

# DVP-NS999ES

RMT-D150A/D150P

## SERVICE MANUAL

*Self Diagnosis*  
Supported model



Photo: Gold type

US Model  
Canadian Model  
AEP Model  
UK Model  
Korean model

### 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  $\pm 1$  dB), Super Audio CD: 2 Hz to 100 kHz (50 kHz:  $-3$  dB  $\pm 1$  dB), CD: 2 Hz to 20 kHz ( $\pm 0.5$  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 ( $\pm 0.001\%$  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<sub>B</sub>, P<sub>R</sub>):

Phono jack/Y: 1.0 Vp-p/P<sub>B</sub>, P<sub>R</sub>: 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

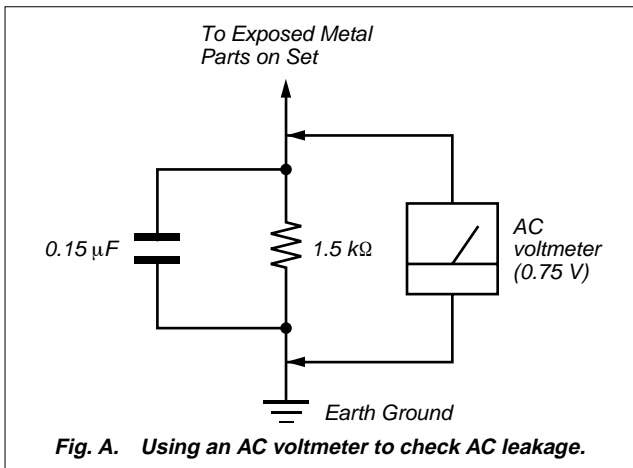
After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

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.

### 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)



### 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.**

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  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.



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.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  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.

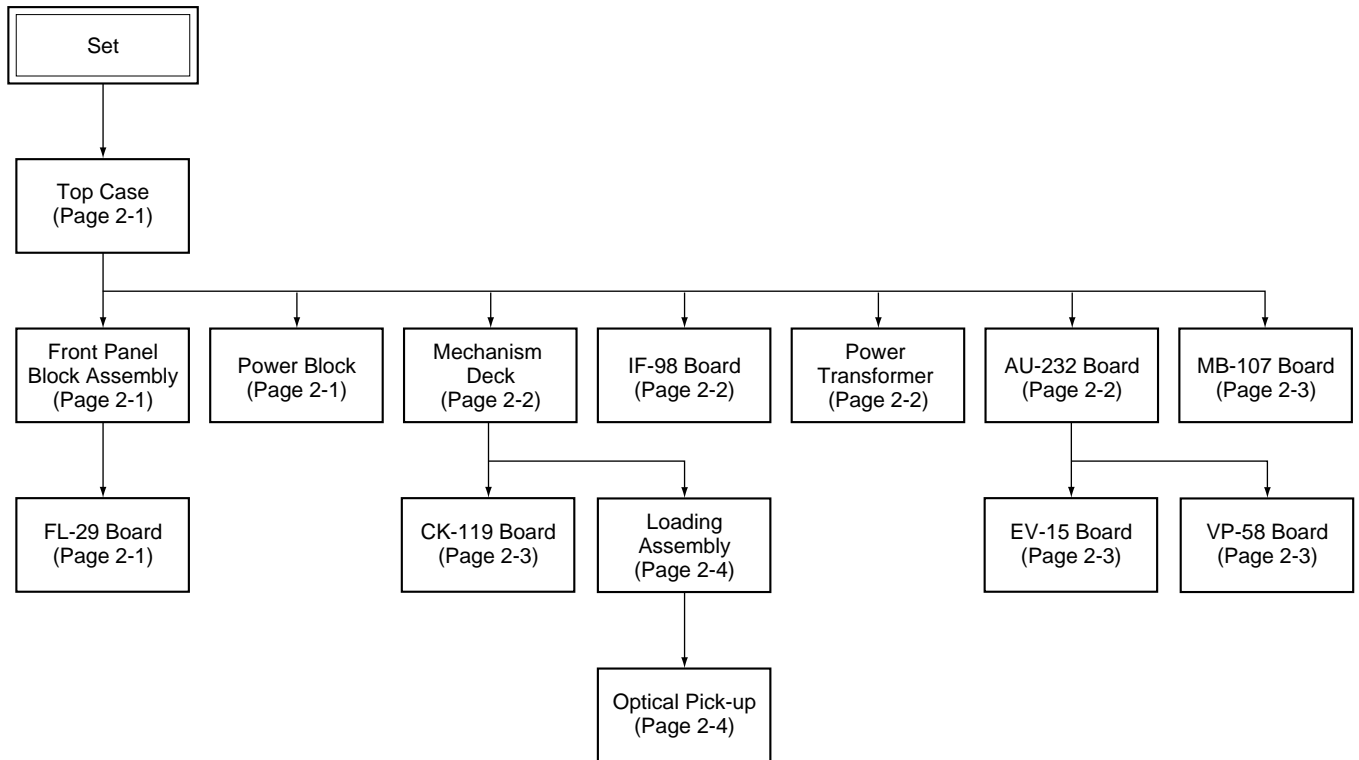
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# SERVICE NOTE

## 1. DISASSEMBLY

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



## SECTION 1 GENERAL

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.

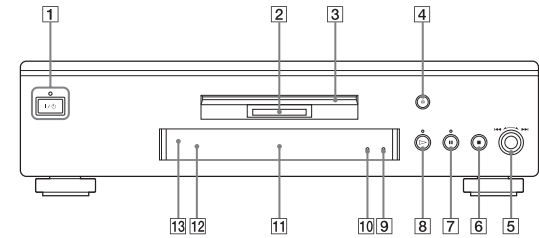
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## Index to Parts and Controls

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

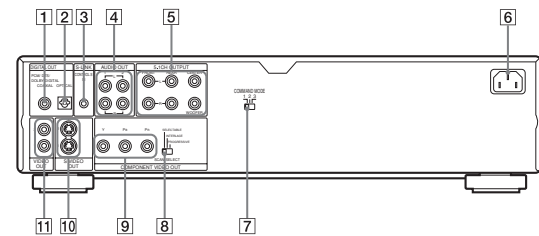
### Front panel



- A **I/C** (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)

→ continued 9

### Rear panel

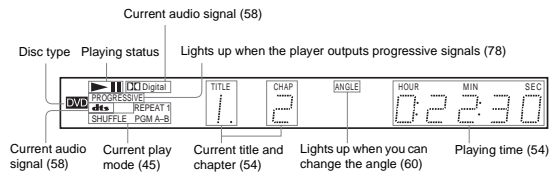


- A **DIGITAL OUT (COAXIAL)** jack (27) (28) (29)
- B **DIGITAL OUT (OPTICAL)** jack (27) (28) (29)
- C **S-LINK/CONTROL S IN** jack (21)
- D **AUDIO OUT L/R** 1/2 jacks (26) (27) (28)
- E **5.1CH OUTPUT** jacks (29)
- F **AC IN** terminal (17)
- G **COMMAND MODE** switch (1, 2, 3) (17)
- H **COMPONENT VIDEO OUT/SCAN SELECT** switch (78)
- I **COMPONENT VIDEO OUT (Y, Pb, Ps)** jacks (21)
- J **S VIDEO OUT** 1/2 jacks (21)
- K **VIDEO OUT** 1/2 jacks (21)

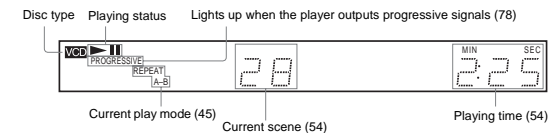
→ continued 11

### Front panel display

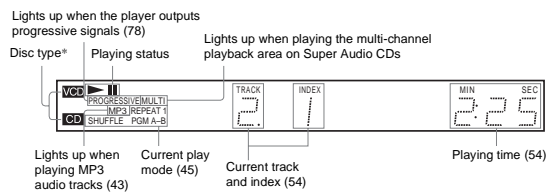
#### When playing back a DVD VIDEO/DVD-RW



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



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



\* 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

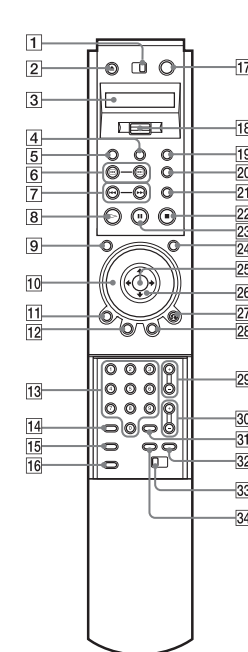
Toggle the scroll key up or down to display "FL ON/OFF" in the LCD screen. Then point the remote to the player and press down on the scroll key so that **⏏** appears in the LCD screen.

#### Hint

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

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### Remote



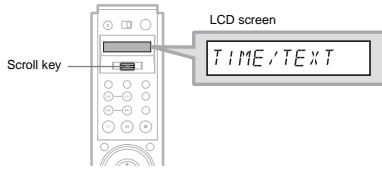
- I **PICTURE NAVI** (picture navigation) button (50)
- J **Click shuttle** (37)
- K **DISPLAY** button (14)
- L **TOP MENU** button (39)
- M **Number buttons** (39)  
The number 5 button has a tactile dot.\*
- N **CLEAR** button (46)
- O **SEARCH MODE** button (49)
- P **PICTURE MEMORY** button (77)
- Q **I/C** (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."



### 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.

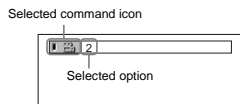
AUDIO (page 57)	↔	TIME/TEXT (page 53)	↔	VIDEO OFF (page 35)
↓		↓		↓
SUBTITLE (page 61)				FL ON/OFF (page 10)
↓				↓
ANGLE (page 60)				MULTI/2CH (page 41)
↓				↓
SURROUND (page 59)				SACD*/CD (page 41)
↓				↓
SHUFFLE (page 46)	↔		↔	REPEAT (page 47)

\* Super Audio CD.

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

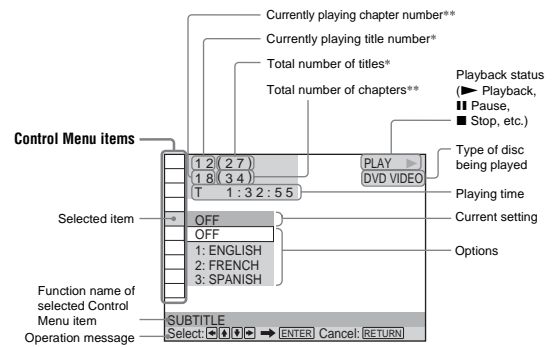
The player will respond to the selected command as long as the command remains in the LCD screen. Some commands require you to press down on the scroll key repeatedly. The display appears on the TV screen.

Example: When "ANGLE" is selected.



## 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.

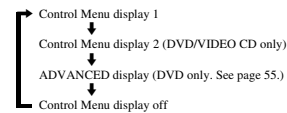


\* Displays the scene number for VIDEO CDs (PBC is on), track number for VIDEO CDs/ Super audio CDs/CDs, album number for DATA CDs.

\*\* 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:



#### 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
	<b>TITLE (page 49)/SCENE (page 49)/TRACK (page 49)</b> Selects the title, scene, or track to be played. DVD-V DVD-RW VCD
	<b>CHAPTER (page 49)/INDEX (page 49)</b> Selects the chapter or index to be played. DVD-V DVD-RW VCD
	<b>ALBUM (page 43)</b> Selects the album to be played. DATA CD
	<b>TRACK (page 49)</b> Selects the track to be played. SR-CD CD DATA CD
	<b>INDEX (page 49)</b> Selects the index to be played. SR-CD CD
	<b>ORIGINAL/PLAY LIST (page 40)</b> Selects the type of titles to be played, the ORIGINAL one or an edited PLAY LIST. DVD-RW
	<b>TIME/TEXT (page 49, 53)</b> <b>TIME/MEMO (page 49, 66)</b> 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 SR-CD CD DATA CD
	<b>MULTI/2CH (page 41)</b> Selects the playback area on Super Audio CDs when available. SR-CD
	<b>AUDIO (page 57)</b> Changes the audio setting. DVD-V DVD-RW VCD CD DATA CD
	<b>SUBTITLE (page 61)</b> Displays the subtitles. Changes the subtitle language. DVD-V DVD-RW
	<b>ANGLE (page 60)</b> Changes the angle. DVD-V
	<b>SURROUND (page 59)</b> Selects the surround functions. Available when 4 to 6 speakers are connected. DVD-V DVD-RW VCD CD DATA CD
	<b>ADVANCED (page 55)</b> Displays the information (bit rate or layer) of the disc currently playing. DVD-V DVD-RW
	<b>PARENTAL CONTROL (page 67)</b> Set to prohibit playback on this player. DVD-V VCD SR-CD CD

	<b>SETUP (page 75)</b> 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 SR-CD CD DATA CD
	<b>PROGRAM (page 45)</b> Selects the title, chapter, or track to play in the order you want. DVD-V VCD SR-CD CD
	<b>SHUFFLE (page 46)</b> Plays the title, chapter, or track in random order. DVD-V VCD SR-CD CD
	<b>REPEAT (page 47)</b> Plays the entire disc (all titles/all tracks/all albums) repeatedly or one title/chapter/track/album repeatedly. DVD-V DVD-RW VCD SR-CD CD DATA CD
	<b>A-B REPEAT (page 48)</b> Specifies the parts you want to play repeatedly. DVD-V DVD-RW VCD SR-CD CD
	<b>VIDEO CONTROL (page 62)</b> 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
	<b>PICTURE NAVIGATION (page 50)</b> 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.

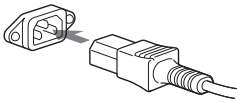
## Step 1: Unpacking

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)

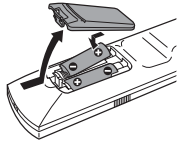
### Connecting the power cord

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.

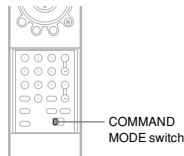


### Notes

- 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

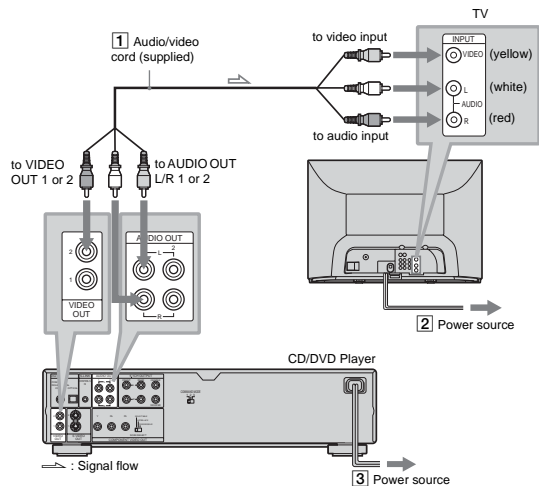
If the supplied remote interferes with your other Sony DVD player, set the command mode for this player and the supplied remote to one that differs from the other Sony DVD player. The default command mode setting for this player and the supplied remote is DVD 1.



→ continued 17

## 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.



### 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  on page 21, and then run Quick Setup on page 31.

### Hint

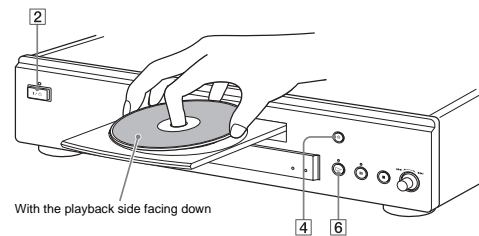
When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the VIDEO OUT 1/2 jack on the player to the TV's video input jack, and connect the AUDIO OUT L/R 1/2 jacks to the TV's audio input jack.

## 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.

## Step 4: Playing a Disc



With the playback side facing down

- Turn on the TV.
- Press  on the player.
- Switch the input selector on your TV so that the signal from the player appears on the TV screen.
- Press  on the player to open the disc tray.
- Place the disc on the tray with the playback side facing down.
- 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 . The player enters standby mode and the power indicator lights up in red.

## Hookups

### Hooking Up the Player

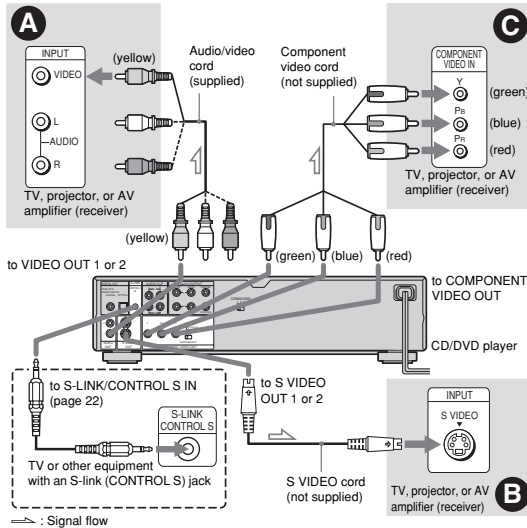
Follow steps 1 to 4 to hook up and adjust the settings of the player. Before you start, disconnect the power cords, check that you have all of the supplied accessories, and insert the batteries into the remote (page 17).

#### Notes

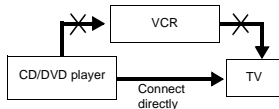
- Plug cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.

### 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 A through C, 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 C.



→ continued 21



- 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.

Hookups

#### A 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.)

#### B If you are connecting to an S VIDEO input jack

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



#### C If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y, Pb, Pr)

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 A, B, or C, 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.

22

### 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, A through D.

Components to be connected	Connection	Your setup (example)
TV • Surround effects: None	A (page 26)	
Stereo amplifier (receiver) and two speakers or MD deck/DAT deck • Surround effects: None	B (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)	C (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 (5.1 ch) (page 88) – DTS (5.1 ch) (page 88)	D (page 29)	

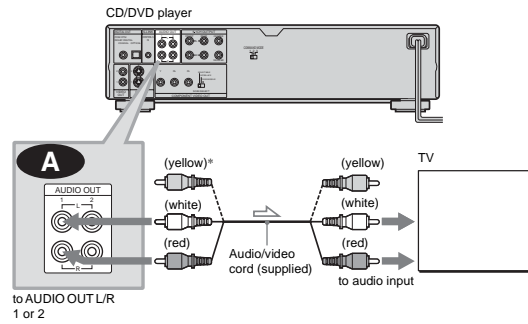
**Hint**  
If you connect an AV amplifier (receiver) that conforms to the 96 kHz sampling frequency, use connection **D**.

- \* 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.

Headlamps

**A Connecting to your TV**

This connection will use your TV speakers for sound.



\* 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.

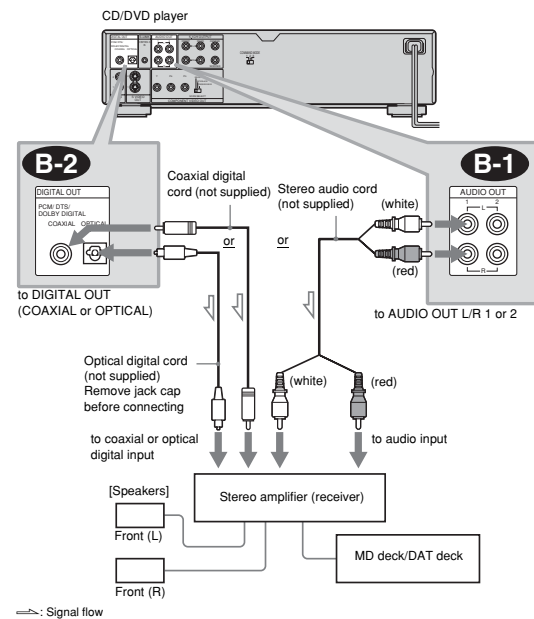
→ continued 25

26

**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).

Headlamps



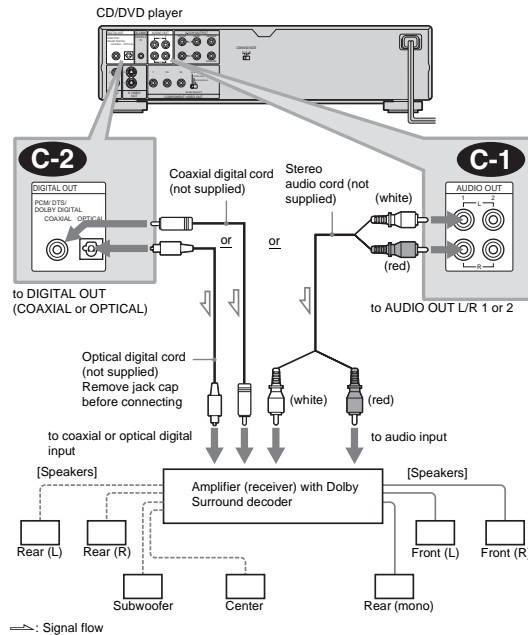
- Hints**
- In connection **B-1**, you can use the supplied audio/video cord instead of using a separate stereo audio cord.
  - To realize better surround sound effects, make sure that your listening position is in between your speakers.

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

→ continued 27

**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**.



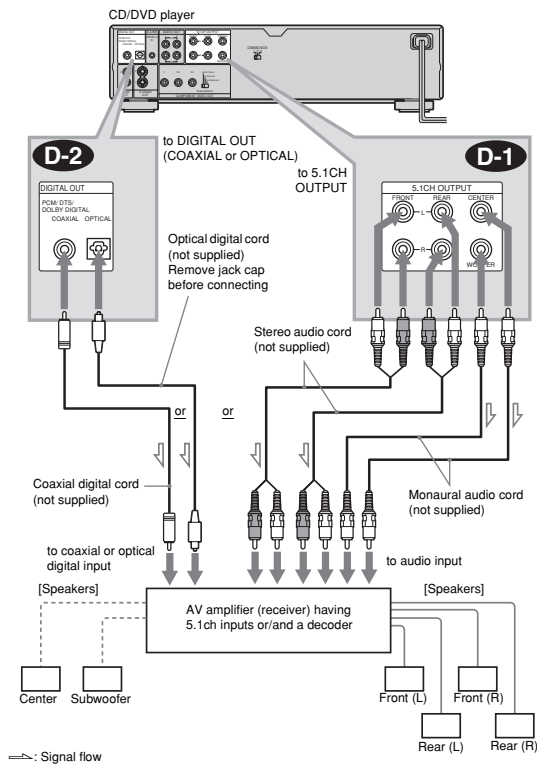
**Hint**  
For correct speaker location, refer to the operating instructions of the amplifier (receiver).

- 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

**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 use the Dolby Digital, or DTS decoder function on your AV amplifier (receiver), connect to its digital jack using **D-2**. With the following connections, you can enjoy a more realistic audio presence in the comfort of your own home.



Hookups

**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 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

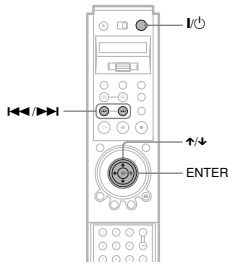
30

**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 **▶▶1**. To return to the previous adjustment, press **◀◀1**.



Hookups

**1** Turn on the TV.

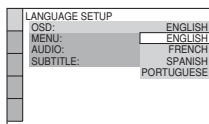
**2** Press **I/⏻**.

**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.



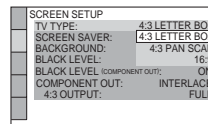
**5** Press **↑/↓** to select a language.

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

→ continued 31

**6** Press **ENTER**.

The Setup Display for selecting the aspect ratio of the TV to be connected appears.

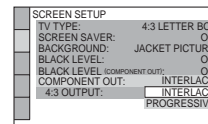


**7** Press **↑/↓** to select the setting that matches your TV type.

- 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.

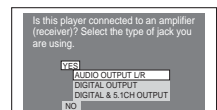


**9** Press **↑/↓** to select the type of signals you wish to output to your TV.

- Select "PROGRESSIVE" only if you have made video pattern **⓪** (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.

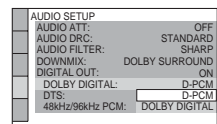
- B-1** **C-1**
  - Select "AUDIO OUTPUT L/R." Quick Setup is finished and connections are complete.

- 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**).



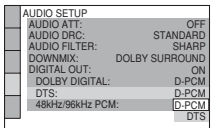
32

- 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.



### 14 Press $\uparrow/\downarrow$ 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)

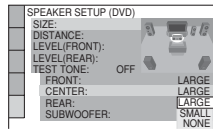
### 15 Press ENTER.

- ◆ 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.

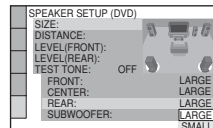
### 16 Press $\uparrow/\downarrow$ to select the size of the center speaker.

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



### 17 Press ENTER.

"REAR" is selected.

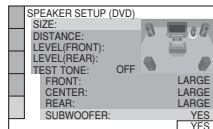


### 18 Press $\uparrow/\downarrow$ to select the size of the rear speakers.

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

### 19 Press ENTER.

"SUBWOOFER" is selected.



### 20 Press $\uparrow/\downarrow$ to select whether or not you have connected a subwoofer.

### 21 Press ENTER.

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

Headings

## 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** through **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).

→ continued 33

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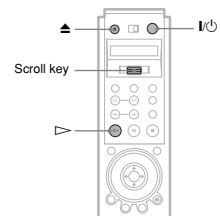
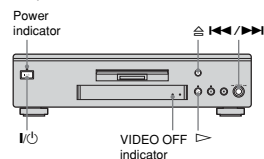
## Playing Discs

### 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.



### 1 Turn on your TV.

### 2 Press I/O.

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 $\triangle$ on the player, and place a disc on the disc tray.



With the playback side facing down

### 5 Press $\triangleright$ .

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  $\triangle$  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 I/O. The player enters standby mode.

### Hint

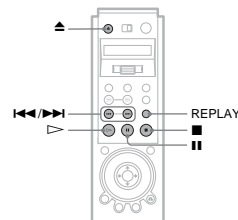
You can have the player turn off automatically whenever you leave it in stop mode for more than 30 minutes. To turn on this function, set "AUTO POWER OFF" in "CUSTOM SETUP" to "ON" (page 79).

### Note

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

Playing Discs

## Additional operations



To	Operation
Stop	Press $\blacksquare$
Pause	Press $\text{II}$
Resume play after pause	Press $\text{II}$ or $\triangleright$
Go to the next chapter, track, or scene in continuous play mode	Press $\text{▶▶}$ 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 $\text{◀◀}$ on the remote, or briefly turn the Playback Control on the player counterclockwise
Stop play and remove the disc	Press $\triangle$
Replay the previous scene (DVD VIDEO only)	Press REPLAY

### Hint

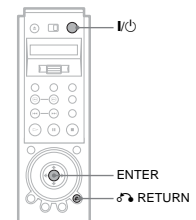
The Replay function is useful when you want to review a scene or dialog that you missed.

### 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.



### When the player is in standby mode, press $\triangle$ RETURN, ENTER, and then I/O on the remote.

The player turns on and "LOCKED" appears on the front panel display. The  $\triangle$  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  $\triangle$  RETURN, ENTER, and then I/O again.

### Note

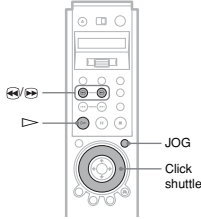
Even if you select "RESET" under "SETUP" in the Control Menu (page 76), the disc tray remains locked.

→ continued 35

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## 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.



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

### Locating a point quickly (Search)

During playback, keep pressing **SEARCH** to locate a point in the playback direction or keep pressing **SEARCH** 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)

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 **STOP**.

Playing Discs

## Playing a disc frame by frame using the click shuttle (Jog mode)

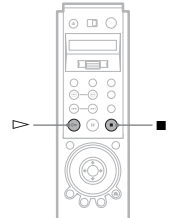
- 1 Press **JOG** on the remote. "JOG" appears in the LCD screen.
- 2 Turn the click shuttle. Depending on the turning speed, playback goes to frame-by-frame playback in the direction that the click shuttle is turned. Turn the click shuttle clockwise to go forward, and counterclockwise to go backwards (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 **STOP**.

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

## Resuming Playback from the Point Where You Stopped the Disc (Multi-disc Resume)

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 **RESUME** to stop playback. "RESUME" appears on the front panel display.

- 2 Press **RESUME**. 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 **STOP** twice, then press **STOP**.
- 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.

→ continued 37

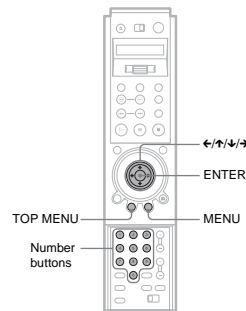
38

### 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

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.

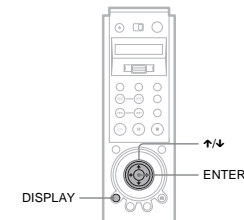


- 1 Press **TOP MENU** or **MENU**. The disc's menu appears on the TV screen. The contents of the menu vary from disc to disc.
- 2 Press **←/↑/↓/→** or the number buttons to select the item you want to play or change.
- 3 Press **ENTER**.

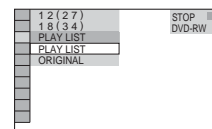
Playing Discs

## Selecting "ORIGINAL" or "PLAY LIST" on a 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.



- 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.



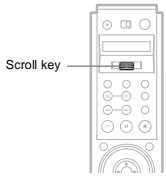
- 3 Press **↑/↓** to select the setting.
  - **PLAY LIST**: plays the titles created from "ORIGINAL" for editing.
  - **ORIGINAL**: plays the titles originally recorded.
- 4 Press **ENTER**.

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

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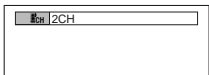
## Selecting a Playback Area for a Super Audio CD **SA-CD**



## 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.



- 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.

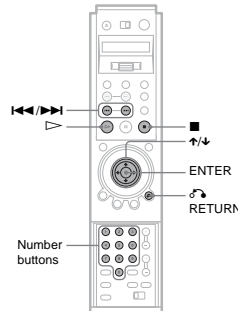
### Notes

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

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.



- 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.

### Hint

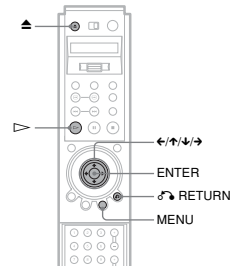
To play without using PBC, press or the number buttons while the player is stopped to select a track, then press or ENTER. "Play without PBC" appears on the TV screen and the player starts normal play. You cannot play still pictures such as a menu. To return to PBC playback, press twice then press .

### 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.



- 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).

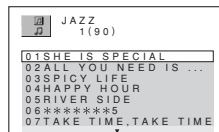
## Selecting an album and track

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



- 2 Select an album using and press ENTER.

The list of tracks contained in the album appears.



- 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 "s."
- 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.

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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

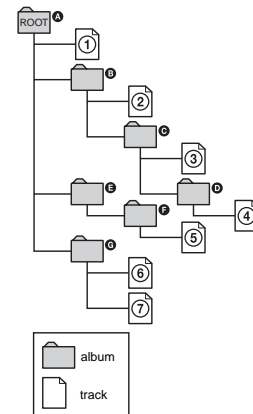
- If you put the extension ".MP3" to data not in MP3 format, the player cannot recognize the data properly and will generate a loud noise which could damage your speaker system.
- The player cannot play audio tracks in MP3PRO format.

### 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



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: ④ contains ⑥ 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: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦. Albums that do not contain tracks (such as album ⑥) 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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## Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

You can set the following play modes:

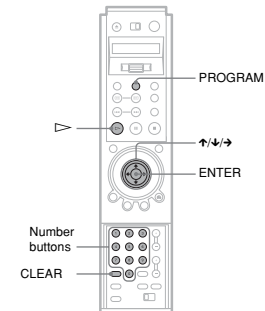
- Program Play (page 45)
- Shuffle Play (page 46)
- Repeat Play (page 47)
- A-B Repeat Play (page 48)

### Note

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

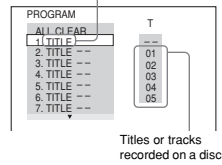
## Creating your own program (Program Play) **DVD-V VCD SR-CD CD**

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.

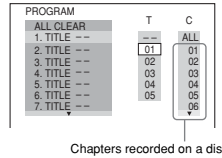


- 1 Press **PROGRAM**.  
The display for programming appears.

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

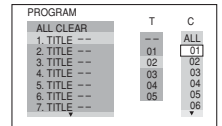


- 2 Press **→**.  
The cursor moves to the title or track row "T" (in this case, "01").



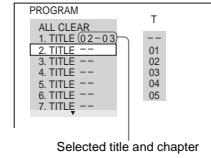
- 3 Select the title, chapter, or track you want to program.

◆ 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**.

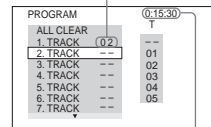


Next, press **↑/↓** or the number buttons to select "03" under "C," then press **ENTER**.

Playing Discs



◆ 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.



- 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.

- 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**.

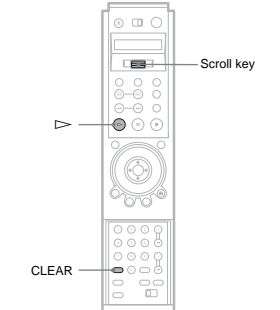
- To cancel all the titles, chapters, or tracks in the programmed order**
- 1 Press **PROGRAM**.
  - 2 Press **↑** and select "ALL CLEAR."
  - 3 Press **ENTER**.

🔔 **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)

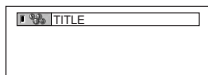
## Playing in random order (Shuffle Play) **DVD-V VCD SR-CD CD**

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



→ continued 45 46

- 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.



- 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.

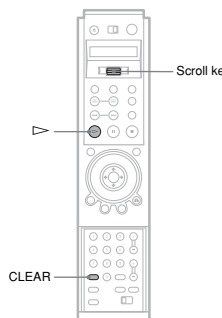
**To return to normal play**  
 Press **CLEAR**, or select "OFF" in step 3.

🔔 **Hints**

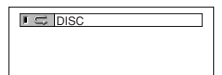
- You can set Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press **▶**. Shuffle Play starts.
- Up to 200 chapters in a disc can be played in random order when "CHAPTER" is selected.
- You can also select "SHUFFLE" from the Control Menu (page 14).

## Playing repeatedly (Repeat Play) **DVD-V DVD-RW VCD SR-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.



- 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.



- 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.

Playing Discs

- ◆ 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.

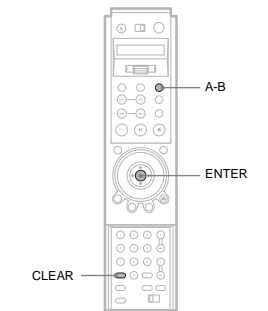
**To return to normal play**  
 Press **CLEAR**, or select "OFF" in step 3.

🔔 **Hints**

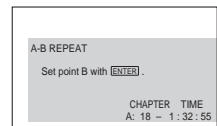
- You can set Repeat Play while the player is stopped. After selecting the "REPEAT" option, press **▶**. Repeat Play starts.
- You can also select "REPEAT" from the Control Menu (page 14).

## Repeating a specific portion (A-B Repeat Play) **DVD-V DVD-RW VCD SR-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.



- 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.



- 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.

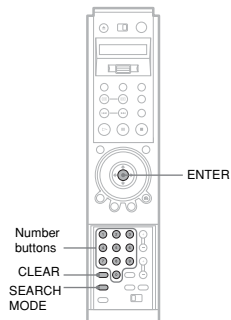
→ continued 47 48

## Searching for a Scene

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

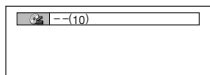
DVD-RW VCD SR-CD CD  
DATA CD

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.



#### 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.



#### 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/MEMO" 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.

Searching for a Scene

#### 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.

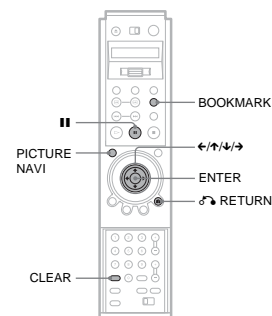
#### Note

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

## Searching by Scene

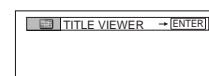
(PICTURE NAVIGATION)

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



#### 1 Press PICTURE NAVI during playback.

The following display appears.



#### 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)

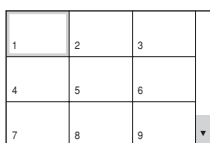
DVD-V VCD

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 left/right/up/down arrows, 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 down arrow. To return to the previous scene, select the top left scene (the position 1) and press up arrow.



### 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 left/right/up/down arrows, 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 left/right/up/down arrows, 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.

Searching for a Scene

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

You can display 9 consecutive moving pictures on the screen.

When you press PAUSE 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 left/right/up/down arrows, and press ENTER.

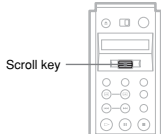
## Viewing Information About the Disc

### Checking the Playing Time and Remaining Time

DVD-V DVD-RW VCD

SA-CD CD DATA CD

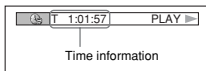
You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the Disc Memo, DVD/Super Audio CD/CD text, or track/album name (MP3 audio) recorded on the disc.



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.



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-\*:\*: (hours: minutes: seconds)  
Remaining time of the current title
- C \*:\*: (minutes: seconds)  
Playing time of the current chapter
- C-\*:\*: (minutes: seconds)  
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-\*:\*: (minutes: seconds)  
Remaining time of the current track
- D \*:\*: (minutes: seconds)  
Playing time of the current disc
- D-\*:\*: (minutes: seconds)  
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 the disc does not contain text, "NO TEXT" appears. In this case, you can label the disc. To label the disc, see page 66.



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

Viewing Information About the Disc

### 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 02:30

Remaining time of the current chapter

2 -01:32:0

Text

SONY HITS/5

#### 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/5

#### When playing a DATA CD (MP3 audio)

Track playing time and the current track and album number

10 21 2:25

Track name

01HAPPY BIRTH

#### 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

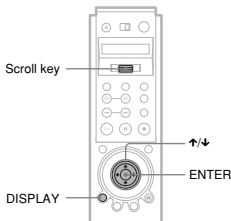
- Depending on the type of disc being played, the disc's text or track name may not be displayed.
- The player can only display the first level of the disc's text, such as the disc name or title.
- Playing time of MP3 audio tracks may not be displayed correctly.

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### Checking the Play Information

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

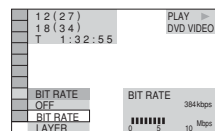


#### Checking the play information of a DVD (ADVANCED)

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.



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.

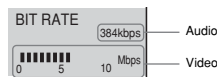
#### To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

#### Display of each item

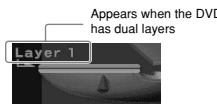
By pressing DISPLAY repeatedly, you can display either "BIT RATE" or "LAYER," whichever was selected in "ADVANCED."

#### ◆ BIT RATE



Bit rate 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



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).

Viewing Information About the Disc

### Checking the play information of a DATA CD

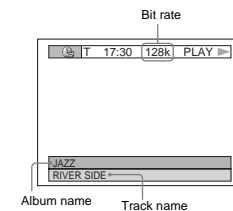
DATA CD

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.



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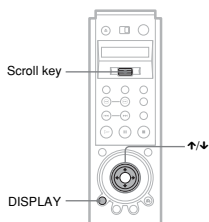
## Sound Adjustments

### 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.

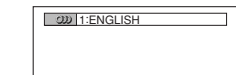
With CDs, DATA CDs, or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can hear the instruments from both speakers by selecting the left channel.



**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.



**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)

Sound Adjustments

#### Hint

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

#### Note

You cannot change the sound for Super Audio CDs.

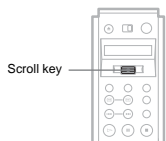
→ continued 57

## 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.

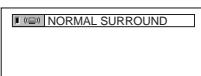
This function is available when you connect 4 or more speakers and set "REAR" in "SIZE" of "SPEAKER SETUP" to any setting other than "NONE."



**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.



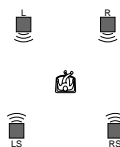
**3** Press down on the scroll key repeatedly to select one of the surround modes.

#### • 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.

#### • 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: Front speaker (left)  
R: Front speaker (right)  
LS: Rear speaker (left)  
RS: Rear speaker (right)

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.

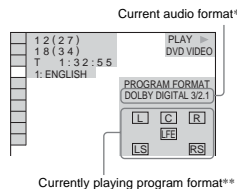
Sound Adjustments

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

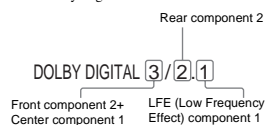
Press DISPLAY during playback to display the Control Menu. Select "AUDIO" using . The channels being played are displayed on the screen.

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.



\*\*"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:



\*\*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.

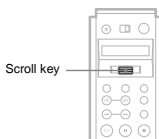
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## Enjoying Movies

### Changing the Angles

DVD-V

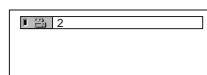
If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, "ANGLE" appears in the front panel display. This means that you can change the viewing angle.



**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.



**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).

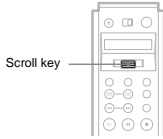
#### Note

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

## Displaying the Subtitles

DVD-V DVD-RW

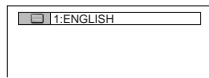
If subtitles are recorded on the discs, you can change the subtitles or turn them on and off whenever you want while playing a DVD.



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.



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.

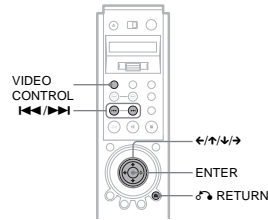
**Hint**  
You can also select "SUBTITLE" from the Control Menu (page 14).

**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.

## Adjusting the Picture

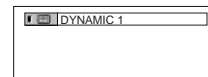
(VIDEO CONTROL) DVD-V DVD-RW  
VCD

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.



1 Press VIDEO CONTROL during playback.

The following display appears.



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.

Enjoying Movies

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- **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.

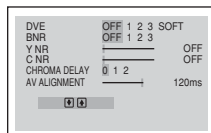


2 Press to adjust the outline, then press ENTER.  
The adjustment is saved, and the "BNR" adjustment bar appears.

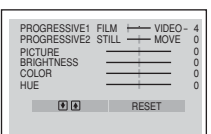
3 Repeat step 2 to adjust "BNR" and the other items such as "Y NR," and "C NR."

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

Video Control display 1



Video Control display 2



To turn off the display  
Press RETURN.

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.

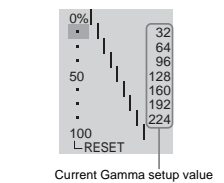
- Notes**
- If the outlines of the images on your screen should become blurred, set "BNR" to "OFF."
  - Depending on the disc or the scene being played, the "BNR," "Y NR," or "C NR" effect may be hard to discern.
  - Depending on the disc or the scene being played, noise found in the disc may become 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)

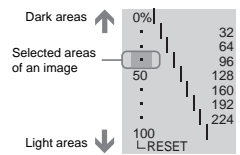
Depending on your TV or viewing environment, images on the screen may lose definition when a certain area of the image is so light that it appears washed out, or so dark that it blends into the surrounding dark areas. By correcting the Gamma value, you can adjust the brightness of selected areas to get 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.

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 .



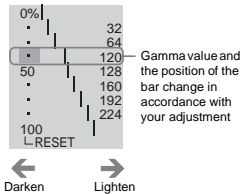
2 Press to select areas of an image.  
The upper region adjusts the dark areas and the lower region adjusts the light areas.



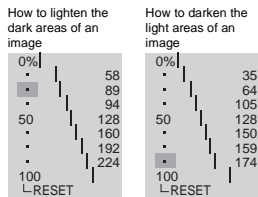
→ continued 63

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- 3** Press  $\leftarrow/\rightarrow$  to adjust the brightness level of the area that you selected.  $\leftarrow$  decreases the level (darkens the area), and  $\rightarrow$  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.



- 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.



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  $\rightarrow$  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  $\uparrow/\downarrow$ , and press ENTER.

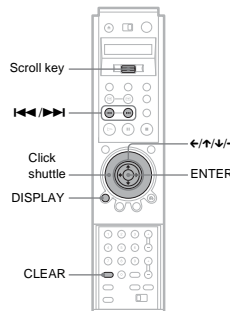
**Hint**  
You can move the gamma adjustment display horizontally by pressing  $\leftarrow/\rightarrow$ .

**Using Various Additional Functions**

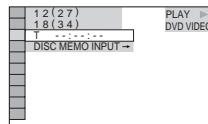
**Labeling the Disc DVD-V**

VCD SR-CD CD

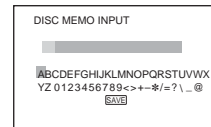
You can label a disc if no text is recorded on the disc (Disc Memo). You can put a personal title of up to 20 characters on the disc. The Disc Memo can be anything you like, such as a title, musician's name, category, or date of purchase.



- 1 Insert the disc you want to label.
- 2 Press DISPLAY. The Control Menu appears.
- 3 Press  $\uparrow/\downarrow$  to select (TIME/MEMO) and press ENTER. "DISC MEMO INPUT" appears.

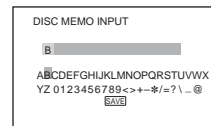


- 4** Press  $\downarrow$  to select "DISC MEMO INPUT" and press ENTER. The "DISC MEMO INPUT" display appears.



- 5** Select a character by pressing  $\leftarrow/\rightarrow$ , or by turning the click shuttle. The selected character changes the color.

- 6** Press ENTER.



- 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  $\leftarrow/\uparrow/\downarrow/\rightarrow$ , and press ENTER. The Disc Memo is stored.

To turn off the display Press  $\rightarrow$  RETURN.

To erase a character

- 1 Press  $\leftarrow$  or  $\rightarrow$  to move the cursor to the character you want to erase.
- 2 Press CLEAR.

**To insert or overwrite a character**

- 1 Press  $\leftarrow$  or  $\rightarrow$  to move the cursor to the insertion point or the character you want to correct.
- 2 Select a correct character by pressing  $\leftarrow/\uparrow/\downarrow/\rightarrow$  or turning the click shuttle.
- 3 To insert a character, press ENTER. To overwrite, press  $\leftarrow$  or  $\rightarrow$ .

**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  $\curvearrowright$  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)**

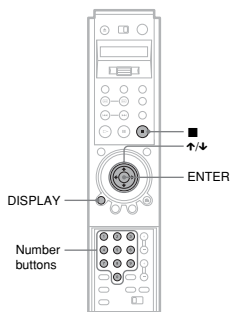
You can set two kinds of playback restrictions for the desired disc.

- 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**

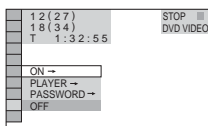
VCD SR-CD CD

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.



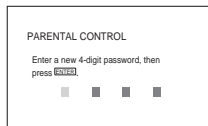
- 1 Insert the disc you want to lock. If the disc is playing, press  $\blacksquare$  to stop playback.
- 2 Press DISPLAY while the player is stopped. The Control Menu appears.

- 3** Press  $\uparrow/\downarrow$  to select (PARENTAL CONTROL), then press ENTER. The options for "PARENTAL CONTROL" appear.



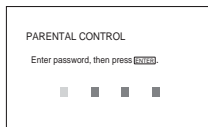
- 4** Press  $\uparrow/\downarrow$  to select "ON", then press ENTER.

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



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.



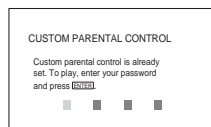
- 5** Enter or re-enter your 4-digit password using the number buttons, then press ENTER. "Custom parental control is set." appears and then the screen returns to the Control Menu.

**To turn off the Custom Parental Control function**

- 1 Follow steps 1 through 3 of "Custom Parental Control."
- 2 Press  $\uparrow/\downarrow$  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.



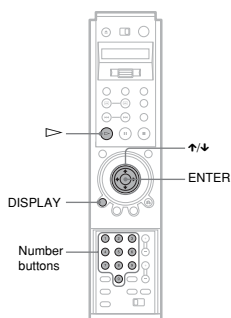
- 2 Enter your 4-digit password using the number buttons, then press ENTER. The player is ready for playback.

**Hint**

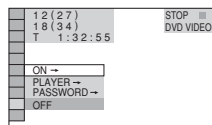
If you forget your password, enter the 6-digit number "199703" using the number buttons when the "CUSTOM PARENTAL CONTROL" display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

**Parental Control (limited playback) DVD-V**

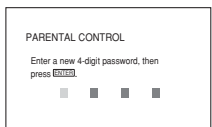
Playback of some DVD VIDEOS can be limited according to a predetermined level such as the age of the users. The "PARENTAL CONTROL" function allows you to set a playback limitation level.



- 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 **"PLAYER →"**, then press **ENTER**.  
 ◆ If you have not entered a password The display for registering a new password appears.



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

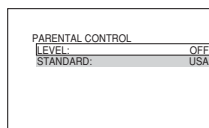
The display for confirming the password appears.

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

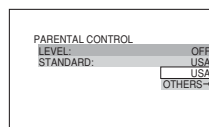


- 4 Enter or re-enter your 4-digit password using the number buttons, then press **ENTER**.

The display for setting the playback limitation level appears.



- 5 Press **↑/↓** to select **"STANDARD,"** then press **ENTER**. The selection items for "STANDARD" are displayed.



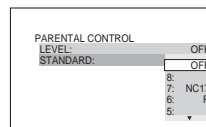
- 6 Press **↑/↓** to select a geographic area as the playback limitation level, then press **ENTER**.

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**.

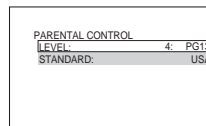
Using Various Additional Functions

The selection items for "LEVEL" are displayed.



- 8 Select the level you want using **↑/↓**, then press **ENTER**.

Parental Control setting is complete.



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.

**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.

• 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

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**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**

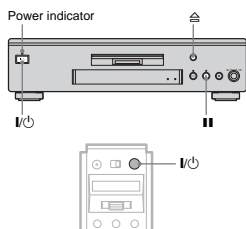
Press **DISPLAY** repeatedly until the display is turned off.

**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/O** 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.

Using Various Additional Functions

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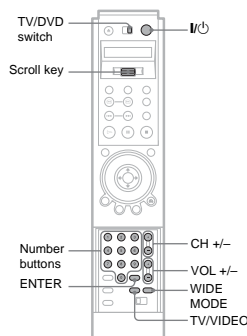
**Controlling Your TV or AV Amplifier (Receiver) With the Supplied Remote**

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/O**, press down on the **scroll key**. "TV P-1" (default) appears in the LCD screen.
- 3 Release **I/O**.

- 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:

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

**Code numbers of controllable TVs**

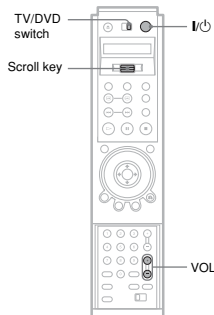
If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

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



- Slide the TV/DVD switch to DVD.
- While holding down I/⏪, press down on the scroll key.  
"AV P-90" (default) appears in the LCD screen.
- Release I/⏪.
- 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).
- 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

#### 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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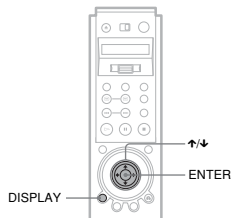
## Settings and Adjustments

### 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.

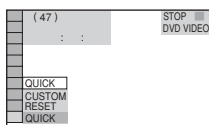


- Press DISPLAY while the player is stopped.

The Control Menu appears.

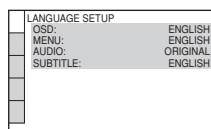
- Press ↑/↓ to select (SETUP), then press ENTER.

The options for "SETUP" appear.



- Press ↑/↓ to select "CUSTOM," then press ENTER.

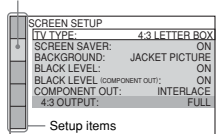
The Setup Display appears.



- 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"

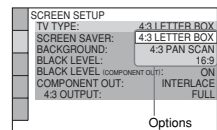
Selected item



- Select an item using ↑/↓, then press ENTER.

The options for the selected item appear.

Example: "TV TYPE"

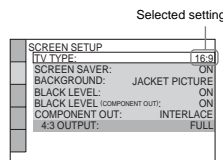


- Select a setting using ↑/↓, then press ENTER.

The setting is selected and setup is complete.

Example: "16:9"

Settings and Adjustments



#### 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).

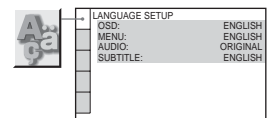
#### To reset all the "SETUP" settings

- Select "RESET" in step 3 and press ENTER.
- Select "YES" using ↑/↓.  
You can also quit the process and return to the Control Menu by selecting "NO" here.
- 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.

## 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).



#### ◆ 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.

#### 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.

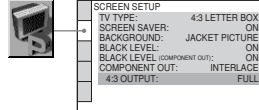
→ continued 75

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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.



### ◆ 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



### 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  $\triangleright$  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).

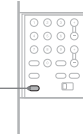
JACKET PICTURE	The jacket picture (still picture) appears, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
PICTURE MEMORY	Your favorite picture appears in the background. To store a scene 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.

### 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.

Settings and Adjustments

### PICTURE MEMORY



### 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.

### To switch the video signal format

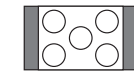
If you have selected "PROGRESSIVE" for a TV that does not accept signals in progressive format 480p, or if the software's video signals are not suited for progressive video signal conversion, view the image in Interface format.

- 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.

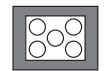
### When "PROGRESSIVE" is selected in "COMPONENT OUT"

- 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

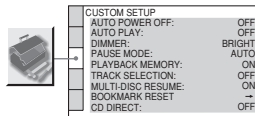


4:3 aspect ratio TV

## 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.



### ◆ 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.

Settings and Adjustments

### 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.

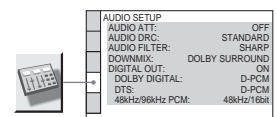
### Note

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

## 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 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.

◆ **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 SURROUND	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.

Settings and Adjustments

• 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.

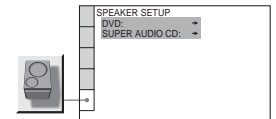
**Notes**  
• Even if you set "48kHz/96kHz PCM" to "96kHz/24bit," the sampling frequency is converted to 48kHz/16bit when a "SURROUND" mode (page 59) is selected.  
• The analog audio signals from the AUDIO OUT L/R jacks and 5.1CH OUTPUT jacks are not affected by this setting and keep their original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

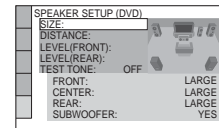
You can create two different Speaker Setup settings, one for Super Audio CDs and one for all other types of discs. When nothing is set in "SUPER AUDIO CD," the "DVD" setting you have set becomes effective when you play Super Audio CDs.

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



**2** Select "DVD" or "SUPER AUDIO CD" using  $\uparrow/\downarrow$ , then press ENTER.

Example: when "DVD" is selected.



## 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.

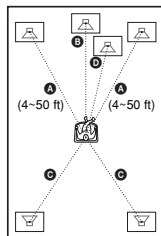
• CENTER  
LARGE Normally select this position.  
SMALL Select this when the speaker cannot reproduce adequate bass frequencies.  
NONE Select this if you do not connect a center speaker.

• 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 (A), Values in "CENTER" (center speaker), "REAR" (rear speaker), and "SUBWOOFER" will automatically change to the same value (B, C, and D). 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 $\pm 6$ 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.

Settings and Adjustments

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 (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  $\uparrow/\downarrow$ . 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.

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→ continued 83

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## Additional Information

### 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.

Additional Information

##### 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

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.

→ continued 85

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##### 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.

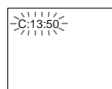
##### "Data error" appears on the TV screen when playing a DATA CD.

- 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.



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

Additional Information

### 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.

87

88

**Interlace format (page 78)**

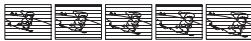
Interlace format shows every other line of an image as a single "field" and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

**Progressive conversion method (page 62)**

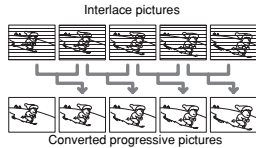
Video shows an image by alternately displaying every other line of an image (field) at 30 frames (60 fields) per second (Interlace format).



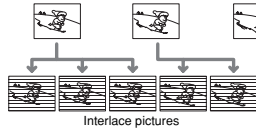
The Interlace format displays 30 frames (60 fields) per second by displaying every other line of the image, causing scanning lines to appear across the image. Furthermore, since only half of the image is shown at once, the amount of information contained in an image is limited.



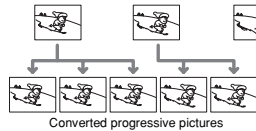
The Progressive format displays 60 entire frames per seconds. The player accomplishes this by converting each field into a frame by using either a field-based conversion method or a frame-based conversion method. The appropriate method is automatically selected by the player according to the movement 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.



• 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.



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.



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."

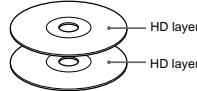
**Super Audio CD (page 6)**

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.

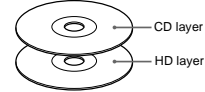
- Super Audio CD (single layer disc)  
This disc consists of a single HD layer\*.  
\*High density signal layer for the Super Audio CD



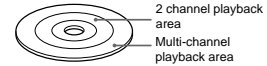
- Super Audio CD (dual layer disc)  
This disc consists of dual HD layers and is capable of extended play over long periods. Also, as the dual layer disc consists of dual HD layers on one side only, you do not have to turn the disc over during playback.



- 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.



- 2 channel + Multi-channel Super Audio CD  
This disc consists of the 2 channel playback area and the 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).

→ continued 89

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**Language Code List**

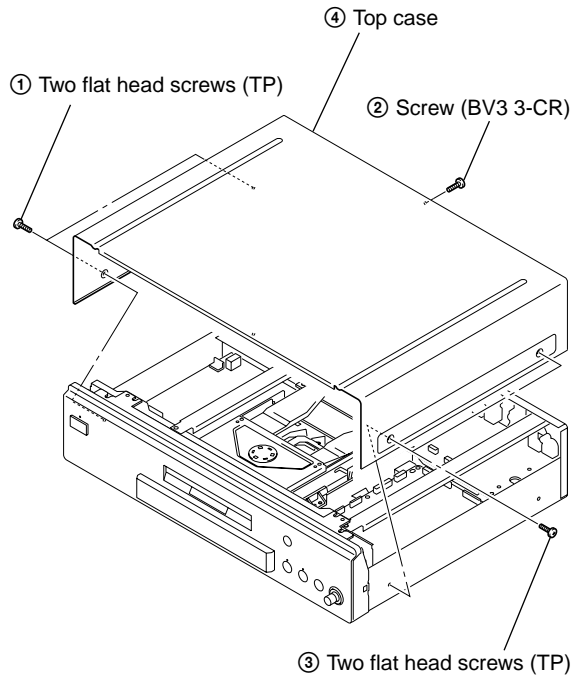
For details, see pages 57, 61, 76.  
The language spellings conform to the ISO 639: 1988 (E/F) standard.

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

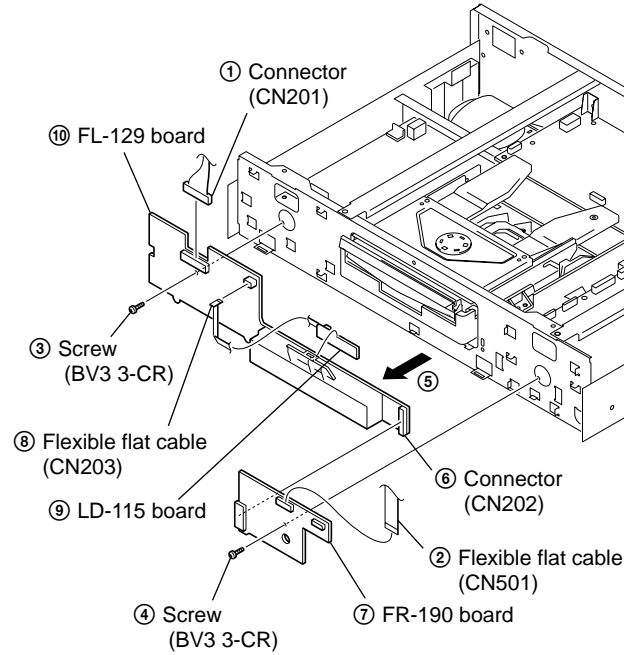
## SECTION 2 DISASSEMBLY

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

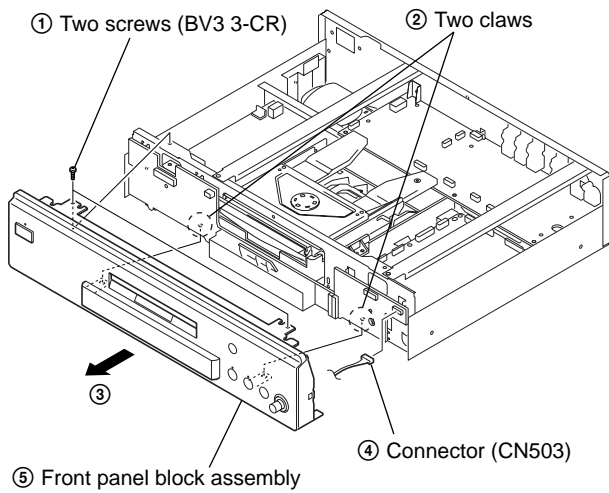
### 2-1. TOP CASE REMOVAL



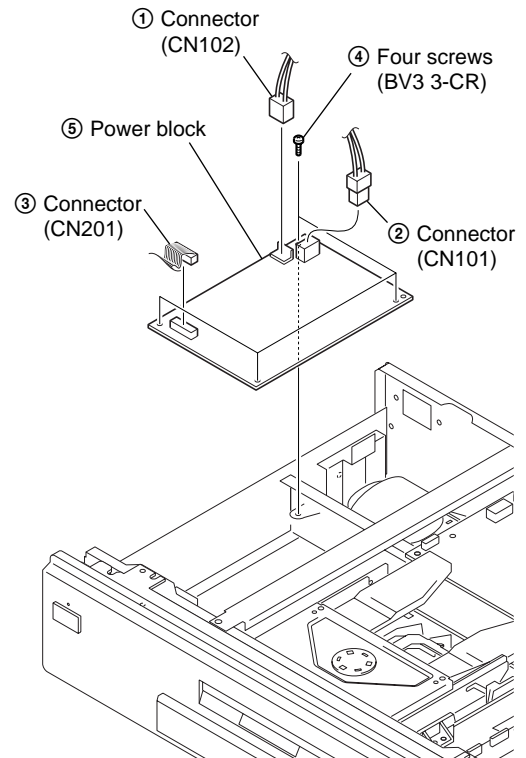
### 2-3. FL-129 BOARD REMOVAL



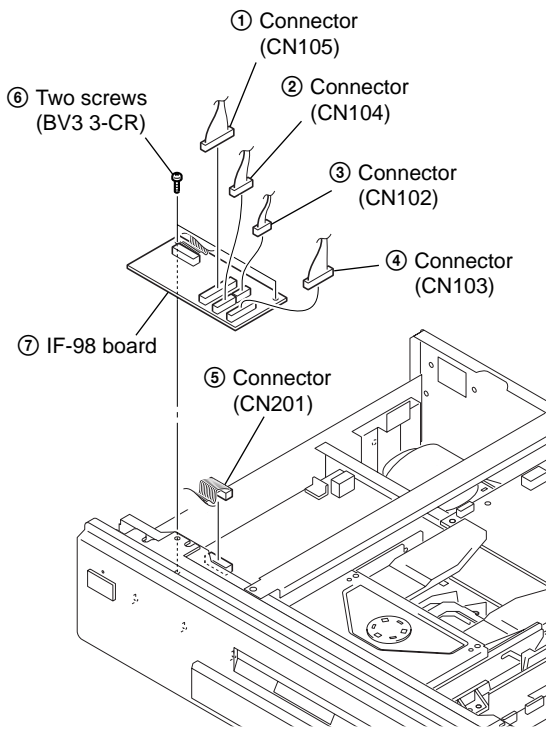
### 2-2. FRONT PANEL BLOCK ASSEMBLY REMOVAL



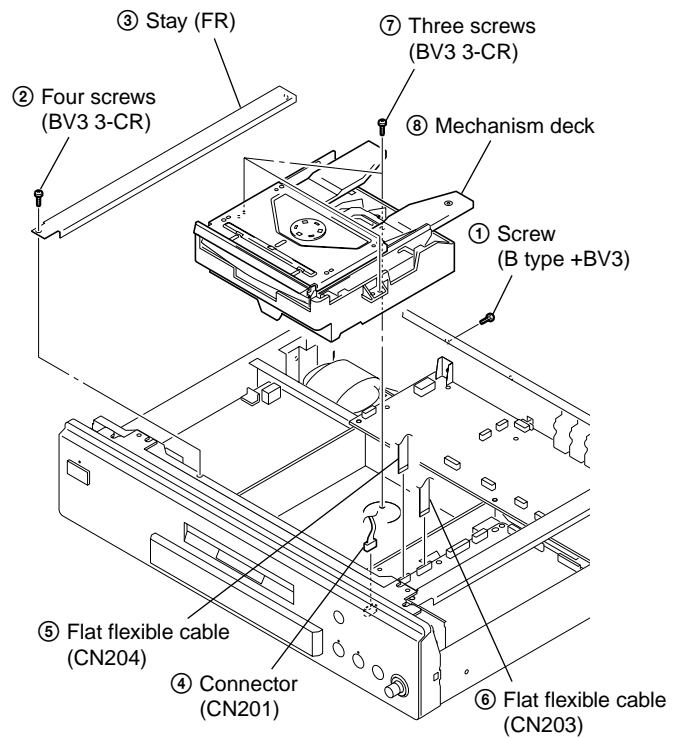
### 2-4. POWER BLOCK REMOVAL



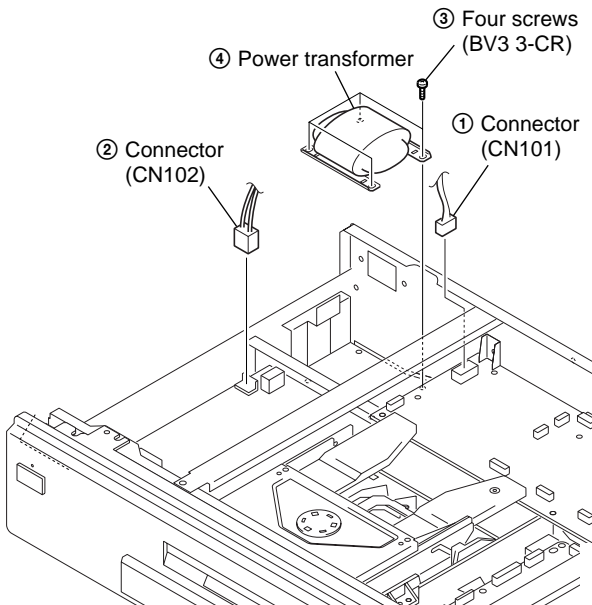
## 2-5. IF-98 BOARD REMOVAL



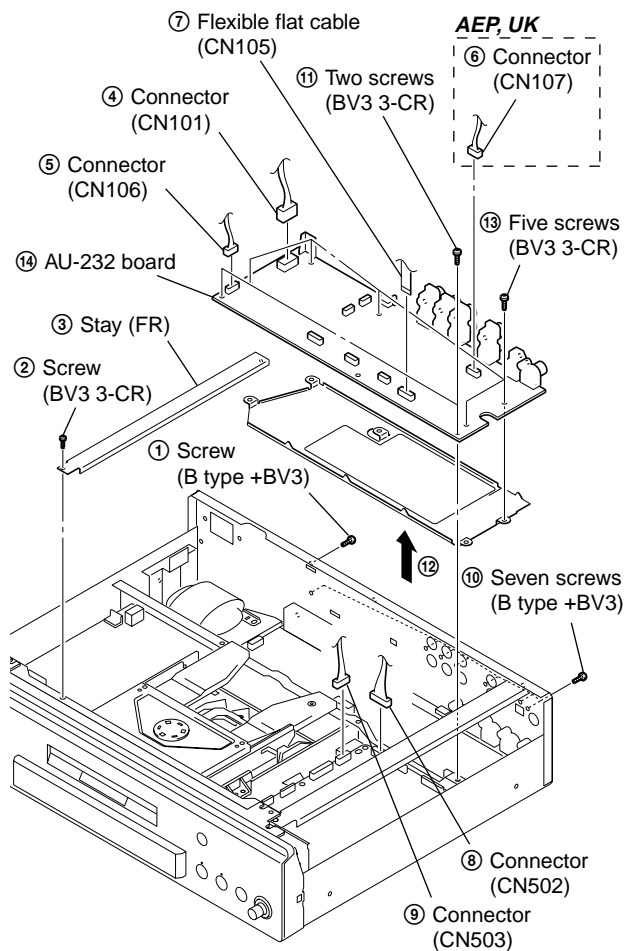
## 2-7. MECHANISM DECK REMOVAL



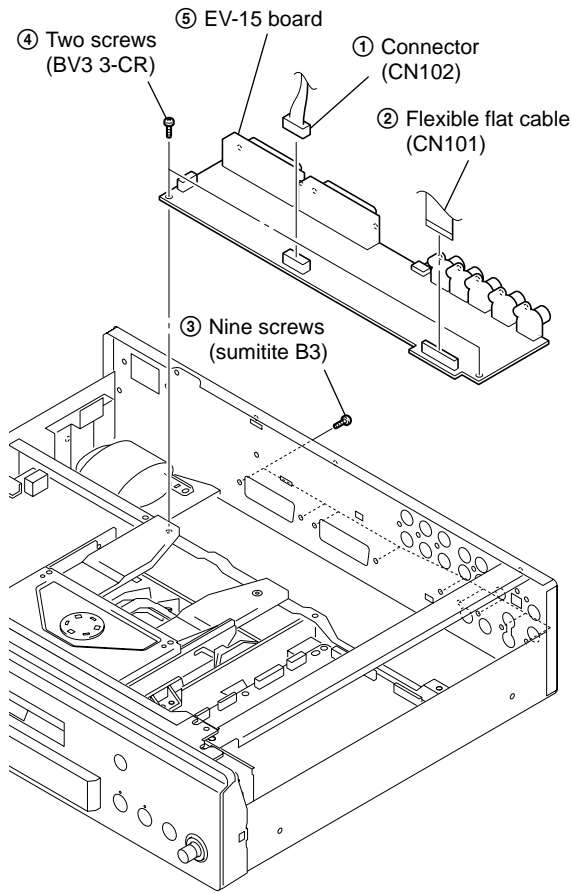
## 2-6. POWER TRANSFORMER REMOVAL



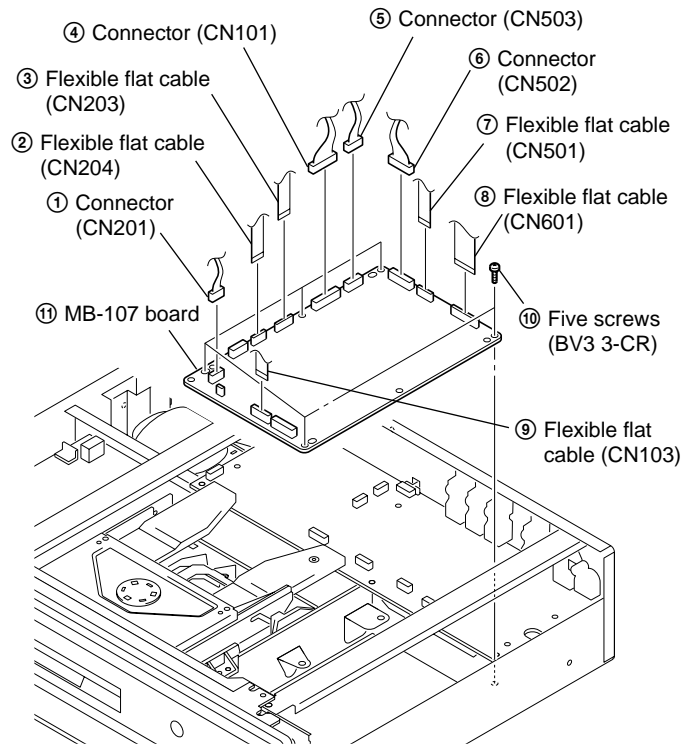
## 2-8. AU-232 BOARD REMOVAL



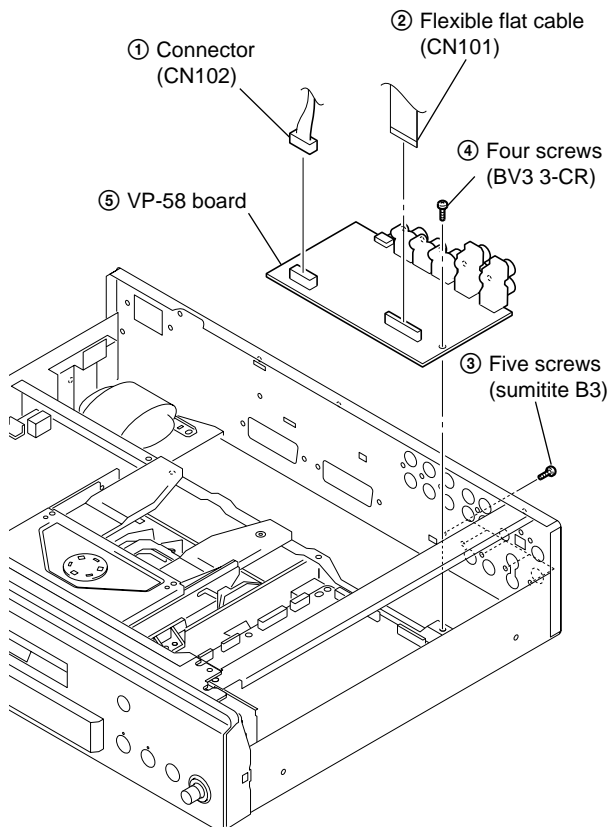
### 2-9. EV-15 BOARD REMOVAL (AEP, UK)



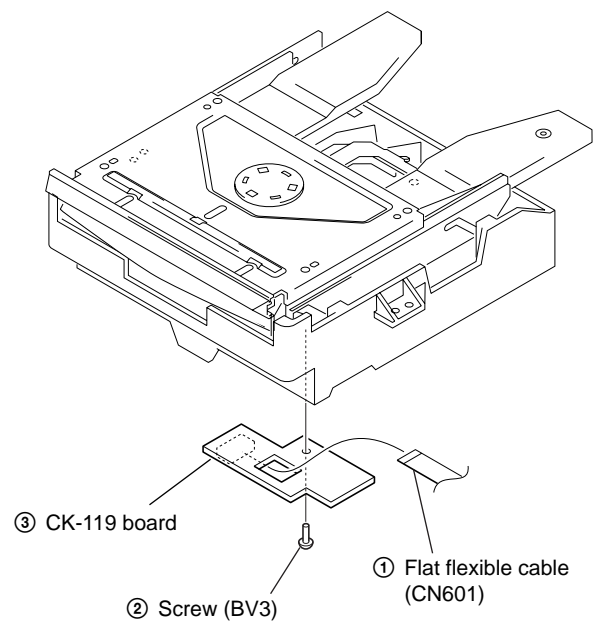
### 2-11. MB-107 BOARD REMOVAL



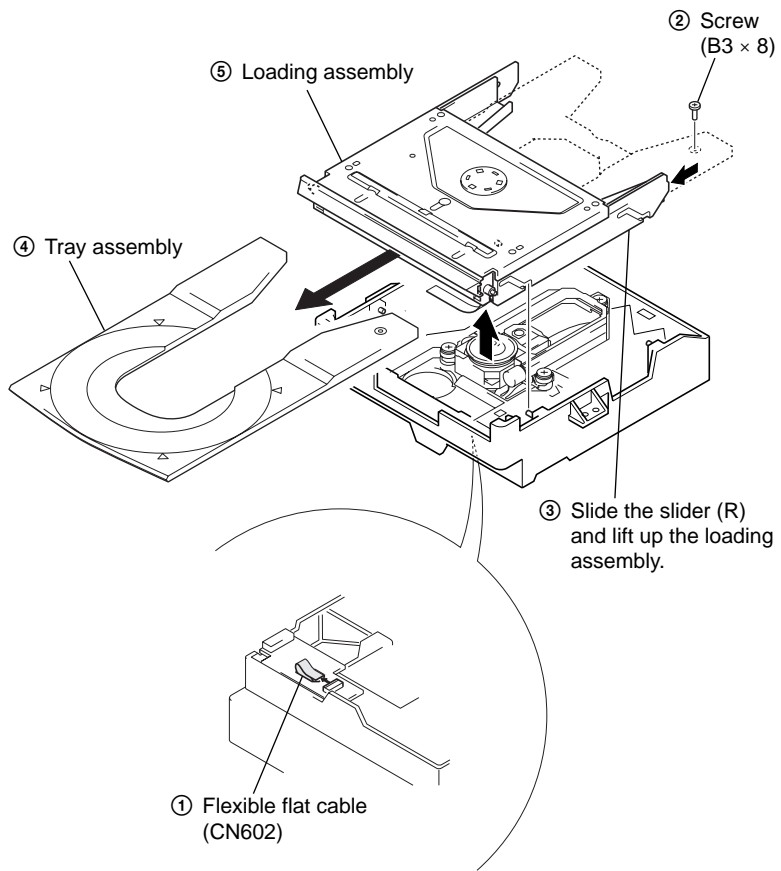
### 2-10. VP-58 BOARD REMOVAL (US, CND, KR)



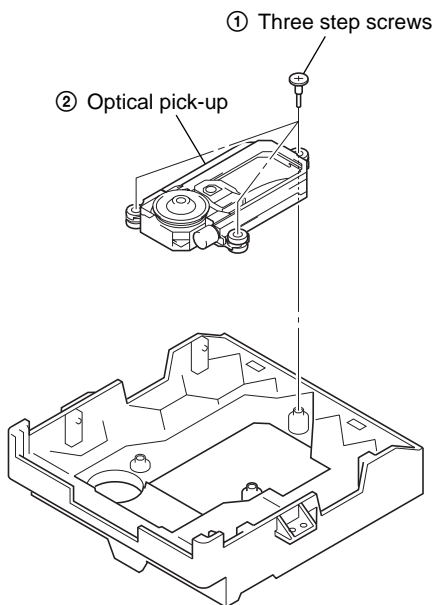
### 2-12. CK-119 BOARD REMOVAL



## 2-13. LOADING ASSEMBLY REMOVAL

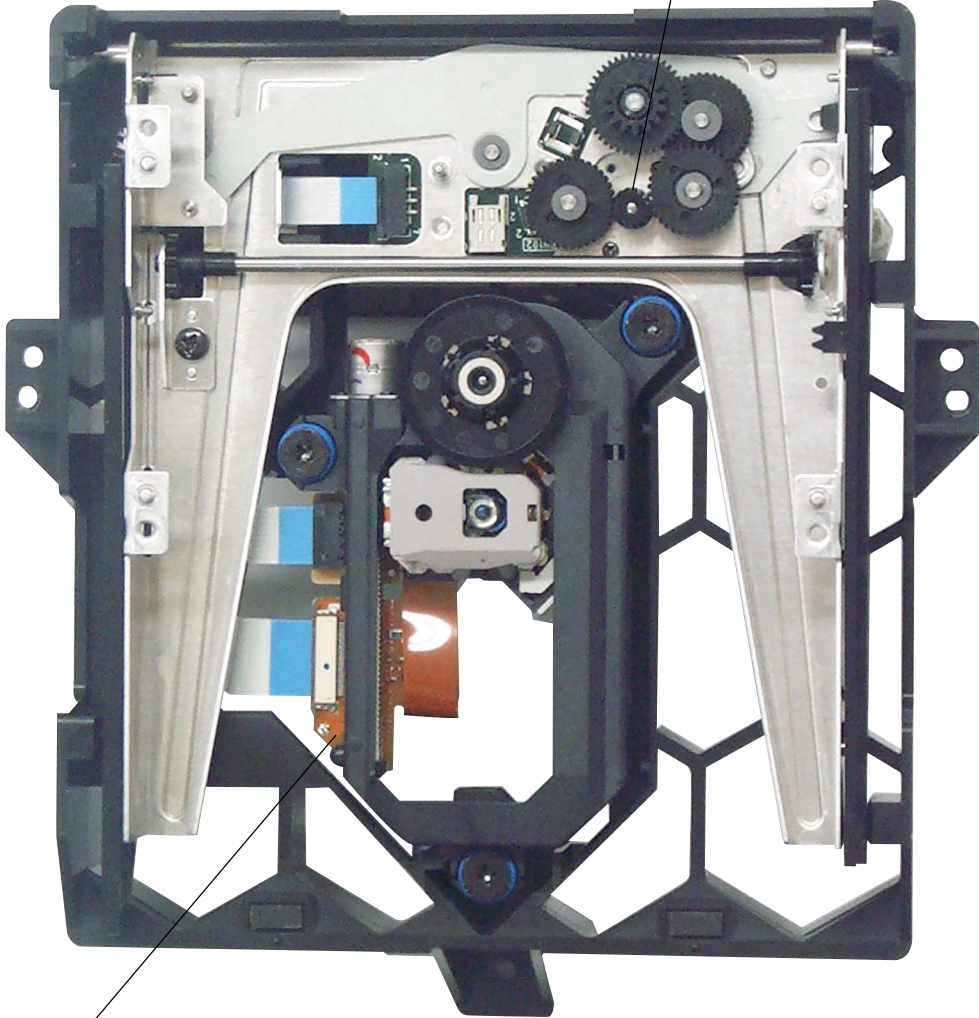


## 2-14. OPTICAL PICK-UP REMOVAL



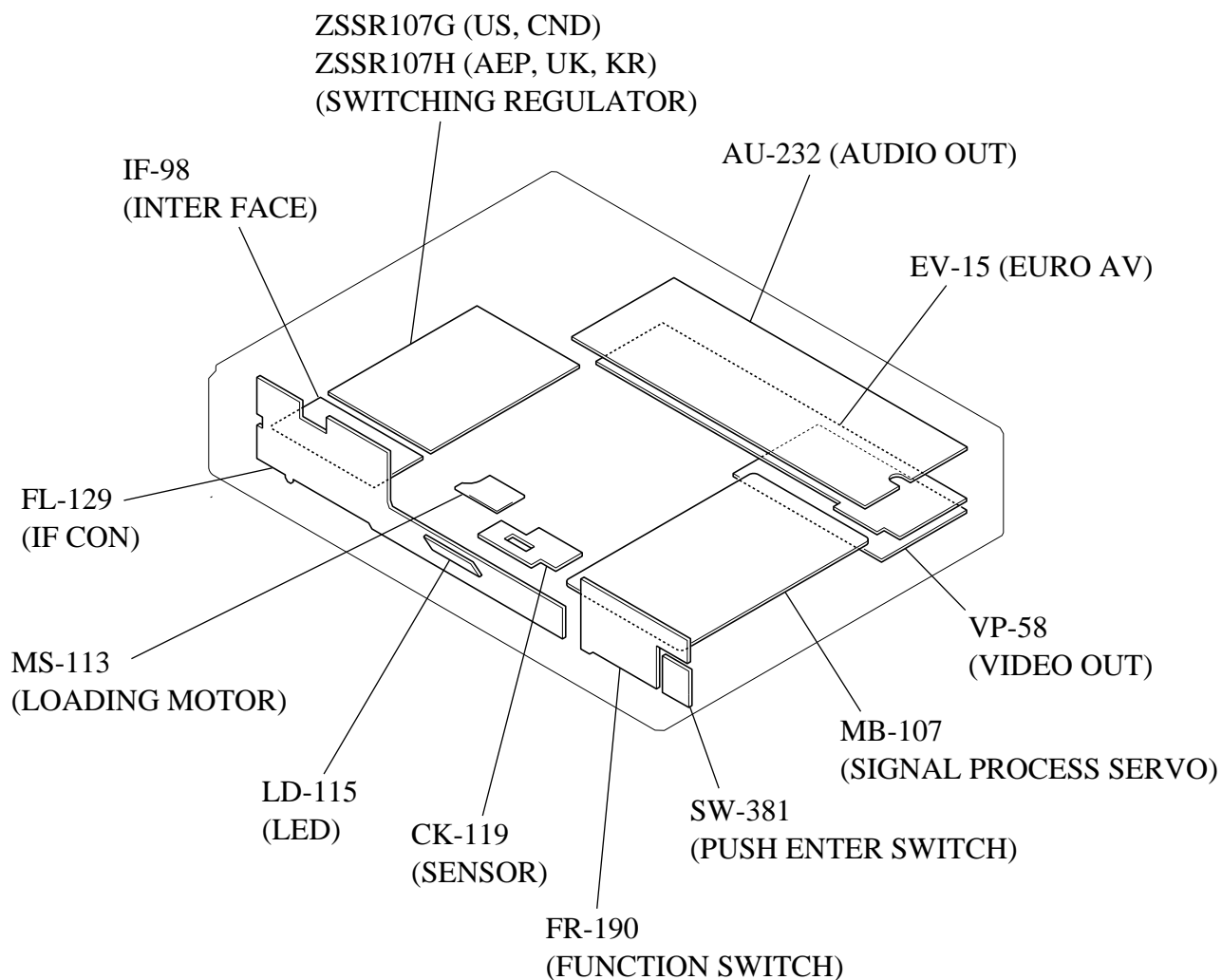
2-15. INTERNAL VIEW

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



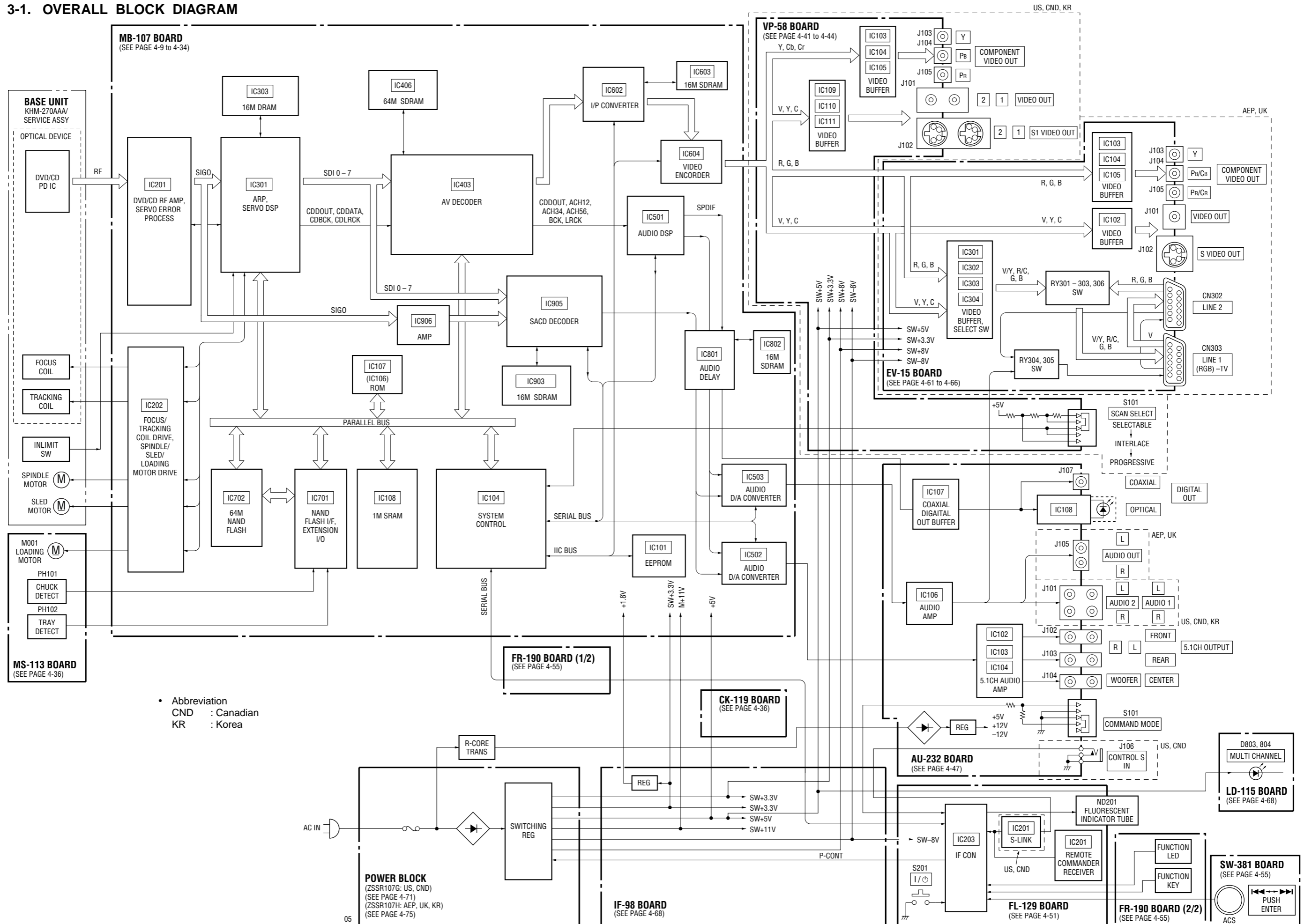
KHM-270AAA  
Service assembly  
A-6062-709-A

## 2-16. CIRCUIT BOARDS LOCATION

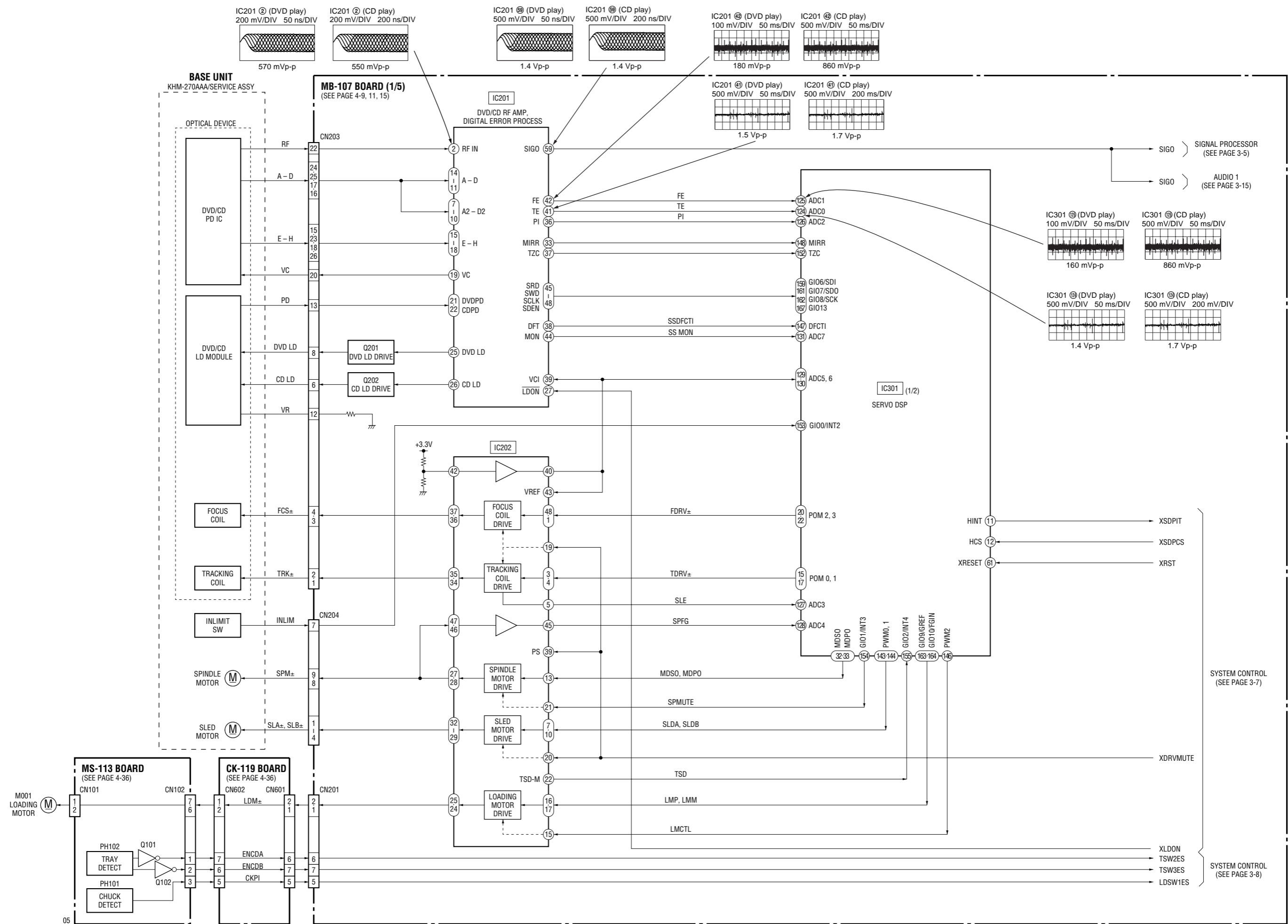


### SECTION 3 BLOCK DIAGRAMS

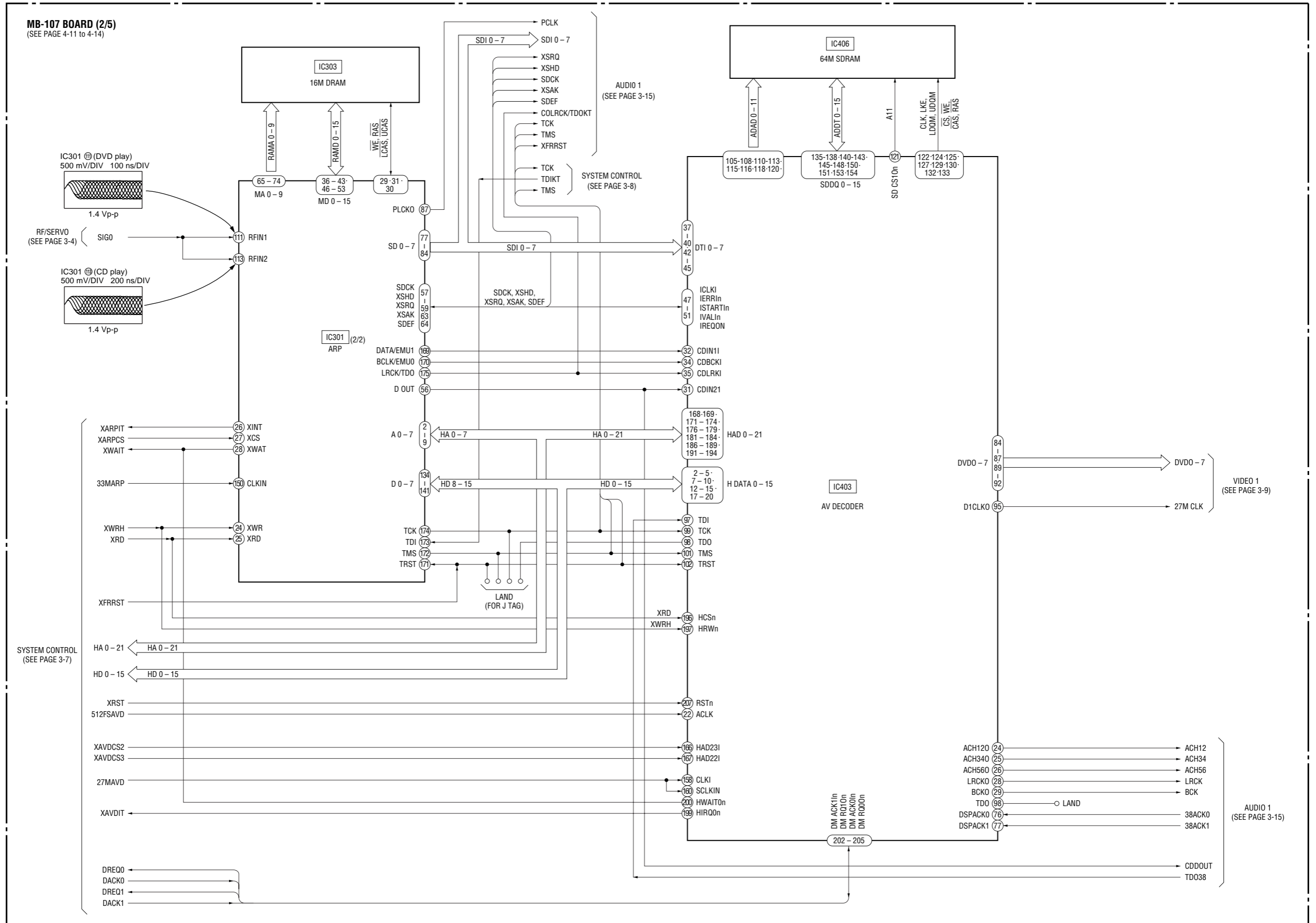
#### 3-1. OVERALL BLOCK DIAGRAM



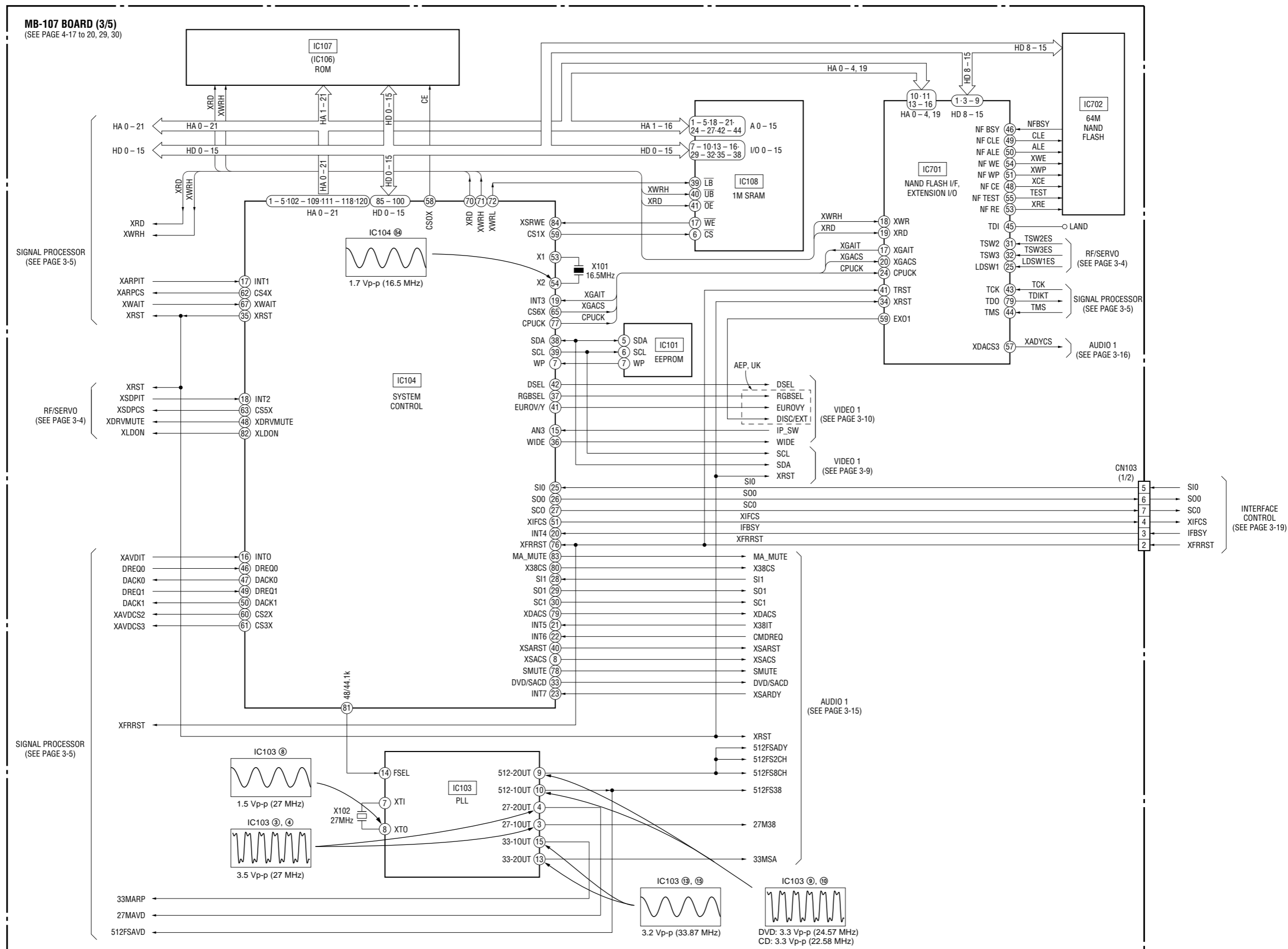
3-2. RF/SERVO BLOCK DIAGRAM



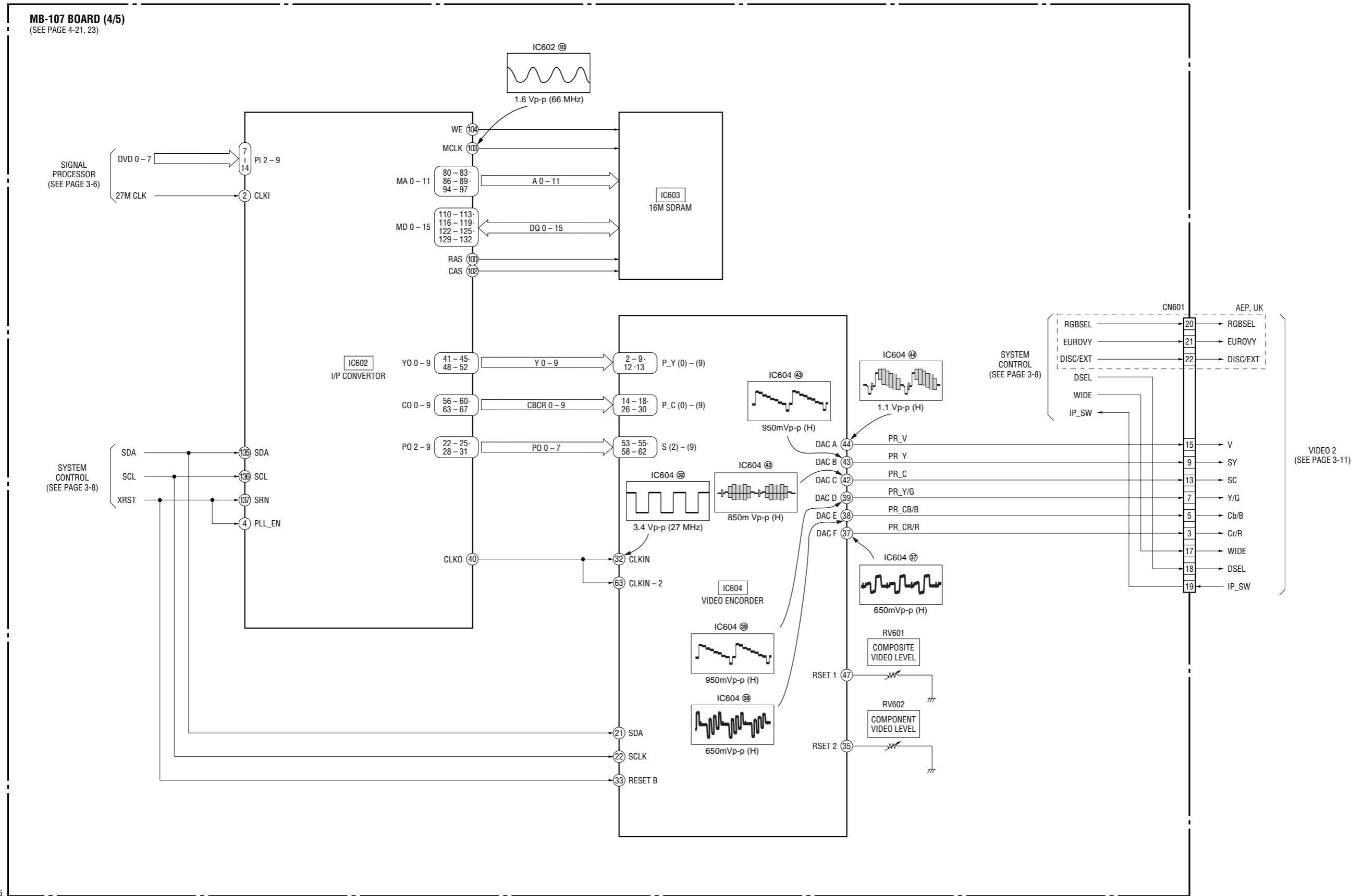
3-3. SIGNAL PROCESSOR BLOCK DIAGRAM



3-4. SYSTEM CONTROL BLOCK DIAGRAM

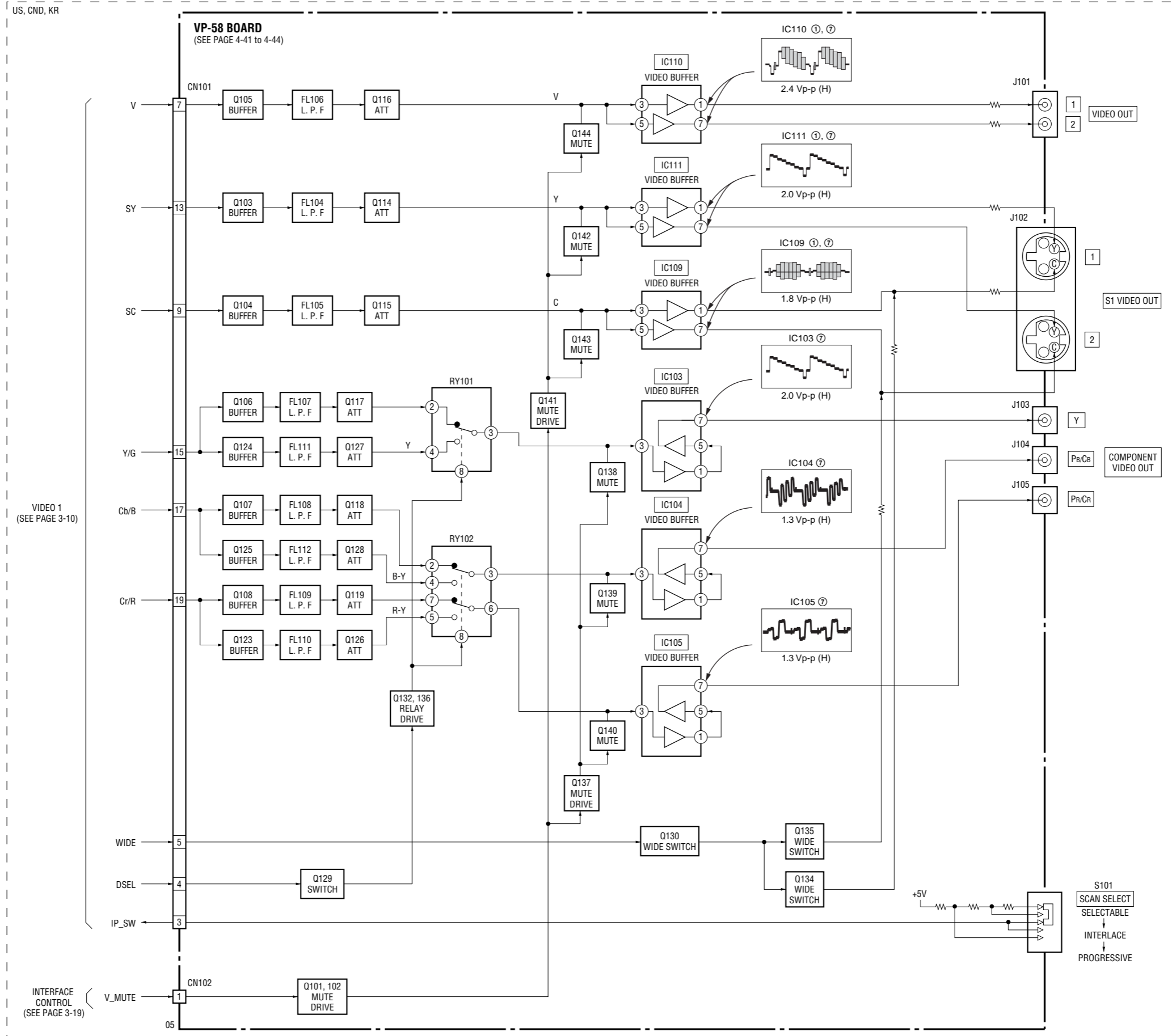


3-5. VIDEO (1) BLOCK DIAGRAM



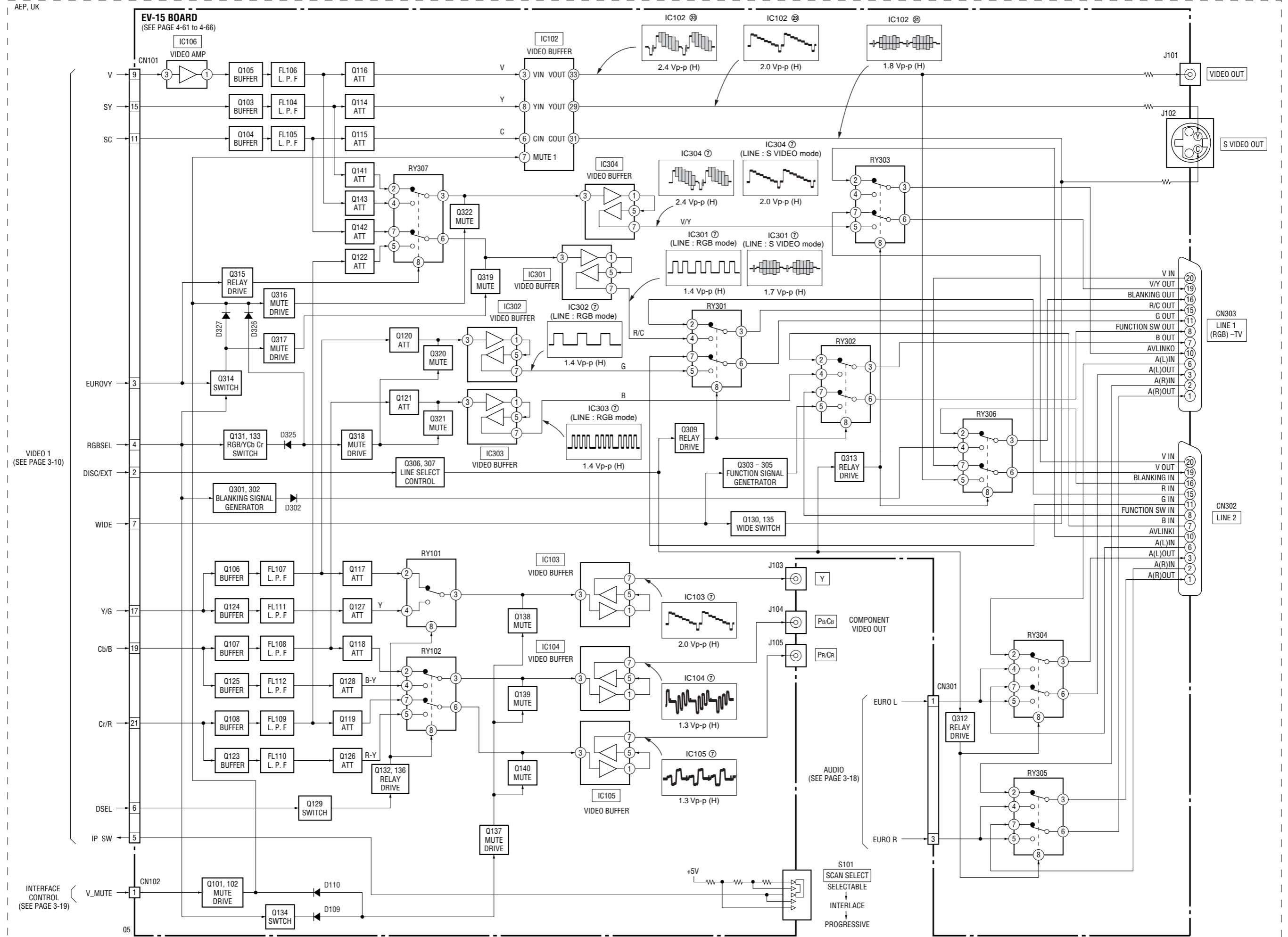
05

3-6. VIDEO (2) BLOCK DIAGRAM



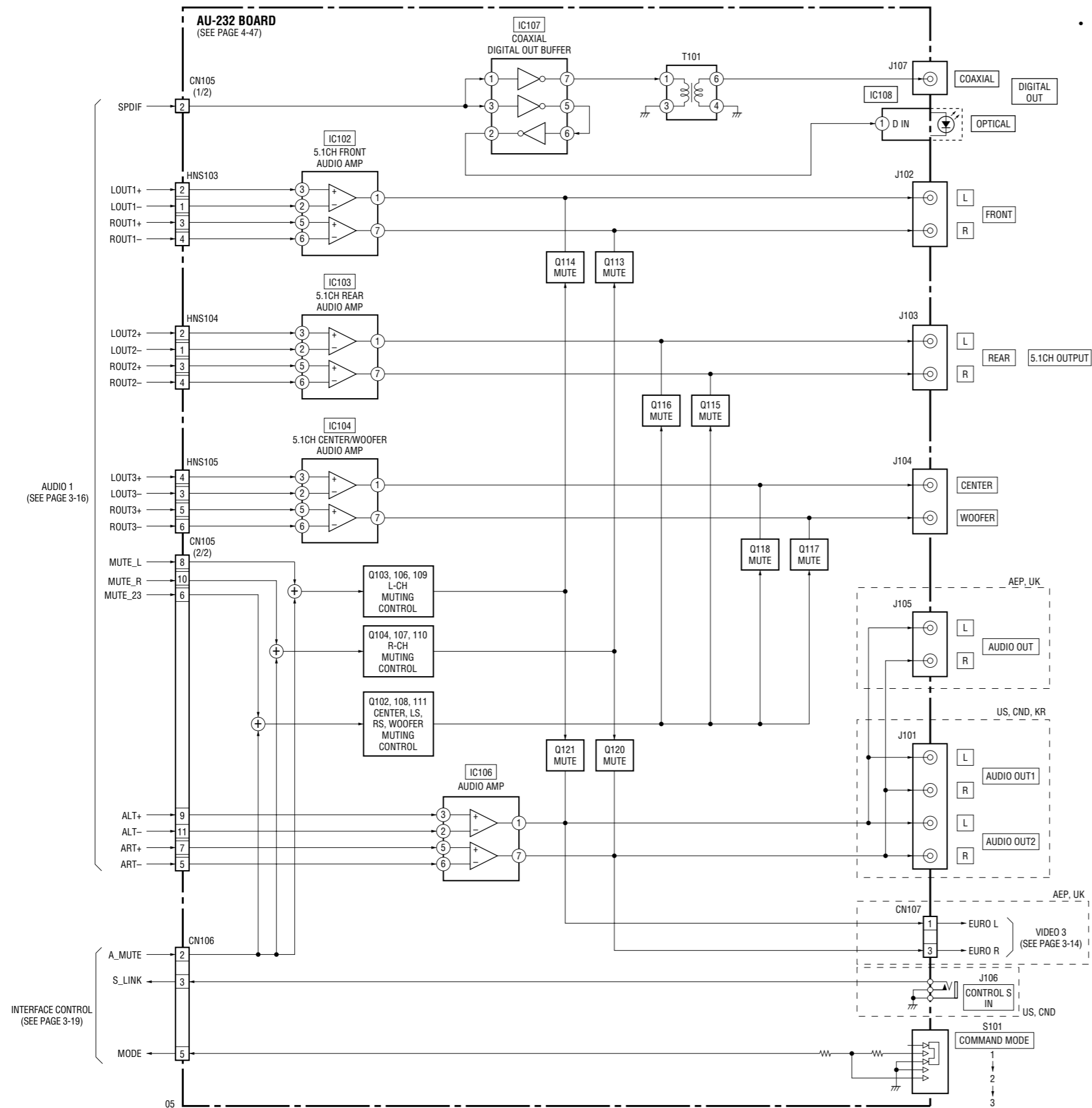
- Abbreviation
- CND : Canadian
- KR : Korea

3-7. VIDEO (3) BLOCK DIAGRAM

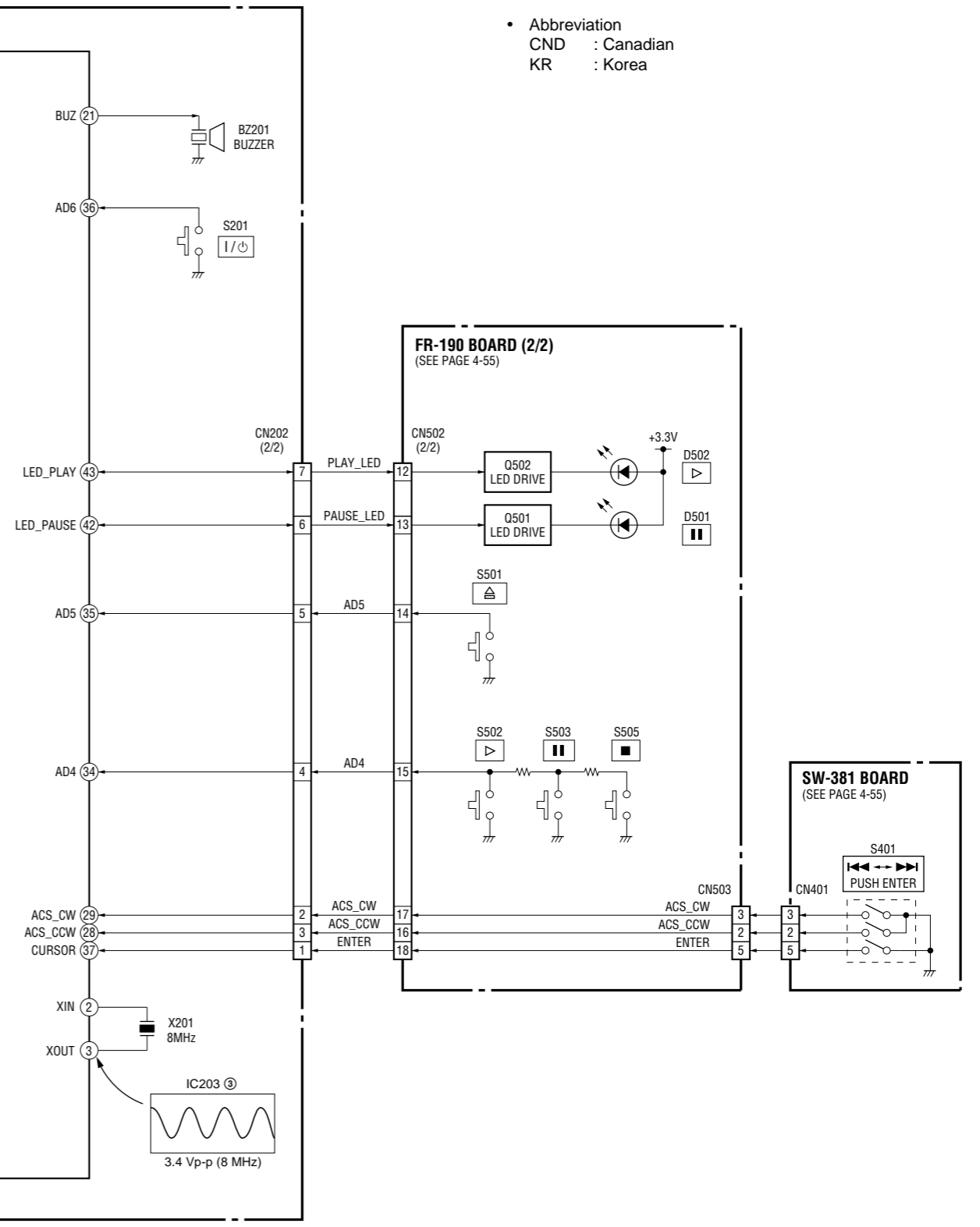
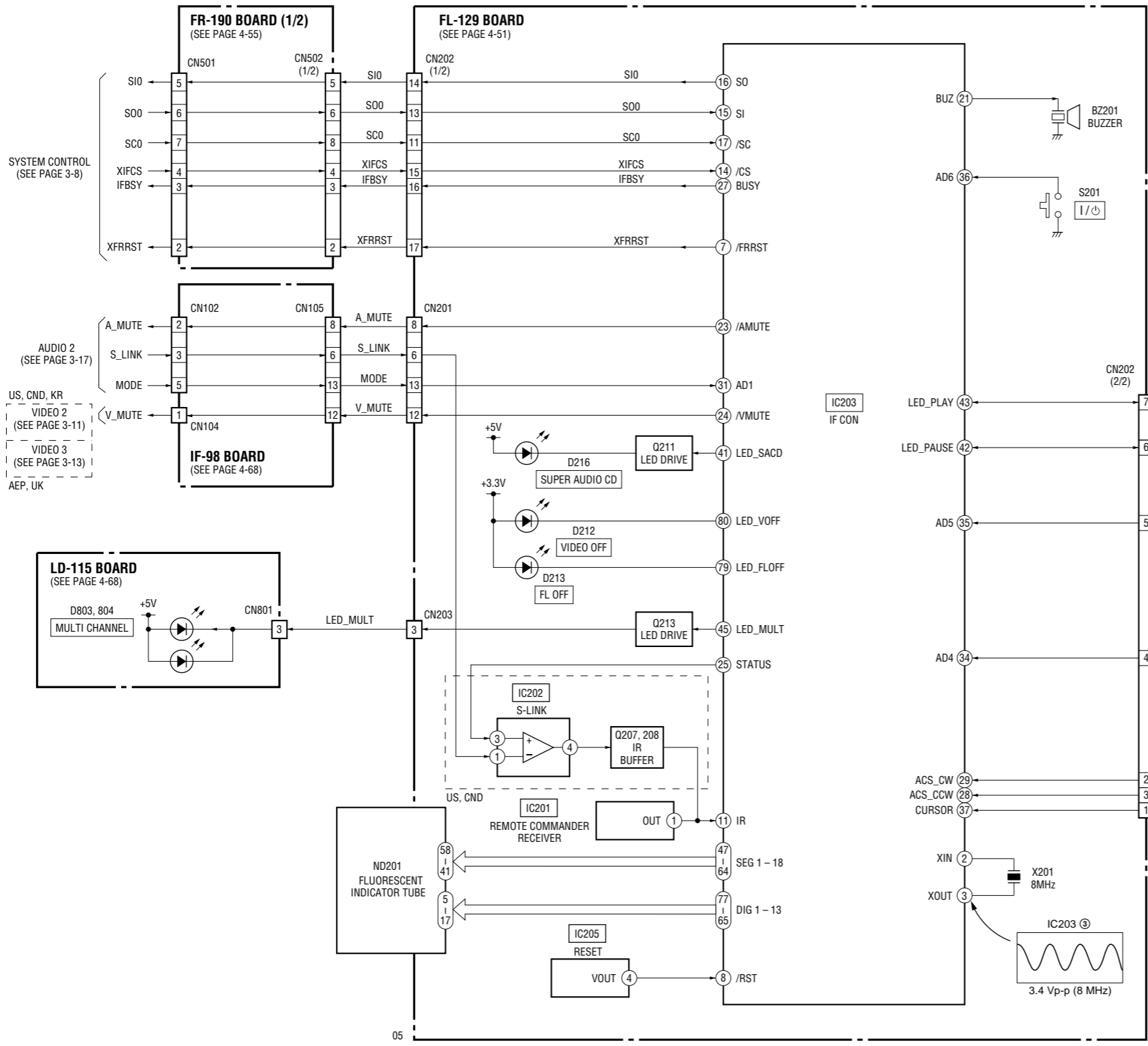




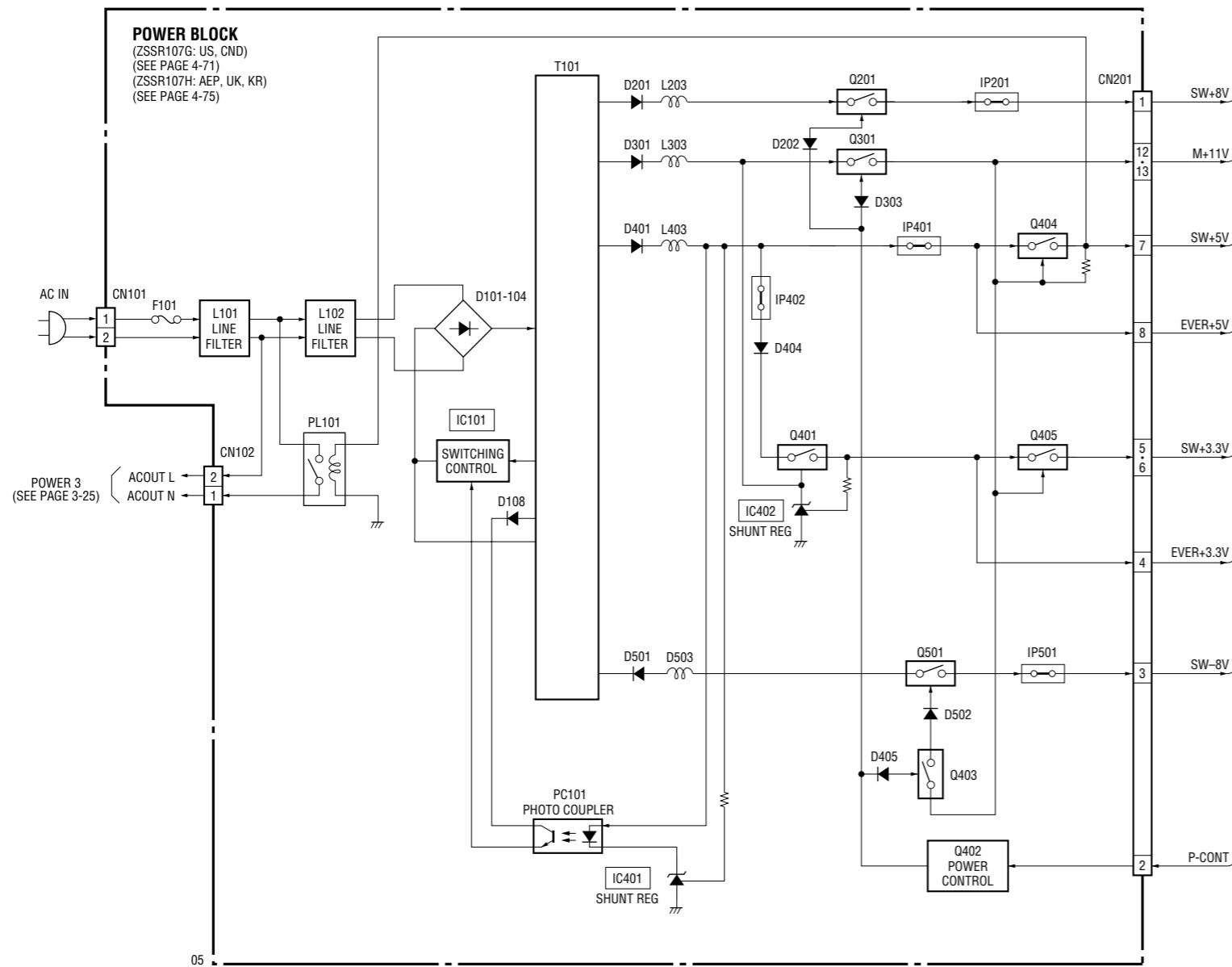
3-9. AUDIO (2) BLOCK DIAGRAM



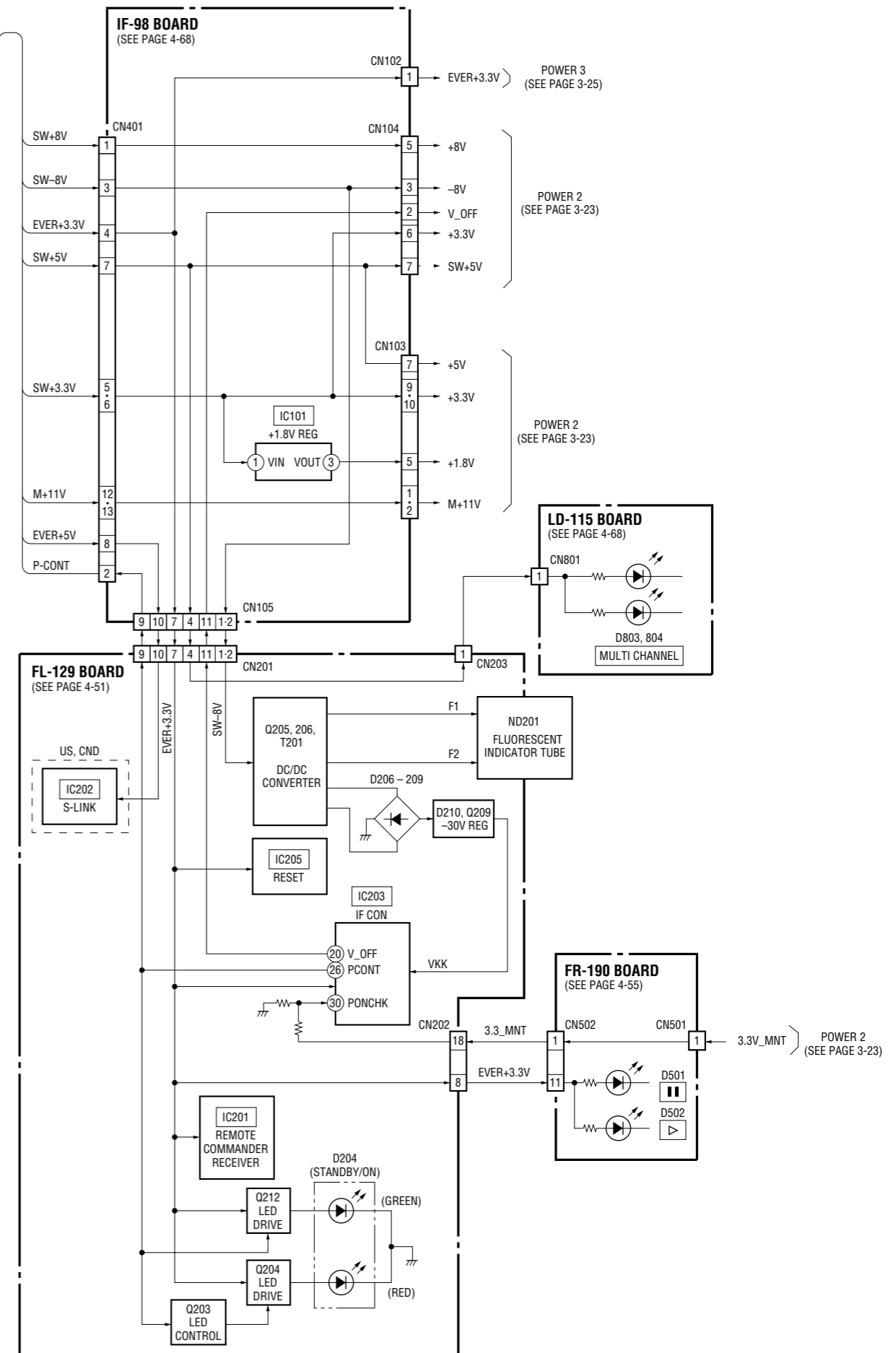
3-10. INTERFACE CONTROL BLOCK DIAGRAM



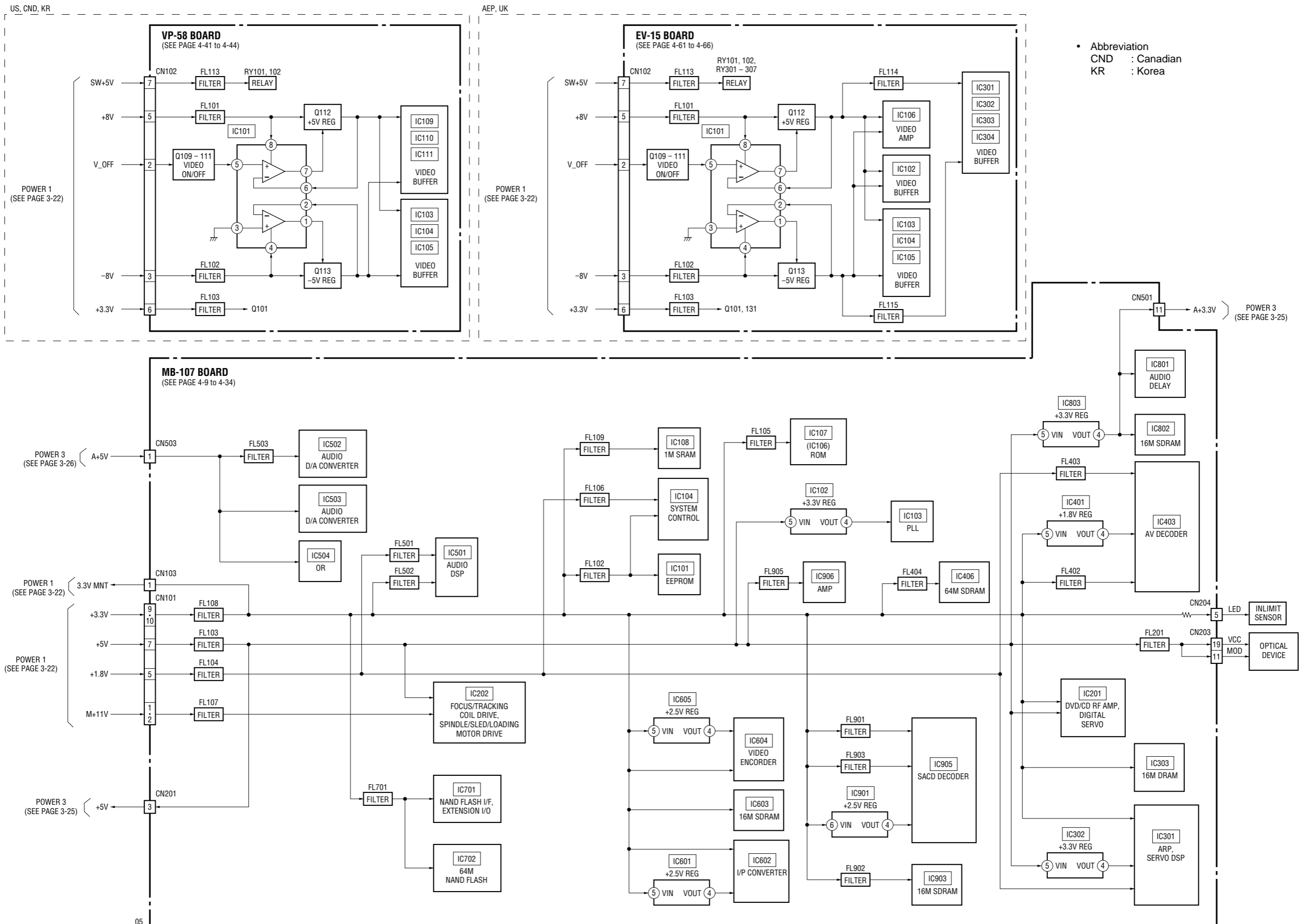
3-11. POWER (1) BLOCK DIAGRAM



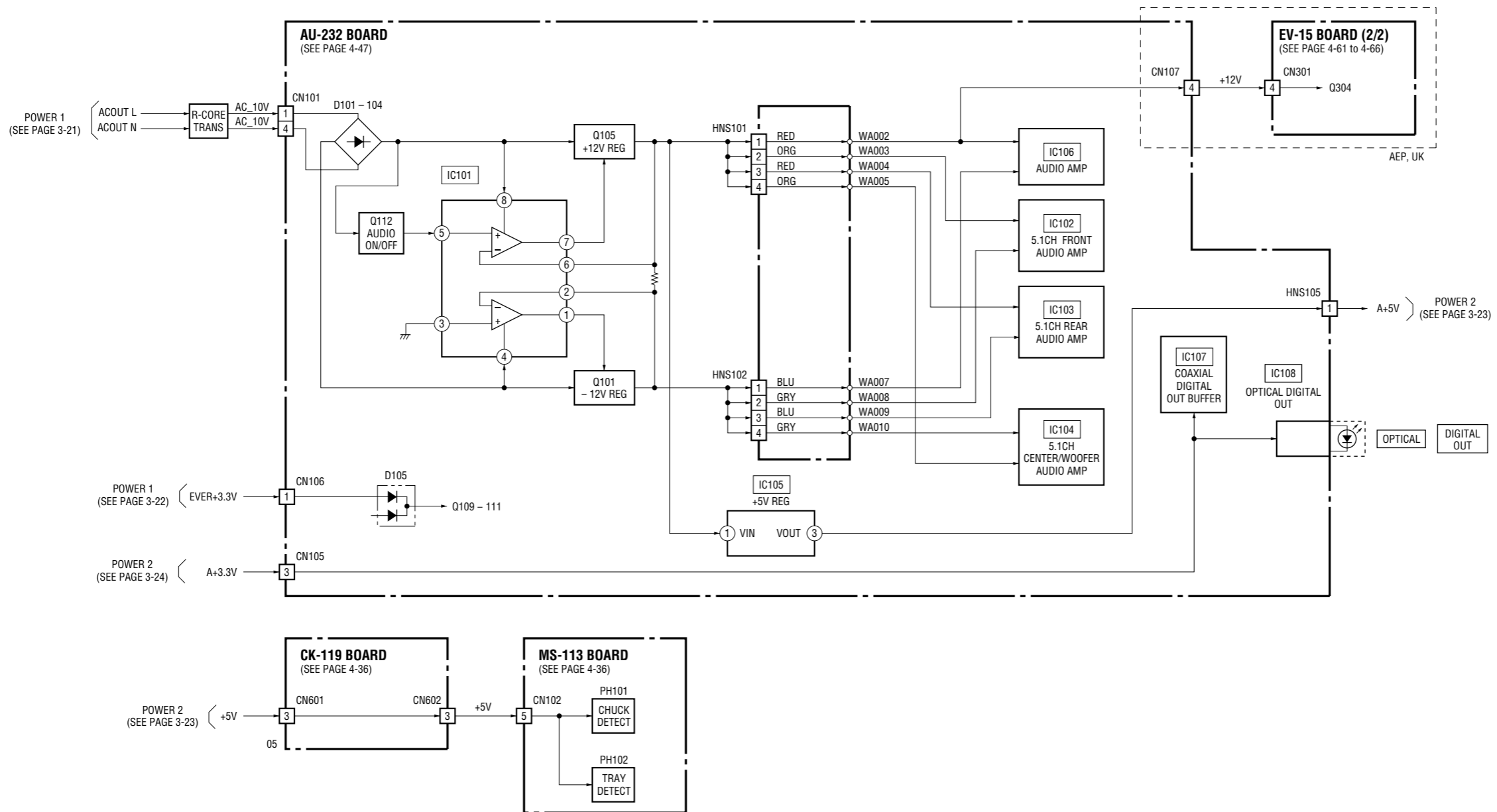
- Abbreviation
- CND : Canadian
- KR : Korea



3-12. POWER (2) BLOCK DIAGRAM



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,  $\frac{1}{4}W$  (Chip resistors :  $\frac{1}{10}W$ ) unless otherwise specified.  
k $\Omega$  : 1000 $\Omega$ , M $\Omega$  : 1000k $\Omega$ .
- All capacitors are in  $\mu F$  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+ Line.
-  : 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 10M $\Omega$ ).
- Voltage variations may be noted due to normal production tolerances.

##### Note:

The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

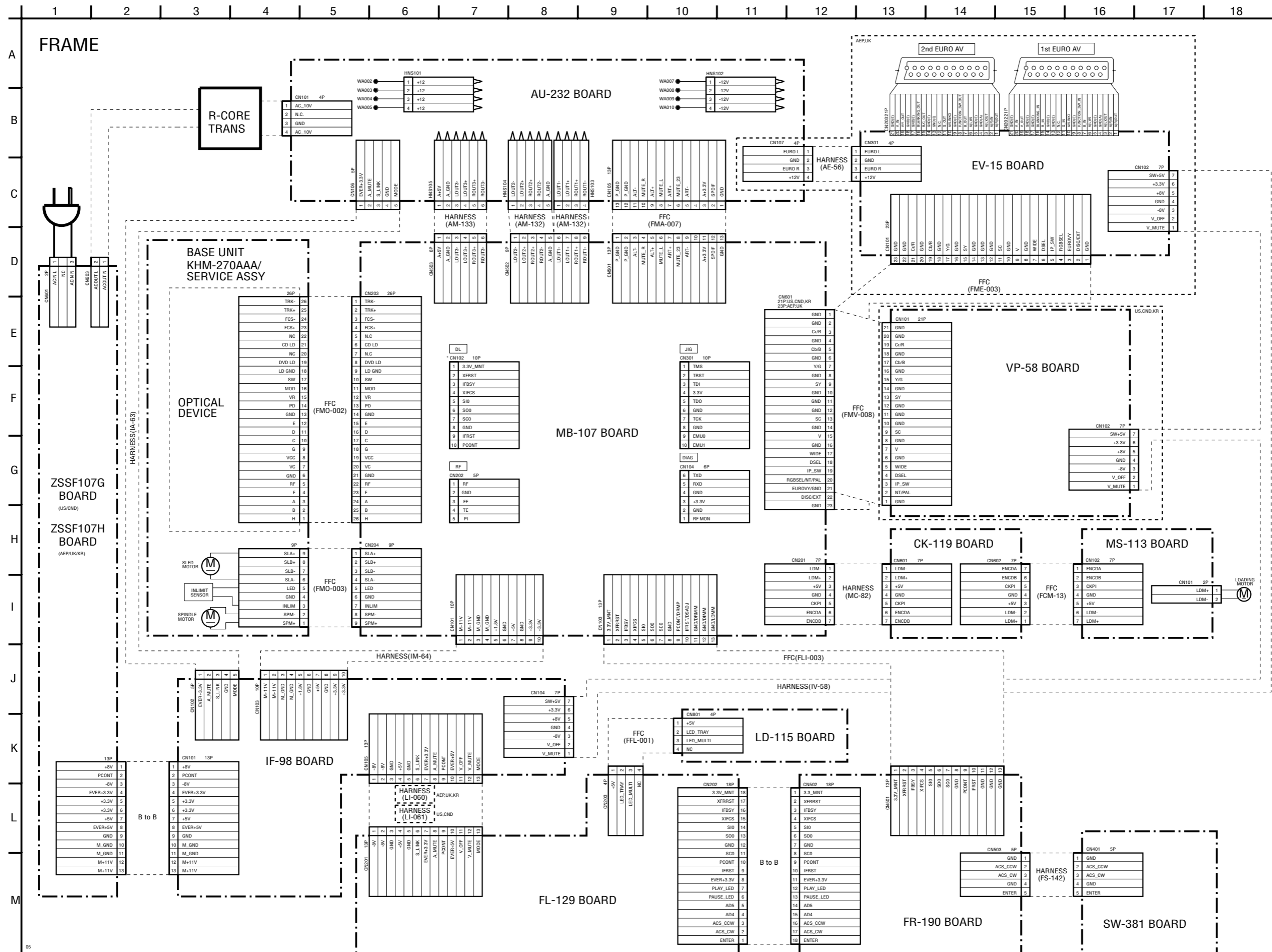
##### Note:

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



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MB-107 (SIGNAL PROCESS, SERVO) PRINTED WIRING BOARD

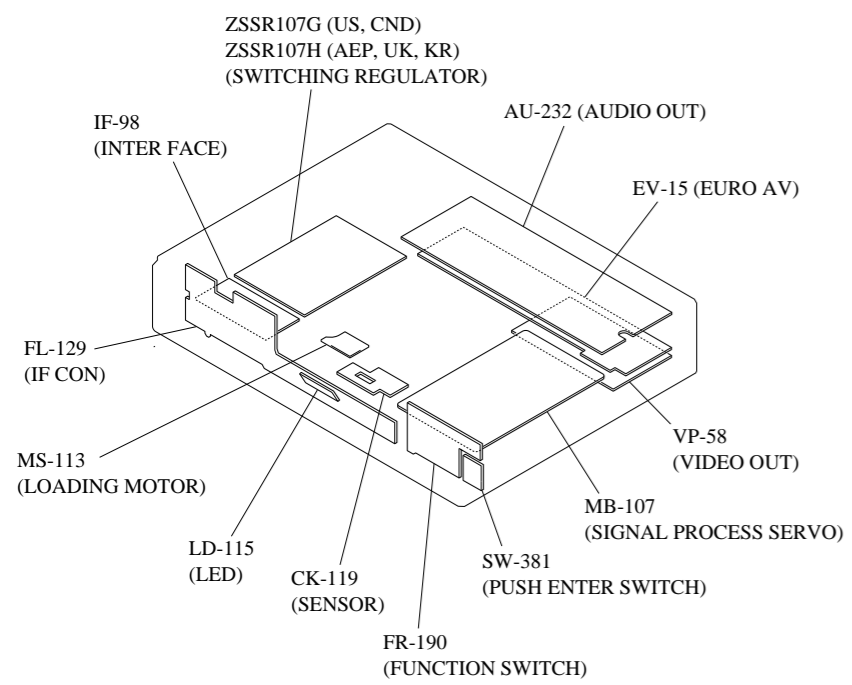
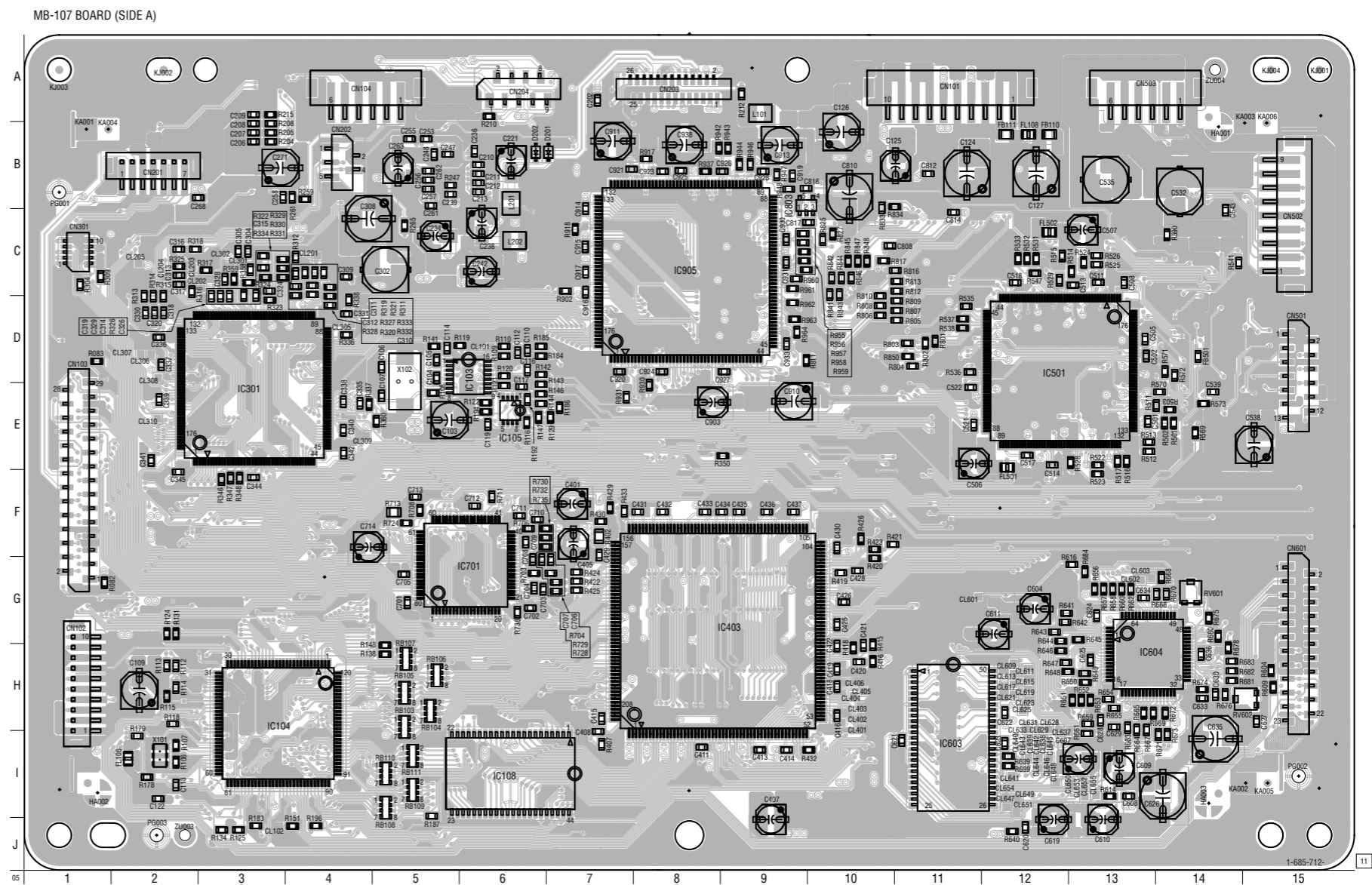
– Ref. No.: MB-107 board; 3,000 series –

: Uses unleaded solder.

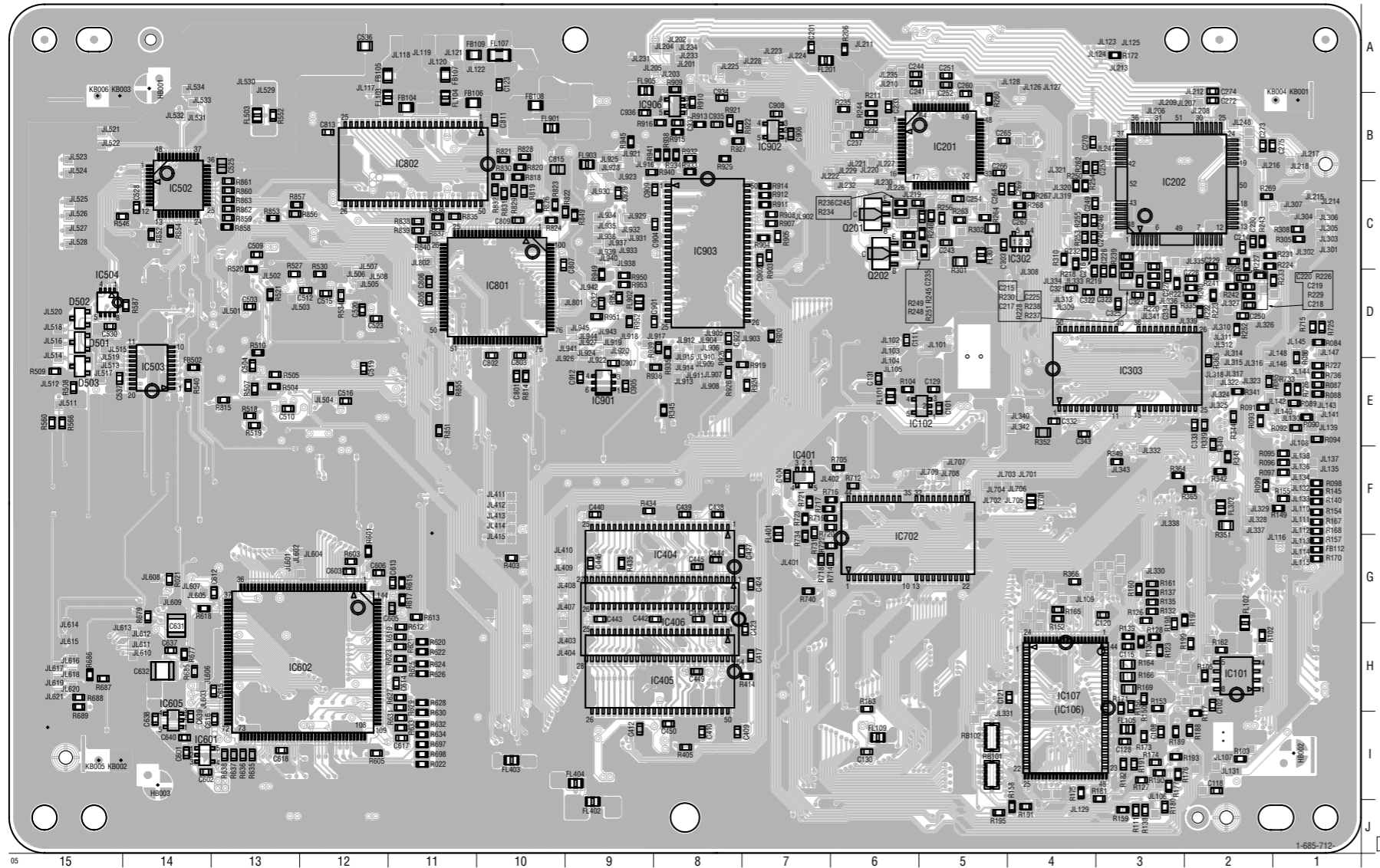
There are a few cases that the part isn't mounted in this model is printed on this diagram.

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 B)



MB-107 BOARD (B SIDE)

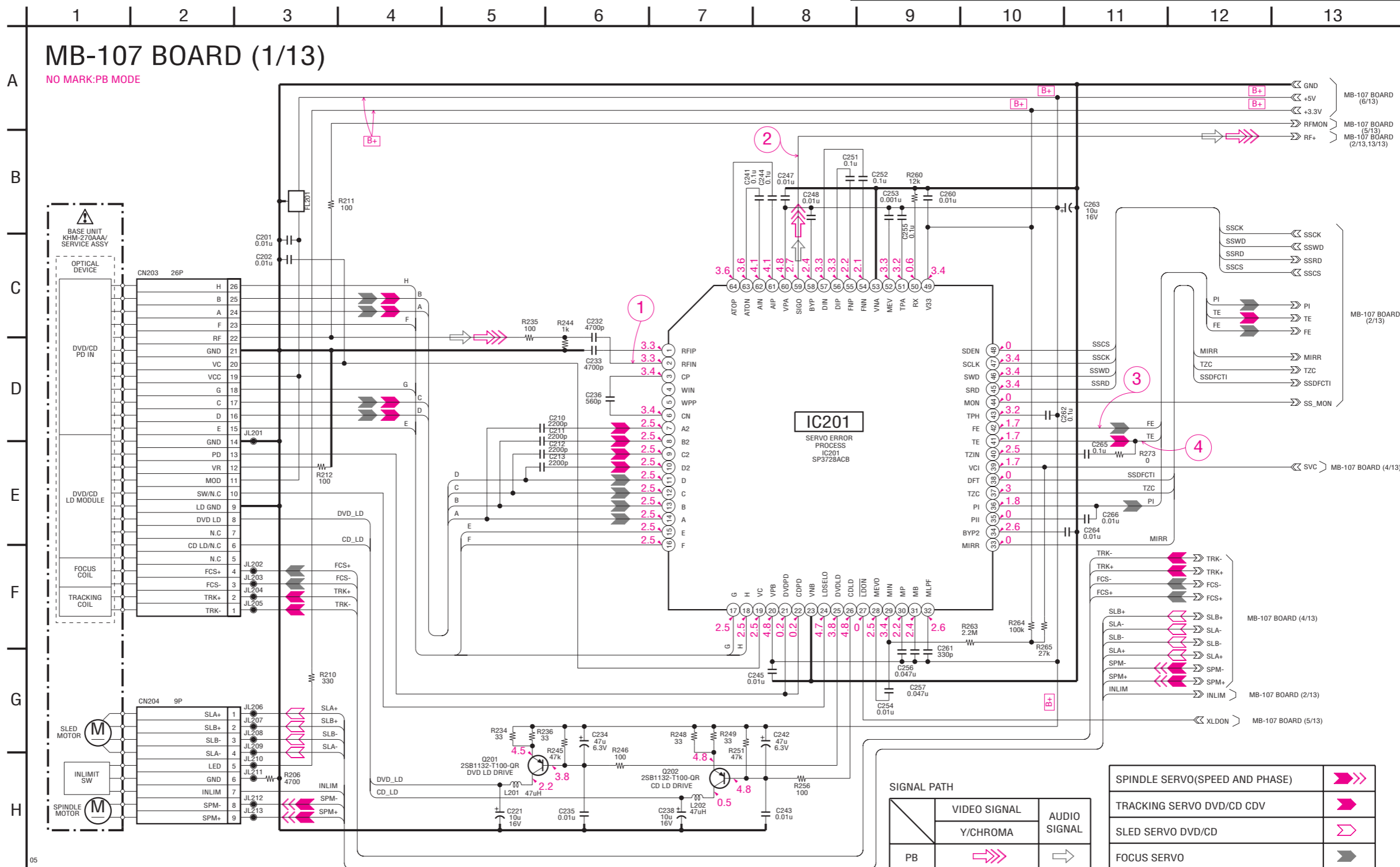
D501	D-15
D502	D-15
D503	D-15
IC101	H-2
IC102	E-6
IC107	H-4
IC201	B-5
IC202	B-3
IC303	C-4
IC401	E-3
IC404	F-7
IC404	G-8
IC405	H-8
IC406	H-8
IC502	C-14
IC503	E-14
IC504	C-15
IC601	I-14
IC602	H-12
IC605	H-14
IC702	F-6
IC801	D-10
IC802	B-12
IC901	E-9
IC903	C-8
IC906	B-8
Q201	C-6
Q202	D-6

**MB-107 (RF AMP, SERVO) SCHEMATIC DIAGRAM** • See page 4-5 for printed wiring board.

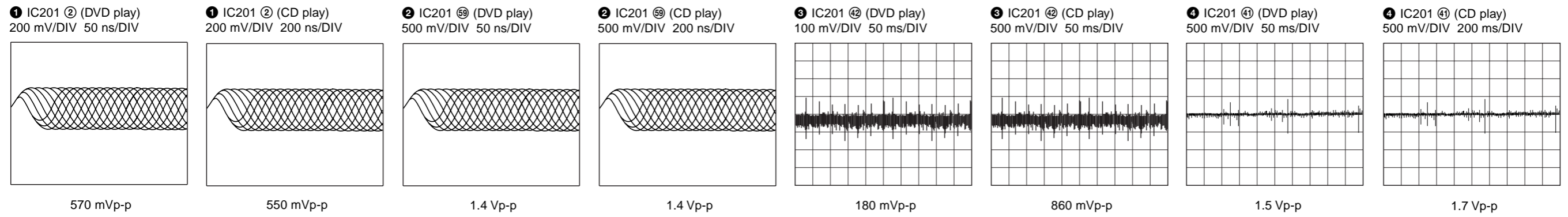
– Ref. No.: MB-107 board; 3,000 series –

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

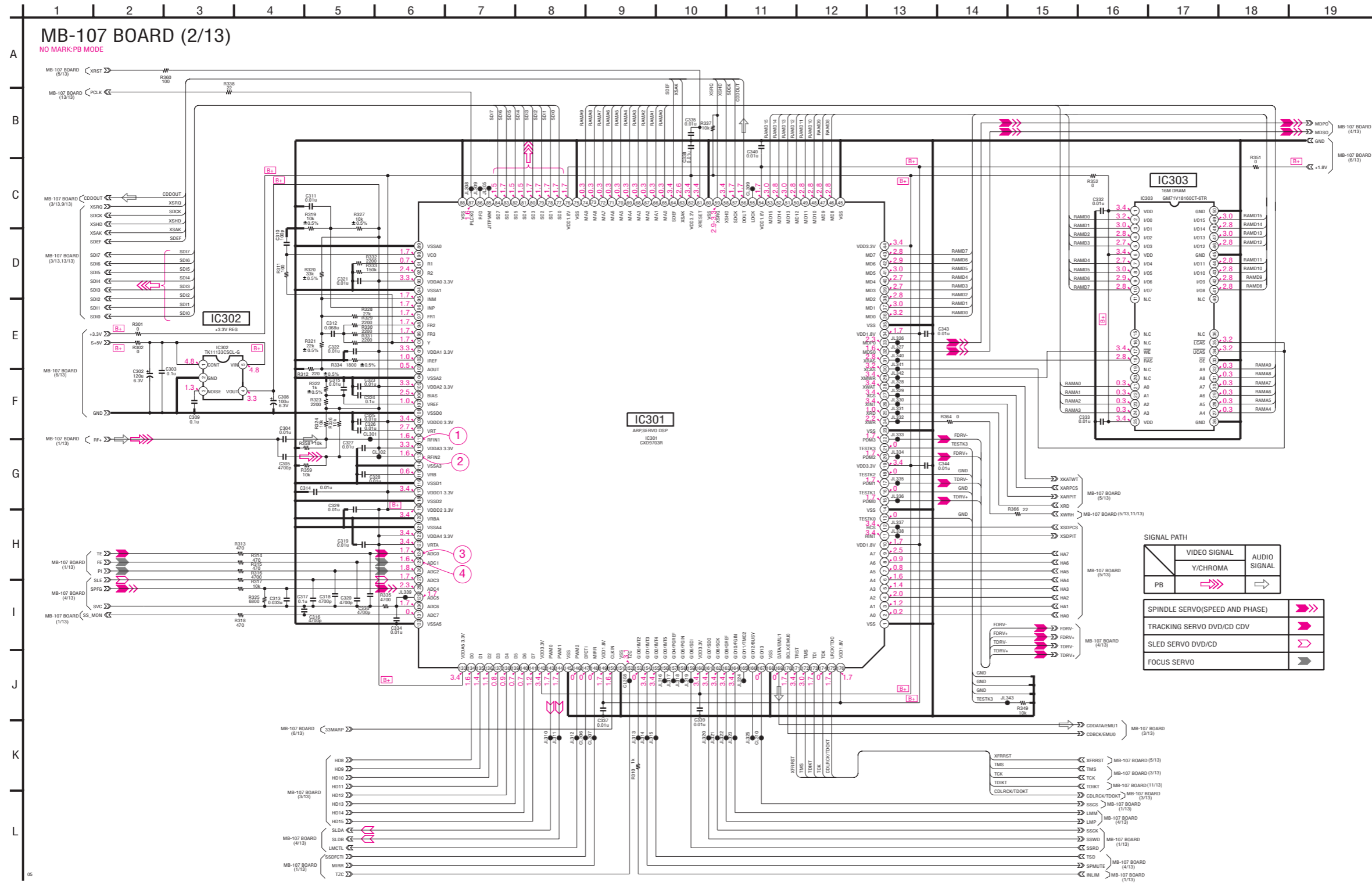


• Waveforms



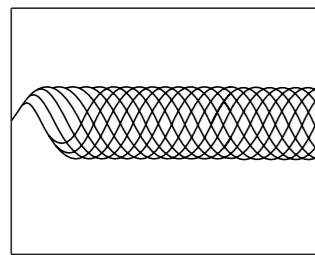
**MB-107 (ARP, SERVO DSP) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.**

– Ref. No.: MB-107 board; 3,000 series –



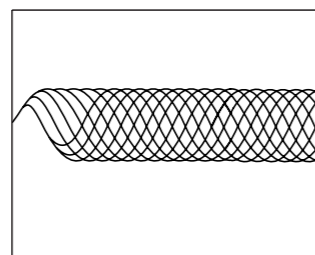
**• Waveforms**

① IC301 (11) (DVD play)  
500 mV/DIV 100 ns/DIV



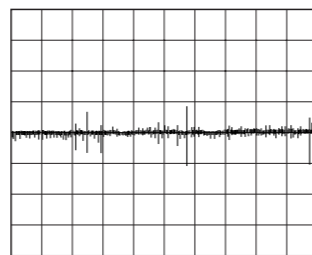
1.4 Vp-p

② IC301 (11) (CD play)  
500 mV/DIV 200 ns/DIV



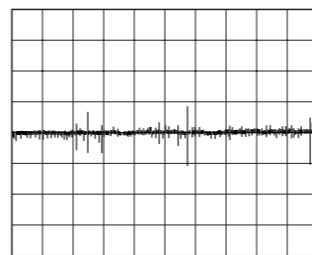
1.4 Vp-p

③ IC301 (12) (DVD play)  
500 mV/DIV 50 ms/DIV



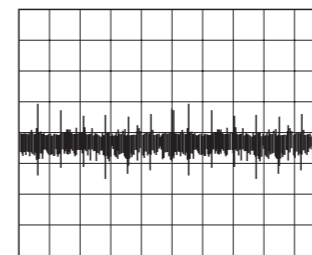
1.4 Vp-p

③ IC301 (12) (CD play)  
500 mV/DIV 200 ms/DIV



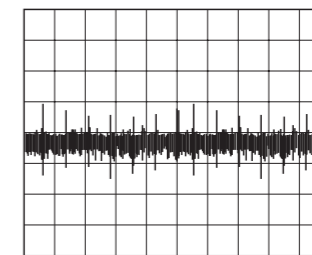
1.7 Vp-p

④ IC301 (15) (DVD play)  
100 mV/DIV 50 ms/DIV



160 mVp-p

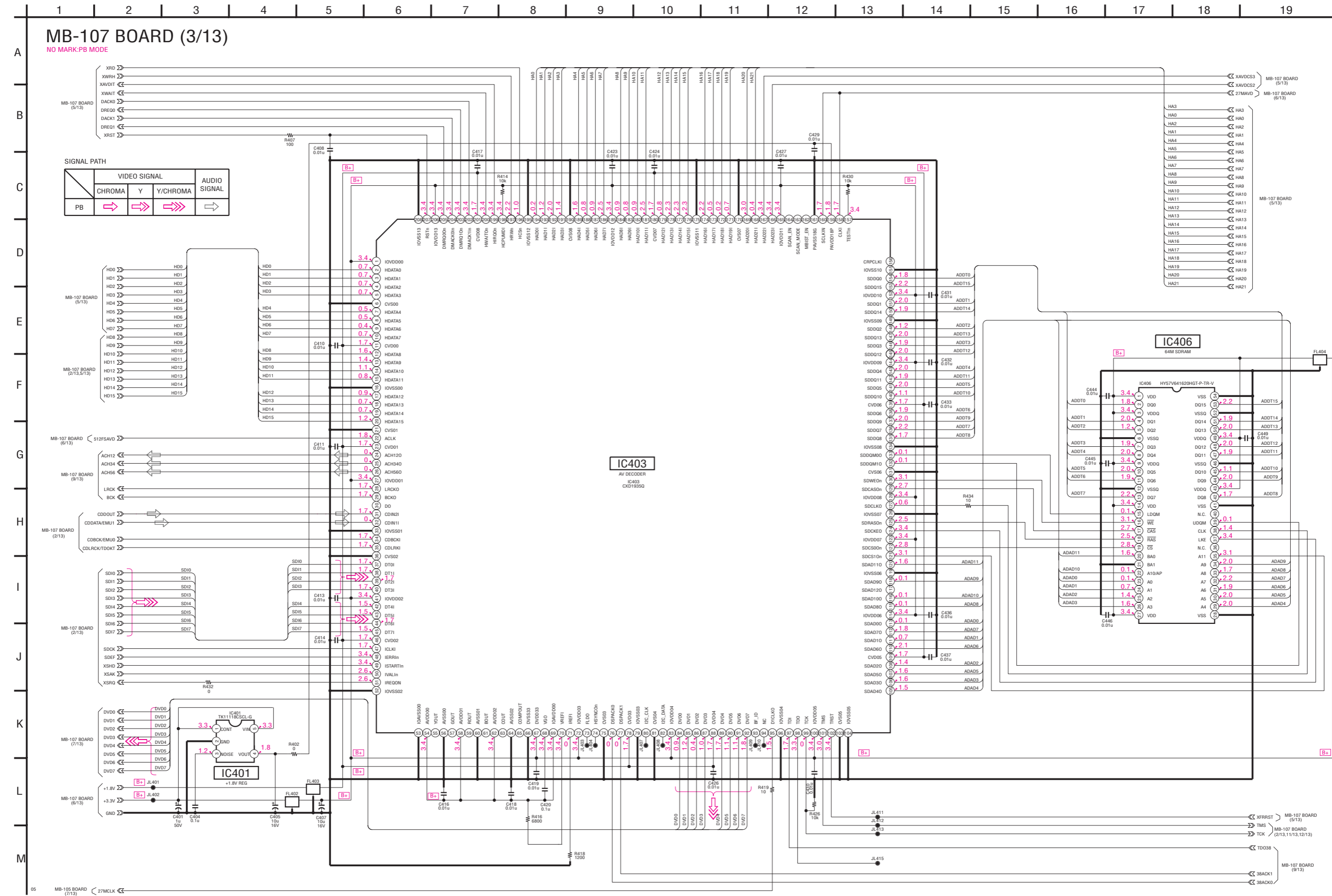
④ IC301 (15) (CD play)  
500 mV/DIV 50 ms/DIV



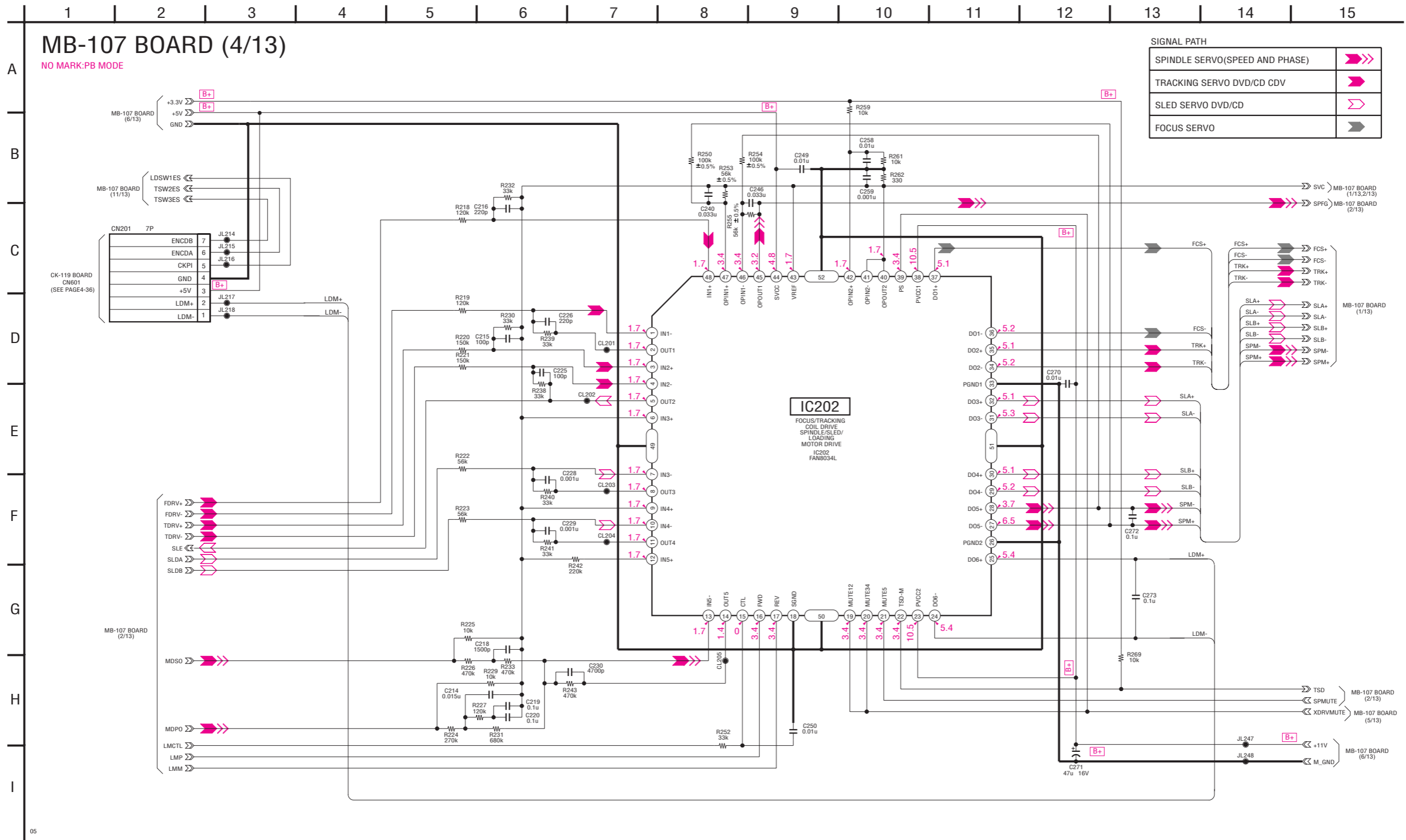
860 mVp-p

MB-107 (AV DECODER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

- Ref. No.: MB-107 board; 3,000 series -

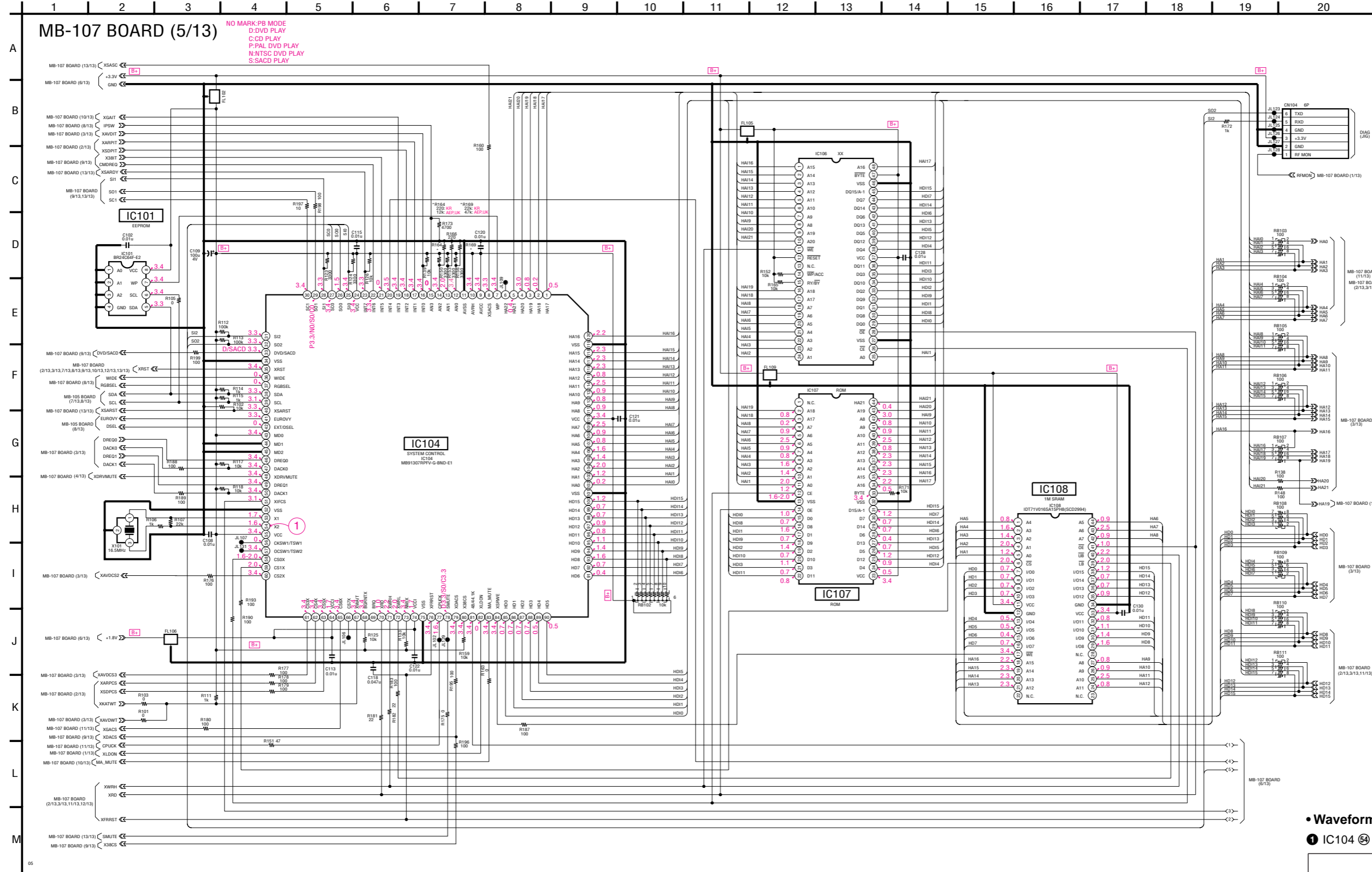


**MB-107 (MOTOR DRIVE) SCHEMATIC DIAGRAM** • See page 4-5 for printed wiring board.  
 – Ref. No.: MB-107 board; 3,000 series –



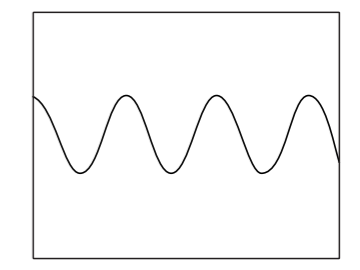
MB-107 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



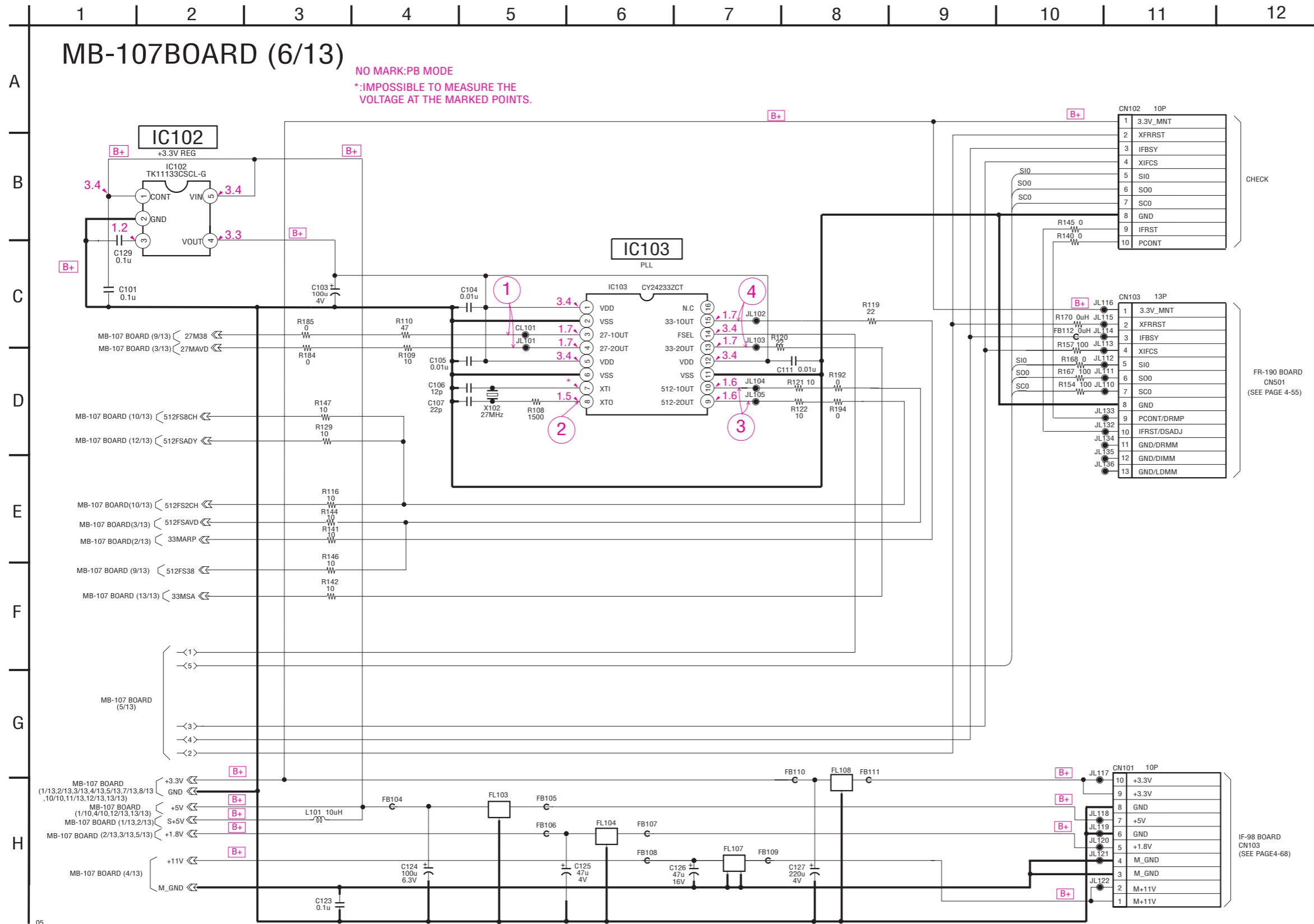
• Waveform

① IC104 ⑤4



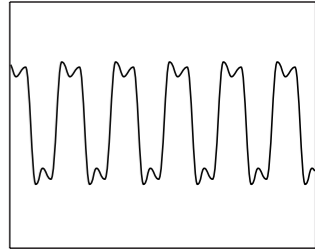
1.7 Vp-p (16.5 MHz)

**MB-107 (CLOCK GENERATOR) SCHEMATIC DIAGRAM** • See page 4-5 for printed wiring board.  
 – Ref. No.: MB-107 board; 3,000 series –



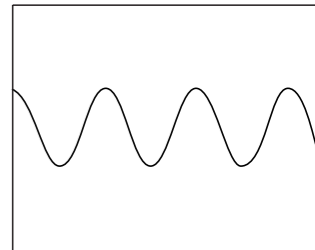
• Waveforms

① IC103 ③, ④



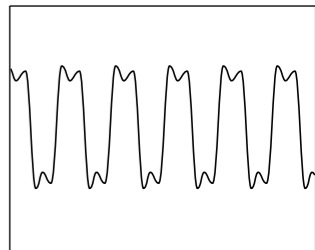
3.5 Vp-p (27 MHz)

② IC103 ⑧



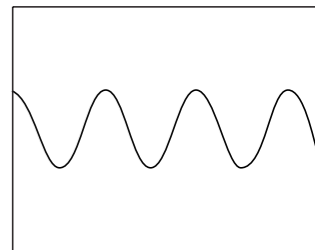
1.5 Vp-p (27 MHz)

③ IC103 ⑨, ⑩



DVD : 3.3 Vp-p (24.57 MHz)  
 CD : 3.3 Vp-p (22.58 MHz)

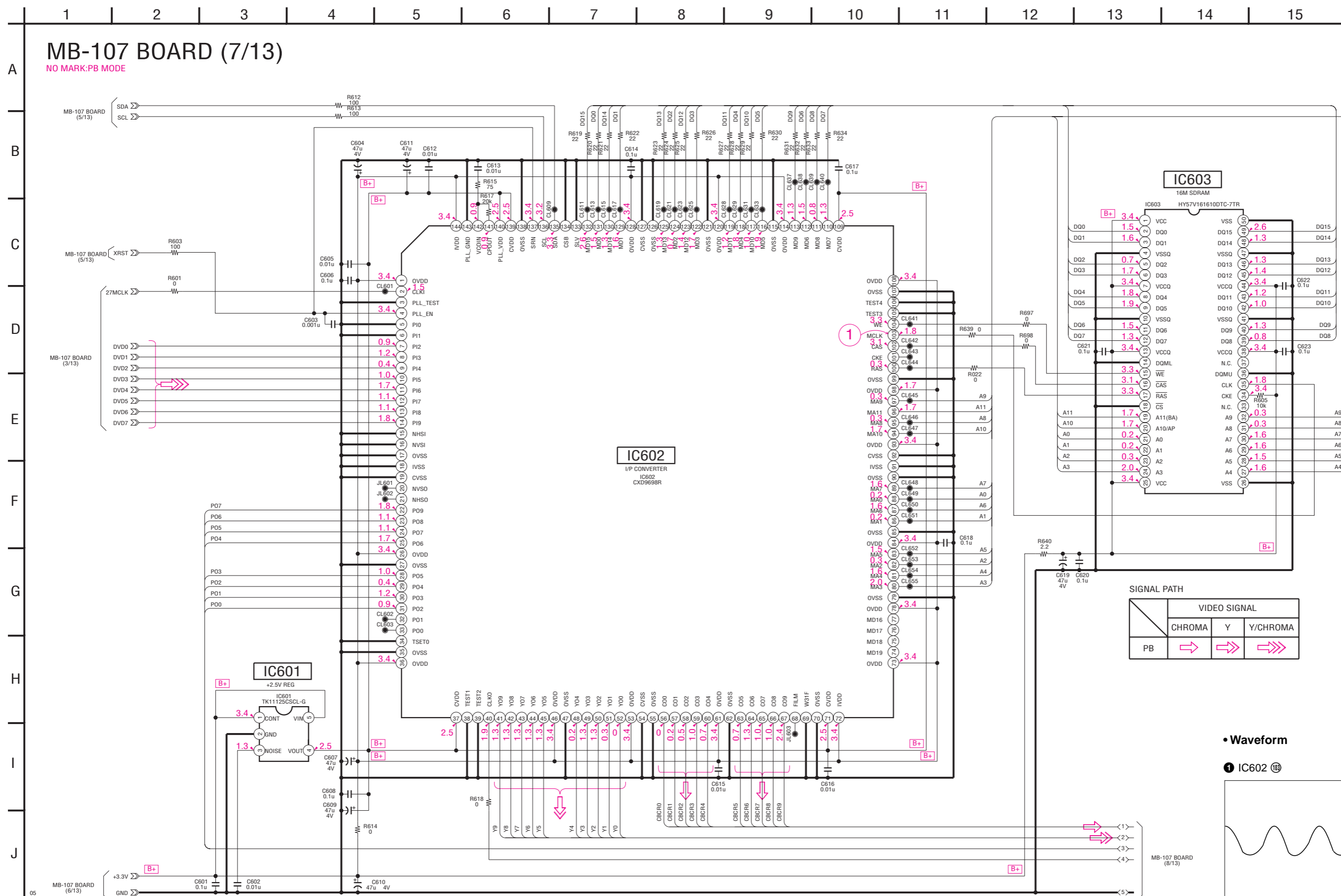
④ IC103 ⑬, ⑮



3.2 Vp-p (33.87 MHz)

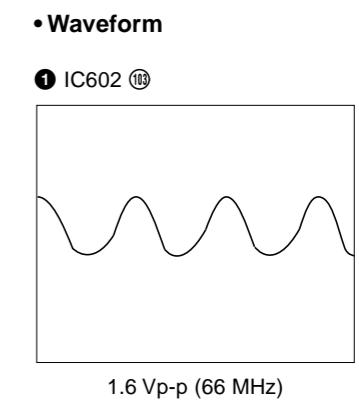
**MB-107 (I/P CONVERTER) SCHEMATIC DIAGRAM** • See page 4-5 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –

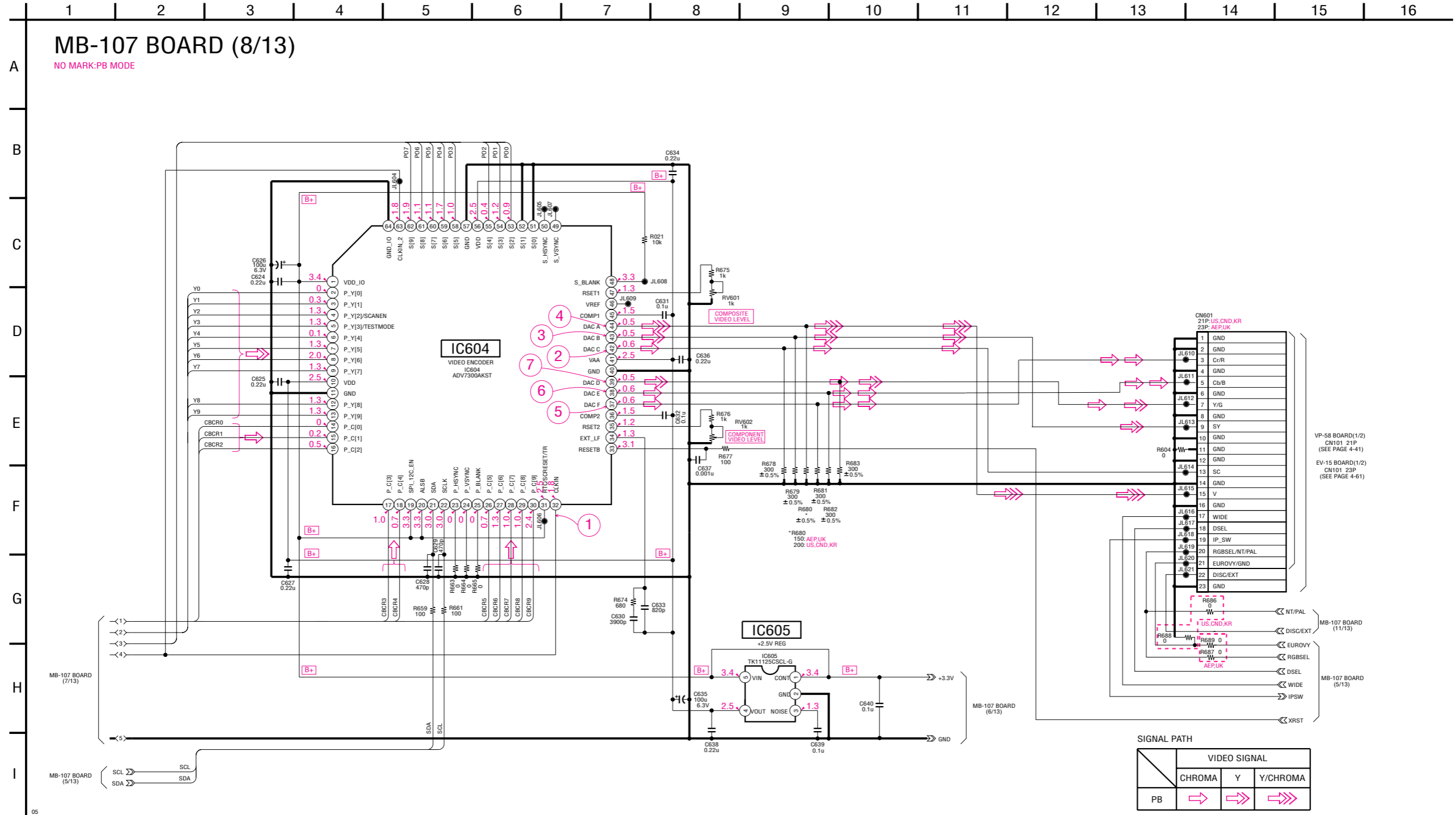


**SIGNAL PATH**

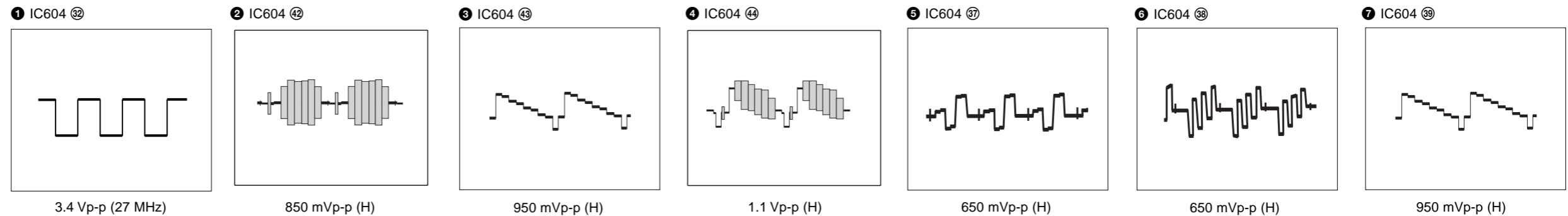
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
PB	→	⇒	⇒⇒



**MB-107 (VIDEO ENCODER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.**  
 – Ref. No.: MB-107 board; 3,000 series –

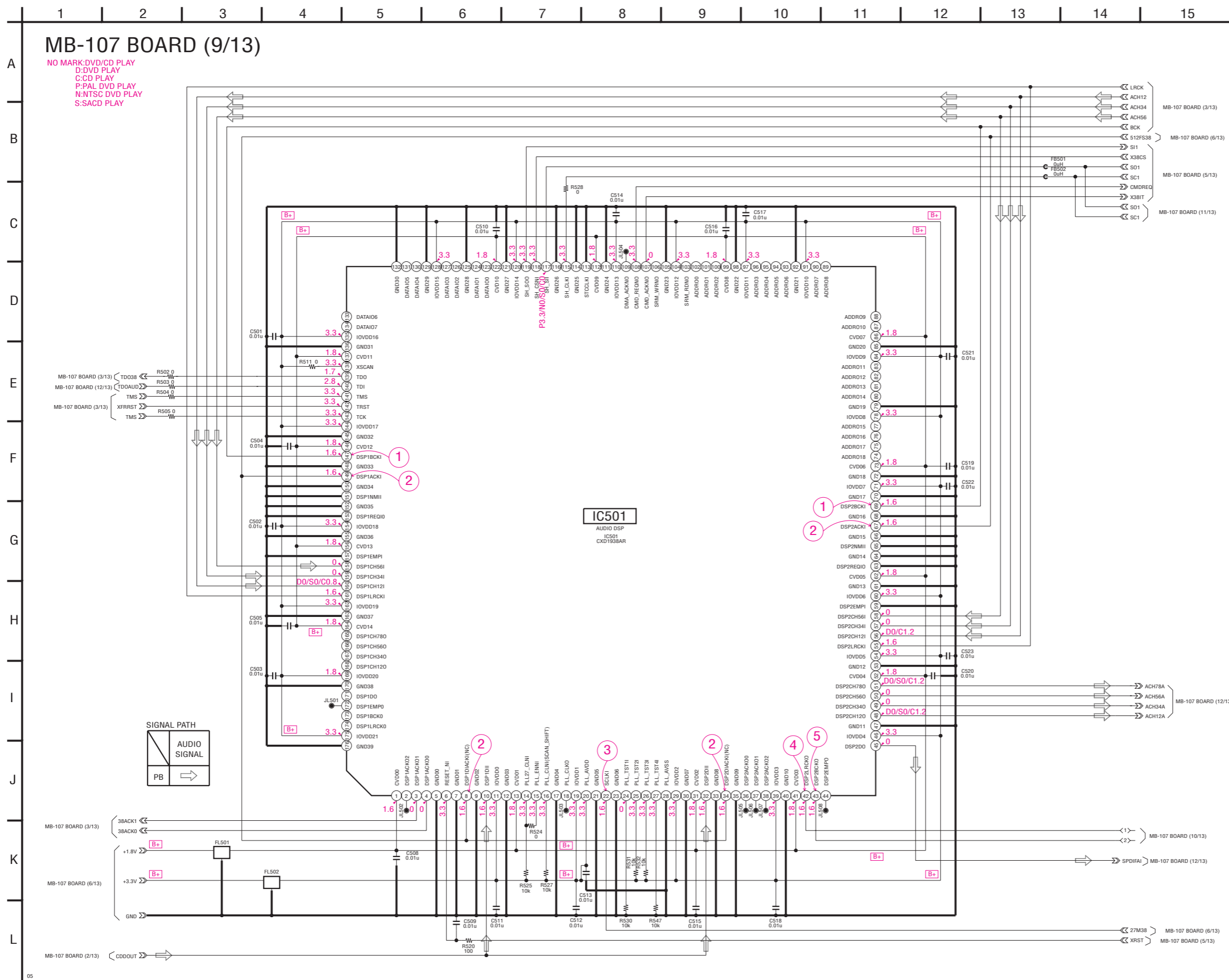


• Waveforms



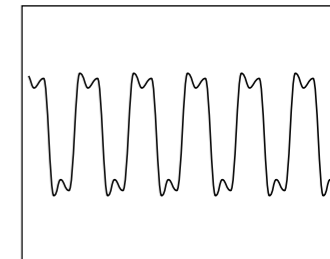
MB-107 (AUDIO DSP) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



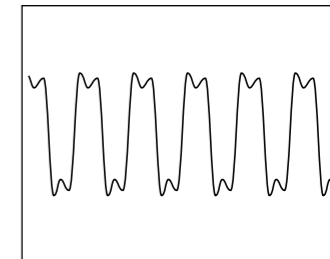
• Waveforms

1 IC501 ⑥, ⑩



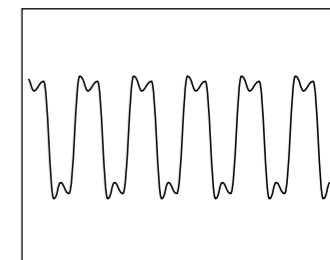
4.1 Vp-p (3.1 MHz)

2 IC501 ⑧, ③④, ⑥⑦, ⑩⑪



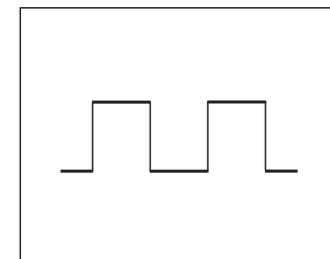
DVD: 3.3 Vp-p (24.57 MHz)  
CD: 3.3 Vp-p (22.58 MHz)

3 IC501 ⑫



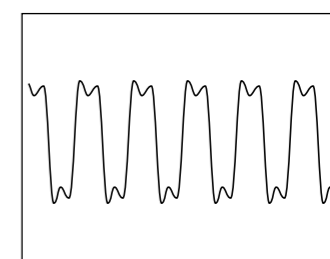
3.5 Vp-p (27 MHz)

4 IC501 ⑭



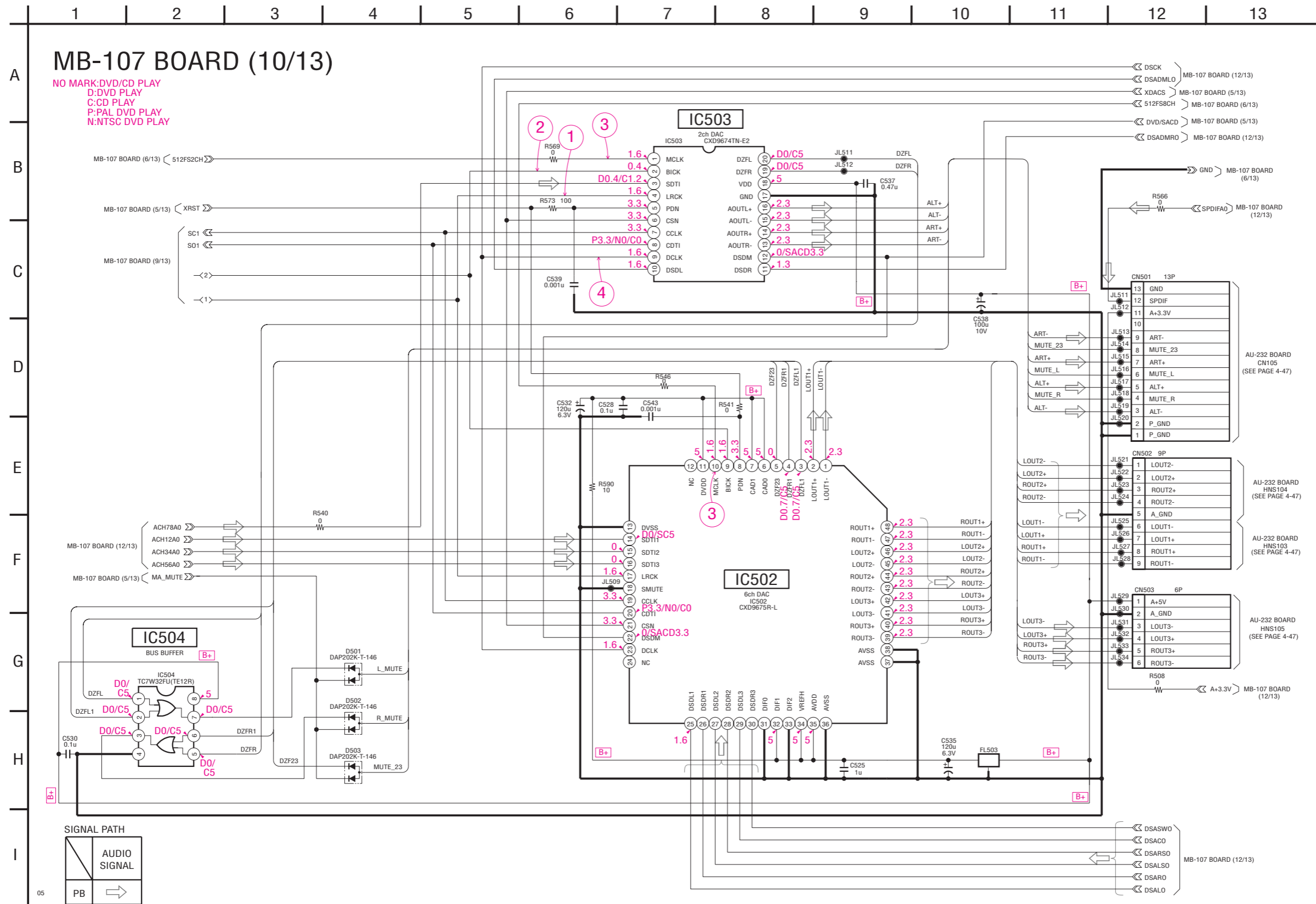
DVD: 4.3 Vp-p (48.1 kHz)  
CD : 4.3 Vp-p (44.1 kHz)

5 IC501 ⑮



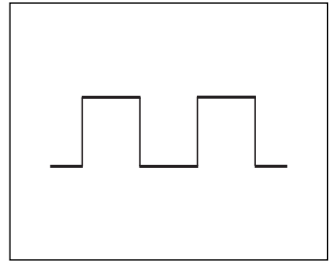
DVD: 4.4 Vp-p (3.1 MHz)  
CD : 4.4 Vp-p (2.9 MHz)

**MB-107 (2ch/6ch DAC) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.**  
 – Ref. No.: MB-107 board; 3,000 series –



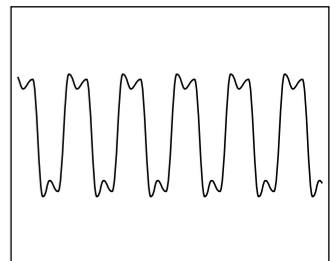
• Waveforms

① IC503 ④, IC502 ⑰



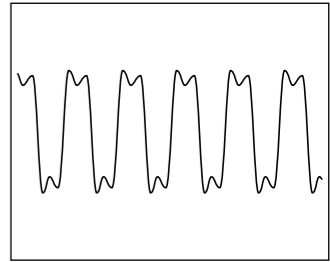
DVD: 4.3 Vp-p (48.1 kHz)  
 CD : 4.3 Vp-p (44.1 kHz)

② IC503 ②, IC502 ⑨



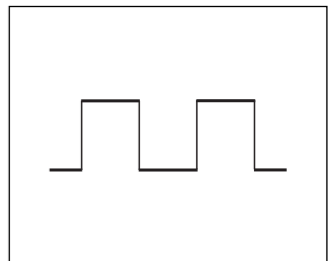
DVD: 4.4 Vp-p (3.1 MHz)  
 CD : 4.4 Vp-p (2.9 MHz)

③ IC503 ①, IC502 ⑩



DVD: 3.3 Vp-p (24.57 MHz)  
 CD: 3.3 Vp-p (22.58 MHz)

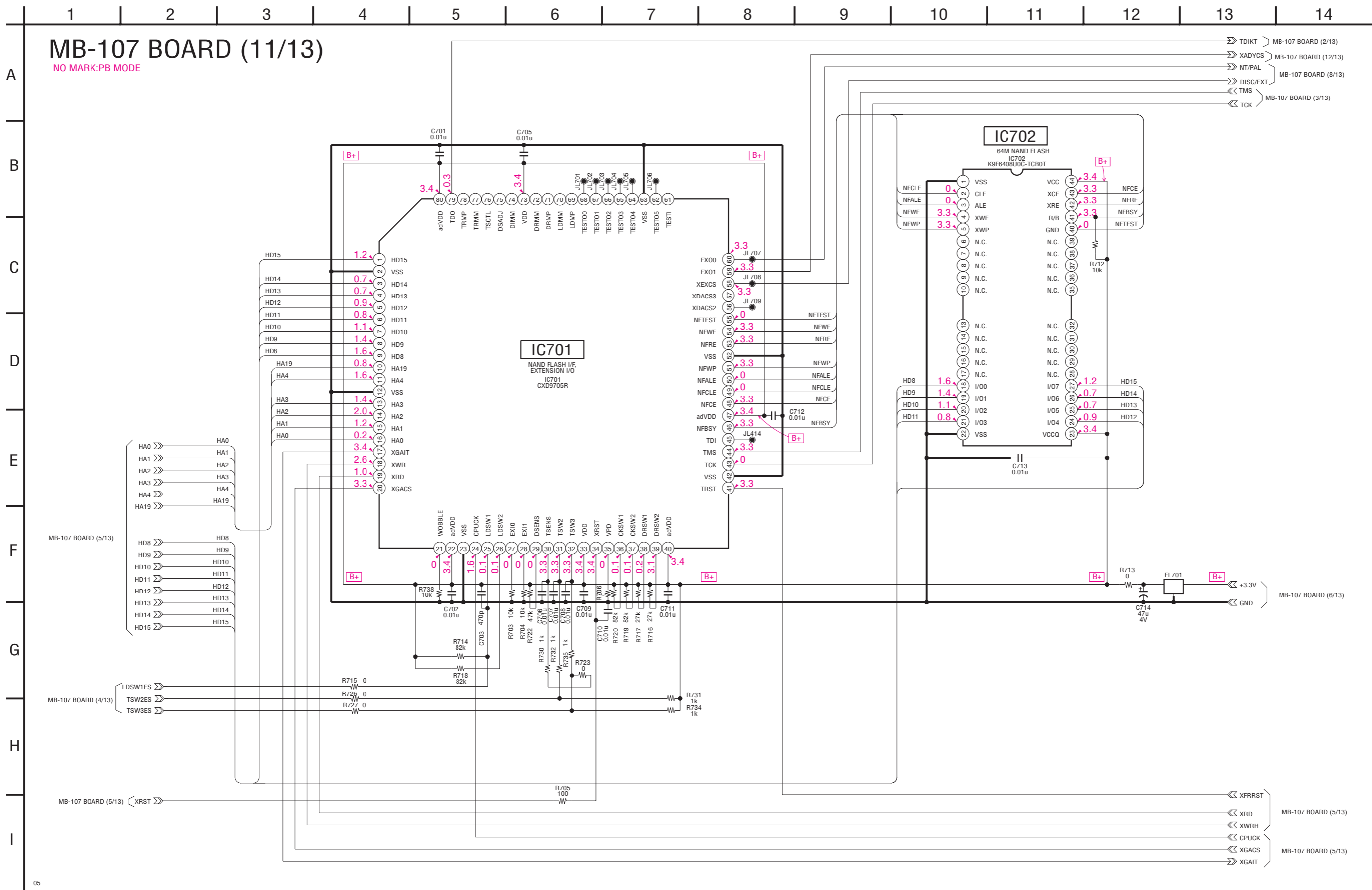
④ IC503 ⑨, IC502 ⑳



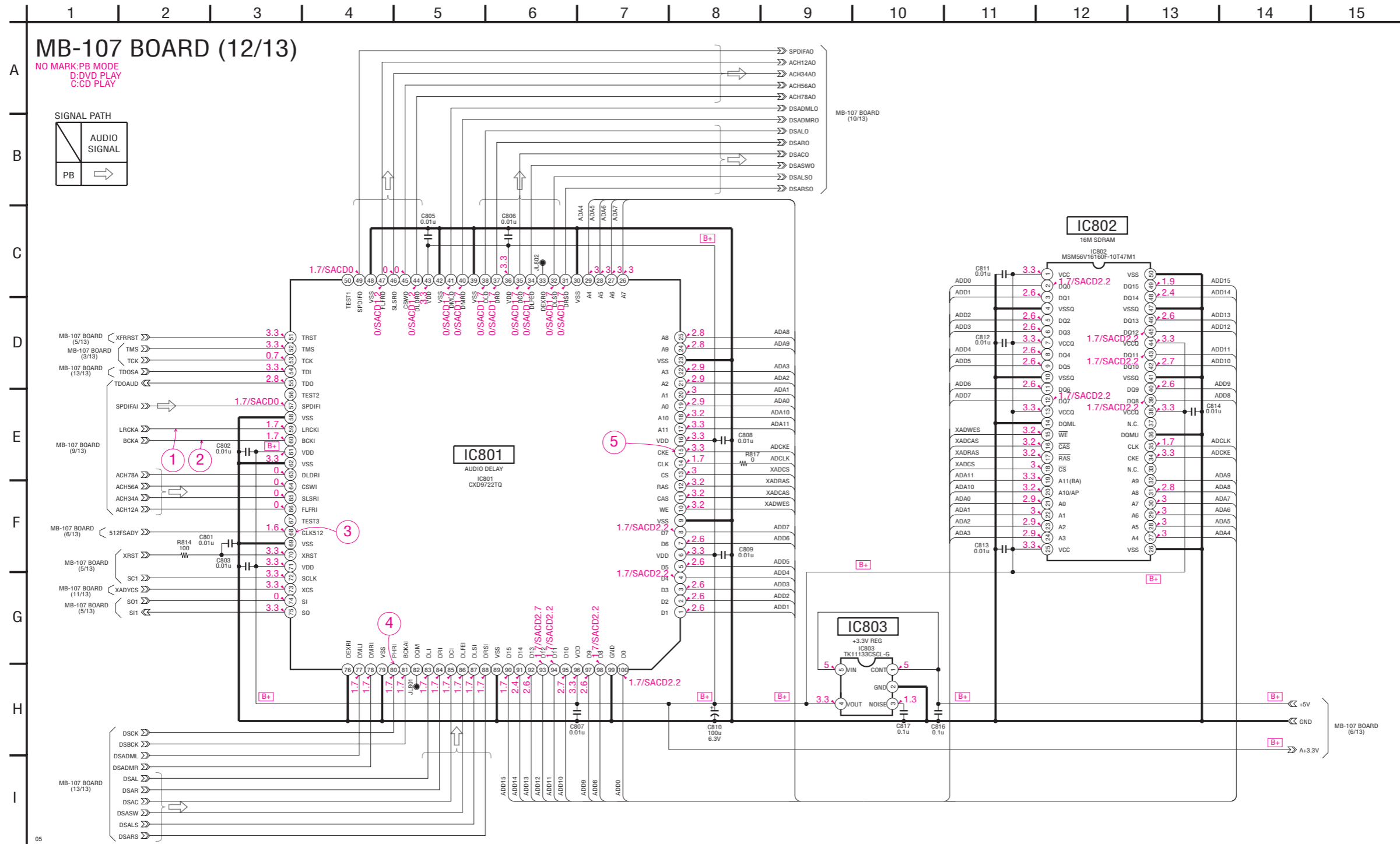
4 Vp-p (2.84 MHz)

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 –

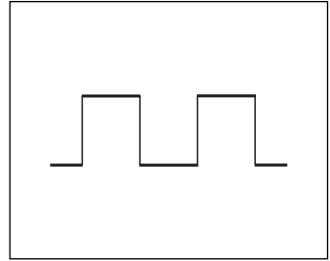


**MB-107 (AUDIO DELAY) SCHEMATIC DIAGRAM** • See page 4-5 for printed wiring board.  
 – Ref. No.: MB-107 board; 3,000 series –



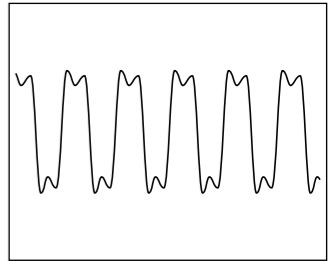
• Waveforms

1 IC801 ⑨



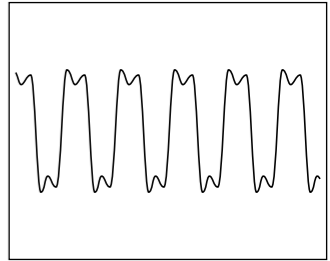
DVD: 4.3 Vp-p (48.1 kHz)  
 CD : 4.3 Vp-p (44.1 kHz)

2 IC801 ⑩



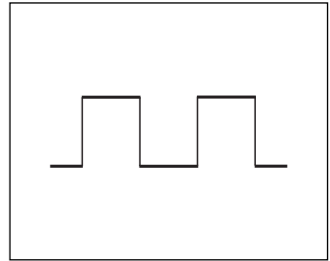
DVD: 4.4 Vp-p (3.1 MHz)  
 CD : 4.4 Vp-p (2.9 MHz)

3 IC801 ⑪



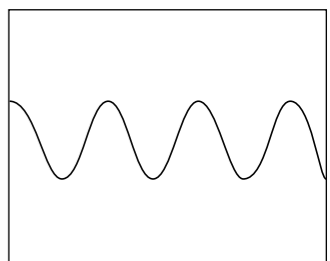
DVD: 3.3 Vp-p (24.57 kHz)  
 CD : 3.3 Vp-p (22.581 kHz)

4 IC801 ⑫



4 Vp-p (2.84 MHz)

5 IC801 ⑬

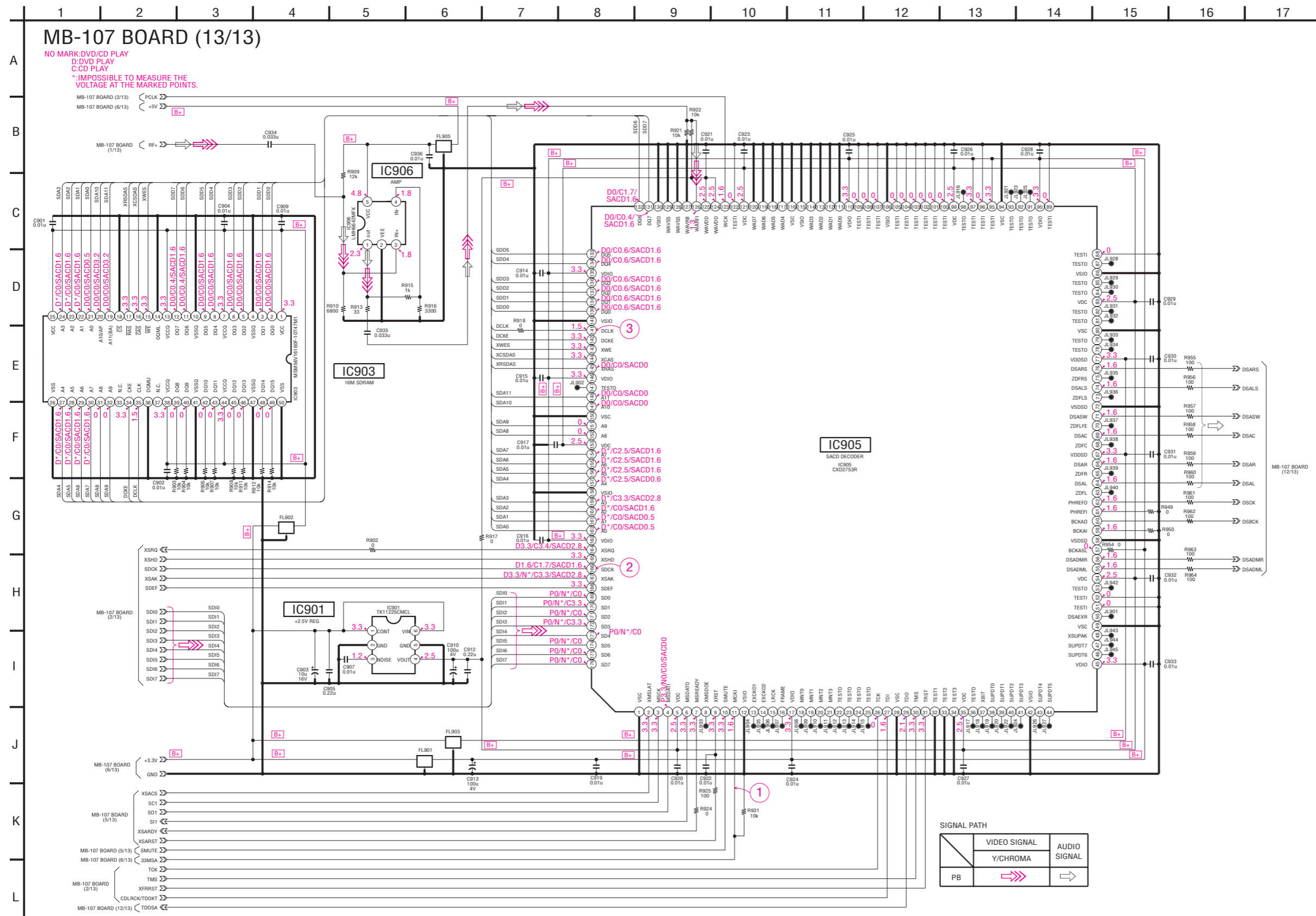


4.9 Vp-p (33.78 MHz)

**AUDIO DELAY**  
**MB-107 (12/13)**

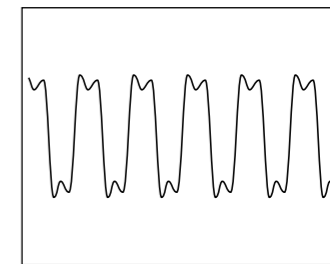
MB-107 (SACD DECODER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



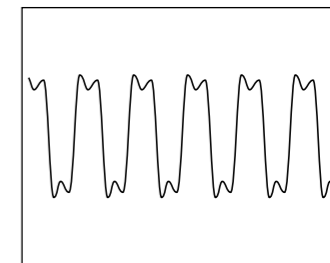
• Waveforms

1 IC905 (1)



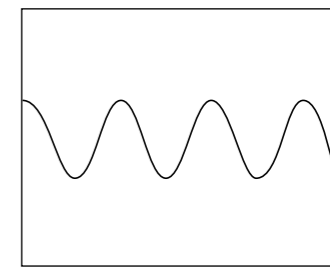
DVD: 3.3 Vp-p (24.57 MHz)  
CD: 3.3 Vp-p (22.58 MHz)

2 IC905 (16)



4.5 Vp-p (4.2 MHz)

3 IC905 (14)



4.9 Vp-p (33.78 MHz)

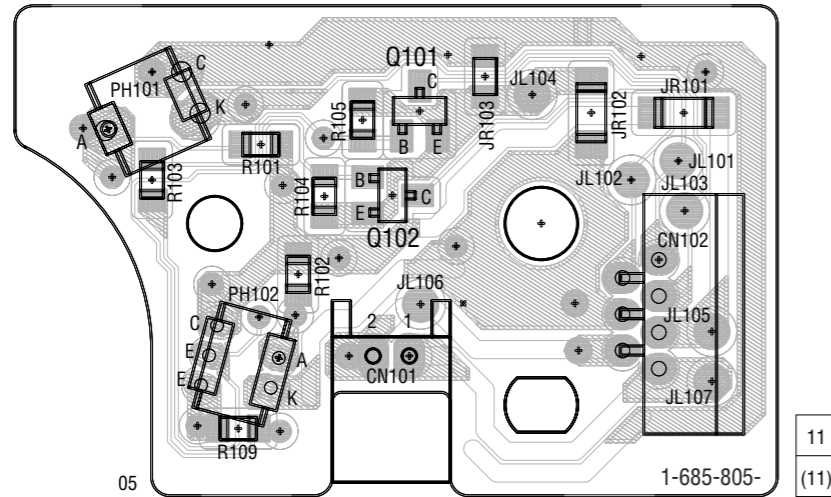
**MS-113 (LOADING MOTOR), CK-119 (SENSOR) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM**

– Ref. No.: MS-113 board; 4,000 series, CK-119 board; 2,000 series –

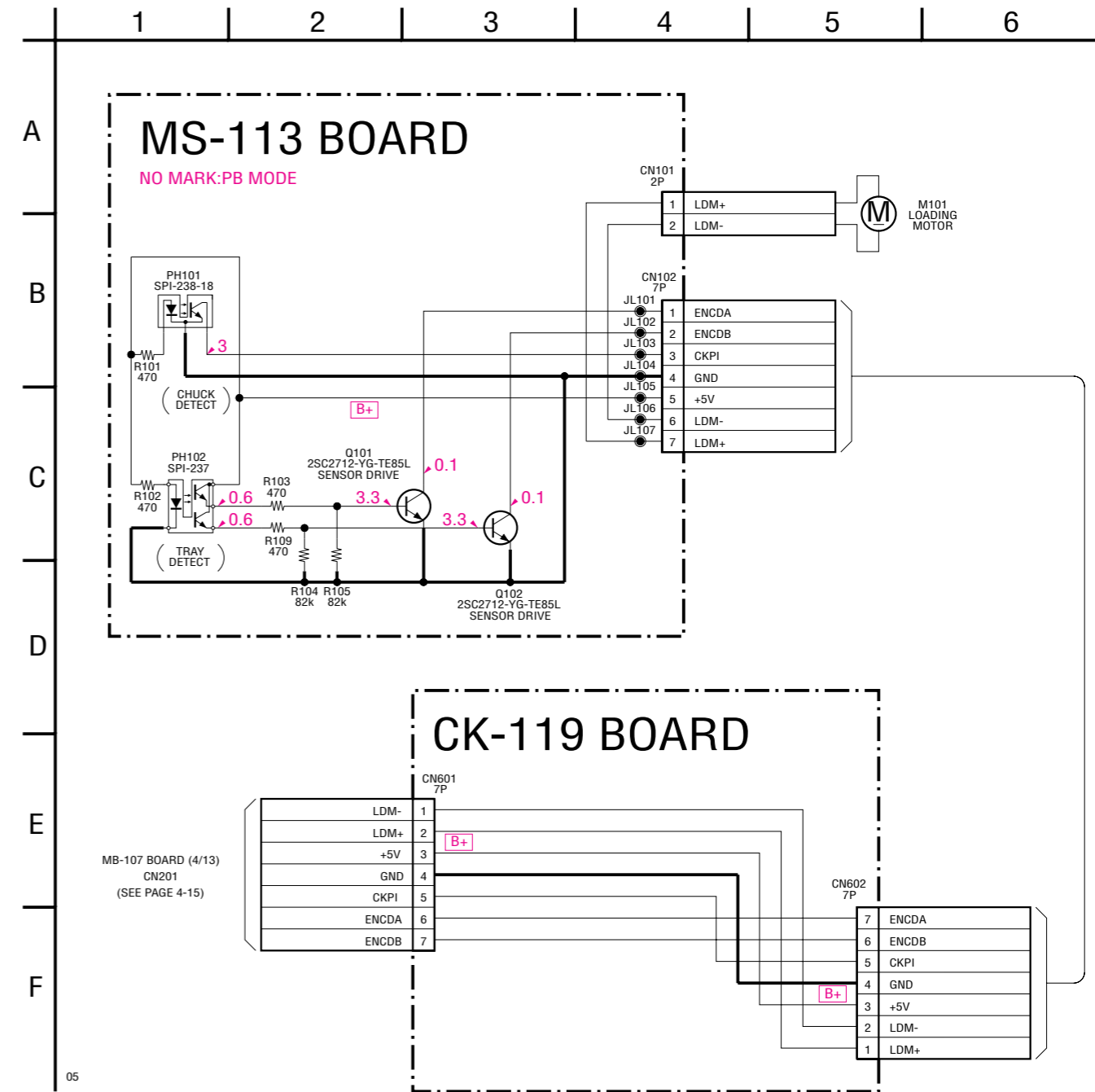
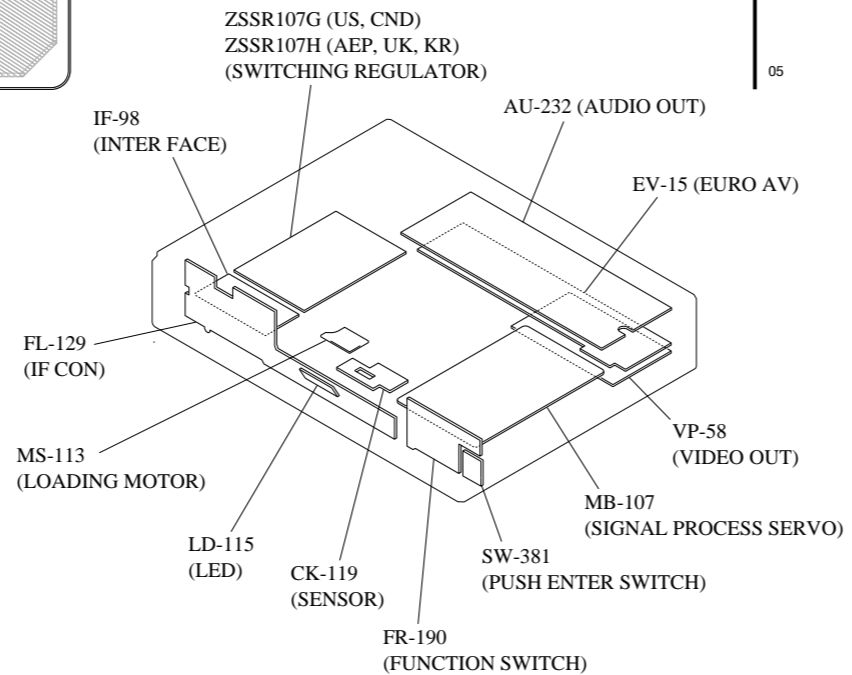
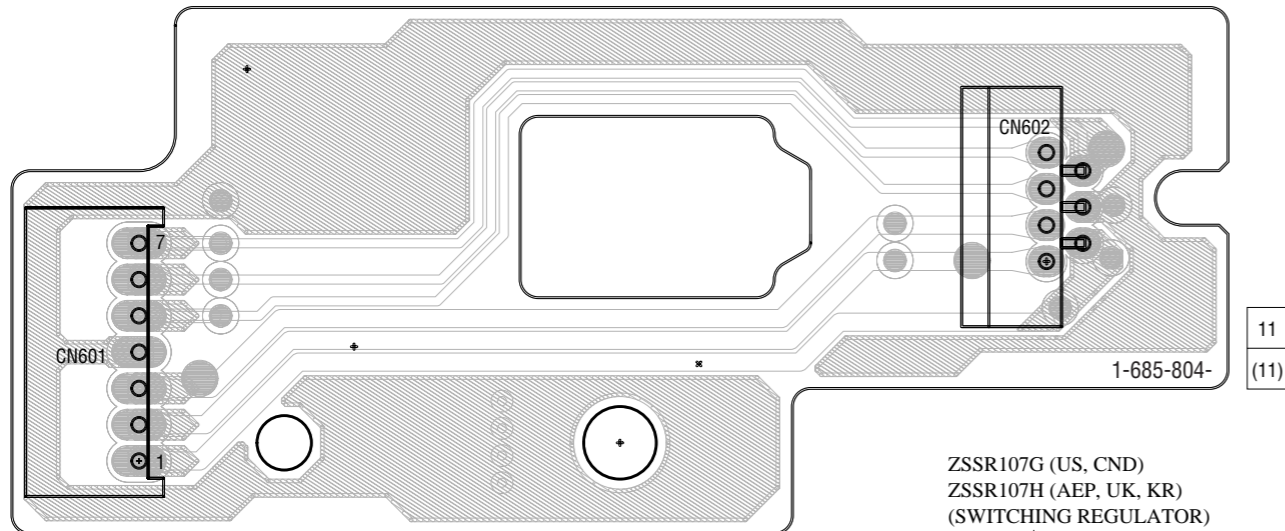
There are a few cases that the part isn't mounted in this model is printed on this diagram.

: Uses unleaded solder.

**MS-113 BOARD**



**CK-119 BOARD**



**LOADING MOTOR/SENSOR  
MS-113/CK-119**

**VP-58 (VIDEO OUT) PRINTED WIRING BOARD**

– Ref. No.: VP-58 board; 5,000 series –

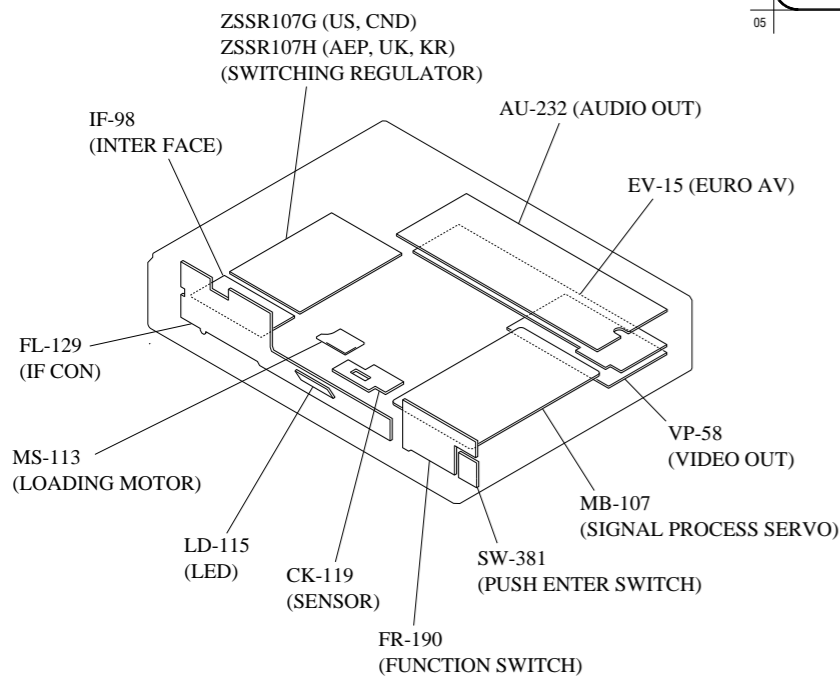
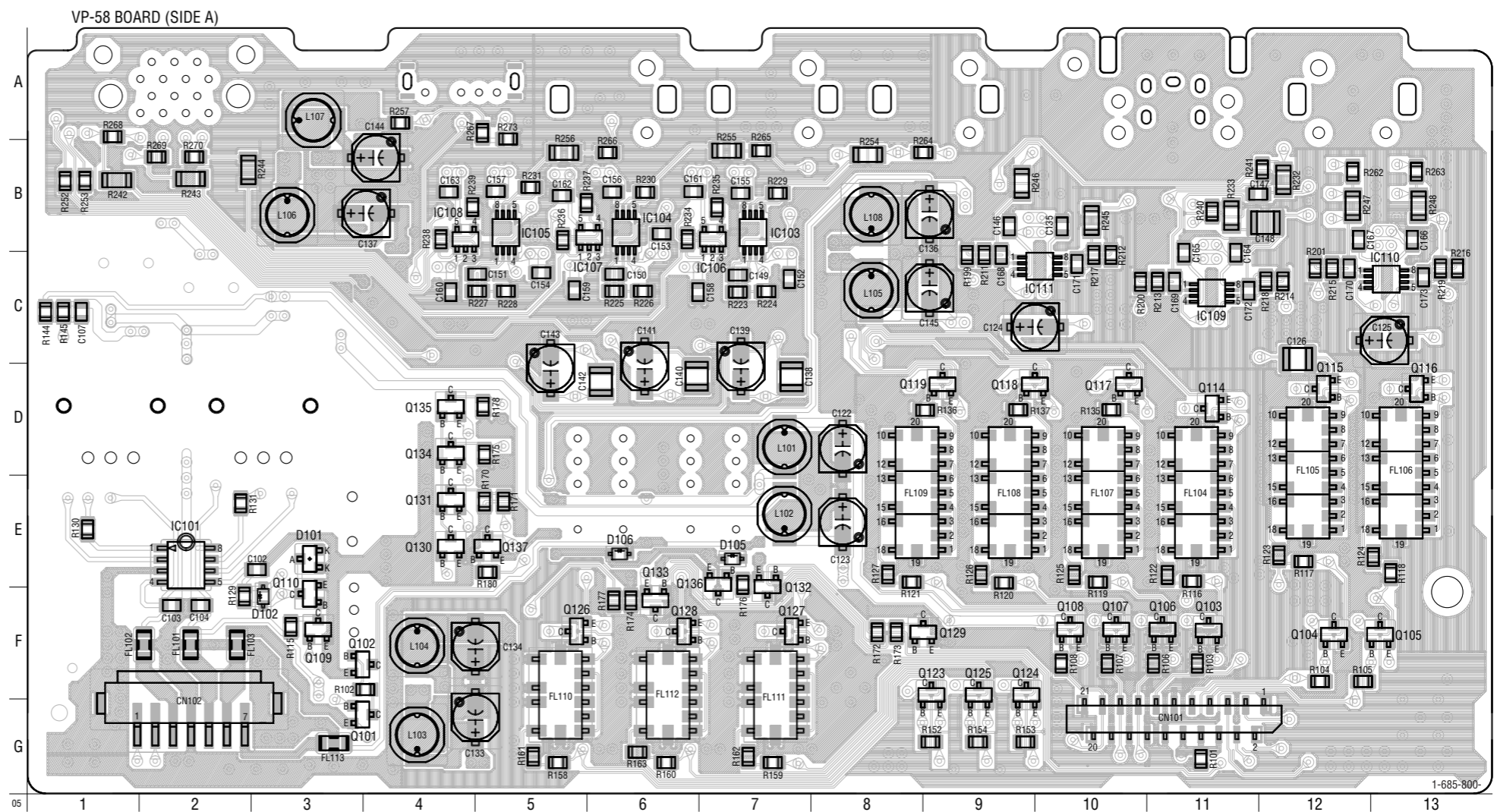
– US, CND, KR –

: Uses unleaded solder.

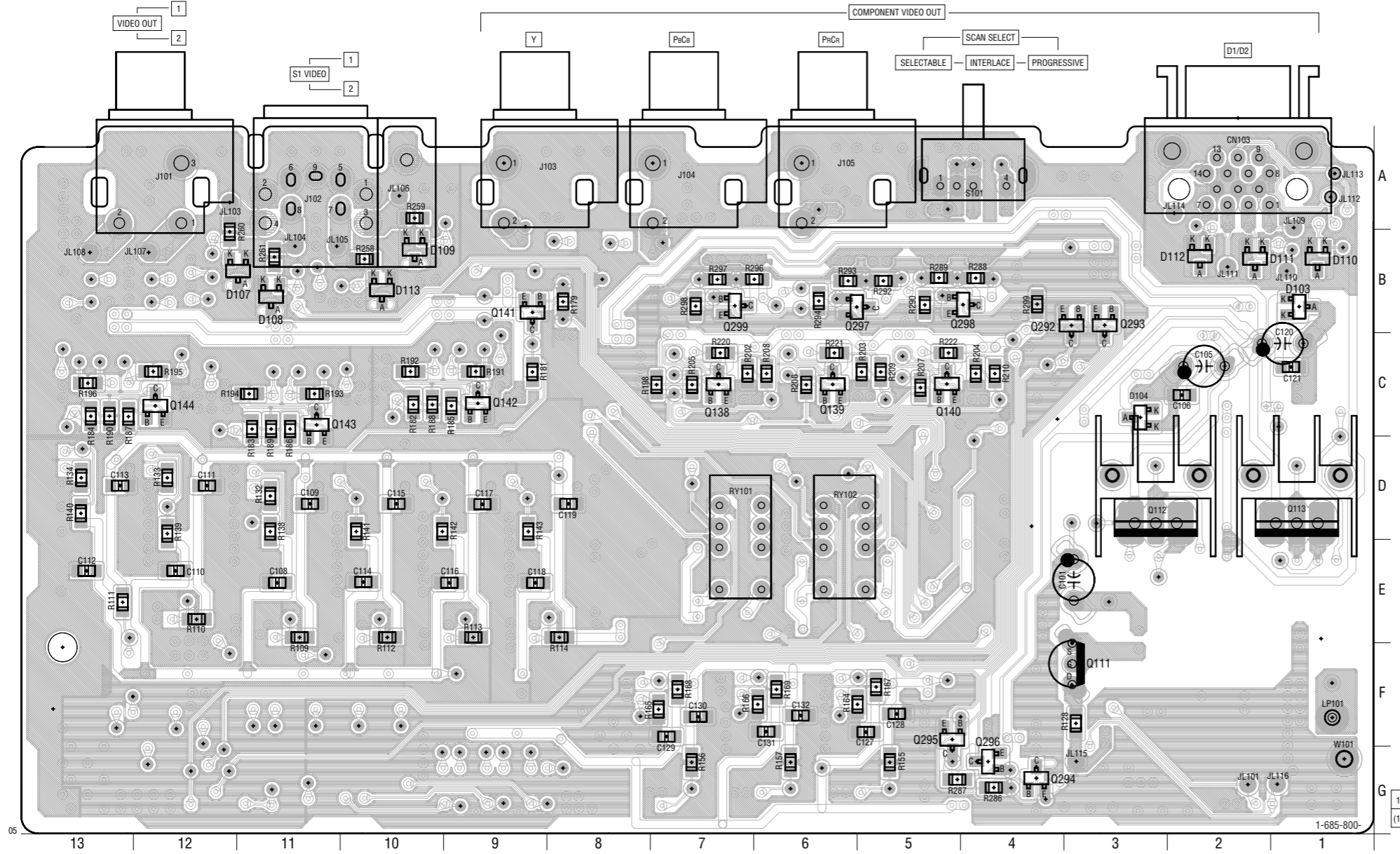
There are a few cases that the part isn't mounted in this model is printed on this diagram.

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 B)



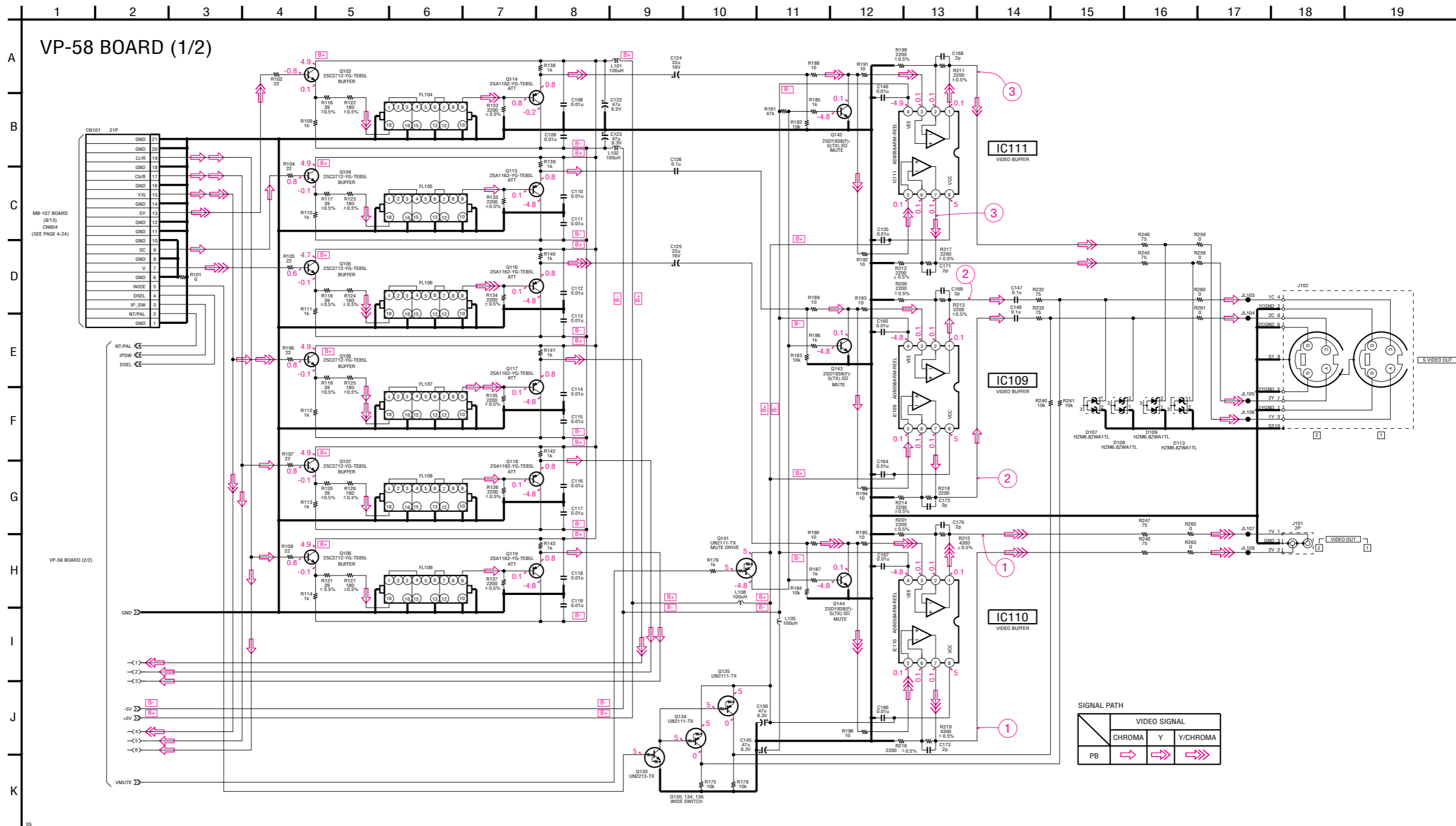
VP-58 BOARD (SIDE B)

- 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

VP-58 (VIDEO BUFFER) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.

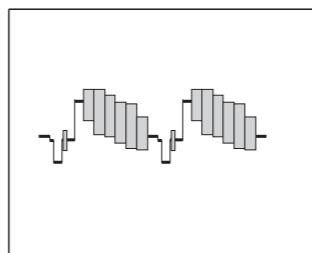
– Ref. No.: VP-58 board; 5,000 series –

– US, CND, KR –



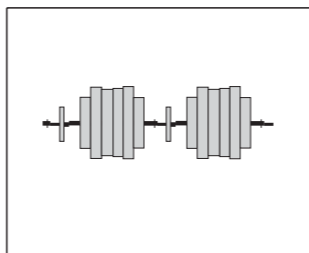
• Waveforms

① IC110 ①, ⑦



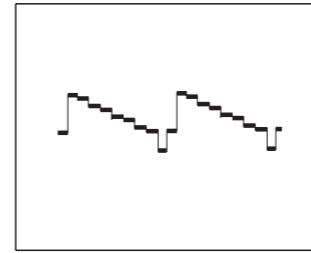
2.4 Vp-p (H)

② IC109 ①, ⑦



1.8 Vp-p (H)

③ IC111 ①, ⑦

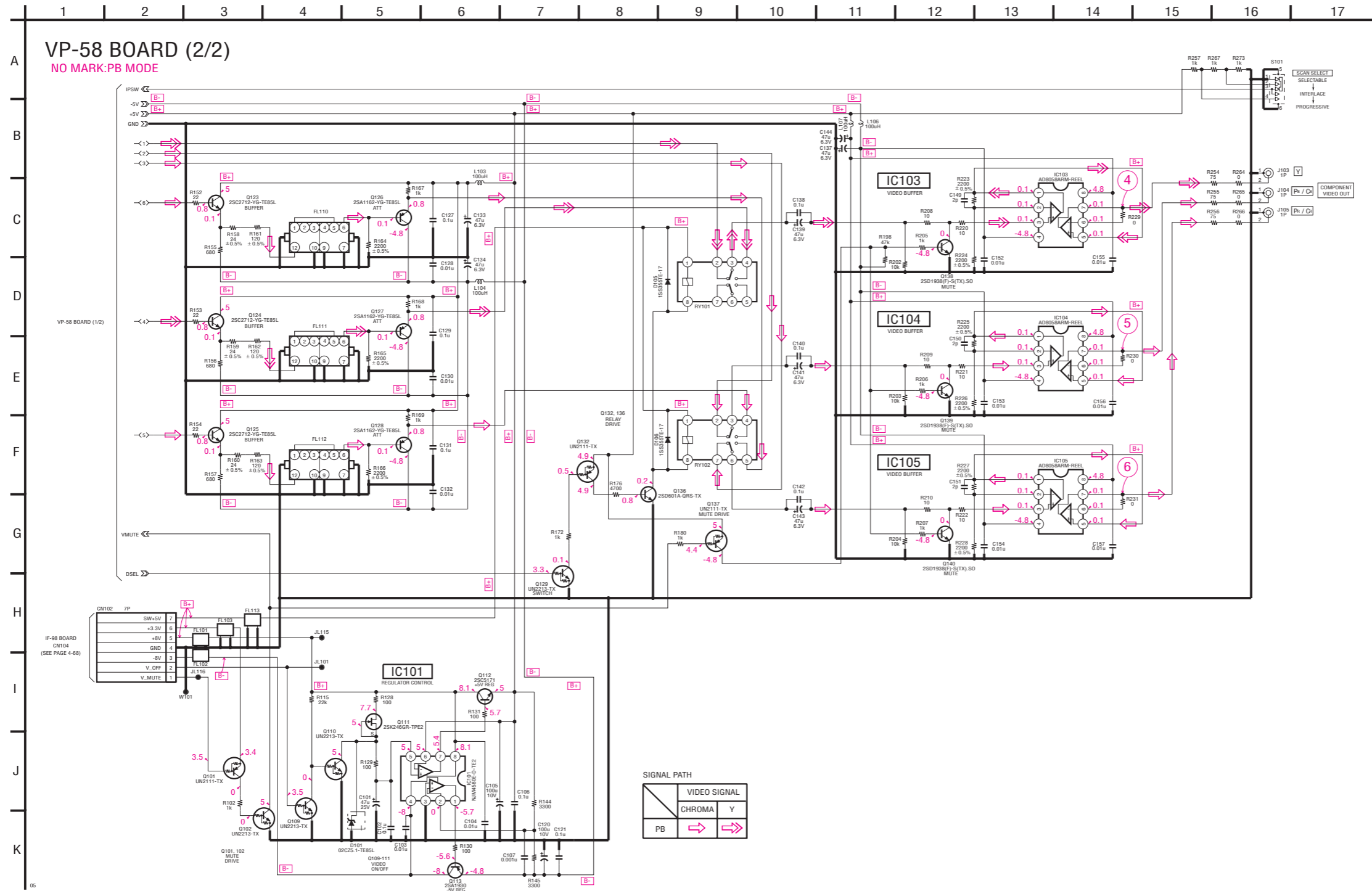


2.0 Vp-p (H)

**VP-58 (VIDEO AMP) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.**

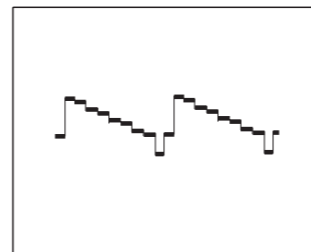
– Ref. No.: VP-58 board; 5,000 series –

– US, CND, KR –



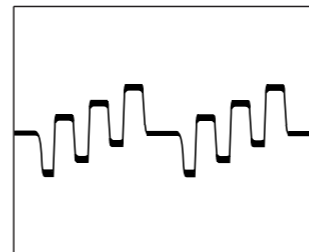
• Waveforms

④ IC103 ⑦



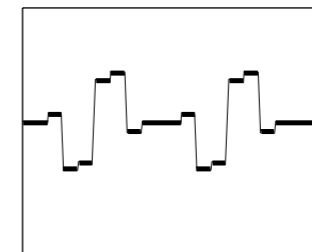
2.0 Vp-p (H)

⑤ IC104 ⑦



1.3 Vp-p (H)

⑥ IC105 ⑦



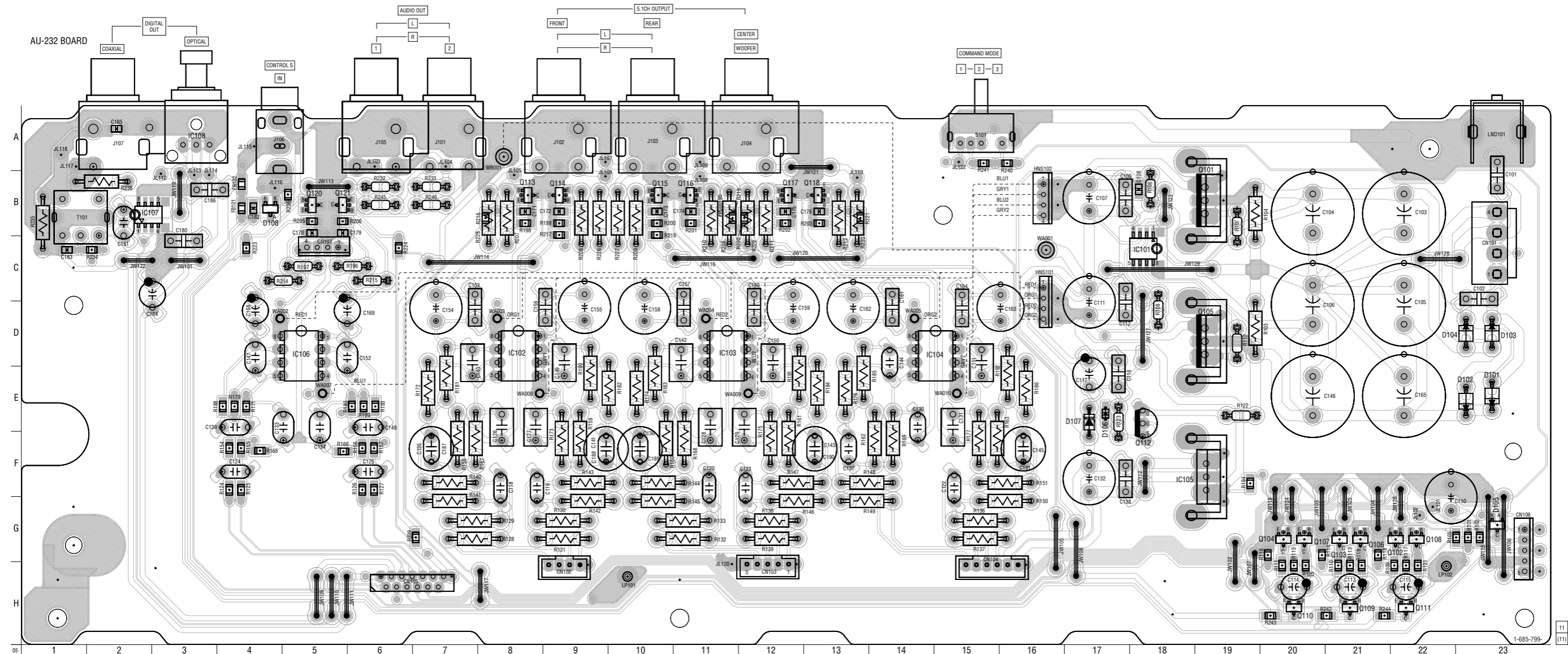
1.3 Vp-p (H)

**AU-232 (AUDIO OUT) PRINTED WIRING BOARD**

– Ref. No.: AU-232 board; 1,000 series –

: Uses unleaded solder.

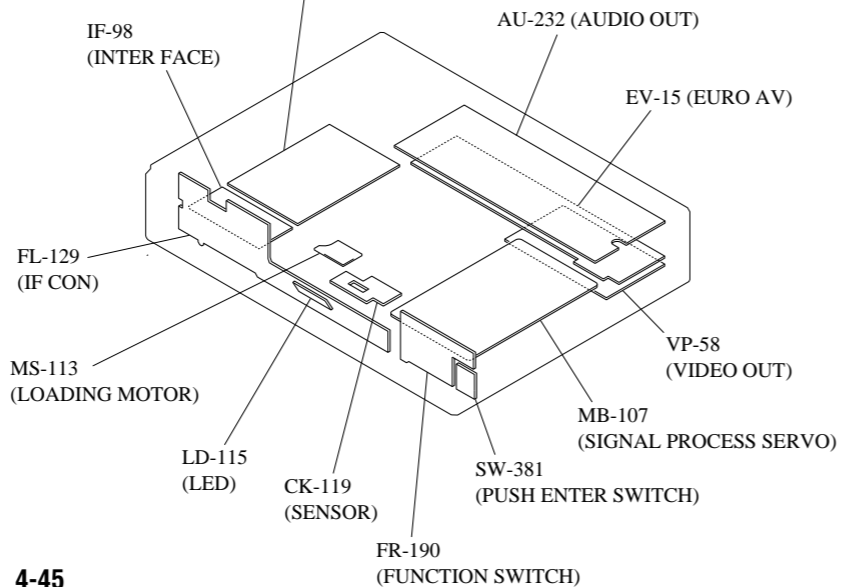
There are a few cases that the part isn't mounted in this model is printed on this diagram.



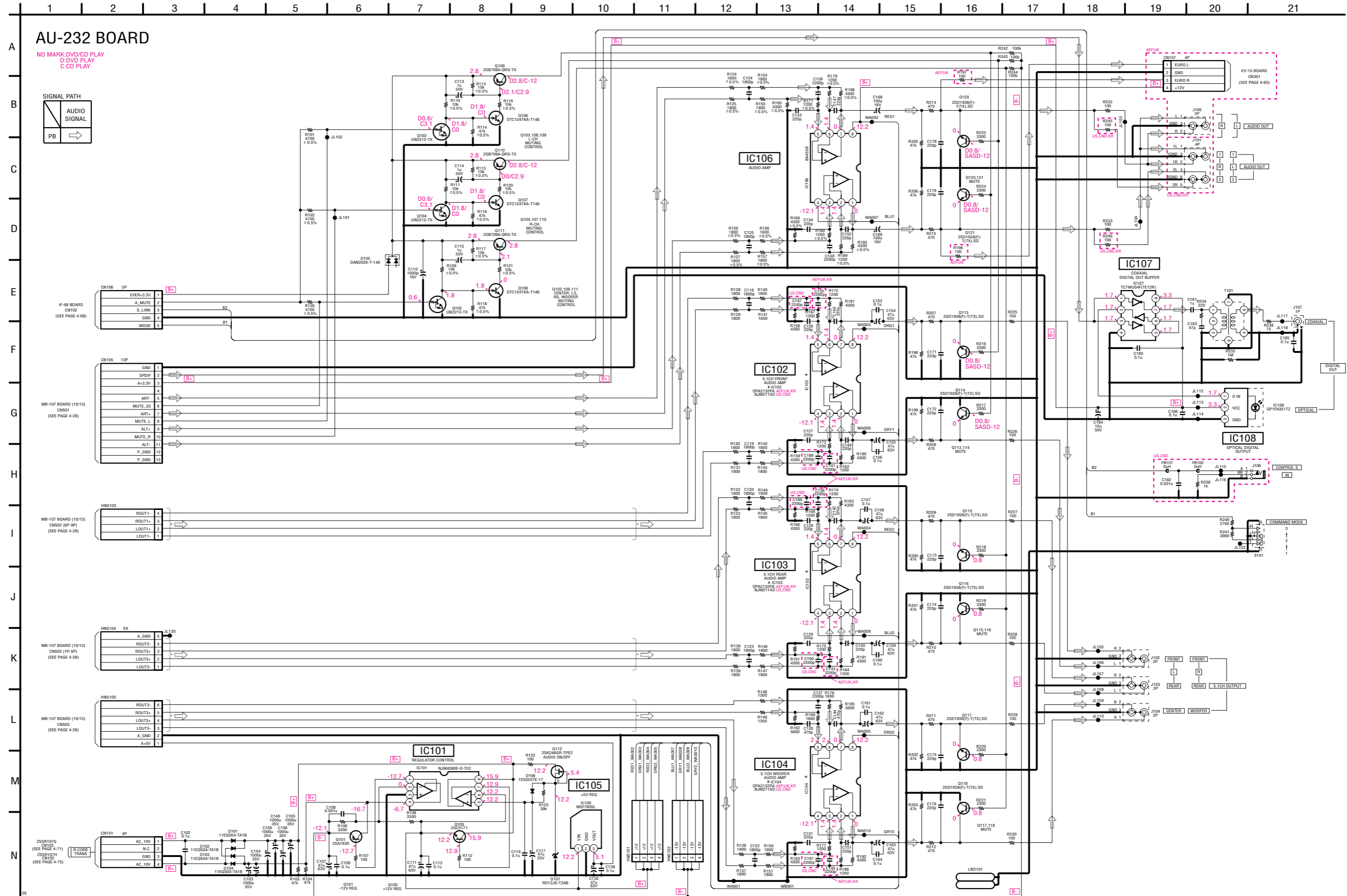
**AU-232 BOARD**

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)




AU-232 (AUDIO OUT) SCHEMATIC DIAGRAM  
- Ref. No.: AU-232 board; 1,000 series -



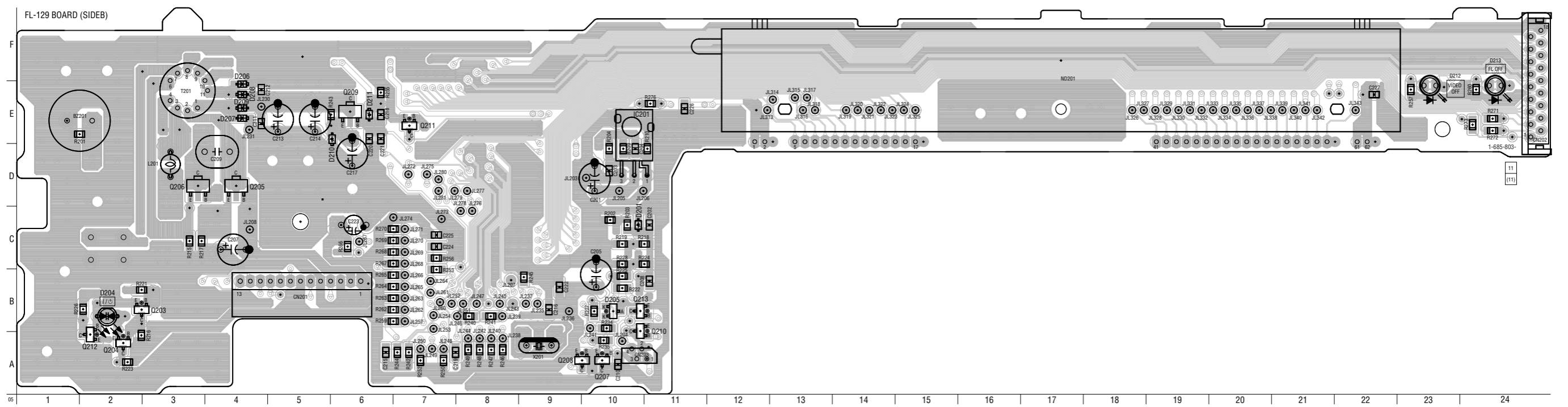
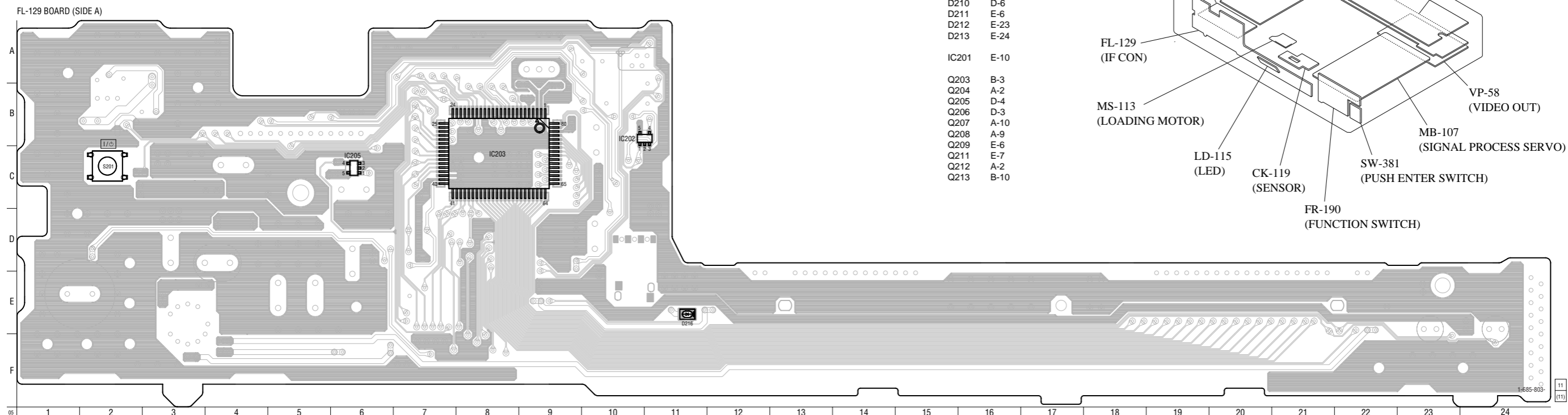
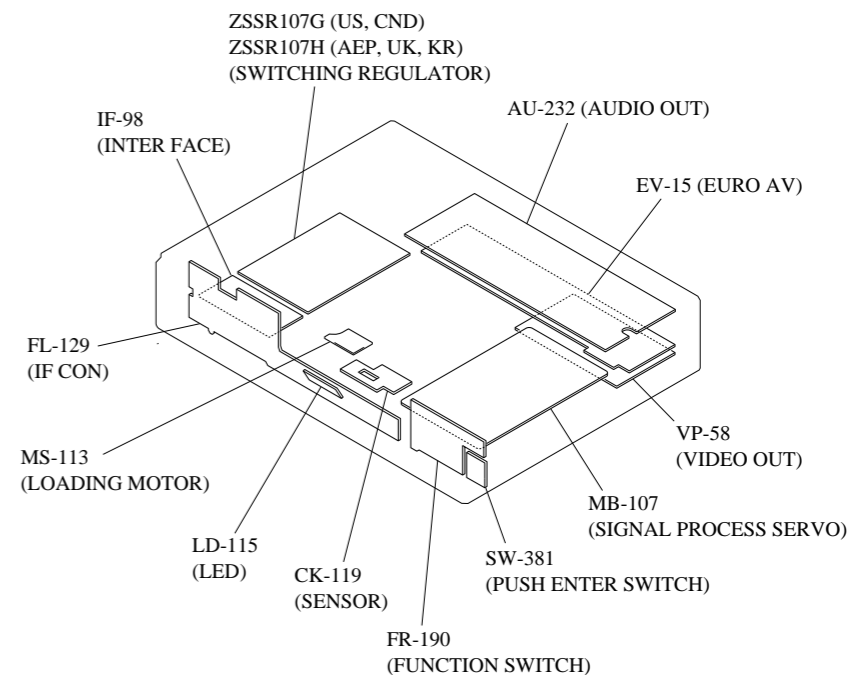
**FL-129 (IF CON) PRINTED WIRING BOARD**

– Ref. No.: FL-129 board; 4,000 series –

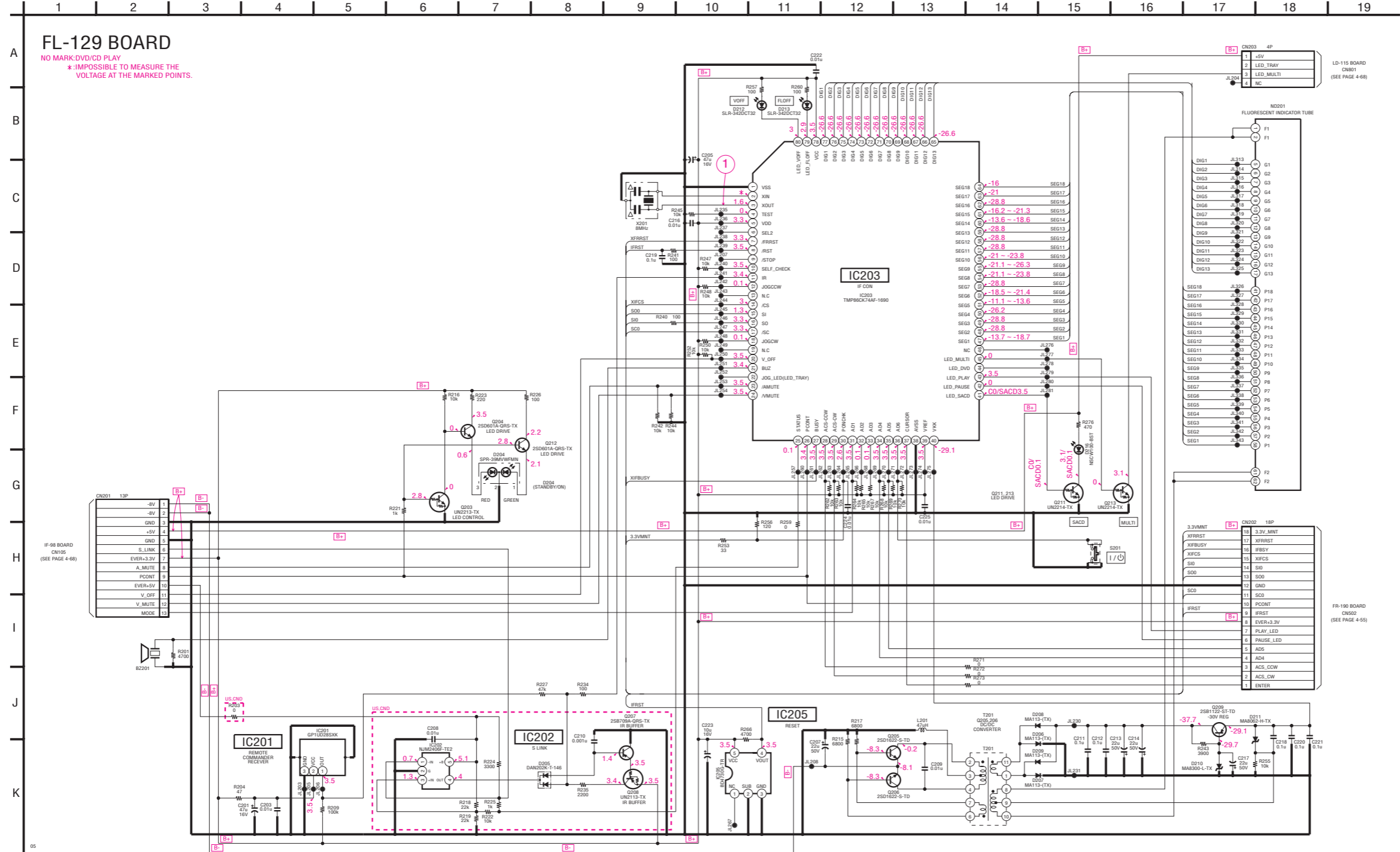
 Uses unleaded solder.

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

FL-129 BOARD (SIDE A)		FL-129 BOARD (SIDE B)	
D216	E-11	CN201	B-5
IC202	B-10	CN202	E-24
IC203	C-8	D204	B-2
IC205	C-6	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

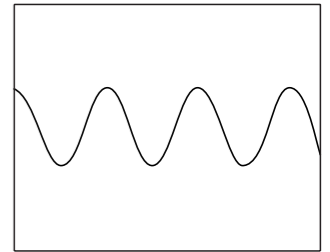


**FL-129 (IF CON) SCHEMATIC DIAGRAM**  
 - Ref. No.: FL-129 board; 4,000 series -



• Waveforms

① IC203 ③



3.4 Vp-p (8 MHz)

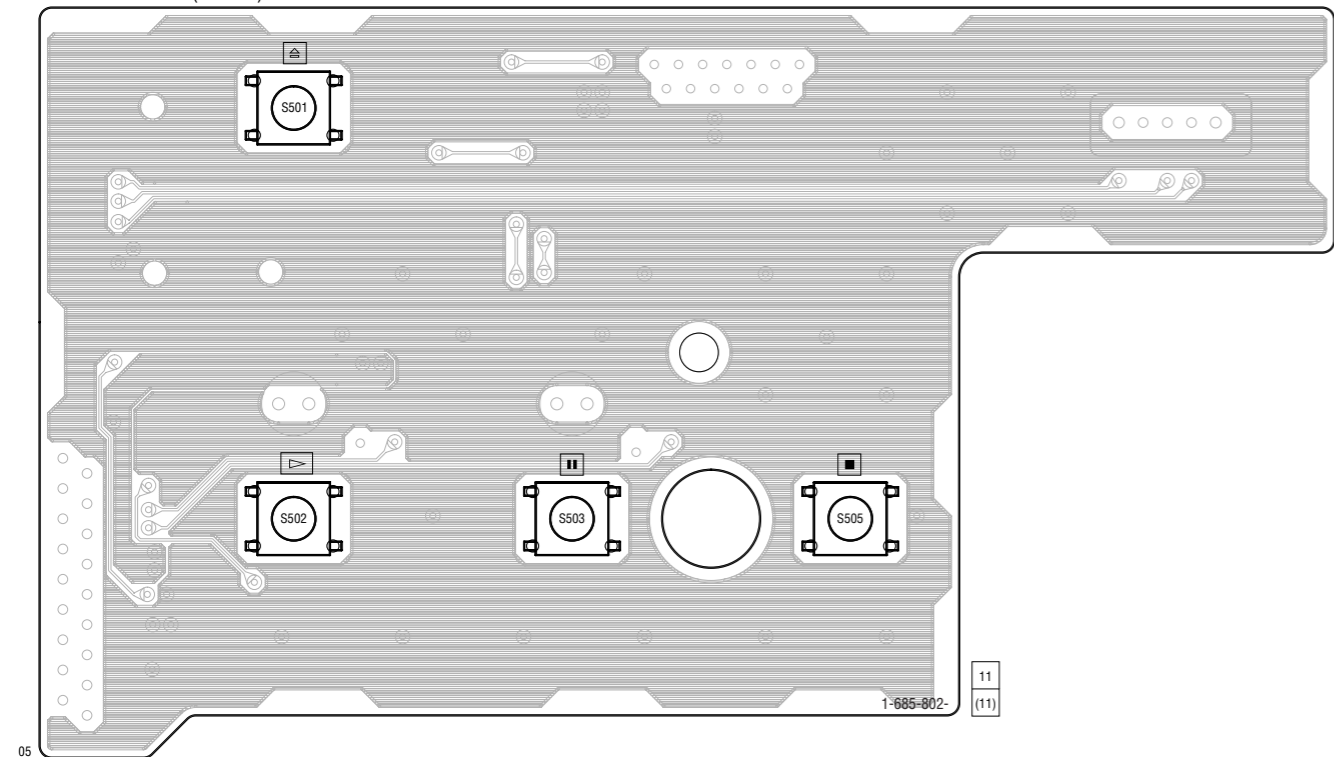
**FR-190 (FUNCTION SWITCH), SW-381 (PUSH ENTER SWITCH) PRINTED WIRING BOARD**

– Ref. No.: FR-190, SW-381 board; 2,000 series –

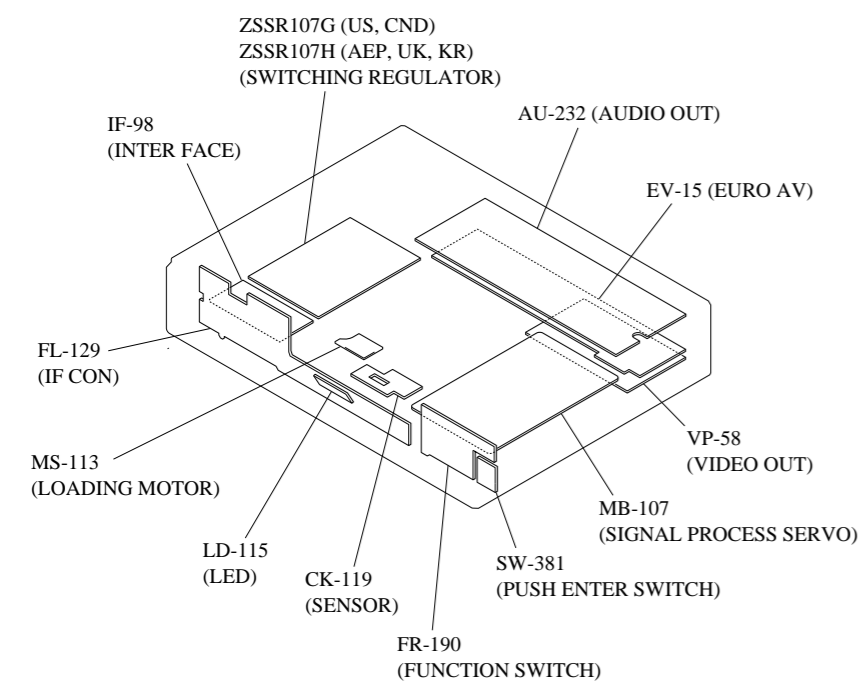
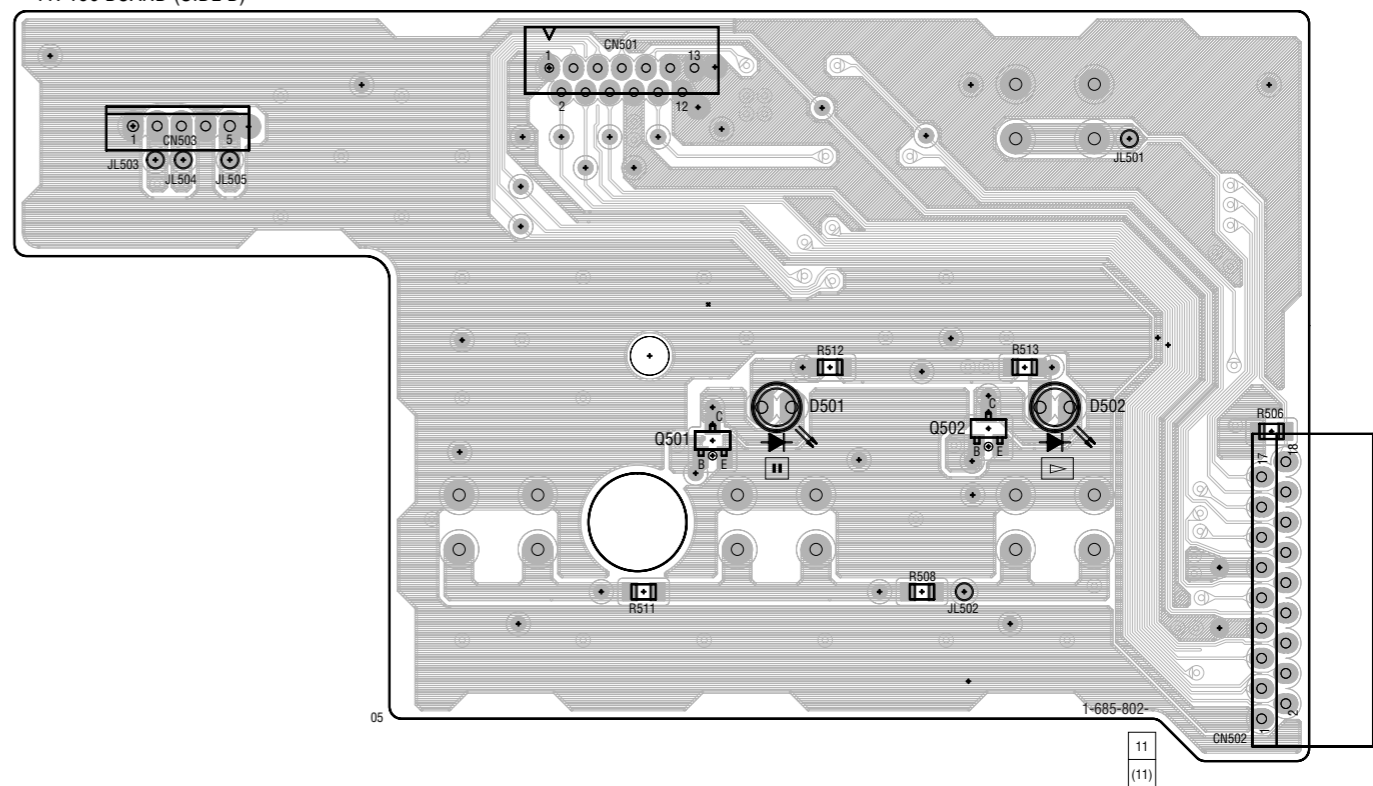
: Uses unleaded solder.

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

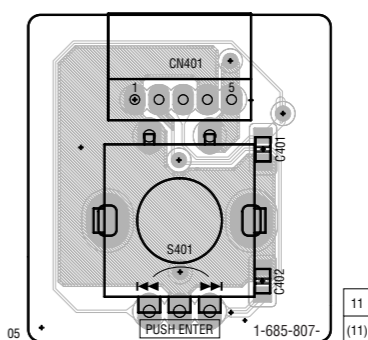
FR-190 BOARD (SIDE A)



FR-190 BOARD (SIDE B)

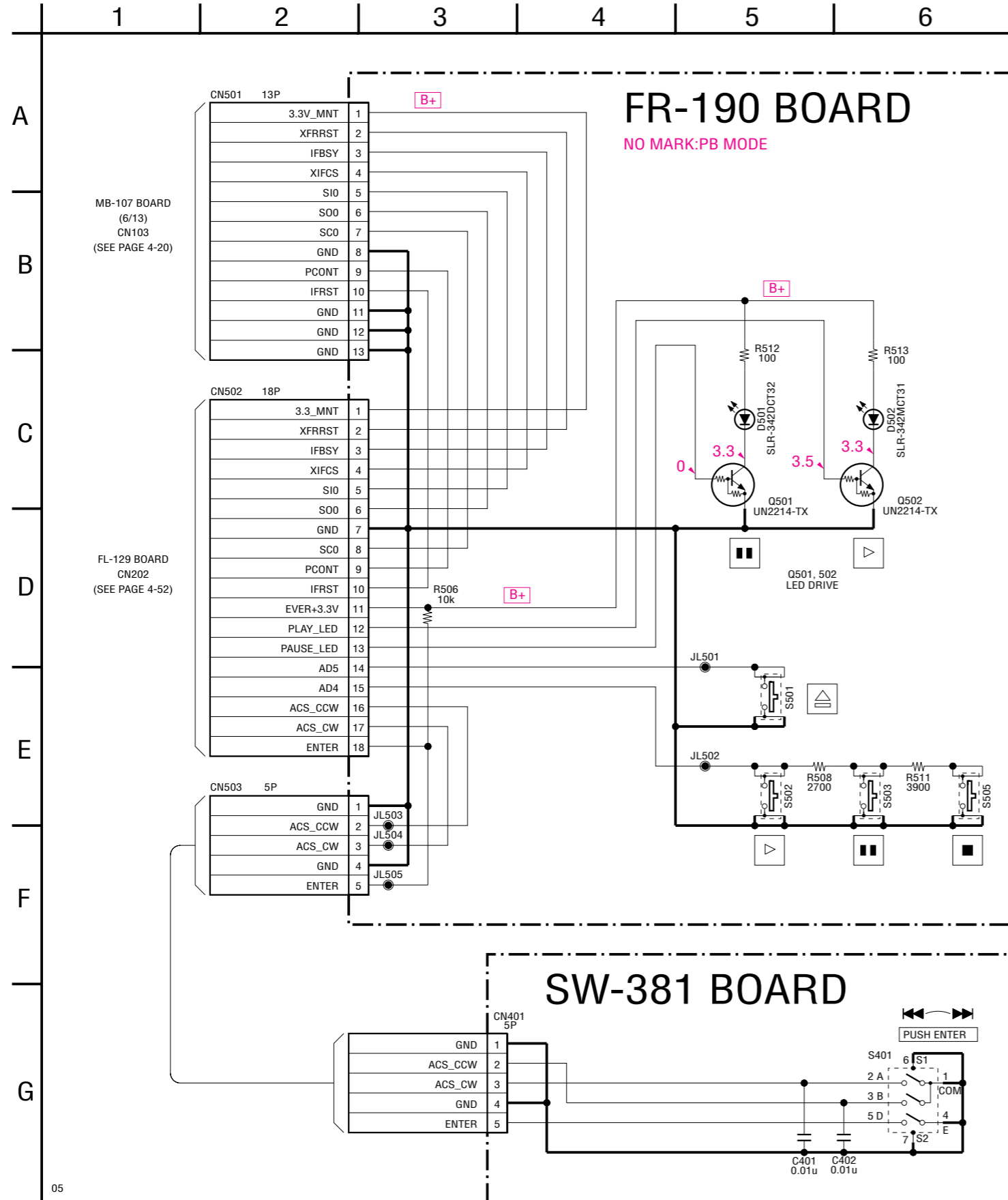


SW-381 BOARD



**FR-190 (FUNCTION SWITCH), SW-381 (PUSH ENTER SWITCH) SCHEMATIC DIAGRAM**

– Ref. No.: FR-190, SW-381 board; 2,000 series –



05

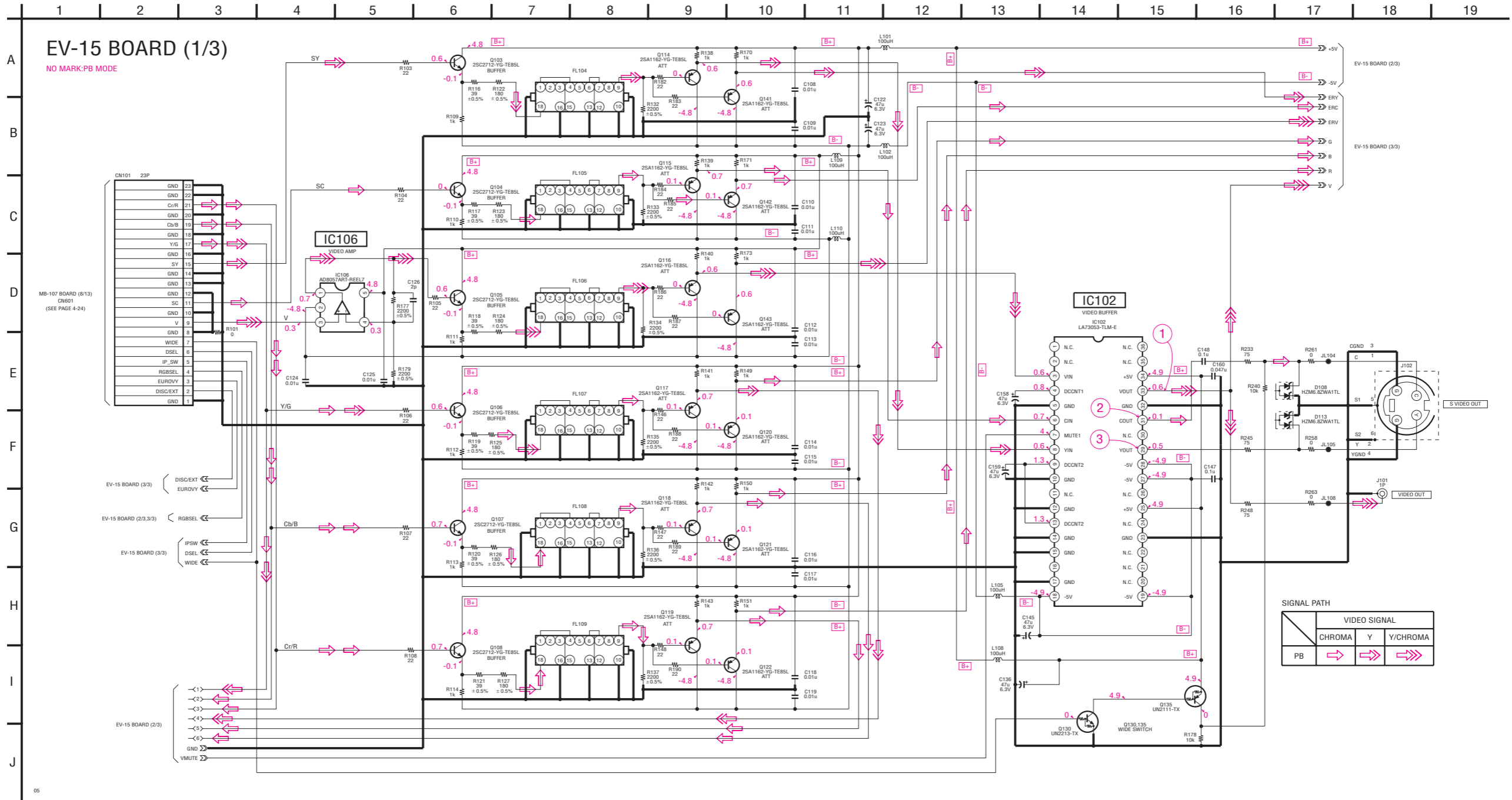




**EV-15 (EURO AV1) SCHEMATIC DIAGRAM • See page 4-57 for printed wiring board.**

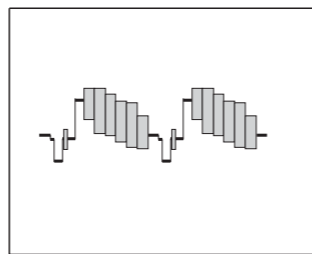
- Ref. No.: EV-15 board; 2,000 series -

- AEP, UK -



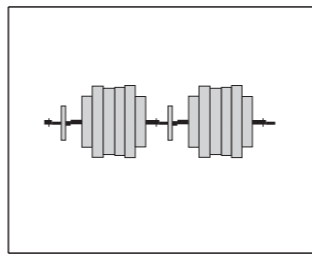
• Waveforms

① IC102 ③



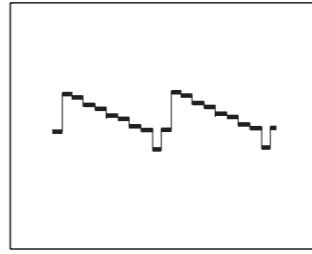
2.4 Vp-p (H)

② IC102 ①



1.8 Vp-p (H)

③ IC102 ②

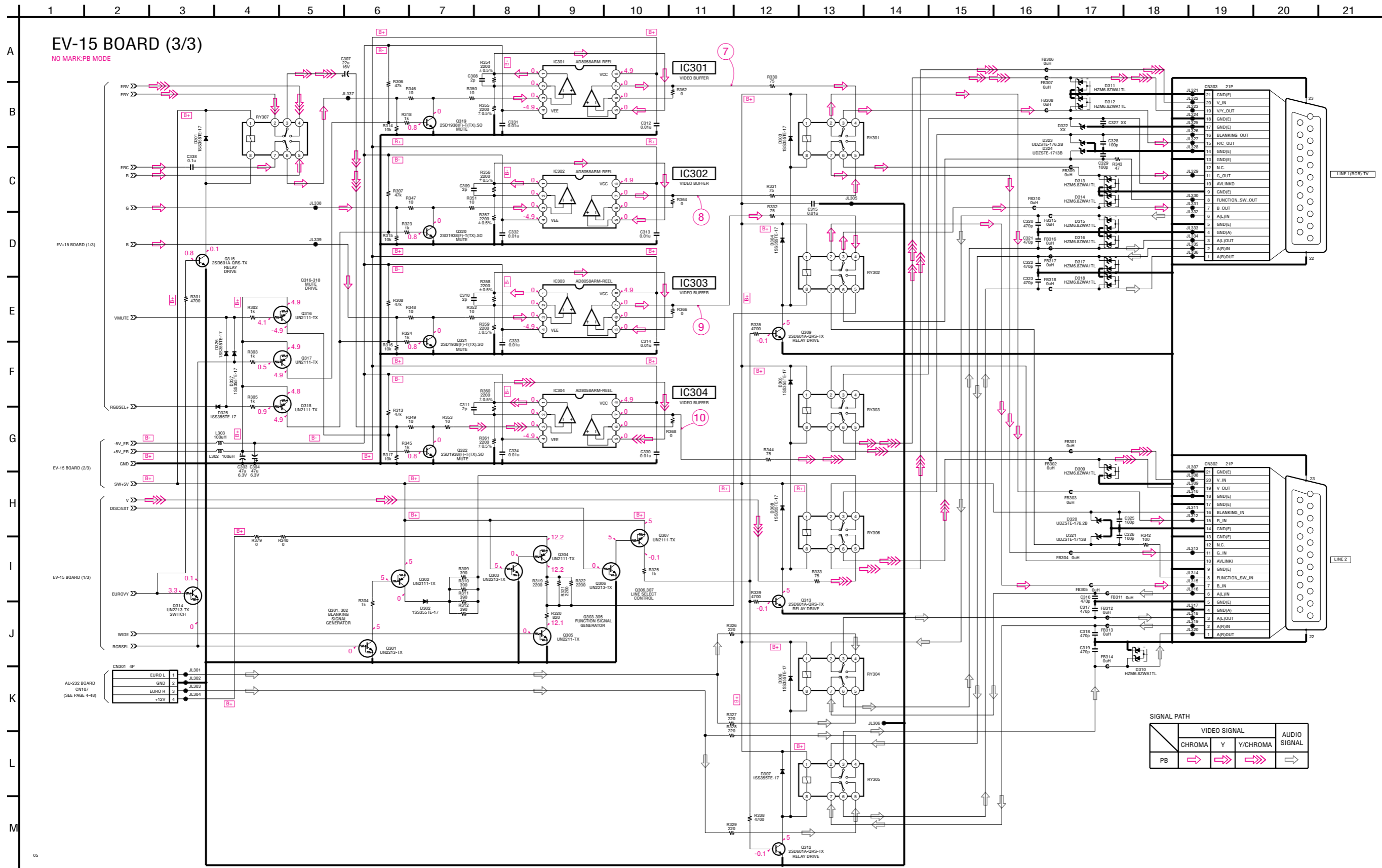


2.0 Vp-p (H)



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 –

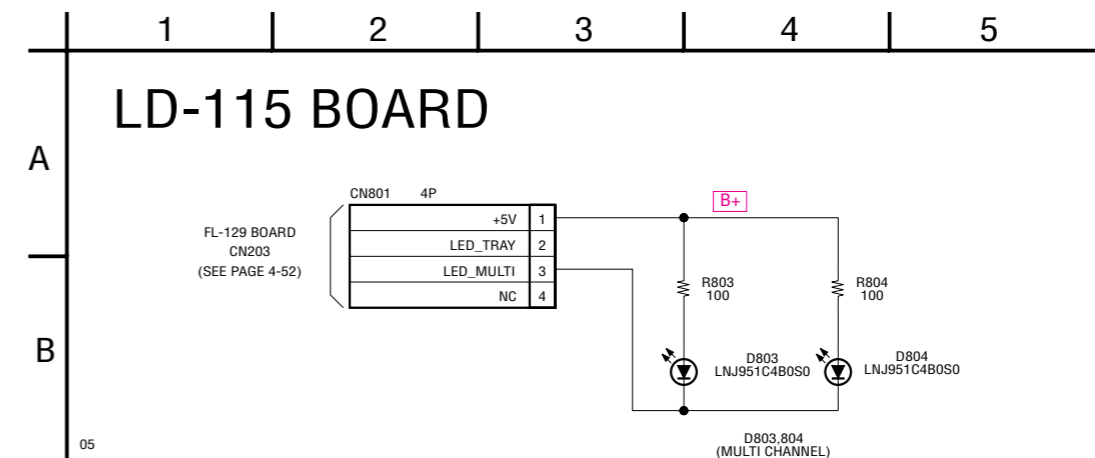
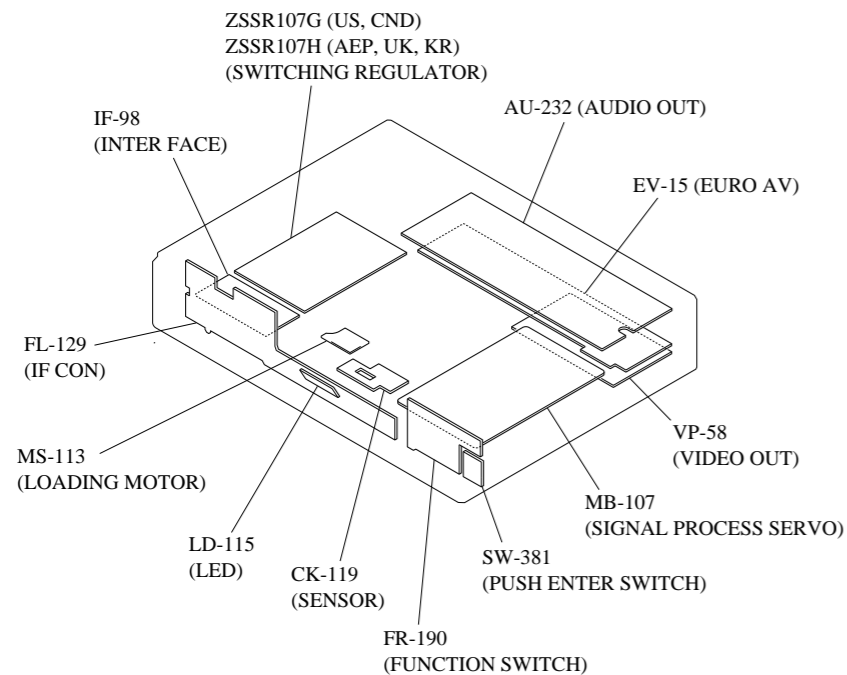
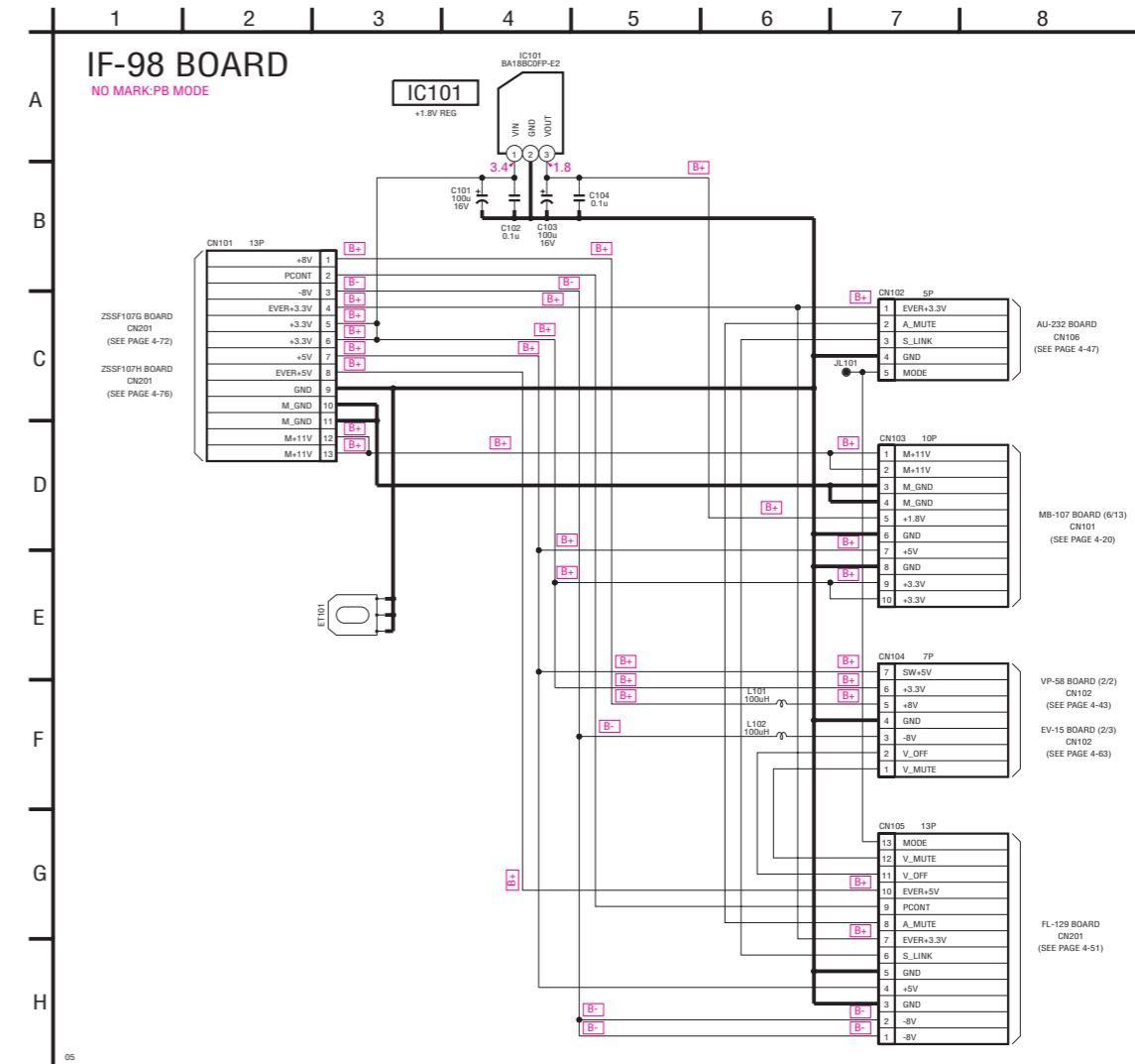
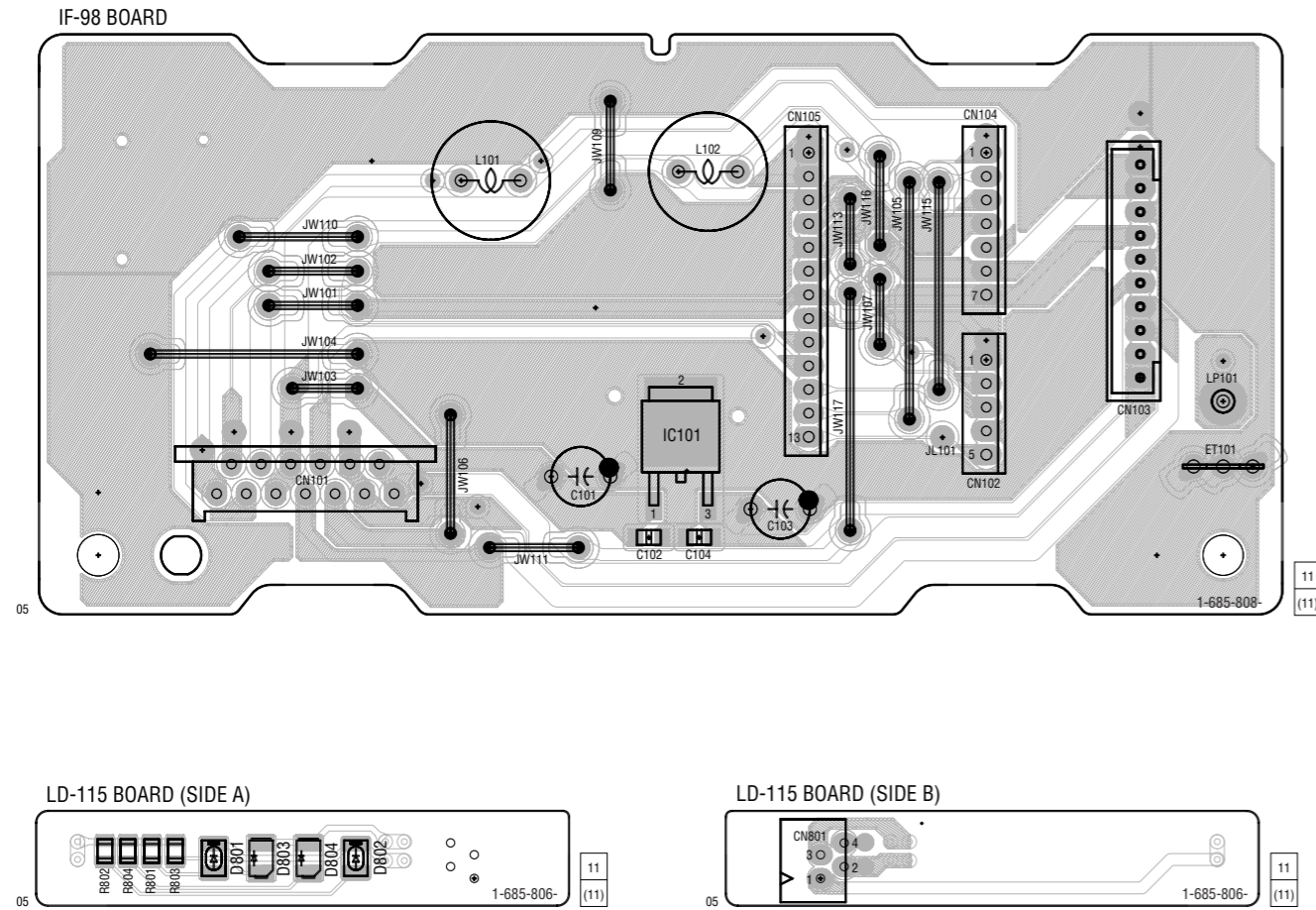


**IF-98 (INTERFACE), LD-115 (LED) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM**

– Ref. No.: IF-98 board; 4,000 series, LD-115 board; 1,000 series –

**LF**: Uses unleaded solder.

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



ZSSR107G (SWITCHING REGULATOR) PRINTED WIRING BOARD

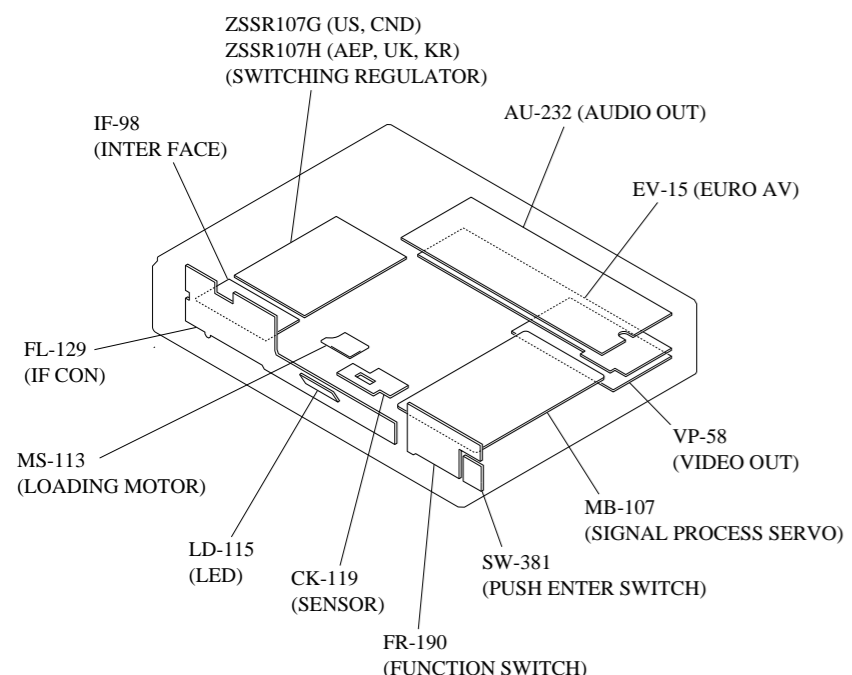
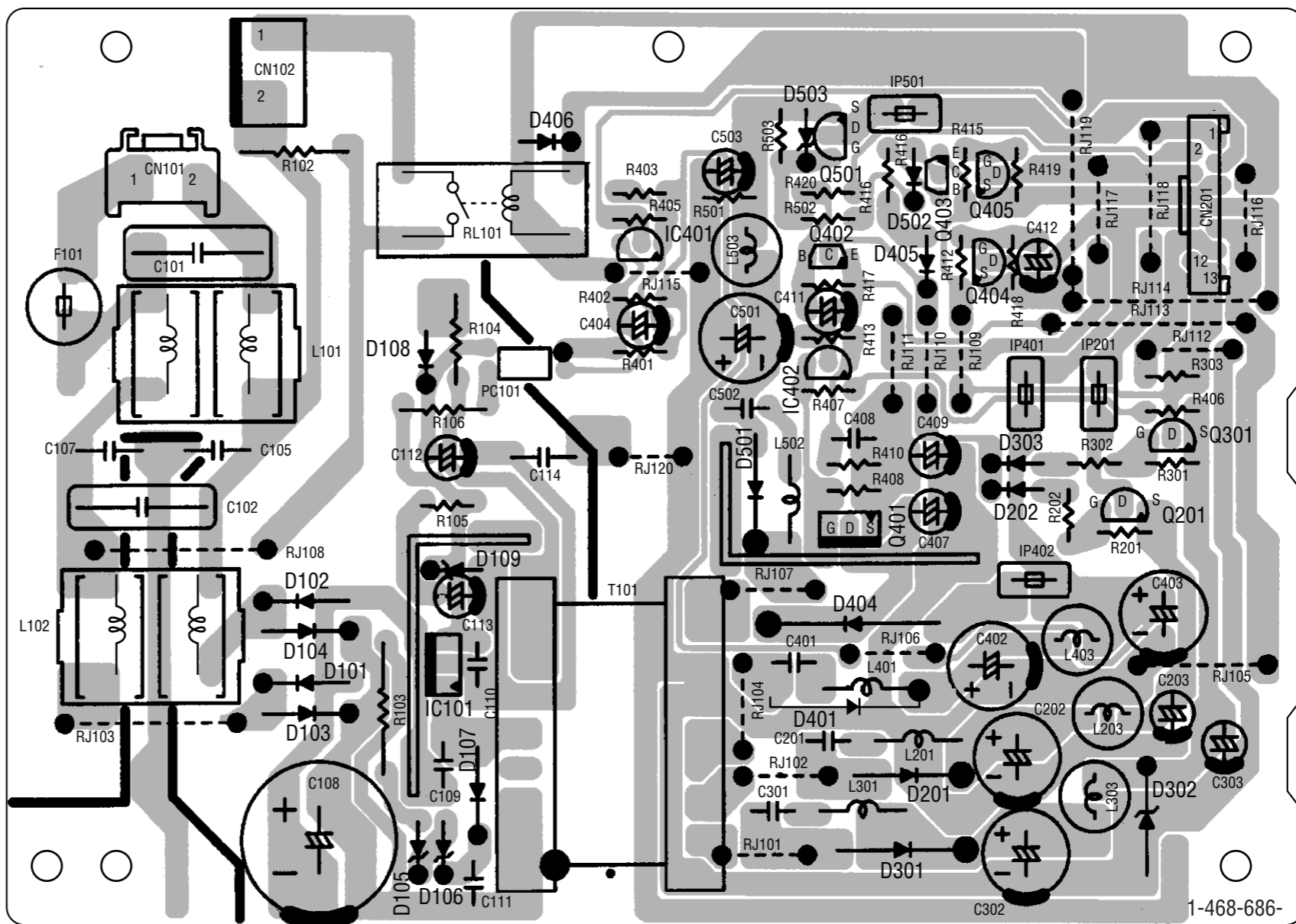
- Ref. No.: ZSSR107G board; 6,000 series -

- 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



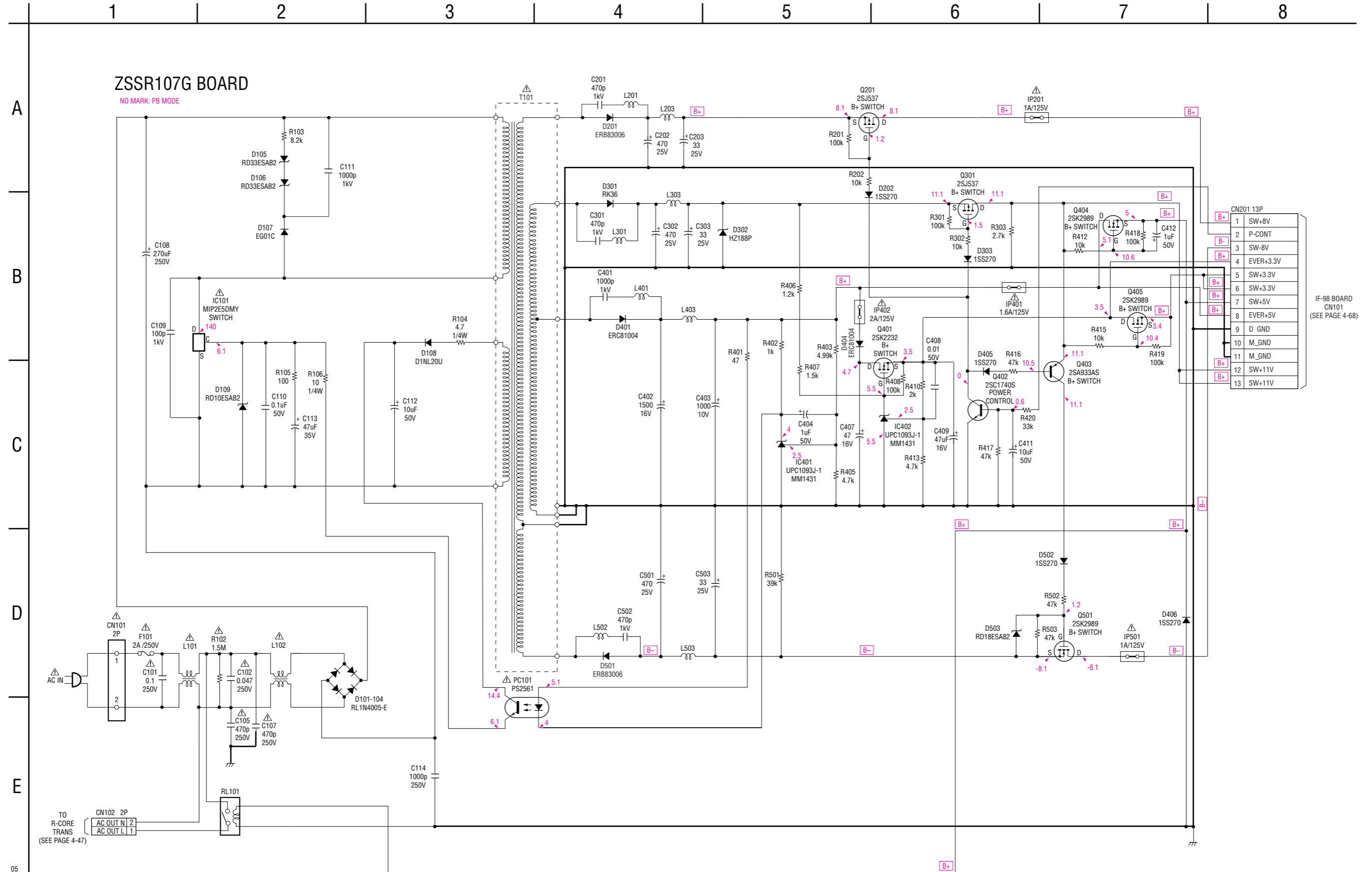
**ZSSR107G (SWITCHING REGULATOR) SCHEMATIC DIAGRAM**

– Ref. No.: ZSSR107G board; 6,000 series –

– US, CND –

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



IF-98 BOARD  
CN101  
(SEE PAGE 4-68)

ZSSR107H (SWITCHING REGULATOR) PRINTED WIRING BOARD

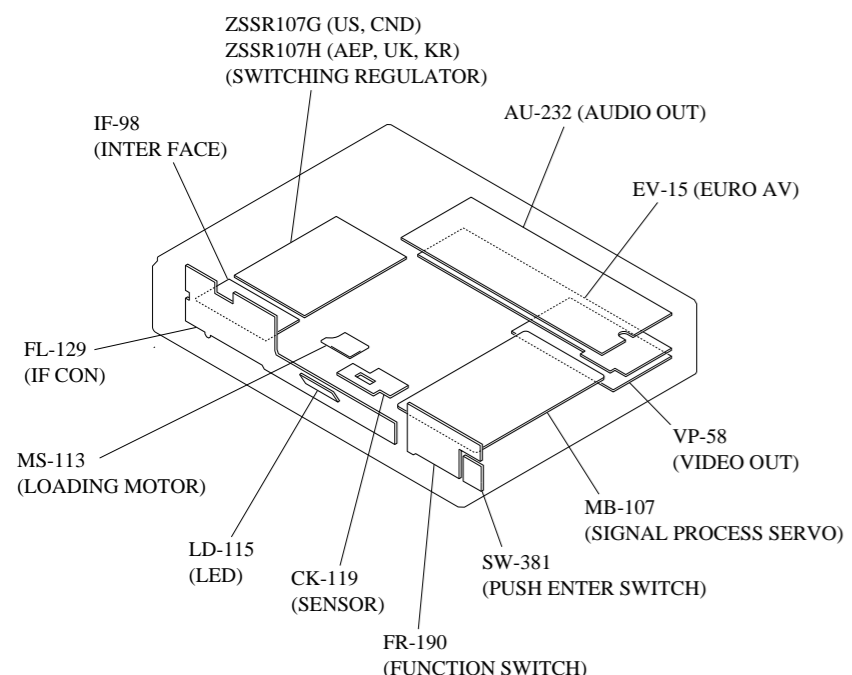
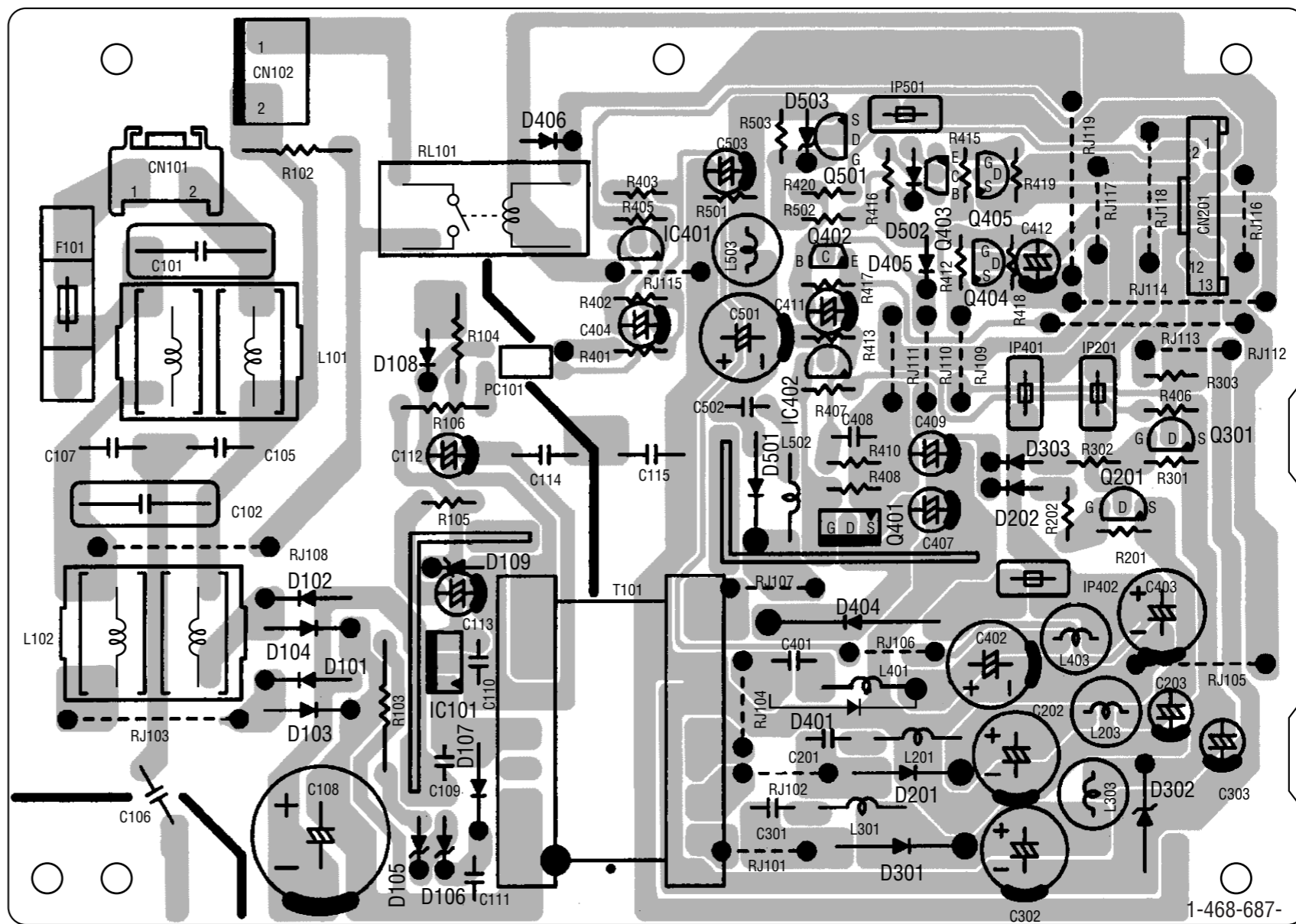
– Ref. No.: ZSSR107H board; 7,000 series –

– AEP, UK, KR –

: Uses unleaded solder.

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

ZSSR107H BOARD



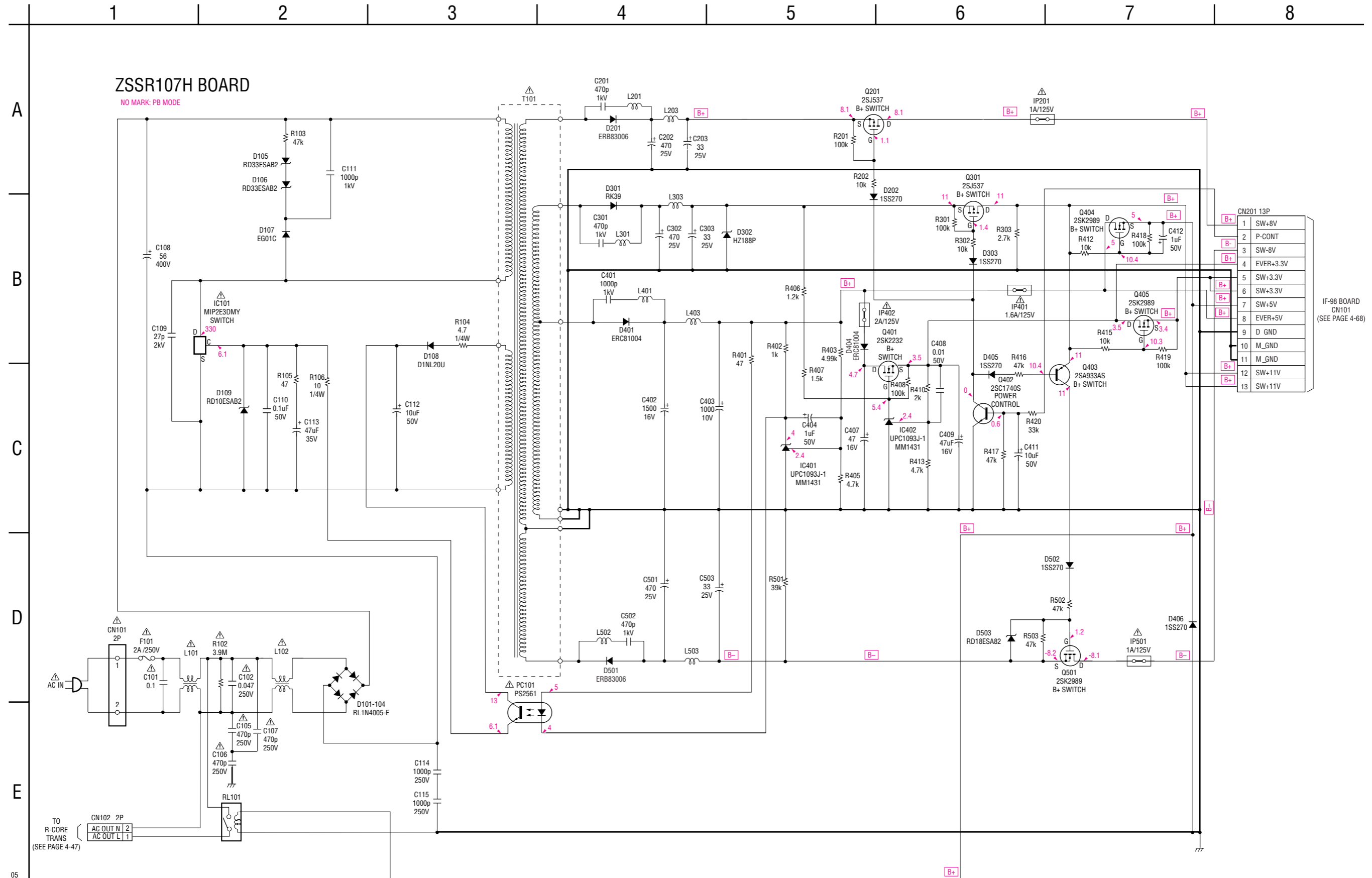
**ZSSR107H (SWITCHING REGULATOR) SCHEMATIC DIAGRAM**

– Ref. No.: ZSSR107H board; 7,000 series –

– AEP, UK, KR –

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



## 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

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	XFRST	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 output
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

## 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/O]** 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/O]** 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 **[▶▶]** key to go to the next item, or **[◀◀]** 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 **[◀◀]** key to repeat the same item where an error occurred, or **[▶▶]** 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 sequentially 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)

- (4-4) RF Amp (SSI) W/R Check  
 Date write → read and accord check  
 Error 13: RF Amp resistor 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 discord 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 (described 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 address 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 already 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. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, 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 accord. 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  $\leftrightarrow$  RAM data bus error  
10: ARP  $\leftrightarrow$  RAM address bus error  
11: ARP RAM read data discord  
12: Servo DSP NG  
13: RF Amp NG  
14: 1935 SDRAM NG  
15: ARP  $\rightarrow$  1935 video NG  
16: ARP  $\rightarrow$  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 commander, and the drive auto adjustment menu will be displayed.

On the Test Mode Menu screen, press **[1]** key on the remote commander, 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 currently adjusted is displayed on the fluorescent display tube.

The disc used for adjustment must be the one specified for adjustment.

### 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. SpdI Start
5. LD ON
6. Focus Error Check
7. Focus ON 0 with PI Level Measure
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

## 2. CD

Select [2], insert CD disc, and press [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 Measure
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. Copy Adjustment Data to LCD
21. RF Level Measure
22. Jitter Measure
23. All Servo Stop

## 3. DVD-DL (dual layer)

Select [3], insert DVD dual 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 Dual Layer Disc Adjustment Steps

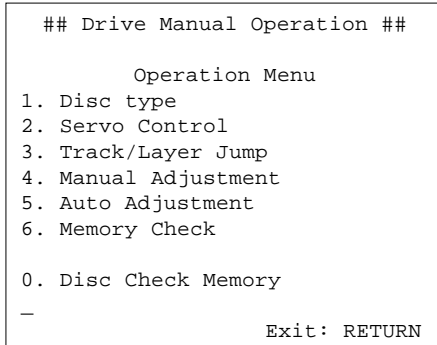
1. Sled Reset
2. Disc Check Memory DL
3. Set Disc Type DL  
DVD DL Layer 1 Adjust
4. Spdl Start
5. LD ON
6. Fcs ON 1 with PI Level Measure
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Clva ON
10. Sled ON
11. Auto Focus Balance Adjust
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
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).

## 6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.



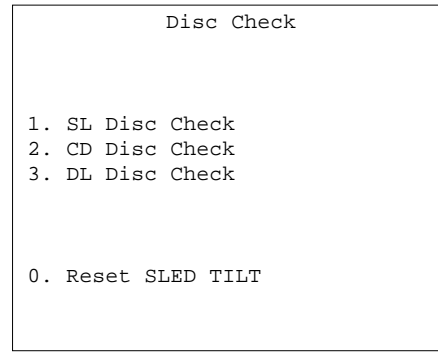
In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

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 selected, 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/O]	Power OFF
[■]	Servo stop
[▲]	Stop+Eject/Loading
[↻] RETURN	Return to Operation Menu or Test Mode Menu
[▶▶], [◀◀]	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

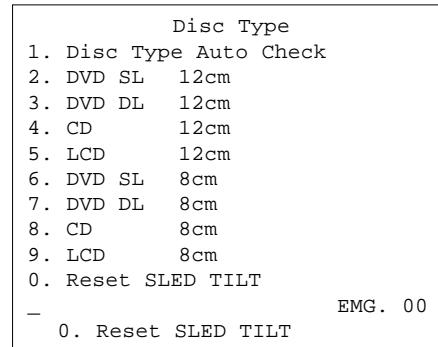


On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press [1], then set a CD disc and press [2], and finally set a DVD DL disc and press [3]. The measured mirror time is displayed respectively.

The adjustment must be executed more than once after default data were written.

From this screen, you can go to another mode by pressing [▶▶] or [◀◀] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

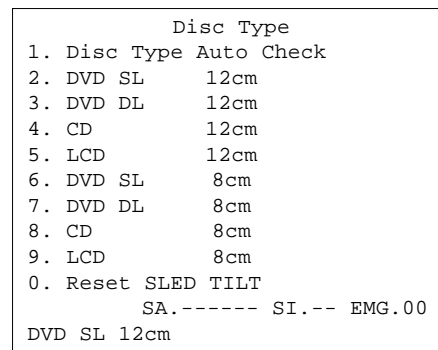
### 1. Disc Type



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 [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.



**Display when DVD SL 12cm disc was selected**

```

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**

- [0] 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.)
- [1] 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).
- [2] to [9]     Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] 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.

- [0] 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.)
- [1] LD     Turn ON/OFF the laser.
- [2] SP     Turn ON/OFF the spindle.

- [3] Focus     Search the focus and turn on the focus.
- [4] TRK     Turn ON/OFF the tracking servo.
- [5] 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)
- [6] CLVA     Turn ON/OFF normal servo of spindle servo.
- [7] 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.

- [1] 1Tj FWD     1-track jump forward.
- [2] 1Tj REV     1-track jump reverse.
- [3] 2Tj FWD     2-track jump forward.
- [4] 2Tj REV     2-track jump reverse.
- [5] NTj FWD     N-track jump forward.
- [6] NTj REV     N-track jump reverse.
- [7] 500Tj FWD     Fine search forward.
- [8] 500Tj REV     Fine search reverse.
- [9] 10k/20k FWD     Direct search forward.
- [0] 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.

## 6-8. 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.

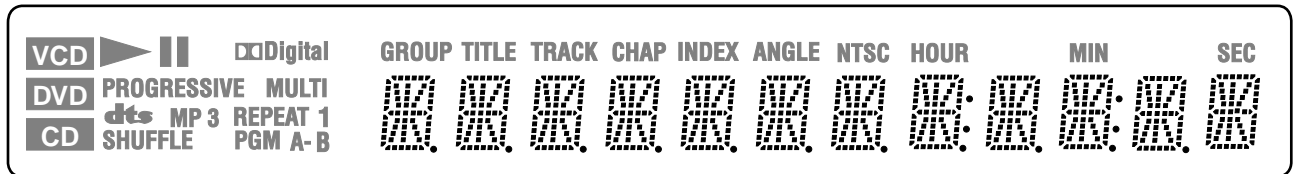
#### 2-1. Self Check Mode Transition Processing

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.

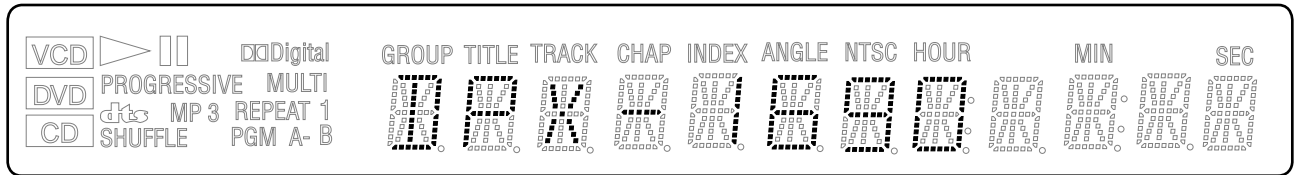
## 2-2. Operation of Auto Self Check

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.

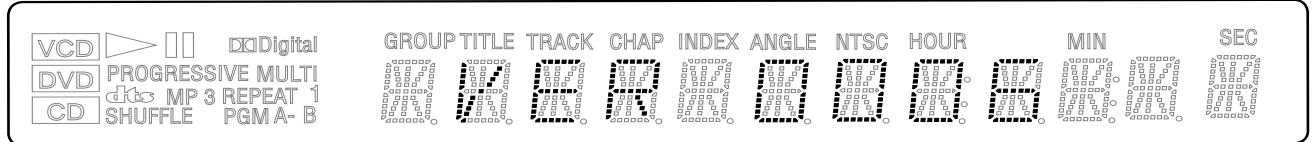
(1) FLD and LED all ON (for 5 seconds)



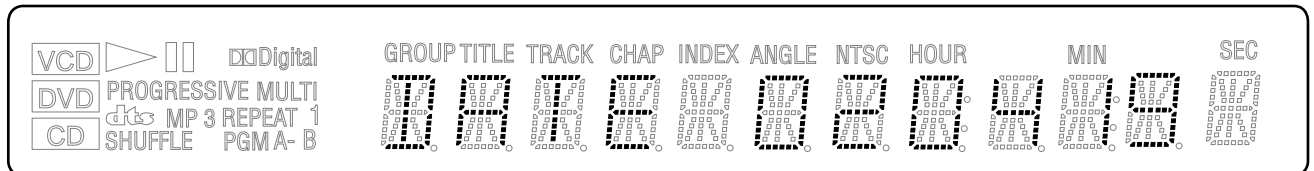
(2) MODEL display (for 2 seconds)



(3) Version display (for 2 seconds)



(4) ROM creation date display (for 2 seconds)



### 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

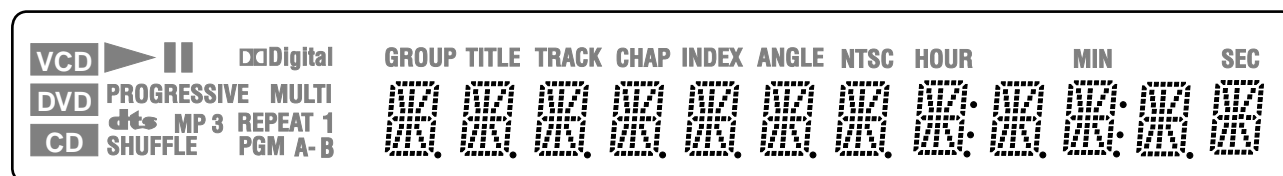
##### 2-3-1-1. Transition Keys in Self Check Mode

- 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

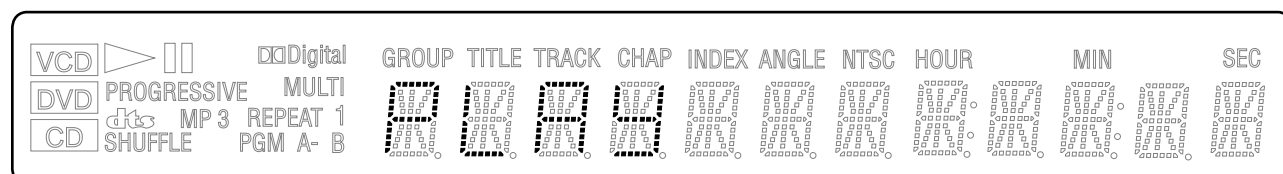
##### 2-3-2-1. Transition Keys in Self Check Mode


- Keys on main unit except keys transitioned in self check

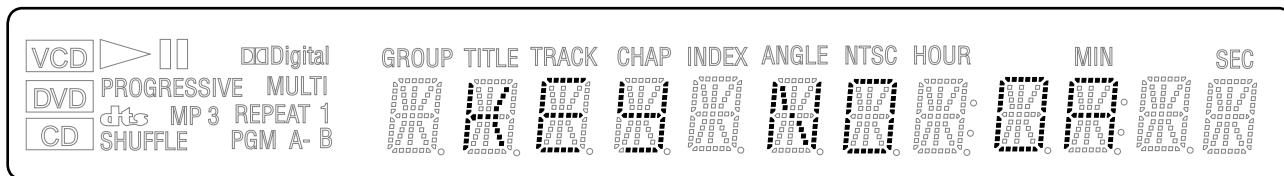
##### 2-3-2-2. Operation and Display

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.

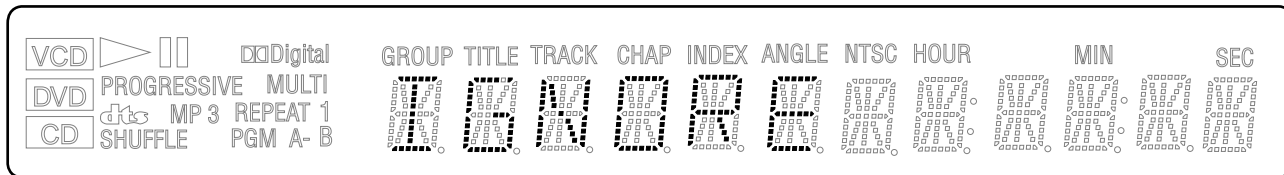
FLD display (at input of key on the main unit)



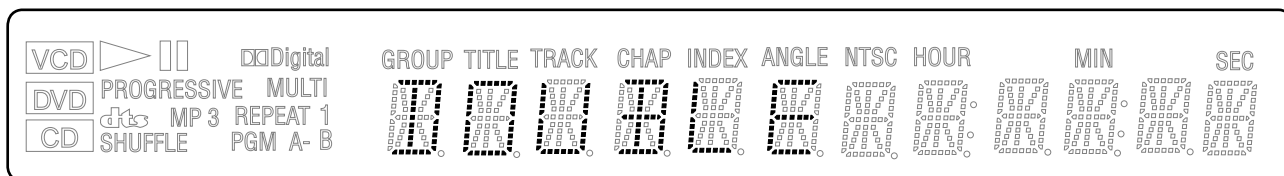
Key code display (at input of  key, Key code: 0Ah)



At input of faulty voltage



When two keys are pressed




### 2-3-3. Remote Commander Key Name Display and Key Code Display

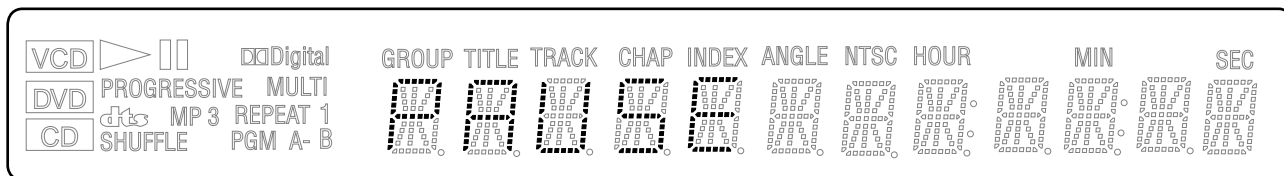
#### 2-3-3-1. Transition Keys in Self Check Mode


- Remote commander keys except keys transited in self check

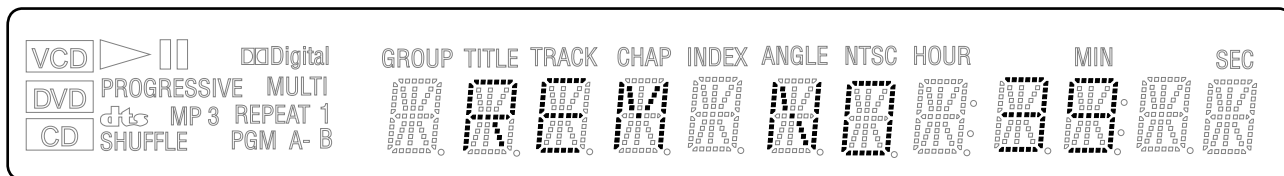
#### 2-3-3-2. Operation and Display

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)



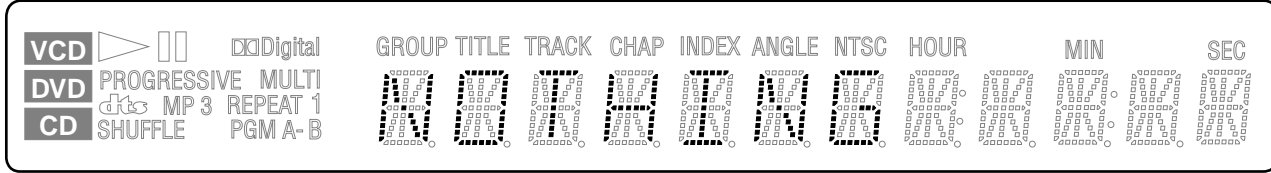
Remote commander key code display (at input of  key, Key code: 39h)



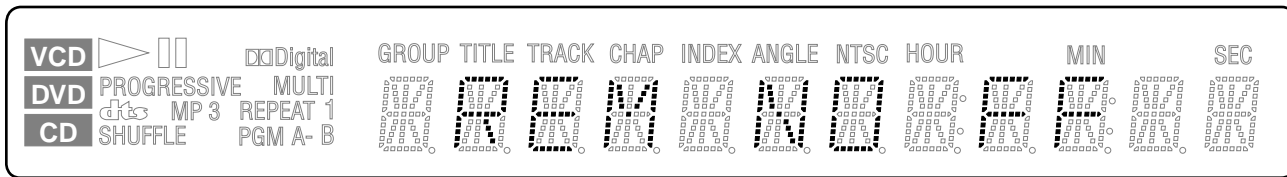
### 2-3-4. Communication Monitoring Display

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

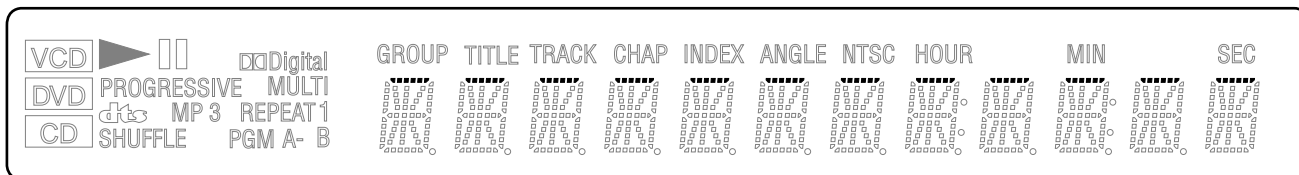
#### 2-3-5-1. Transition Keys in Self Check Mode

- on the remote commander
- SHUTTLE on the remote commander during Anode Test display

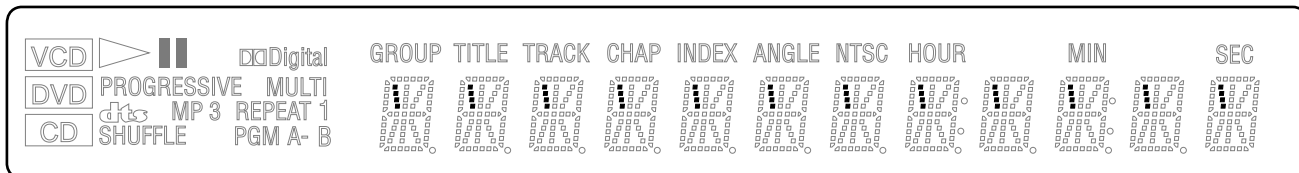
#### 2-3-5-2. Operation and Display

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)




### 2-3-6. FLD Grid Test Display and SHUTTLE Click Operation Test

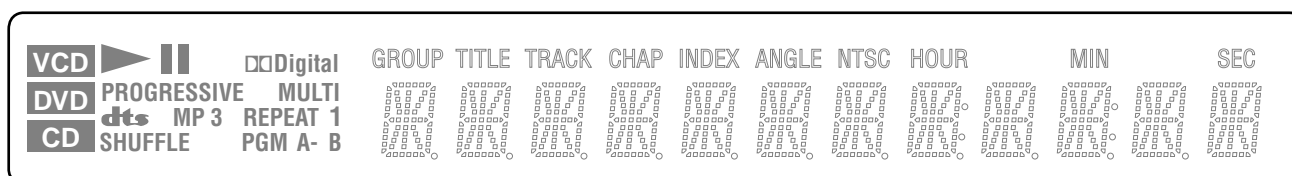
#### 2-3-6-1. Transition Keys in Self Check Mode

-  on the remote commander
- SHUTTLE on the remote commander during Grid Test display

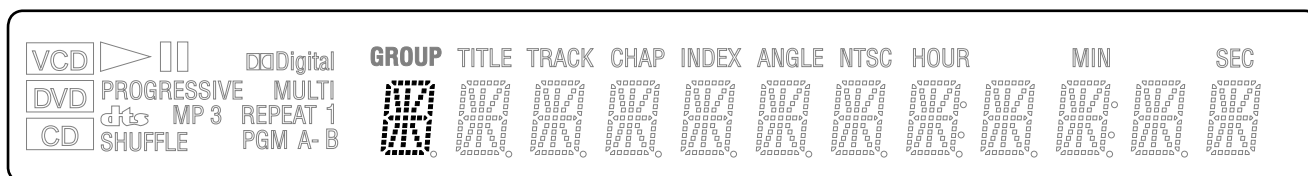
#### 2-3-6-2. Operation and Display

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

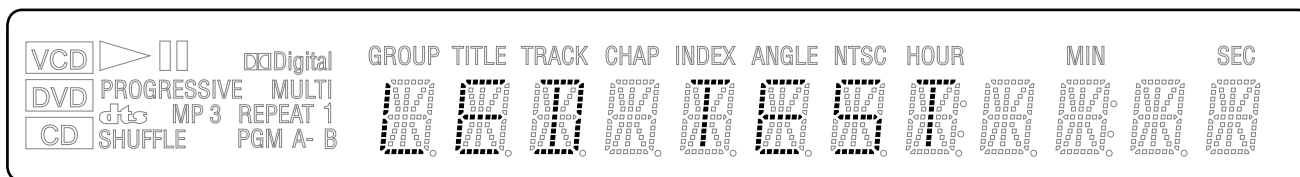
#### 2-3-7-1. Transition Keys in Self Check Mode

-  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

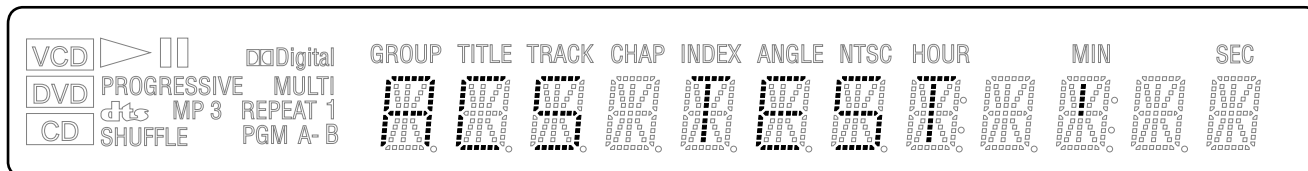
#### 2-3-8-1. Transition Keys in Self Check Mode

-  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





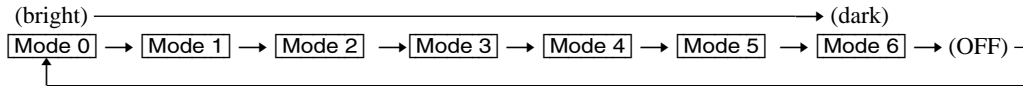
## 2-3-9. Dimmer Test Mode

### 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.



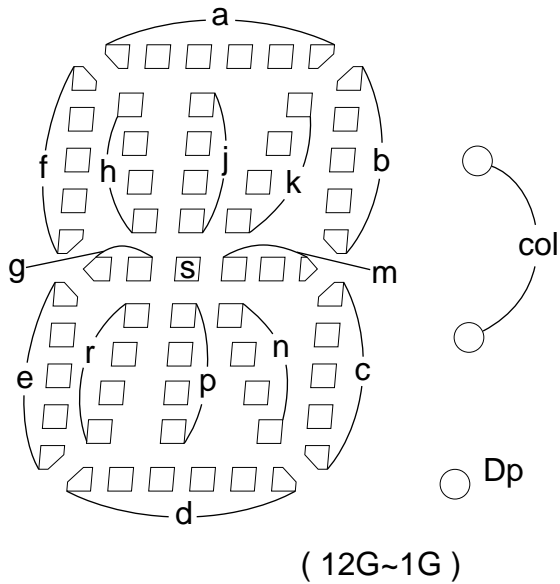
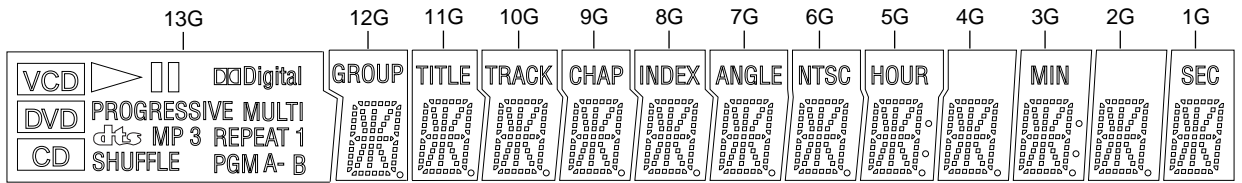
## 2-3-10. Beep Sound Test

### 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 entered, a beep sound of 1kHz (100ms) is generated.



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		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		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		Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	-
P17		-	-	-	-	-	-	-	col	-	col	-	-
P18		GROUP	TITLE	TRACK	CHAP	INDEX	ANGLE	NTSC	HOUR	-	MIN	-	SEC

## 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-⑦⑨) 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-⑦⑩), XWRH (pin-⑦⑪), and CS0X (pin-⑥⑧) 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-⑩⑫ to ⑩⑬, ⑩⑭ to ⑩⑮, ⑩⑯ to ⑩⑰) of SYSCON (IC104) and HD [0 to 15] (pins-⑥⑤ to ⑥⑱) 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-⑥7) 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-①7) 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-①8)), SCLKIN (pin-①9)) 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 ①9) 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-①7) 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, ②9, 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.**

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 or 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-⑩) 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), S10 (pin-⑤), S00 (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-circuited 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-circuited with other signal line.

##### **3-4. Check PONCHK (pin-⑩) 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.

## 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 diagnostic check, use the monitor that supports both NTSC and PAL modes.

Use the reference disc for PAL for check, and use the reference 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.

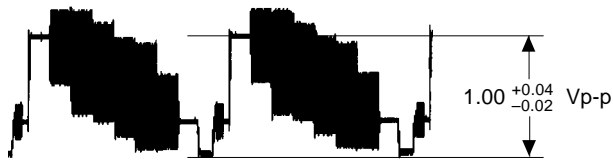


Figure 7-1

### 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



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	$1.00 \pm 0.05$ 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  $1.00 \pm 0.05$  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 = $286 \pm 30$ mVp-p (NTSC) A = $300 \pm 100$ 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".

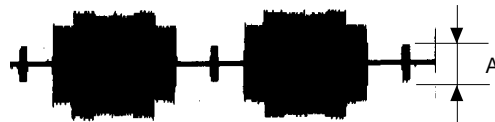


Figure 7-4

## 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 $\Omega$ terminated)
Instrument	Oscilloscope
Specification	$1.00 \pm 0.05$ 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  $1.00 \pm 0.05$  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 <sub>B</sub> /C <sub>B</sub> ) connector (75 $\Omega$ terminated)
Instrument	Oscilloscope
Specification	A = $648 \pm 50$ mVp-p (For US, Canadian) A = $700 \pm 50$ 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.

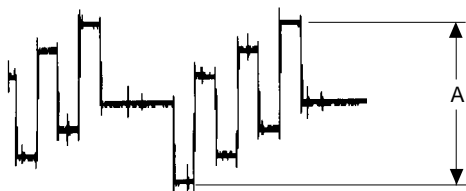


Figure 7-6

## 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 <sub>R</sub> /C <sub>R</sub> ) connector (75 $\Omega$ terminated)
Instrument	Oscilloscope
Specification	B = $648 \pm 50$ mVp-p (For US, Canadian) B = $700 \pm 50$ 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.



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 ⑬ (75 $\Omega$ terminated)
Instrument	Oscilloscope
Specification	$700 \pm 100$ 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  $700 \pm 100$  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 ⑩ (75 Ω terminated)
Instrument	Oscilloscope
Specification	$700 \pm 100$ 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  $700 \pm 100$  mVp-p.

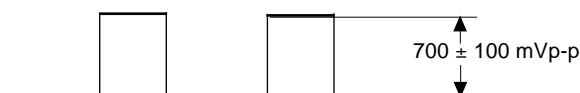


Figure 7-9

## 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	$700 \pm 100$ mVp-p

### Checking method:

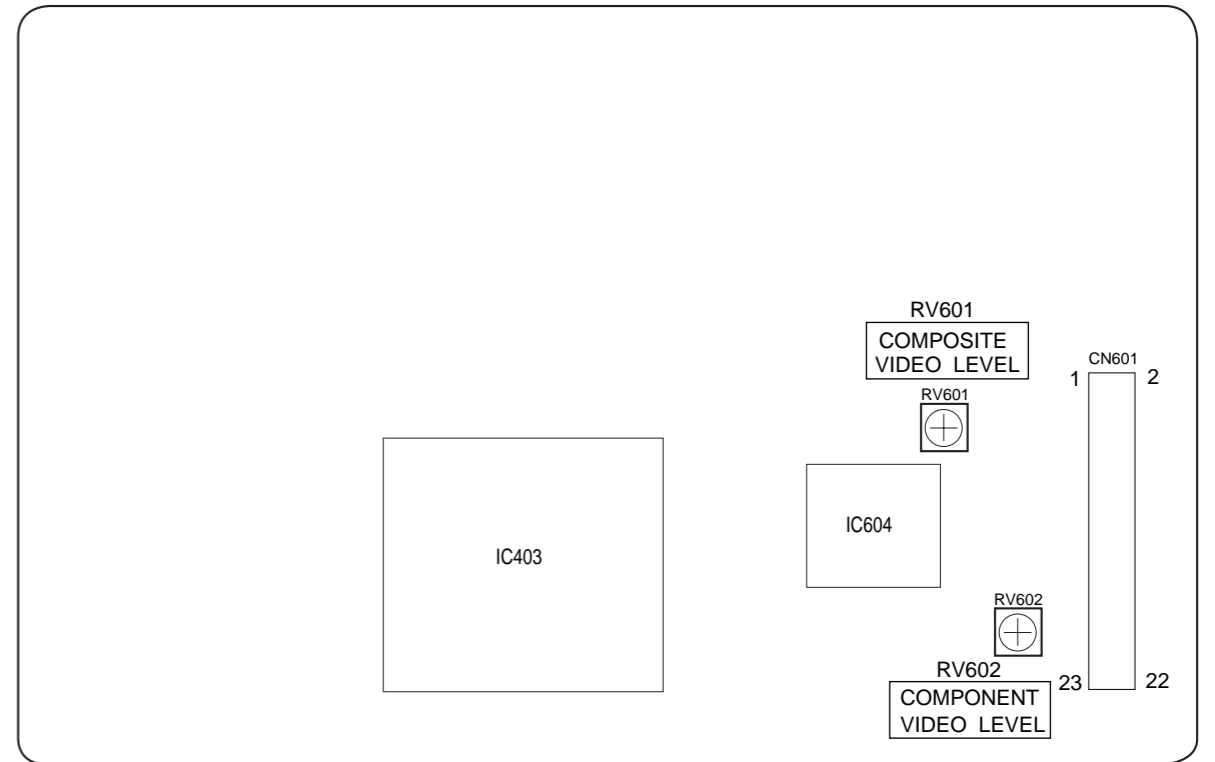
- 1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the B level is  $700 \pm 100$  mVp-p.



Figure 7-10

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-107 BOARD (SIDE A)



ZSSR107G/ZSSR107H BOARD (SIDE B)



## 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)

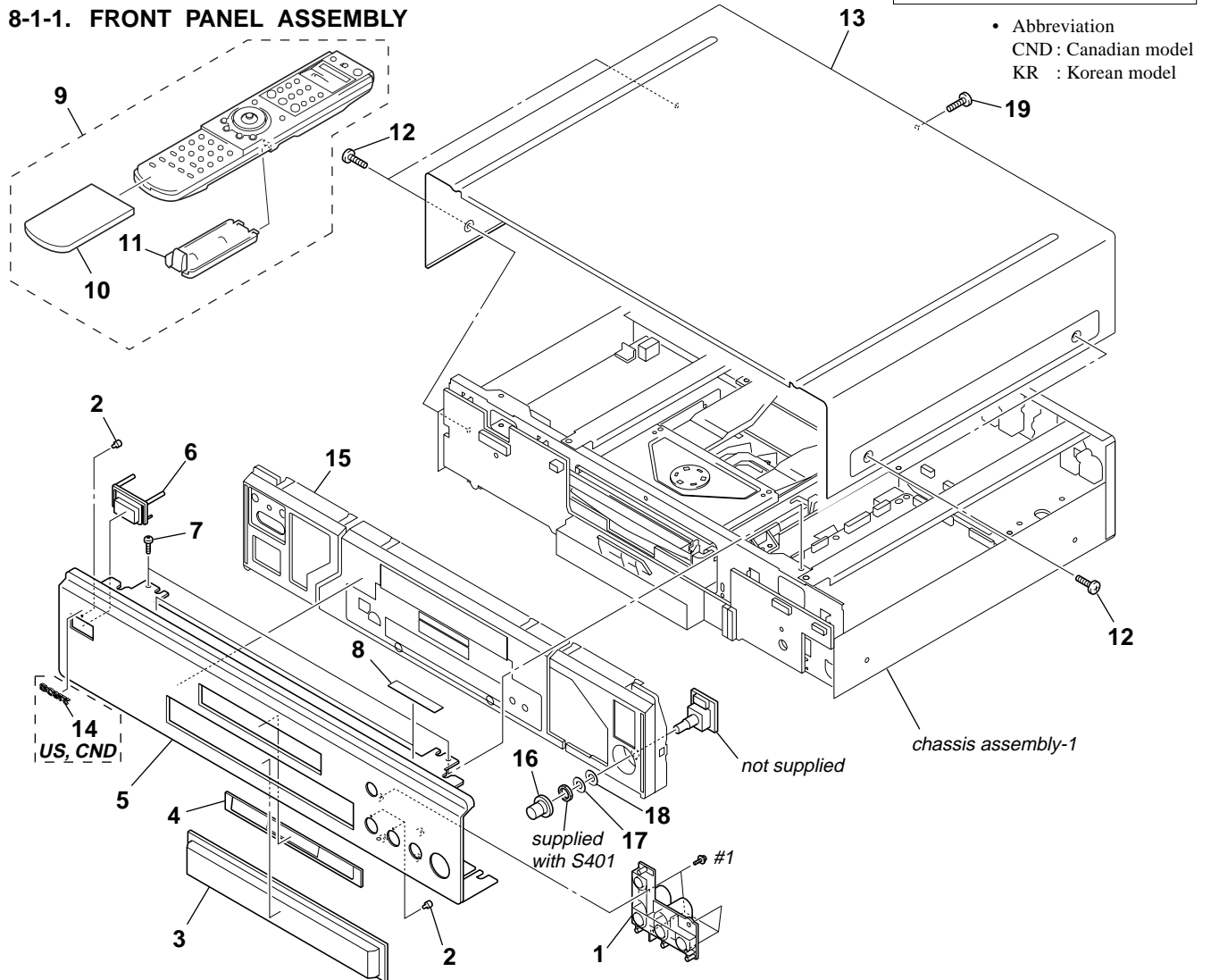
Parts Color      Cabinet's Color

- 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  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

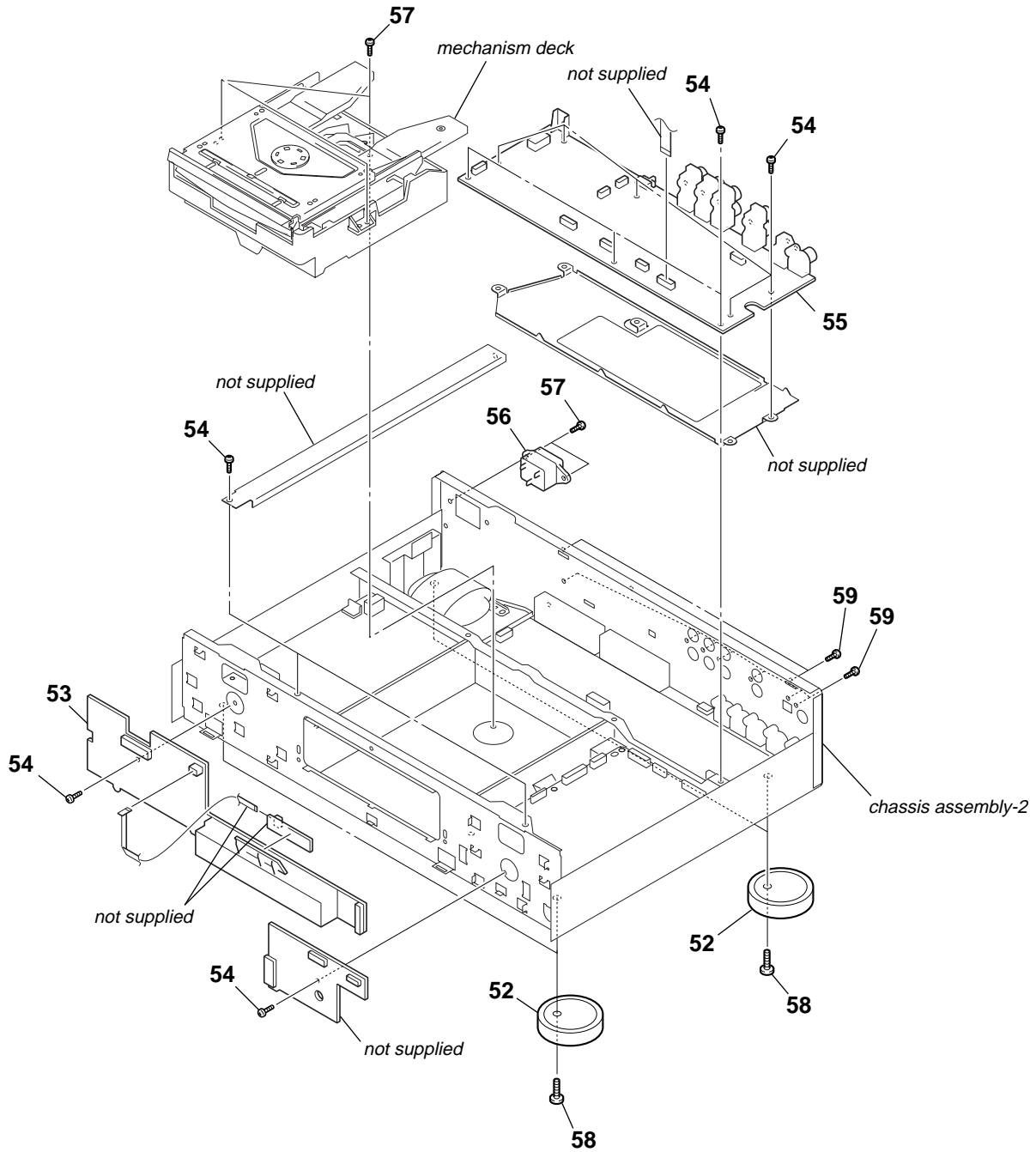
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié

#### 8-1-1. FRONT PANEL ASSEMBLY



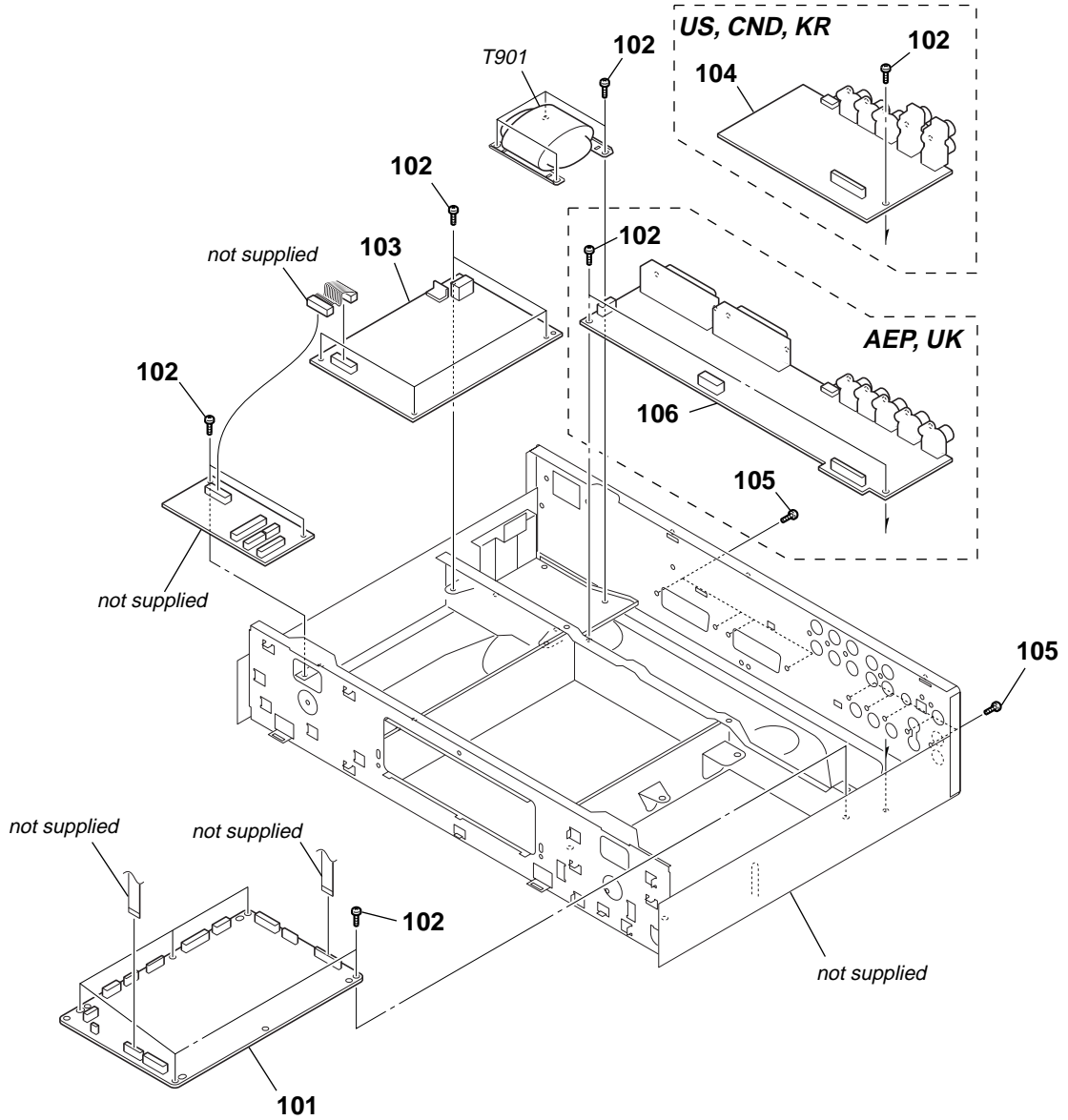
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3952-712-1	BUTTON ASSY (B), FUNCTION (BLACK)	(US, CND)	10	3-071-120-51	DOOR, SLIDE (US, CND, KR)	
1	X-3952-736-1	BUTTON ASSY (G), FUNCTION (GOLD)	(AEP, UK, KR)	10	3-071-120-71	DOOR, SLIDE (AEP, UK)	
2	4-230-638-11	INDICATOR BUTTON PLAY		11	3-071-119-01	COVER, BATTERY	
3	3-077-317-01	WINDOW, FL (US, CND)		12	4-227-843-02	SCREW (TP), FLAT HEAD (US, CND)	
3	3-077-317-11	WINDOW, FL (AEP, UK, KR)		12	4-227-843-12	SCREW (TP), FLAT HEAD (AEP, UK, KR)	
4	X-3952-720-1	WINDOW ASSY (B), TRAY (BLACK) (US, CND)		13	3-077-307-01	CASE, TOP (BLACK) (US, CND)	
4	X-3952-742-1	WINDOW ASSY (G), TRAY (GOLD)	(AEP, UK, KR)	13	3-077-307-11	CASE, TOP (GOLD) (AEP, UK, KR)	
5	X-3952-713-1	PANEL ASSY (B), AL (BLACK) (US, CND)		14	4-942-568-31	EMBLEM (NO.5), SONY (US, CND)	
5	X-3952-734-1	PANEL ASSY (G), AL (GOLD) (AEP, UK, KR)		15	X-3952-714-1	PANEL ASSY (B), FRONT (BLACK) (US, CND)	
6	3-077-311-01	BUTTON, POWER (BLACK) (US, CND)		15	X-3952-735-1	PANEL ASSY (G), FRONT (GOLD)	(AEP, UK, KR)
6	3-077-311-11	BUTTON, POWER (GOLD) (AEP, UK, KR)		16	X-3952-715-1	KNOB ASSY (B), AMS (BLACK) (US, CND)	
7	3-077-331-01	+BV3 (3-CR)		16	X-3952-741-1	KNOB ASSY (G), AMS (GOLD) (AEP, UK, KR)	
8	3-831-441-11	CUSHION (F)		17	3-078-314-01	WASHER, WAVE	
9	1-477-327-11	REMOTE COMMANDER (RMT-D150A)	(US, CND, KR)	18	4-951-514-01	WASHER (DIA.15)	
9	1-477-327-31	REMOTE COMMANDER (RMT-D150P)	(AEP, UK)	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



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 (AEP, UK, KR)		56	1-816-880-22	INLET ASSY, AC (AEP, UK, KR)	
54	3-077-331-01	+BV3 (3-CR)		57	3-970-608-51	SUMITITE (B3), +BV	
55	A-6061-082-A	AU-232 (UC2) BOARD, COMPLETE (US, CND)		58	3-066-209-11	S TYPE +P4 SWPW	
				59	3-068-321-01	B TYPE +BV3 (CU)	

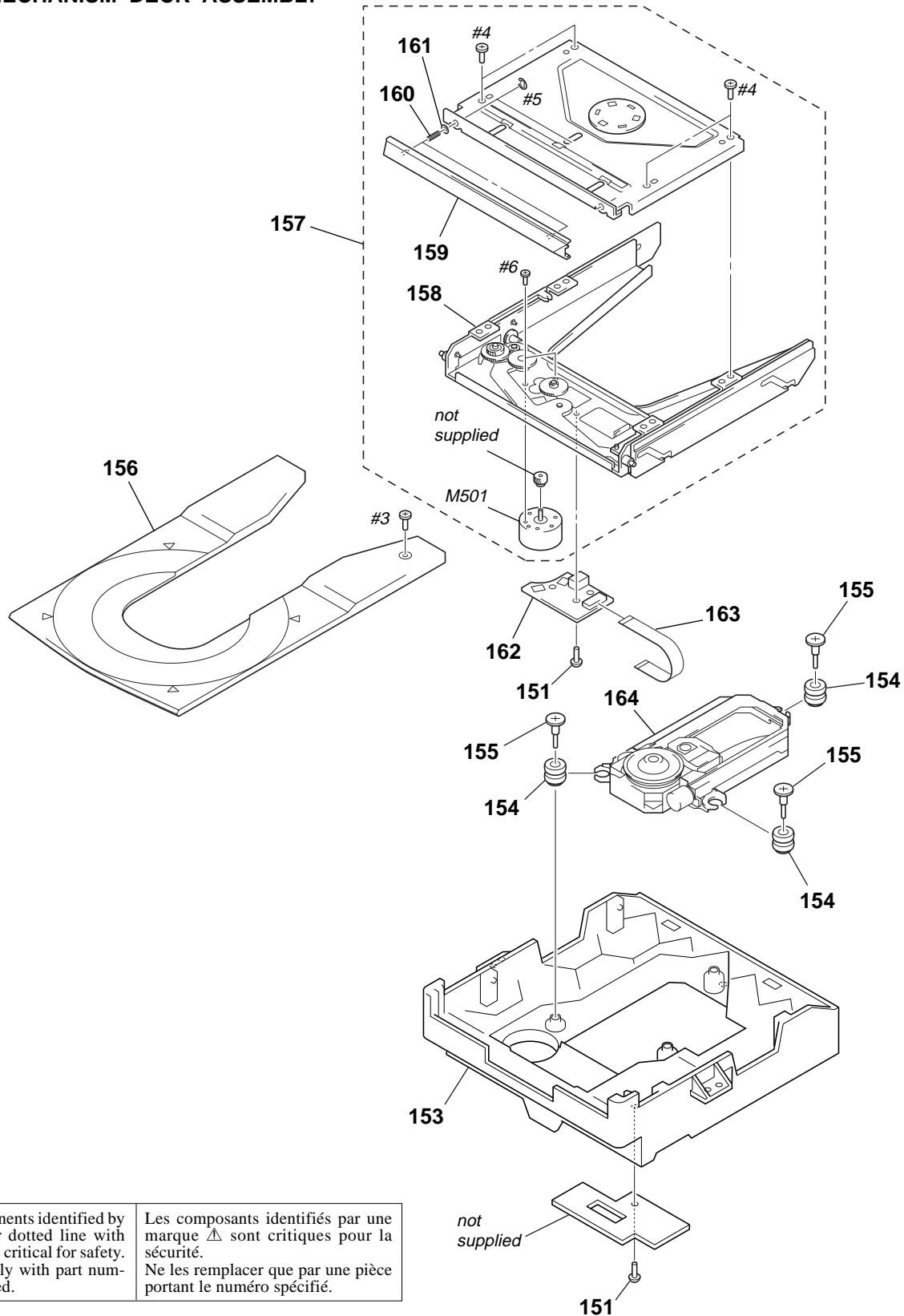
### 8-1-3. CHASSIS ASSEMBLY-2



<p>The components identified by mark <math>\Delta</math> or dotted line with mark <math>\Delta</math> are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque <math>\Delta</math> sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	---

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	A-6061-079-A	MB-107 (UC2) BOARD, COMPLETE (US, CND)		104	A-6061-094-A	VP-58 (UC2) BOARD, COMPLETE (US, CND, KR)	
101	A-6061-102-A	MB-107 (EC1) BOARD, COMPLETE (AEP, UK)		105	3-970-608-51	SUMITITE (B3), +BV	
101	A-6061-108-A	MB-107 (KR2) BOARD, COMPLETE (KR)		106	A-6061-092-A	EV-15 BOARD, COMPLETE (AEP, UK)	
102	3-077-331-01	+BV3 (3-CR)		$\Delta$ T901	1-437-496-21	TRANSFORMER, POWER (US, CND)	
103	1-468-686-11	POWER BLOCK (ZSSR107G) (US, CND)		$\Delta$ T901	1-437-497-21	TRANSFORMER, POWER (AEP, UK, KR)	
103	1-468-687-11	POWER BLOCK (ZSSR107H) (AEP, UK, KR)					

### 8-1-4. MECHANISM DECK ASSEMBLY



<p>The components identified by mark <math>\triangle</math> or dotted line with mark <math>\triangle</math> are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque <math>\triangle</math> sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	--

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-077-331-01	+BV3 (3-CR)5		159	X-3952-717-3	DOOR ASSY	
153	X-3952-716-2	MECHA BASE ASSY		160	3-077-324-01	SPRING, COMPRESSION	
154	3-053-847-11	INSULATOR		* 161	3-367-419-01	WASHER (SUS)	
155	3-074-729-01	SCREW, INS		162	A-6061-086-A	MS-113 BOARD, COMPLETE	
156	X-3952-718-3	TRAY ASSY		163	1-757-068-12	CABLE, FLEXIBLE FLAT (FCM-13)	
157	A-6061-128-D	LOADING ASSY		$\triangle$ 164	A-6062-709-A	SERVICE ASSY, KHM-270AAA	
158	X-3952-719-1	BASE ASSY, LOADING		M501	1-763-397-21	MOTOR, DC (RF-300FA-12350)	

## 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:  $\mu$ , for example:  
uA. . :  $\mu$ A. . uPA. . :  $\mu$ PA. .  
uPB. . :  $\mu$ PB. . uPC. . :  $\mu$ PC. .  
uPD. . :  $\mu$ PD. .
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H
- Abbreviation  
CND : Canadian model  
KR : Korea model

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  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.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
A-6061-082-A	AU-232 (UC2) BOARD, COMPLETE (US, CND)			C136	1-128-654-21	FILM	2200PF 5% 50V
A-6061-105-A	AU-232 (EC1) BOARD, COMPLETE (AEP, UK)						(AEP, UK, KR)
A-6061-111-A	AU-232 (KR2) BOARD, COMPLETE (KR)			C137	1-130-477-00	MYLAR	0.0033uF 5% 50V
***** (Ref. No. 1, 000 Series)							
7-682-148-15	SCREW, TR			C138	1-136-850-11	MYLAR	0.1uF 5% 63V
4-902-345-01	HEAT SINK			C139	1-106-351-00	MYLAR	2200PF 5% 200V
	< CAPACITOR >			C140	1-136-810-11	FILM	220PF 5% 100V
				C141	1-128-654-21	FILM	2200PF 5% 50V
							(AEP, UK, KR)
C102	1-136-850-11	MYLAR	0.1uF 5% 63V	C142	1-136-810-11	FILM	220PF 5% 100V
C103	1-119-814-21	ELECT	1000uF 20% 35V	C143	1-128-654-21	FILM	2200PF 5% 50V
C104	1-119-814-21	ELECT	1000uF 20% 35V				(AEP, UK, KR)
C105	1-119-814-21	ELECT	1000uF 20% 35V	C144	1-130-467-00	MYLAR	470PF 5% 50V
C106	1-119-814-21	ELECT	1000uF 20% 35V	C145	1-128-654-21	FILM	2200PF 5% 50V
							(AEP, UK, KR)
C107	1-109-857-11	ELECT	47uF 20% 63V	C146	1-119-814-21	ELECT	1000uF 20% 35V
C108	1-163-009-91	CERAMIC CHIP	0.001uF 10% 50V	C147	1-137-605-11	MYLAR	0.00022uF 5% 50V
C109	1-136-850-11	MYLAR	0.1uF 5% 63V	C148	1-106-351-00	MYLAR	2200PF 5% 200V
C110	1-127-721-91	ELECT	1000PF 20% 16V	C149	1-136-810-11	FILM	220PF 5% 100V
C111	1-109-857-11	ELECT	47uF 20% 63V	C150	1-136-810-11	FILM	220PF 5% 100V
				C151	1-136-810-11	FILM	220PF 5% 100V
C112	1-136-850-11	MYLAR	0.1uF 5% 63V	C152	1-137-605-11	MYLAR	0.00022uF 5% 50V
C113	1-119-820-11	ELECT	1uF 20% 50V	C153	1-136-850-11	MYLAR	0.1uF 5% 63V
C114	1-119-820-11	ELECT	1uF 20% 50V	C154	1-109-857-11	ELECT	47uF 20% 63V
C115	1-119-820-11	ELECT	1uF 20% 50V	C155	1-109-857-11	ELECT	47uF 20% 63V
C116	1-136-850-11	MYLAR	0.1uF 5% 63V	C156	1-136-850-11	MYLAR	0.1uF 5% 63V
				C157	1-136-850-11	MYLAR	0.1uF 5% 63V
C117	1-119-799-11	ELECT	47uF 20% 25V	C158	1-109-857-11	ELECT	47uF 20% 63V
C118	1-130-474-00	MYLAR	0.0018uF 5% 50V	C159	1-109-857-11	ELECT	47uF 20% 63V
C119	1-130-474-00	MYLAR	0.0018uF 5% 50V	C160	1-136-850-11	MYLAR	0.1uF 5% 63V
C120	1-130-474-00	MYLAR	0.0018uF 5% 50V	C161	1-136-850-11	MYLAR	0.1uF 5% 63V
C121	1-130-474-00	MYLAR	0.0018uF 5% 50V	C162	1-109-857-11	ELECT	47uF 20% 63V
C122	1-130-474-00	MYLAR	0.0018uF 5% 50V	C163	1-109-857-11	ELECT	47uF 20% 63V
C123	1-130-474-00	MYLAR	0.0018uF 5% 50V	C164	1-136-850-11	MYLAR	0.1uF 5% 63V
C124	1-130-474-00	MYLAR	0.0018uF 5% 50V	C165	1-119-814-21	ELECT	1000uF 20% 35V
C125	1-130-474-00	MYLAR	0.0018uF 5% 50V	C166	1-127-718-91	ELECT	100uF 20% 16V
C126	1-136-810-11	FILM	220PF 5% 100V	C167	1-127-718-91	ELECT	100uF 20% 16V
C127	1-136-810-11	FILM	220PF 5% 100V	C168	1-127-718-91	ELECT	100uF 20% 16V
				C169	1-127-718-91	ELECT	100uF 20% 16V
C128	1-136-810-11	FILM	220PF 5% 100V				
C129	1-136-810-11	FILM	220PF 5% 100V	C171	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C130	1-130-467-00	MYLAR	470PF 5% 50V	C172	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C131	1-136-810-11	FILM	220PF 5% 100V	C173	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C132	1-109-857-11	ELECT	47uF 20% 63V	C174	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
				C175	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C133	1-137-605-11	MYLAR	0.00022uF 5% 50V				
C134	1-137-605-11	MYLAR	0.00022uF 5% 50V	C176	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C135	1-128-654-21	FILM	2200PF 5% 50V	C177	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
			(AEP, UK, KR)				

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C179	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	Q102	8-729-421-19	TRANSISTOR UN2213-TX	
C180	1-136-850-11	MYLAR	0.1uF 5% 63V	Q103	8-729-421-19	TRANSISTOR UN2213-TX	
C181	1-104-645-11	CERAMIC	1uF 20% 50V	Q104	8-729-421-19	TRANSISTOR UN2213-TX	
C182	1-163-009-91	CERAMIC CHIP	0.001uF 10% 50V (US, CND)	Q105	8-729-052-95	TRANSISTOR 2SC5171	
C183	1-163-243-11	CERAMIC CHIP	47PF 5% 50V	Q106	8-729-027-53	TRANSISTOR DTC124TKA-T146	
C184	1-119-824-31	ELECT	10uF 20% 50V	Q107	8-729-027-53	TRANSISTOR DTC124TKA-T146	
C185	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	Q108	8-729-027-53	TRANSISTOR DTC124TKA-T146	
C186	1-136-850-11	MYLAR	0.1uF 5% 63V	Q109	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
C187	1-106-351-00	MYLAR	2200PF 5% 200V (US, CND)	Q110	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
C188	1-106-351-00	MYLAR	2200PF 5% 200V (US, CND)	Q111	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
C189	1-106-351-00	MYLAR	2200PF 5% 200V (US, CND)	Q112	8-729-224-62	TRANSISTOR 2SK246GR-TPE2	
C190	1-106-351-00	MYLAR	2200PF 5% 200V (US, CND)	Q113	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
C191	1-106-351-00	MYLAR	2200PF 5% 200V (US, CND)	Q114	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
< CONNECTOR >				< RESISTOR >			
* CN101	1-564-241-11	PIN, CONNECTOR (3.96MM PITCH)4P		R101	1-208-798-11	METAL CHIP	4.7K 0.5% 1/10W
CN105	1-785-695-11	CONNECTOR, FFC/FPC 13P		R102	1-208-798-11	METAL CHIP	4.7K 0.5% 1/10W
* CN106	1-506-470-11	PIN, CONNECTOR 5P		R103	1-249-963-11	CARBON	47K 5% 1/4W
CN107	1-506-469-11	PIN, CONNECTOR 4P (AEP, UK)		R104	1-249-963-11	CARBON	47K 5% 1/4W
< DIODE >				R105	1-208-798-11	METAL CHIP	4.7K 0.5% 1/10W
D101	8-719-210-21	DIODE	11EQS04-TA1B	R106	1-259-440-11	CARBON	3.3K 5% 1/6W
D102	8-719-210-21	DIODE	11EQS04-TA1B	R107	1-259-404-11	CARBON	100 5% 1/6W
D103	8-719-210-21	DIODE	11EQS04-TA1B	R108	1-259-440-11	CARBON	3.3K 5% 1/6W
D104	8-719-210-21	DIODE	11EQS04-TA1B	R109	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
D105	8-719-914-43	DIODE	DAN202K-T-146	R110	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
D106	8-719-988-61	DIODE	1SS355TE-17	R111	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
D107	8-719-933-74	DIODE	RD12JS-T2AB	R112	1-259-404-11	CARBON	100 5% 1/6W
< FERRITE BEAD >				R113	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
FB101	1-414-553-11	FERRITE	0uH (US, CND)	R114	1-208-822-11	METAL CHIP	47K 0.5% 1/10W
FB102	1-414-553-11	FERRITE	0uH (US, CND)	R115	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
< IC >				R116	1-208-822-11	METAL CHIP	47K 0.5% 1/10W
IC101	8-759-711-85	IC	NJM4580E-D-TE2	R117	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
IC102	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)	R118	1-208-822-11	METAL CHIP	47K 0.5% 1/10W
IC102	8-759-712-02	IC	NJM2114D (US, CND)	R119	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
IC103	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)	R120	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
IC103	8-759-712-02	IC	NJM2114D (US, CND)	R121	1-208-806-11	METAL CHIP	10K 0.5% 1/10W
IC104	8-759-443-33	IC	OPA2132PA (AEP, UK, KR)	R122	1-259-404-11	CARBON	100 5% 1/6W
IC104	8-759-712-02	IC	NJM2114D (US, CND)	R123	1-259-466-11	CARBON	39K 5% 1/6W
IC105	8-759-231-53	IC	M5F7805L	R124	1-208-788-11	METAL CHIP	1.8K 0.5% 1/10W
IC106	8-759-145-58	IC	BA4558	R125	1-208-788-11	METAL CHIP	1.8K 0.5% 1/10W
IC107	8-759-242-70	IC	TC7WU04F (TE12R)	R126	1-208-788-11	METAL CHIP	1.8K 0.5% 1/10W
IC108	6-600-005-01	IC	GP1FA351TZ	R127	1-208-788-11	METAL CHIP	1.8K 0.5% 1/10W
< JACK >				R128	1-249-929-11	CARBON	1.8K 5% 1/4W
J101	1-784-430-11	JACK, PIN 4P (AUDIO OUT) (US, CND, KR)		R129	1-249-929-11	CARBON	1.8K 5% 1/4W
J105	1-785-868-21	JACK, PIN 2P (AUDIO OUT) (AEP, UK)		R130	1-249-929-11	CARBON	1.8K 5% 1/4W
J106	1-764-188-21	JACK (SMALL TYPE) (DIA. 3.5) (CONTROL S) (US, CND)		R131	1-249-929-11	CARBON	1.8K 5% 1/4W
J107	1-784-689-11	JACK, PIN 1P (DIGITAL OUT)		R132	1-249-929-11	CARBON	1.8K 5% 1/4W
< TRANSISTOR >				R133	1-249-929-11	CARBON	1.8K 5% 1/4W
Q101	8-729-052-94	TRANSISTOR	2SA1930	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



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Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C104	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C310	1-163-085-00	CERAMIC CHIP	2PF		50V
C105	1-165-722-31	ELECT	100uF	20%	10V	C311	1-163-085-00	CERAMIC CHIP	2PF		50V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C312	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C107	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V	C313	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C108	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C314	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C315	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C316	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C111	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C317	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C112	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C318	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C113	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C319	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C114	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C320	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C115	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C321	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C116	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C322	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C117	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C323	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C118	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C325	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C119	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C326	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C120	1-165-722-31	ELECT	100uF	20%	10V	C328	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C121	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C329	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C122	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C330	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C123	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C331	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C124	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C332	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C125	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	C333	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C126	1-163-085-00	CERAMIC CHIP	2PF		50V	C334	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C127	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C338	1-127-956-21	FILM CHIP	0.1uF	5%	16V
C128	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V			< CONNECTOR >			
C129	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V						
C130	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	CN101	1-779-343-11	CONNECTOR, FFC/FPC 23P			
C131	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	CN102	1-770-215-11	PIN, CONNECTOR (PC BOARD) 7P			
C132	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	CN301	1-778-063-41	PIN, CONNECTOR (PC BOARD) 4P			
C133	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	CN302	1-816-044-11	CONNECTOR, SQUARE TYPE 21P (LINE 2)			
C134	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	CN303	1-816-044-11	CONNECTOR, SQUARE TYPE 21P			(LINE 1 (RGB) -TV)
C136	1-126-205-11	ELECT CHIP	47uF	20%	6.3V			< DIODE >			
C137	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D101	8-719-025-29	DIODE 02CZ5.1-TE85L			
C138	1-127-956-21	FILM CHIP	0.1uF	5%	16V	D105	8-719-988-61	DIODE 1SS355TE-17			
C139	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D106	8-719-988-61	DIODE 1SS355TE-17			
C140	1-127-956-21	FILM CHIP	0.1uF	5%	16V	D108	8-719-071-15	DIODE HZM6.8ZWA1TL			
C141	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D109	8-719-988-61	DIODE 1SS355TE-17			
C142	1-127-956-21	FILM CHIP	0.1uF	5%	16V	D110	8-719-988-61	DIODE 1SS355TE-17			
C143	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D113	8-719-071-15	DIODE HZM6.8ZWA1TL			
C144	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D301	8-719-988-61	DIODE 1SS355TE-17			
C145	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D302	8-719-988-61	DIODE 1SS355TE-17			
C147	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	D303	8-719-988-61	DIODE 1SS355TE-17			
C148	1-127-956-21	FILM CHIP	0.1uF	5%	16V	D304	8-719-988-61	DIODE 1SS355TE-17			
C149	1-163-085-00	CERAMIC CHIP	2PF		50V	D305	8-719-988-61	DIODE 1SS355TE-17			
C150	1-163-085-00	CERAMIC CHIP	2PF		50V	D306	8-719-988-61	DIODE 1SS355TE-17			
C151	1-163-085-00	CERAMIC CHIP	2PF		50V	D307	8-719-988-61	DIODE 1SS355TE-17			
C152	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D308	8-719-988-61	DIODE 1SS355TE-17			
C153	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D309	8-719-071-15	DIODE HZM6.8ZWA1TL			
C154	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D310	8-719-071-15	DIODE HZM6.8ZWA1TL			
C155	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D311	8-719-071-15	DIODE HZM6.8ZWA1TL			
C156	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D312	8-719-071-15	DIODE HZM6.8ZWA1TL			
C157	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V	D313	8-719-071-15	DIODE HZM6.8ZWA1TL			
C158	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D314	8-719-071-15	DIODE HZM6.8ZWA1TL			
C159	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D315	8-719-071-15	DIODE HZM6.8ZWA1TL			
C160	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	D316	8-719-071-15	DIODE HZM6.8ZWA1TL			
C303	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D317	8-719-071-15	DIODE HZM6.8ZWA1TL			
C304	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	D318	8-719-071-15	DIODE HZM6.8ZWA1TL			
C307	1-126-395-11	ELECT CHIP	22uF	20%	16V	D320	8-719-069-56	DIODE UdzSTE-176.2B			
C308	1-163-085-00	CERAMIC CHIP	2PF		50V						
C309	1-163-085-00	CERAMIC CHIP	2PF		50V						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D321	8-719-083-63	DIODE UDZSTE-1713B		J105	1-794-733-11	JACK, PIN 1P (COMPONENT VIDEO OUT P <sub>R</sub> /C <sub>R</sub> )	
D323	8-719-069-56	DIODE UDZSTE-176.2B				< COIL >	
D324	8-719-083-63	DIODE UDZSTE-1713B					
D325	8-719-988-61	DIODE 1SS355TE-17		L101	1-419-387-21	INDUCTOR 100uH	
D326	8-719-988-61	DIODE 1SS355TE-17		L102	1-419-387-21	INDUCTOR 100uH	
D327	8-719-988-61	DIODE 1SS355TE-17		L103	1-419-387-21	INDUCTOR 100uH	
		< FERRITE BEAD >		L104	1-419-387-21	INDUCTOR 100uH	
				L105	1-419-387-21	INDUCTOR 100uH	
FB301	1-414-553-11	FERRITE 0uH		L106	1-419-387-21	INDUCTOR 100uH	
FB302	1-414-553-11	FERRITE 0uH		L107	1-419-387-21	INDUCTOR 100uH	
FB303	1-414-553-11	FERRITE 0uH		L108	1-419-387-21	INDUCTOR 100uH	
FB304	1-414-553-11	FERRITE 0uH		L109	1-412-064-11	INDUCTOR 100uH	
FB305	1-414-553-11	FERRITE 0uH		L110	1-412-064-11	INDUCTOR 100uH	
FB306	1-414-553-11	FERRITE 0uH		L302	1-419-387-21	INDUCTOR 100uH	
FB307	1-414-553-11	FERRITE 0uH		L303	1-419-387-21	INDUCTOR 100uH	
FB308	1-414-553-11	FERRITE 0uH				< TRANSISTOR >	
FB309	1-414-553-11	FERRITE 0uH					
FB310	1-414-553-11	FERRITE 0uH		Q101	8-729-424-08	TRANSISTOR UN2111-TX	
FB311	1-414-553-11	FERRITE 0uH		Q102	8-729-421-19	TRANSISTOR UN2213-TX	
FB312	1-414-553-11	FERRITE 0uH		Q103	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB313	1-414-553-11	FERRITE 0uH		Q104	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB314	1-414-553-11	FERRITE 0uH		Q105	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB315	1-414-553-11	FERRITE 0uH		Q106	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB316	1-414-553-11	FERRITE 0uH		Q107	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB317	1-414-553-11	FERRITE 0uH		Q108	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FB318	1-414-553-11	FERRITE 0uH		Q109	8-729-421-19	TRANSISTOR UN2213-TX	
		< FILTER >		Q110	8-729-421-19	TRANSISTOR UN2213-TX	
FL101	1-233-893-21	FILTER, CHIP EMI		Q111	8-729-224-62	TRANSISTOR 2SK246GR-TPE2	
FL102	1-233-893-21	FILTER, CHIP EMI		Q112	8-729-052-95	TRANSISTOR 2SC5171	
FL103	1-233-893-21	FILTER, CHIP EMI		Q113	8-729-052-94	TRANSISTOR 2SA1930	
FL104	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q114	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL105	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q115	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL106	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q116	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL107	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q117	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL108	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q118	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL109	1-795-708-21	FILTER, LOW PASS (6.75MHz)		Q119	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL110	1-795-280-11	FILTER, LOW PASS (13.5MHz)		Q120	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL111	1-795-280-11	FILTER, LOW PASS (13.5MHz)		Q121	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL112	1-795-280-11	FILTER, LOW PASS (13.5MHz)		Q122	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
FL113	1-233-893-21	FILTER, CHIP EMI		Q123	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FL114	1-233-893-21	FILTER, CHIP EMI		Q124	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
FL115	1-233-893-21	FILTER, CHIP EMI		Q125	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
		< IC >		Q126	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
IC101	8-759-711-85	IC NJM4580E-D-TE2		Q127	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
IC102	6-701-820-01	IC LA73053-TLM-E		Q128	8-729-216-22	TRANSISTOR 2SA1162-YG-TE85L	
IC103	8-759-684-23	IC AD8058ARM-REEL		Q129	8-729-421-19	TRANSISTOR UN2213-TX	
IC104	8-759-684-23	IC AD8058ARM-REEL		Q130	8-729-421-19	TRANSISTOR UN2213-TX	
IC105	8-759-684-23	IC AD8058ARM-REEL		Q131	8-729-424-08	TRANSISTOR UN2111-TX	
IC106	8-759-684-21	IC AD8057ART-REEL7		Q132	8-729-424-08	TRANSISTOR UN2111-TX	
IC301	8-759-684-23	IC AD8058ARM-REEL		Q133	8-729-421-19	TRANSISTOR UN2213-TX	
IC302	8-759-684-23	IC AD8058ARM-REEL		Q134	8-729-421-19	TRANSISTOR UN2213-TX	
IC303	8-759-684-23	IC AD8058ARM-REEL		Q135	8-729-424-08	TRANSISTOR UN2111-TX	
IC304	8-759-684-23	IC AD8058ARM-REEL		Q136	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
		< JACK >		Q137	8-729-424-08	TRANSISTOR UN2111-TX	
J101	1-785-867-21	JACK, PIN 1P (VIDEO OUT)		Q138	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
J102	1-794-198-21	CONNECTOR, S TERMINAL (S VIDEO OUT)		Q139	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
J103	1-794-731-11	JACK, PIN 1P (COMPONENT VIDEO OUT Y)		Q140	8-729-141-73	TRANSISTOR 2SD1938 (F)-S (TX).SO	
J104	1-794-732-11	JACK, PIN 1P (COMPONENT VIDEO OUT P <sub>B</sub> /C <sub>B</sub> )		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	

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q301	8-729-421-19	TRANSISTOR UN2213-TX		R140	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q302	8-729-424-08	TRANSISTOR UN2111-TX					
Q303	8-729-421-19	TRANSISTOR UN2213-TX		R141	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q304	8-729-424-08	TRANSISTOR UN2111-TX		R142	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q305	8-729-421-22	TRANSISTOR UN2211-TX		R143	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q306	8-729-421-19	TRANSISTOR UN2213-TX		R144	1-216-061-91	RES-CHIP 3.3K 5%	1/10W
Q307	8-729-424-08	TRANSISTOR UN2111-TX		R145	1-216-061-91	RES-CHIP 3.3K 5%	1/10W
Q309	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R146	1-216-009-91	RES-CHIP 22 5%	1/10W
Q312	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R147	1-216-009-91	RES-CHIP 22 5%	1/10W
Q313	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R148	1-216-009-91	RES-CHIP 22 5%	1/10W
Q314	8-729-421-19	TRANSISTOR UN2213-TX		R149	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q315	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R150	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q316	8-729-424-08	TRANSISTOR UN2111-TX		R151	1-216-049-11	RES-CHIP 1K 5%	1/10W
Q317	8-729-424-08	TRANSISTOR UN2111-TX		R152	1-216-009-91	RES-CHIP 22 5%	1/10W
Q318	8-729-424-08	TRANSISTOR UN2111-TX		R153	1-216-009-91	RES-CHIP 22 5%	1/10W
Q319	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO		R154	1-216-009-91	RES-CHIP 22 5%	1/10W
Q320	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO		R155	1-216-045-00	RES-CHIP 680 5%	1/10W
Q321	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO		R156	1-216-045-00	RES-CHIP 680 5%	1/10W
Q322	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO		R157	1-216-045-00	RES-CHIP 680 5%	1/10W
		< RESISTOR >		R158	1-211-961-91	METAL CHIP 24 0.5%	1/10W
R101	1-216-295-91	SHORT CHIP 0		R159	1-211-961-91	METAL CHIP 24 0.5%	1/10W
R102	1-216-049-11	RES-CHIP 1K 5%	1/10W	R160	1-211-961-91	METAL CHIP 24 0.5%	1/10W
R103	1-216-009-91	RES-CHIP 22 5%	1/10W	R161	1-208-760-11	METAL CHIP 120 0.5%	1/10W
R104	1-216-009-91	RES-CHIP 22 5%	1/10W	R162	1-208-760-11	METAL CHIP 120 0.5%	1/10W
R105	1-216-009-91	RES-CHIP 22 5%	1/10W	R163	1-208-760-11	METAL CHIP 120 0.5%	1/10W
R106	1-216-009-91	RES-CHIP 22 5%	1/10W	R164	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W
R107	1-216-009-91	RES-CHIP 22 5%	1/10W	R165	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W
R108	1-216-009-91	RES-CHIP 22 5%	1/10W	R166	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W
R109	1-216-049-11	RES-CHIP 1K 5%	1/10W	R167	1-216-049-11	RES-CHIP 1K 5%	1/10W
R110	1-216-049-11	RES-CHIP 1K 5%	1/10W	R168	1-216-049-11	RES-CHIP 1K 5%	1/10W
R111	1-216-049-11	RES-CHIP 1K 5%	1/10W	R169	1-216-049-11	RES-CHIP 1K 5%	1/10W
R112	1-216-049-11	RES-CHIP 1K 5%	1/10W	R170	1-216-049-11	RES-CHIP 1K 5%	1/10W
R113	1-216-049-11	RES-CHIP 1K 5%	1/10W	R171	1-216-049-11	RES-CHIP 1K 5%	1/10W
R114	1-216-049-11	RES-CHIP 1K 5%	1/10W	R172	1-216-049-11	RES-CHIP 1K 5%	1/10W
R115	1-216-081-00	RES-CHIP 22K 5%	1/10W	R173	1-216-049-11	RES-CHIP 1K 5%	1/10W
R116	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R176	1-216-065-91	RES-CHIP 4.7K 5%	1/10W
R117	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R177	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W
R118	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R178	1-216-073-91	RES-CHIP 10K 5%	1/10W
R119	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R179	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W
R120	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R180	1-216-049-11	RES-CHIP 1K 5%	1/10W
R121	1-211-966-11	METAL CHIP 39 0.5%	1/10W	R182	1-216-009-91	RES-CHIP 22 5%	1/10W
R122	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R183	1-216-009-91	RES-CHIP 22 5%	1/10W
R123	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R184	1-216-009-91	RES-CHIP 22 5%	1/10W
R124	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R185	1-216-009-91	RES-CHIP 22 5%	1/10W
R125	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R186	1-216-009-91	RES-CHIP 22 5%	1/10W
R126	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R187	1-216-009-91	RES-CHIP 22 5%	1/10W
R127	1-216-633-11	METAL CHIP 180 0.5%	1/10W	R188	1-216-009-91	RES-CHIP 22 5%	1/10W
R128	1-216-025-11	RES-CHIP 100 5%	1/10W	R189	1-216-009-91	RES-CHIP 22 5%	1/10W
R129	1-216-025-11	RES-CHIP 100 5%	1/10W	R190	1-216-009-91	RES-CHIP 22 5%	1/10W
R130	1-216-025-11	RES-CHIP 100 5%	1/10W	R196	1-216-049-11	RES-CHIP 1K 5%	1/10W
R131	1-216-025-11	RES-CHIP 100 5%	1/10W	R198	1-216-089-91	RES-CHIP 47K 5%	1/10W
R132	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R202	1-216-073-91	RES-CHIP 10K 5%	1/10W
R133	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R203	1-216-073-91	RES-CHIP 10K 5%	1/10W
R134	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R204	1-216-073-91	RES-CHIP 10K 5%	1/10W
R135	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R205	1-216-049-11	RES-CHIP 1K 5%	1/10W
R136	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R206	1-216-049-11	RES-CHIP 1K 5%	1/10W
R137	1-208-790-11	METAL CHIP 2.2K 0.5%	1/10W	R207	1-216-049-11	RES-CHIP 1K 5%	1/10W
R138	1-216-049-11	RES-CHIP 1K 5%	1/10W	R208	1-216-001-00	RES-CHIP 10 5%	1/10W
R139	1-216-049-11	RES-CHIP 1K 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
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 >			
CN201	1-506-492-11	PIN, CONNECTOR 13P	
CN202	1-750-199-11	CONNECTOR, BOARD TO BOARD 18P	
< DIODE >			
D204	8-719-075-69	DIODE SPR-39MVVFMN (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 >			
IC201	8-749-019-10	IC GP1UD28SXX	
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 >			
L201	1-400-096-21	INDUCTOR 47uH	
< FLUORESCENT INDICATOR >			
ND201	1-518-806-21	TUBE, FLUORESCENT INDICATOR	
< TRANSISTOR >			
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 >			
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 >			
S201	1-762-799-11	SWITCH, KEYBOARD (I/⊕)	
< TRANSFORMER >			
T201	1-437-887-21	TRANSFORMER, DC-DC CONVERTER	
< VIBRATOR >			
X201	1-781-472-21	VIBRATOR, CERAMIC (8MHz)	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		FR-190 BOARD *****	(Ref. No. 2, 000 Series)			LD-115 BOARD *****	(Ref. No. 1, 000 Series)
		< CONNECTOR >				< DIODE >	
CN501	1-794-506-11	CONNECTOR, FFC/FPC 13P		D803	8-719-080-49	DIODE LNJ951C4B0S0 (MULTI CHANNEL)	
CN502	1-750-190-11	CONNECTOR, BOARD TO BOARD 18P		D804	8-719-080-49	DIODE LNJ951C4B0S0 (MULTI CHANNEL)	
* CN503	1-506-470-11	PIN, CONNECTOR 5P				< RESISTOR >	
		< DIODE >		R803	1-216-025-11	RES-CHIP 100 5% 1/10W	
D501	8-719-056-06	DIODE SLR-342DCT32 (■)		R804	1-216-025-11	RES-CHIP 100 5% 1/10W	
D502	8-719-056-07	DIODE SLR-342MCT31 (▷)					
		< TRANSISTOR >				A-6061-079-A MB-107 (UC2) BOARD, COMPLETE (US, CND)	
Q501	8-729-900-52	TRANSISTOR UN2214-TX				A-6061-102-A MB-107 (EC1) BOARD, COMPLETE (AEP, UK)	
Q502	8-729-900-52	TRANSISTOR UN2214-TX				A-6061-108-A MB-107 (KR2) BOARD, COMPLETE (KR)	
		< RESISTOR >				*****	(Ref. No. 3, 000 Series)
R506	1-216-073-91	RES-CHIP 10K 5% 1/10W				< CAPACITOR >	
R508	1-216-059-00	RES-CHIP 2.7K 5% 1/10W		C101	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R511	1-216-063-91	RES-CHIP 3.9K 5% 1/10W		C102	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R512	1-216-025-11	RES-CHIP 100 5% 1/10W		C103	1-126-209-11	ELECT CHIP 100uF 20% 4V	
R513	1-216-025-11	RES-CHIP 100 5% 1/10W		C104	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		< SWITCH >		C105	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
S501	1-762-799-11	SWITCH, KEYBOARD (≡)		C106	1-162-916-11	CERAMIC CHIP 12PF 5% 50V	
S502	1-762-799-11	SWITCH, KEYBOARD (▷)		C107	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
S503	1-762-799-11	SWITCH, KEYBOARD (■)		C108	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
S505	1-762-799-11	SWITCH, KEYBOARD (■)		C109	1-126-209-11	ELECT CHIP 100uF 20% 4V	
		IF-98 BOARD *****	(Ref. No. 4, 000 Series)	C111	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		< CAPACITOR >		C113	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C101	1-126-933-11	ELECT 100uF 20% 16V		C115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C102	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V		C118	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C103	1-126-933-11	ELECT 100uF 20% 16V		C120	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C104	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V		C121	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		< CONNECTOR >		C122	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
CN101	1-778-317-11	CONNECTOR, BOARD TO BOARD 13P		C123	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
* CN102	1-506-470-11	PIN, CONNECTOR 5P		C124	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
* CN103	1-564-712-11	PIN, CONNECTOR (SMALL TYPE)10P		C125	1-126-607-11	ELECT CHIP 47uF 20% 4V	
CN104	1-506-472-11	PIN, CONNECTOR 7P		C126	1-137-765-21	ELECT 47uF 20% 16V	
CN105	1-506-478-11	PIN, CONNECTOR 13P		C127	1-126-246-11	ELECT CHIP 220uF 20% 4V	
		< EARTH TERMINAL >		C128	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
* ET101	1-537-738-21	TERMINAL, EARTH		C129	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
		< IC >		C130	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
IC101	8-759-832-05	IC BA18BC0FP-E2		C201	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		< COIL >		C202	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
L101	1-456-154-21	INDUCTOR 100uH		C210	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
L102	1-456-154-21	INDUCTOR 100uH		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	* CN101	1-770-468-21	PIN, CONNECTOR (PC BOARD) 10P	
C703	1-162-962-11	CERAMIC CHIP	470PF 10% 50V	CN102	1-766-382-21	PIN, CONNECTOR (1.5MM) (SMD) 10P	
C705	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	CN103	1-778-274-11	CONNECTOR, FFC/FPC 13P	
C706	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	* 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				

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
CN203	1-815-507-21	CONNECTOR, FFC/FPC 26P		IC401	6-702-300-01	IC TK11118CSCL-G	
CN501	1-778-274-11	CONNECTOR, FFC/FPC 13P		IC403	8-752-416-45	IC CXD1935Q	
CN502	1-816-296-21	PIN, CONNECTOR (PC BOARD) 9P		IC406	6-700-098-01	IC HY57V641620HGT-P-TR-V	
* CN503	1-770-470-21	PIN, CONNECTOR (PC BOARD) 6P		IC501	8-752-418-21	IC CXD1938AR	
CN601	1-774-333-11	CONNECTOR, FFC/FPC 21P (US, CND, KR)					
CN601	1-779-343-11	CONNECTOR, FFC/FPC 23P (AEP, UK)		IC502	6-700-534-01	IC CXD9675R-L	
		< DIODE >		IC503	6-700-533-01	IC CXD9674TN-E2	
D501	8-719-914-44	DIODE DAP202K-T-146		IC504	8-759-082-59	IC TC7W32FU (TE12R)	
D502	8-719-914-44	DIODE DAP202K-T-146		IC601	6-702-301-01	IC TK11125CSCL-G	
D503	8-719-914-44	DIODE DAP202K-T-146		IC602	6-701-814-01	IC CXD9698R	
		< FERRITE BEAD >					
FB104	1-469-324-21	FERRITE	0uH	IC603	6-702-610-01	IC MSM56V16160F-10T47M1	
FB105	1-469-324-21	FERRITE	0uH	IC605	6-702-301-01	IC TK11125CSCL-G	
FB106	1-469-324-21	FERRITE	0uH	IC701	6-702-287-01	IC CXD9705R	
FB107	1-469-324-21	FERRITE	0uH	IC702	6-702-439-01	IC K9F6408U0C-TCB0T	
FB108	1-469-324-21	FERRITE	0uH	IC801	6-702-288-01	IC CXD9722TQ	
FB109	1-469-324-21	FERRITE	0uH				
FB110	1-469-324-21	FERRITE	0uH	IC802	6-702-610-01	IC MSM56V16160F-10T47M1	
FB111	1-469-324-21	FERRITE	0uH	IC803	6-702-302-01	IC TK11133CSCL-G	
FB112	1-469-784-11	FERRITE	0uH	IC901	6-702-299-01	IC TK11225CMCL	
FB501	1-469-784-11	FERRITE	0uH	IC903	6-702-610-01	IC MSM56V16160F-10T47M1	
		< FILTER >		IC905	8-752-416-77	IC CXD2753R	
FB502	1-469-784-11	FERRITE	0uH				
		< TRANSISTOR >		IC906	6-702-231-01	IC LMH6642MFX/NOPB	
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				
		< RESISTOR >		L101	1-414-410-21	INDUCTOR 10uH	
FL107	1-233-893-21	FILTER, CHIP EMI		L201	1-412-031-11	INDUCTOR CHIP 47uH	
FL108	1-234-177-21	FERRITE	0uH	L202	1-412-031-11	INDUCTOR CHIP 47uH	
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		Q201	8-729-903-46	TRANSISTOR 2SB1132-T100-QR	
IC102	6-702-302-01	IC TK11133CSCL-G		Q202	8-729-903-46	TRANSISTOR 2SB1132-T100-QR	
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		R021	1-216-833-11	METAL CHIP 10K 5% 1/10W	
IC202	6-701-878-01	IC FAN8034L		R022	1-216-864-11	SHORT CHIP 0	
IC301	6-701-876-01	IC CXD9703R		R101	1-216-864-11	SHORT CHIP 0	
IC302	6-702-302-01	IC TK11133CSCL-G		R102	1-216-833-11	METAL CHIP 10K 5% 1/10W	
IC303	8-759-643-10	IC GM71V18160CT-6TR		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	Quantity	Unit	Percentage	Remark	Ref. No.	Part No.	Description	Quantity	Unit	Percentage	Remark
R138	1-216-809-11	METAL CHIP	100		5%	1/10W	R210	1-216-815-11	METAL CHIP	330		5%	1/10W
R139	1-216-833-11	METAL CHIP	10K		5%	1/10W	R211	1-216-809-11	METAL CHIP	100		5%	1/10W
R140	1-216-864-11	SHORT CHIP	0				R212	1-216-809-11	METAL CHIP	100		5%	1/10W
R141	1-216-797-11	METAL CHIP	10		5%	1/10W	R218	1-216-846-11	METAL CHIP	120K		5%	1/10W
R142	1-216-797-11	METAL CHIP	10		5%	1/10W	R219	1-216-846-11	METAL CHIP	120K		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
R145	1-216-864-11	SHORT CHIP	0				R221	1-216-847-11	METAL CHIP	150K		5%	1/10W
R146	1-216-797-11	METAL CHIP	10		5%	1/10W	R222	1-216-842-11	METAL CHIP	56K		5%	1/10W
R147	1-216-797-11	METAL CHIP	10		5%	1/10W	R223	1-216-842-11	METAL CHIP	56K		5%	1/10W
R148	1-216-809-11	METAL CHIP	100		5%	1/10W	R224	1-216-850-11	METAL CHIP	270K		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
R151	1-216-805-11	METAL CHIP	47		5%	1/10W	R226	1-216-853-11	METAL CHIP	470K		5%	1/10W
R152	1-216-833-11	METAL CHIP	10K		5%	1/10W	R227	1-216-846-11	METAL CHIP	120K		5%	1/10W
R153	1-216-827-11	METAL CHIP	3.3K		5%	1/10W	R229	1-216-833-11	METAL CHIP	10K		5%	1/10W
R154	1-216-809-11	METAL CHIP	100		5%	1/10W	R230	1-216-839-11	METAL CHIP	33K		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
R157	1-216-809-11	METAL CHIP	100		5%	1/10W	R232	1-216-839-11	METAL CHIP	33K		5%	1/10W
R159	1-216-833-11	METAL CHIP	10K		5%	1/10W	R233	1-216-853-11	METAL CHIP	470K		5%	1/10W
R160	1-216-809-11	METAL CHIP	100		5%	1/10W	R234	1-216-803-11	METAL CHIP	33		5%	1/10W
R163	1-216-864-11	SHORT CHIP	0				R235	1-216-809-11	METAL CHIP	100		5%	1/10W
R164	1-216-033-00	RES-CHIP	220		5%	1/10W (KR)	R236	1-216-803-11	METAL CHIP	33		5%	1/10W
R164	1-216-075-00	RES-CHIP	12K		5%	1/10W (AEP, UK)	R238	1-216-839-11	METAL CHIP	33K		5%	1/10W
R165	1-216-833-11	METAL CHIP	10K		5%	1/10W	R239	1-216-839-11	METAL CHIP	33K		5%	1/10W
R166	1-216-033-00	RES-CHIP	220		5%	1/10W	R240	1-216-839-11	METAL CHIP	33K		5%	1/10W
R167	1-216-809-11	METAL CHIP	100		5%	1/10W	R241	1-216-839-11	METAL CHIP	33K		5%	1/10W
R168	1-216-864-11	SHORT CHIP	0				R242	1-216-849-11	METAL CHIP	220K		5%	1/10W
R169	1-216-081-00	RES-CHIP	22K		5%	1/10W (KR)	R243	1-216-853-11	METAL CHIP	470K		5%	1/10W
R169	1-216-089-91	RES-CHIP	47K		5%	1/10W (AEP, UK)	R244	1-216-821-11	METAL CHIP	1K		5%	1/10W
R170	1-216-864-11	SHORT CHIP	0				R245	1-216-841-11	METAL CHIP	47K		5%	1/10W
R171	1-216-833-11	METAL CHIP	10K		5%	1/10W	R246	1-216-809-11	METAL CHIP	100		5%	1/10W
R172	1-216-821-11	METAL CHIP	1K		5%	1/10W	R248	1-216-803-11	METAL CHIP	33		5%	1/10W
R173	1-216-829-11	METAL CHIP	4.7K		5%	1/10W	R249	1-216-803-11	METAL CHIP	33		5%	1/10W
R175	1-216-864-11	SHORT CHIP	0				R250	1-218-895-11	METAL CHIP	100K		0.5%	1/10W
R176	1-216-809-11	METAL CHIP	100		5%	1/10W	R251	1-216-841-11	METAL CHIP	47K		5%	1/10W
R177	1-216-809-11	METAL CHIP	100		5%	1/10W	R252	1-216-839-11	METAL CHIP	33K		5%	1/10W
R178	1-216-809-11	METAL CHIP	100		5%	1/10W	R253	1-218-889-11	METAL CHIP	56K		0.5%	1/10W
R179	1-216-809-11	METAL CHIP	100		5%	1/10W	R254	1-218-895-11	METAL CHIP	100K		0.5%	1/10W
R180	1-216-809-11	METAL CHIP	100		5%	1/10W	R255	1-218-889-11	METAL CHIP	56K		0.5%	1/10W
R181	1-216-801-11	METAL CHIP	22		5%	1/10W	R256	1-216-809-11	METAL CHIP	100		5%	1/10W
R182	1-216-801-11	METAL CHIP	22		5%	1/10W	R259	1-216-833-11	METAL CHIP	10K		5%	1/10W
R183	1-216-809-11	METAL CHIP	100		5%	1/10W	R260	1-216-834-11	METAL CHIP	12K		5%	1/10W
R184	1-216-864-11	SHORT CHIP	0				R261	1-216-833-11	METAL CHIP	10K		5%	1/10W
R185	1-216-864-11	SHORT CHIP	0				R262	1-216-815-11	METAL CHIP	330		5%	1/10W
R187	1-216-809-11	METAL CHIP	100		5%	1/10W	R263	1-216-861-11	METAL CHIP	2.2M		5%	1/10W
R188	1-216-809-11	METAL CHIP	100		5%	1/10W	R264	1-216-845-11	METAL CHIP	100K		5%	1/10W
R189	1-216-809-11	METAL CHIP	100		5%	1/10W	R265	1-216-838-11	METAL CHIP	27K		5%	1/10W
R190	1-216-809-11	METAL CHIP	100		5%	1/10W	R269	1-216-833-11	METAL CHIP	10K		5%	1/10W
R192	1-216-864-11	SHORT CHIP	0				R301	1-216-295-91	SHORT CHIP	0			
R193	1-216-809-11	METAL CHIP	100		5%	1/10W	R302	1-216-295-91	SHORT CHIP	0			
R194	1-216-864-11	SHORT CHIP	0				R310	1-216-821-11	METAL CHIP	1K		5%	1/10W
R195	1-216-809-11	METAL CHIP	100		5%	1/10W	R311	1-216-809-11	METAL CHIP	100		5%	1/10W
R196	1-216-809-11	METAL CHIP	100		5%	1/10W	R312	1-218-831-11	METAL CHIP	220		0.5%	1/10W
R197	1-216-797-11	METAL CHIP	10		5%	1/10W	R313	1-216-817-11	METAL CHIP	470		5%	1/10W
R198	1-216-809-11	METAL CHIP	100		5%	1/10W	R314	1-216-817-11	METAL CHIP	470		5%	1/10W
R199	1-216-809-11	METAL CHIP	100		5%	1/10W	R315	1-216-817-11	METAL CHIP	470		5%	1/10W
R206	1-216-829-11	METAL CHIP	4.7K		5%	1/10W	R316	1-216-829-11	METAL CHIP	4.7K		5%	1/10W
							R317	1-216-833-11	METAL CHIP	10K		5%	1/10W
							R318	1-216-817-11	METAL CHIP	470		5%	1/10W
							R319	1-218-871-11	METAL CHIP	10K		0.5%	1/10W
							R320	1-218-883-11	METAL CHIP	33K		0.5%	1/10W

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Ref. No.	Part No.	Description	Quantity	Unit Price	Remark
R321	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R322	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R323	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R324	1-216-833-11	METAL CHIP	10K	5%	1/10W
R325	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R326	1-216-833-11	METAL CHIP	10K	5%	1/10W
R327	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R328	1-216-838-11	METAL CHIP	27K	5%	1/10W
R329	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R330	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R331	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R332	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R333	1-216-847-11	METAL CHIP	150K	5%	1/10W
R334	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R335	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R337	1-216-833-11	METAL CHIP	10K	5%	1/10W
R338	1-216-801-11	METAL CHIP	22	5%	1/10W
R349	1-216-833-11	METAL CHIP	10K	5%	1/10W
R351	1-216-295-91	SHORT CHIP	0		
R352	1-216-295-91	SHORT CHIP	0		
R358	1-216-833-11	METAL CHIP	10K	5%	1/10W
R359	1-216-833-11	METAL CHIP	10K	5%	1/10W
R360	1-216-809-11	METAL CHIP	100	5%	1/10W
R364	1-216-864-11	SHORT CHIP	0		
R366	1-216-801-11	METAL CHIP	22	5%	1/10W
R402	1-216-295-91	SHORT CHIP	0		
R407	1-216-809-11	METAL CHIP	100	5%	1/10W
R414	1-216-833-11	METAL CHIP	10K	5%	1/10W
R416	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R418	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R419	1-216-797-11	METAL CHIP	10	5%	1/10W
R426	1-216-833-11	METAL CHIP	10K	5%	1/10W
R430	1-216-833-11	METAL CHIP	10K	5%	1/10W
R432	1-216-864-11	SHORT CHIP	0		
R434	1-216-797-11	METAL CHIP	10	5%	1/10W
R502	1-216-864-11	SHORT CHIP	0		
R503	1-216-864-11	SHORT CHIP	0		
R504	1-216-864-11	SHORT CHIP	0		
R505	1-216-864-11	SHORT CHIP	0		
R508	1-216-864-11	SHORT CHIP	0		
R511	1-216-864-11	SHORT CHIP	0		
R520	1-216-809-11	METAL CHIP	100	5%	1/10W
R524	1-216-864-11	SHORT CHIP	0		
R525	1-216-833-11	METAL CHIP	10K	5%	1/10W
R527	1-216-833-11	METAL CHIP	10K	5%	1/10W
R528	1-216-864-11	SHORT CHIP	0		
R530	1-216-833-11	METAL CHIP	10K	5%	1/10W
R531	1-216-833-11	METAL CHIP	10K	5%	1/10W
R532	1-216-833-11	METAL CHIP	10K	5%	1/10W
R540	1-216-864-11	SHORT CHIP	0		
R541	1-216-864-11	SHORT CHIP	0		
R546	1-216-864-11	SHORT CHIP	0		
R547	1-216-833-11	METAL CHIP	10K	5%	1/10W
R566	1-216-864-11	SHORT CHIP	0		
R569	1-216-864-11	SHORT CHIP	0		
R573	1-216-809-11	METAL CHIP	100	5%	1/10W
R590	1-216-797-11	METAL CHIP	10	5%	1/10W
R601	1-216-864-11	SHORT CHIP	0		
R603	1-216-809-11	METAL CHIP	100	5%	1/10W
R604	1-216-864-11	SHORT CHIP	0		

Ref. No.	Part No.	Description	Quantity	Unit Price	Remark
R605	1-216-833-11	METAL CHIP	10K	5%	1/10W
R612	1-216-809-11	METAL CHIP	100	5%	1/10W
R613	1-216-809-11	METAL CHIP	100	5%	1/10W
R614	1-216-864-11	SHORT CHIP	0		
R615	1-218-285-11	METAL CHIP	75	5%	1/10W
R617	1-218-292-11	METAL CHIP	20K	5%	1/10W
R618	1-216-864-11	SHORT CHIP	0		
R619	1-216-801-11	METAL CHIP	22	5%	1/10W
R620	1-216-801-11	METAL CHIP	22	5%	1/10W
R621	1-216-801-11	METAL CHIP	22	5%	1/10W
R622	1-216-801-11	METAL CHIP	22	5%	1/10W
R623	1-216-801-11	METAL CHIP	22	5%	1/10W
R624	1-216-801-11	METAL CHIP	22	5%	1/10W
R625	1-216-801-11	METAL CHIP	22	5%	1/10W
R626	1-216-801-11	METAL CHIP	22	5%	1/10W
R627	1-216-801-11	METAL CHIP	22	5%	1/10W
R628	1-216-801-11	METAL CHIP	22	5%	1/10W
R629	1-216-801-11	METAL CHIP	22	5%	1/10W
R630	1-216-801-11	METAL CHIP	22	5%	1/10W
R631	1-216-801-11	METAL CHIP	22	5%	1/10W
R632	1-216-801-11	METAL CHIP	22	5%	1/10W
R633	1-216-801-11	METAL CHIP	22	5%	1/10W
R634	1-216-801-11	METAL CHIP	22	5%	1/10W
R639	1-216-864-11	SHORT CHIP	0		
R640	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R659	1-216-809-11	METAL CHIP	100	5%	1/10W
R661	1-216-809-11	METAL CHIP	100	5%	1/10W
R663	1-216-864-11	SHORT CHIP	0		
R664	1-216-864-11	SHORT CHIP	0		
R665	1-216-864-11	SHORT CHIP	0		
R674	1-216-819-11	METAL CHIP	680	5%	1/10W
R675	1-216-821-11	METAL CHIP	1K	5%	1/10W
R676	1-216-821-11	METAL CHIP	1K	5%	1/10W
R677	1-216-809-11	METAL CHIP	100	5%	1/10W
R678	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R679	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R680	1-218-830-11	METAL CHIP	200	0.5%	1/10W
R680	1-218-827-11	METAL CHIP	150	0.5%	1/10W (US, CND, KR)
R681	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R682	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R683	1-218-834-11	METAL CHIP	300	0.5%	1/10W
R686	1-216-864-11	SHORT CHIP	0		(US, CND, KR)
R687	1-216-864-11	SHORT CHIP	0		(AEP, UK)
R688	1-216-864-11	SHORT CHIP	0		(US, CND, KR)
R689	1-216-864-11	SHORT CHIP	0		(AEP, UK)
R697	1-216-864-11	SHORT CHIP	0		
R698	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
R705	1-216-809-11	METAL CHIP	100	5%	1/10W
R706	1-216-864-11	SHORT CHIP	0		
R712	1-216-833-11	METAL CHIP	10K	5%	1/10W
R713	1-216-295-91	SHORT CHIP	0		
R714	1-216-844-11	METAL CHIP	82K	5%	1/10W
R715	1-216-821-11	METAL CHIP	1K	5%	1/10W
R716	1-216-838-11	METAL CHIP	27K	5%	1/10W
R717	1-216-838-11	METAL CHIP	27K	5%	1/10W
R718	1-216-844-11	METAL CHIP	82K	5%	1/10W
R719	1-216-844-11	METAL CHIP	82K	5%	1/10W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R720	1-216-844-11	METAL CHIP	82K 5% 1/10W	RB111	1-233-576-11	RES, CHIP NETWORK 100	
R722	1-216-841-11	METAL CHIP	47K 5% 1/10W			< VARIABLE RESISTOR >	
R723	1-216-864-11	SHORT CHIP	0	RV601	1-223-583-11	RES, ADJ, CARBON 1K	(COMPOSITE VIDEO LEVEL)
R726	1-216-864-11	SHORT CHIP	0	RV602	1-223-583-11	RES, ADJ, CARBON 1K	(COMPONENT VIDEO LEVEL)
R727	1-216-864-11	SHORT CHIP	0			< VIBRATOR >	
R730	1-216-821-11	METAL CHIP	1K 5% 1/10W	X101	1-795-174-11	VIBRATOR, CERAMIC (16.5MHz)	
R731	1-216-821-11	METAL CHIP	1K 5% 1/10W	X102	1-795-540-21	VIBRATOR, CRYSTAL (27MHz)	
R732	1-216-821-11	METAL CHIP	1K 5% 1/10W	A-6061-086-A MS-113 BOARD, COMPLETE			
R734	1-216-821-11	METAL CHIP	1K 5% 1/10W	*****			
R735	1-216-821-11	METAL CHIP	1K 5% 1/10W	(Ref. No. 4, 000 Series)			
R738	1-216-833-11	METAL CHIP	10K 5% 1/10W			< CONNECTOR >	
R814	1-216-809-11	METAL CHIP	100 5% 1/10W	CN101	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P	
R817	1-216-864-11	SHORT CHIP	0	CN102	1-784-612-11	CONNECTOR, FFC/FPC (ZIF) 7P	
R902	1-216-864-11	SHORT CHIP	0			< JUMPER RESISTOR >	
R903	1-216-833-11	METAL CHIP	10K 5% 1/10W	JR101	1-216-296-11	SHORT CHIP	0
R904	1-216-833-11	METAL CHIP	10K 5% 1/10W	JR102	1-216-296-11	SHORT CHIP	0
R905	1-216-833-11	METAL CHIP	10K 5% 1/10W	JR103	1-216-295-91	SHORT CHIP	0
R907	1-216-833-11	METAL CHIP	10K 5% 1/10W			< PHOTO INTERRUPTER >	
R908	1-216-833-11	METAL CHIP	10K 5% 1/10W	PH101	8-749-014-69	IC SPI-238-18	
R909	1-216-834-11	METAL CHIP	12K 5% 1/10W	PH102	8-749-017-89	IC SPI-237	
R910	1-218-867-11	METAL CHIP	6.8K 5% 1/10W			< TRANSISTOR >	
R911	1-216-833-11	METAL CHIP	10K 5% 1/10W	Q101	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
R912	1-216-833-11	METAL CHIP	10K 5% 1/10W	Q102	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
R913	1-216-803-11	METAL CHIP	33 5% 1/10W			< RESISTOR >	
R914	1-216-833-11	METAL CHIP	10K 5% 1/10W	R101	1-216-041-00	RES-CHIP	470 5% 1/10W
R915	1-216-821-11	METAL CHIP	1K 5% 1/10W	R102	1-216-041-00	RES-CHIP	470 5% 1/10W
R916	1-216-827-11	METAL CHIP	3.3K 5% 1/10W	R103	1-216-041-00	RES-CHIP	470 5% 1/10W
R917	1-216-864-11	SHORT CHIP	0	R104	1-216-095-00	RES-CHIP	82K 5% 1/10W
R918	1-216-864-11	SHORT CHIP	0	R105	1-216-095-00	RES-CHIP	82K 5% 1/10W
R921	1-216-833-11	METAL CHIP	10K 5% 1/10W	R109	1-216-041-00	RES-CHIP	470 5% 1/10W
R922	1-216-833-11	METAL CHIP	10K 5% 1/10W	SW-381 BOARD			
R924	1-216-864-11	SHORT CHIP	0	*****			
R925	1-216-809-11	METAL CHIP	100 5% 1/10W	(Ref. No. 2, 000 Series)			
R931	1-216-833-11	METAL CHIP	10K 5% 1/10W			< CAPACITOR >	
R949	1-216-864-11	SHORT CHIP	0	C401	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V
R950	1-216-864-11	SHORT CHIP	0	C402	1-163-021-91	CERAMIC CHIP	0.01uF 10% 50V
R954	1-216-864-11	SHORT CHIP	0			< CONNECTOR >	
R955	1-216-809-11	METAL CHIP	100 5% 1/10W	CN401	1-506-484-11	PIN, CONNECTOR 5P	
R956	1-216-809-11	METAL CHIP	100 5% 1/10W			< SWITCH >	
R957	1-216-809-11	METAL CHIP	100 5% 1/10W	S401	1-467-818-21	ENCODER, ROTARY (◀▶) PUSH ENTER	
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 >							
* 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	Ref. No.	Part No.	Description	Remark
A-6061-094-A	VP-58 (UC2) BOARD, COMPLETE	(US, CND, KR)		C154	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
	*****			C155	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
		(Ref. No. 5, 000 Series)		C156	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
7-685-871-01	SCREW +BVTT 3X6 (S)			C157	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
	< CAPACITOR >			C164	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C101	1-165-732-31	ELECT 47uF 20%	25V	C165	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C102	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	C166	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C103	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	C167	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C104	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	C168	1-163-085-00	CERAMIC CHIP 2PF	50V
C105	1-165-722-31	ELECT 100uF 20%	10V	C169	1-163-085-00	CERAMIC CHIP 2PF	50V
C106	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	C170	1-163-085-00	CERAMIC CHIP 2PF	50V
C107	1-163-009-91	CERAMIC CHIP 0.001uF 10%	50V	C171	1-163-085-00	CERAMIC CHIP 2PF	50V
C108	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	C172	1-163-085-00	CERAMIC CHIP 2PF	50V
C109	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	C173	1-163-085-00	CERAMIC CHIP 2PF	50V
C110	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V		< CONNECTOR >		
C111	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	CN101	1-774-333-11	CONNECTOR, FFC/FPC 21P	
C112	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	CN102	1-770-215-11	PIN, CONNECTOR (PC BOARD) 7P	
C113	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V		< DIODE >		
C114	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D101	8-719-025-29	DIODE 02CZ5.1-TE85L	
C115	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D105	8-719-988-61	DIODE 1SS355TE-17	
C116	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D106	8-719-988-61	DIODE 1SS355TE-17	
C117	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D107	8-719-071-15	DIODE HZM6.8ZWA1TL	
C118	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D108	8-719-071-15	DIODE HZM6.8ZWA1TL	
C119	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	D109	8-719-071-15	DIODE HZM6.8ZWA1TL	
C120	1-165-722-31	ELECT 100uF 20%	10V	D113	8-719-071-15	DIODE HZM6.8ZWA1TL	
C121	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V		< FILTER >		
C122	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	FL101	1-233-893-21	FILTER, CHIP EMI	
C123	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	FL102	1-233-893-21	FILTER, CHIP EMI	
C124	1-126-395-11	ELECT CHIP 22uF 20%	16V	FL103	1-233-893-21	FILTER, CHIP EMI	
C125	1-126-395-11	ELECT CHIP 22uF 20%	16V	FL104	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C126	1-127-956-21	FILM CHIP 0.1uF 5%	16V	FL105	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C127	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	FL106	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C128	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	FL107	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C129	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	FL108	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C130	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	FL109	1-795-708-21	FILTER, LOW PASS (6.75MHz)	
C131	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	FL110	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
C132	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	FL111	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
C133	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	FL112	1-795-280-11	FILTER, LOW PASS (13.5MHz)	
C134	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	FL113	1-233-893-21	FILTER, CHIP EMI	
C135	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V		< IC >		
C136	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	IC101	8-759-711-85	IC NJM4580E-D-TE2	
C137	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	IC103	8-759-684-23	IC AD8058ARM-REEL	
C138	1-127-956-21	FILM CHIP 0.1uF 5%	16V	IC104	8-759-684-23	IC AD8058ARM-REEL	
C139	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	IC105	8-759-684-23	IC AD8058ARM-REEL	
C140	1-127-956-21	FILM CHIP 0.1uF 5%	16V	IC109	8-759-684-23	IC AD8058ARM-REEL	
C141	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	IC110	8-759-684-23	IC AD8058ARM-REEL	
C142	1-127-956-21	FILM CHIP 0.1uF 5%	16V	IC111	8-759-684-23	IC AD8058ARM-REEL	
C143	1-126-205-11	ELECT CHIP 47uF 20%	6.3V		< JACK >		
C144	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	J101	1-793-475-11	JACK, PIN 2P (VIDEO OUT)	
C145	1-126-205-11	ELECT CHIP 47uF 20%	6.3V	J102	1-694-484-11	TERMINAL, S (2P.V) (S VIDEO OUT)	
C146	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V	J103	1-794-731-11	JACK, PIN 1P (COMPONENT VIDEO Y)	
C147	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V	J104	1-794-732-11	JACK, PIN 1P (COMPONENT VIDEO P <sub>B</sub> /C <sub>B</sub> )	
C148	1-127-956-21	FILM CHIP 0.1uF 5%	16V	J105	1-794-733-11	JACK, PIN 1P (COMPONENT VIDEO P <sub>R</sub> /C <sub>R</sub> )	
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	Ref. No.	Part No.	Description	Remark
		< COIL >		R109	1-216-049-11	RES-CHIP	1K 5% 1/10W
L101	1-419-387-21	INDUCTOR	100uH	R110	1-216-049-11	RES-CHIP	1K 5% 1/10W
L102	1-419-387-21	INDUCTOR	100uH	R111	1-216-049-11	RES-CHIP	1K 5% 1/10W
L103	1-419-387-21	INDUCTOR	100uH	R112	1-216-049-11	RES-CHIP	1K 5% 1/10W
L104	1-419-387-21	INDUCTOR	100uH	R113	1-216-049-11	RES-CHIP	1K 5% 1/10W
L105	1-419-387-21	INDUCTOR	100uH	R114	1-216-049-11	RES-CHIP	1K 5% 1/10W
L106	1-419-387-21	INDUCTOR	100uH	R115	1-216-081-00	RES-CHIP	22K 5% 1/10W
L107	1-419-387-21	INDUCTOR	100uH	R116	1-211-966-11	METAL CHIP	39 0.5% 1/10W
L108	1-419-387-21	INDUCTOR	100uH	R117	1-211-966-11	METAL CHIP	39 0.5% 1/10W
		< TRANSISTOR >		R118	1-211-966-11	METAL CHIP	39 0.5% 1/10W
Q101	8-729-424-08	TRANSISTOR	UN2111-TX	R119	1-211-966-11	METAL CHIP	39 0.5% 1/10W
Q102	8-729-421-19	TRANSISTOR	UN2213-TX	R120	1-211-966-11	METAL CHIP	39 0.5% 1/10W
Q103	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R121	1-211-966-11	METAL CHIP	39 0.5% 1/10W
Q104	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R122	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q105	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R123	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q106	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R124	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q107	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R125	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q108	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R126	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q109	8-729-421-19	TRANSISTOR	UN2213-TX	R127	1-216-633-11	METAL CHIP	180 0.5% 1/10W
Q110	8-729-421-19	TRANSISTOR	UN2213-TX	R128	1-216-025-11	RES-CHIP	100 5% 1/10W
Q111	8-729-224-62	TRANSISTOR	2SK246GR-TPE2	R129	1-216-025-11	RES-CHIP	100 5% 1/10W
Q112	8-729-052-95	TRANSISTOR	2SC5171	R130	1-216-025-11	RES-CHIP	100 5% 1/10W
Q113	8-729-052-94	TRANSISTOR	2SA1930	R131	1-216-025-11	RES-CHIP	100 5% 1/10W
Q114	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R132	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q115	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R133	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q116	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R134	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q117	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R135	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q118	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R136	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q119	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R137	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
Q123	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R138	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q124	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R139	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q125	8-729-230-49	TRANSISTOR	2SC2712-YG-TE85L	R140	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q126	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R141	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q127	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R142	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q128	8-729-216-22	TRANSISTOR	2SA1162-YG-TE85L	R143	1-216-049-11	RES-CHIP	1K 5% 1/10W
Q129	8-729-421-19	TRANSISTOR	UN2213-TX	R144	1-216-061-91	RES-CHIP	3.3K 5% 1/10W
Q130	8-729-421-19	TRANSISTOR	UN2213-TX	R145	1-216-061-91	RES-CHIP	3.3K 5% 1/10W
Q132	8-729-424-08	TRANSISTOR	UN2111-TX	R152	1-216-009-91	RES-CHIP	22 5% 1/10W
Q134	8-729-424-08	TRANSISTOR	UN2111-TX	R153	1-216-009-91	RES-CHIP	22 5% 1/10W
Q135	8-729-424-08	TRANSISTOR	UN2111-TX	R154	1-216-009-91	RES-CHIP	22 5% 1/10W
Q136	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX	R155	1-216-045-00	RES-CHIP	680 5% 1/10W
Q137	8-729-424-08	TRANSISTOR	UN2111-TX	R156	1-216-045-00	RES-CHIP	680 5% 1/10W
Q138	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO	R157	1-216-045-00	RES-CHIP	680 5% 1/10W
Q139	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO	R158	1-211-961-91	METAL CHIP	24 0.5% 1/10W
Q140	8-729-141-73	TRANSISTOR	2SD1938 (F)-S (TX).SO	R159	1-211-961-91	METAL CHIP	24 0.5% 1/10W
Q141	8-729-424-08	TRANSISTOR	UN2111-TX	R160	1-211-961-91	METAL CHIP	24 0.5% 1/10W
Q142	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO	R161	1-208-760-11	METAL CHIP	120 0.5% 1/10W
Q143	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO	R162	1-208-760-11	METAL CHIP	120 0.5% 1/10W
Q144	8-729-046-97	TRANSISTOR	2SD1938 (F)-T (TX).SO	R163	1-208-760-11	METAL CHIP	120 0.5% 1/10W
		< RESISTOR >		R164	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
R101	1-216-295-91	SHORT CHIP	0	R165	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
R102	1-216-049-11	RES-CHIP	1K 5% 1/10W	R166	1-208-790-11	METAL CHIP	2.2K 0.5% 1/10W
R103	1-216-009-91	RES-CHIP	22 5% 1/10W	R167	1-216-049-11	RES-CHIP	1K 5% 1/10W
R104	1-216-009-91	RES-CHIP	22 5% 1/10W	R168	1-216-049-11	RES-CHIP	1K 5% 1/10W
R105	1-216-009-91	RES-CHIP	22 5% 1/10W	R169	1-216-049-11	RES-CHIP	1K 5% 1/10W
R106	1-216-009-91	RES-CHIP	22 5% 1/10W	R172	1-216-049-11	RES-CHIP	1K 5% 1/10W
R107	1-216-009-91	RES-CHIP	22 5% 1/10W	R175	1-216-073-91	RES-CHIP	10K 5% 1/10W
R108	1-216-009-91	RES-CHIP	22 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

**VP-58**

**POWER BLOCK (ZSSR107G)**

**POWER BLOCK (ZSSR107H)**

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.
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Ref. No.	Part No.	Description	Remark
		***** HARDWARE LIST *****	
#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)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

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