

# MHC-V21/V21D

## SERVICE MANUAL

Ver. 1.1 2018.08



Photo: MHC-V21D

US Model  
Canadian Model  
MHC-V21  
AEP Model  
UK Model  
E Model  
Australian Model  
MHC-V21D

### Note:

Be sure to keep your PC used for service and checking of this unit always updated with the latest version of your anti-virus software. In case a virus affected unit was found during service, contact your Service Headquarters.

CD/DVD Section	Model Name Using Similar Mechanism	MHC-V71D
	CD/DVD Mechanism Type	CDM90-DVBU204/M
	Optical Pick-up Name	CMS-S76RFS7G1 or CMS-S76RFS7GP

### SPECIFICATIONS

#### AUDIO POWER SPECIFICATIONS

#### POWER OUTPUT AND TOTAL HARMONIC DISTORTION: (US models only)

With 3 ohm loads, both channels driven, from 800 Hz – 20,000 Hz; rated 30 watts per channel minimum RMS power at stereo mode, with no more than 0.7% total harmonic distortion from 250 milliwatts to rated output.

#### Speaker section

Speaker system:  
2-way, Bass Reflex  
Speaker unit:  
Tweeter L/R: 66 mm (2 5/8 in), cone type  
Woofer: 200 mm (8 in), cone type

#### Inputs

AUDIO/PARTY CHAIN IN L/R (V21):  
Voltage 2 V, impedance  
47 kilohms

AUDIO/PARTY CHAIN IN (TV) L/R (V21D):  
Voltage 2 V, impedance  
47 kilohms

TV (ARC) (V21D):  
Supported audio signal:  
2-channel Linear PCM

MIC1:  
Sensitivity 1 mV, impedance  
10 kilohms

MIC2/GUITAR:  
Sensitivity 1 mV, impedance  
10 kilohms (When guitar mode is turned off.)  
Sensitivity 200 mV, impedance  
250 kilohms (When guitar mode is turned on.)

#### Outputs

AUDIO/PARTY CHAIN OUT L/R:  
Voltage 2 V, impedance 1 kilohm

VIDEO OUT (V21D):  
Max. output level 1 V<sub>p-p</sub>, unbalanced,  
Sync. negative load impedance 75 ohms

HDMI OUT (TV) ARC (V21D):  
Supported audio signal:  
2-channel Linear PCM (up to 48 kHz),  
Dolby Digital

#### HDMI section (V21D)

Connector:  
Type A (19 pin)

#### Disc player section

System:  
Compact disc and digital audio and video system  
Laser Diode Properties  
Emission Duration: Continuous  
Laser Output\*: Less than 44.6 μW  
\* This output is the value measurement at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Frequency response:  
20 Hz – 20 kHz  
Video color system format (V21D):  
Latin American model:  
NTSC  
Other models:  
NTSC and PAL

#### USB section

Supported USB device:  
Mass Storage Class

Maximum current:  
1 A  
ψ (USB) port:  
Type A

#### FM tuner section

FM stereo, FM superheterodyne tuner  
Antenna:  
FM lead antenna  
Tuning range:  
87.5 MHz – 108.0 MHz (100 kHz step) (V21)  
87.5 MHz – 108.0 MHz (50 kHz step) (V21D)

#### BLUETOOTH section

Communication system:  
BLUETOOTH Standard version 4.2

Output:  
BLUETOOTH Standard Power  
Class 2

Maximum output power (V21D):  
< 9.5 dBm

Maximum number of devices to be registered:  
8 devices

Maximum number of simultaneous connection (Multipoint):  
3 devices  
Maximum communication range:  
Line of sight approx. 10 m (33 ft)<sup>1)</sup>  
Frequency band:  
2.4 GHz band (2.4000 GHz – 2.4835 GHz)  
Modulation method:  
FHSS (Freq Hopping Spread Spectrum)  
Compatible BLUETOOTH profiles<sup>2)</sup>:  
A2DP (Advanced Audio Distribution Profile)  
AVRCP (Audio Video Remote Control Profile)  
SPP (Serial Port Profile)  
Supported codecs:  
SBC (Subband Codec)  
AAC (Advanced Audio Coding)  
LDAC

<sup>1)</sup> The actual range will vary depending on factors such as obstacles between devices, magnetic fields around a microwave oven, static electricity, reception sensitivity, antenna's performance, operating system, software application, etc.  
<sup>2)</sup> BLUETOOTH standard profiles indicate the purpose of BLUETOOTH communication between devices.

#### NFC section

Operating frequency:  
13.56 MHz

#### Supported audio formats

Supported bit rate and sampling frequencies:  
MP3:  
32/44.1/48 kHz, 32 kbps – 320 kbps (VBR)  
AAC:  
44.1 kHz, 48 kbps – 320 kbps (CBR/VBR)  
WMA:  
44.1 kHz, 48 kbps – 192 kbps (CBR/VBR)  
WAV:  
44.1/48 kHz (16 bit)

#### Supported video formats (V21D)

Xvid:  
Video codec: Xvid video  
Bit rate: 4,854 Mbps (MAX)  
Resolution/Frame rate:  
720 × 480, 30 fps  
720 × 576, 25 fps (except for Latin American model)  
Audio codec: MP3  
MPEG4:  
File format: MP4 File Format  
Video codec: MPEG4 Simple Profile (AVC is not compatible.)  
Bit rate: 4 Mbps  
Resolution/Frame rate:  
720 × 480, 30 fps  
720 × 576, 25 fps (except for Latin American model)  
Audio codec: AAC-LC (HE-AAC is not compatible.)  
DRM: Not compatible

#### General

Power requirements:  
US, CND models:  
AC 120 V, 60 Hz  
Except US, CND models:  
AC 120 V – 240 V, 50/60 Hz  
Power consumption:  
70 W  
Power consumption (at the Power Saving mode) (V21D):  
0.5 W (When "BT STBY" is set to "OFF" and [CONTROL FOR HDMI] is set to [OFF].)  
2 W\* (When "BT STBY" is set to "ON" and [CONTROL FOR HDMI] is set to [ON].)  
Dimensions (W/H/D) (Approx.):  
324 mm × 600 mm × 286 mm  
(12 7/8 in × 23 3/4 in × 11 3/8 in)  
Mass (Approx.):  
8.4 kg (18 lb)  
Operating temperature:  
5 °C to 35 °C (41 °F to 95 °F)

– Continued on next page –

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HOME AUDIO SYSTEM  
**SONY**®

**MHC-V21/V21D**

Ver. 1.1

\* The power consumption of the system will be less than 0.5 W when there is no HDMI connection and "BT STBY" is set to "OFF".

Design and specifications are subject to change without notice.

**Unpacking**

- This unit (MHC-V21/V21D) (1)
  - Remote control (1)
  - R03 (size AAA) batteries (2)
  - FM lead antenna (1)
  - AC power cord (mains lead) (1)
  - AC plug adaptor\* (1) (supplied only for certain areas) (V21D)
- \* This plug adaptor is not for the use in Chile, Paraguay and Uruguay. Use this plug adaptor in the countries where it is necessary.

**License and Trademark Notice**

- "CD" logo is trademark.
  - **DVD** is a trademark of DVD Format/Logo Licensing Corporation.
  - "DVD+RW", "DVD-RW", "DVD+R", "DVD-R", "DVD VIDEO", and the "CD" logos are trademarks.
  - WALKMAN® and WALKMAN® logo are registered trademarks of Sony Corporation.
  - MPEG Layer-3 audio coding technology and patents licensed from Fraunhofer IIS and Thomson.
  - Windows Media is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
  - This product is protected by certain intellectual property rights of Microsoft Corporation. Use or distribution of such technology outside of this product is prohibited without a license from Microsoft or an authorized Microsoft subsidiary.
  - This system incorporates Dolby® Digital.  
\* Manufactured under license from Dolby Laboratories. Dolby, Dolby Audio, and the double-D symbol are trademarks of Dolby Laboratories.
  - This system incorporates High-Definition Multimedia Interface (HDMI™) technology. The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
  - "BRAVIA" is a trademark of Sony Corporation.
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  - Android is a trademark of Google LLC.
  - Google Play and the Google Play logo are trademarks of Google LLC.
  - Apple, iPhone, and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc., registered in the U.S. and other countries.
  - Use of the Made for Apple badge means that an accessory has been designed to connect specifically to the Apple product(s) identified in the badge, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.
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 AND/OR
    - (ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE MPEG-4 VIDEO.
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- All other trademarks are trademarks of their respective owners.
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**NOTES ON CHIP COMPONENT REPLACEMENT**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

**FLEXIBLE CIRCUIT BOARD REPAIRING**

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

**SAFETY CHECK-OUT**

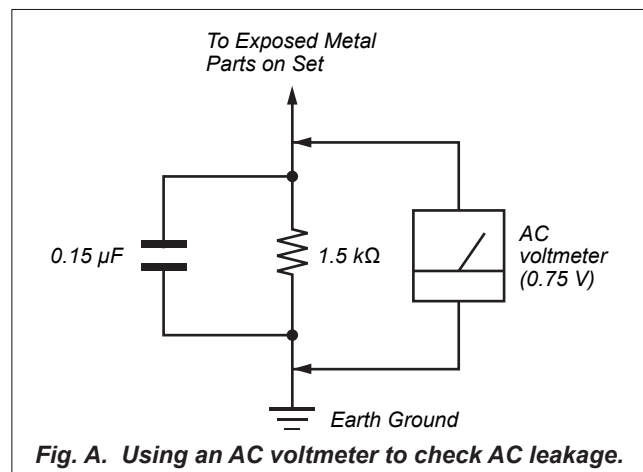
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

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 0.75 V, 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)

**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.

**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.

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Accessories are listed in the last part of the electrical parts list.
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## SECTION 1 SERVICING NOTES

### UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the leadfree 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.

#### CAUTION

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

#### NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

#### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pickup block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

#### For customers in AEP, UK

**CLASS 1 LASER PRODUCT**  
LASER KLASSE 1  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product under IEC 60825-1:2007. This marking is located on the rear exterior.

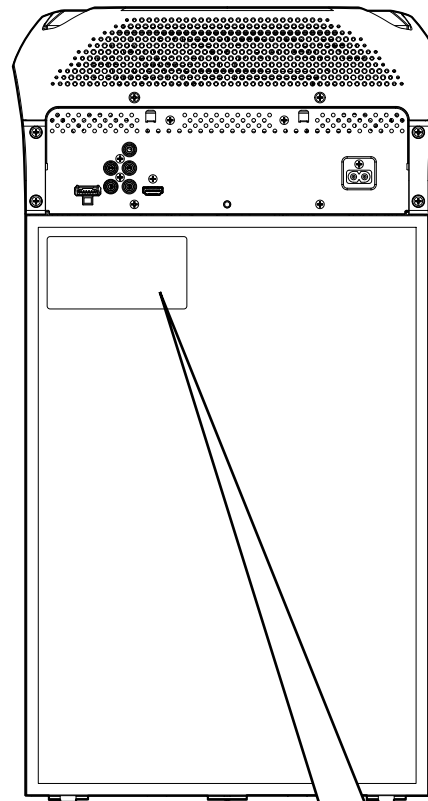
#### For customers in EA

**CLASS 1 LASER PRODUCT**

This appliance is classified as a CLASS 1 LASER product under IEC 60825-1:2007. This marking is located on the rear exterior.

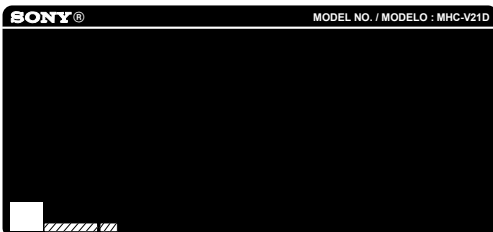
### MODEL IDENTIFICATION

– Rear View –



#### MODEL NUMBER LABEL

**AEP, UK, RU, AR, AUS, E12, EA, E4, LA9, MY**



Destination Code

PART No.

**US, CND, TH, BR**



Destination Code

PART No.

Model	Part No.
V21D : LA9	4-734-059-0□
V21D : AR	4-734-059-1□
V21D : E4	4-734-059-2□
V21D : EA	4-734-059-3□
V21D : E12	4-734-059-4□
V21D : MY	4-734-059-5□
V21D : AUS	4-734-059-6□
V21D : TH	4-734-059-7□
V21D : AEP, UK	4-734-059-8□
V21D : RU	4-734-059-9□
V21 : US, CND	4-734-060-0□
V21D : BR	4-734-060-1□

### DESTINATION ABBREVIATIONS

The following abbreviations for model destinations are used in this service manual.

- Abbreviation
  - AR : Argentina model
  - AUS : Australian model
  - BR : Brazilian model
  - CND : Canadian model
  - E4 : African model
  - E12 : 220-240 V AC area in E model
  - EA3 : Saudi Arabia model
  - LA9 : Latin-American model
  - MY : Malaysia model
  - RU : Russian model
  - TH : Thai model

### DESTINATION SETTING METHOD

The destination information isn't written in the MOTHERBOARD board for the service.

Therefore, when the MOTHERBOARD board is replaced, be sure to perform the destination setting (Important work).

**Note 1:** The initial setting destination of the MOTHERBOARD board for the service is temporary set as "LATIN". The message "LATIN (T)" is displayed on the screen display panel.

**Note 2:** When distinguishing the destination of the product, refer to the "MODEL IDENTIFICATION" on page 4.

**Note 3:** If destination setting isn't performed, it is possibility to occur the defect to each operation of this unit.

**Note 4:** Destination would be locked if it has been changed for 5 times.

#### Procedure:

1. Press two buttons of the [VOICE CHANGER] and [TUNING + ►►] simultaneously for 10 seconds during the demo mode.
  2. It enters the destination setting mode, the message "D XXXXX" is displayed on the screen display panel.
- Note 5:** If the message "DESTLOCK" is displayed on the screen display panel, press the [►] button to release from this mode. Because the destination is locked, and it cannot change the destination.
3. Press [◀+] / [▶-] button to select the destination based on the set's country.

Screen display	Destination code	Country
"D ASIA"	SP6, TH1	Southeast Asia countries
"D INDIA"	E12	India
"D ME AFC"	E3, E93, E4, SA2, EA3	Middle East & Africa countries
"D OCEANI"	AU1	Australia & New Zealand
"D JAPAN"	J1	Japan
"D BRAZIL"	BR1	Brazil
"D N AME"	UC2, CA2	America & Canada
"D LATIN"	LA9, AR2	Central & South America countries (except Brazil)
"D RUSSIA"	RU1	Russia & CIS countries
"D EUROPE"	CEL, CEK	Europe countries (except CIS country)

4. Press [►] button to confirm the selection.
5. "RESET" appears on the screen display panel. After that, "SONY" appears on the screen display panel. The system automatically turn on and off once. Please be sure that the system stay at demo mode finally before switch off the power supply.
6. Mode in "MODEL, DESTINATION AND VERSION DISPLAY MODE" on page 21 again to confirm on the model & destination.

### PLAYABLE DISCS

- DVD VIDEO
- DVD-R/DVD-RW in DVD VIDEO format or video mode
- DVD+R/DVD+RW in DVD VIDEO format
- VIDEO CD (Ver. 1.0, 1.1, and 2.0 discs)
- Super VCD
- CD-R/CD-RW/CD-ROM in VIDEO CD format or super VCD format
- AUDIO CD
- CD-R/CD-RW in AUDIO CD format

### PLAYABLE FILES ON DISCS

- Music: MP3 files (.mp3)<sup>1)2)</sup>
- Video: MPEG4 files (.mp4/.m4v)<sup>2)3)</sup>, Xvid files (.avi)

### PLAYABLE FILES ON USB DEVICE

- Music: MP3 files (.mp3)<sup>1)2)</sup>, WMA files (.wma)<sup>2)</sup>, AAC files (.m4a/.mp4/.3gp)<sup>2)</sup>, WAV files (.wav)<sup>2)</sup>
- Video: MPEG4 files (.mp4/.m4v)<sup>2)3)</sup>, Xvid files (.avi)

<sup>1)</sup> MP3 (MPEG 1 Audio Layer 3) is a standard format defined by ISO/MPEG for compressed audio data. MP3 files must be in MPEG 1 Audio Layer 3 format.

<sup>2)</sup> Files with copyright protection (Digital Rights Management) cannot be played back by the system.

<sup>3)</sup> MPEG4 files must be recorded in MP4 file format. Supported video codec and audio codec are as follows:  
 – Video codec: MPEG4 Simple Profile (AVC is not supported.)  
 – Audio codec: AAC-LC (HE-AAC is not supported.)

**MHC-V21/V21D**

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**Note**

- JIG  
When disassembling the set, use the following jig (for front panel removal).  
Part No.: J-2501-238-A JIG FOR SPEAKER REMOVAL

**NOTE OF REPLACEMENT OF THE MS-476 BOARD**

When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

**TEST DISCS**

Use following TEST DISC when this unit confirms the operation and checks it.

- For CD

<u>Part No.</u>	<u>Description</u>
3-702-101-01	DISC (YEDS-18), TEST
4-225-203-01	DISC (PATD-012), TEST
J-2501-307-A	DISC (HLX-A1), TEST

- For DVD SL (Single Layer)

<u>Part No.</u>	<u>Description</u>
J-6090-069-A	DISC (HLX-503), TEST (NTSC)
J-6090-088-A	DISC (HLX-504), TEST (NTSC)
J-2501-305-A	DISC (HLX-513), TEST (NTSC)
J-6090-077-A	DISC (HLX-506), TEST (PAL)

- For DVD DL (Double Layer)

<u>Part No.</u>	<u>Description</u>
J-6090-071-A	DISC (HLX-501), TEST (NTSC)
J-6090-089-A	DISC (HLX-505), TEST (NTSC)
J-2501-306-A	DISC (HLX-514), TEST (NTSC)
J-6090-078-A	DISC (HLX-507), TEST (PAL)

**RELEASING THE DISC TRAY LOCK**

The disc tray lock function for the antitheft of an demonstration disc in the store is equipped.

It can release the lock function in the following procedure.

**Releasing Procedure:**

1. Press [⏻] button to turn the power on.
2. Press [FUNCTION] button until the message “DVD/CD” is displayed.
3. Press [SS TUNING - ⏪] and [▶] buttons simultaneously and hold down for around 3 seconds.
4. The message “UNLOCKED” is displayed and the disc tray is unlocked.

**Note:** When “LOCKED” is displayed, the disc tray lock is not released by turning power on/off with the [⏻] button.

**If “PROTECTX” (X is a number) and “CHECK MANUAL” flashes on the display**

Immediately unplug the AC power cord (mains lead), and check if anything is blocking the ventilation openings of the unit.

After you have checked and found no problems, reconnect the AC power cord (mains lead), and turn on the system. If the issue persists, contact your nearest Sony dealer.

**Protect Type Description:**

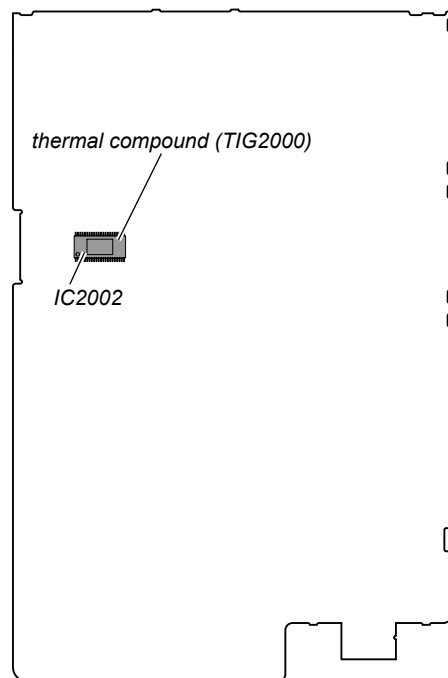
<b>X (Error Code)</b>	<b>Description</b>
2	Defect of thermistor IC or charging circuit used by SPM (Sound Pressure Management) system.
3	There is possibility of over current happen at speaker output. or Unusual heat up of AMP IC by improper assembly of heat sink.
4	DC appears in SP terminal by defect of AMP IC.

**NOTE OF REPLACING THE IC2002 ON THE MOTHERBOARD BOARD AND THE COMPLETE MOTHERBOARD BOARD**

When IC2002 on the MOTHERBOARD board and the complete MOTHERBOARD board are replaced, it is necessary to spread the compound between parts and heat sink. After that, execute "3. IC and MOTHERBOARD board after repair checking guide" (page 29).

<u>Part No.</u>	<u>Description</u>
7-300-009-67	THERMAL COMPOUND (TIG2000)

Spread the compound referring to the figure below.

**– MOTHERBOARD Board (Component Side) –**

# MHC-V21/V21D

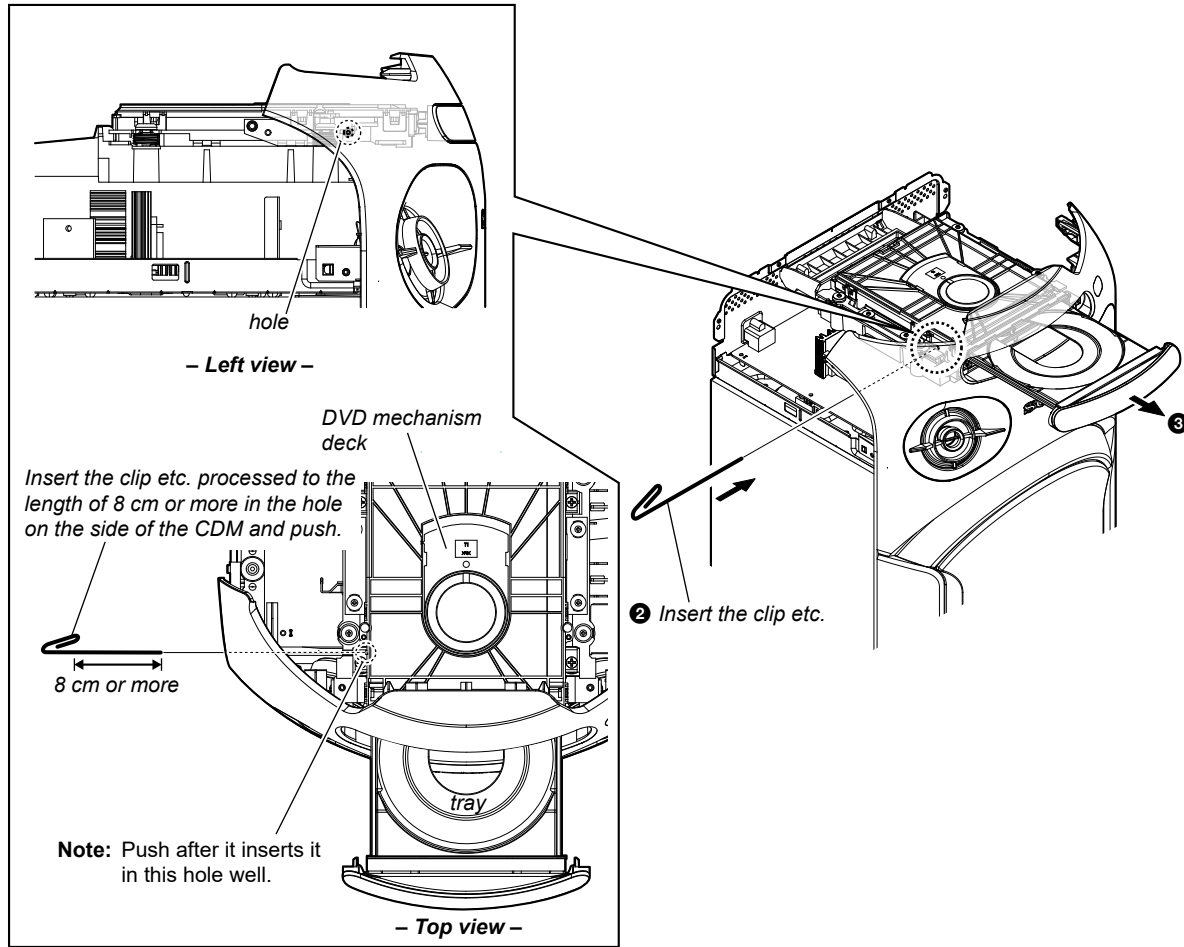
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## HOW TO OPEN THE TRAY WHEN POWER SWITCH TURN OFF

**Note 1:** After the side panel and top panel are removed, this work is done.

**Note 2:** Please prepare the thin wire (clip etc. processed to the length of 8 cm or more).

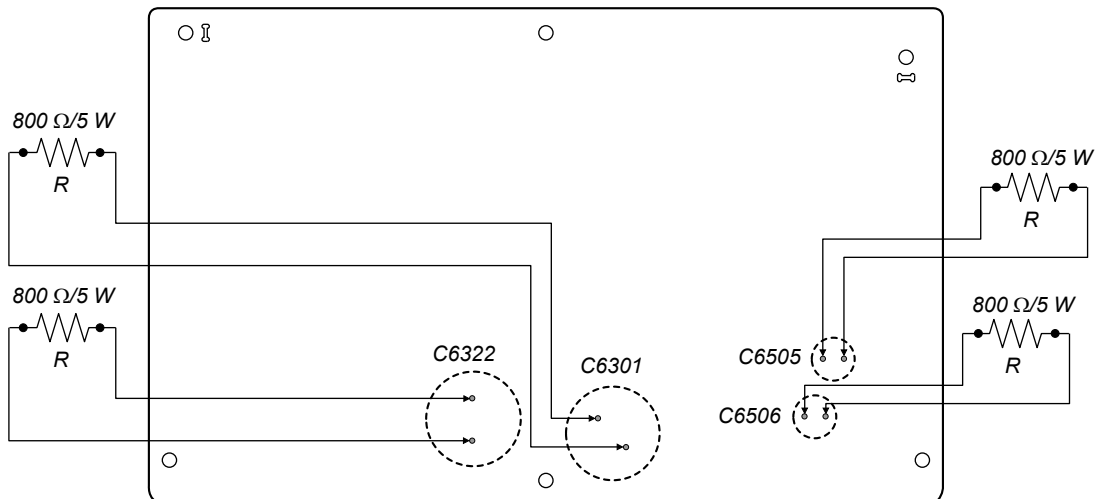
- ① Remove the side panel L, R, top panel section.  
(Illustration of disassembly is omitted.)



## CAPACITOR DISCHARGE FOR ELECTRIC SHOCK PREVENTION

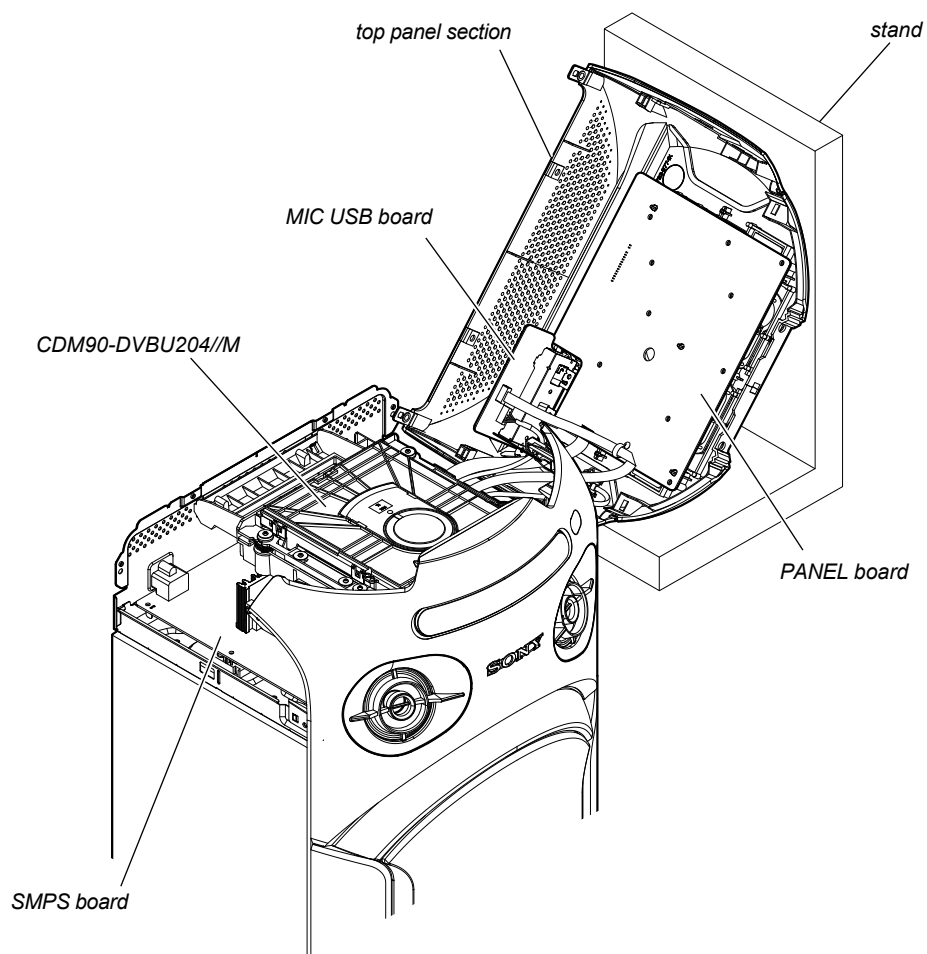
### SMPS Board (Conductor side view)

In checking the SMPS board, make 4 capacitors discharge of C6301, C6322, C6505 and C6506 for electrical shock prevention.



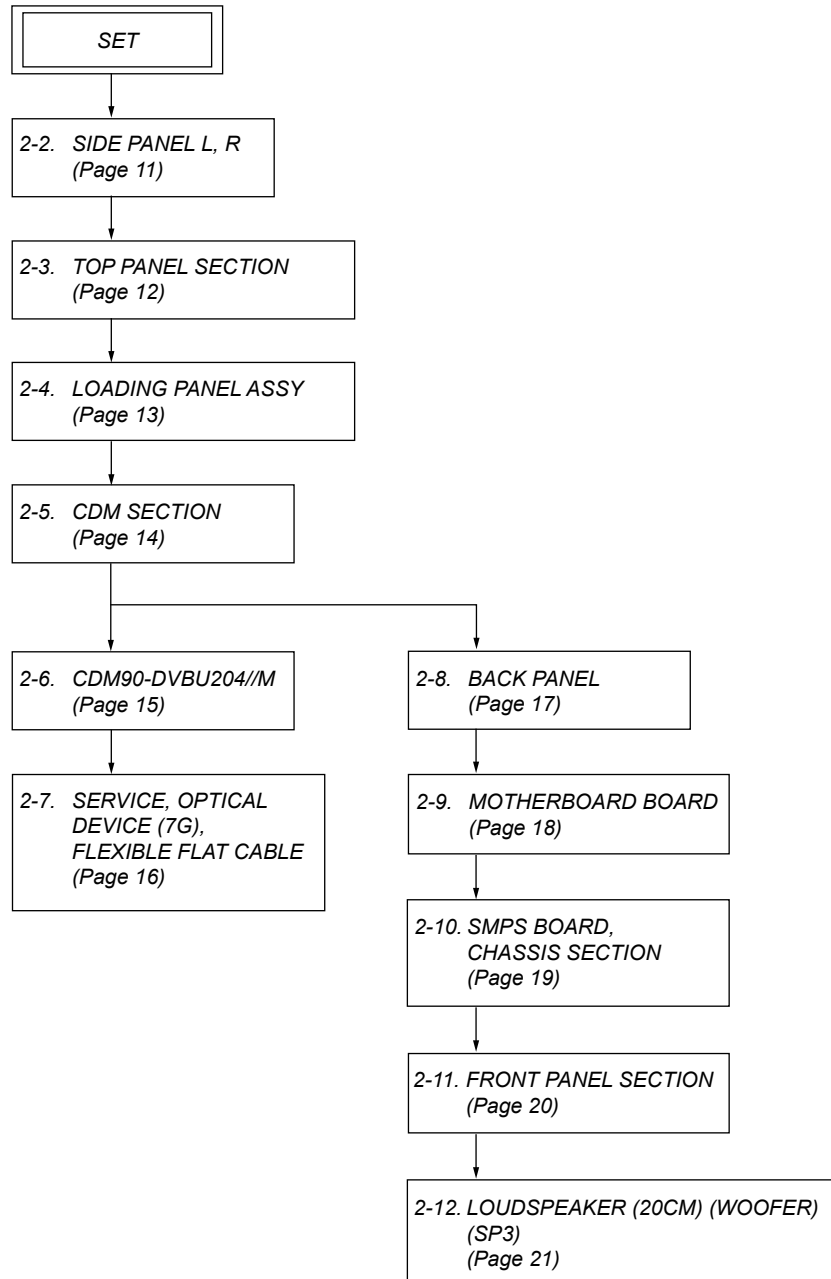


**SERVICE POSITION**



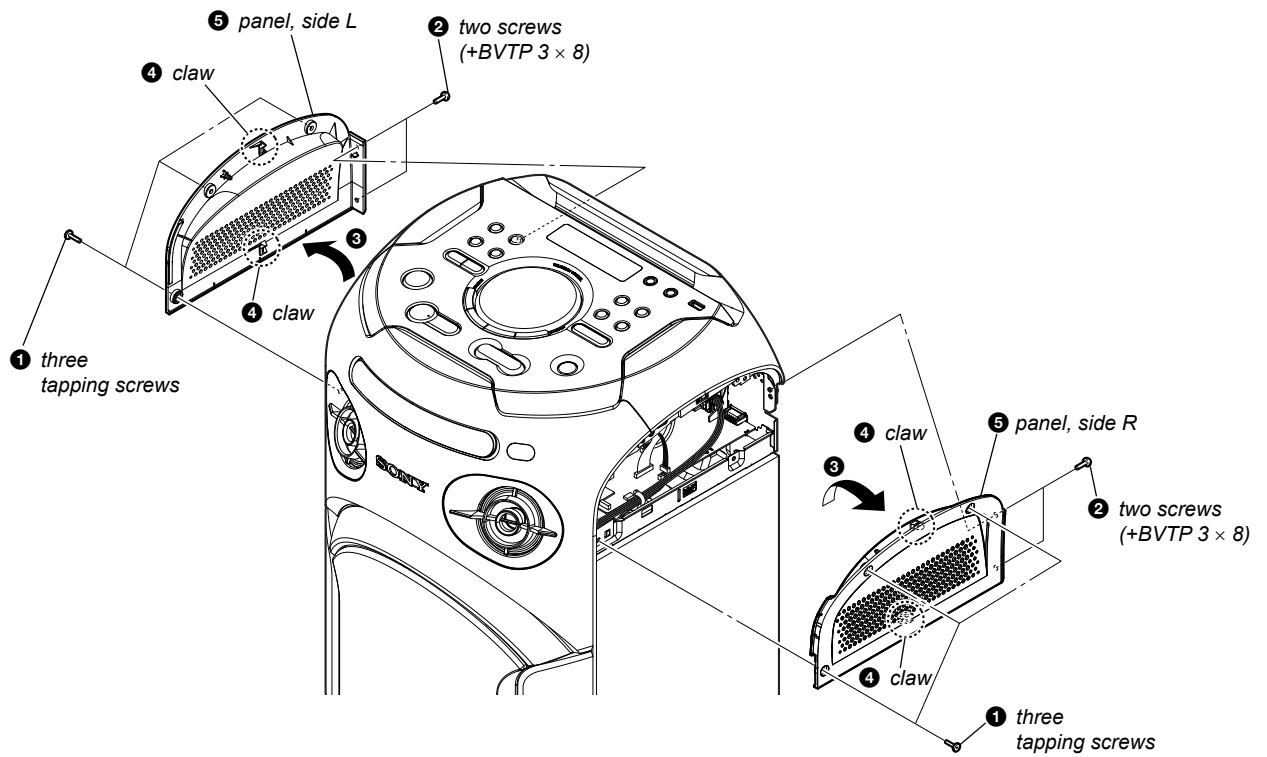
**SECTION 2  
DISASSEMBLY**

**Note:** Disassemble the unit in the order as shown below.

**2-1. DISASSEMBLY FLOW**

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

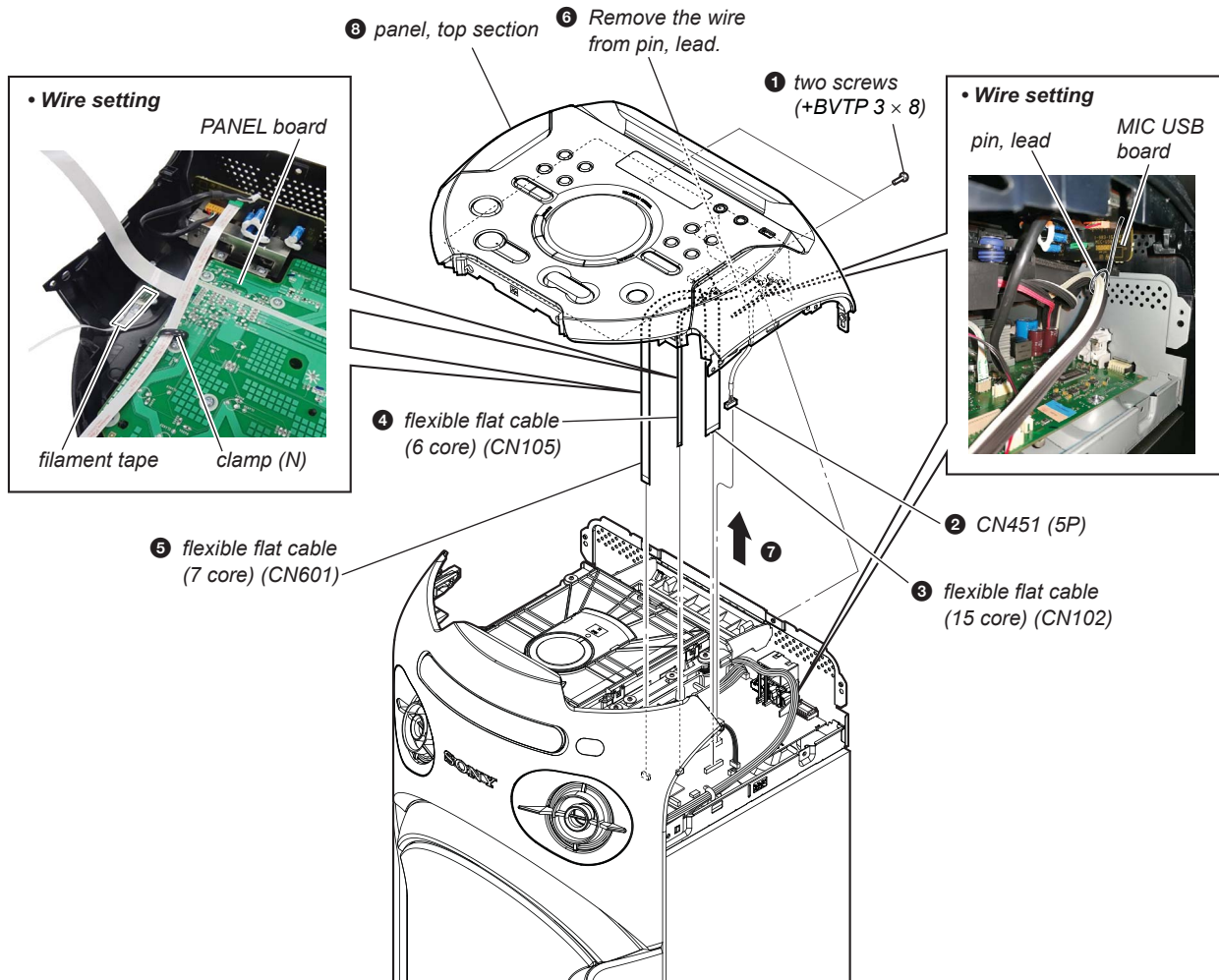
## 2-2. SIDE PANEL L, R



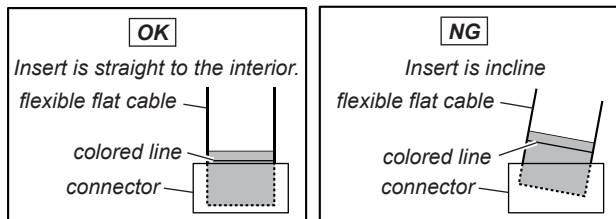
# MHC-V21/V21D

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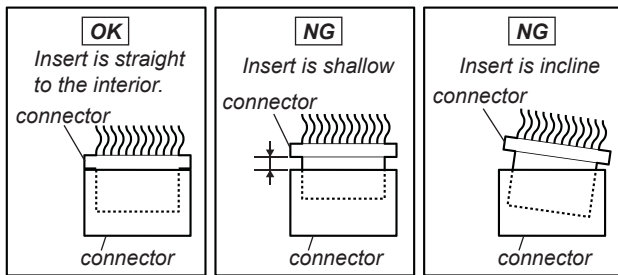
## 2-3. TOP PANEL SECTION



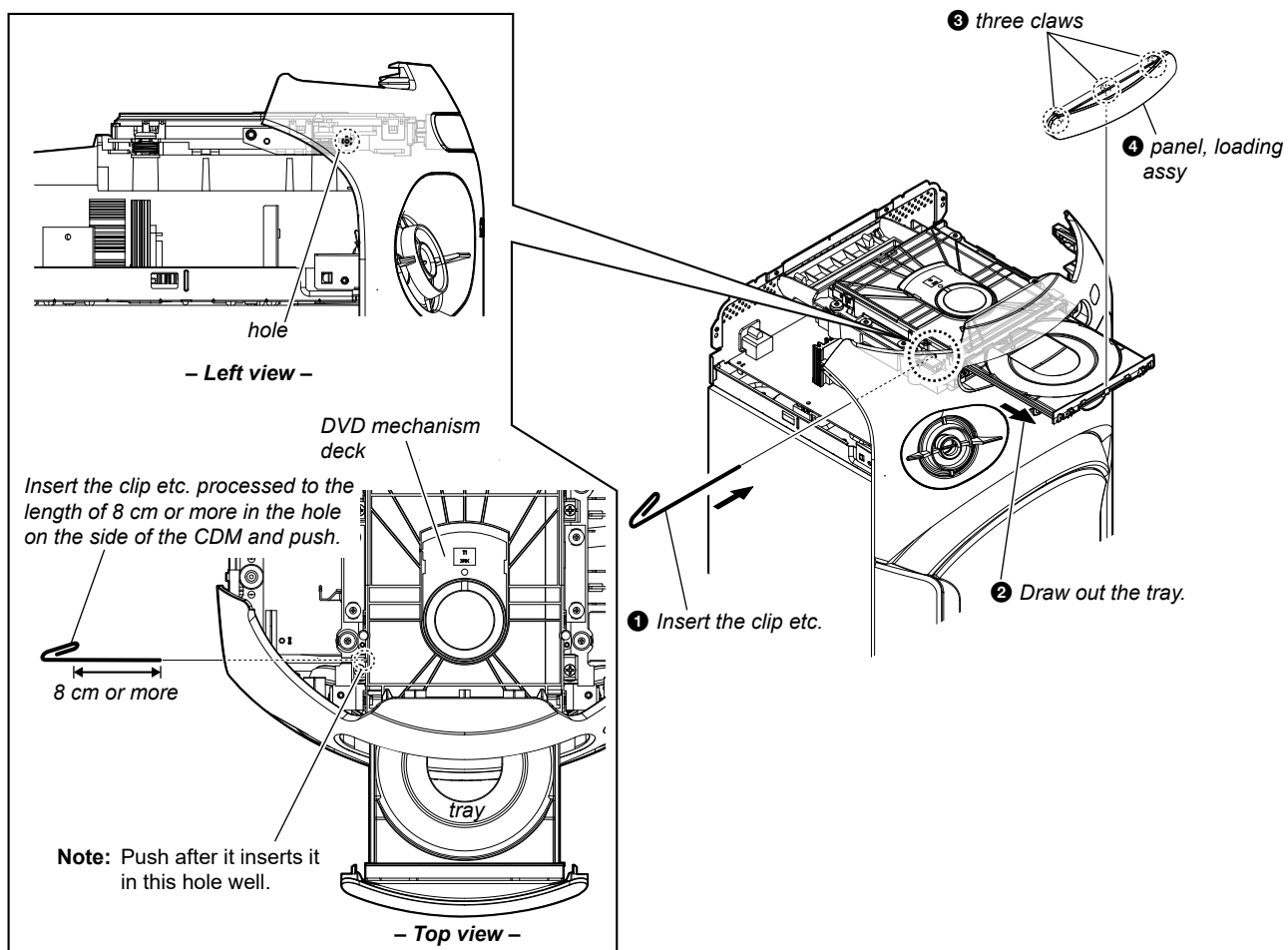
**Note 1:** When installing the flexible flat cable, ensure that the colored line is not slanted after insertion.



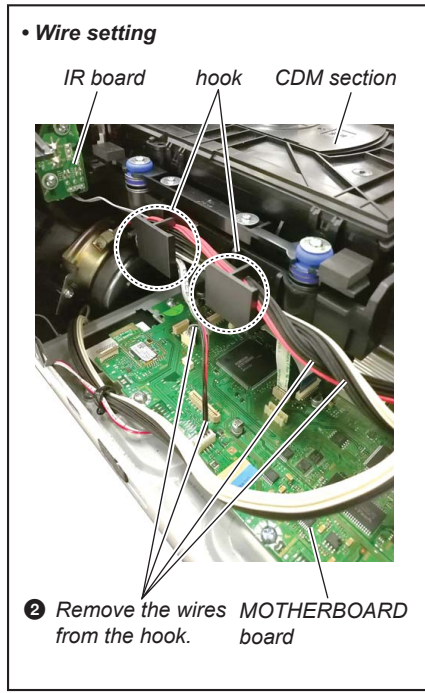
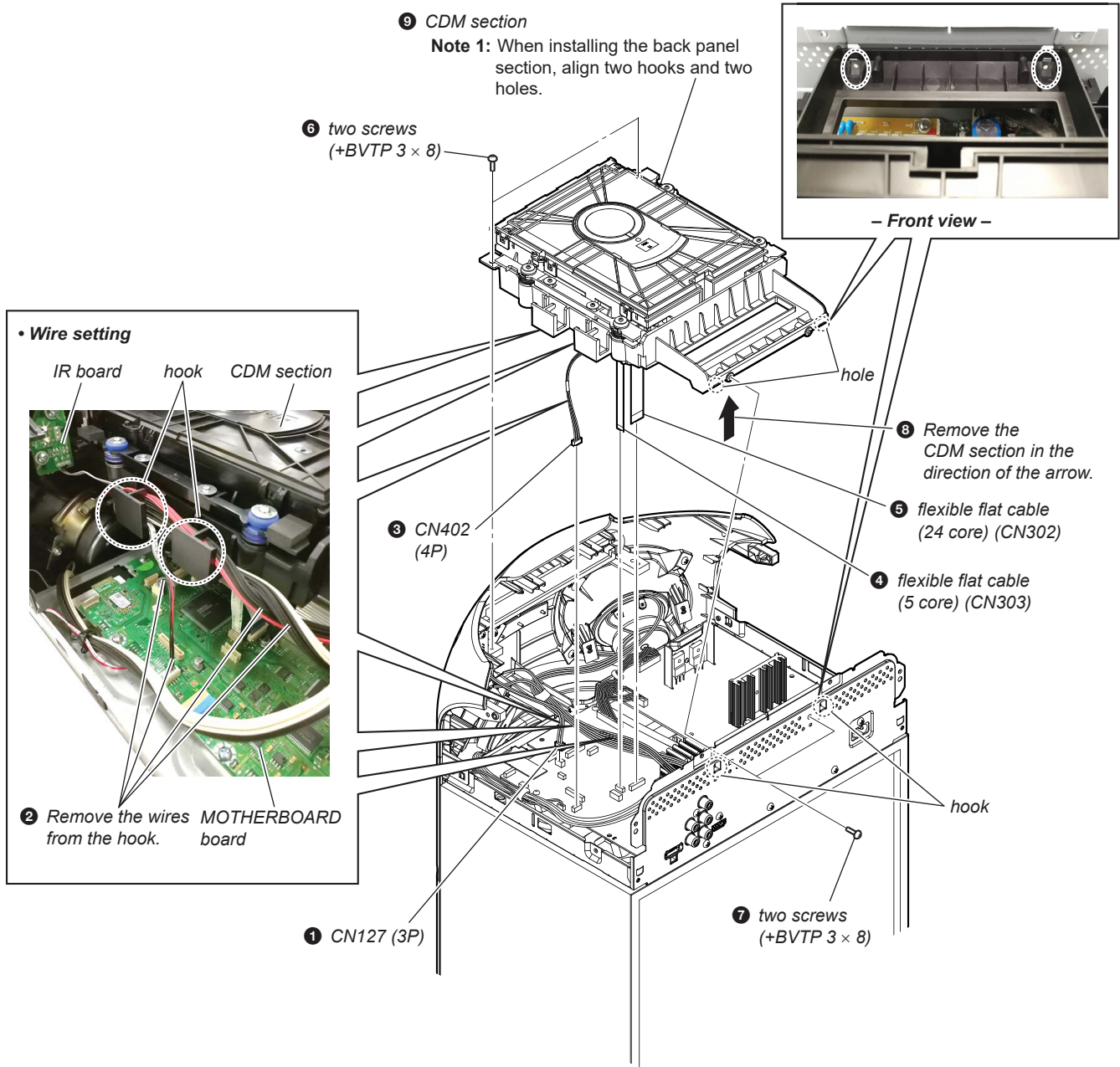
**Note 2:** When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.



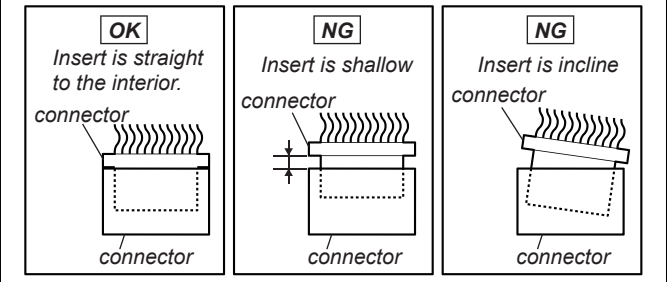
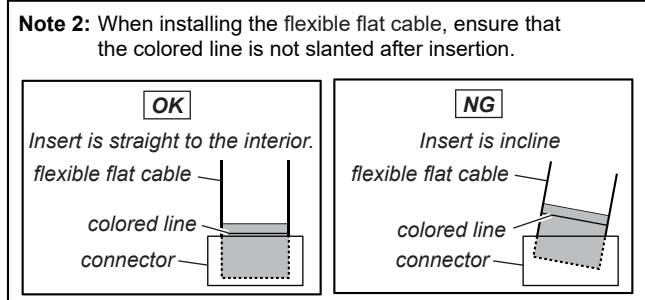
### 2-4. LOADING PANEL ASSY



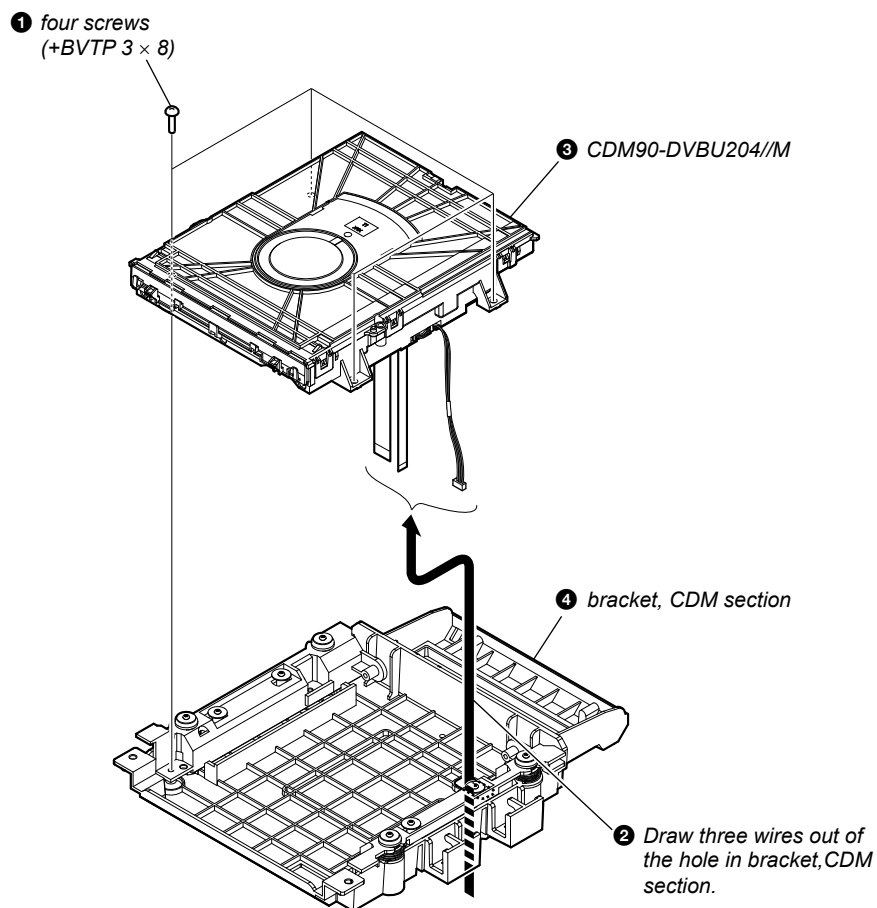
**2-5. CDM SECTION**



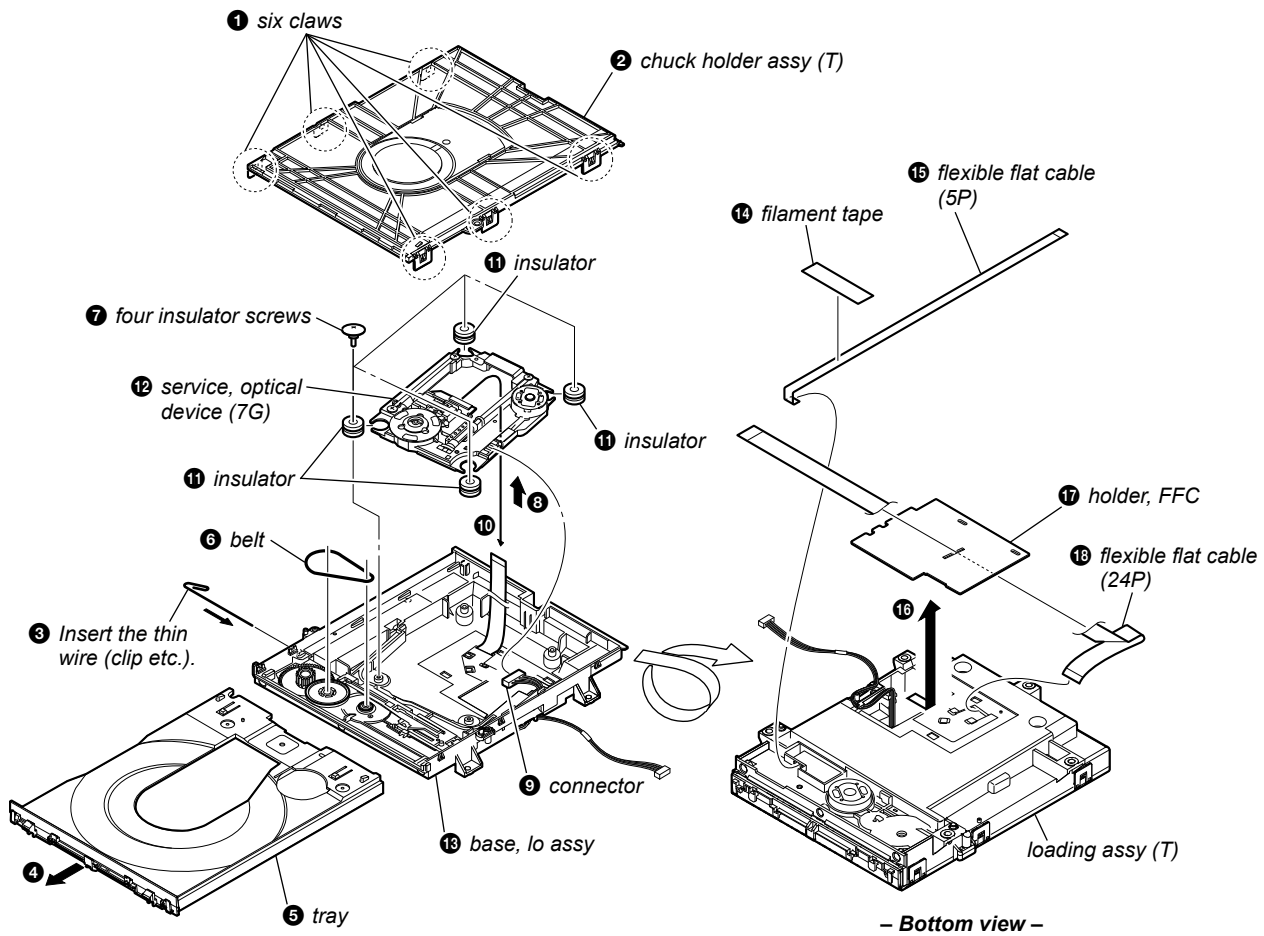
**Note 3:** When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.



2-6. CDM90-DVBU204//M

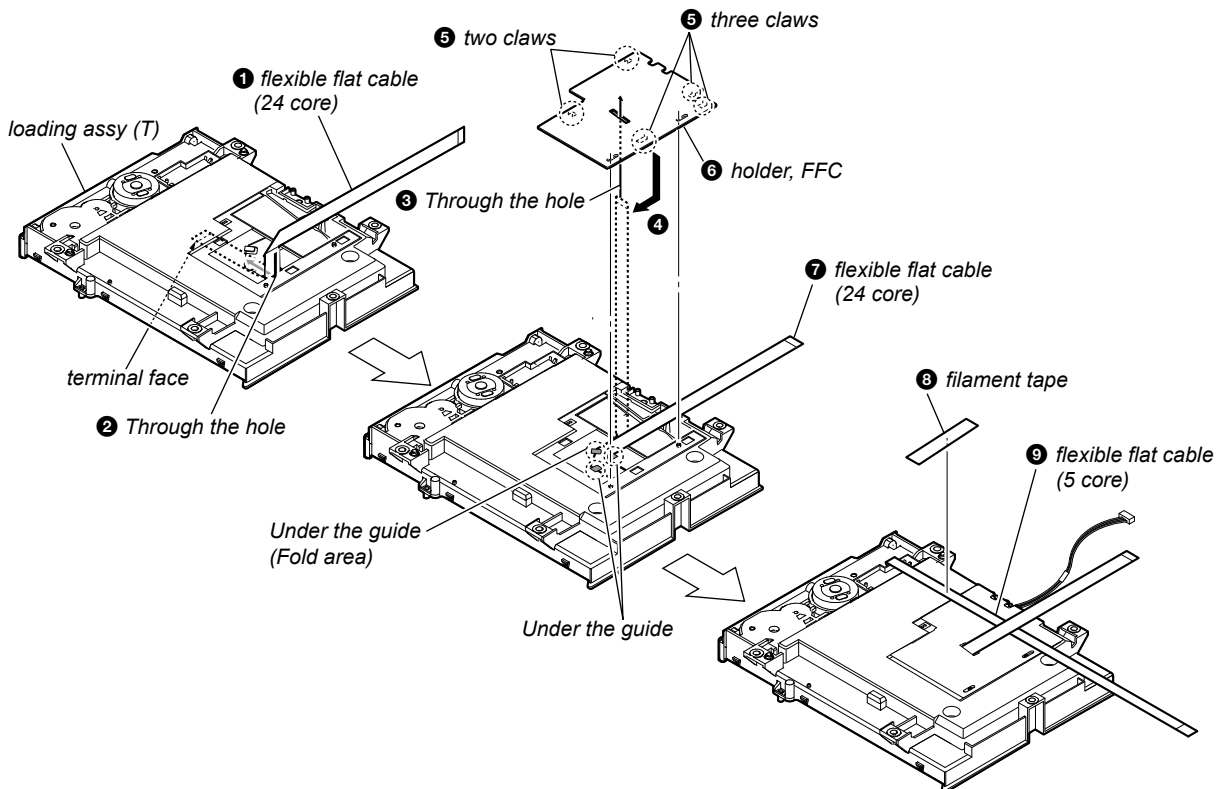


**2-7. SERVICE, OPTICAL DEVICE (7G), FLEXIBLE FLAT CABLE**



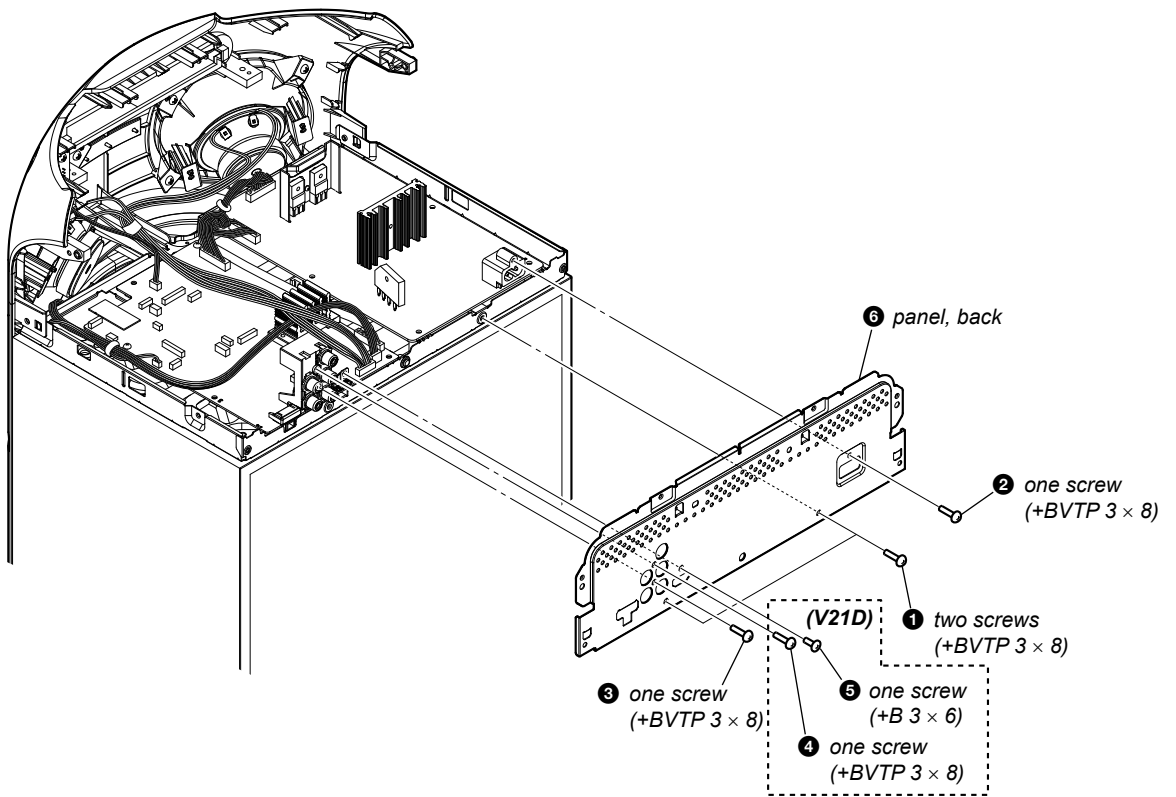
**• Installation of flexible flat cable (24 core) and flexible flat cable (5 core)**

**Note:** This illustration sees the loading assy (T) from bottom side.

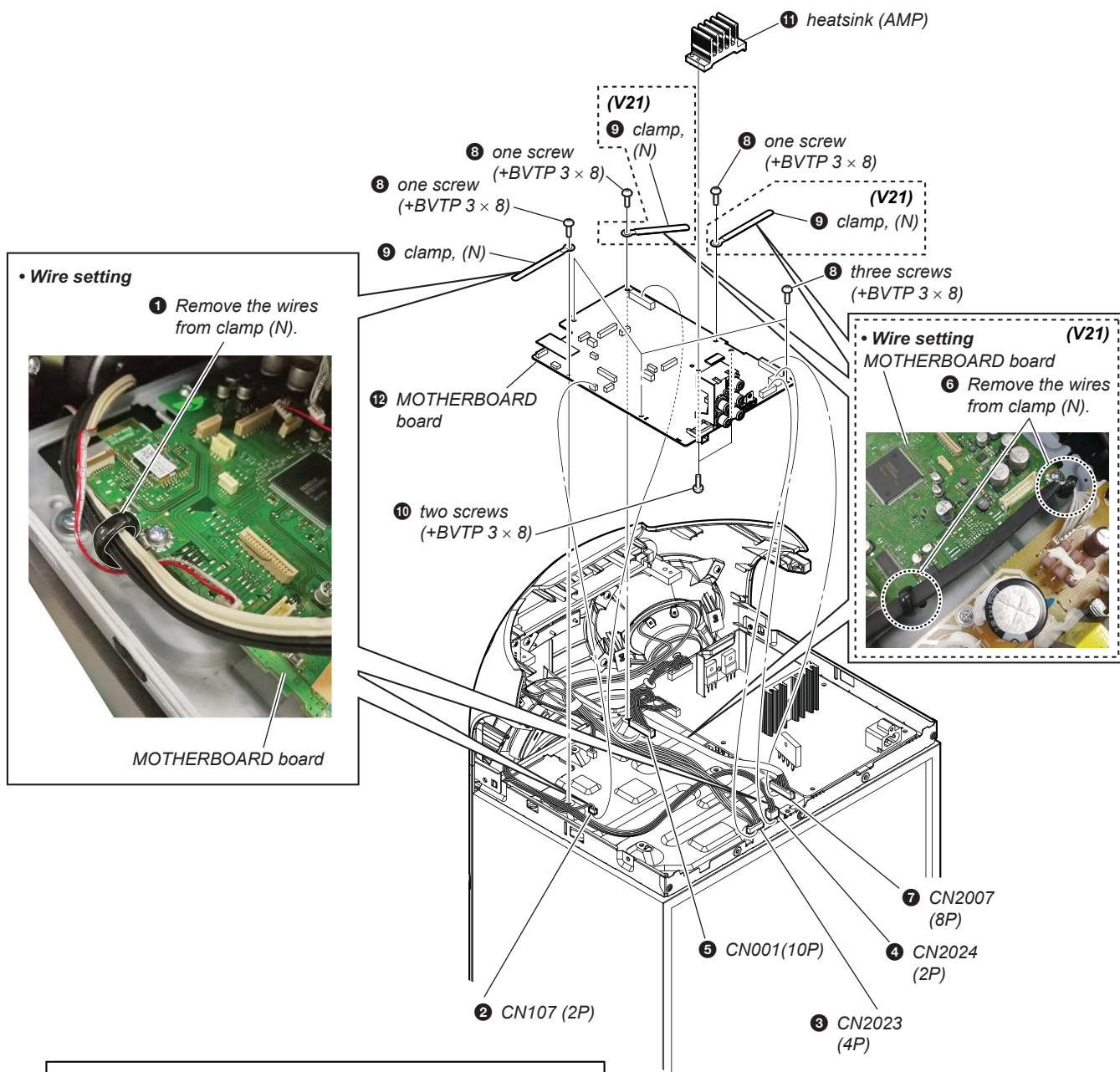




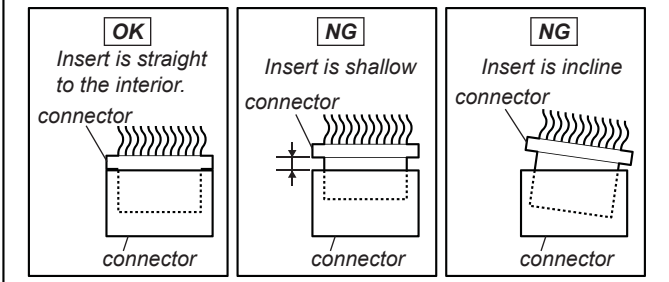
### 2-8. BACK PANEL



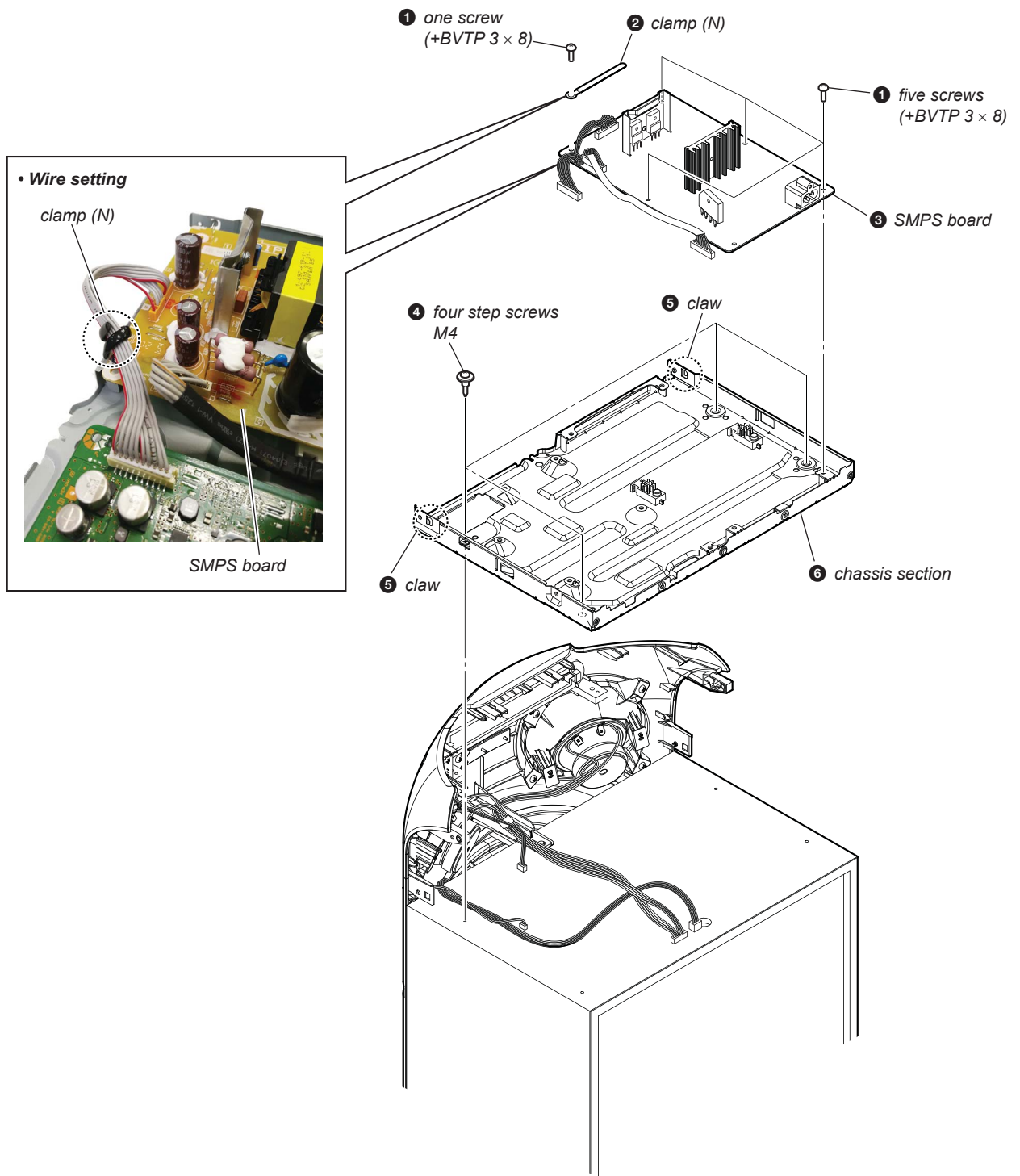
**2-9. MOTHERBOARD BOARD**



**Note :** When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.



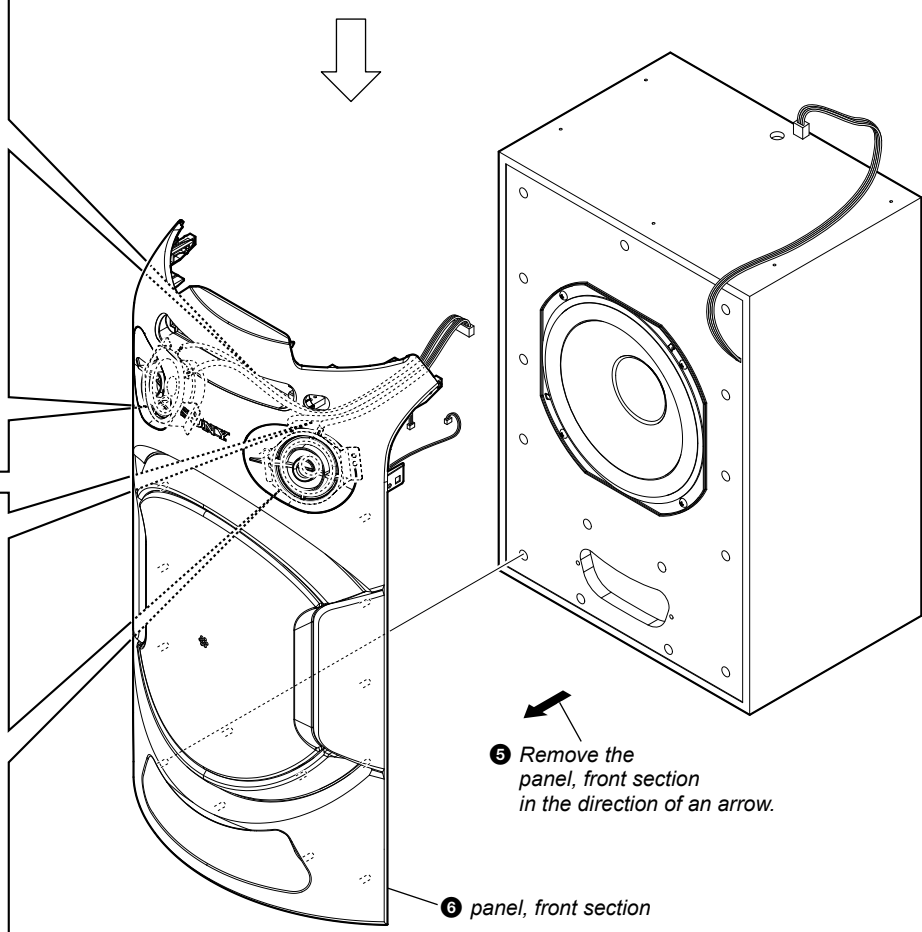
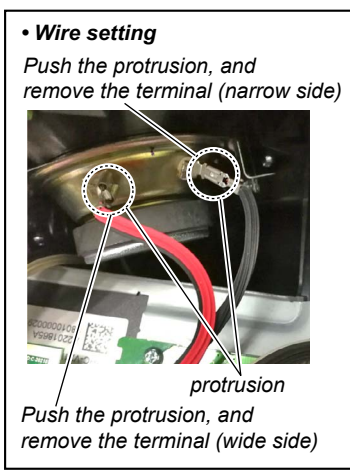
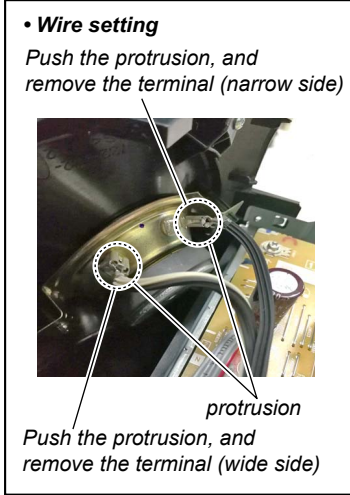
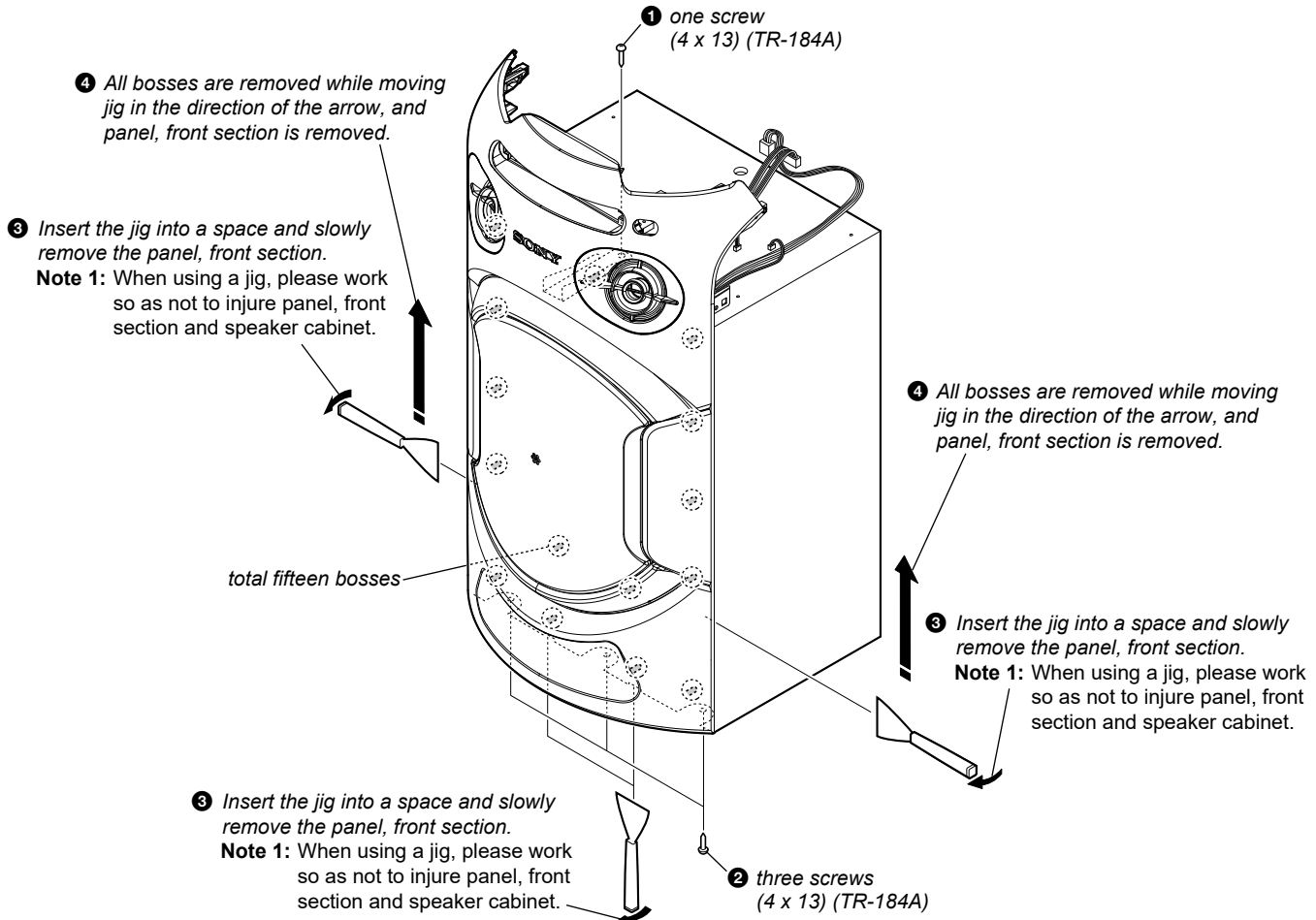
### 2-10. SMPS BOARD, CHASSIS SECTION



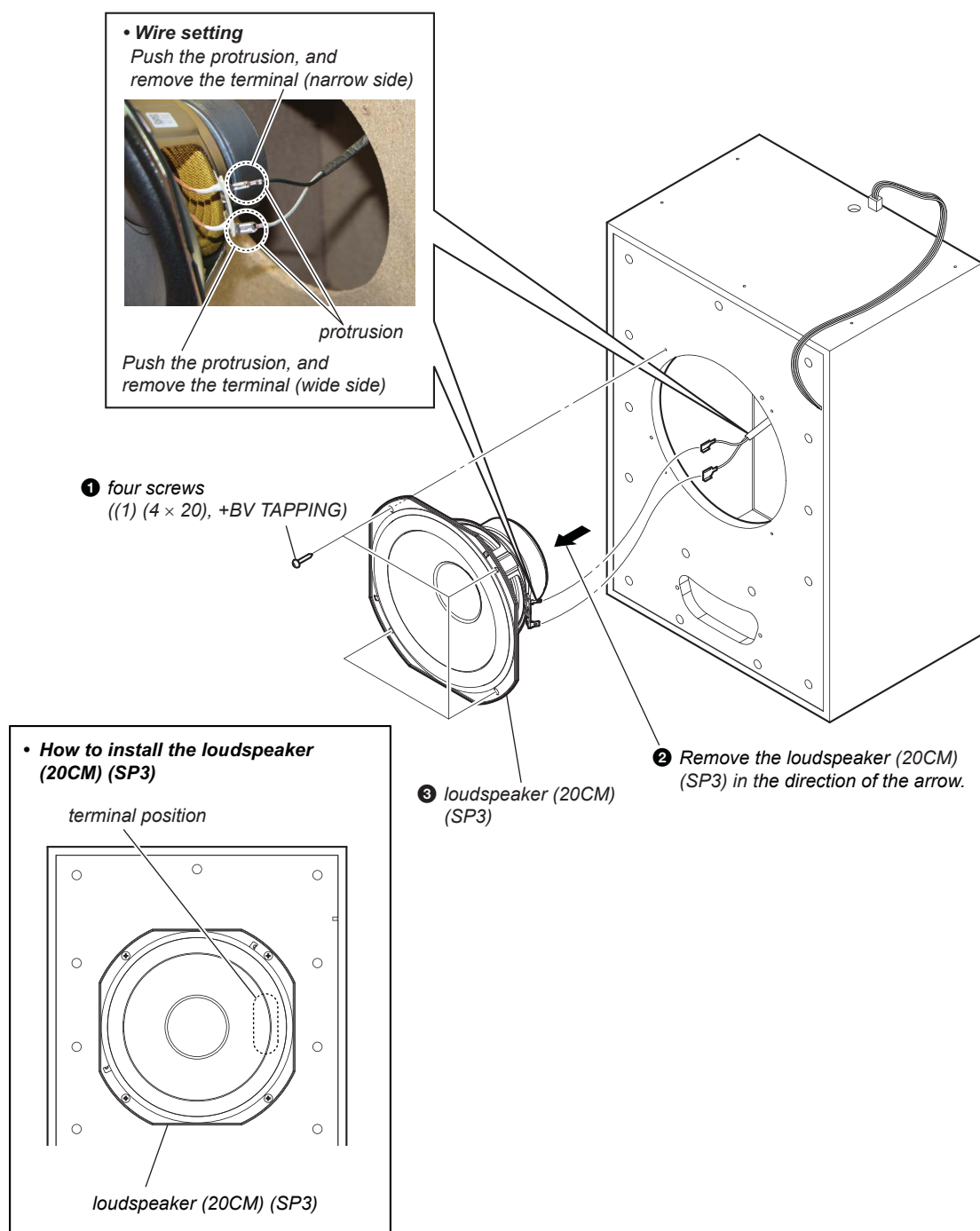
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## 2-11. FRONT PANEL SECTION



## 2-12. LOUDSPEAKER (20CM) (WOOFER) (SP3)



**MHC-V21/V21D**

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**SECTION 3  
TEST MODE****PANEL TEST MODE**

This mode is used to check the buttons, knob, screen display panel and LEDs.

**Procedure:**

1. Press [⏻] button to turn on the system.
2. Press [MIC LEVEL -] and [■] buttons simultaneously for 3 seconds.
3. All LEDs and segments in screen display panel are lighted up. This is the display check mode.  
Press [▶] button repeatedly to toggle different display mode as below:  
Segments on screen display panel:  
All On → 1st Group On → 2nd Group On → All On → All Off
4. Press [S1 □ -] button, the buttons and knob check mode is activated.
5. In the buttons and knob check mode, the screen display panel displays “K 0 V0”.  
Each time a button is pressed, “K” value increases. However, once a button has been pressed, it is no longer taken into account. After all the buttons have been pressed, “K” value will toggle between “OK” and “K22”.  
“V” value increases in the manner of 0, 1, 2, 3 ... if [VOLUME/DJ CONTROL] knob is turned clockwise, or it decreases in the manner of 0, 9, 8, 7 ... if [VOLUME/DJ CONTROL] knob is turned counterclockwise.
6. To release from this mode, press the buttons in the same manner as step 2, or disconnect the power cord.

**MODEL, DESTINATION AND VERSION DISPLAY MODE**

This mode is used to check the model, destination and software version of the set.

**Procedure:**

1. Press [⏻] button to turn on the system.
2. Press [MIC LEVEL -] and [■] buttons simultaneously for 3 seconds.  
All segments in screen display panel are lighted up.
3. Press [S2 □ +] button. Model information appears on the screen display panel.
4. Press [S2 □ +] button again. Destination information appears on the screen display panel.
5. Press [S2 □ +] button. Serial number appears on the screen display panel.
6. During the serial number display, press [S2 □ +] button. Each time [S2 □ +] button is pressed, the screen display panel shows the version of each category software in the following sequence: SC, MTK, BT, BTE, PF, SUB and return back to model information display.
7. Press [MIC LEVEL -] and [■] buttons simultaneously for 3 seconds to exit.

**USER RESET**

The user reset clears all data including preset data stored in the data flash to initial conditions.

**Procedure:**

1. Press [⏻] button to turn on the system.
2. Press [GUITAR] and [MEGA BASS] buttons simultaneously for 3 seconds.
3. “RESET” appears on the screen display panel. After that, the screen display panel becomes blank for a while, and the system goes to demo mode.

**COLD RESET**

This mode is used to reset all the user settings to factory setting. Execute this mode when returning the set to the customer.

**Procedure:**

1. Press [⏻] button to turn on the system.
2. Press [MIC LEVEL +] and [■] buttons simultaneously for 3 seconds.
3. “COLD RST” appears on the screen display panel. After that, “SONY” appears on the screen display panel. The system automatically turn on and off once. Please be sure that the system stay at demo mode finally before switch off the power supply.

**DISC TRAY LOCK**

When the disc tray does not open and “LOCKED” appears on the screen display panel, disc tray lock mode has been activated by the shop front.

**To release from Disc Tray Lock Mode:**

1. Press [⏻] button to turn on the system.
2. Press [FUNCTION] button repeatedly to select the CD/DVD function.
3. Press [S3 TUNING - ◀◀] and [▶] buttons simultaneously and hold down until “UNLOCKED” displayed on the screen display panel.

**SHOP FRONT DEMO**

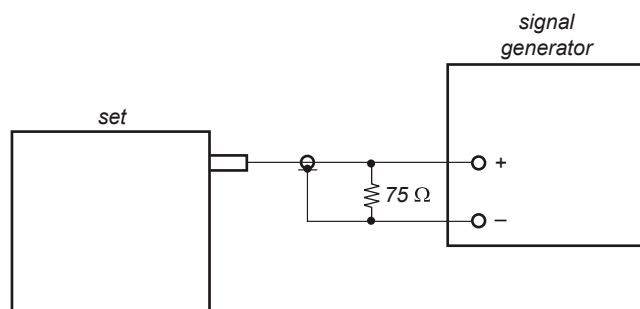
The playback started automatically and the “ \* DEMO \* ” appears on the screen display panel.

This is the Shop Front Demo mode which is activated by the shop front.

**To release from Shop Front Demo**

1. Press [MIC ECHO] and [■] buttons simultaneously for 5 seconds.

## SECTION 4 ELECTRICAL CHECK

**TUNER SECTION**
**0 dB = 1  $\mu$ V**
**Checking Location:**
**FM AUTO STOP CHECK**

**Procedure:**

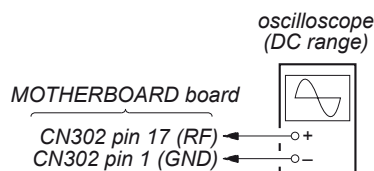
1. Turn the power on.
2. Input the following signal from Signal Generator to FM antenna input directly.

Carrier frequency : A = 87.5 MHz, B = 98 MHz, C = 108 MHz  
 Deviation : 75 kHz  
 Modulation : 1 kHz  
 ANT input : 35 dBu (EMF)

**Note:** Please use 75 ohm “coaxial cable” to connect SG and the set. You cannot use video cable for checking.  
 Please use SG whose output impedance is 75 ohm.

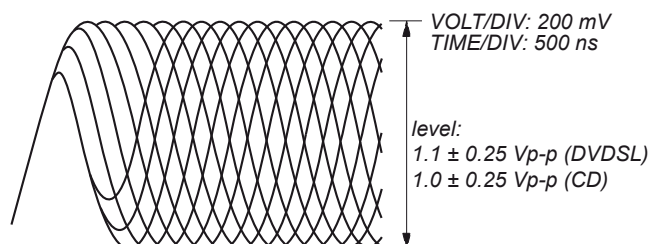
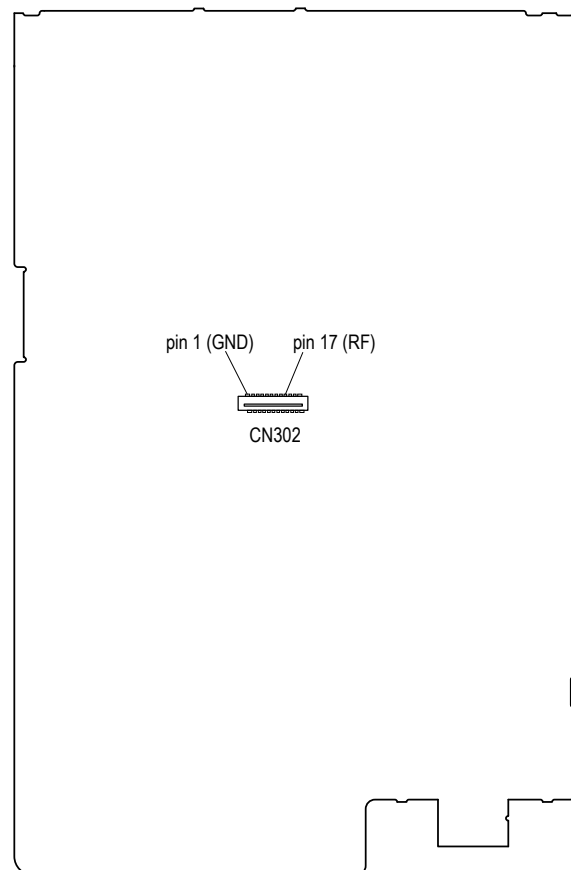
3. Set to FM tuner function and scan the input FM signal with automatic scanning.
4. Confirm that input Frequency of A, B and C detected and automatic scanning stops.

The stop of automatic scanning means “The station signal is received in good condition”.

**FOCUS BIAS CHECK**

**Procedure:**

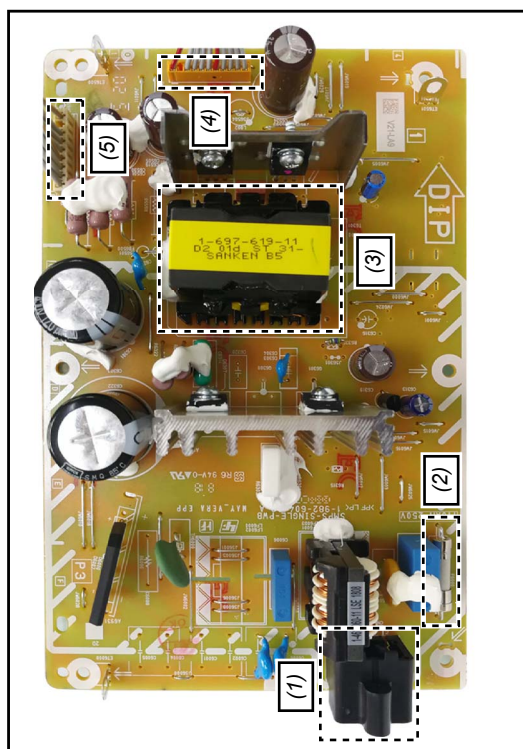
1. Connect the oscilloscope to CN302 pin 17 (RF) and CN302 pin 1 (GND) on the MOTHERBOARD board.
2. Press the [⏻] button to turn the power on, and press the [FUNCTION] button to select CD/DVD function.
3. Set the test disc (CD: YEDS-18) on the tray and press [▶] button to playback.
4. Confirm that oscilloscope waveform is as shown in the figure below (eye pattern).

A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

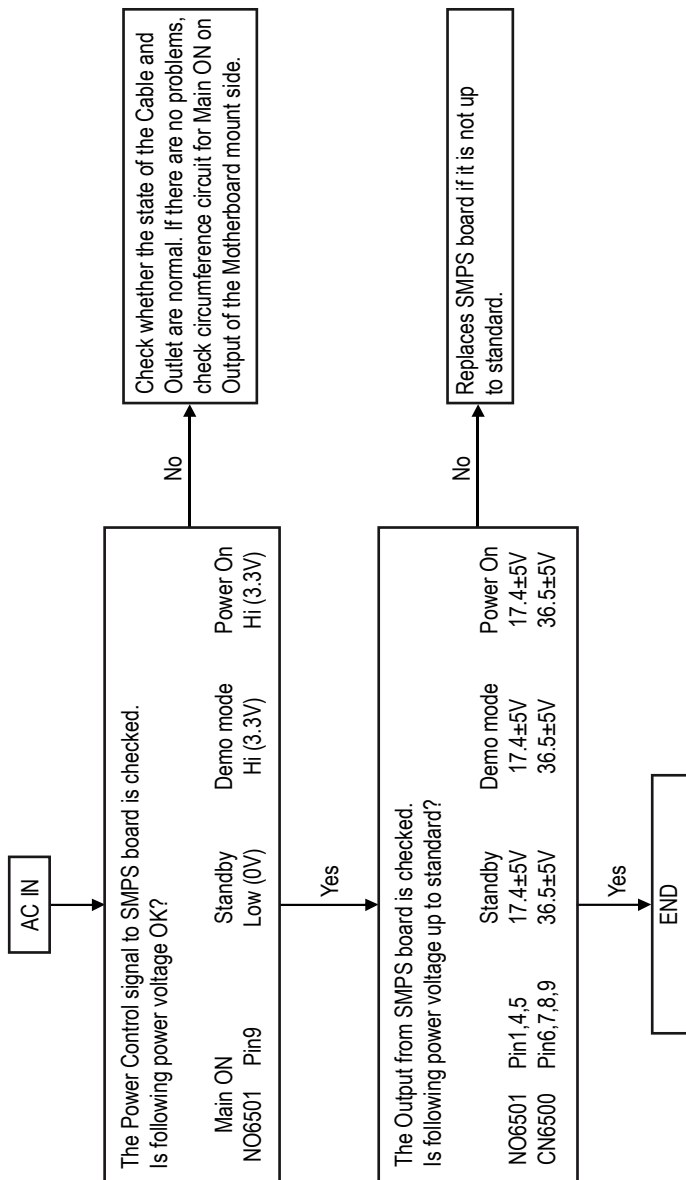

**- MOTHERBOARD Board (Component Side) -**


**SECTION 5**  
**TROUBLESHOOTING**

**SMPS Board Diagnosis Flow**

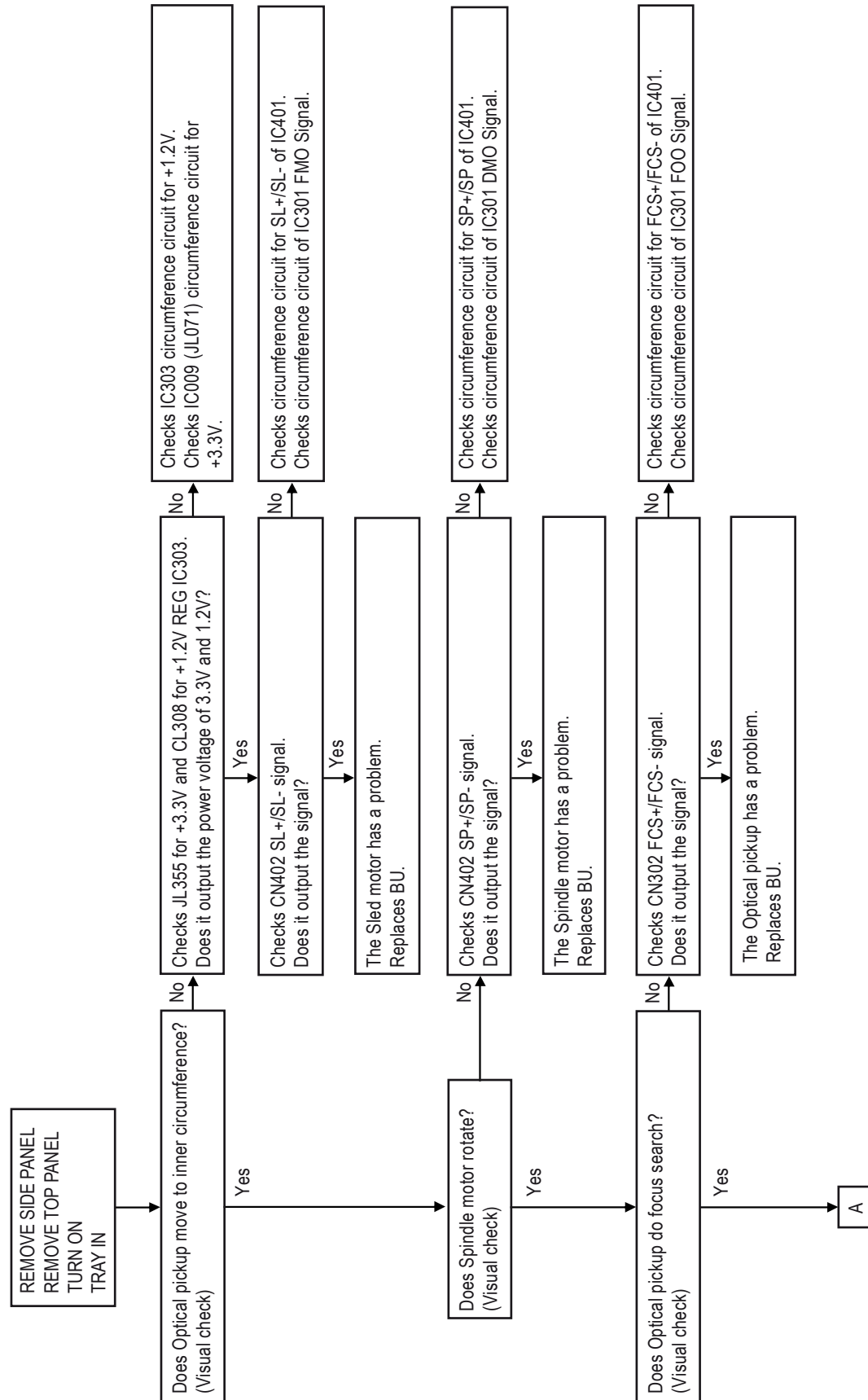


- (1) AC input
- (2) Fuse
- (3) MAIN power transformer
- (4) NO6501 connector
  - Pin 1 : Audio (+17V)
  - Pin 3 : Audio (GND)
  - Pin 4 : LED (+17V)
  - Pin 5 : LED (+17V)
  - Pin 6 : LED (GND)
  - Pin 7 : LED (GND)
  - Pin 8 : AC-DET
  - Pin 9 : Main ON
  - Pin 10 : Network ON
  - Pin 11 : Latch ON
- (5) CN6500 connector
  - Pin 1 : PGND
  - Pin 3 : PGND
  - Pin 4 : PGND
  - Pin 5 : PGND
  - Pin 6 : PVDD (DC+36.5V)
  - Pin 7 : PVDD (DC+36.5V)
  - Pin 8 : PVDD (DC+36.5V)
  - Pin 9 : PVDD (DC+36.5V)

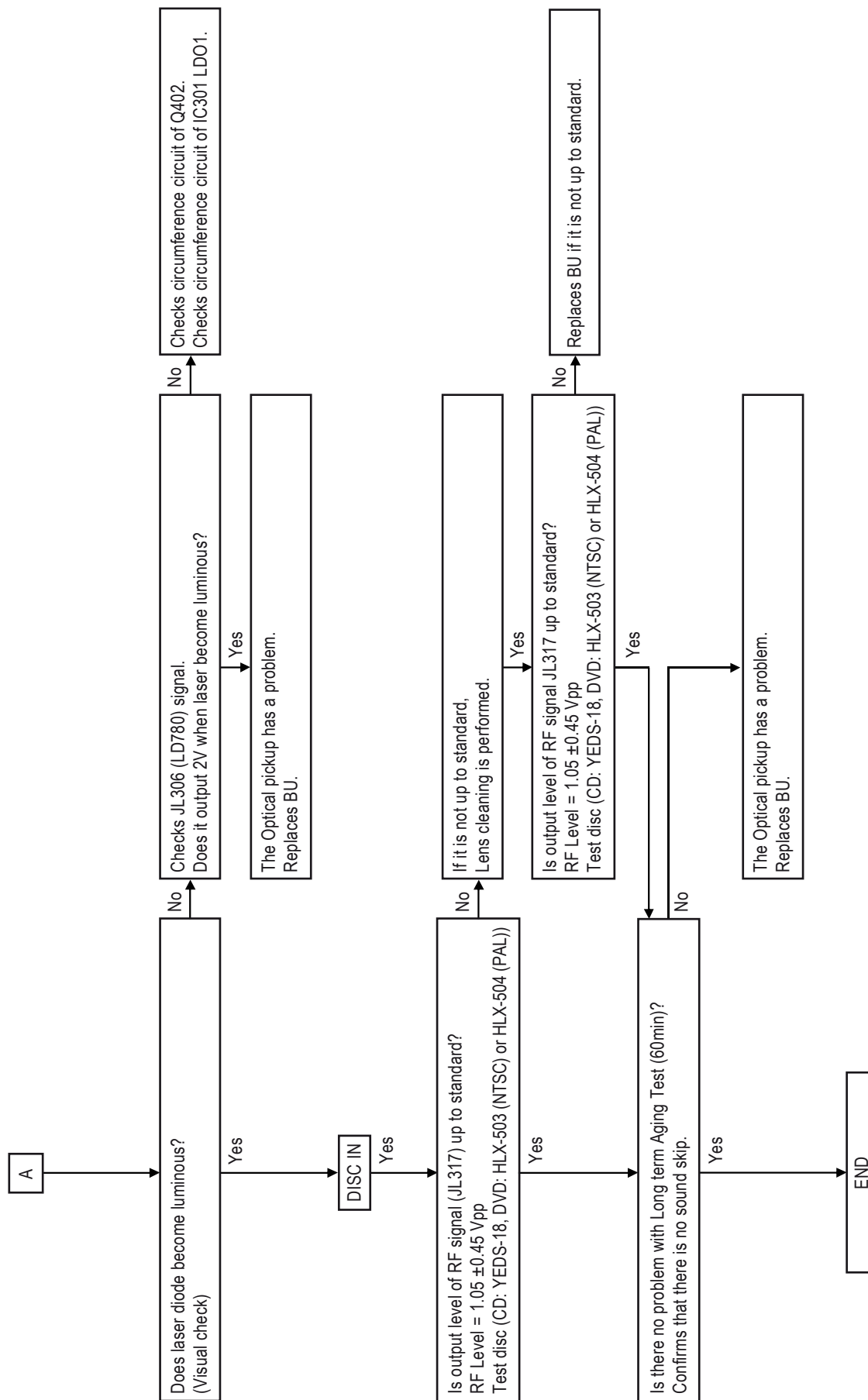




Optical Block Diagnosis Flow (1/2)

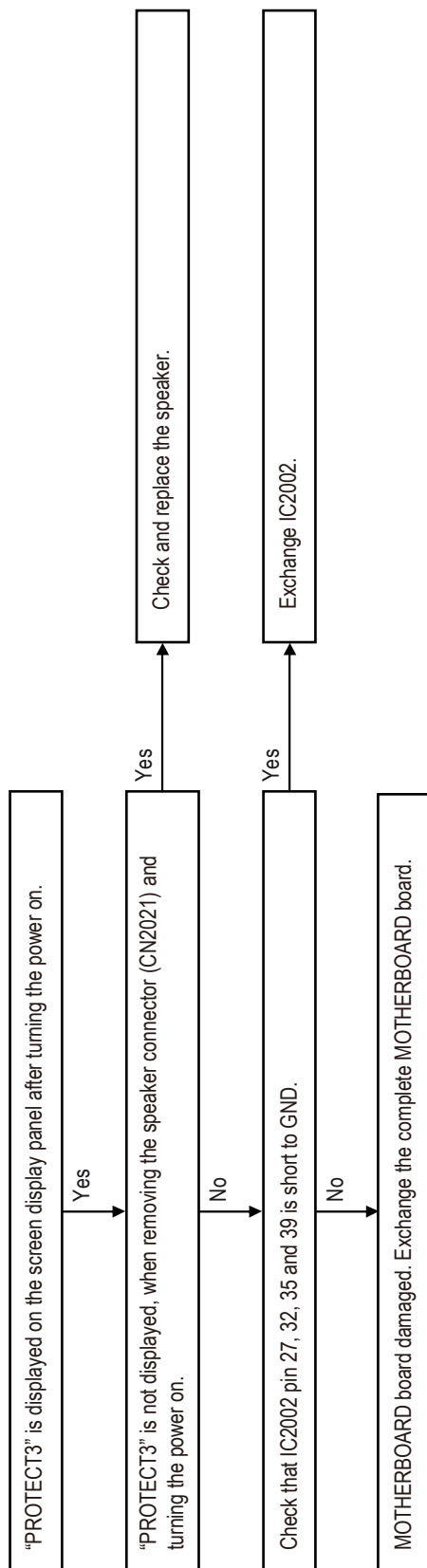


**Optical Block Diagnosis Flow (2/2)**



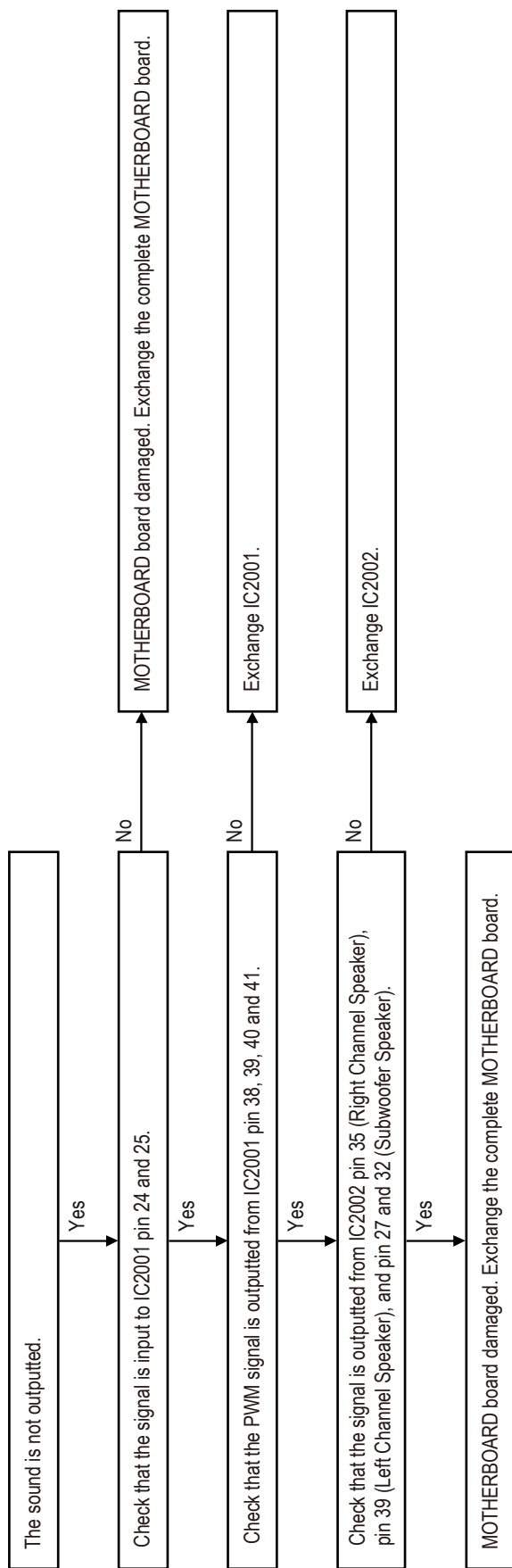
### MOTHERBOARD Board Mount Amplifier Diagnosis Flow (1/3)

#### 1. "PROTECT3" is displayed after turning the power on



### MOTHERBOARD Board Mount Amplifier Diagnosis Flow (2/3)

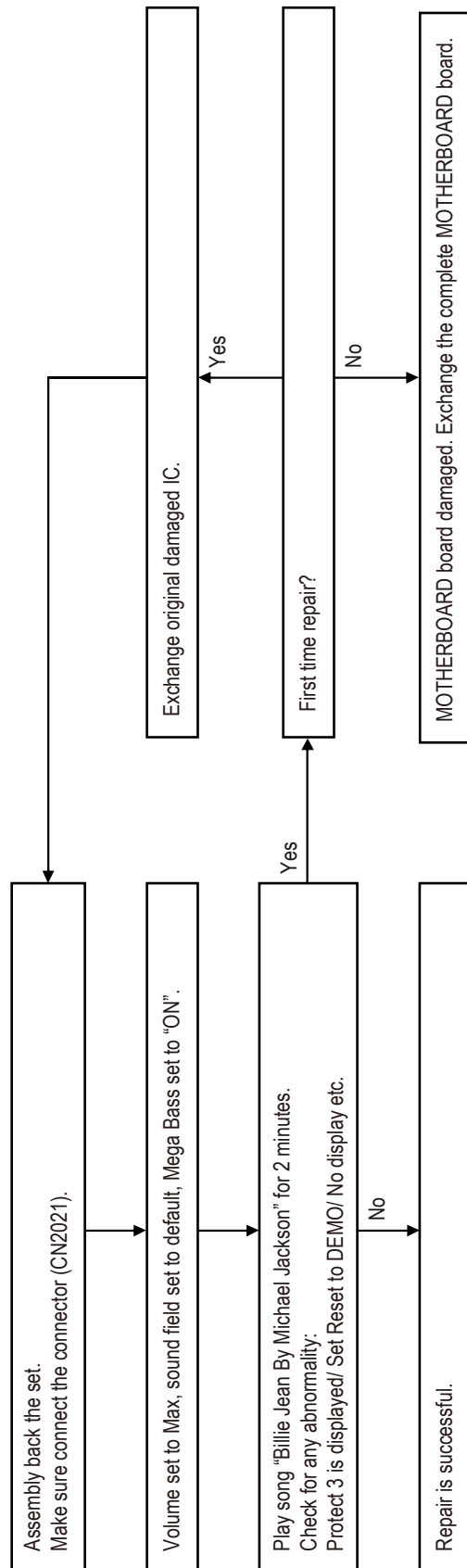
#### 2. The sound is not outputted



### MOTHERBOARD Board Mount Amplifier Diagnosis Flow (3/3)

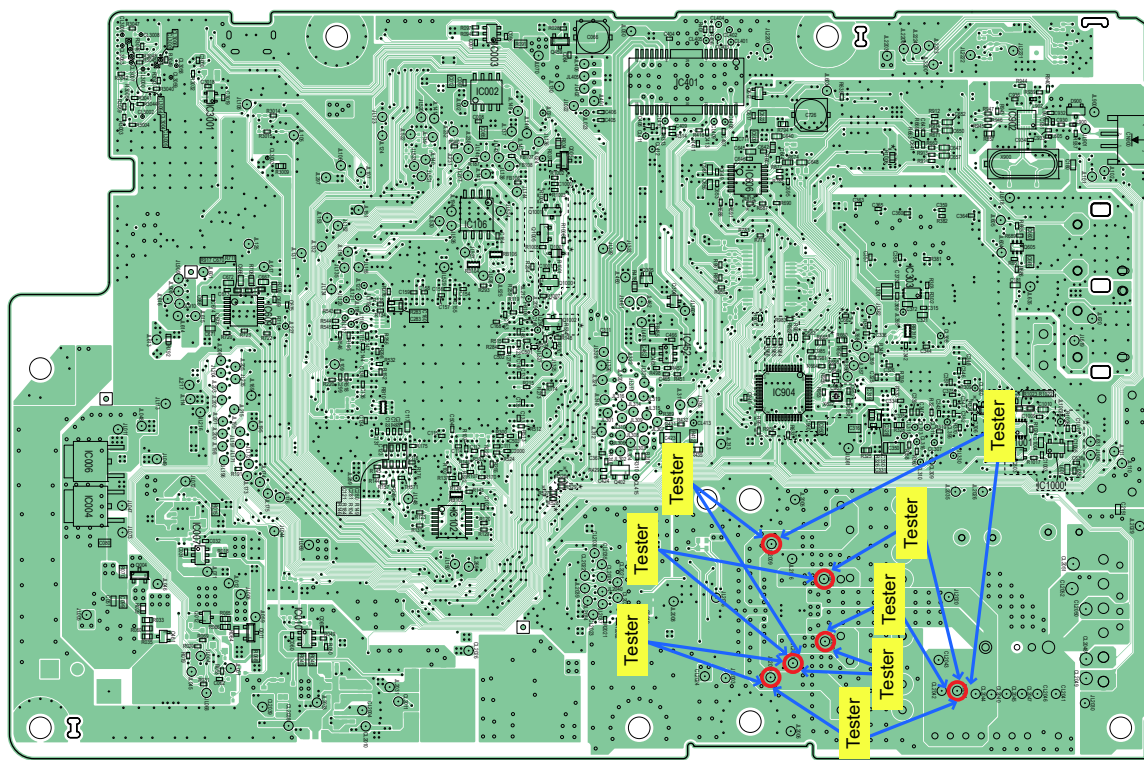
#### 3. IC and MOTHERBOARD board after replace checking guide

After IC2002 and MOTHERBOARD board changed, check as below:



IC2002 Confirmation for MOTHERBOARD Mount

× V21  
★ V21D

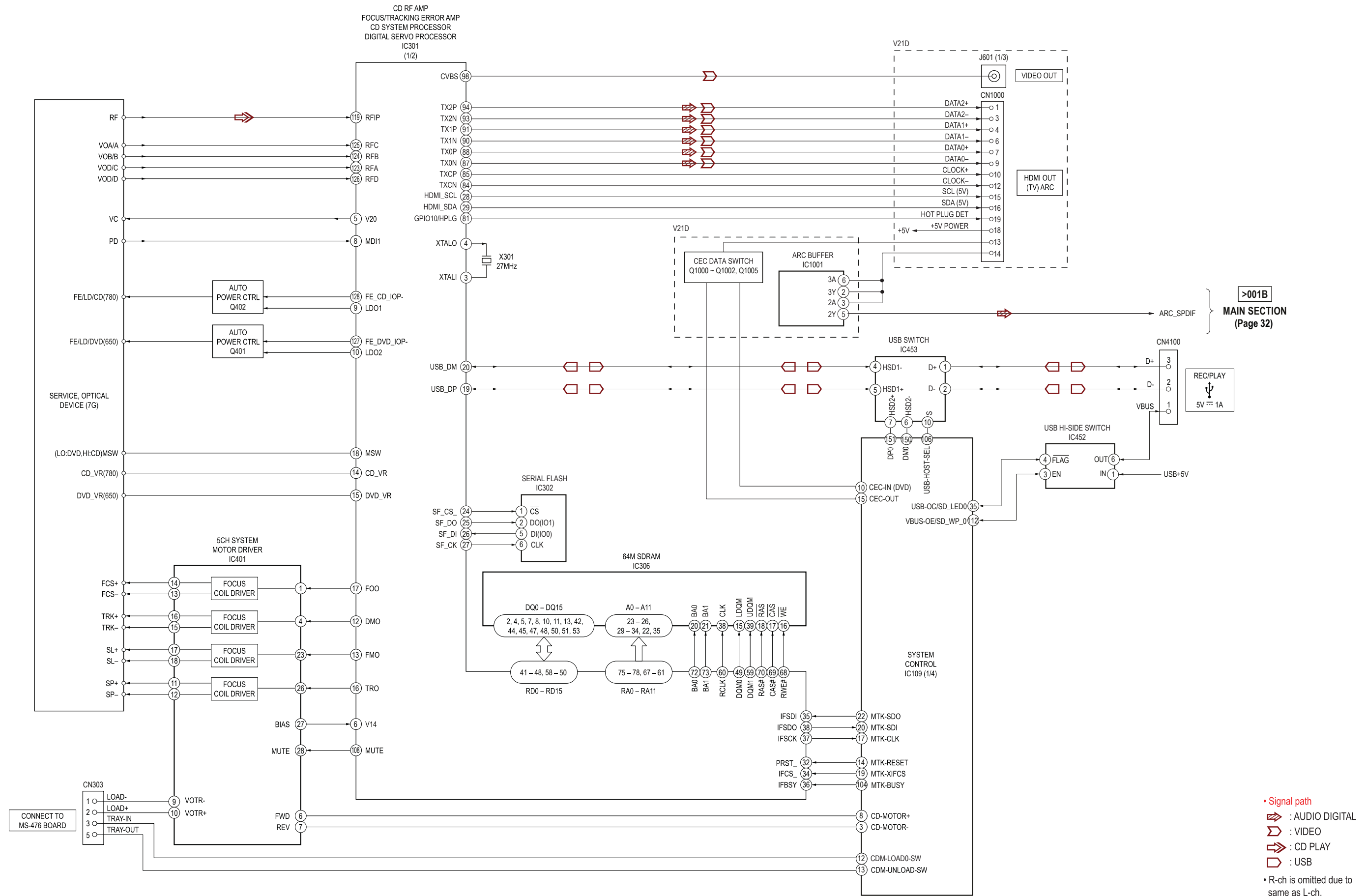


<Note>

Please check each channel's resistance value for the Coil's terminal and Capacitor's + and - terminal. These terminal's resistance value should not be near to 0Ω (short).

### SECTION 6 DIAGRAMS

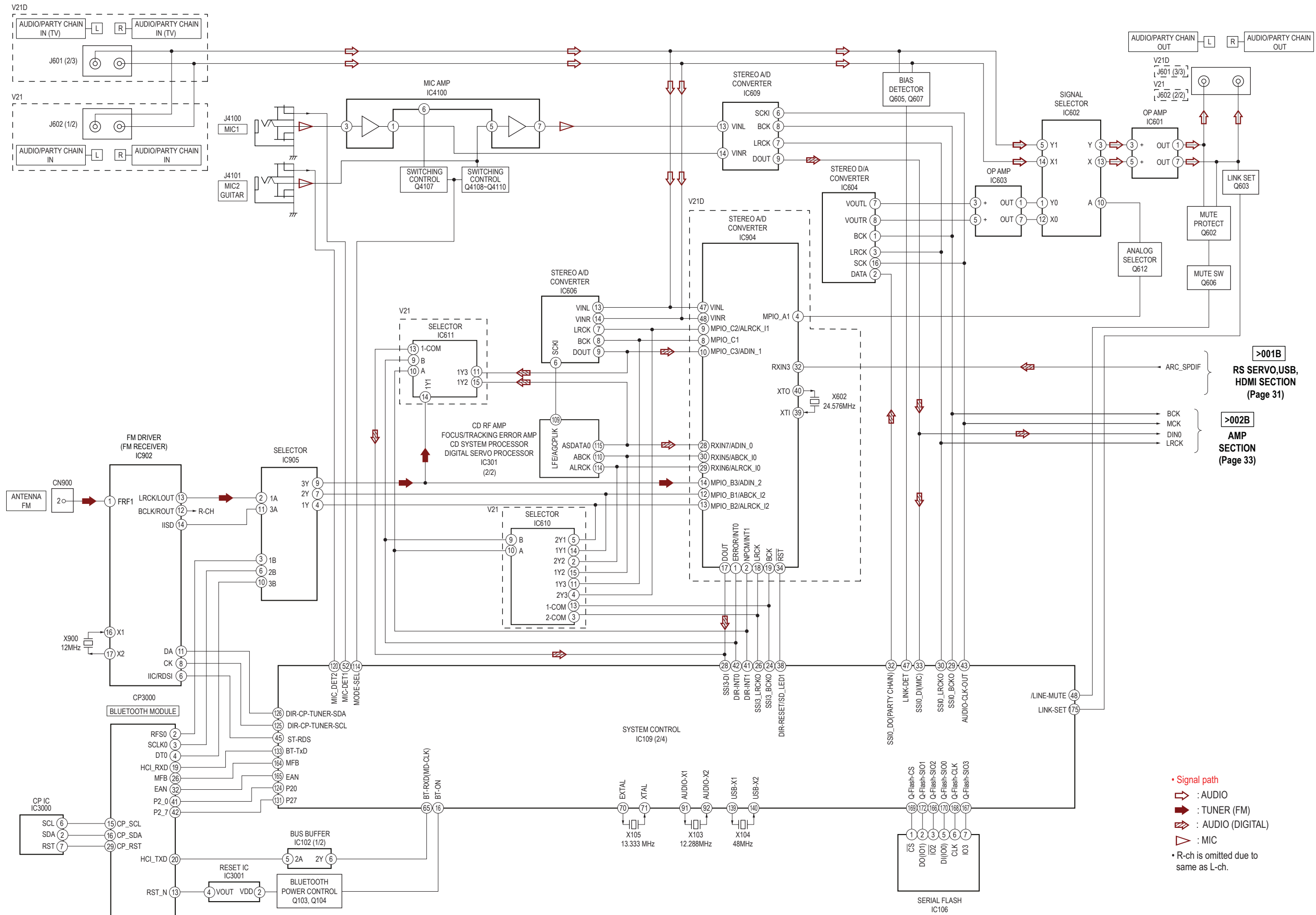
#### 6-1. BLOCK DIAGRAM - RS SERVO, USB, HDMI Section -



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## 6-2. BLOCK DIAGRAM - MAIN Section -



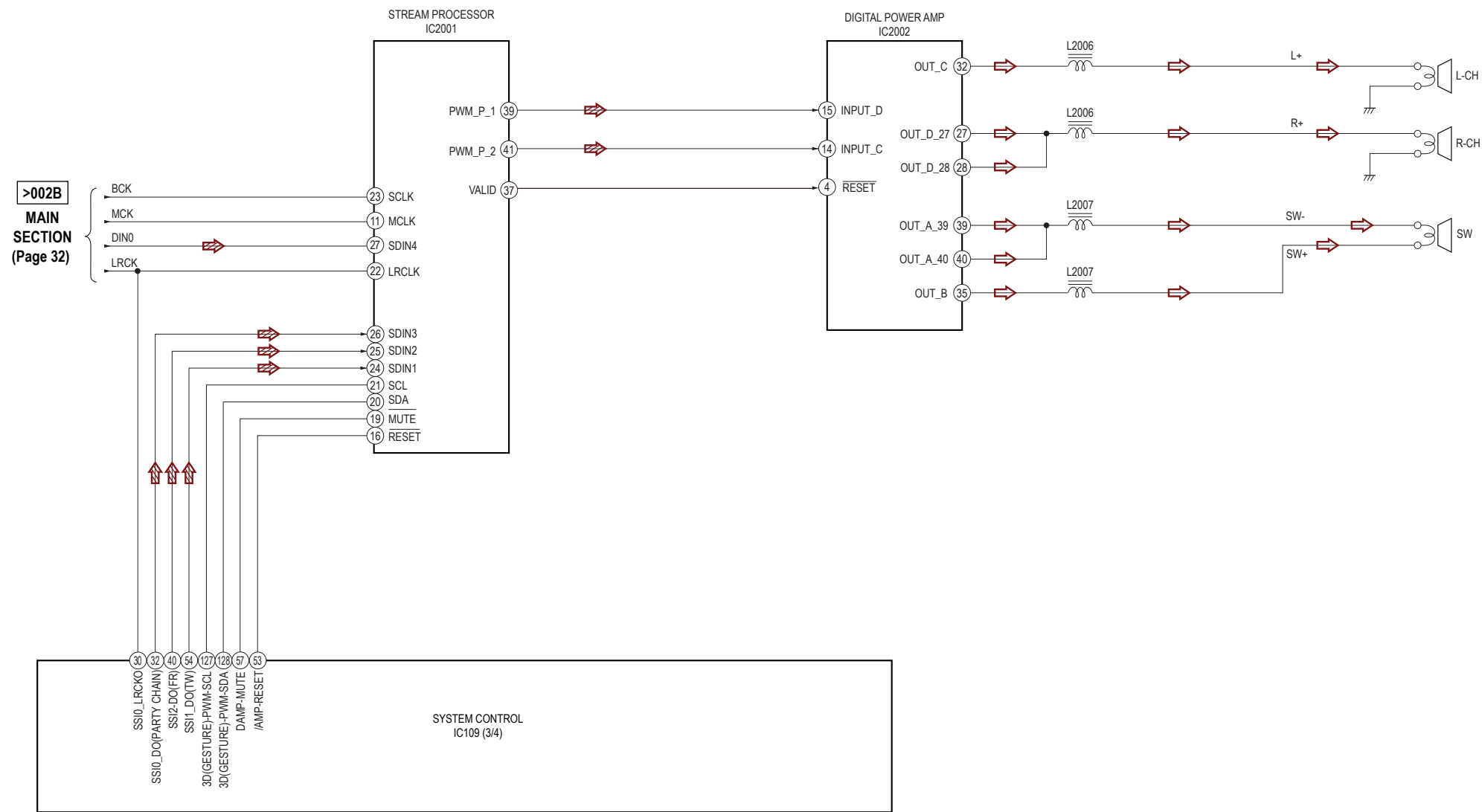
**>001B**  
 RS SERVO, USB,  
 HDMI SECTION  
 (Page 31)

**>002B**  
 AMP  
 SECTION  
 (Page 33)

• Signal path  
 ⇨ : AUDIO  
 ⇨ : TUNER (FM)  
 ⇨ : AUDIO (DIGITAL)  
 ▷ : MIC  
 • R-ch is omitted due to same as L-ch.

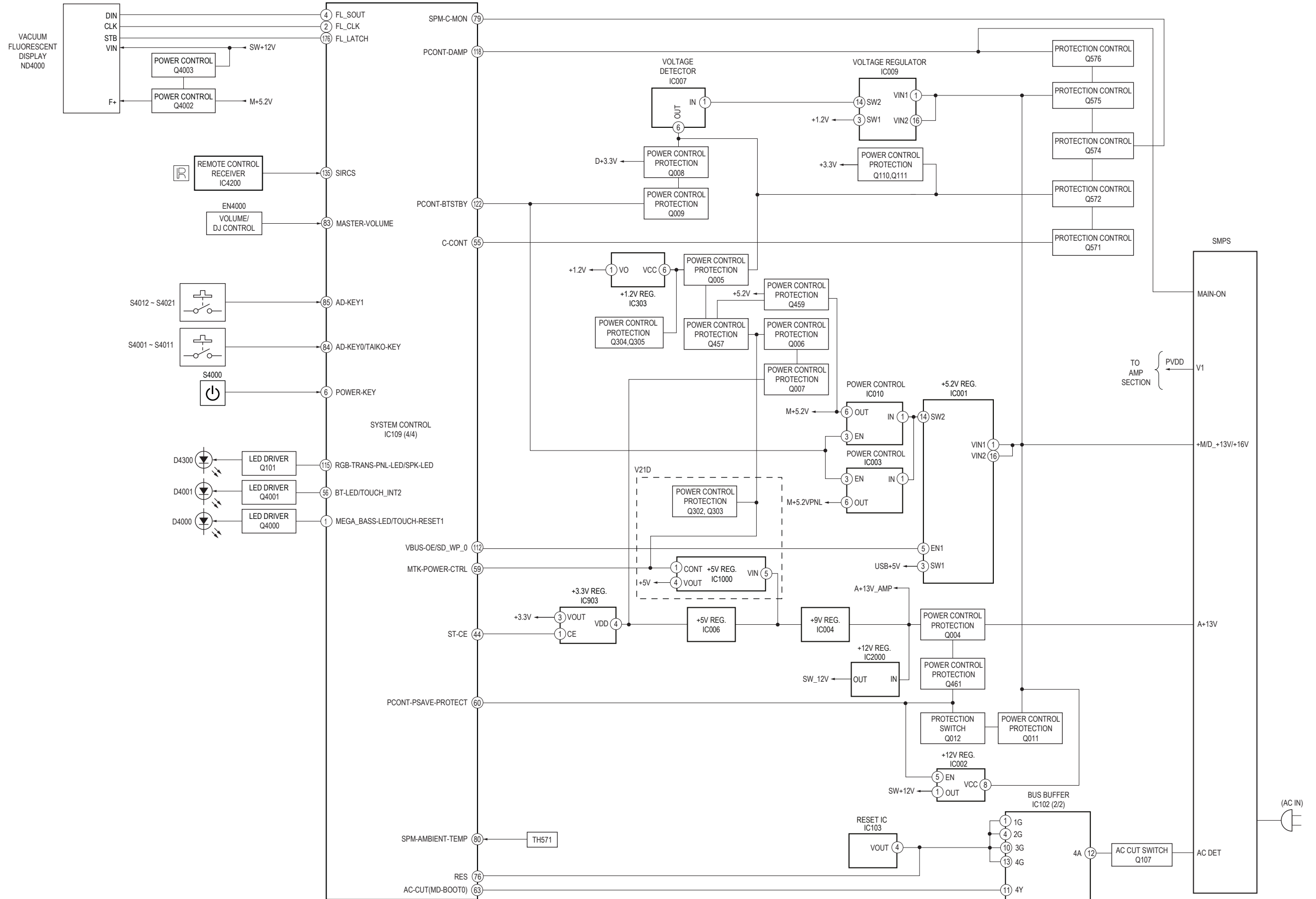


6-3. BLOCK DIAGRAM - AMP Section -

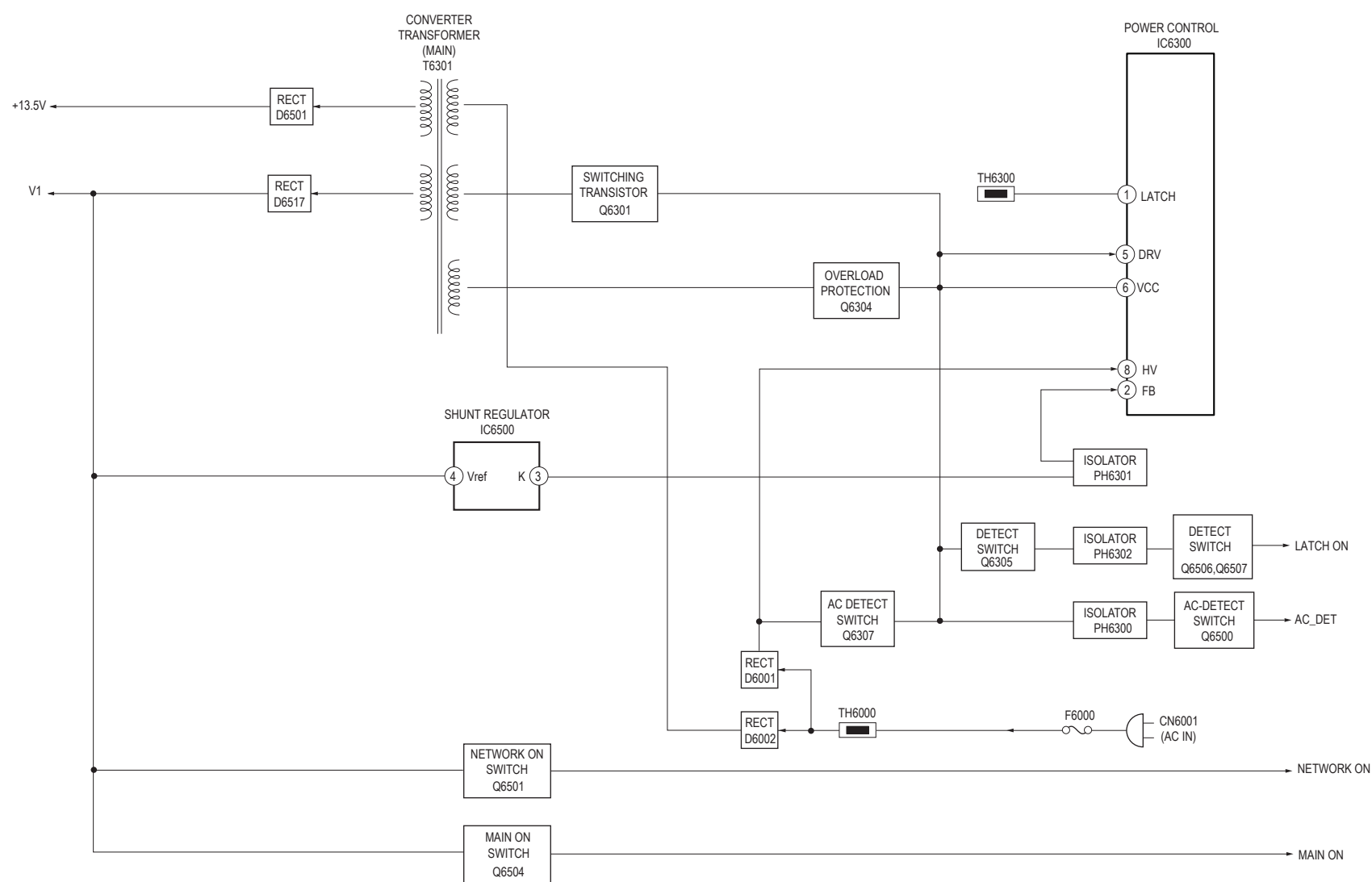


• Signal path  
 ⇨ : AUDIO (ANALOG)  
 ⇨ (hatched) : AUDIO (DIGITAL)  
 • R-ch is omitted due to same as L-ch.

**6-4. BLOCK DIAGRAM - PANEL, POWER SUPPLY Section -**



6-5. BLOCK DIAGRAM - SMPS Section -



• **Note for Printed Wiring Boards and Schematic Diagrams**

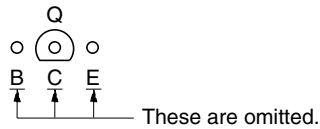
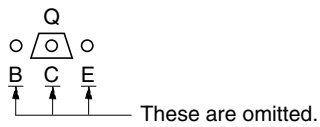
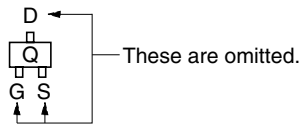
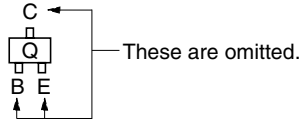
**Note on Printed Wiring Board:**

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing.  
(The other layer's patterns are not indicated.)

**Caution:**

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.  
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

• Indication of transistor



**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. (p: pF) 50 V or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4$  W or less unless otherwise specified.
- ⎓ : nonflammable resistor.
- : panel designation.

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

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

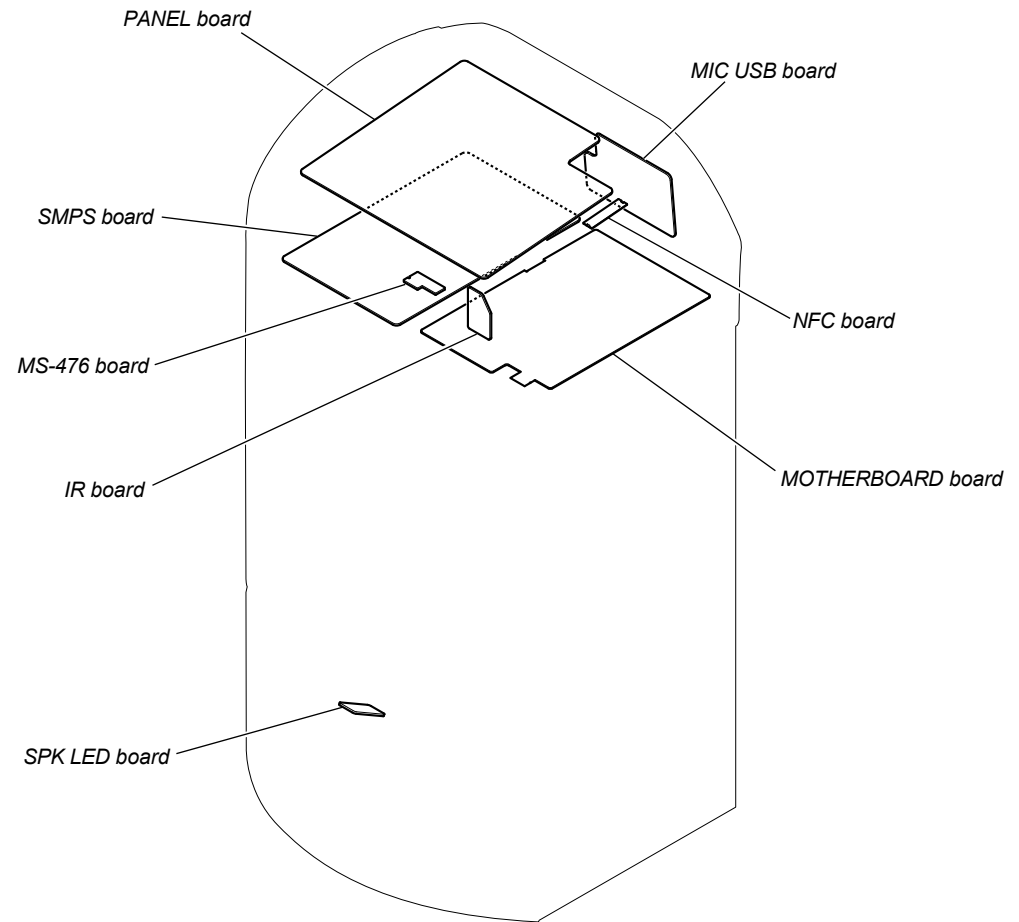
- : B+ Line.
- - - : B- Line.
- : Adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
no mark : TUNER
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.  
⇒ : USB  
▷ : MIC

**Note 1:** When the MOTHERBOARD board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC2002 ON THE MOTHERBOARD BOARD AND THE COMPLETE MOTHERBOARD BOARD" on servicing notes (page 7).

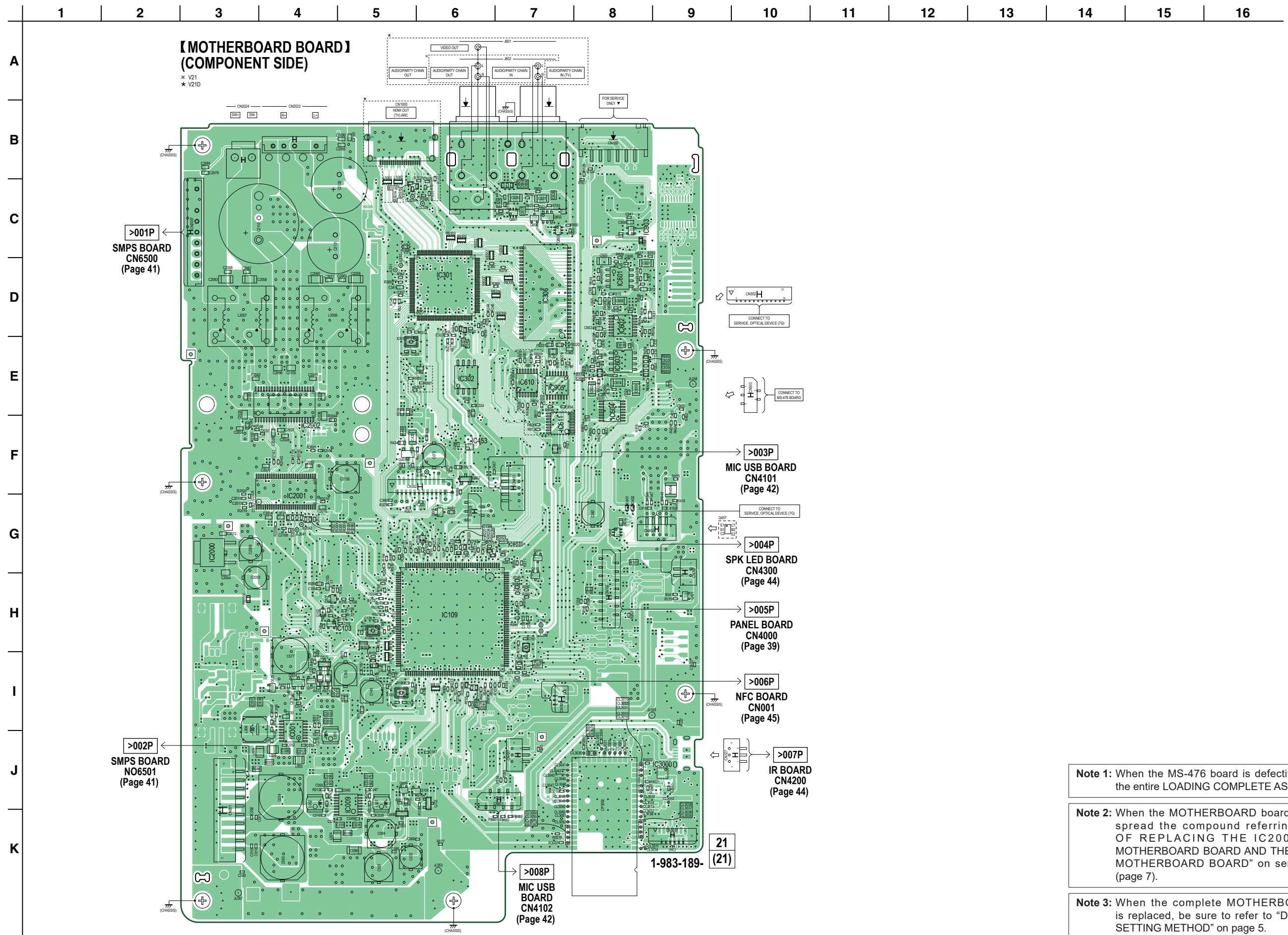
**Note 2:** When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

**Note 3:** When the complete MOTHERBOARD board is replaced, be sure to refer to "DESTINATION SETTING METHOD" on page 5.

• **Circuit Boards Location**



6-6. PRINTED WIRING BOARD - MOTHERBOARD Board (Component Side) - • See page 36 for Circuit Boards Location. •  : Uses unleaded solder.

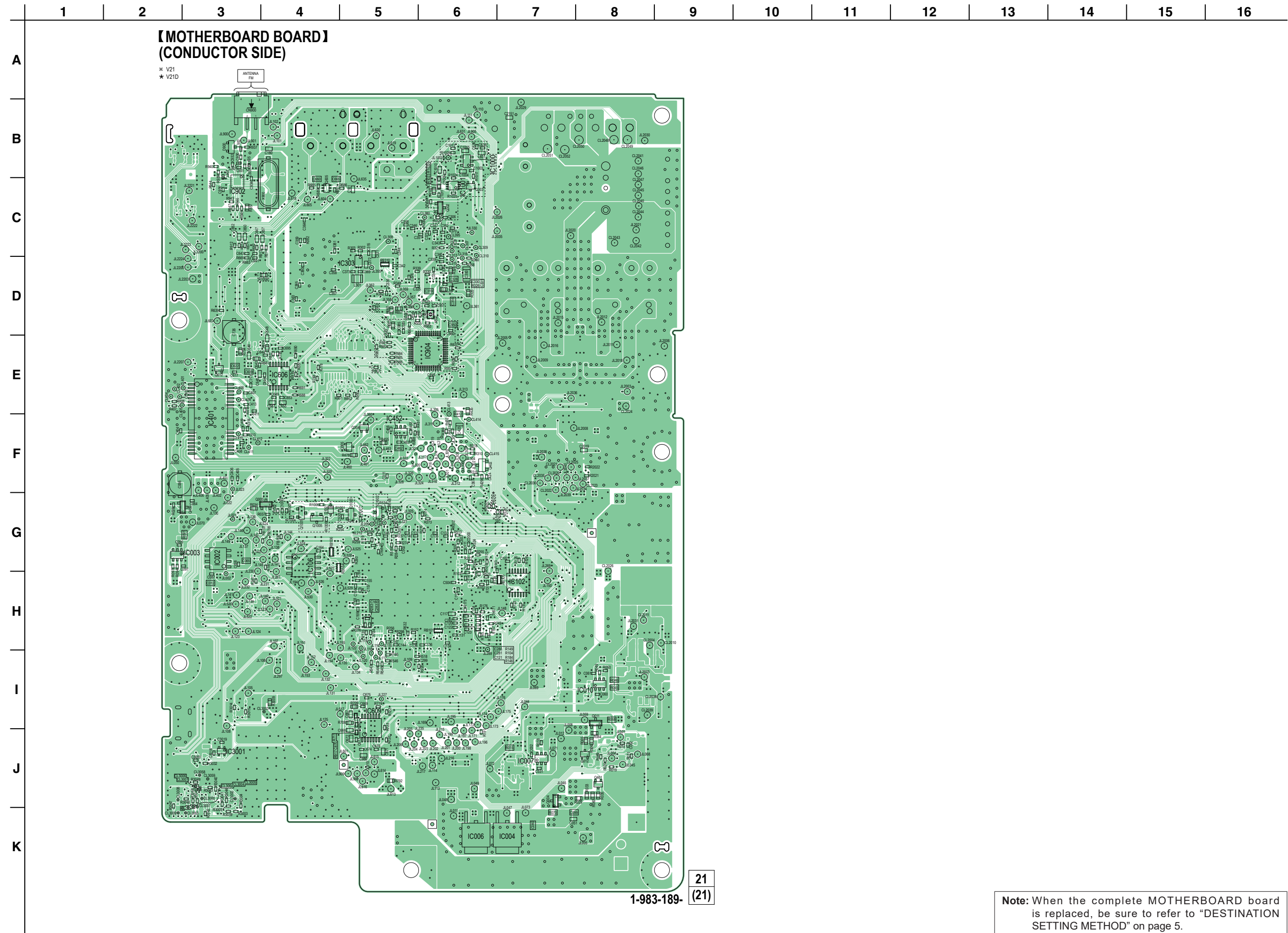


**Note 1:** When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

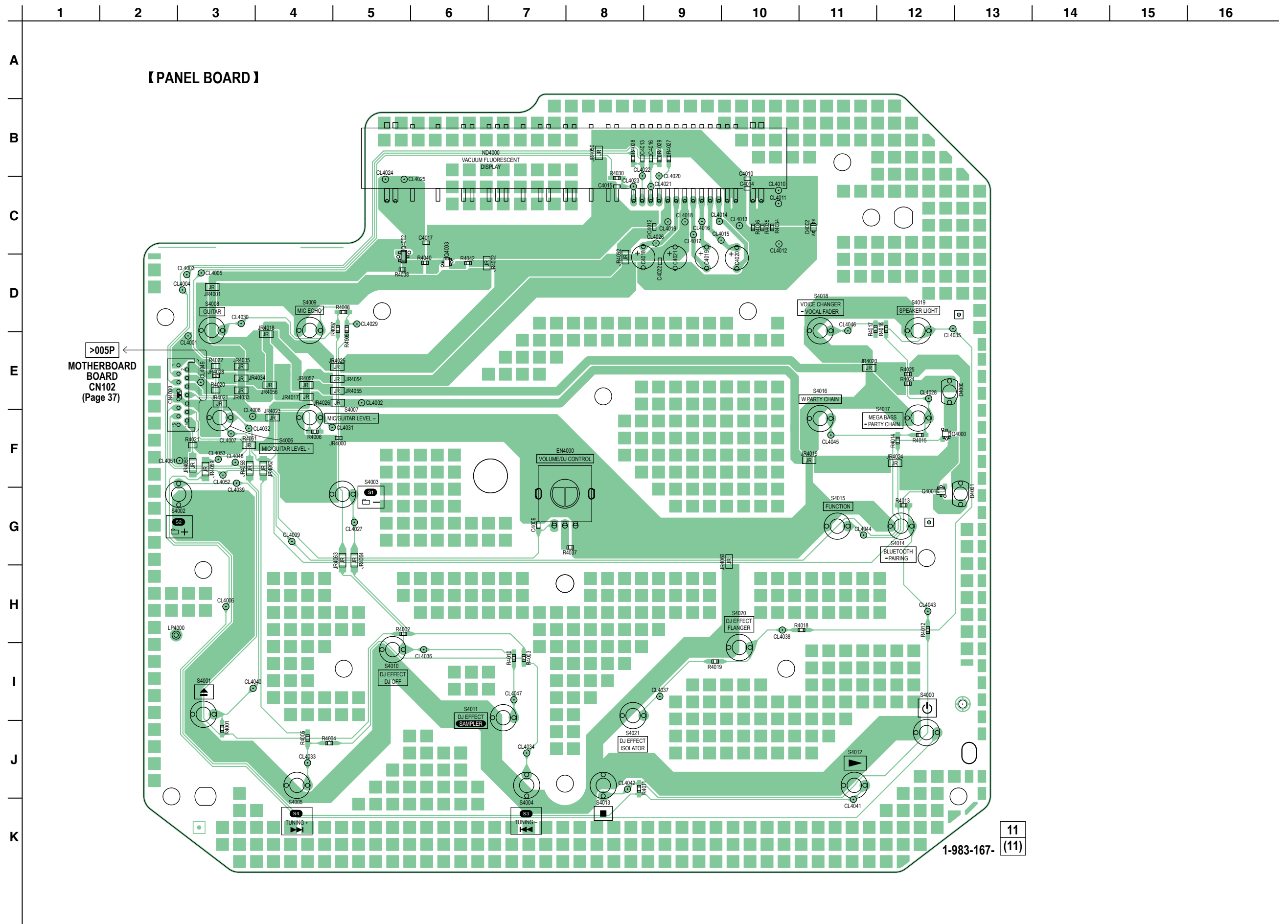
**Note 2:** When the MOTHERBOARD board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC2002 ON THE MOTHERBOARD BOARD AND THE COMPLETE MOTHERBOARD BOARD" on servicing notes (page 7).

**Note 3:** When the complete MOTHERBOARD board is replaced, be sure to refer to "DESTINATION SETTING METHOD" on page 5.

6-7. PRINTED WIRING BOARD - MOTHERBOARD Board (Conductor Side) - • See page 36 for Circuit Boards Location. •  : Uses unleaded solder.



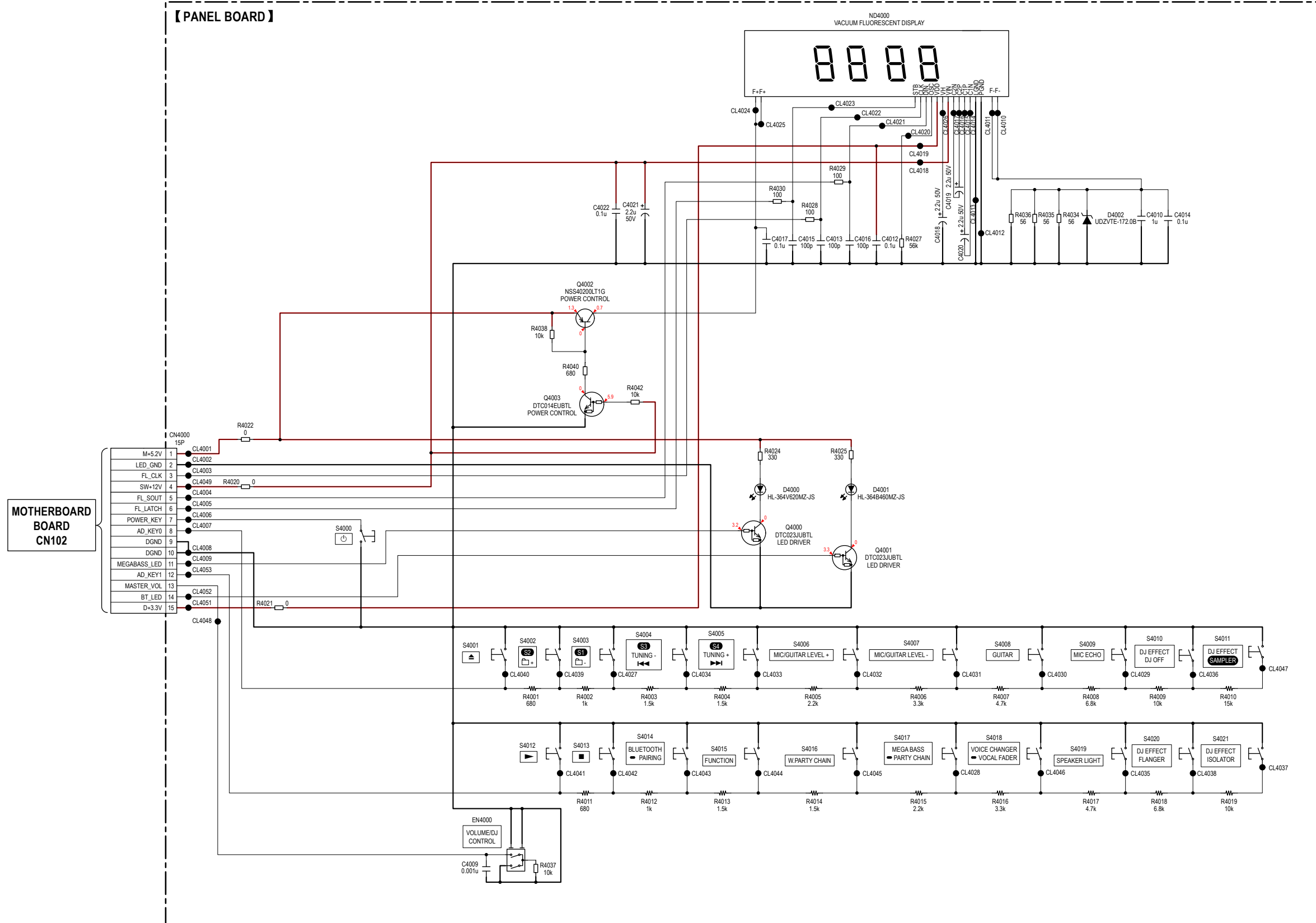
6-8. PRINTED WIRING BOARD - PANEL Board - • See page 36 for Circuit Boards Location. •  : Uses unleaded solder.



6-9. SCHEMATIC DIAGRAM - PANEL Board -

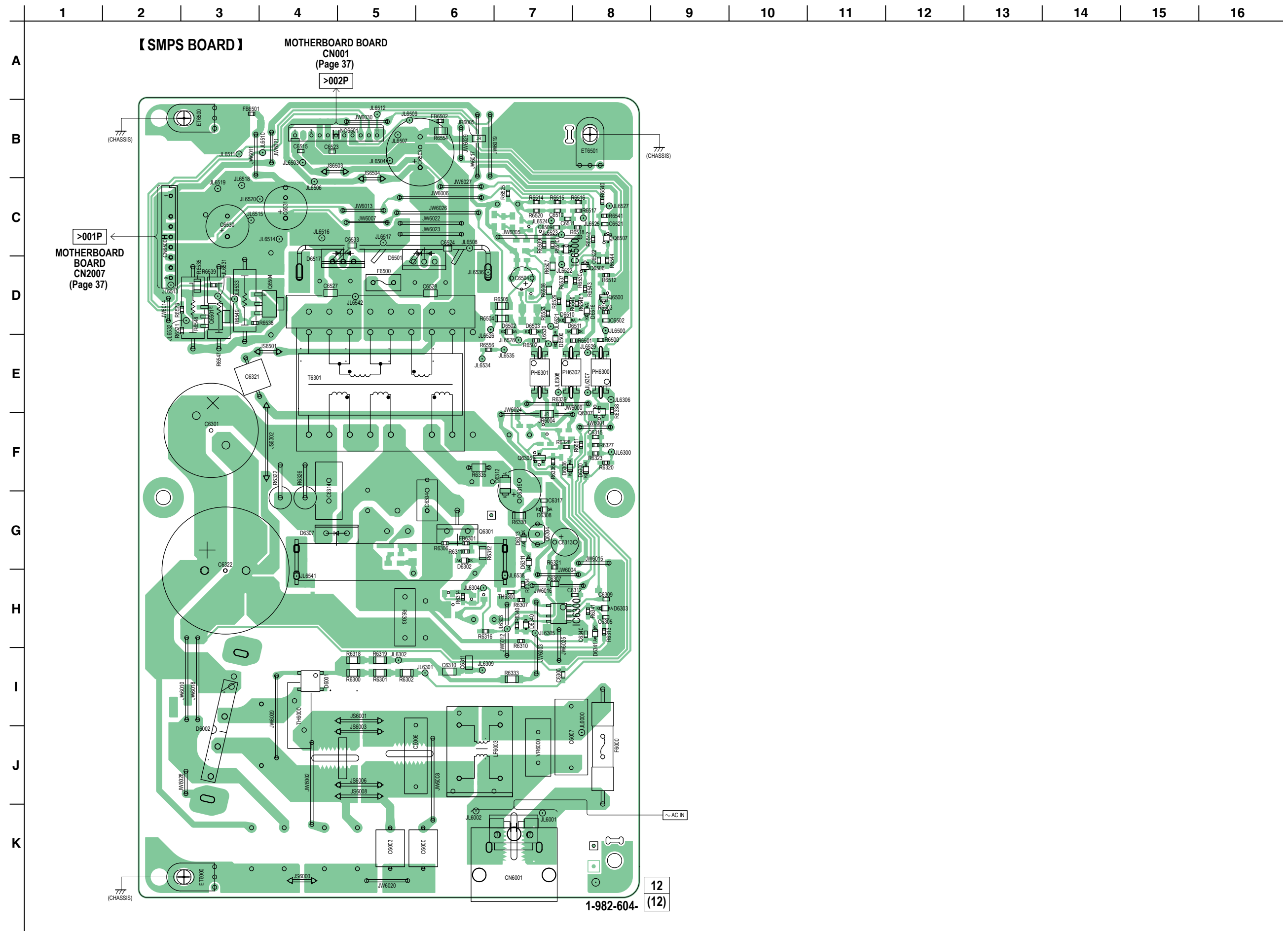
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K

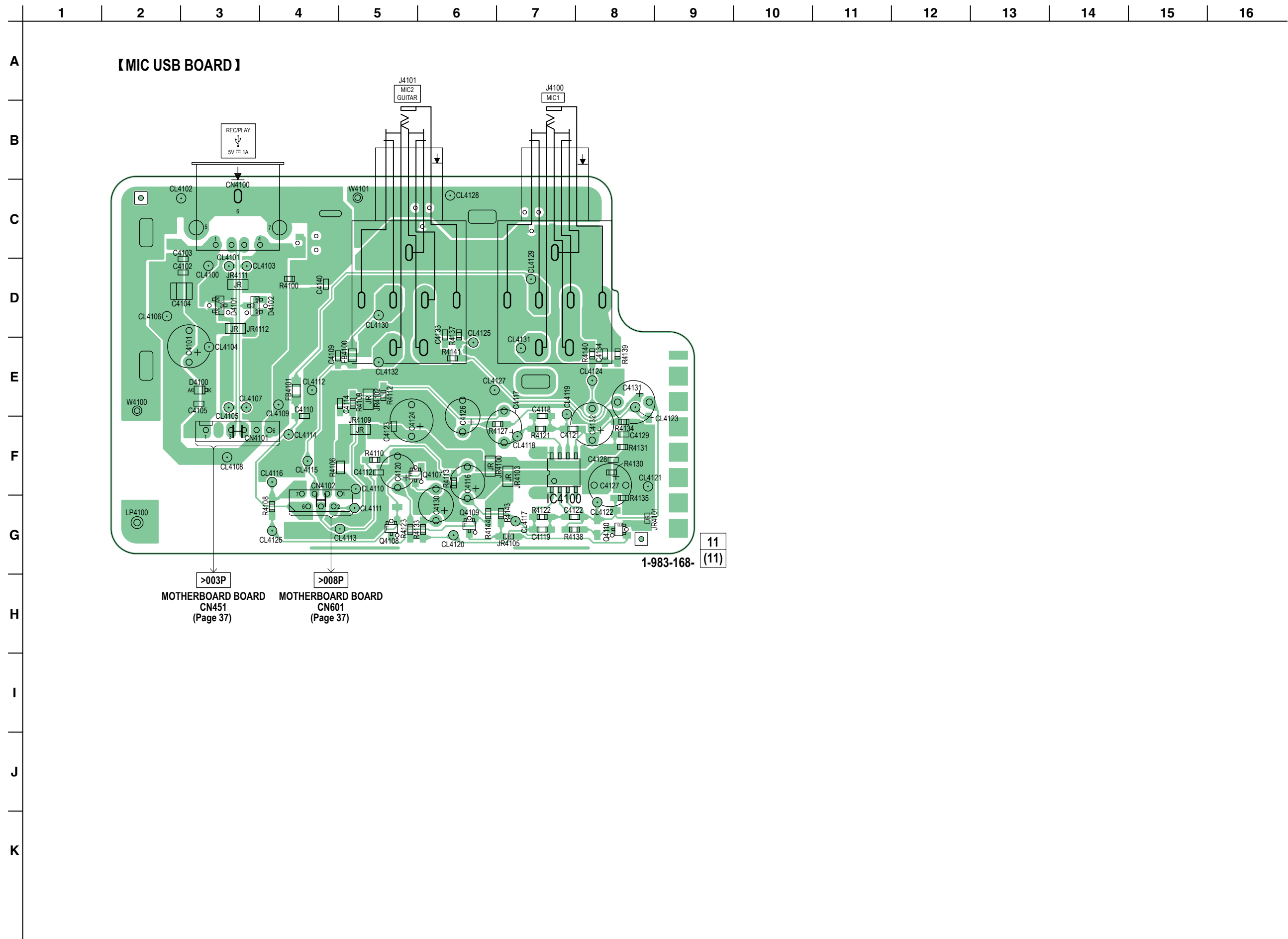




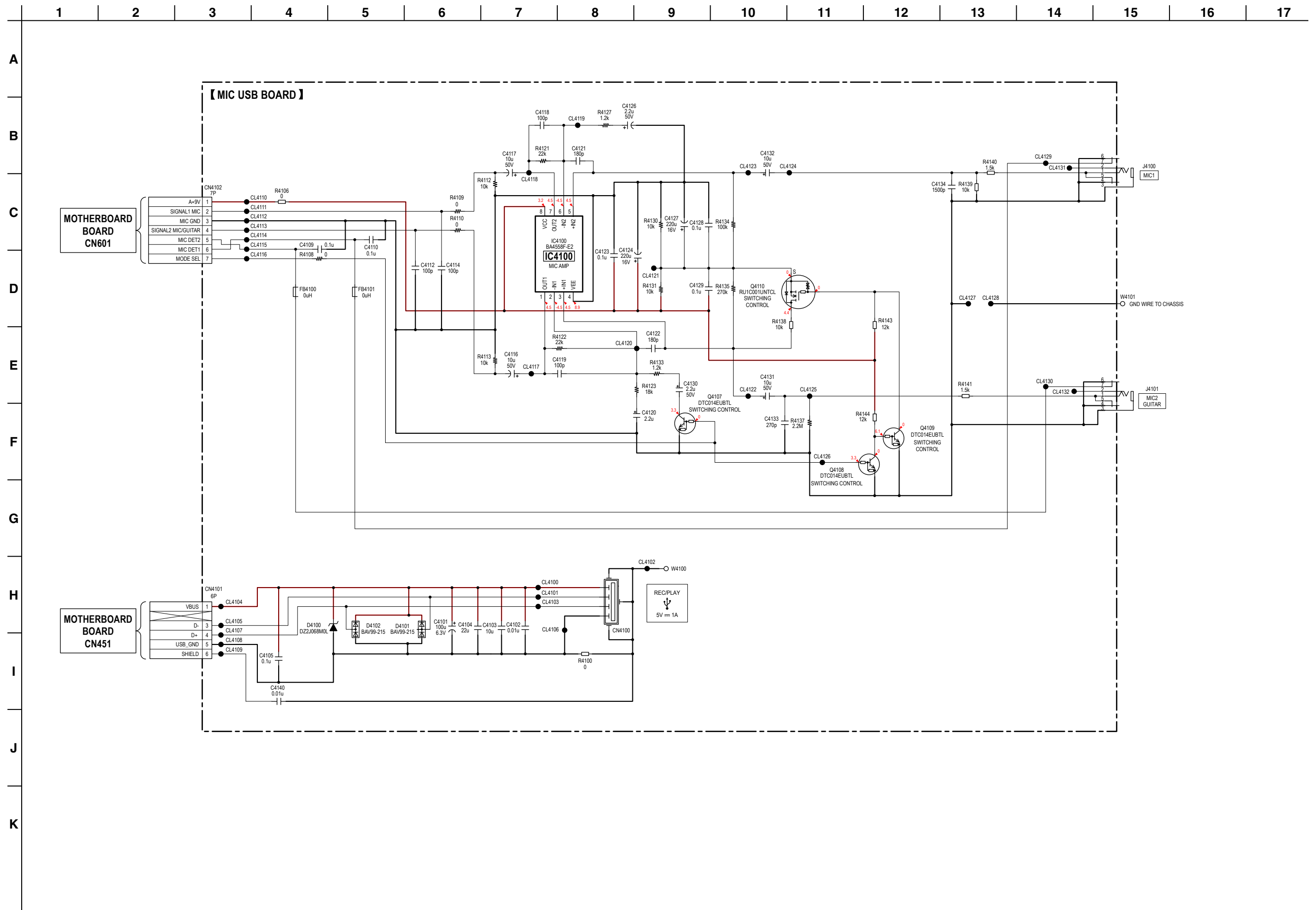
6-10. PRINTED WIRING BOARD - SMPS Board - • See page 36 for Circuit Boards Location. •  : Uses unleaded solder.



6-11. PRINTED WIRING BOARD - MIC USB Board - • See page 36 for Circuit Boards Location. •  : Uses unleaded solder.

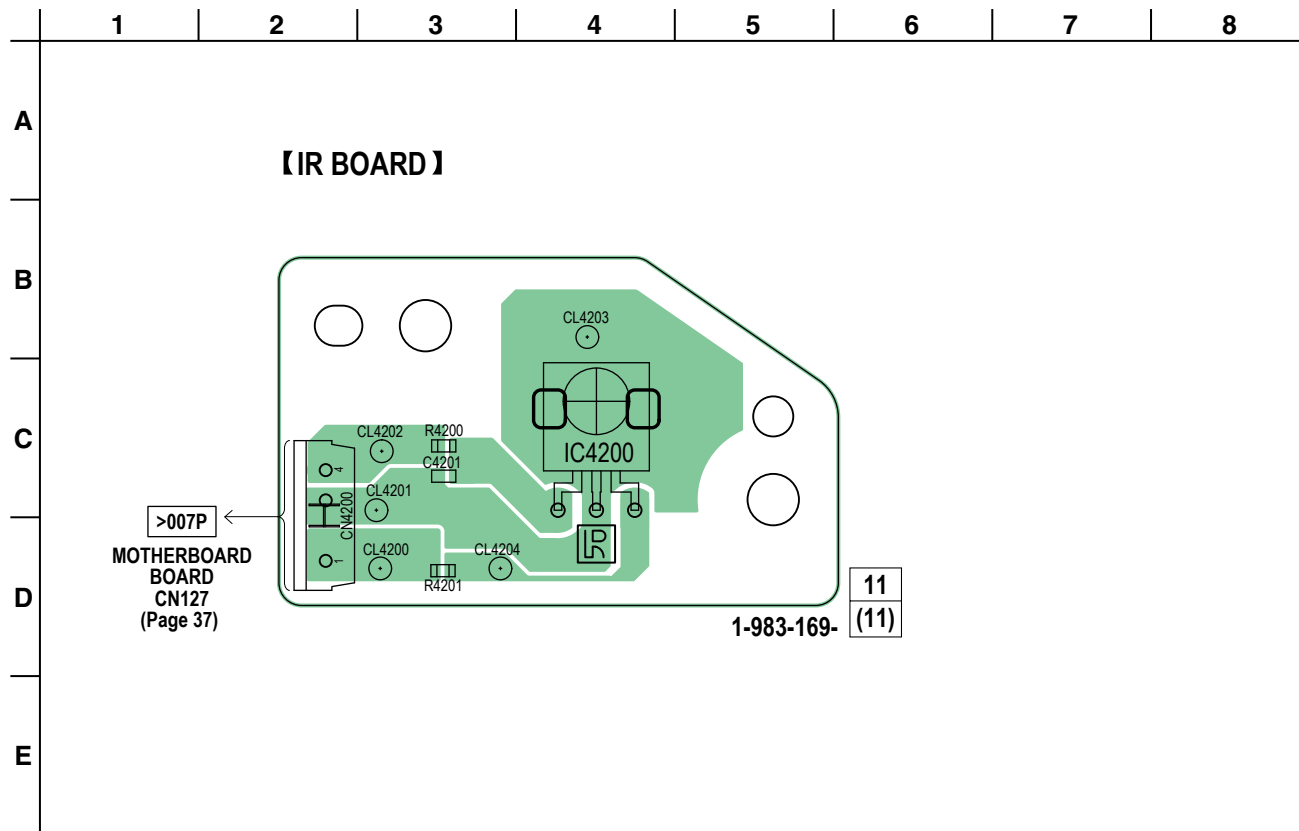


6-12. SCHEMATIC DIAGRAM - MIC USB Board -

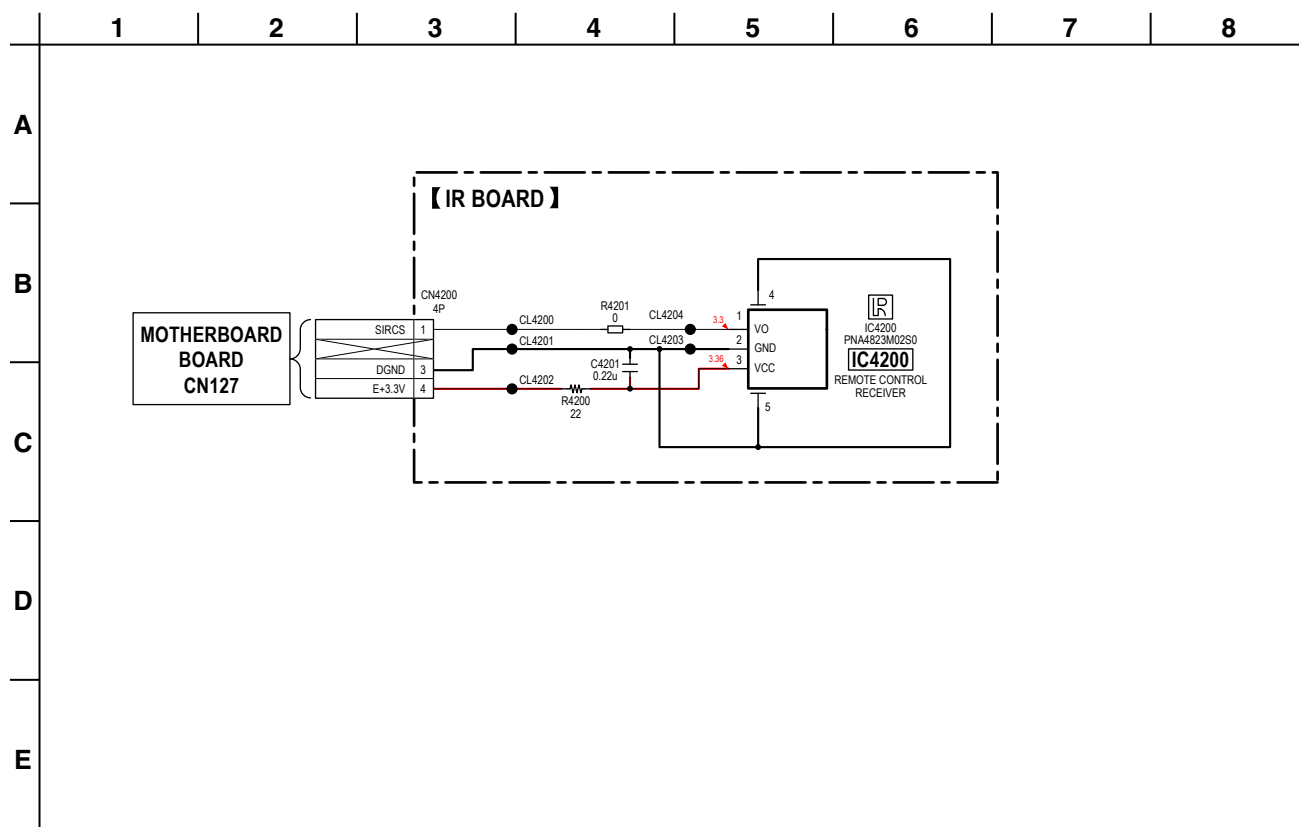


**6-13. PRINTED WIRING BOARD - IR Board -**

• See page 36 for Circuit Boards Location. • : Uses unleaded solder.

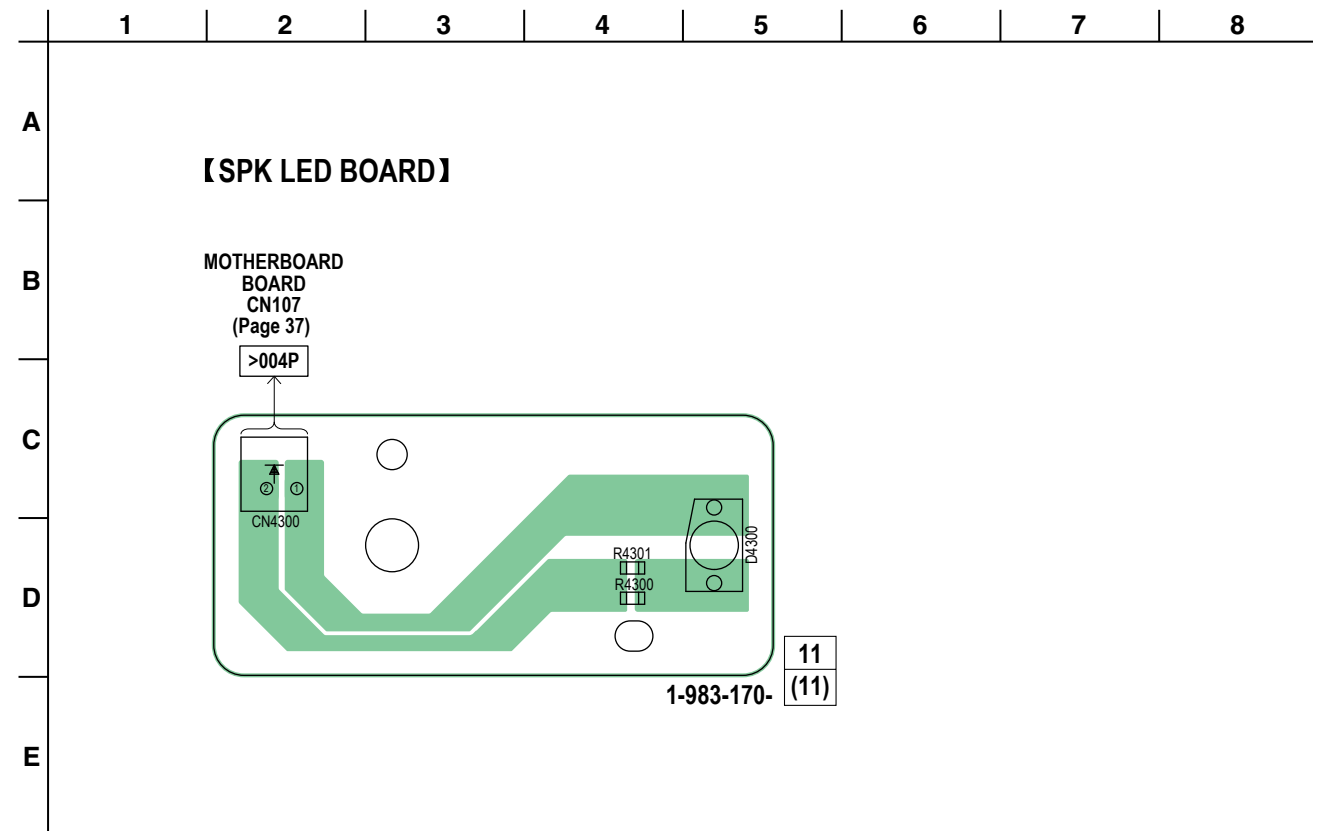


**6-14. SCHEMATIC DIAGRAM - IR Board -**

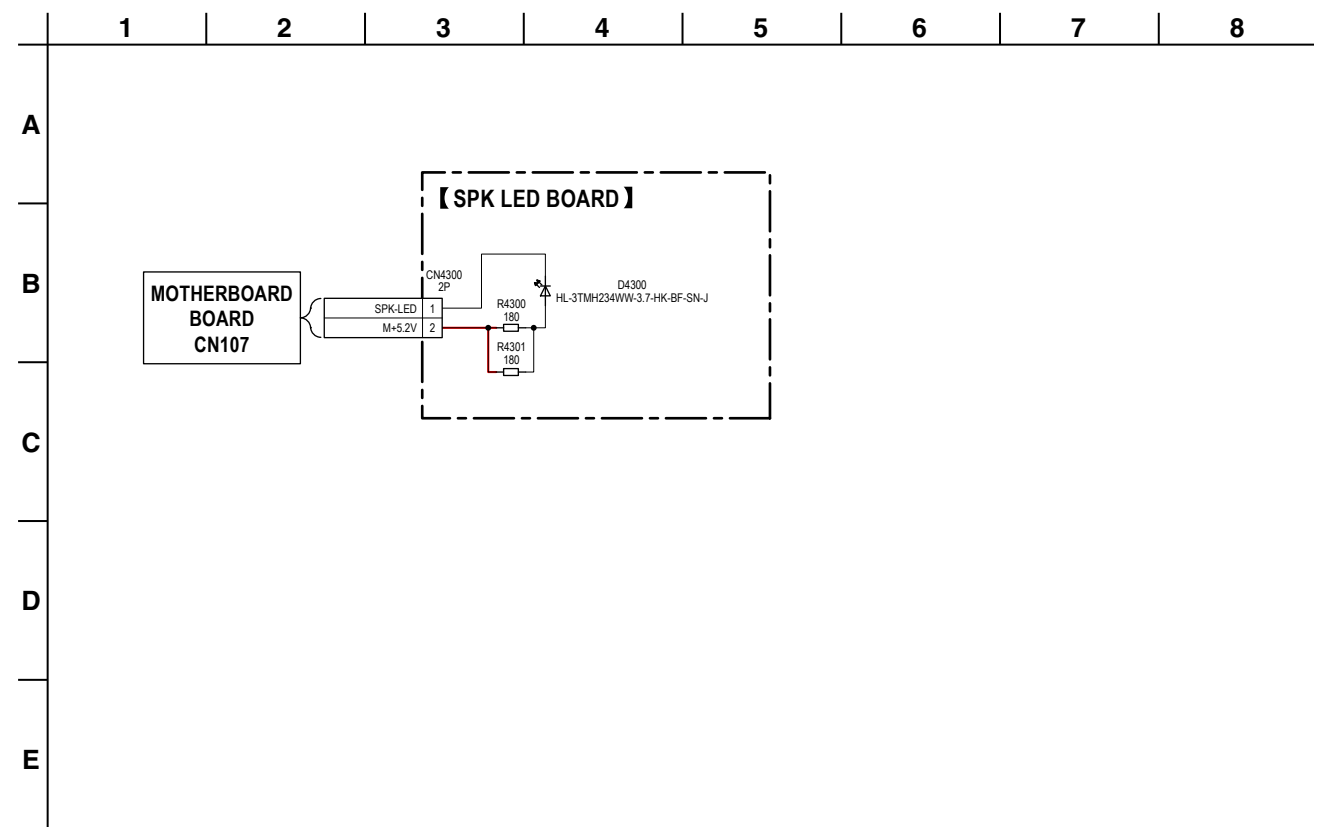


**6-15. PRINTED WIRING BOARD - SPK LED Board -**

• See page 36 for Circuit Boards Location. • : Uses unleaded solder.

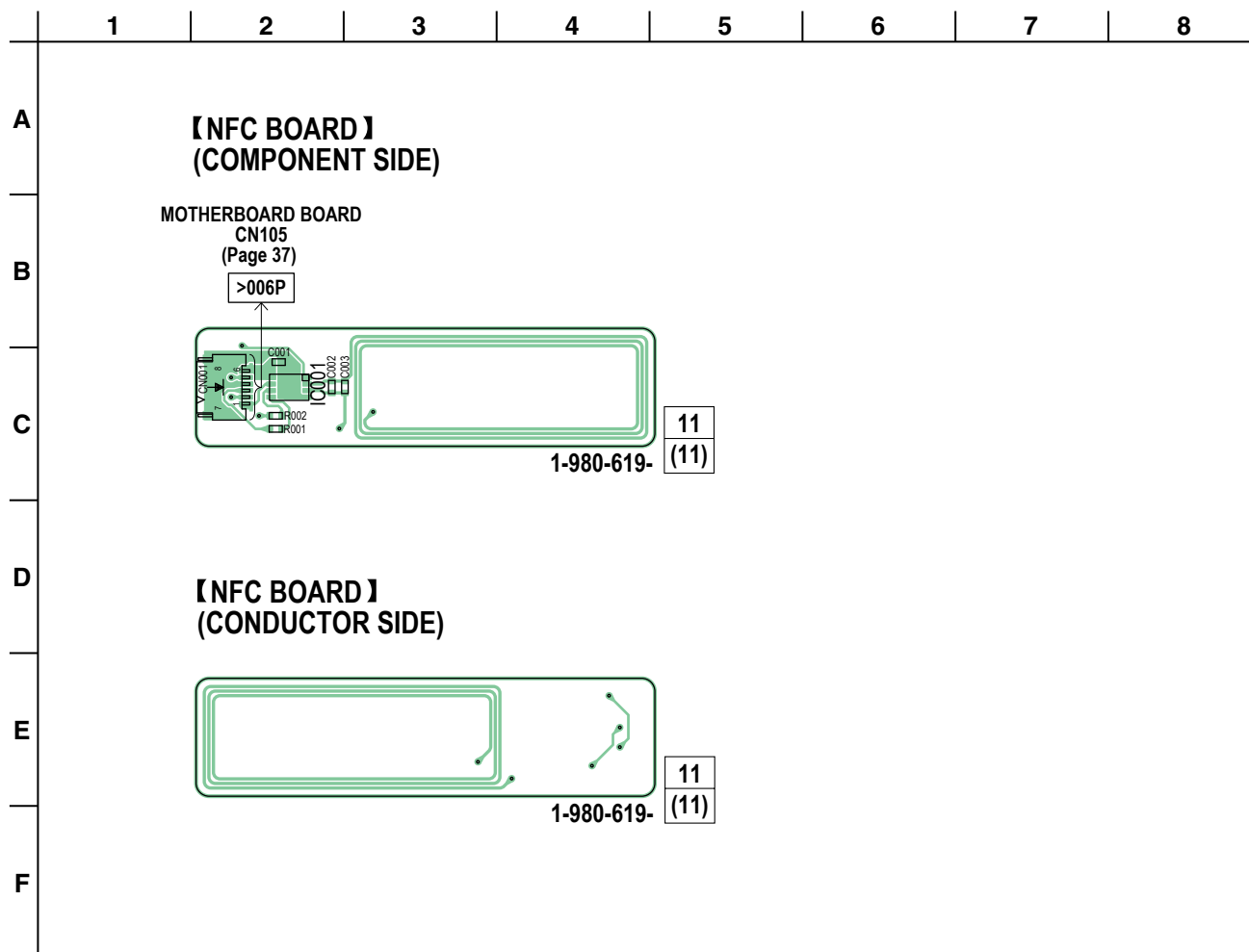


**6-16. SCHEMATIC DIAGRAM - SPK LED Board -**



6-17. PRINTED WIRING BOARD - NFC Board -

• See page 36 for Circuit Boards Location. • : Uses unleaded solder.



1-980-619-

1-980-619-

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## SECTION 7 EXPLODED VIEWS

**Note:**

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- 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.
- Color Indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE) . . . (RED)

↑                    ↑  
Parts Color   Cabinet's Color

- Accessories are given in the last of this parts list.

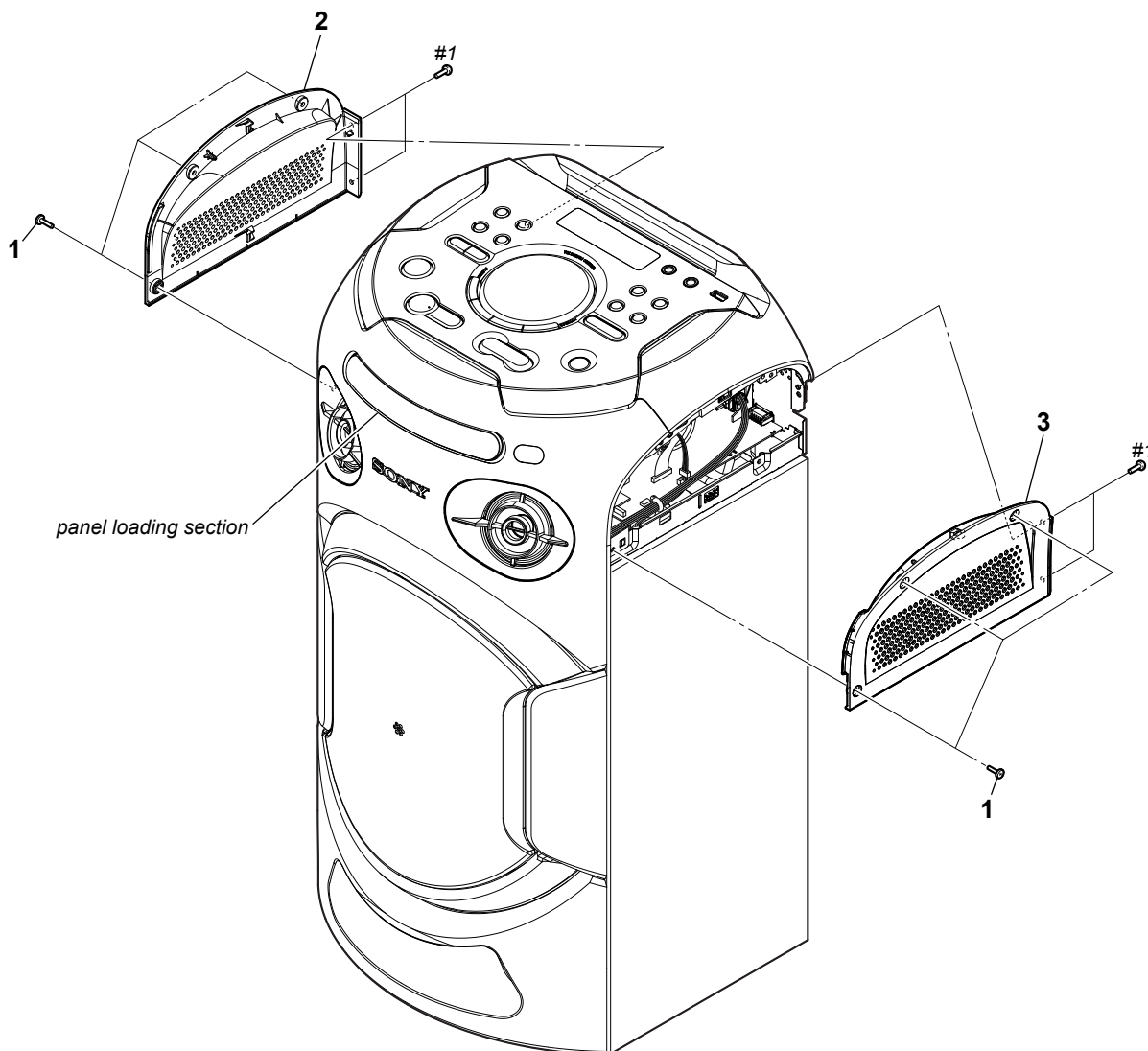
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.  
Replace only with part number specified.

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

The components identified by mark  $\triangle$  contain confidential information.  
Strictly follow the instructions whenever the components are repaired and/or replaced.

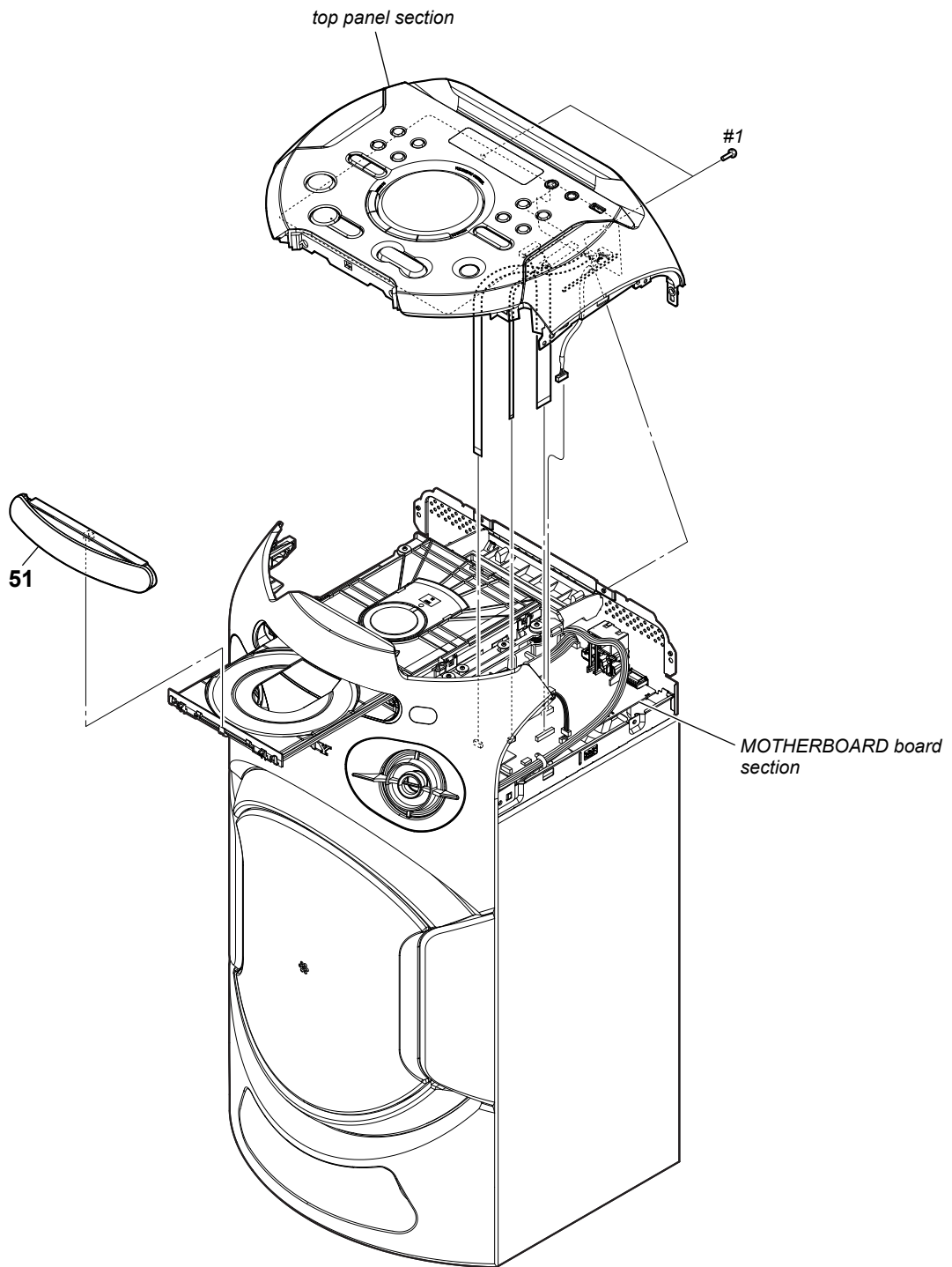
Les composants identifiés par la marque  $\triangle$  contiennent des informations confidentielles.  
Suivre scrupuleusement les instructions chaque fois qu'un composant est remplacé et / ou réparé.

### 7-1. SIDE PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-162-271-01	SCREW, TAPPING		$\triangle$ 3	4-732-975-01	PANEL, SIDE R	
$\triangle$ 2	4-732-974-01	PANEL, SIDE L		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	

**7-2. PANEL LOADING SECTION**

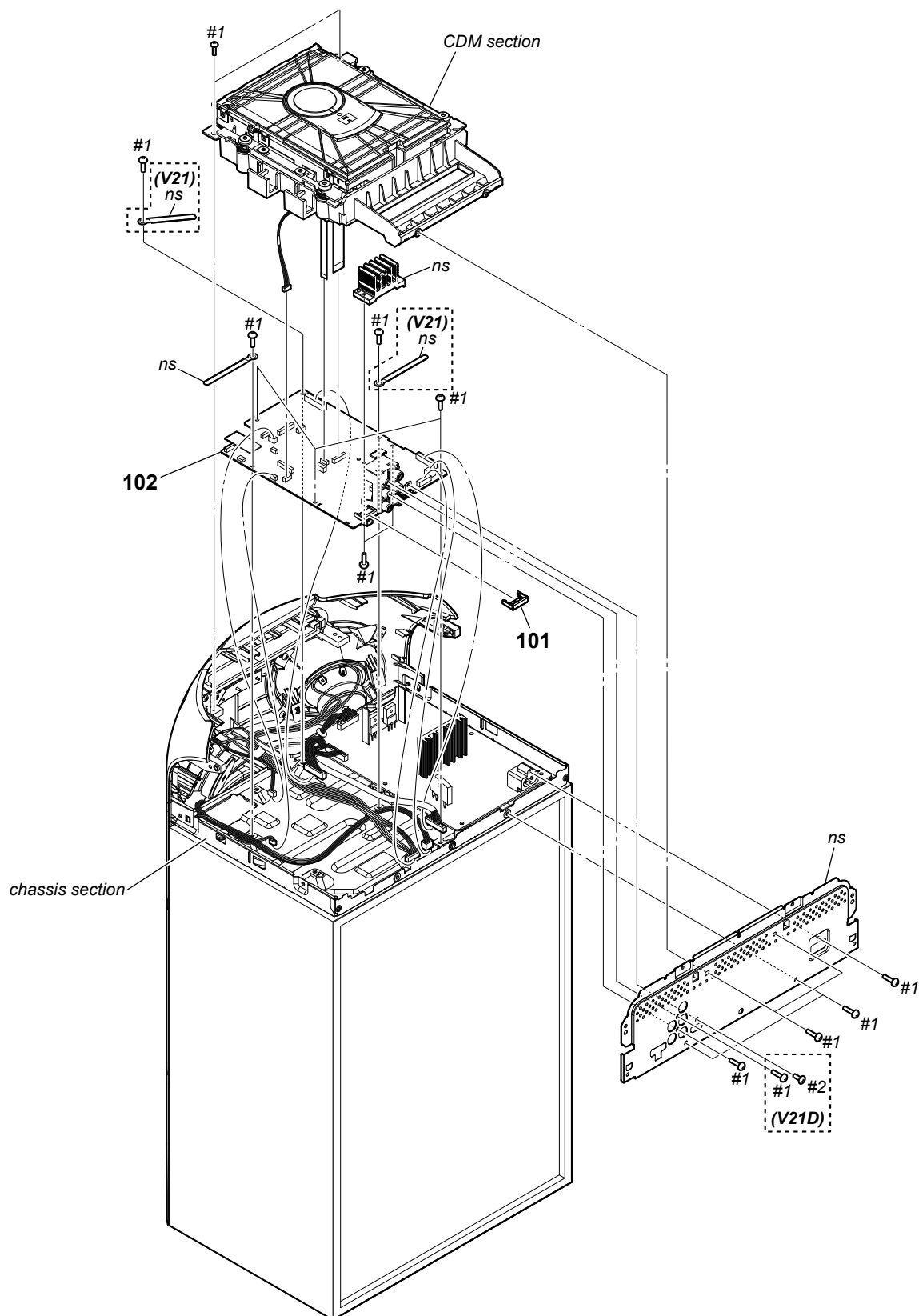


<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
51	X-2595-943-2	PANEL, LOADING ASSY	
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	

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## 7-3. MOTHERBOARD BOARD SECTION



**Note 1:** When the MOTHERBOARD board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC2002 ON THE MOTHERBOARD BOARD AND THE COMPLETE MOTHERBOARD BOARD" on servicing notes (page 7).

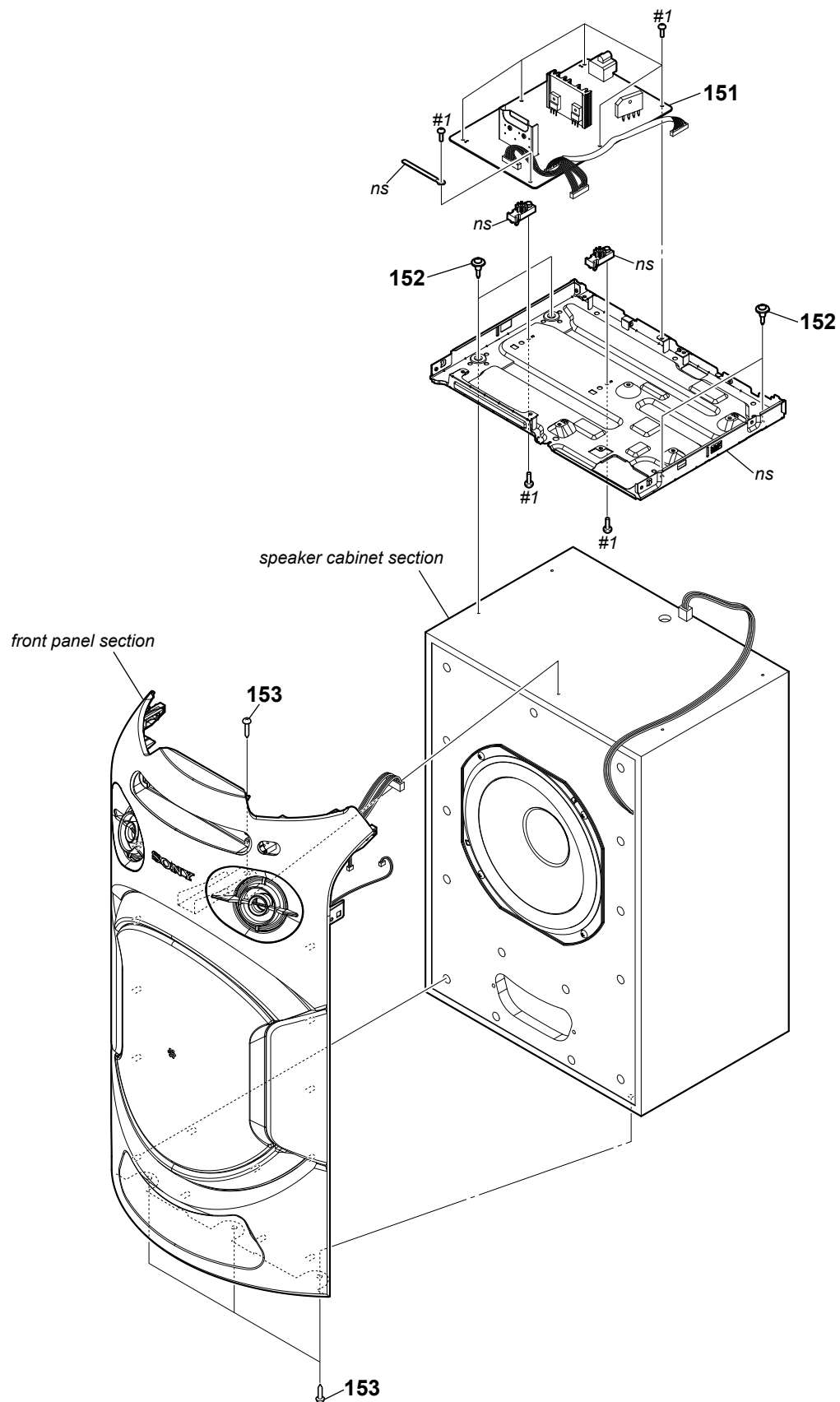
**Note 2:** When the complete MOTHERBOARD board is replaced, be sure to refer to "DESTINATION SETTING METHOD" on page 5.

Ref. No.	Part No.	Description	Remark
101	4-731-228-11	COVER, SERVICE	
102	A-2199-353-A	MOTHERBOARD BOARD, COMPLETE (for SERVICE) (V21D)	
102	A-2199-364-A	MOTHERBOARD BOARD, COMPLETE (for SERVICE) (V21)	

Ref. No.	Part No.	Description	Remark
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
#2	7-682-547-04	SCREW +B 3X6 (V21D)	
ns		not supplied	



7-4. CHASSIS SECTION

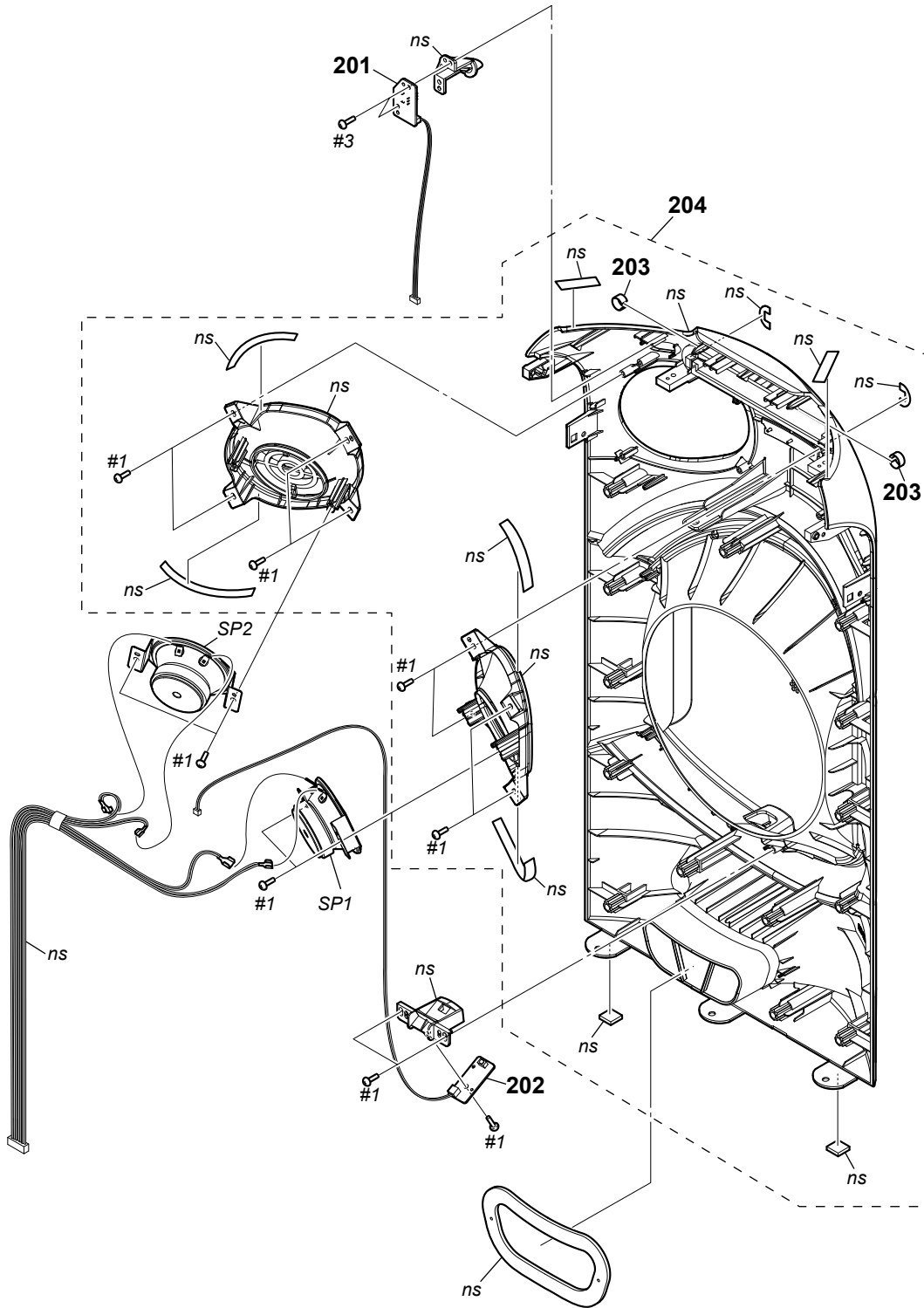


Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
△ 151	A-2203-526-A	SMPS BOARD, COMPLETE		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
152	4-558-595-01	STEP SCREW M4		ns	not supplied		
153	4-532-593-02	SCREW (4X13) (TR-184A)					

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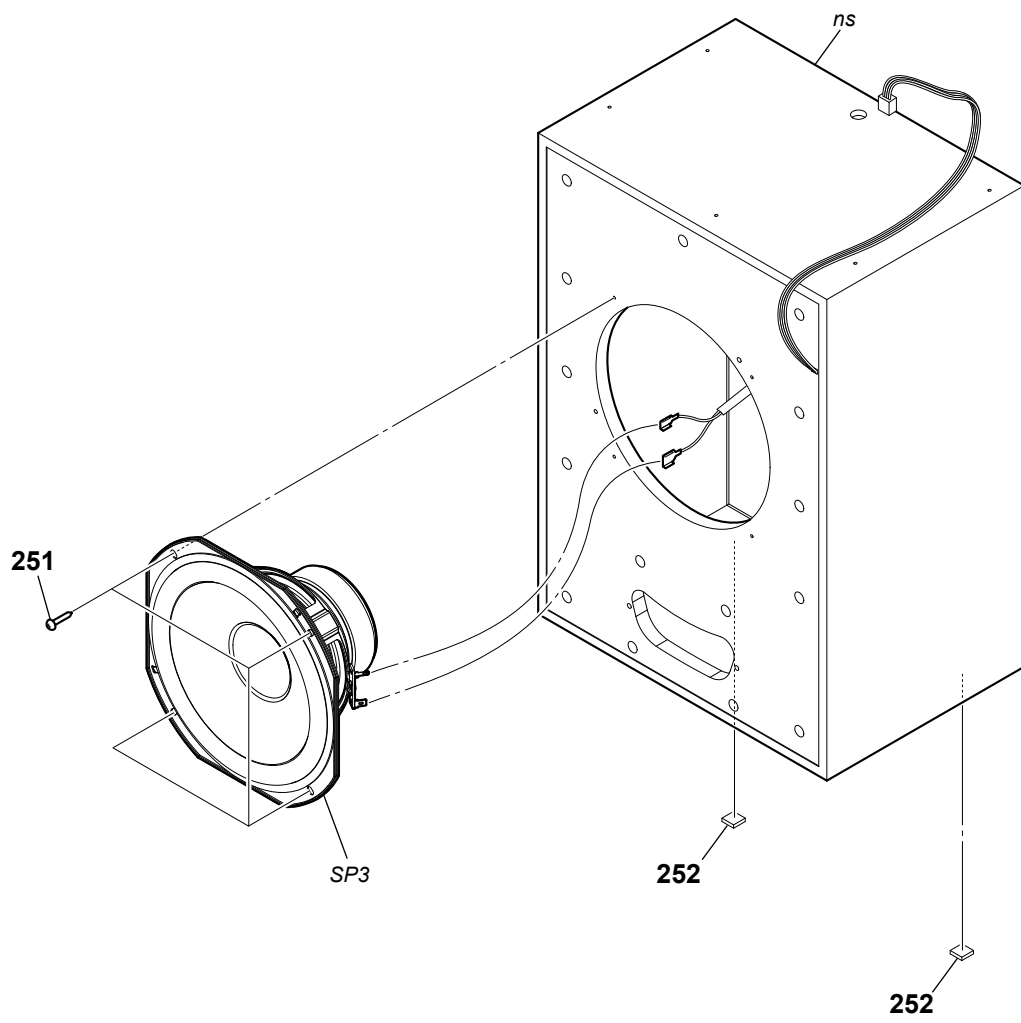
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## 7-5. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	A-2196-510-A	IR BOARD, COMPLETE		SP2	1-859-268-11	LOUDSPEAKER (6.6CM) (Tweeter) (R-CH)	
202	A-2196-512-A	SPK LED BOARD, COMPLETE		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
203	4-532-205-31	ACOUSTIC TAPE		#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
204	X-2595-930-1	PANEL, FRONT ASSY		ns		not supplied	
SP1	1-859-268-11	LOUDSPEAKER (6.6CM) (Tweeter) (L-CH)					

**7-6. SPEAKER CABINET SECTION**

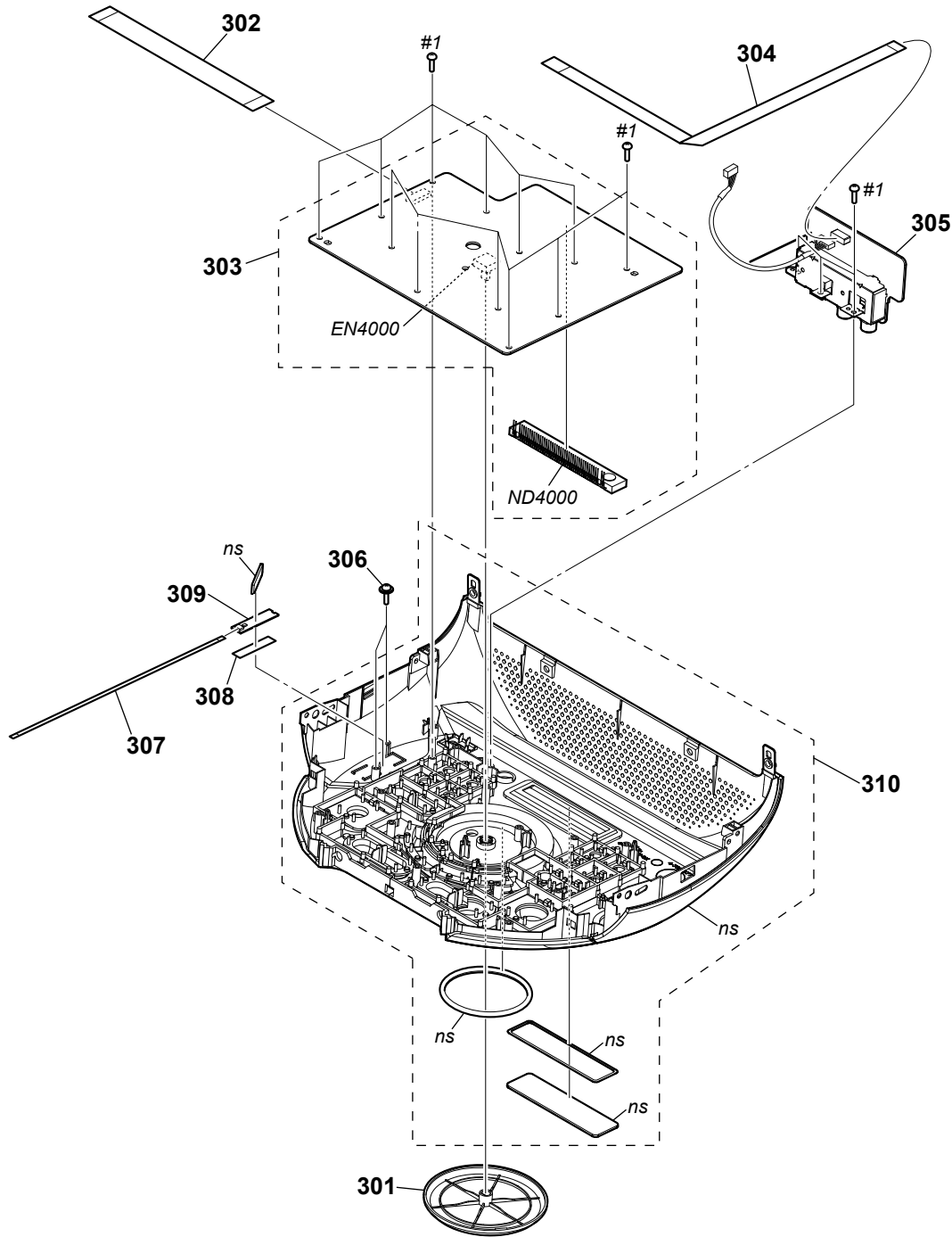


<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
251	4-238-407-02	SCREW (1) (4X20), +BV TAPPING	
252	4-734-032-01	FOOT, REAR	
SP3	1-859-294-12	LOUDSPEAKER (20CM) (Woofer)	
ns	not supplied		

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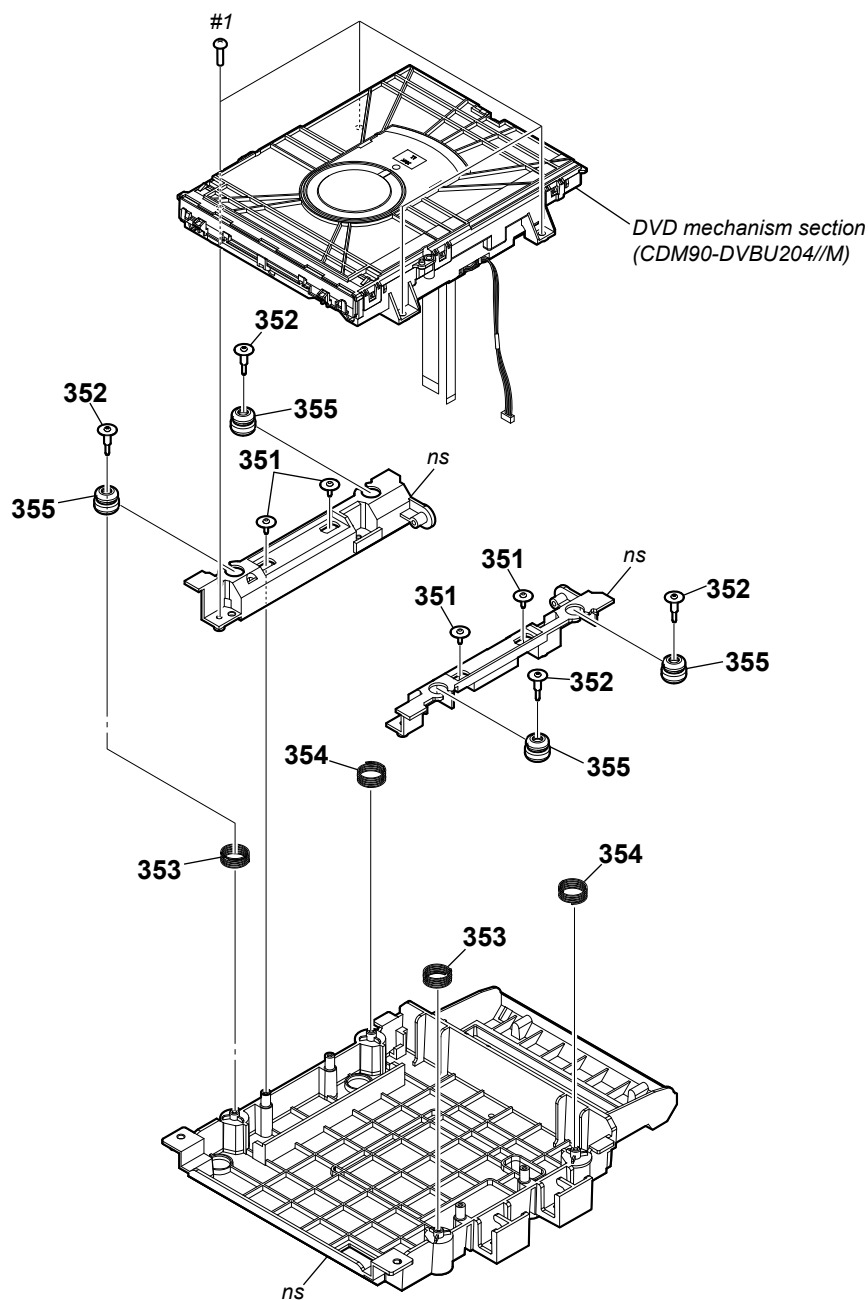
## 7-7. TOP PANEL SECTION



**Note:** If flexible flat cable is replaced, install it after bending it in the same form as that before replacement.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	4-732-980-01	KNOB, VOLUME		308	4-586-705-21	DOUBLE ADHESIVE TAPE	
302	1-912-719-11	FLEXIBLE FLAT CABLE (15 CORE)		309	A-2092-220-A	NFC BOARD, COMPLETE	
△ 303	A-2196-509-A	PANEL BOARD, COMPLETE		310	X-2595-931-1	PANEL, TOP ASSY (V21D)	
304	1-912-625-11	FLEXIBLE FLAT CABLE (7 CORE)		310	X-2596-454-1	PANEL, TOP ASSY (V21)	
305	A-2196-511-A	MIC USB BOARD, COMPLETE		EN4000	1-493-008-11	ENCODER, ROTARY (VOLUME/DJ CONTROL)	
306	2-677-839-01	+PWH 3X8 (SUMITITE)		ND4000	1-483-549-11	VACUUM FLUORESCENT DISPLAY	
307	1-912-717-11	FLEXIBLE FLAT CABLE (6 CORE)		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
				ns		not supplied	

7-8. CDM SECTION

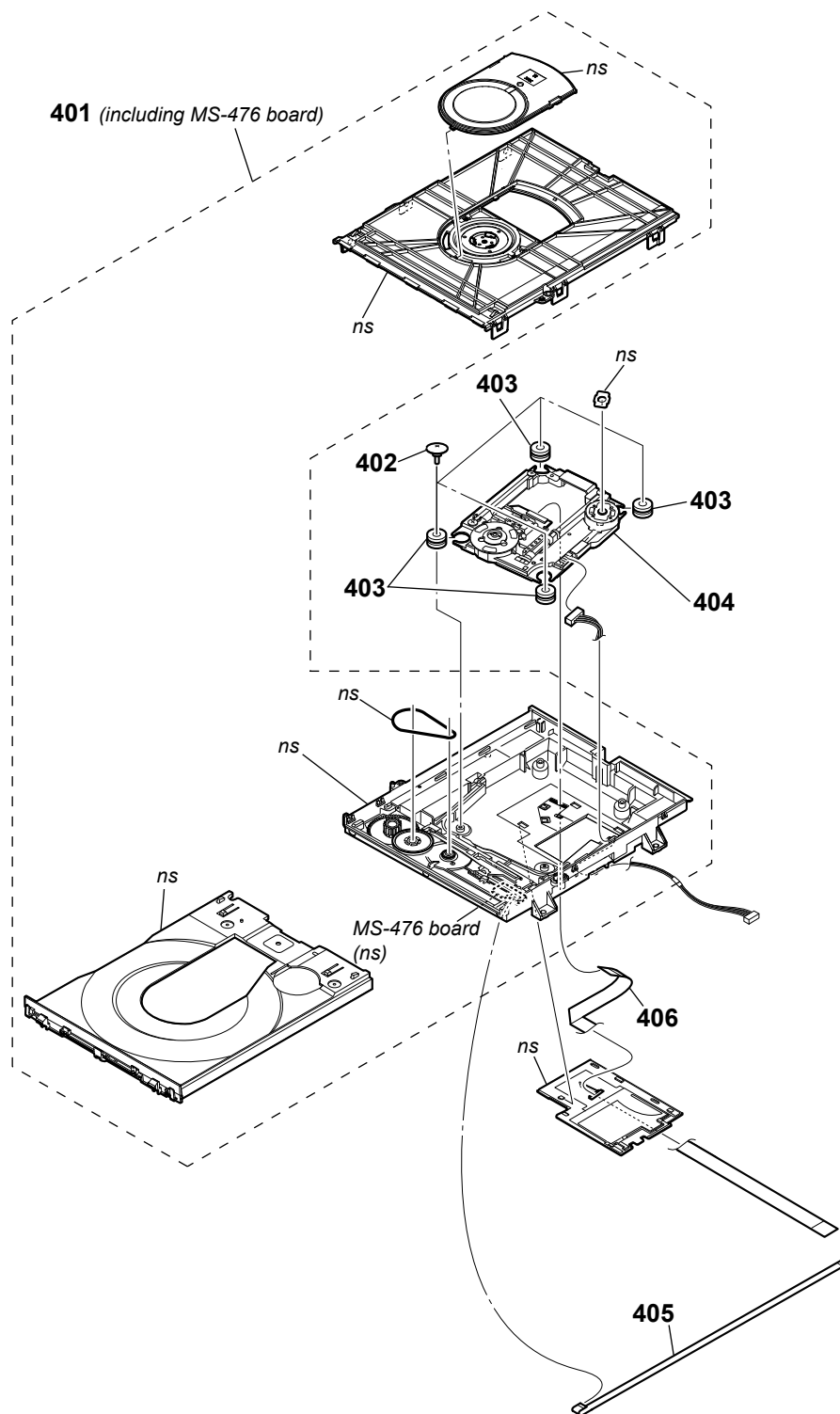


Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	2-345-115-01	SCREW (S), FLOAT		355	4-533-382-01	INSULATOR	
352	4-535-577-01	STEP SCREW M2.6		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
353	4-533-939-01	SPRING, INSULATOR (F)		ns		not supplied	
354	4-533-940-01	SPRING, INSULATOR (R)					

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## 7-9. DVD MECHANISM SECTION (CDM90-DVBU204//M)



**Note:** If flexible flat cable is replaced, install it after bending it in the same form as that before replacement.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
401	A-1896-391-B	LOADING COMPLETE ASSY (T) (including MS-476 board)		405	1-912-718-11	FLEXIBLE FLAT CABLE (5 CORE)	
402	3-087-599-01	INSULATOR SCREW		406	1-912-716-11	FLEXIBLE FLAT CABLE (24 CORE)	
403	2-634-618-21	INSULATOR		ns	not supplied		
△ 404	A-2046-956-A	SERVICE, OPTICAL DEVICE (7G)					

SECTION 8  
ELECTRICAL PARTS LIST

IR MIC USB

MOTHERBOARD MS-476

NFC

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
- 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

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

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.

The components identified by mark  $\triangle$  contain confidential information.  
Strictly follow the instructions whenever the components are repaired and/or replaced.

Les composants identifiés par la marque  $\triangle$  contiennent des informations confidentielles.  
Suivre scrupuleusement les instructions chaque fois qu'un composant est remplacé et / ou réparé.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-2196-510-A	IR BOARD, COMPLETE *****		JR4111	1-216-296-11	SHORT CHIP 0	
		< IC >		JR4112	1-216-296-11	SHORT CHIP 0	
IC4200	6-600-767-01	IC PNA4823M02S0 (R) *****				< TRANSISTOR >	
	A-2196-511-A	MIC USB BOARD, COMPLETE *****		Q4107	6-552-936-01	TR DTC014EUBTL	
		< CONNECTOR >		Q4108	6-552-936-01	TR DTC014EUBTL	
CN4100	1-822-423-11	CONNECTOR, USB (A) (REC/PLAY) $\Psi$ 5V $\equiv$ 1A		Q4109	6-552-936-01	TR DTC014EUBTL	
CN4102	1-779-275-11	CONNECTOR, FFC (LIF (NON-ZIF)) 7P		Q4110	6-553-338-01	TR RU1C001UNTCL	
		< DIODE >				*****	
D4100	6-502-970-01	DI DZ2J068M0L		$\triangle$	A-2199-353-A	MOTHERBOARD BOARD, COMPLETE (for SERVICE) (V21D)	
D4101	6-500-400-01	DIODE BAV99-215		$\triangle$	A-2199-364-A	MOTHERBOARD BOARD, COMPLETE (for SERVICE) (V21)	
D4102	6-500-400-01	DIODE BAV99-215				*****	
		< FERRITE BEAD >				< IC >	
FB4100	1-414-813-11	FERRITE, EMI (SMD) (2012)		IC001	6-721-079-01	IC TPS542941PWPR	
FB4101	1-414-813-11	FERRITE, EMI (SMD) (2012)		IC002	6-722-439-01	IC BDJ2FC0WEFJ-E2	
		< IC >		IC004	6-721-872-01	IC 78D09AG-TN3-R	
IC4100	8-759-425-23	IC BA4558F-E2		IC006	6-721-766-01	IC 78D05AG-TN3-R	
		< JACK >		IC009	6-721-079-01	IC TPS542941PWPR	
J4100	1-822-967-12	JACK (MIC1)				MS-476 BOARD *****	
J4101	1-822-967-12	JACK (MIC2 GUITAR)				When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T). *****	
		< JUMPER RESISTOR >				A-2092-220-A NFC BOARD, COMPLETE *****	
JR4100	1-216-296-11	SHORT CHIP 0				*****	
JR4101	1-216-864-91	SHORT CHIP 0					
JR4102	1-216-296-11	SHORT CHIP 0					
JR4103	1-216-296-11	SHORT CHIP 0					
JR4105	1-216-864-91	SHORT CHIP 0					
JR4109	1-216-296-11	SHORT CHIP 0					

**Note 1:** When the MOTHERBOARD board is replaced, spread the compound referring to "NOTE OF REPLACING THE IC2002 ON THE MOTHERBOARD BOARD AND THE COMPLETE MOTHERBOARD BOARD" on servicing notes (page 7).

**Note 2:** When the complete MOTHERBOARD board is replaced, be sure to refer to "DESTINATION SETTING METHOD" on page 5.

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**PANEL**   **SMPS**   **SPK LED**

Ref. No.	Part No.	Description	Remark
△	A-2196-509-A	PANEL BOARD, COMPLETE *****	
		< CONNECTOR >	
CN4000	1-779-552-21	CONNECTOR, FFC (LIF (NON-ZIF)) 15P	
		< DIODE >	
D4000	6-504-215-11	DI HL-364V620MZ-JS	
D4001	6-504-213-11	DI HL-364B460MZ-JS	
D4002	6-503-605-01	DI UDZVTE-172.0B	
		< ROTARY ENCODER >	
EN4000	1-493-008-11	ENCODER, ROTARY (VOLUME/DJ CONTROL)	
		< JUMPER RESISTOR >	
JR4000	1-216-864-91	SHORT CHIP    0	
JR4001	1-216-296-11	SHORT CHIP    0	
JR4002	1-216-296-11	SHORT CHIP    0	
JR4017	1-216-296-11	SHORT CHIP    0	
JR4018	1-216-296-11	SHORT CHIP    0	
JR4019	1-216-296-11	SHORT CHIP    0	
JR4020	1-216-296-11	SHORT CHIP    0	
JR4021	1-216-296-11	SHORT CHIP    0	
JR4023	1-216-296-11	SHORT CHIP    0	
JR4024	1-216-296-11	SHORT CHIP    0	
JR4025	1-216-296-11	SHORT CHIP    0	
JR4026	1-216-296-11	SHORT CHIP    0	
JR4028	1-216-864-91	SHORT CHIP    0	
JR4033	1-216-296-11	SHORT CHIP    0	
JR4034	1-216-296-11	SHORT CHIP    0	
JR4035	1-216-296-11	SHORT CHIP    0	
JR4050	1-216-296-11	SHORT CHIP    0	
JR4051	1-216-296-11	SHORT CHIP    0	
JR4052	1-216-296-11	SHORT CHIP    0	
JR4054	1-216-296-11	SHORT CHIP    0	
JR4055	1-216-296-11	SHORT CHIP    0	
JR4056	1-216-296-11	SHORT CHIP    0	
JR4057	1-216-296-11	SHORT CHIP    0	
JR4058	1-216-296-11	SHORT CHIP    0	
JR4059	1-216-296-11	SHORT CHIP    0	
JR4060	1-216-296-11	SHORT CHIP    0	
JR4061	1-216-296-11	SHORT CHIP    0	
JR4062	1-216-296-11	SHORT CHIP    0	
JR4063	1-216-296-11	SHORT CHIP    0	
JR4064	1-216-296-11	SHORT CHIP    0	
		< FLUORESCENT INDICATOR TUBE >	
ND4000	1-483-549-11	VACUUM FLUORESCENT DISPLAY	
		< TRANSISTOR >	
Q4000	6-552-941-01	TR DTC023JUBTL	
Q4001	6-552-941-01	TR DTC023JUBTL	
Q4002	6-553-756-01	TR NSS40200LT1G	
Q4003	6-552-936-01	TR DTC014EUBTL	
		< SWITCH >	
S4000	1-762-875-21	SWITCH, TACTILE (⏏)	
S4001	1-762-875-21	SWITCH, TACTILE (▲)	
S4002	1-762-875-21	SWITCH, TACTILE (S2 ⊞+)	
S4003	1-762-875-21	SWITCH, TACTILE (S1 ⊞-)	

Ref. No.	Part No.	Description	Remark
S4004	1-762-875-21	SWITCH, TACTILE (S3 TUNING - ◀▶)	
S4005	1-762-875-21	SWITCH, TACTILE (S4 TUNING + ▶▶)	
S4006	1-762-875-21	SWITCH, TACTILE (MIC/GUITAR LEVEL +)	
S4007	1-762-875-21	SWITCH, TACTILE (MIC/GUITAR LEVEL -)	
S4008	1-762-875-21	SWITCH, TACTILE (GUITAR)	
S4009	1-762-875-21	SWITCH, TACTILE (MIC ECHO)	
S4010	1-762-875-21	SWITCH, TACTILE (DJ EFFECT DJ OFF)	
S4011	1-762-875-21	SWITCH, TACTILE (DJ EFFECT SAMPLER)	
S4012	1-762-875-21	SWITCH, TACTILE (▶)	
S4013	1-762-875-21	SWITCH, TACTILE (■)	
S4014	1-762-875-21	SWITCH, TACTILE (BLUETOOTH ◀ PAIRING)	
S4015	1-762-875-21	SWITCH, TACTILE (FUNCTION)	
S4016	1-762-875-21	SWITCH, TACTILE (W.PARTY CHAIN)	
S4017	1-762-875-21	SWITCH, TACTILE (MEGA BASS ◀ PARTY CHAIN)	
S4018	1-762-875-21	SWITCH, TACTILE (VOICE CHANGER ◀ VOCAL FADER)	
S4019	1-762-875-21	SWITCH, TACTILE (SPEAKER LIGHT)	
S4020	1-762-875-21	SWITCH, TACTILE (DJ EFFECT FLANGER)	
S4021	1-762-875-21	SWITCH, TACTILE (DJ EFFECT ISOLATOR)	
*****			
△	A-2203-526-A	SMPS BOARD, COMPLETE *****	
*****			
	A-2196-512-A	SPK LED BOARD, COMPLETE *****	
		< DIODE >	
D4300	6-504-214-21	DI HL-3TMH234WW-3.7-HK-BF-SN-J	
*****			
		MISCELLANEOUS *****	
302	1-912-719-11	FLEXIBLE FLAT CABLE (15 CORE)	
304	1-912-625-11	FLEXIBLE FLAT CABLE (7 CORE)	
307	1-912-717-11	FLEXIBLE FLAT CABLE (6 CORE)	
401	A-1896-391-B	LOADING COMPLETE ASSY (T) (including MS-476 board)	
△ 404	A-2046-956-A	SERVICE, OPTICAL DEVICE (7G)	
405	1-912-718-11	FLEXIBLE FLAT CABLE (5 CORE)	
406	1-912-716-11	FLEXIBLE FLAT CABLE (24 CORE)	
SP1	1-859-268-11	LOUDSPEAKER (6.6CM) (Tweeter) (L-CH)	
SP2	1-859-268-11	LOUDSPEAKER (6.6CM) (Tweeter) (R-CH)	
SP3	1-859-294-12	LOUDSPEAKER (20CM) (Woofer)	
*****			

**Note:** If flexible flat cable is replaced, install it after bending it in the same form as that before replacement.



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
		ACCESSORIES *****	
	1-493-294-11	REMOTE COMMANDER (RMT-AM330U) (including BATTERY LID) (V21)	
	1-493-448-11	REMOTE COMMANDER (RMT-AM420U) (including BATTERY LID) (V21D)	
	1-754-852-11	ANTENNA (FM)	
△	1-785-504-21	ADAPTOR, CONVERSION (MY, E4, LA9)	
△	1-849-799-51	POWER SUPPLY CORD SET (LA9)	
△	1-849-801-51	POWER SUPPLY CORD SET (BR)	
△	1-849-803-51	POWER SUPPLY CORD SET (AR)	
△	1-849-805-21	POWER SUPPLY CORD SET (TH)	
△	1-912-321-51	POWER SUPPLY CORD SET (E12)	
△	1-912-331-21	POWER SUPPLY CORD SET (EA)	
△	1-912-499-11	POWER-SUPPLY CORD WITH FILTER (AEP, RU, MY, E4)	
△	1-912-500-11	POWER-SUPPLY CORD WITH FILTER (V21)	
△	1-912-501-11	POWER-SUPPLY CORD WITH FILTER (AUS)	
△	1-912-502-11	POWER-SUPPLY CORD WITH FILTER (UK)	
	4-734-744-14	MANUAL, INSTRUCTION (ENGLISH) (UK, EA, MY, AUS, E4, E12, LA9)	
	4-734-744-22	MANUAL, INSTRUCTION (SPANISH) (LA9)	
	4-734-744-33	MANUAL, INSTRUCTION (SPANISH) (AEP)	
	4-734-744-43	MANUAL, INSTRUCTION (FRENCH) (AEP, EA, E4)	
	4-734-744-53	MANUAL, INSTRUCTION (GERMAN, DUTCH) (AEP)	
	4-734-744-63	MANUAL, INSTRUCTION (ITALIAN, POLISH) (AEP)	
	4-734-744-71	MANUAL, INSTRUCTION (TRADITIONAL CHINESE, MALAY) (MY)	
	4-734-744-81	MANUAL, INSTRUCTION (ARABIC) (EA, E4)	
	4-734-744-91	MANUAL, INSTRUCTION (THAI) (TH)	
	4-734-745-11	MANUAL, INSTRUCTION (SPANISH) (AR)	
	4-734-745-21	MANUAL, INSTRUCTION (PORTUGUESE) (E4)	
	4-734-745-31	MANUAL, INSTRUCTION (RUSSIAN, UKRAINIAN) (RU)	
	4-734-745-41	MANUAL, INSTRUCTION (PORTUGUESE) (BR)	
	4-736-607-12	MANUAL, INSTRUCTION (ENGLISH (US)) (V21)	
	4-736-607-22	MANUAL, INSTRUCTION (FRENCH, SPANISH) (V21)	

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# MHC-V21/V21D

## SECTION 1 DIAGRAMS

**SONY**

## SERVICE MANUAL

Ver. 1.1 2018.08

*US Model*  
*Canadian Model*  
*MHC-V21*  
*AEP Model*  
*UK Model*  
*E Model*  
*Australian Model*  
*MHC-V21D*



## SUPPLEMENT-1

File this supplement with the service manual.

Subject: Addition of Schematic Diagram for SMPS board






**THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS.**  
(In addition to this, the necessary note is printed in each block.)

**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. (p: pF)  
50 V or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4$  W or less unless otherwise specified.
-  : nonflammable resistor.
-  : panel designation.

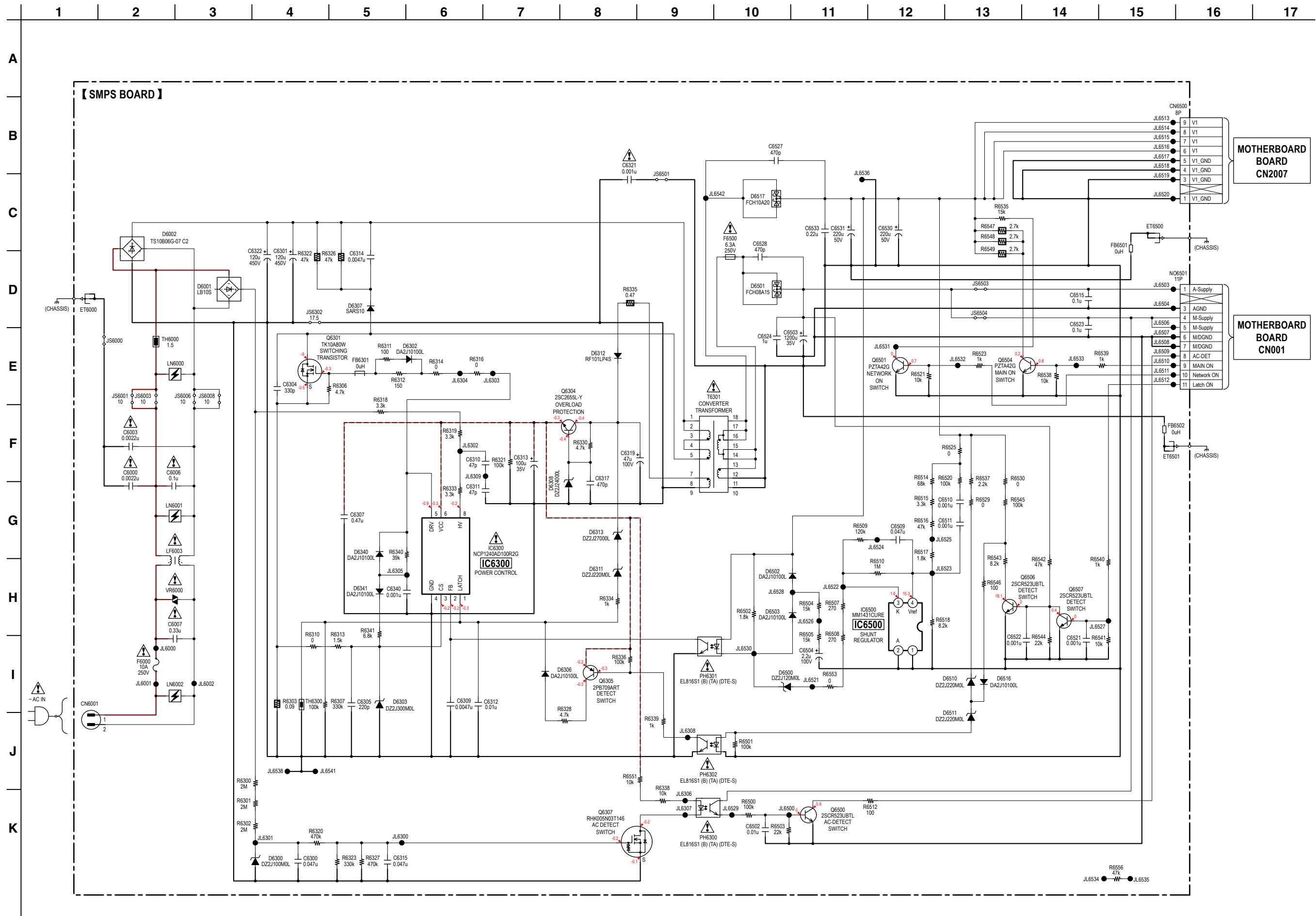
**Note:** The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

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

-  : B+ Line.
-  : B- Line.
-  : Adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
no mark : TUNER
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.  
 : USB  
 : MIC

# MHC-V21/V21D

## 1-1. SCHEMATIC DIAGRAM - SMPS Board -



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**MHC-V21/V21D****REVISION HISTORY**

<b>Ver.</b>	<b>Date</b>	<b>Description of Revision</b>
1.0	2018.05	New
1.1	2018.08	Addition of MHC-V21 model. Addition of Argentina and Malaysia models (MHC-V21D). Addition of Schematic Diagram for SMPS board (SUPPLEMENT-1). Change description of Q4000, Q4001 and Q4003 in PANEL board. Change description of Q4107, Q4108 and Q4109 in MIC USB board. Change P/N and description of IC4100 in MIC USB board. Change P/N and description of screw type from +PWH 3X8 (SUMITITE) to SCREW +BVTP 3X8 TYPE2 IT-3 in page 19 and 49. Change suffix number of MANUAL, INSTRUCTION in ACCESSORIES section. Delete BOND FIXATION OF ELECTRIC PARTS in SERVICING NOTES section.

**How to search for a contact point of signal lines or the like in DIAGRAMS SECTION**

If a contact point of a BLOCK DIAGRAM, PRINTED WIRING BOARD or SCHEMATIC DIAGRAM is shown in a different page, use the PDF file search function to find one.

e.g.) If a contact point is shown as  , follow the procedure below.

**Procedure:**

1. Press the [F] key while pressing the [Ctrl] key.
2. Input ">001Z" in the search box and press the [Enter] key.
3. The relevant part (page), where the contact point is shown, appears.

**Note:** If you still see the original page, press the [Enter] key again.