENCH) (AEP)	
	3-077-160-51	MANUAL, INSTRUCTION (GERMAN) (AEP)	
	3-077-160-61	MANUAL, INSTRUCTION (ITALIAN) (AEP)	
	3-077-160-71	MANUAL, INSTRUCTION (DUTCH) (AEP)	
	3-077-160-81	MANUAL, INSTRUCTION (SPANISH) (AEP)	
	3-077-160-91	MANUAL, INSTRUCTION (PORTUGUESE)	
			(AEP)
	3-077-161-11	MANUAL, INSTRUCTION (KOREAN) (KR)	

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DVP-NS999ES

Sony Corporation
Home Video Campany

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