

MHC-V77W/V77DW

SERVICE MANUAL

Ver. 1.4 2017.05



Photo: MHC-V77DW

US Model
Canadian Model
 MHC-V77W
AEP Model
UK Model
E Model
Australian Model
 MHC-V77DW

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	SA-WGT4D
	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 4 ohm loads, both channels driven, from 150 Hz – 20,000 Hz; rated 60 watts per channel minimum RMS power, with no more than 0.7% total harmonic distortion from 250 milliwatts to rated output.

Speaker section

Speaker system:

Tweeter + Midrange speaker + Woofer

Speaker unit:

Tweeter L/R: 40 mm (1 5/8 in), cone type
 Midrange L/R: 120 mm (4 3/4 in), cone type
 Woofer: 250 mm (9 7/8 in), cone type

Rated impedance:

Tweeter L/R: 4 ohms
 Midrange L/R: 4 ohms
 Woofer: 8 ohms

Inputs

AUDIO/PARTY CHAIN IN L/R (V77W):

Voltage 2 V, impedance 47 kilohms

AUDIO/PARTY CHAIN IN (TV) L/R (V77DW):

Voltage 2 V, impedance 47 kilohms

TV (ARC) (V77DW):

Supported audio signal: 2-channel Linear PCM

MIC1, MIC2:

Sensitivity 1 mV, impedance 10 kilohms

Outputs

AUDIO/PARTY CHAIN OUT L/R:

Voltage 2 V, impedance 1 kilohm

VIDEO OUT (V77DW):

Max. output level 1 Vp-p, unbalanced, Sync. negative load impedance 75 ohms

HDMI OUT (TV) (V77DW):

Supported audio signal: 2-channel Linear PCM (up to 48 kHz), Dolby Digital

HDMI section (V77DW)

Connector:

Type A (19 pin)

Disc player section

System:

Compact disc and digital audio system (V77W)

Compact disc and digital audio and video system (V77DW)

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 (V77DW):

Latin American model:

NTSC

Other models:

NTSC and PAL

USB section

Supported USB device:

Mass Storage Class

Maximum current:

1 A

⚡ (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) (V77W)

87.5 MHz – 108.0 MHz (50 kHz step) (V77DW)

BLUETOOTH section

Communication system:

BLUETOOTH Standard version 4.2

Output:

BLUETOOTH Standard Power Class 1

Maximum communication range:

Line of sight approx. 30 m^{*1}

Frequency band:

2.4 GHz band (2.4000 GHz – 2.4835 GHz)

Modulation method:

FHSS (Freq Hopping Spread Spectrum)

Compatible BLUETOOTH profiles^{*2}:

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

^{*1} 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.

^{*2} BLUETOOTH standard profiles indicate the purpose of BLUETOOTH communication between devices.

Network section

Ethernet LAN

100BASE-TX

Wireless LAN

Compatible standards: IEEE 802.11 a/b/g/n

Security:

WPA/WPA2-PSK, WEP

Radio frequency:

2.4 GHz, 5 GHz

Supported audio formats

Supported bit rate and sampling frequencies:

MP3:
 16/22.05/24/32/44.1/48 kHz,
 16 kbps – 320 kbps (CBR/VBR)
 AAC:
 16/22.05/24/32/44.1/48/88.2/96 kHz,
 16 kbps – 320 kbps (CBR/VBR)
 WMA:
 32/44.1/48 kHz, 16 kbps – 320 kbps
 (CBR/VBR)
 WAV:
 16/22.05/24/32/44.1/48/88.2/96/
 176.4/192 kHz (16/24 bit)
 AIFF:
 32/44.1/48/88.2/96/176.4/192 kHz
 (16/24 bit)
 FLAC:
 16/22.05/24/32/44.1/48/88.2/96/
 176.4/192 kHz (16/24 bit)
 ALAC:
 16/22.05/24/32/44.1/48/88.2/96/
 176.4/192 kHz (16/24 bit)
 DSD (DSF/DSDIFF):
 2.8 MHz (1 bit)

– Continued on next page –

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HOME AUDIO SYSTEM

SONY®

Supported video formats (V77DW)

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:
220 W
Power consumption (at the Power Saving mode) (V77DW):
0.5 W (When “NW STBY” is set to “OFF” and [CONTROL FOR HDMI] is set to [OFF].)
3 W* (When “NW STBY” is set to “ON” and [CONTROL FOR HDMI] is set to [ON].)
Dimensions (W/H/D) (Approx.):
340 mm × 924 mm × 378 mm
(13 1/2 in × 36 1/2 in × 15 in)
Mass (Approx.):
22 kg (48 lb 9 oz)

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

Unpacking

- This unit (MHC-V77W/V77DW) (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) (V77DW)

* This plug adaptor is not for the use in Chile, Paraguay and Uruguay. Use this plug adaptor in the countries where it is necessary.

Design and specifications are subject to change without notice.

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- This system incorporates Dolby® Digital.
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Abbreviation

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

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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.

- A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
- A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
- 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)

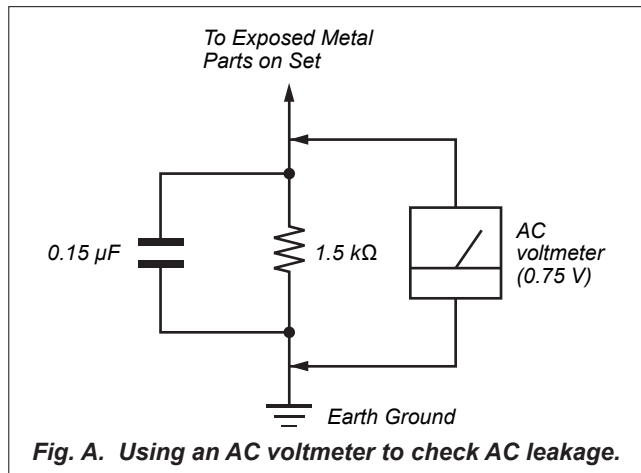


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

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Accessories are listed in the last part of the electrical parts list.

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)

LF : 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

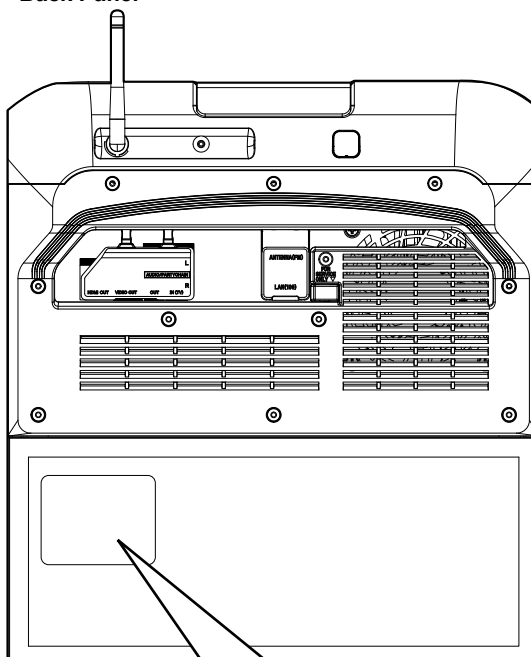
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pickup block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

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

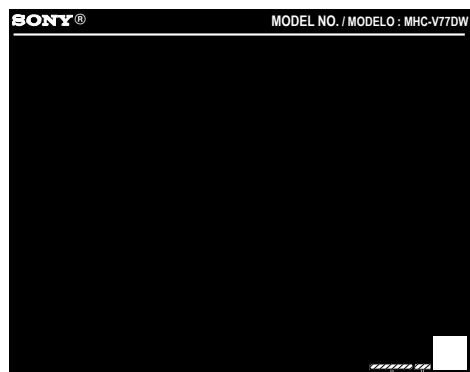
This appliance is classified as a CLASS 1 LASER product under IEC 60825-1:2007. This marking is located on the rear exterior.

MODEL IDENTIFICATION

– Back Panel –



MODEL NUMBER LABEL



Destination Code
-PART No.

Model	Part No.
V77DW: LA9	4-595-019-0□
V77DW: AR	4-595-019-1□
V77DW: AUS	4-595-019-2□
V77DW: AEP, UK	4-595-019-3□
V77DW: E4	4-595-019-4□
V77DW: E12	4-595-019-5□
V77DW: EA	4-595-019-6□
V77DW: RU	4-595-019-7□
V77DW: MY	4-595-019-8□
V77DW: TH	4-596-414-0□
V77W: US, CND	4-693-355-0□

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

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)^{*1*2}
- Video:
MPEG4 files (.mp4/.m4v)^{*2*3}, Xvid files (.avi)

PLAYABLE FILES ON USB DEVICE

- Music:
MP3 files (.mp3)^{*1*2}, WMA files (.wma)^{*2}, AAC files (.m4a/.mp4/.3gp)^{*2}, WAV files (.wav)^{*2}, AIFF files (.aiff)^{*2}, FLAC files (.flac)^{*2}, ALAC files (.alac)^{*2}, DSD (.dsf/.dsdiff)^{*2}
- Video:
MPEG4 files (.mp4/.m4v)^{*2*3}, Xvid files (.avi)

- 1) 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.
- 2) Files with copyright protection (Digital Rights Management) cannot be played back by the system.
- 3) 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.)

Notes

- 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 REPLACING THE IC8001 AND IC8003 ON THE 89G BOARD

IC8001 and IC8003 on the 89G board cannot exchange with single. When these parts on the 89G board are damaged, exchange the entire mounted board.

NOTE OF REPLACING THE IC6001, IC6002, IC6202, IC6203, IC6341, IC6342, IC6602, IC6901 AND IC6907 ON THE BENTEN-MOTHERBOARD BOARD

IC6001, IC6002, IC6202, IC6203, IC6341, IC6342, IC6602, IC6901 and IC6907 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

NOTE OF REPLACING THE IC8902 ON THE FM-TUNER BOARD

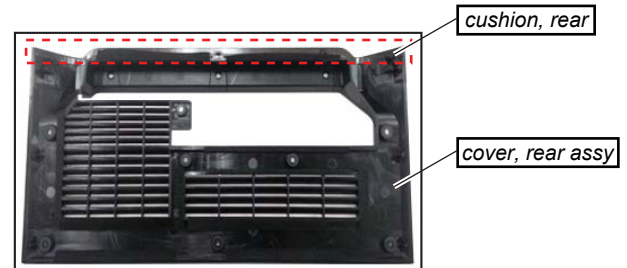
IC8902 on the FM-TUNER board cannot exchange with single. When this part on the FM-TUNER board is damaged, exchange the entire mounted board.

NOTE OF REPLACING THE IC001 AND IC002 ON THE SENSOR BOARD

IC001 and IC002 on the SENSOR board cannot exchange with single. When these parts on the SENSOR board are damaged, exchange the entire mounted board.

NOTE OF REPLACING THE CUSHION REAR ON THE COVER REAR ASSY

When the cover rear assy is disassembled from the set, replace the old cushion rear on the cover rear assy with a new cushion rear.



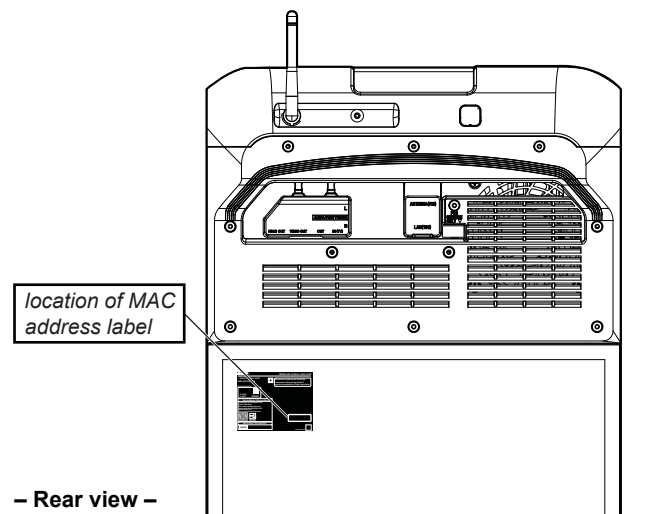
NOTE OF REPLACEMENT OF THE MS-476 BOARD

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

IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD

When the BENTEN-MOTHERBOARD board is replaced, be sure to perform the following work.

1. Stick the new MAC address label on the rear side of this unit.
- **Sticking method of MAC address label**



2. Perform the connection check of wireless LAN (Refer to “CHECKING METHOD OF WIRELESS LAN CONNECTION” on this page).
3. The MAC address has been changed. Print the following explanations, and pass it to the customer together with repaired unit.

Note of the MAC address change:

The MAC address of this unit was changed along with this repair. Please set it again if you are using the MAC address filtering function of access point device connection destination. When registration of client devices to the DLNA server device is not automatic, it is necessary to register this unit into a server again. MAC address is displayed on rear side of this unit.
MAC1: MAC address of LAN(100)
MAC2: MAC address of wireless LAN

CHECKING METHOD OF WIRELESS LAN CONNECTION

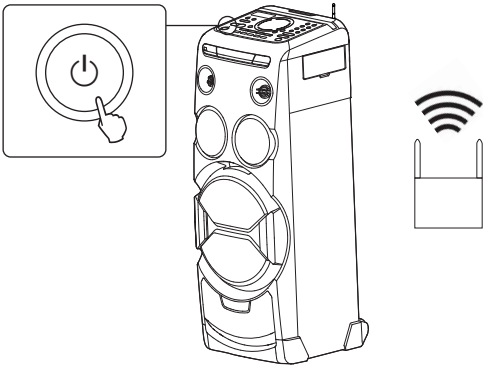
When the BENTEN-MOTHERBOARD board is replaced, be sure to perform the connection check of wireless LAN.

Required item:

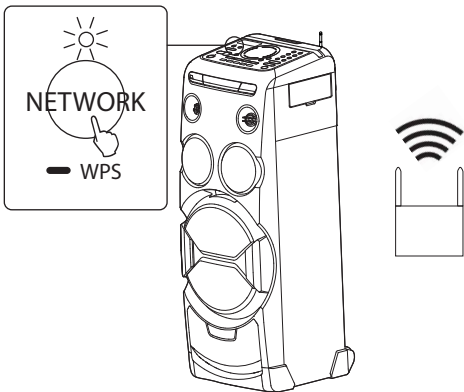
- Wireless router with the Wi-Fi Protected Setup™ (WPS) button

Procedure:

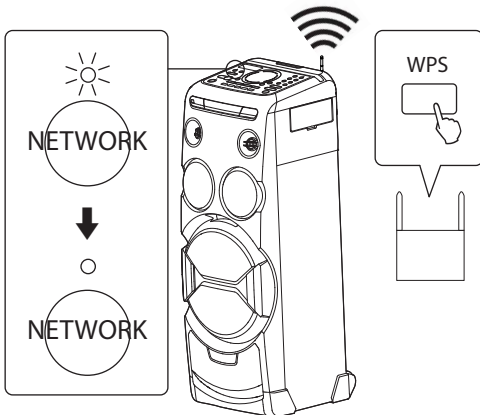
1. Press the [⏻] (power) button to turn on the system.
When the system is on, the power indicator lights up in green.



2. Touch and hold **WPS** key on the unit until the NETWORK indicator flashes in white.



3. Within 90 seconds, press the Wi-Fi Protected Setup™ (WPS) button of the router.
When the NETWORK indicator lights up in white, the Wi-Fi network connection is complete.

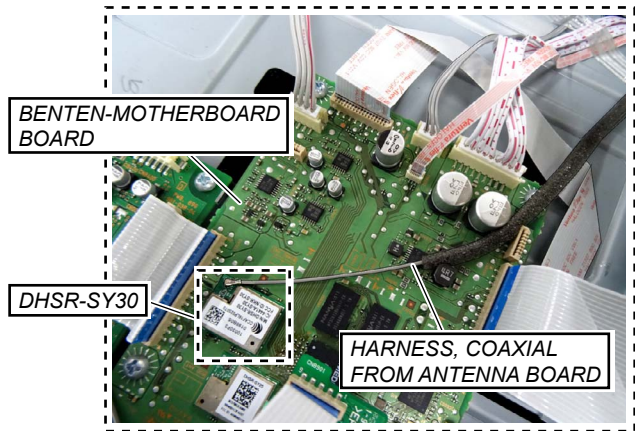


Depending on the wireless router, press and hold the WPS button for a few seconds. For details, refer to the operating instructions of your router.

- The WPS button may be called “AOSS button” depending on the wireless router.

IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD

Be sure to plug in the HARNESS, COAXIAL to DHSR-SY30 after replacing the BENTEN-MOTHERBOARD board.



BOND FIXATION OF ELECTRIC PARTS

When 2CH DAMP board or REGULATOR, SWITCHING (SSN-161AD) board is replaced, it is necessary to fix parts to the boards by using a specified bond without fail.

• Object boards

1. Complete 2CH DAMP board
2. REGULATOR, SWITCHING (SSN-161AD) board

• Use bond

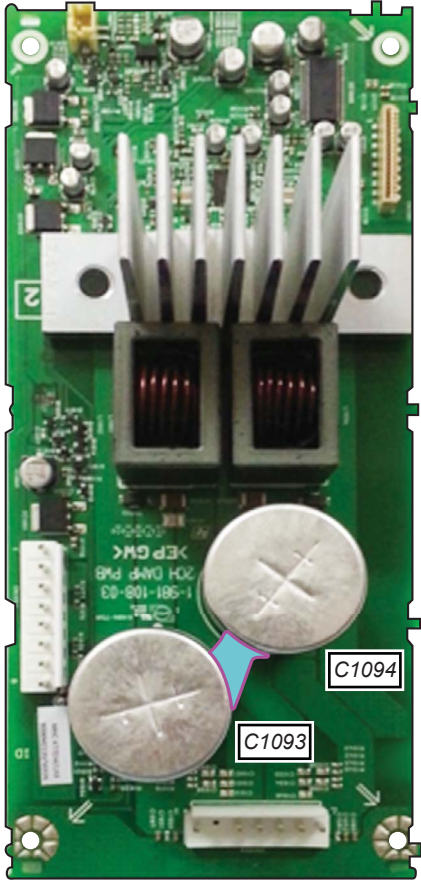
Part No.	Description
7-600-020-70	ADHESIVE (SC608Z2) 180ML


• Parts position

1. 2CH DAMP board (page 7)
2. REGULATOR, SWITCHING (SSN-161AD) board (page 7)

1. 2CH DAMP board

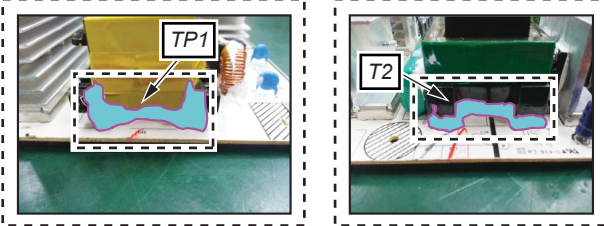
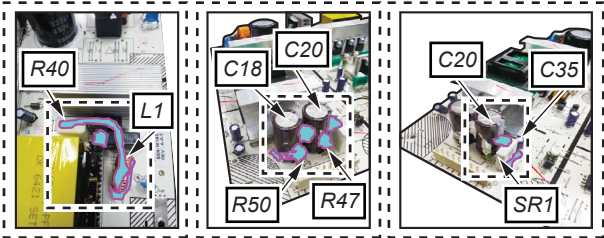
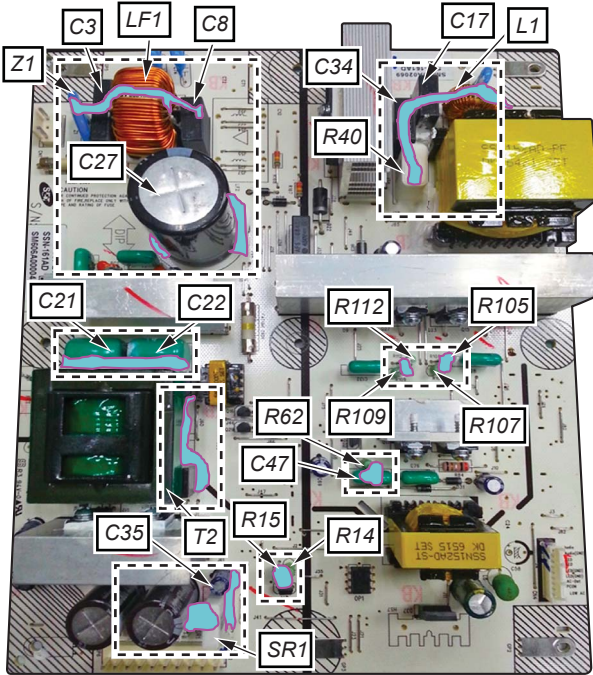
– 2CH DAMP Board (Component Side) –




*The portion which applies bond: 

2. REGULATOR, SWITCHING (SSN-161AD) board

– SWITCHING REGULATOR (Component Side) –



*The portion which applies bond: 

TEST DISCS

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

- For CD

Part No.	Description
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)

Part No.	Description
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)

Part No.	Description
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 sample disc in the shop is equipped.

It can release the lock function in the following procedure.

Releasing Procedure:

1. Press the [⏻] button to turn the power on.
2. Touch the [FUNCTION] touch key to turn the DVD/CD function.
3. Touch [■] and [MIC LEVEL +] touch keys simultaneously for three seconds.
4. The message “UNLOCKED” is displayed on the screen display panel and the disc tray is unlocked.

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

IF “PROTECTX” (X IS A NUMBER) APPEARS 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.

CAPACITOR ELECTRICAL DISCHARGE PROCESSING

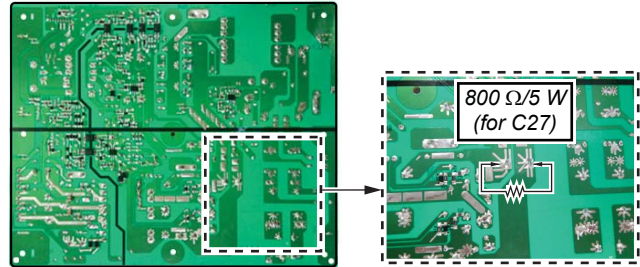
When checking the board, for the electric shock prevention, connect the resistors to respective parts to discharge.

Discharge at capacitor (Ref. No C27)

Discharge method 1

Connect the resistors to both ends of capacitor (Ref. No. C27) on the switching regulator (SSN-161AD) to discharge.

– SWITCHING REGULATOR (Conductor Side) –

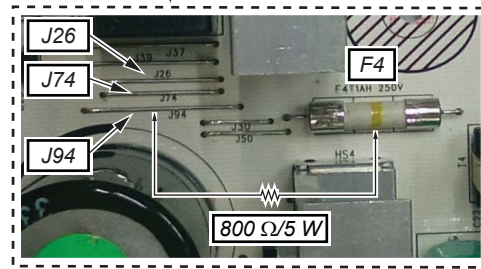
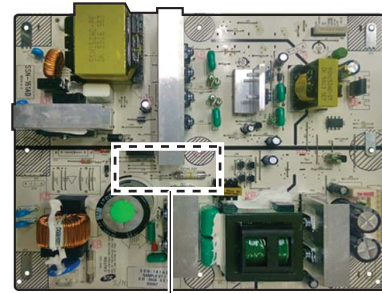


Discharge method 2

When connecting the resistor to both ends of capacitor (Ref. No. C27) on the switching regulator (SSN-161AD) is difficult, discharge by connecting the resistor between fuse (Ref. No. F4) and jumper (Ref. No. J26, J24, J94).

Note: Be careful not to short-circuit, because between the terminal is close.

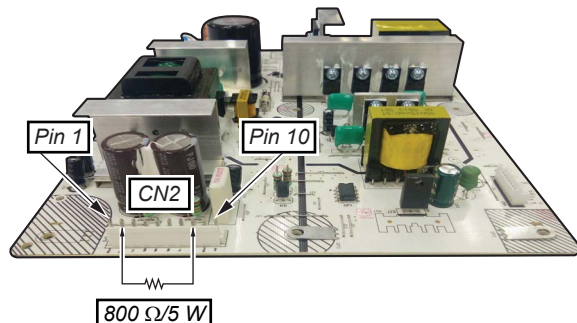
– SWITCHING REGULATOR (Component Side) –



Discharge at capacitor (Ref. No C18 and C20)

Discharge by connecting the resistor between pin 1, 2 (+VH) and pin 8, 9 (-VH) of connector (Ref. No, CN2) on the switching regulator board.

– SWITCHING REGULATOR Board (Component Side) –

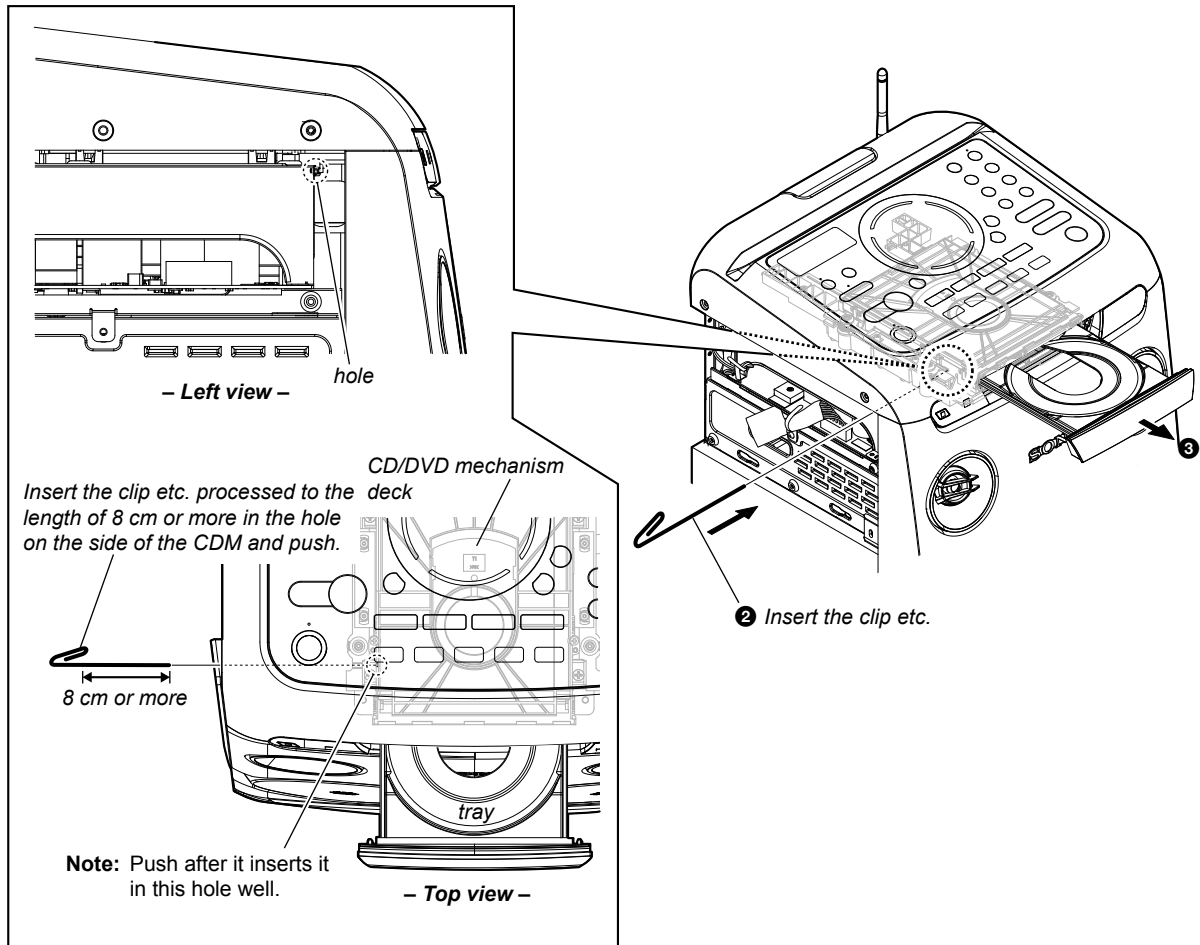


HOW TO OPEN THE TRAY WHEN POWER SWITCH TURN OFF

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

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

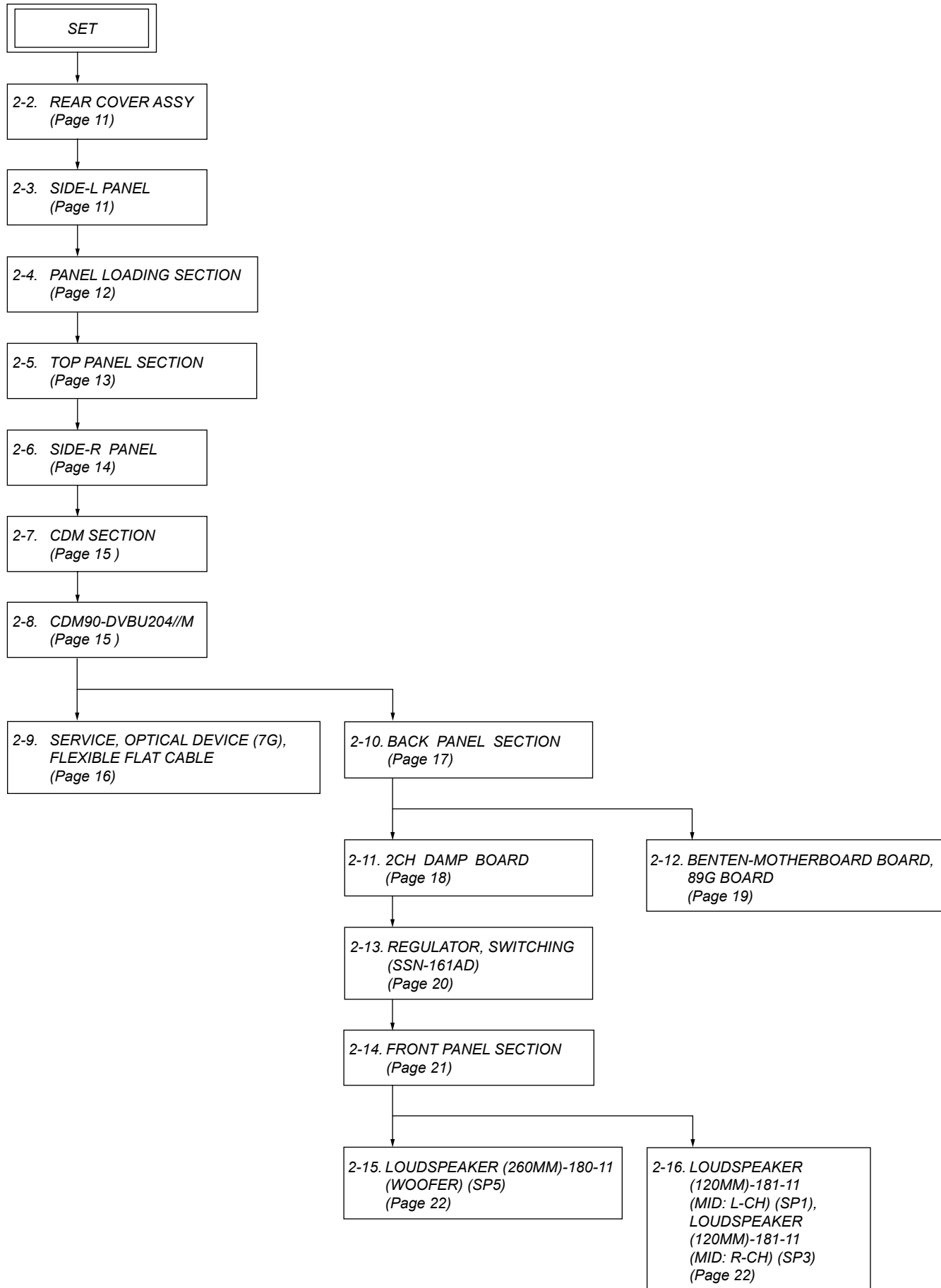
- 1 Remove the rear cover assy, side-L panel.
(Illustration of disassembly is omitted.)



SECTION 2 DISASSEMBLY

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

2-1. DISASSEMBLY FLOW

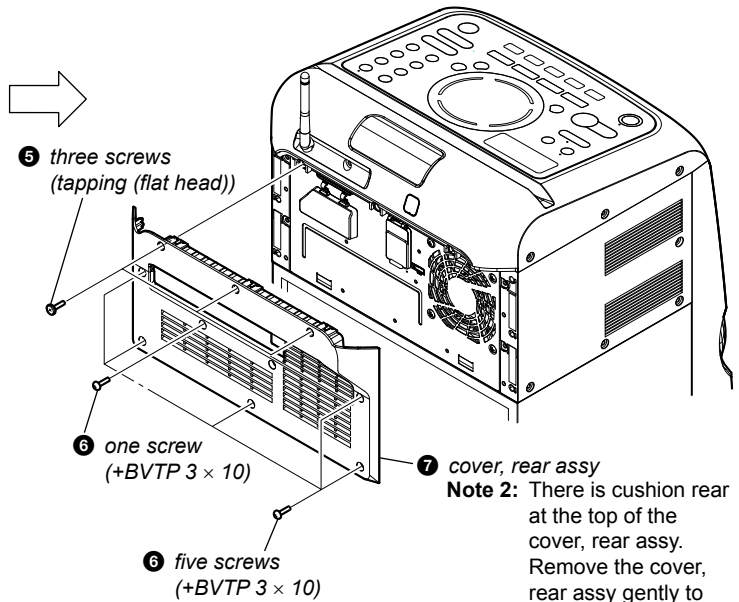
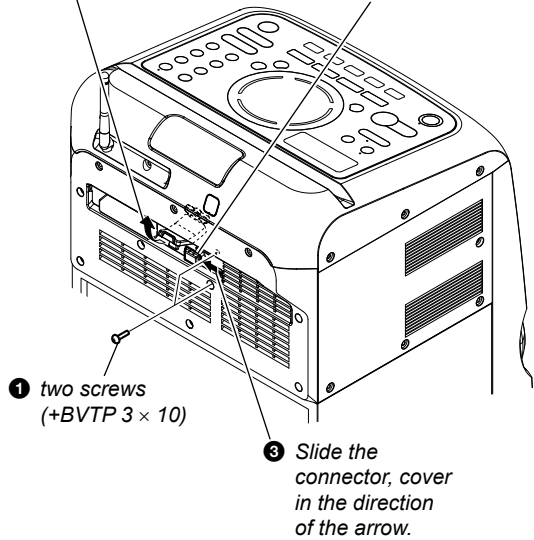


Note: Follow the disassembly procedure in the numerical order given.

2-2. REAR COVER ASSY

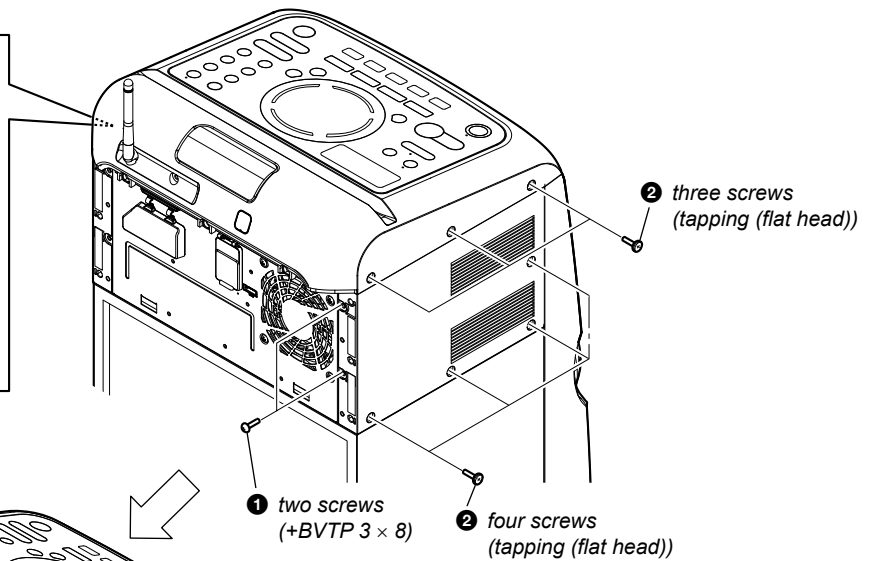
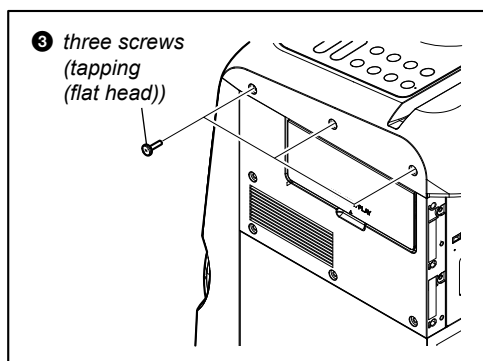
Note 1: When the cover rear assy is disassembled from the set, refer "NOTE OF REPLACING THE CUSHION REAR ON THE COVER REAR ASSY" on page 5.

- 2 Pull up the cover, LAN in the direction of the arrow.
- 4 connector, cover

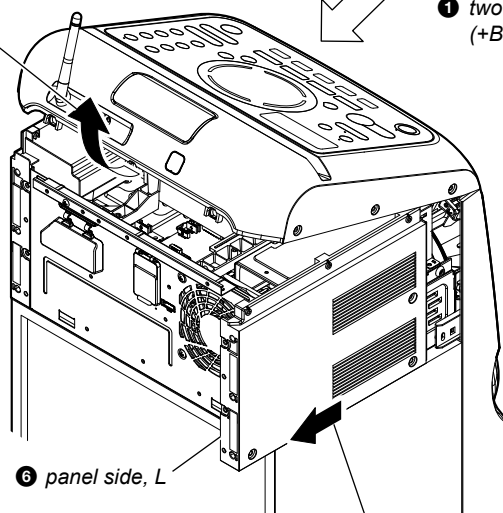


Note 2: There is cushion rear at the top of the cover, rear assy. Remove the cover, rear assy gently to avoid from being broken.

2-3. SIDE-L PANEL

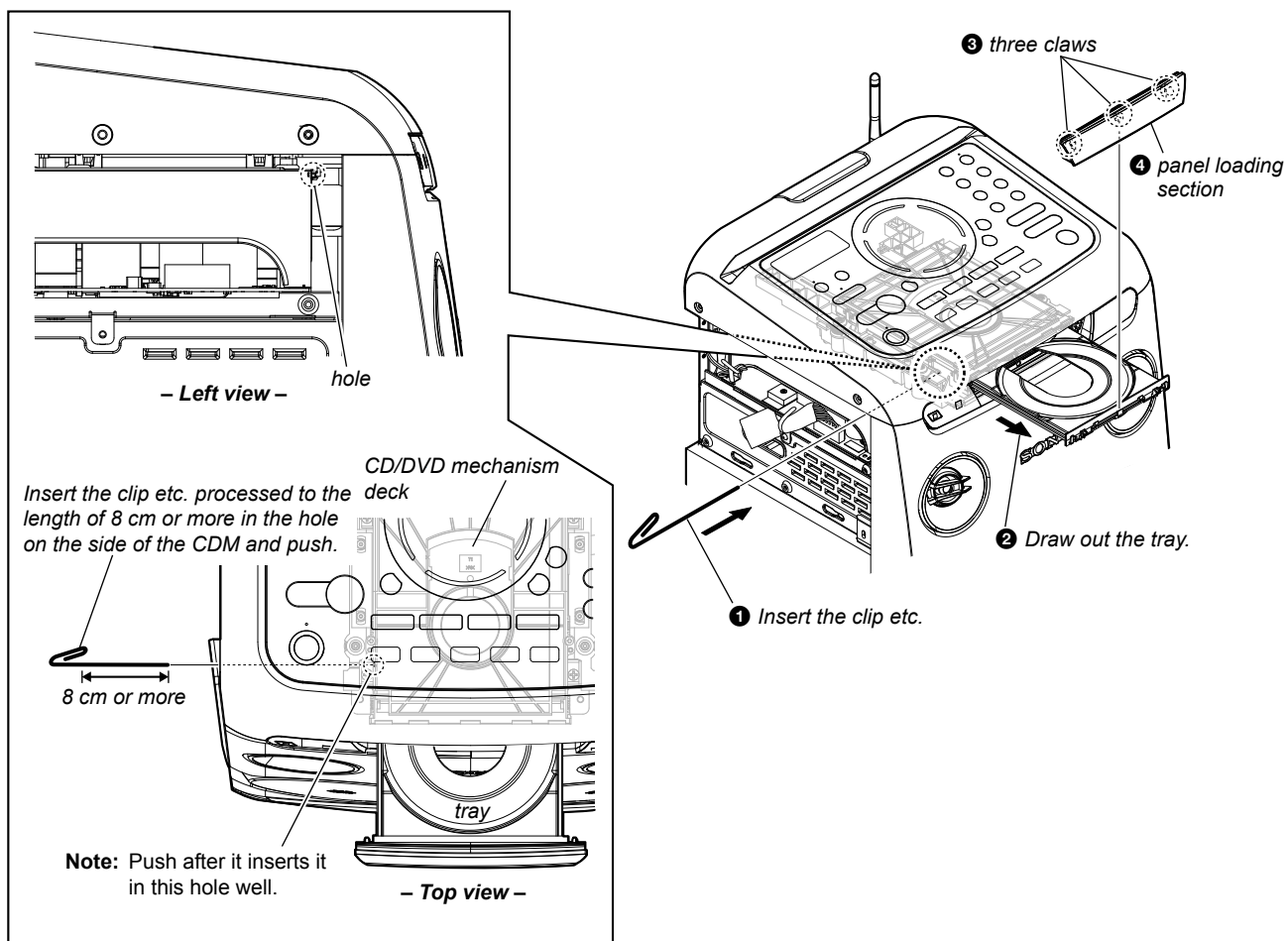


- 4 Lift up the top panel section in the direction of the arrow.

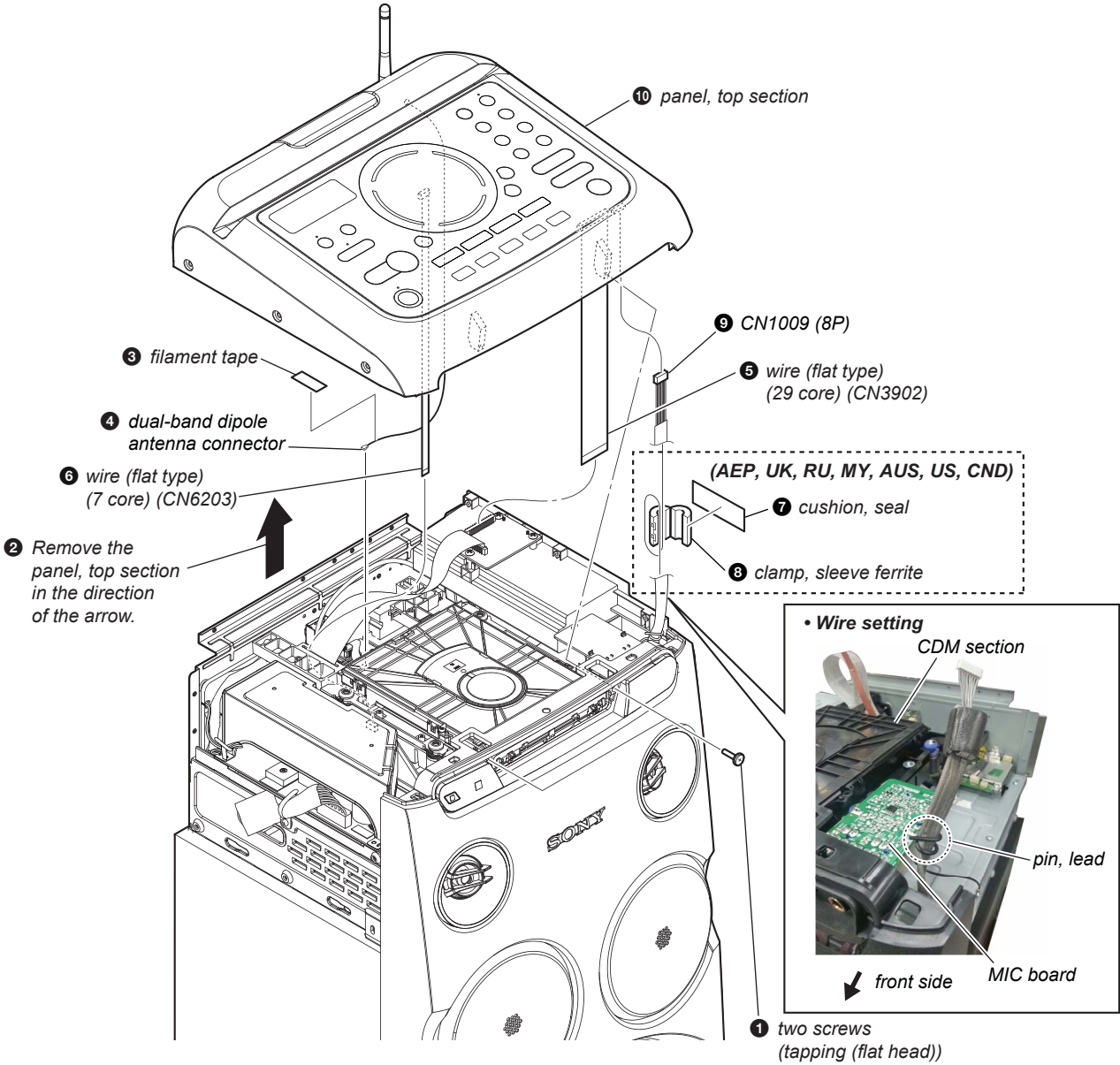


- 5 Slide the panel side, L in the direction of the arrow.

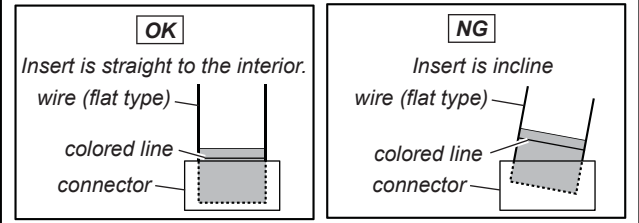
2-4. PANEL LOADING SECTION



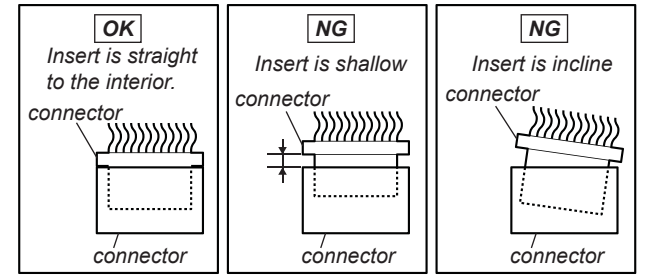
2-5. TOP PANEL SECTION



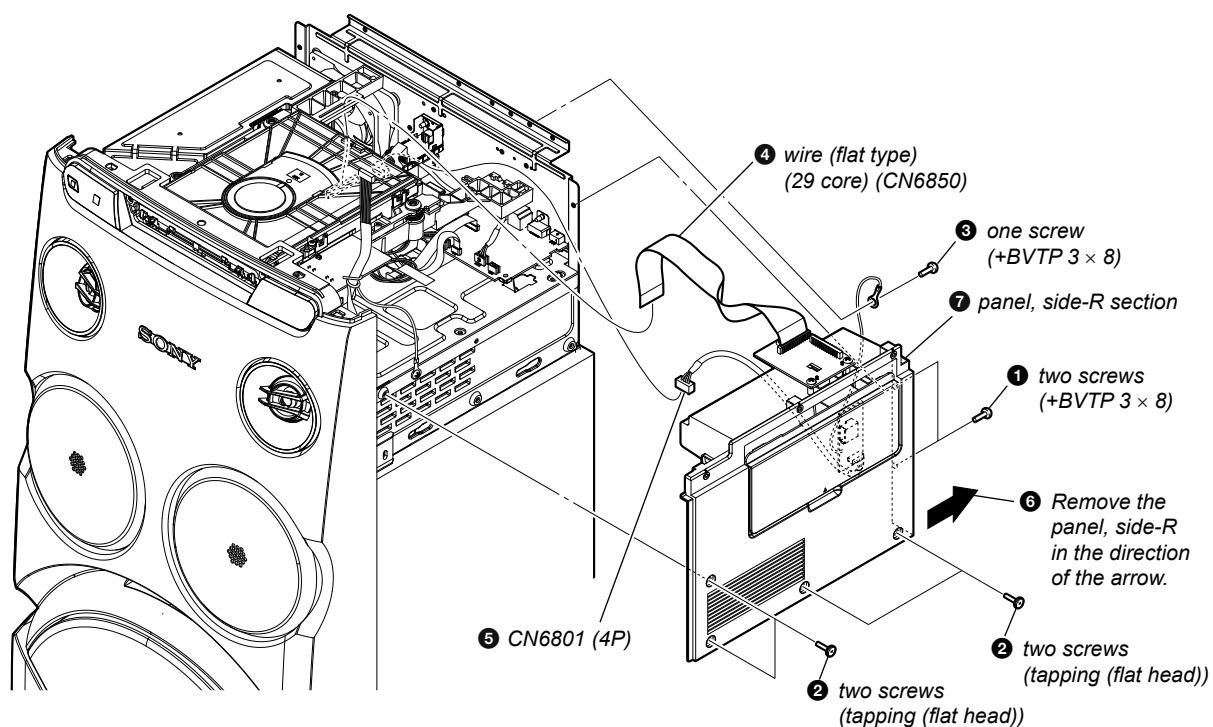
Note 1: When installing the wire (flat type), ensure that the colored line is not slanted after insertion.



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



2-6. SIDE-R PANEL



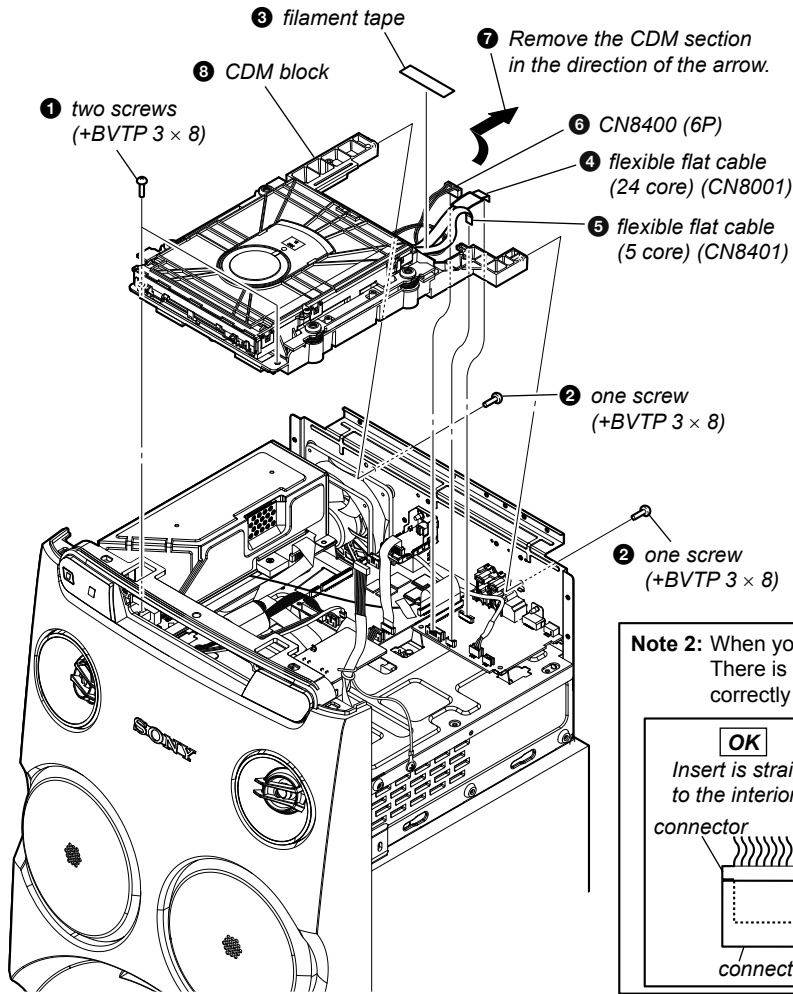
Note 2: When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.

Note 1: When installing the wire (flat type), ensure that the colored line is not slanted after insertion.

OK	NG
<i>Insert is straight to the interior.</i>	<i>Insert is incline</i>

OK	NG	NG
<i>Insert is straight to the interior.</i>	<i>Insert is shallow</i>	<i>Insert is incline</i>

2-7. CDM SECTION



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

OK

Insert is straight to the interior.

flexible flat cable
colored line
connector

NG

Insert is incline

flexible flat cable
colored line
connector

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

OK

Insert is straight to the interior.

connector
connector

NG

Insert is shallow

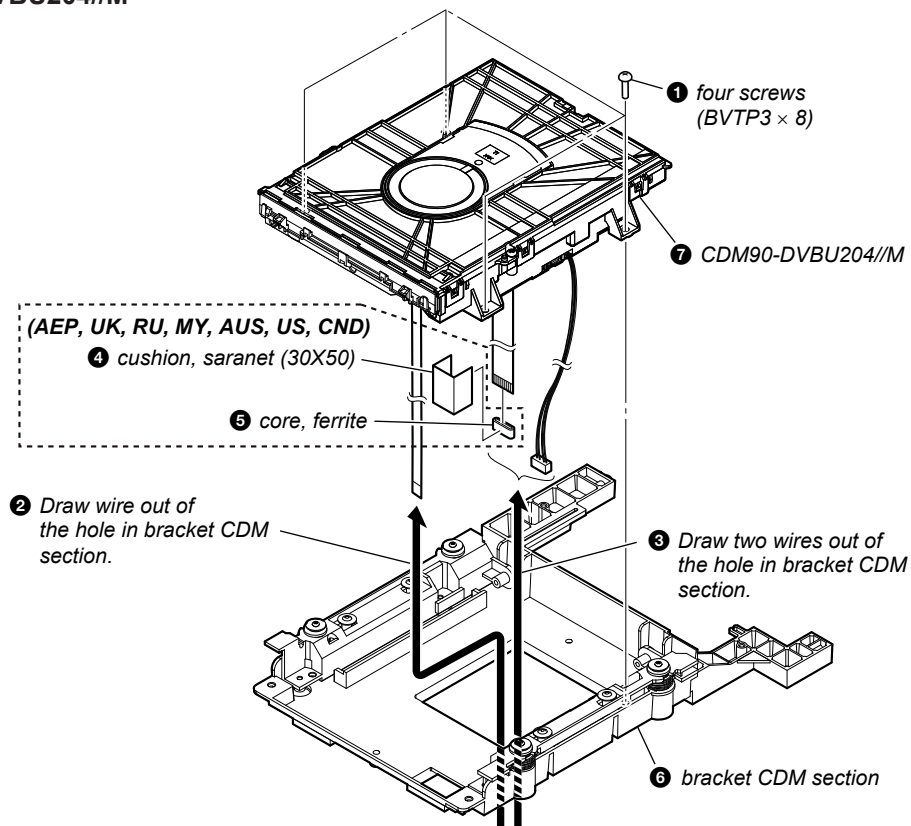
connector
connector

NG

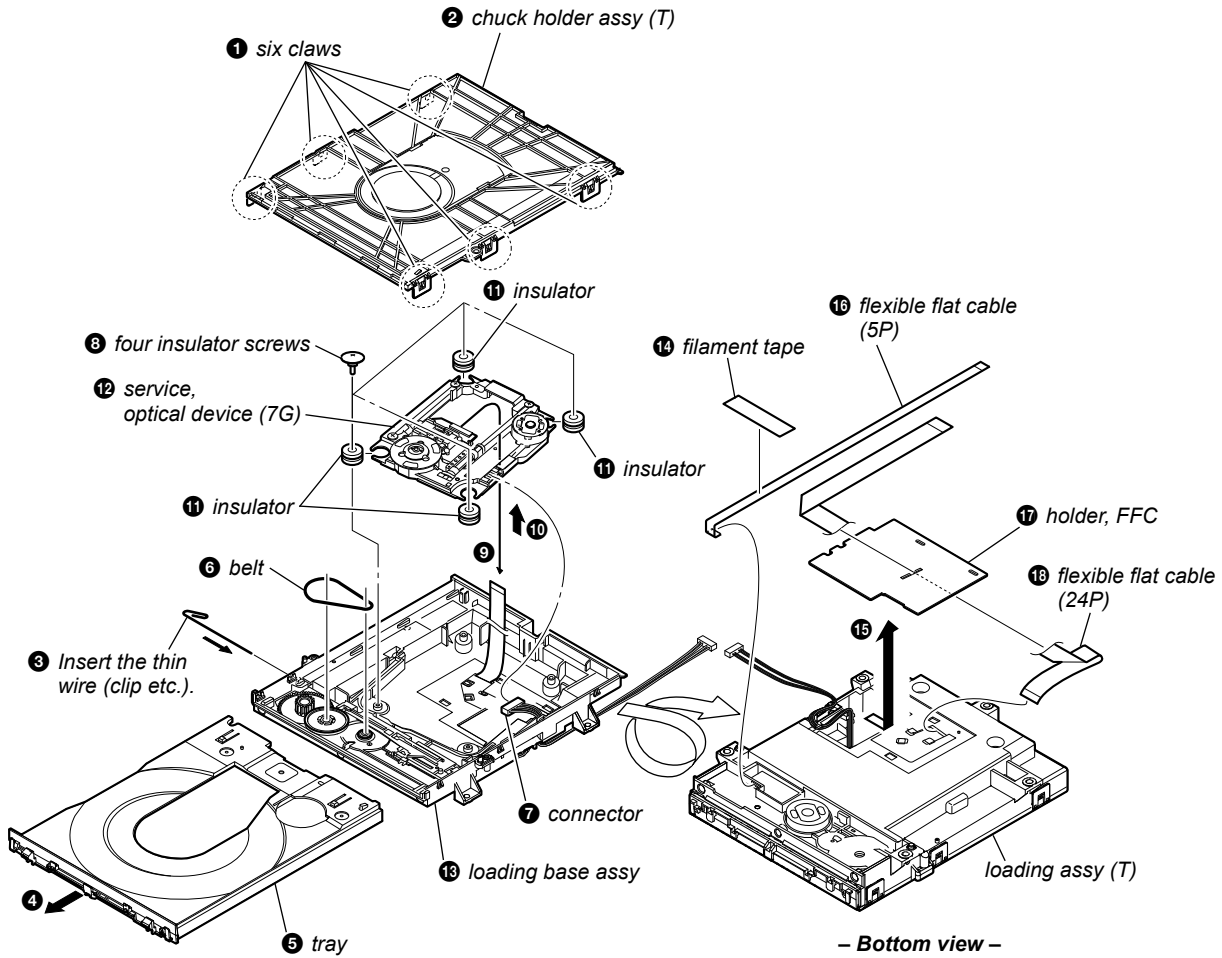
Insert is incline

connector
connector

2-8. CDM90-DVBU204//M

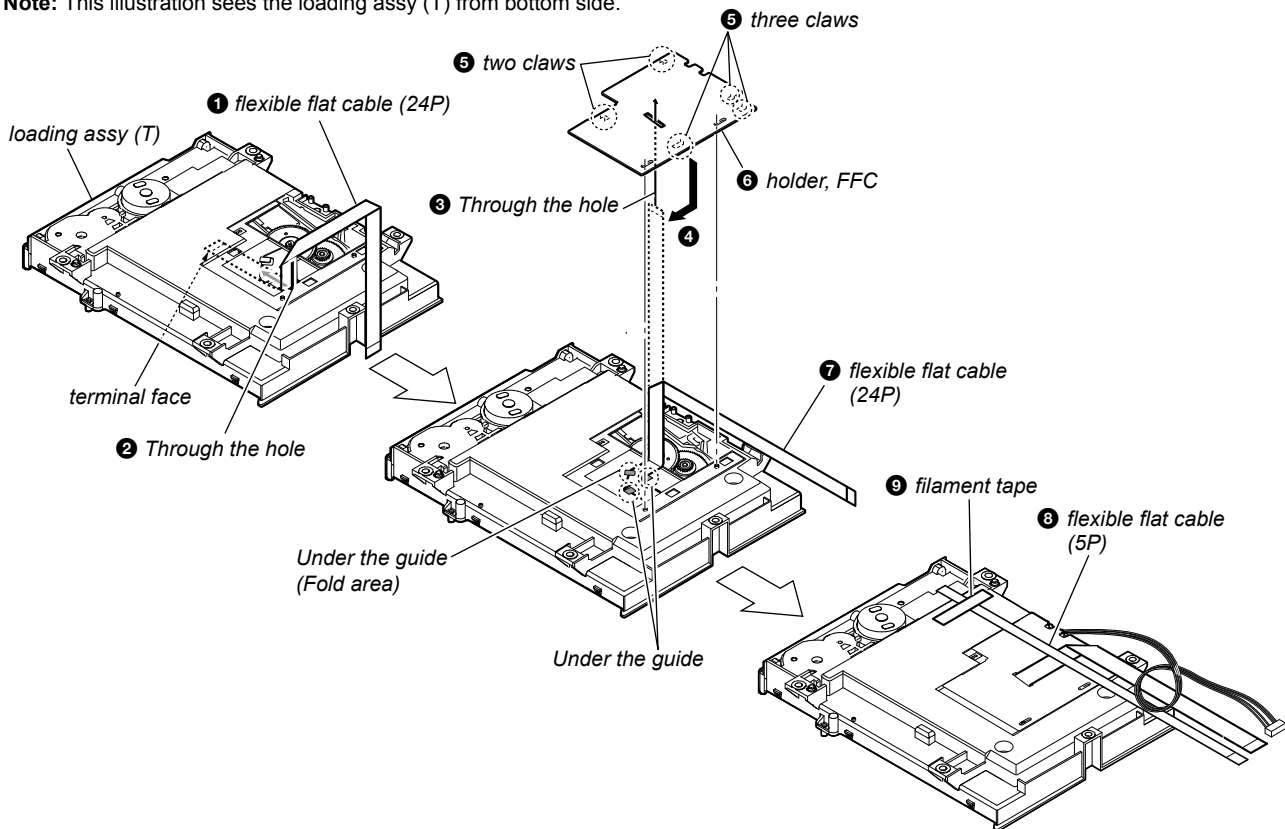


2-9. SERVICE, OPTICAL DEVICE (7G), FLEXIBLE FLAT CABLE



• Installation of flexible flat cable (24P) and flexible flat cable (5P)

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



2-10. BACK PANEL SECTION

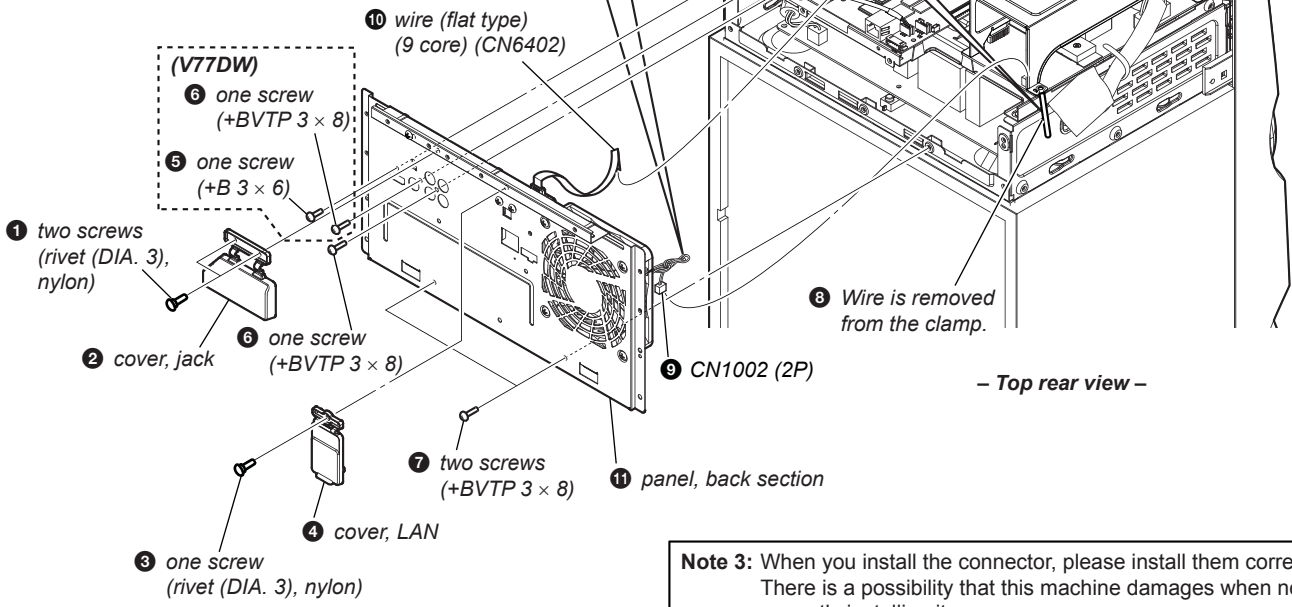
• Wire setting

rear side

clamp

2CH DAMP board

Note 1: DC FAN's wire must not touch parts on PWB and make sure the wire dressing is in vertical condition.



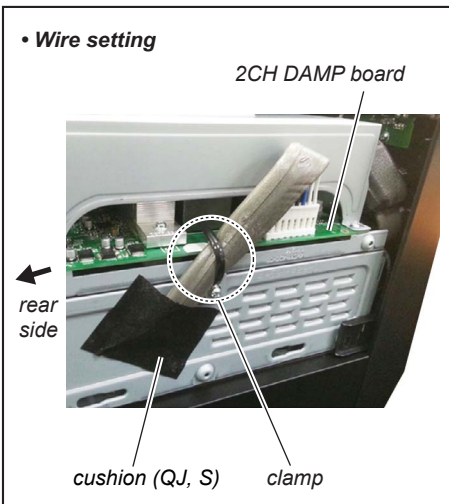
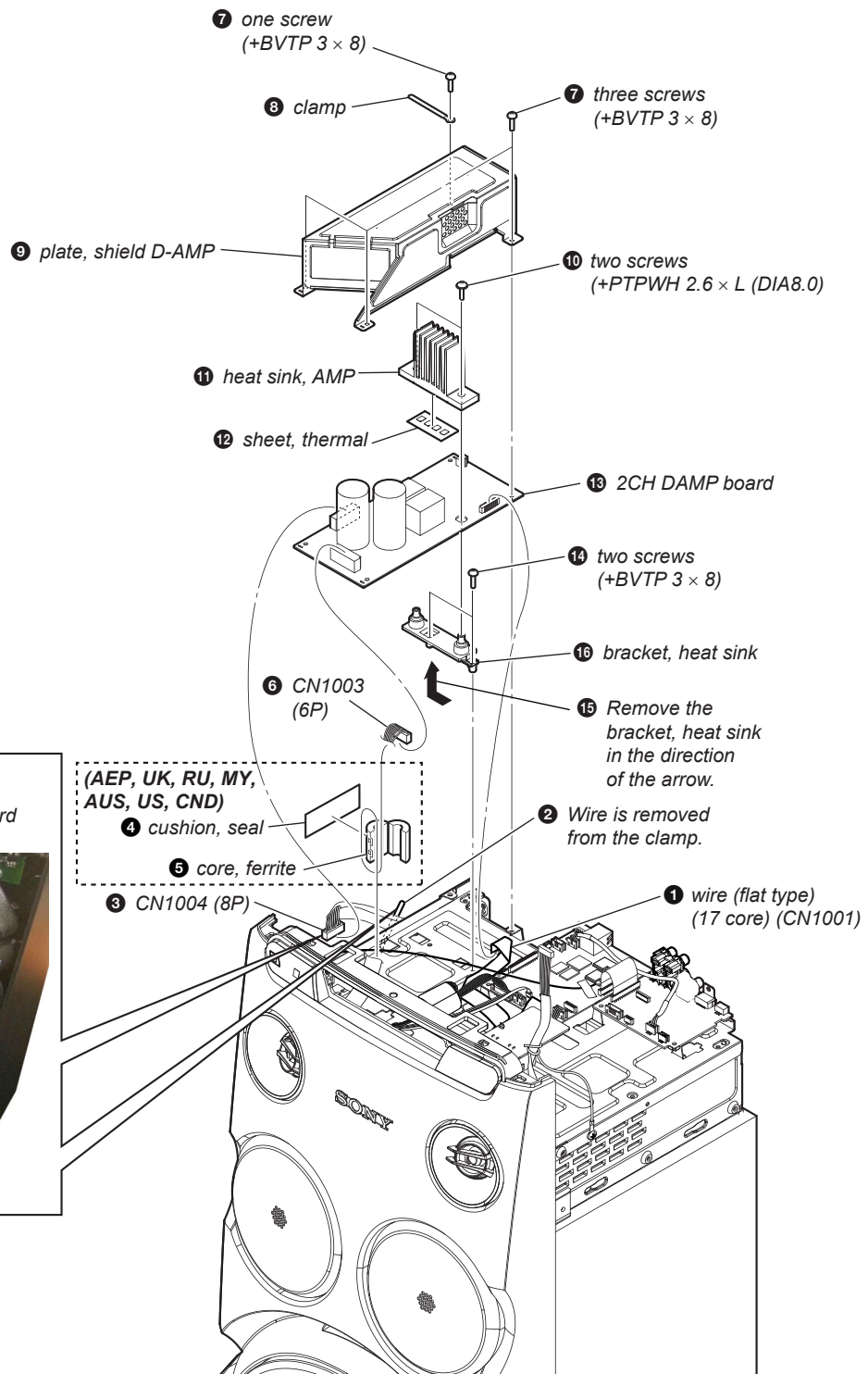
Note 2: When installing the wire (flat type), ensure that the colored line is not slanted after insertion.

OK	NG
Insert is straight to the interior.	Insert is incline

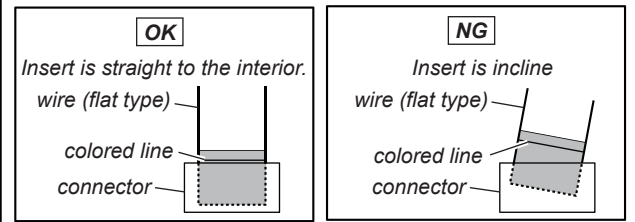
Note 3: When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.

OK	NG	NG
Insert is straight to the interior.	Insert is shallow	Insert is incline

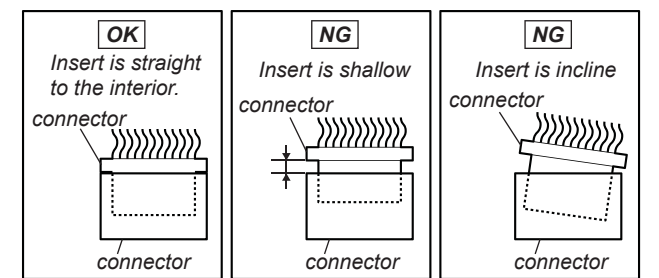
2-11. 2CH DAMP BOARD



Note 1: When installing the wire (flat type), ensure that the colored line is not slanted after insertion.

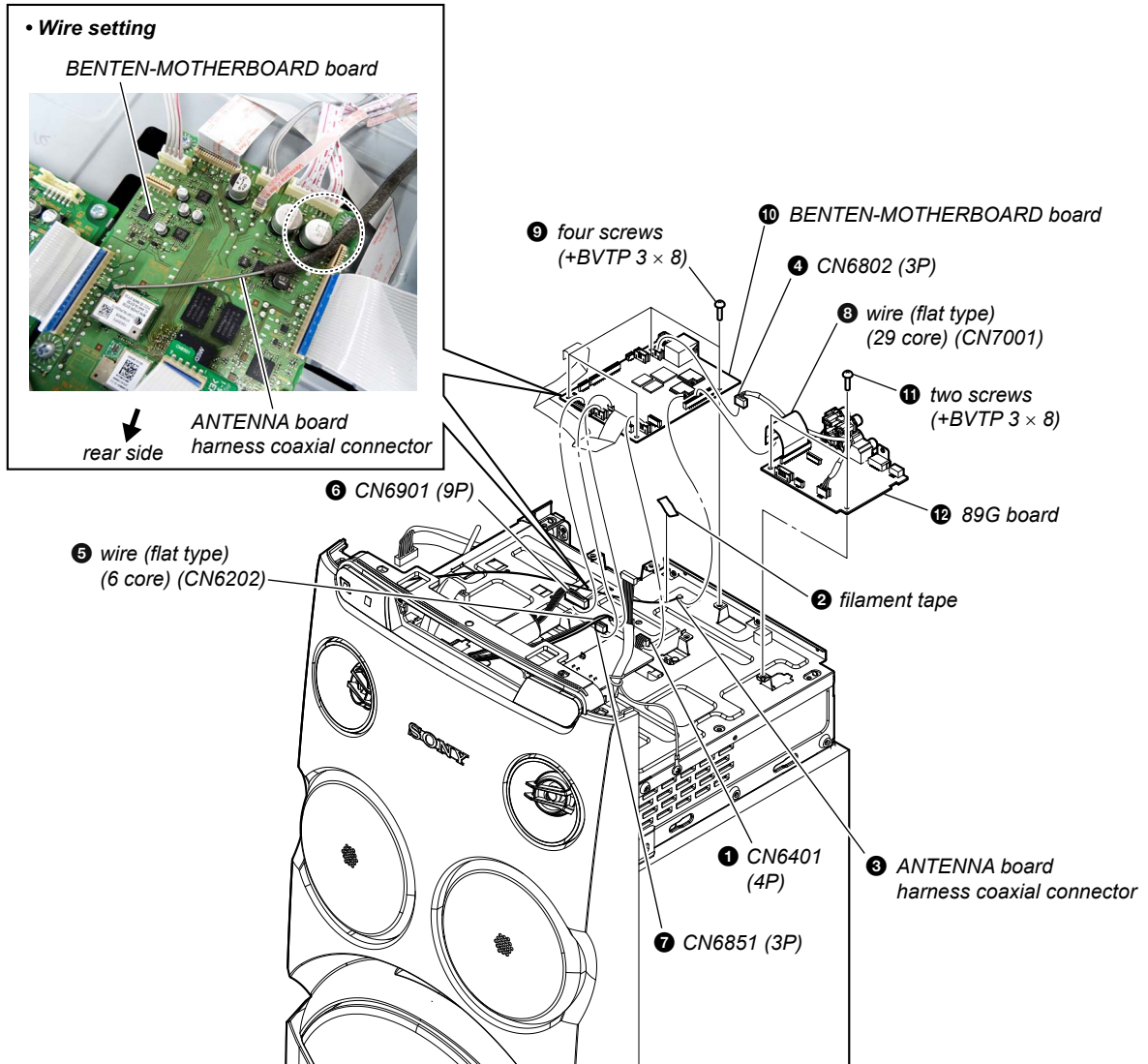


Note 2: When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.

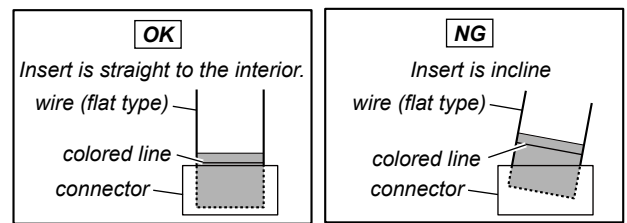


2-12. BENTEN-MOTHERBOARD BOARD, 89G BOARD

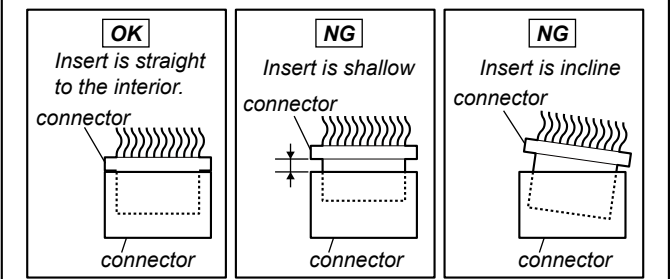
Note 1: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.



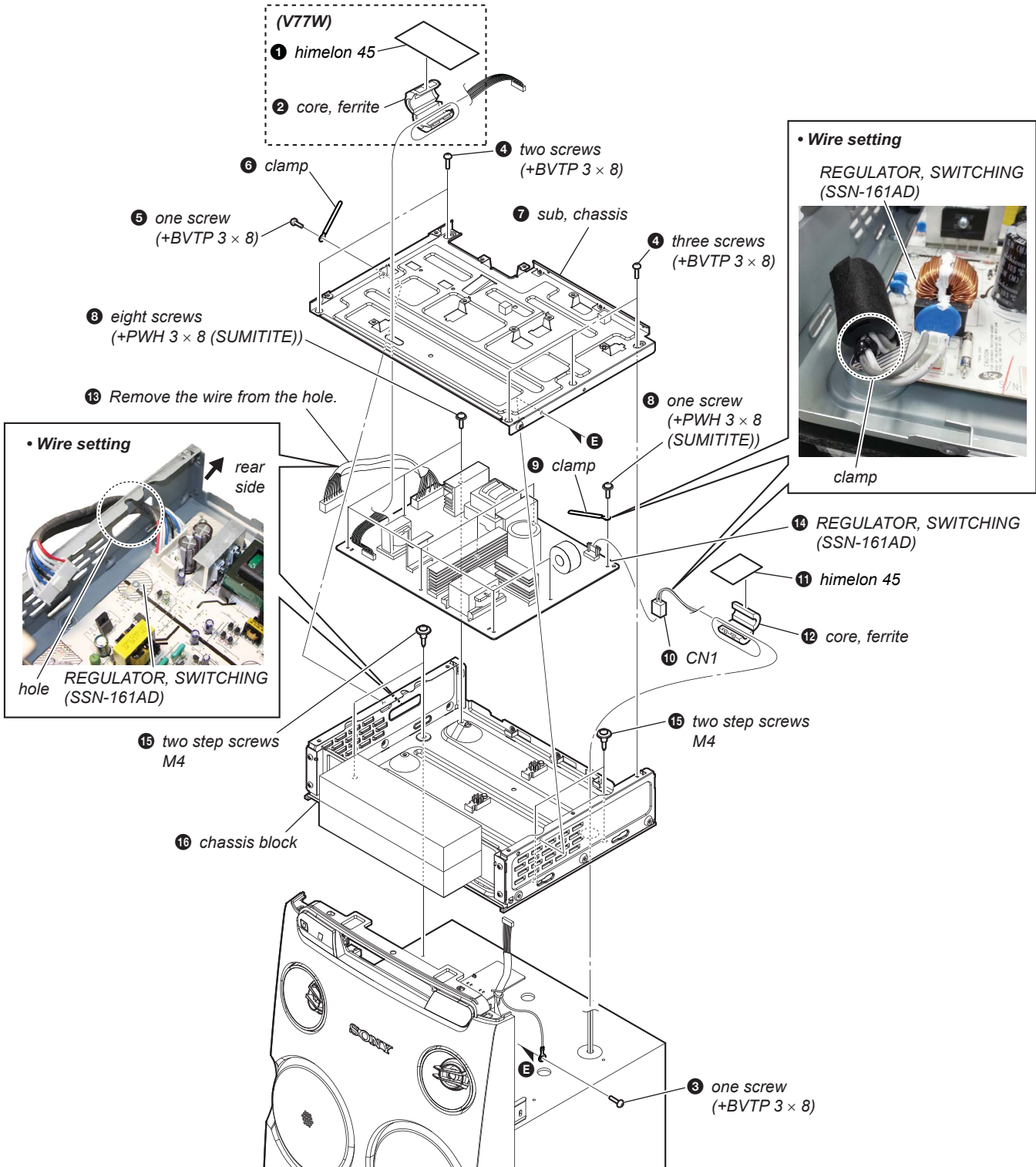
Note 2: When installing the wire (flat type), ensure that the colored line is not slanted after insertion.



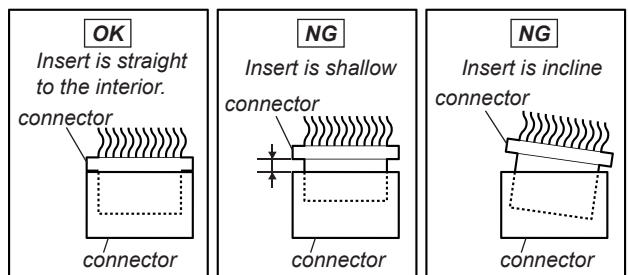
Note 3: When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.



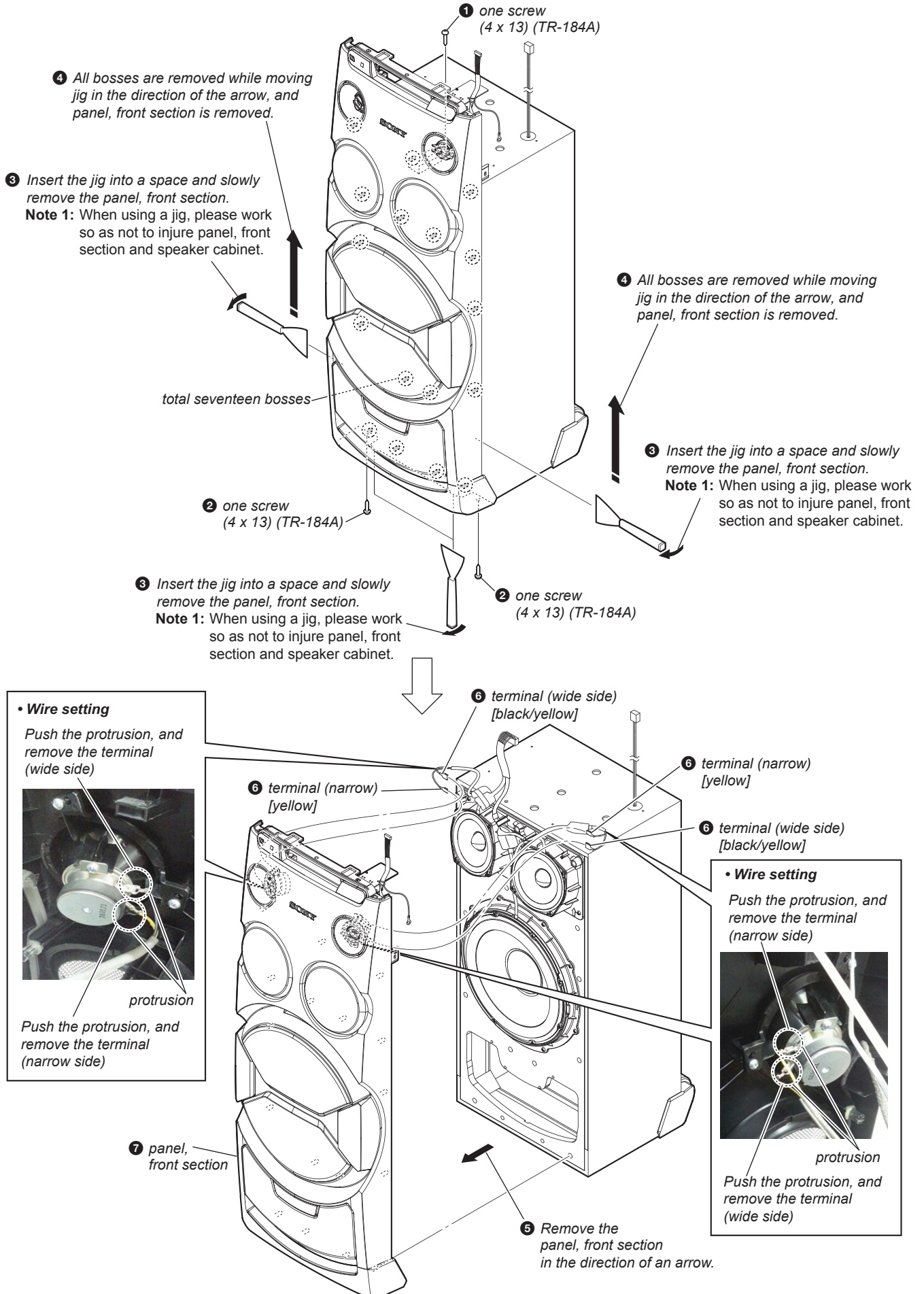
2-13. REGULATOR, SWITCHING (SSN-161AD)



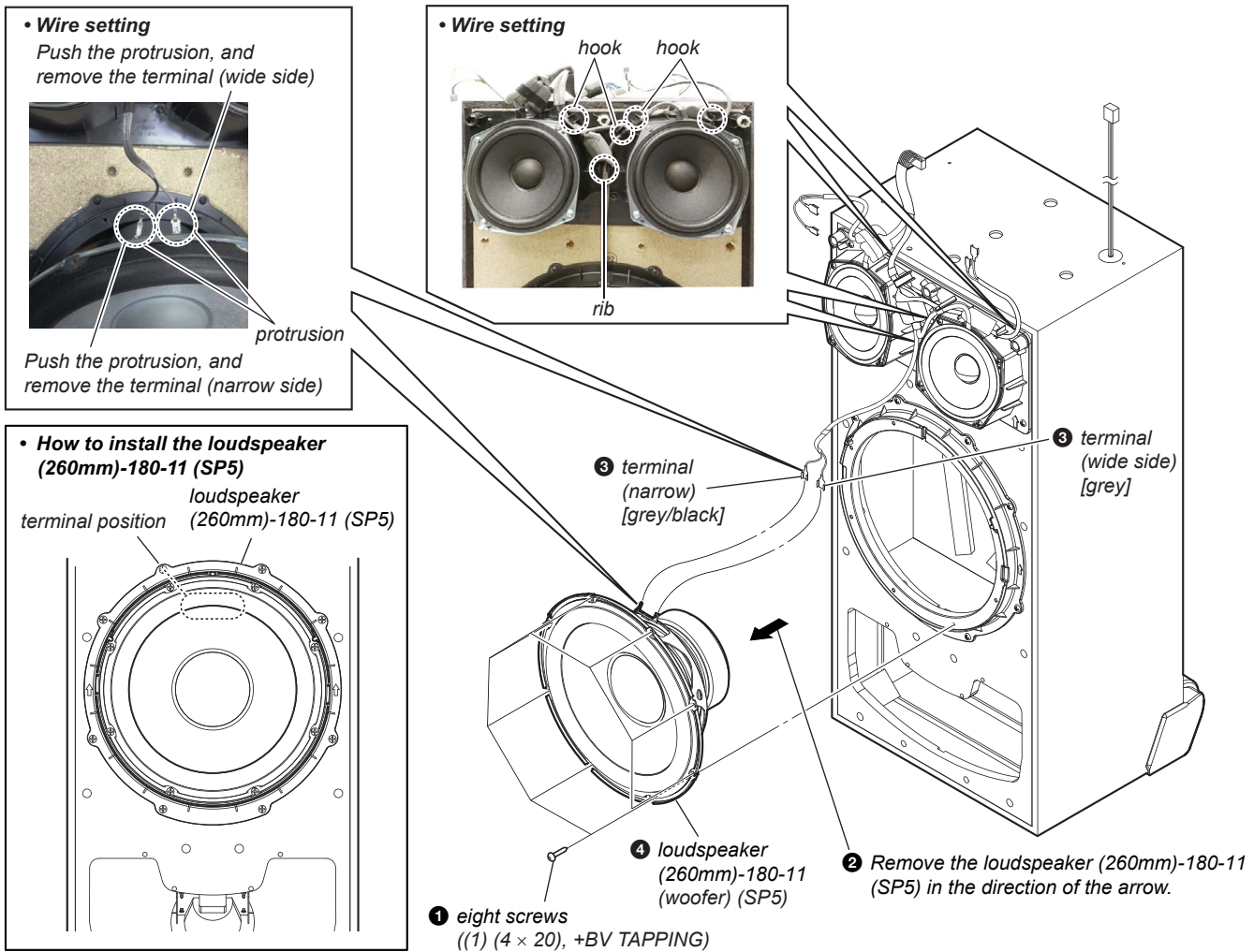
Note : When you install the connector, please install them correctly. There is a possibility that this machine damages when not correctly installing it.



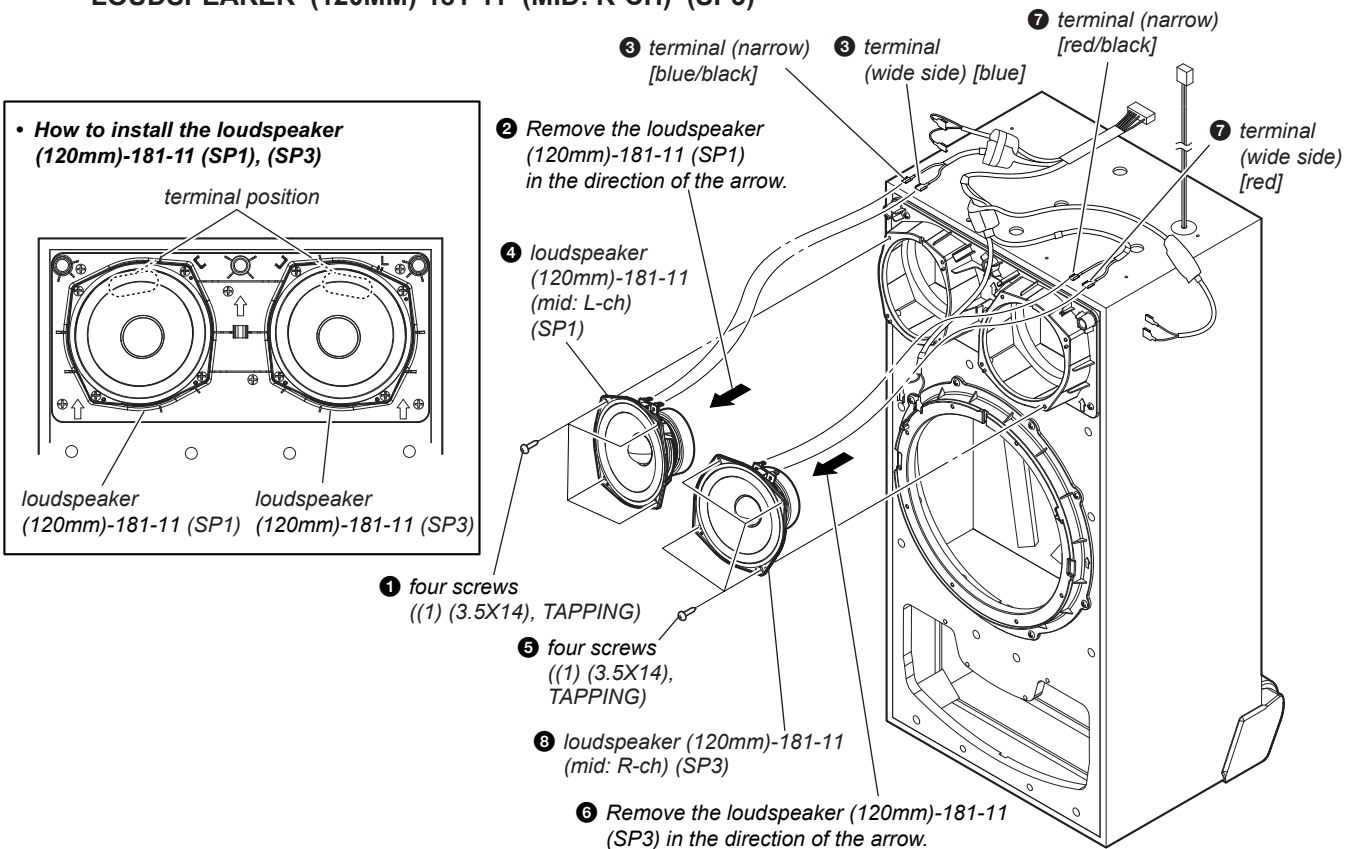
2-14. FRONT PANEL SECTION



2-15. LOUDSPEAKER (260MM)-180-11 (WOOFER) (SP5)



2-16. LOUDSPEAKER (120MM)-181-11 (MID: L-CH) (SP1), LOUDSPEAKER (120MM)-181-11 (MID: R-CH) (SP3)



SECTION 3 TEST MODE

[PANEL TEST MODE]

This mode is used to check the screen display panel, LEDs, keys, GESTURE CONTROL sensor, model, destination, motion gesture and software version.

Procedure:

1. Touch [■] and [TUNING – ◀◀] touch keys simultaneously and hold 3 seconds.
2. All LEDs and segments in screen display panel are lighted up.
3. When you want to enter to the software version display mode, touch [□+] touch key.
The model information appears on the screen display panel.
Touch [□+] touch key again to view the destination information.
4. During the destination information display, touch [□+] touch key. Each time [□+] touch key is touched, the screen display panel shows the version of each category software in the following sequence: SYSTEM, MTK and return back to model information display.
5. Touch [□–] touch key, the key check mode is activated.
6. In the key check mode, the screen display panel displays “K 0”.
Each time a button/touch key is touched, “K” value increases. However, once a button/touch key has been touched, it is no longer taken into account.
The screen display panel displays “<” or “>” or “^” or “v” on the right side of “K31 OK” each time swing left, right, up and down at GESTURE CONTROL.
7. To release from this mode, touch the touch keys in the same manner as step 1, or disconnect the power cord.

[COLD RESET]

The cold reset clears all data including preset data stored in the data flash to initial conditions. Execute this mode when returning the set to the customer.

Procedure:

1. Press the [⏻] button to turn the power on.
2. Touch [■] and [TUNING + ▶▶] touch keys simultaneously for 3 seconds.
3. “COLD RST” appears on the screen display panel. After that, the screen display panel will display “WELCOME”. The set will automatically return to SONY DEMO condition.

[DISC THEFT PREVENTION]

This mode let you lock the disc tray. When this mode is activated, the disc tray will not open when [▲] touch key is touched. The message “LOCKED” will be displayed on the screen display panel. This mode only applied when there is disc on the tray.

Procedure:

1. Press the [⏻] button to turn the power on.
2. Touch the [FUNCTION] touch key to select the DVD/CD function.
3. Touch the [▲] touch key to open the disc tray and insert the CD.
4. Touch the [▲] touch key to close the disc tray.
5. Touch [■] and [MIC LEVEL +] touch keys simultaneously for 5 seconds.
6. The message “LOCKED” is displayed on the screen display panel and the disc tray is locked.
(Even if pressing the [▲] touch key, the message “LOCKED” is displayed on the screen display panel and the disc tray is locked)

Releasing method:

1. Touch [■] and [MIC LEVEL +] touch keys simultaneously for 5 seconds.
2. The message “UNLOCKED” is displayed on the screen display panel and the disc tray is unlocked.

[DEMO MODE]

The demo mode can be performed.
(This mode is used by shop front)

Procedure:

1. Press the [⏻] button to turn the system.
2. Touch [■] and [SOUND FIELD] touch keys simultaneously for 5 seconds.
3. The message “AutoPLAY” is displayed on the screen display panel.
4. Touch [TUNING + ▶▶] or [TUNING – ◀◀] to select either AutoPLAY or AutoSTOP in Demo mode, then touch [▶] to make selection.
5. Touch [TUNING + ▶▶] or [TUNING – ◀◀] to select reset timer setting, then touch [▶] to make selection.
6. Set will power off and power on, after that it will mode into Demo mode.
7. The message “* DEMO *” is displayed on the screen display panel.

• To release from Demo Mode

1. Touch [■] and [SOUND FIELD] touch keys simultaneously for 5 seconds.

Note: The demo mode does not release by unplug the AC cord.

[BROWSER MODE]

Prepare PC or Mobile Phone that is able to connect WiFi. Turn off proxy server setting.

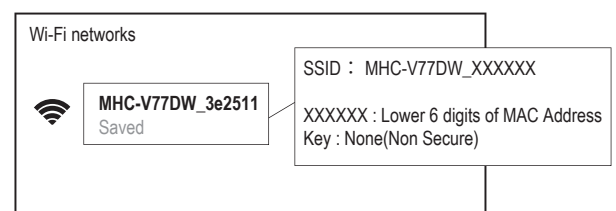
• Procedure on the set

1. Perform COLD RESET.
2. Press [⏻] button to turn on the system.
3. Touch [▶] and [SOUND FIELD] touch keys simultaneously for 5 seconds to enter Browser Mode.
4. The message “BROWSER” is displayed on the screen display panel.

• Procedure on the PC/Mobile Phone

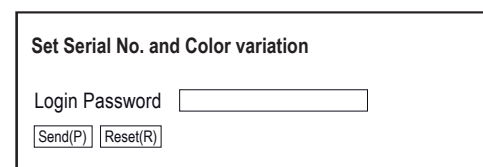
In order to connect the set to WIFI, the following standard procedure must be followed.

1. Connect the set by soft AP and select the following:



(Display image is example of procedure on the Mobile Phone)

2. Access to [http://192.168.211.161/cgi-bin/index_fact.cgi] on the browser of PC or Mobile Phone and below image will appear.



3. Insert password (svctm) and click [Send(P)]. The following image will appear.
(Displayed values in the following figure are example)

Serial No.	8388828
Color Variation	00
Wifi Channel Index	06
Wifi Power Table	1
Destination	30
Wired LAN MAC Address	104fa8471c95
Wireless LAN MAC Address	8c579b15f48f
BD Address	8c579b15f490
<input type="button" value="Write and Copy(C)"/>	

4. Insert the value for Serial No. (7 digits), Color Variation, Wifi Channel Index, Wifi Power Table, Destination and Wired LAN MAC Address respectively by referring below data.

Serial No. (7 digits)	Input 7 digits directly
Color Variation	Input 2 digits directly
Wifi Channel Index	Input 2 digits directly
Wifi Power Table	Input 1 digit directly
Destination	Input 2 digits directly
Wired LAN MAC Address	Input 12 digits directly

Color	Number
Black	0

Destination	Destination Index	Wi-Fi Channel Index	Wi-Fi Power Table
AR	25	3	3
LA9	26	5	3
UK	27	0	4
AEP	28	0	4
RU	29	6	4
E4	30	6	4
EA	31	6	4
E12	32	0	4
TH	33	0	4
AUS	34	0	4
MY	10	0	4
US, CND	18	4	3

• Abbreviation

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

5. Click [Write and Copy(C)] to rewrite the values and refresh the screen.

6. If you enter non-specified number of digits and click the button, then an ERR message is displayed.
(Displayed values in the following figure are example)

ERR : Serial no	
Serial No.	8388828
Color Variation	00
Wifi Channel Index	06
Wifi Power Table	1
Destination	30
Wired LAN MAC Address	104fa8471c95
Wireless LAN MAC Address	8c579b15f48f
BD Address	8c579b15f490
<input type="button" value="Write and Copy(C)"/>	

7. To save the value, press [⏏] button.

[DVD COLOR SYSTEM MODE] (Except for Latin American, European, Russian, US, and Canadian models)

- This mode let you change the color system of the video output from PAL to NTSC or vice-versa.

Procedure:

1. Press the [⏏] button to turn on the system.
2. Touch the [FUNCTION] touch key until message “DVD/CD” appears.
3. Touch the [DJ] and [TUNING + ►►] touch keys simultaneously and hold for 3 seconds.
4. The message “PAL” or “NTSC” appears on the screen display panel.

• **To release from DVD Color System Mode**

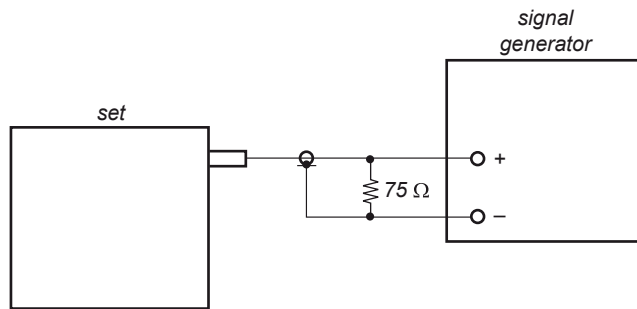
1. Once the color system has been selected, the mode is fixed there after. If you wish to change the mode again, perform step 3 again.

SECTION 4 ELECTRICAL CHECK

TUNER SECTION

0 dB = 1 μ V

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".

CD/DVD SECTION

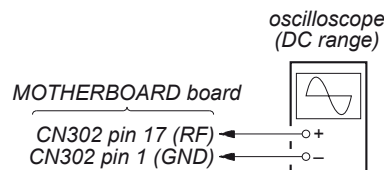
[TEST DISC LIST]

Use the following test disc on test mode.

- CD: YEDS-18 (PART No. 3-702-101-01)
 or
 PATD-012 (PART No. 4-225-203-01)
 HLX-A1 (PART No. J-2501-307-A)
- DVD (SL)
 NTSC HLX-503 (PART No. J-6090-069-A)
 or
 HLX-504 (PART No. J-6090-088-A)
 HLX-513 (PART No. J-2501-305-A)
 PAL HLX-506 (PART No. J-6090-077-A)
- DVD (DL)
 NTSC HLX-501 (PART No. J-6090-071-A)
 or
 HLX-505 (PART No. J-6090-089-A)
 HLX-514 (PART No. J-2501-306-A)
 PAL HLX-507 (PART No. J-6090-078-A)

Note: When the BASE UNIT is replaced, perform the Execute IOP measurement (Refer to page 23).

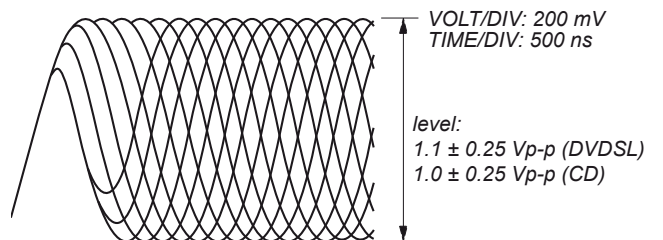
FOCUS BIAS CHECK



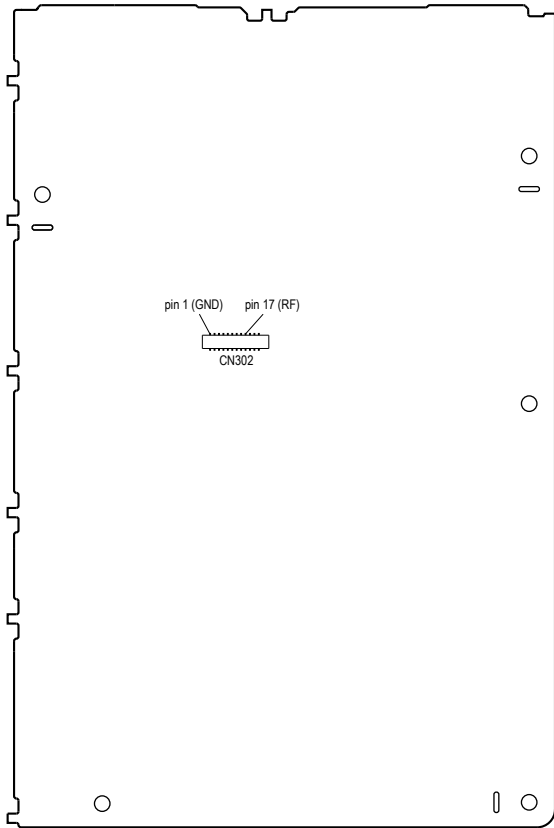
Procedure:

1. Connect the oscilloscope to CN302 pin 17 (RF) and CN302 pin 1 (GND) on the MOTHERBOARD board.
2. Press the [I/⏻] button to turn the power on, and press the [FUNCTION] button to select DVD/CD 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.

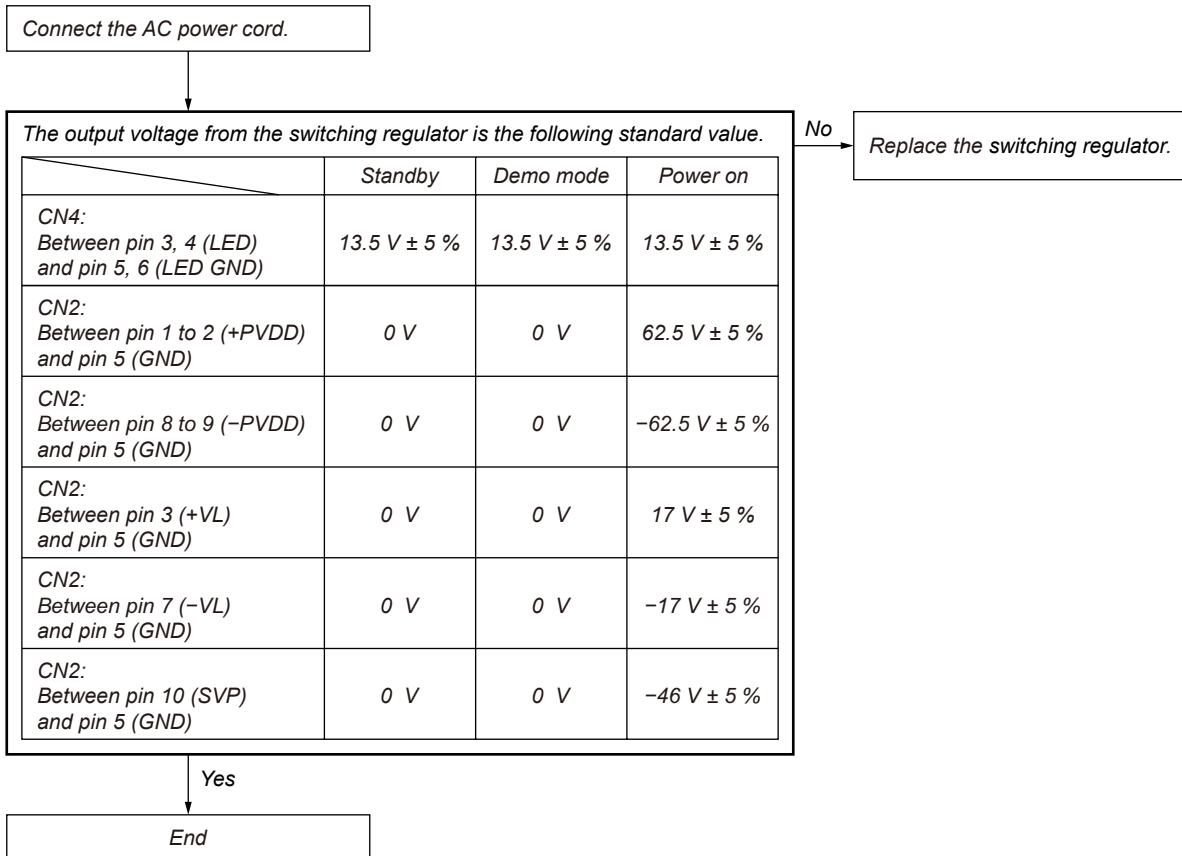


Checking Location:
-MOTHERBOARD Board (COMPONENT SIDE)-



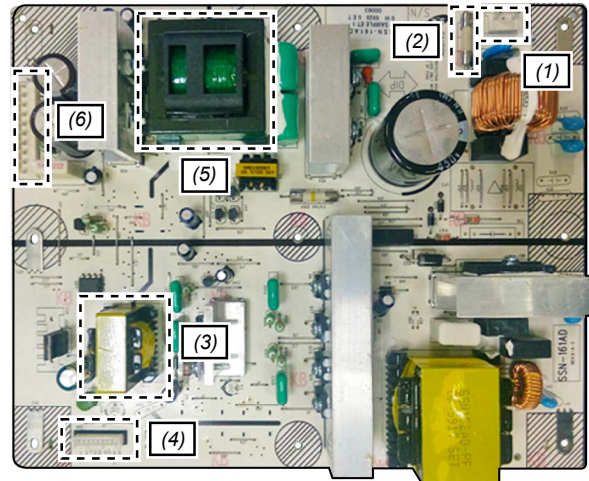
SECTION 5 TROUBLESHOOTING

Switching Regulator (SSN-161AD) Diagnosis Flow

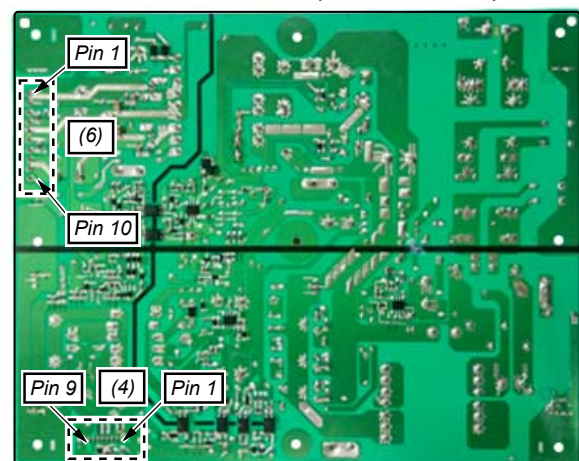


- (1) CN1 (AC power cord connector)
- (2) F1 (Fuse)
- (3) T1 (Sub power transformer)
- (4) CN4 (Main power connector)
 - Pin 1 : Audio
 - Pin 2 : Audio GND
 - Pin 3 : LED
 - Pin 4 : LED
 - Pin 5 : LED GND
 - Pin 6 : LED GND
 - Pin 7 : AC-DET
 - Pin 8 : PCON
 - Pin 9 : LOW AC
- (5) T2 (Main power transformer)
- (6) CN2 (Amplifier power connector)
 - Pin 1 : +PVDD
 - Pin 2 : +PVDD
 - Pin 3 : +VL
 - Pin 4 : GND
 - Pin 5 : GND
 - Pin 6 : GND
 - Pin 7 : -VL
 - Pin 8 : -PVDD
 - Pin 9 : -PVDD
 - Pin 10 : SPV

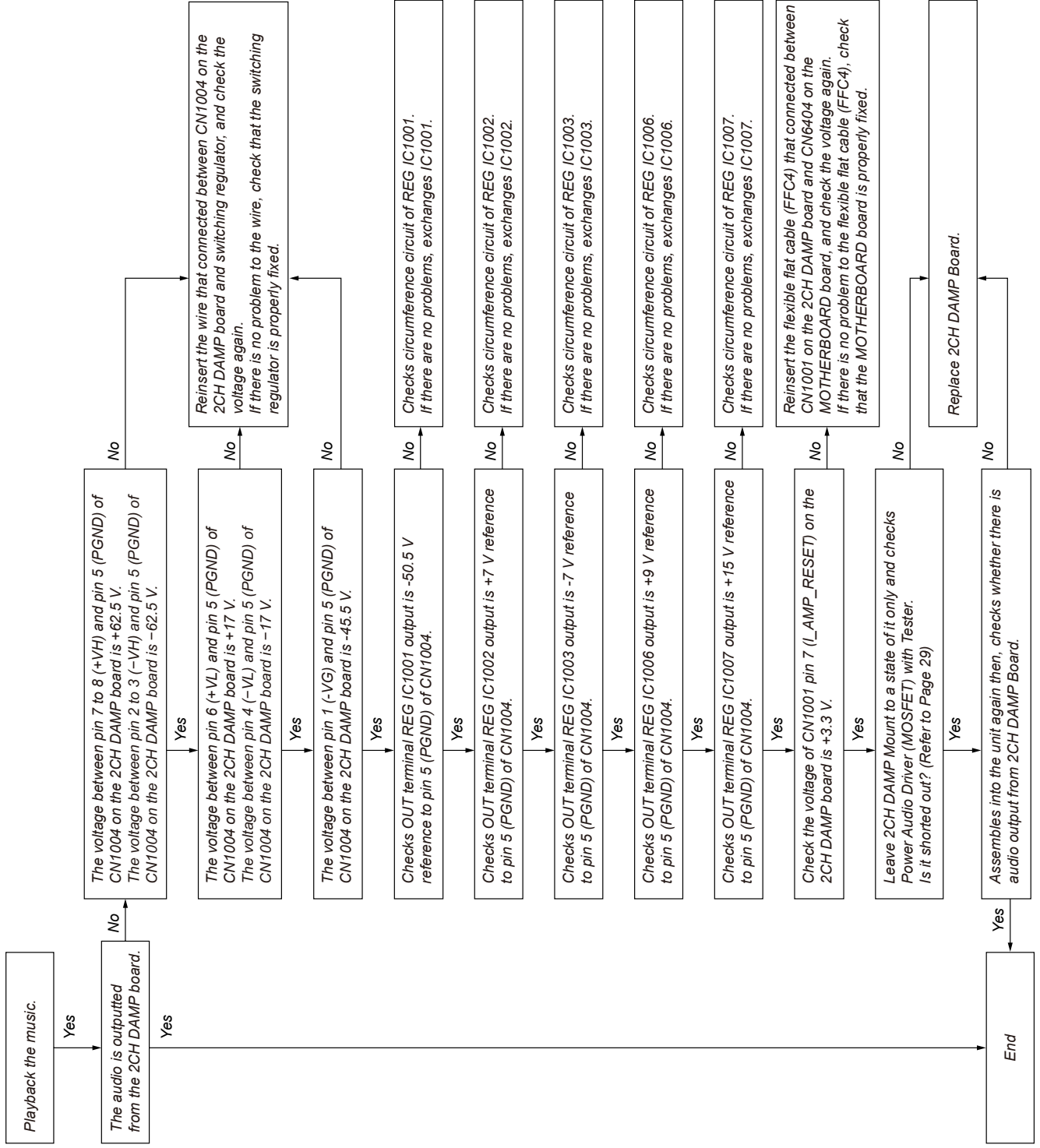
– SWITCHING REGULATOR (Component Side) –



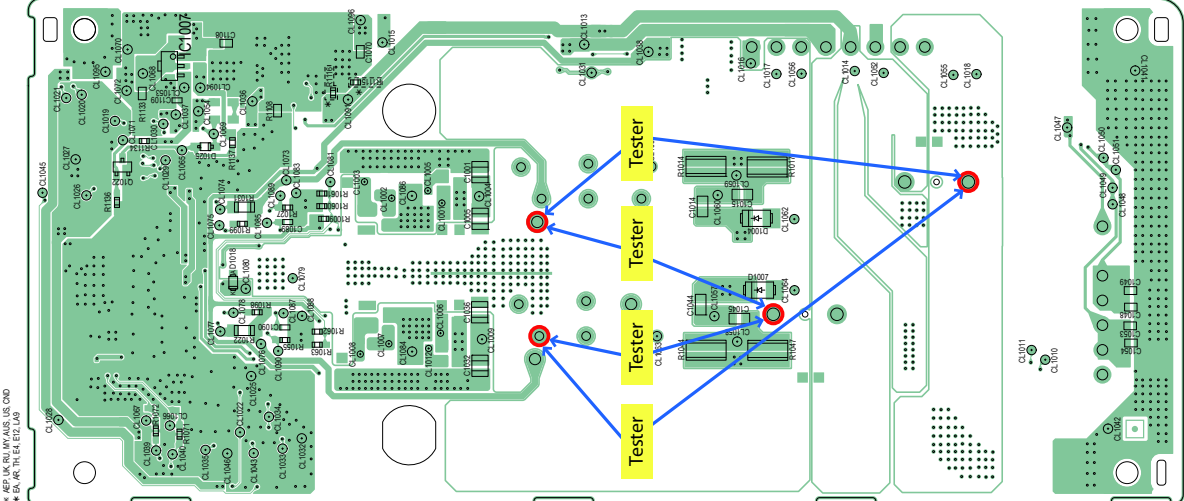
– SWITCHING REGULATOR (Conductor Side) –



2CH DAMP Board Mount Diagnosis Flow



MOSFET Confirmation for DAMP Mount

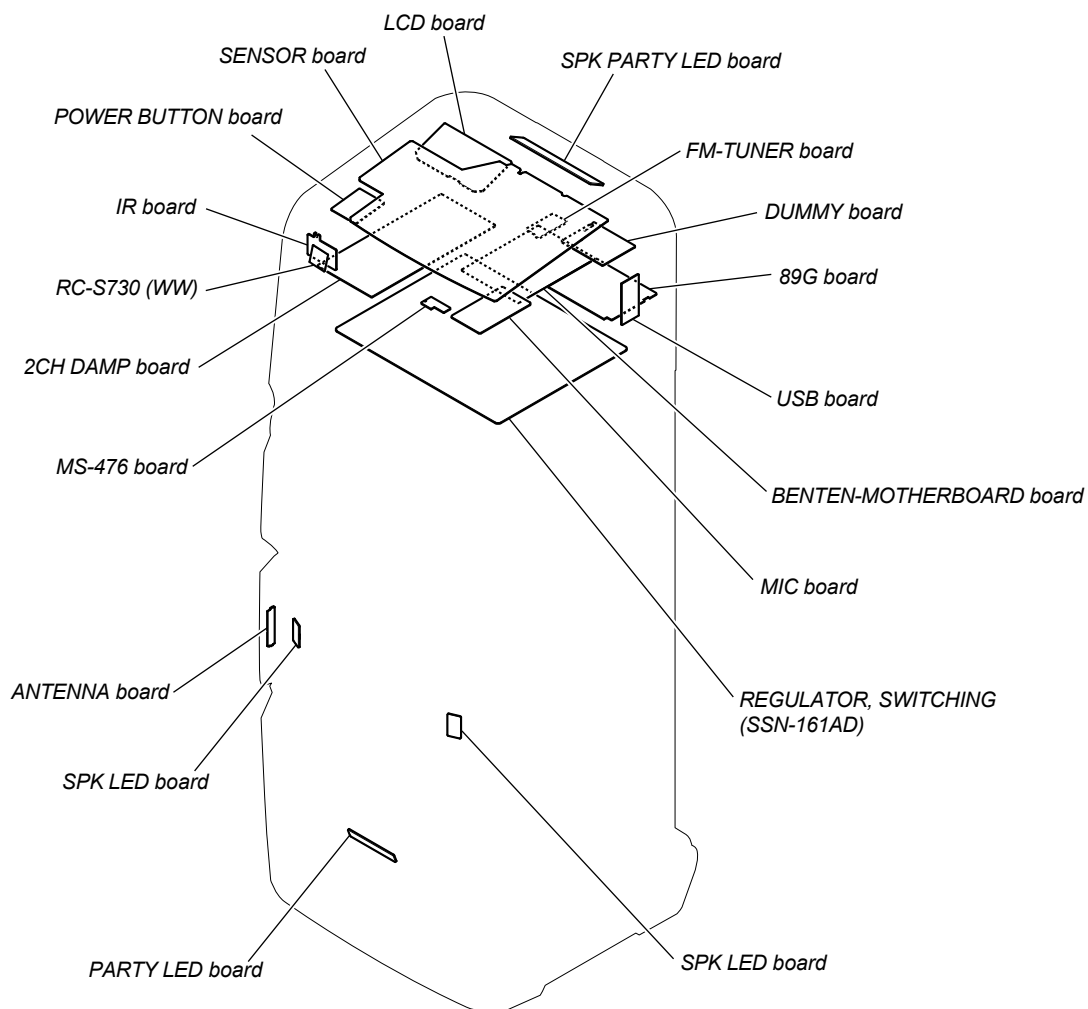


* REF IN RIUMYAU5.US.DWG
* EA IN THE E2.LAP

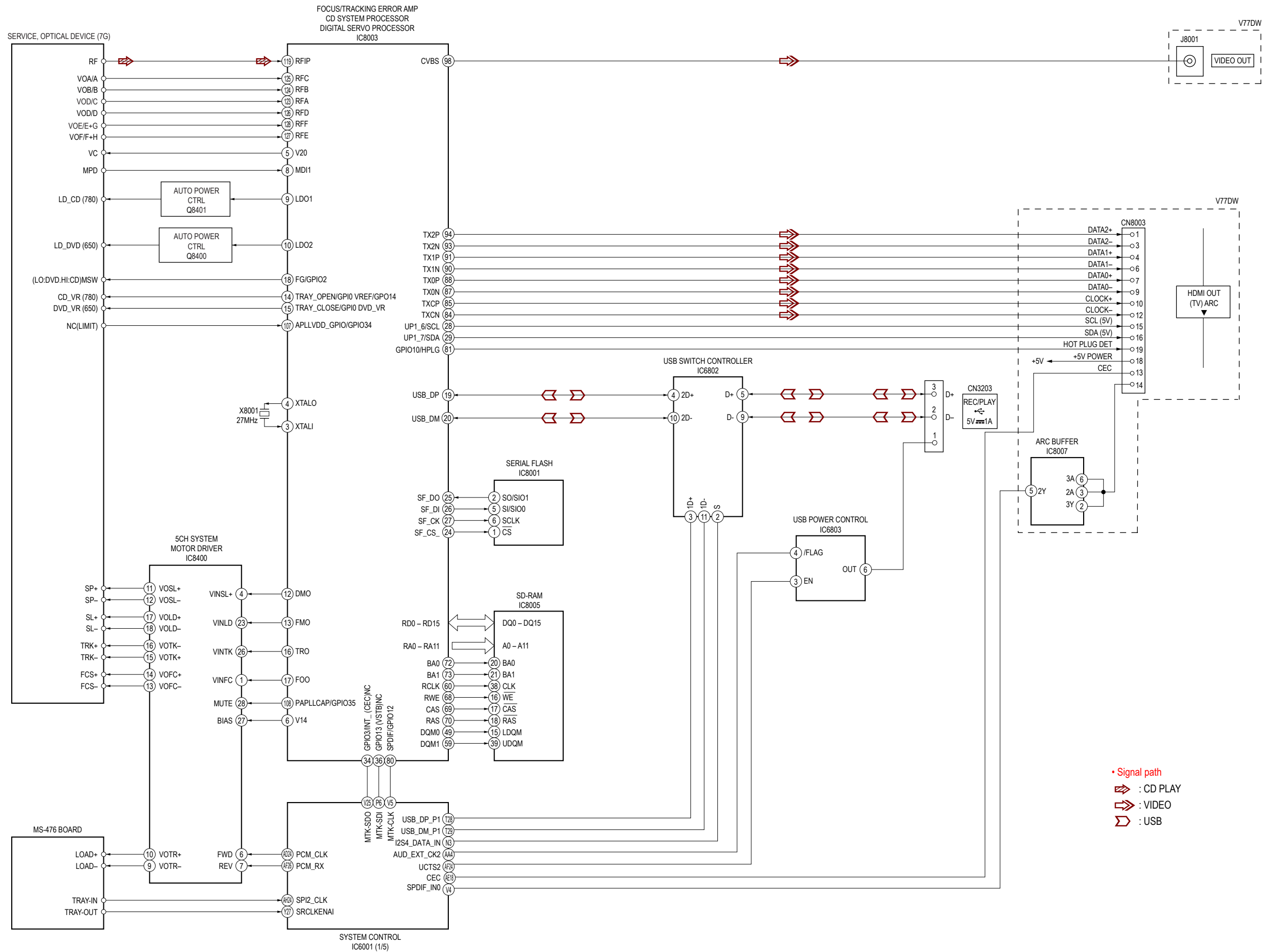
<Note>
Please check each channel's resistance value for the Coils terminal and Capacitor's + and - terminal.
These terminal is equal to resistance value for POWER AUDIO DRIVER terminal.

SECTION 6 DIAGRAMS

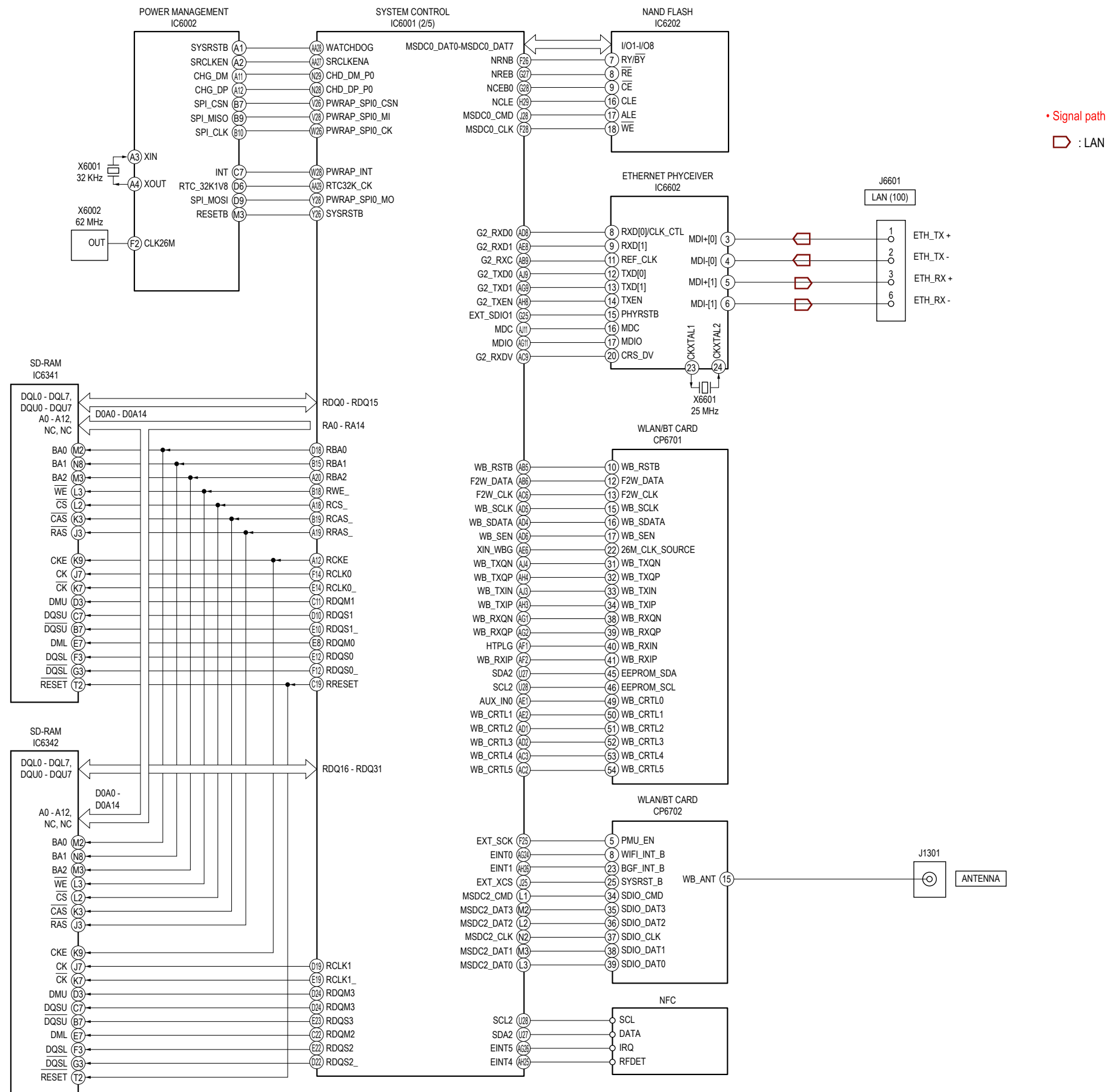
• Circuit Boards Location



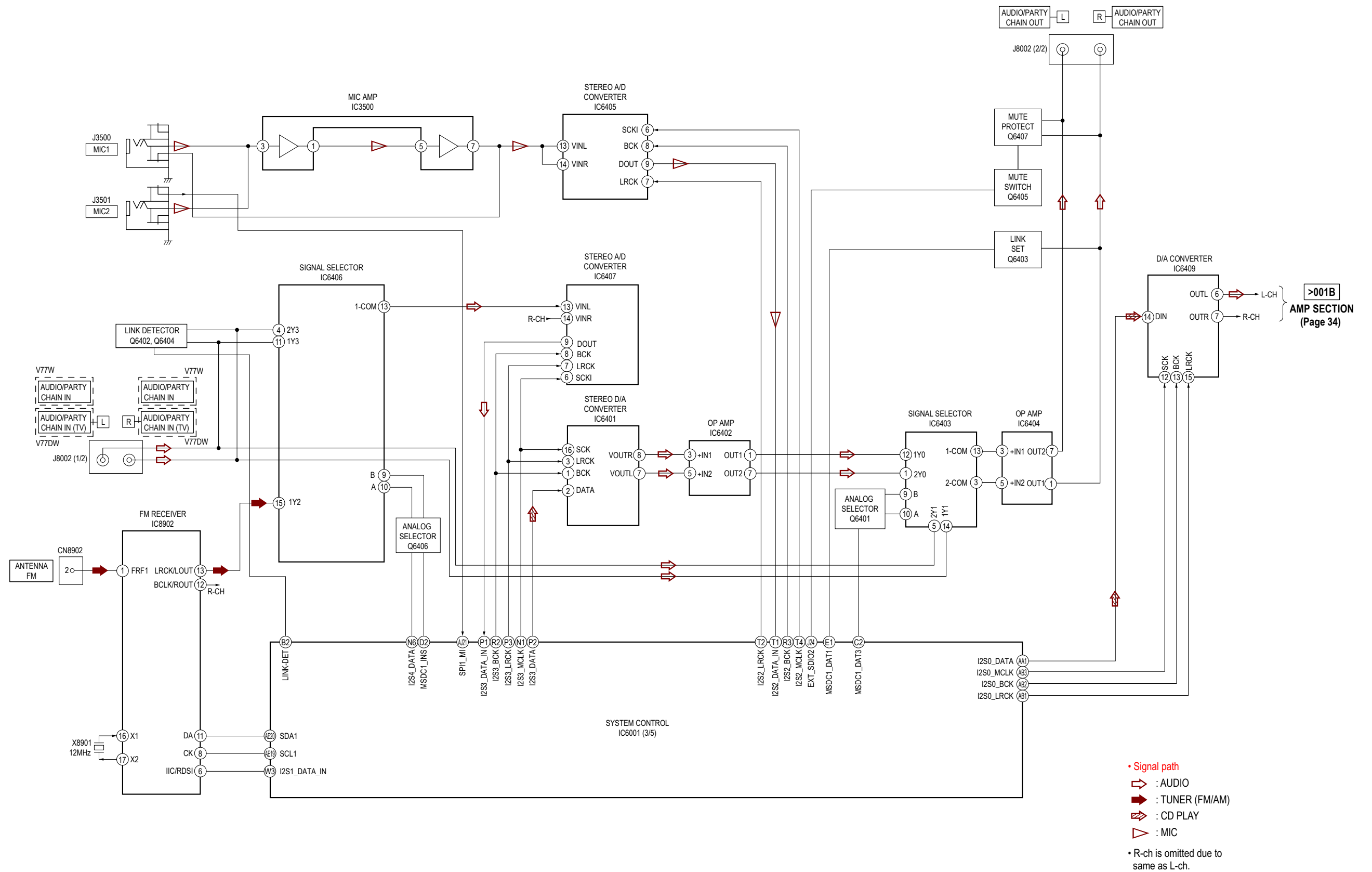
6-1. BLOCK DIAGRAM - RS SERVO, USB Section -



6-2. BLOCK DIAGRAM - MEMORY Section -

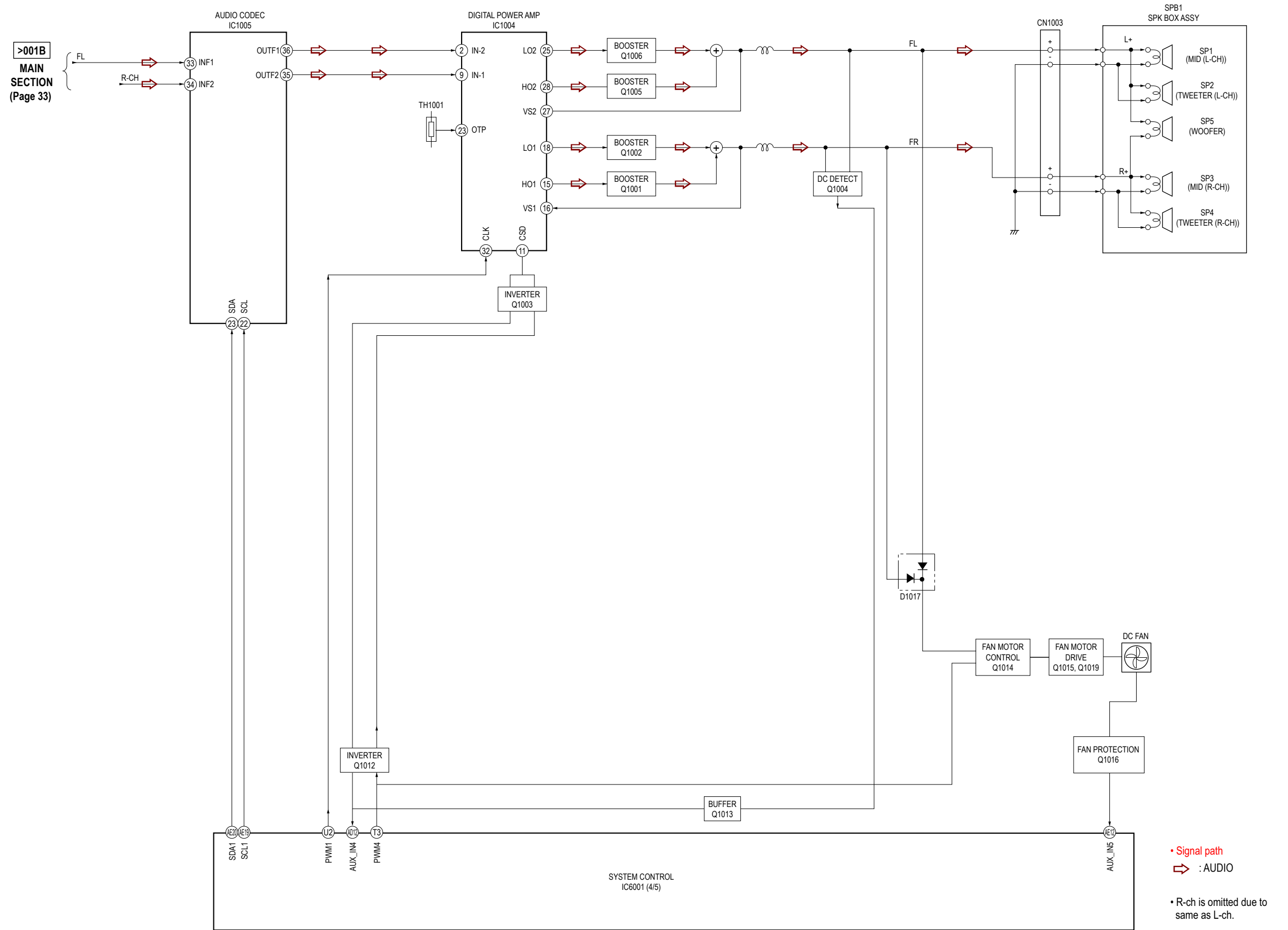


6-3. BLOCK DIAGRAM - MAIN Section -

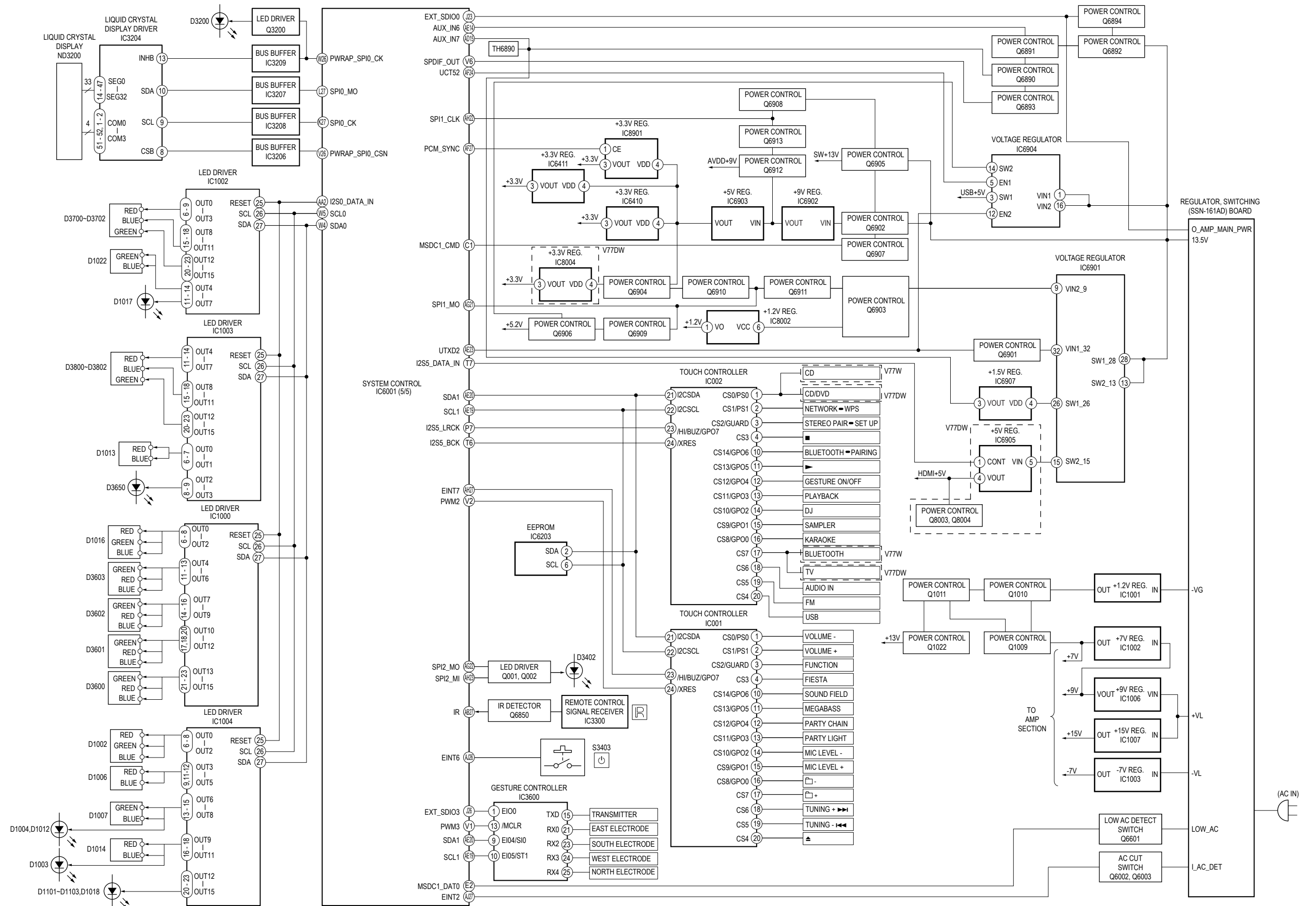


>001B
AMP SECTION
(Page 34)

6-4. BLOCK DIAGRAM - AMP Section -



6-5. BLOCK DIAGRAM - PANEL, POWER SUPPLY Section -



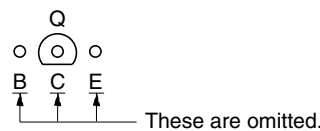
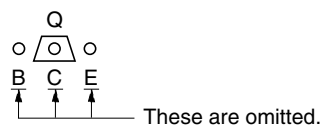
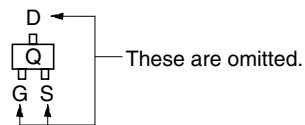
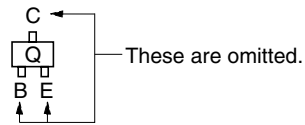
• Note for Printed Wiring Boards and Schematic Diagrams

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 the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the parts face are indicated.

• Indication of transistor



• Abbreviation

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

Note 1: When the C1093 and C1094 on the 2CH DAMP board are replaced, spread the bond referring to "BOND FIXATION OF ELECTRIC PARTS" on servicing notes (page 6).

Note 2: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.

Note 3: When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

Note on Schematic Diagram:

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

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

- : B+ Line.
- - - : B- Line.
- : Adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : TUNER
- Voltagess are taken with a VOM (Input impedance 10 M Ω). 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.
 - : AUDIO
 - : TUNER (FM/AM)
 - : VIDEO
 - : USB
 - : LAN
 - : CD PLAY
 - : MIC
- Abbreviation
 - AR : Argentina model
 - AUS : Australian model
 - CND : Canadian model
 - E4 : African model
 - E12 : 220-240 V AC area in E model
 - EA : Saudi Arabia model
 - LA9 : Latin-American model
 - MY : Malaysia model
 - RU : Russian model
 - TH : Thai model

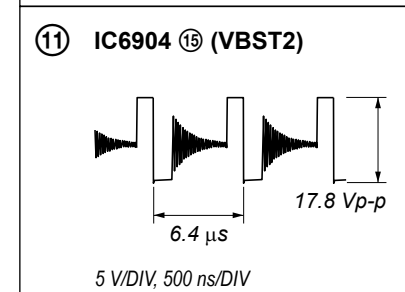
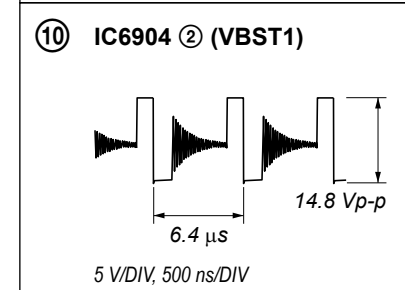
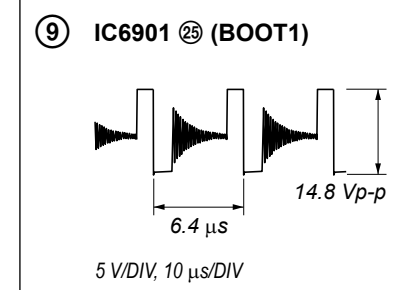
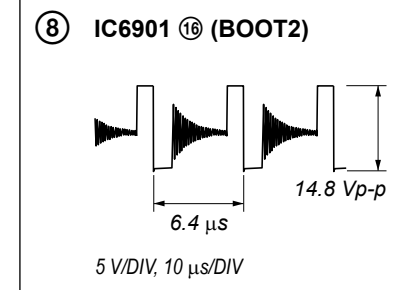
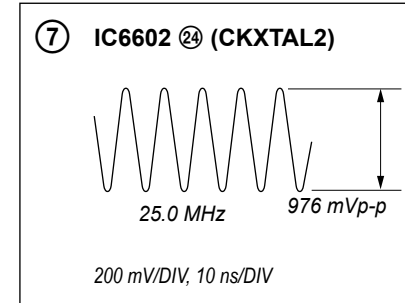
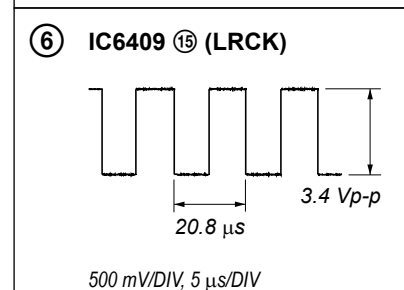
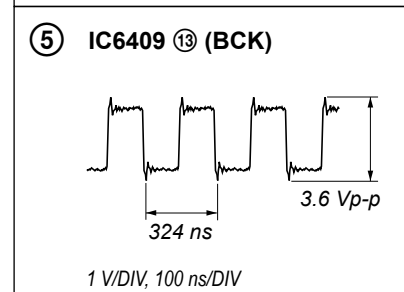
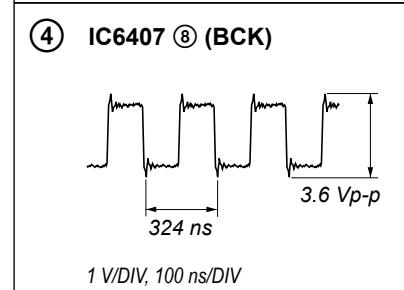
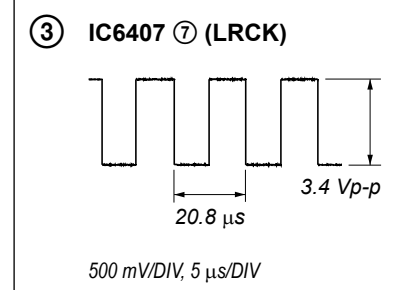
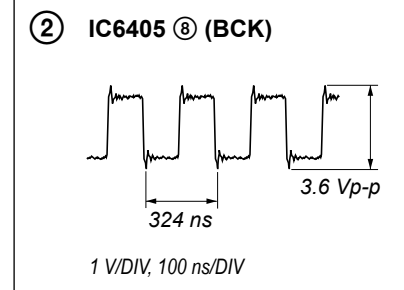
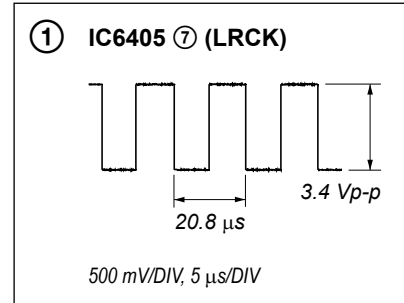
Note 1: When the C1093 and C1094 on the 2CH DAMP board are replaced, spread the bond referring to "BOND FIXATION OF ELECTRIC PARTS" on servicing notes (page 6).

Note 2: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.

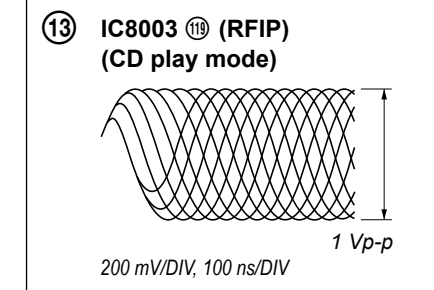
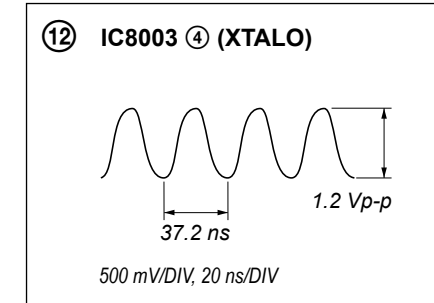
Note 3: When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

• Waveforms

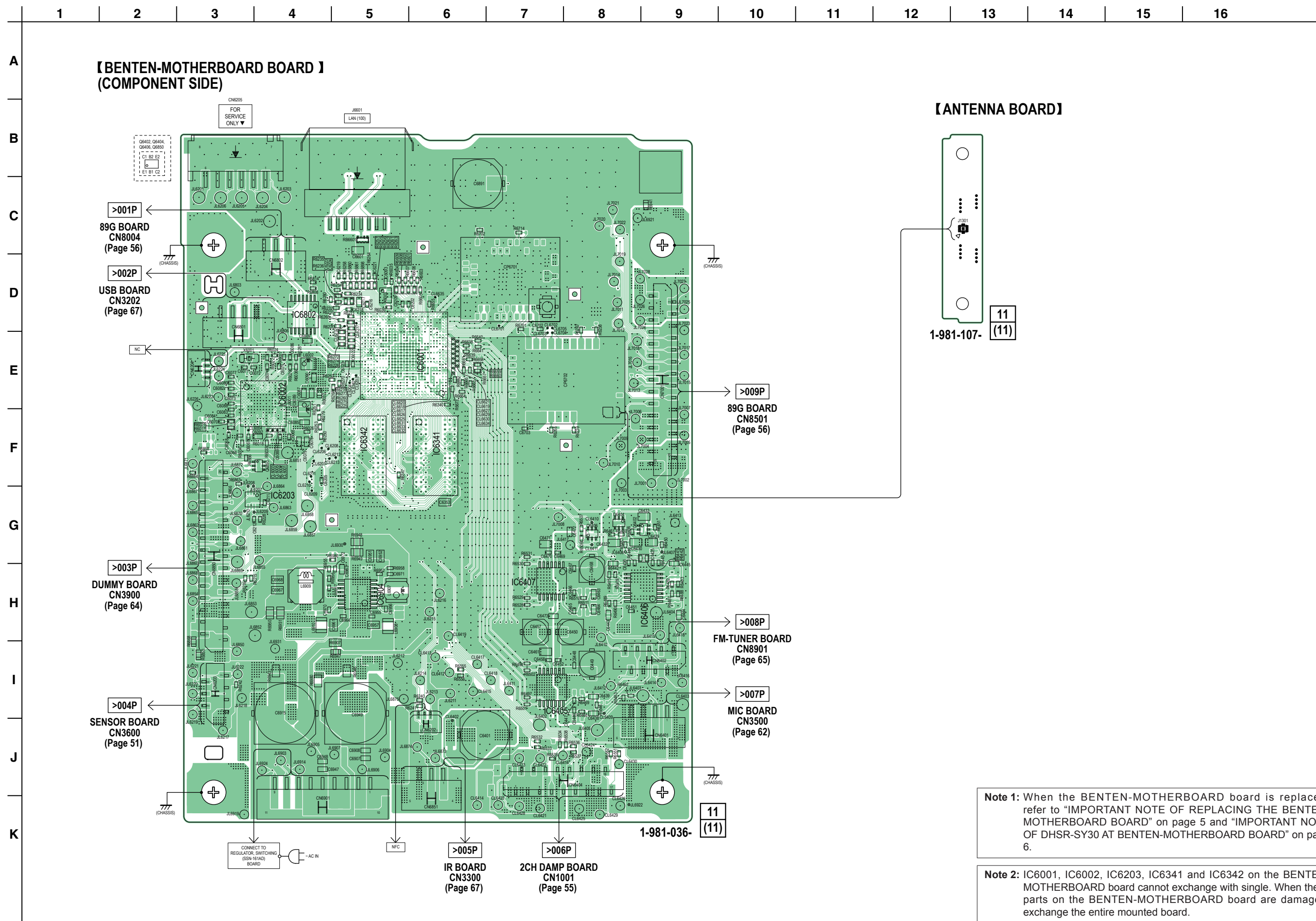
– BENTEN-MOTHERBOARD Board –



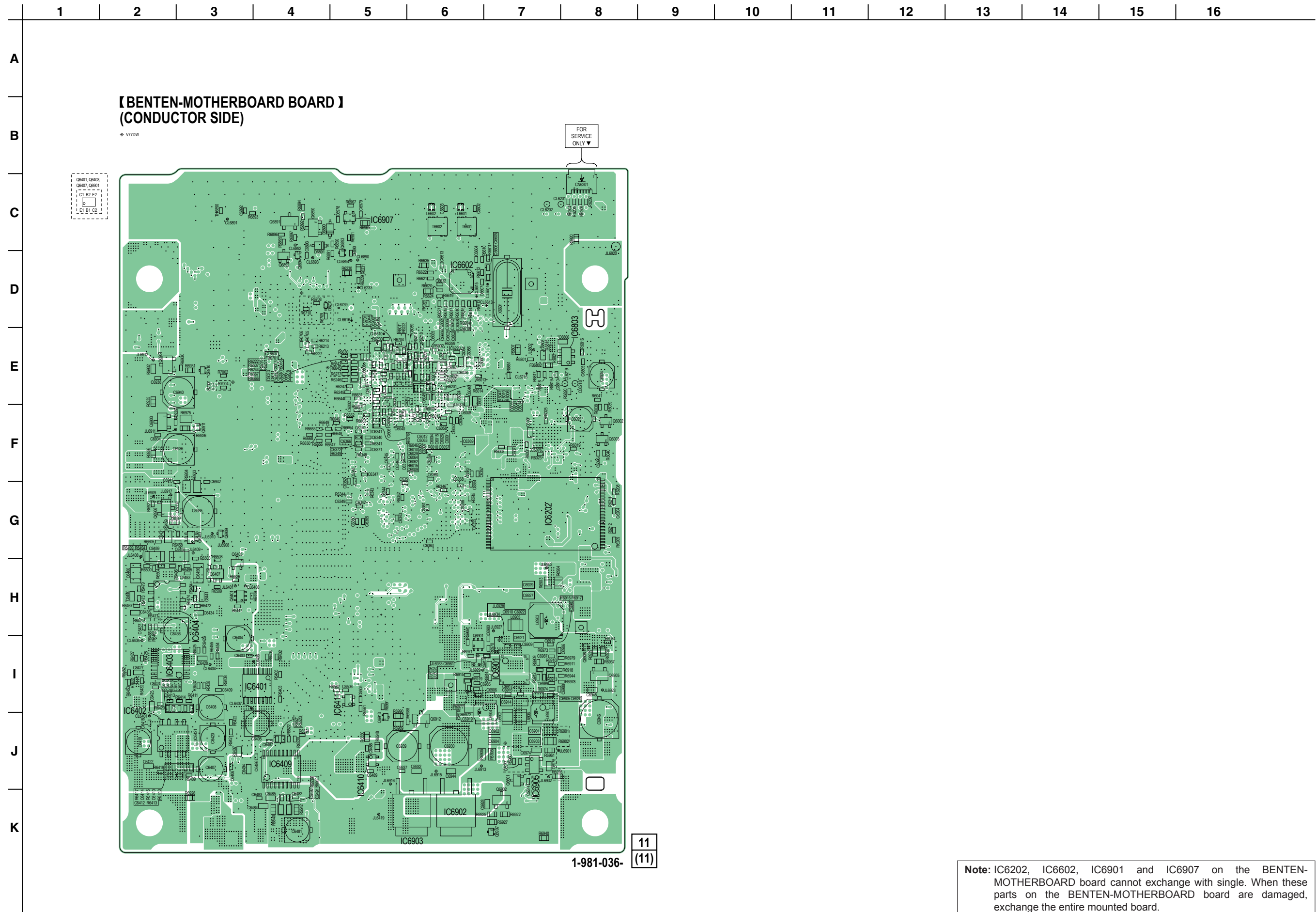
– 89G Board –



6-6. PRINTED WIRING BOARD - BENTEN-MOTHERBOARD Board (Component Side) - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



6-7. PRINTED WIRING BOARD - BENTEN-MOTHERBOARD Board (Conductor Side) - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.

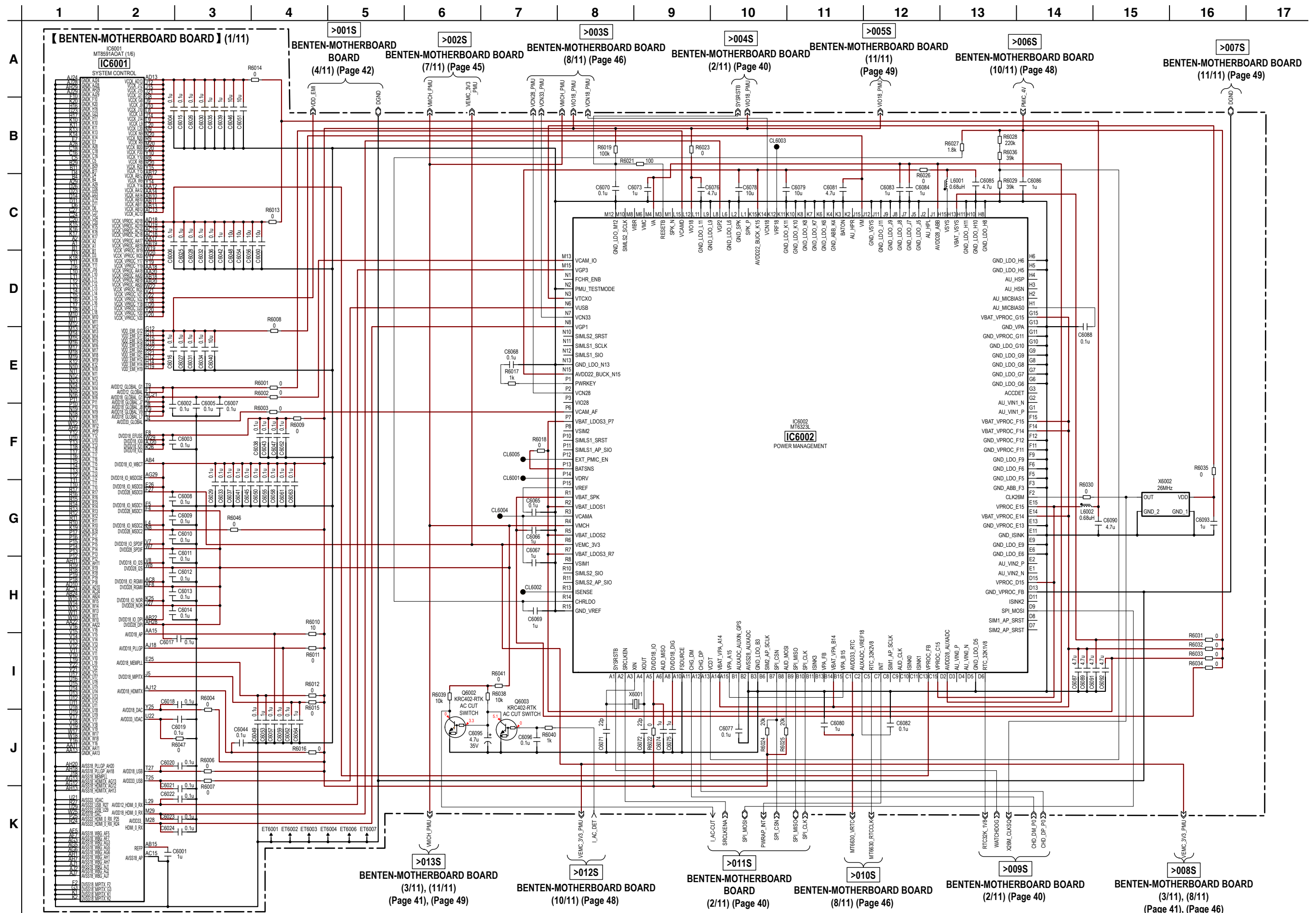


1-981-036-

11
(11)

Note: IC6202, IC6602, IC6901 and IC6907 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

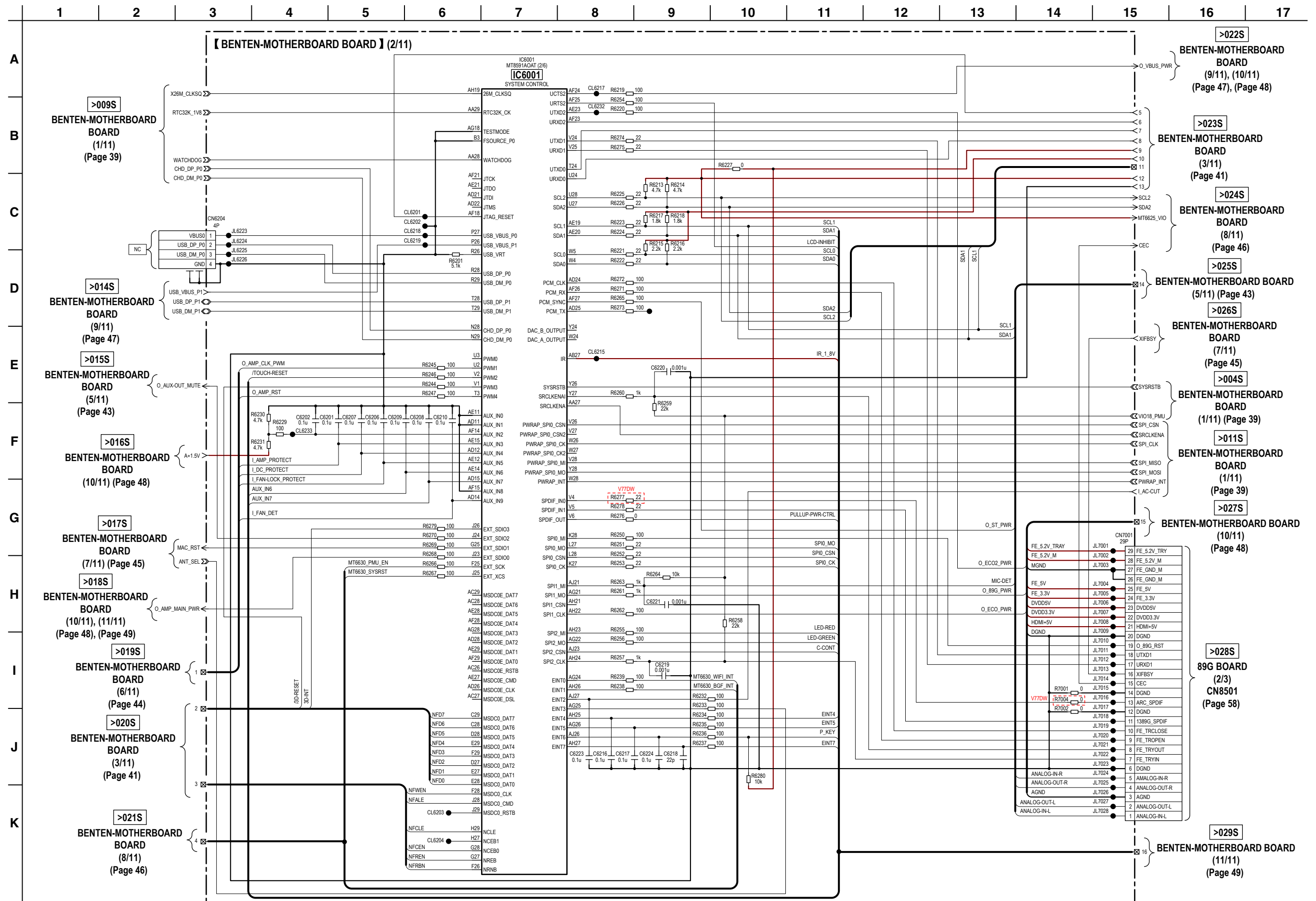
6-8. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (1/11) - • See page 76 for IC Pin Function Descriptions.



Note 1: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.

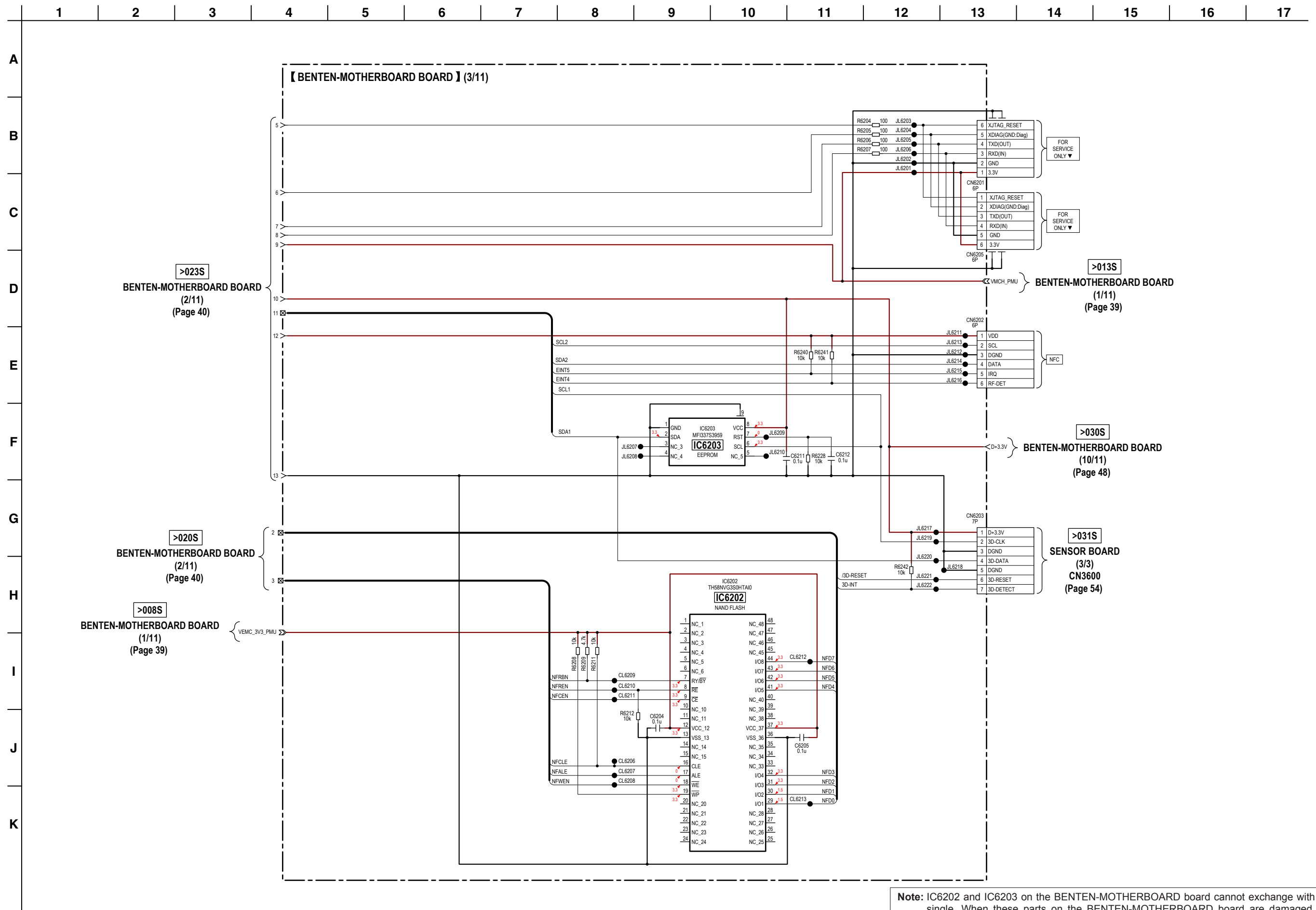
Note 2: IC6001 and IC6002 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

6-9. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (2/11) - • See page 76 for IC Pin Function Descriptions.



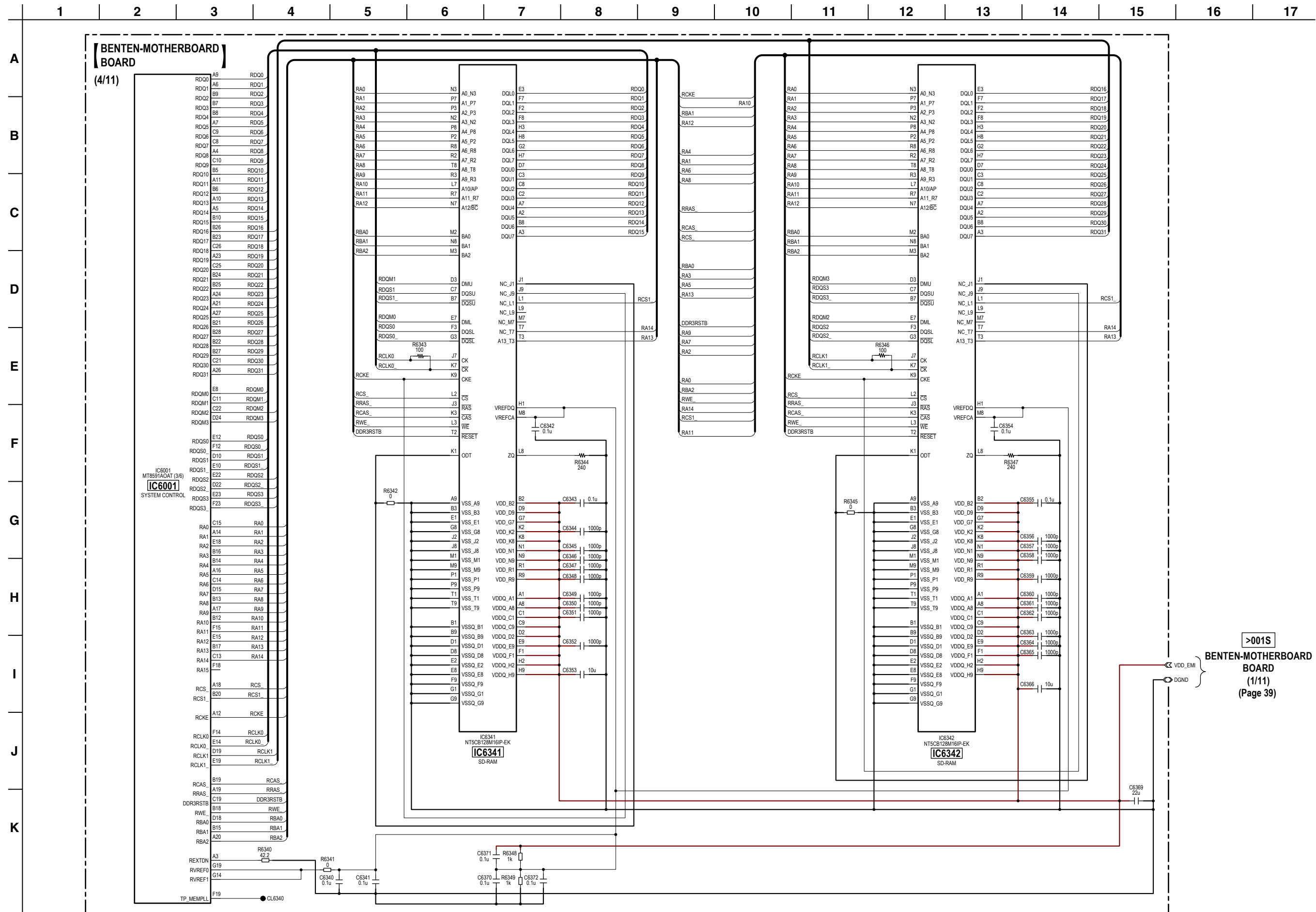
Note: IC6001 on the BENTEN-MOTHERBOARD board cannot exchange with single. When this part on the BENTEN-MOTHERBOARD board is damaged, exchange the entire mounted board.

6-10. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (3/11) - • See page 70 for IC Block Diagrams.



Note: IC6202 and IC6203 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

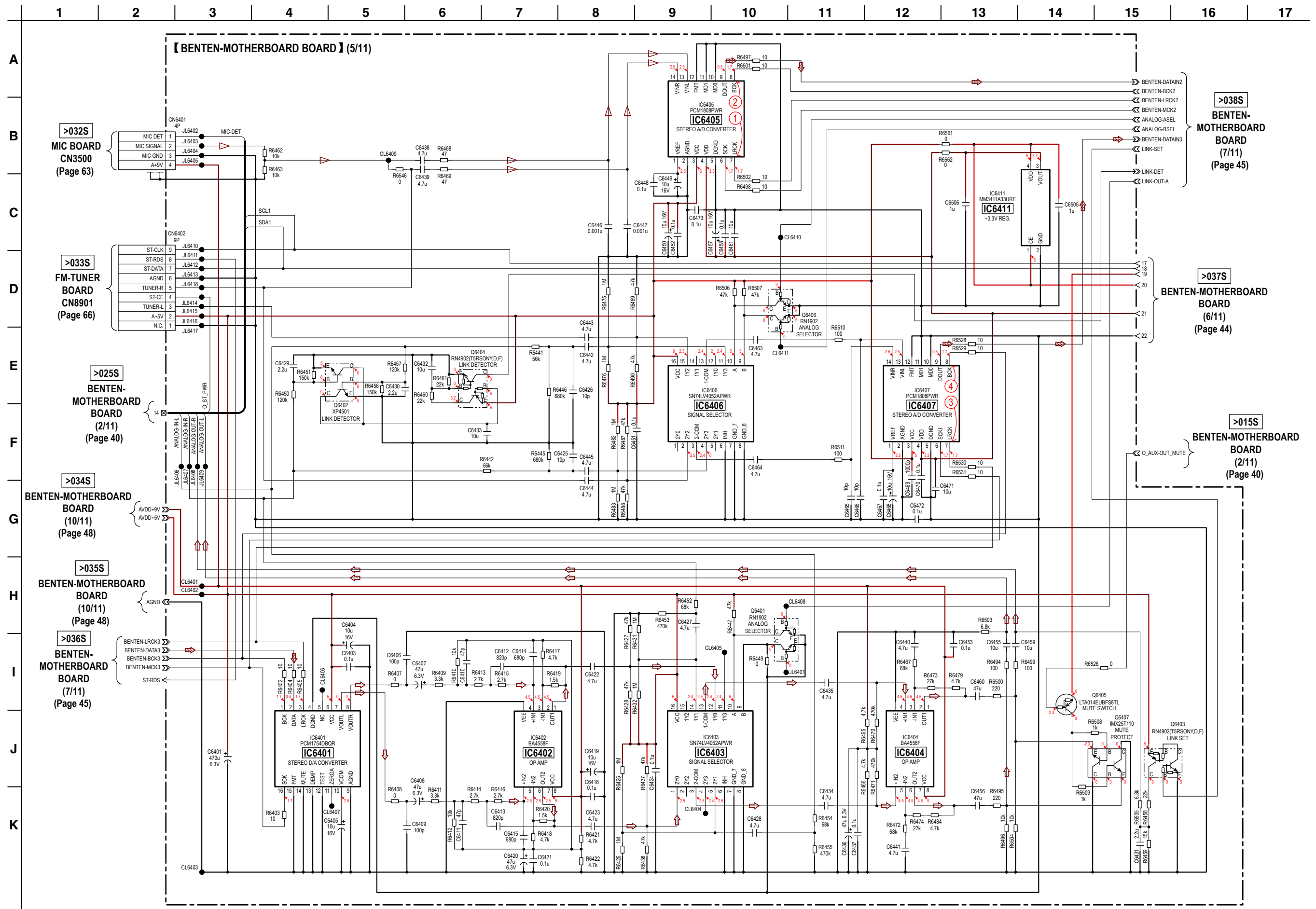
6-11. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (4/11) - • See page 76 for IC Pin Function Descriptions.



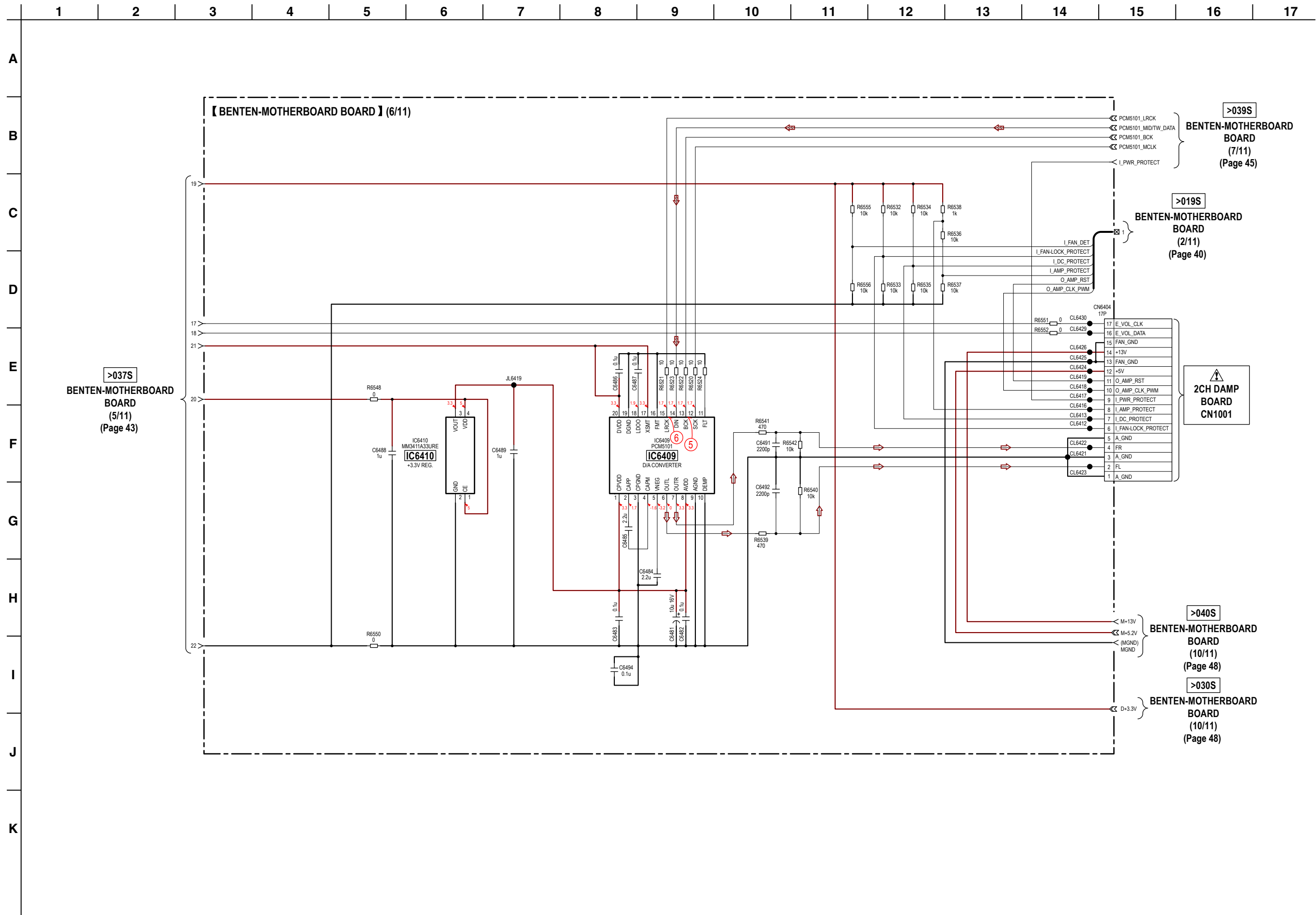
>001S
BENTEN-MOTHERBOARD
BOARD
(1/11)
(Page 39)

Note: IC6001, IC6341 and IC6342 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

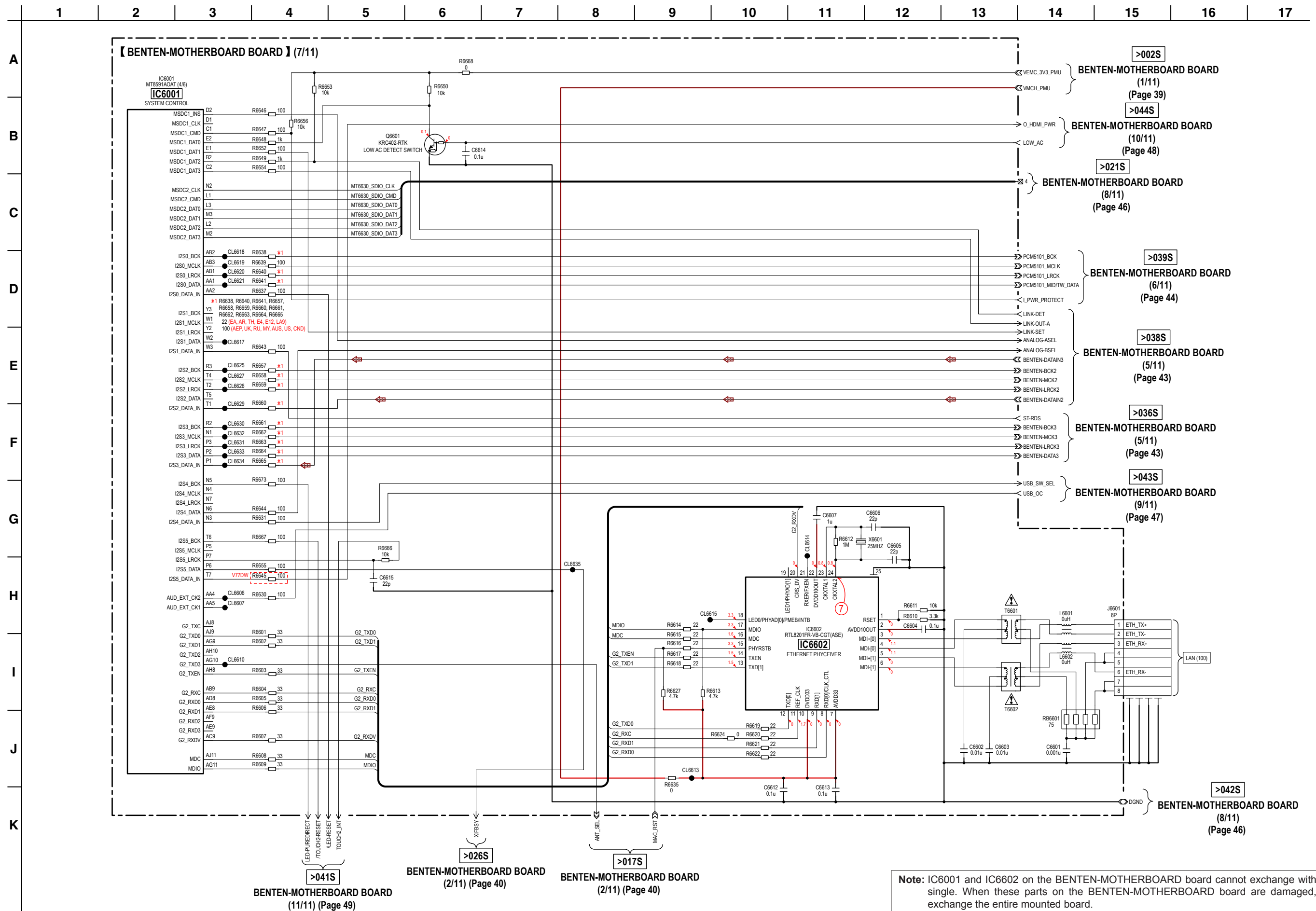
6-12. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (5/11) - • See page 36 for Waveforms. • See page 70 for IC Block Diagrams.



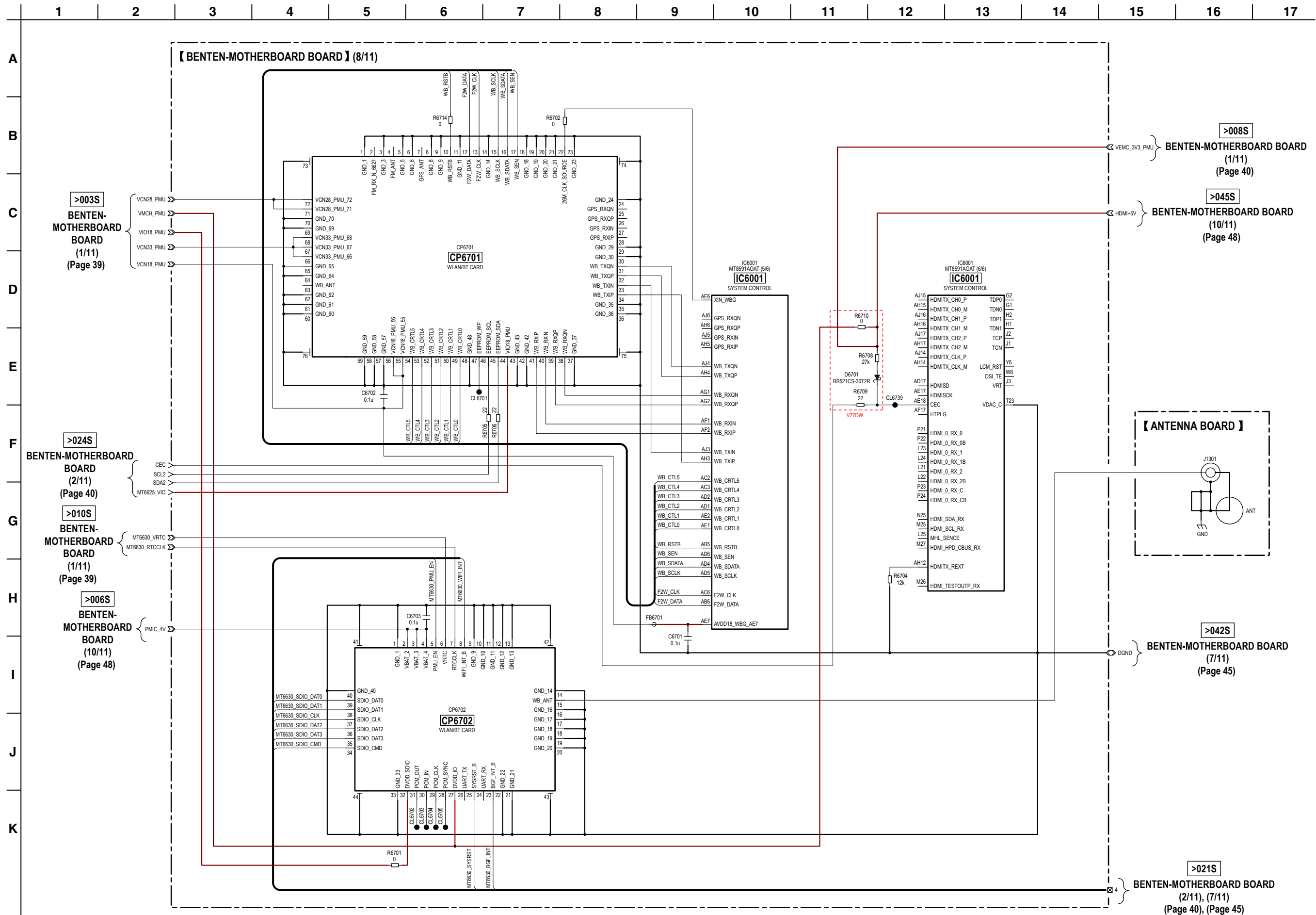
6-13. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (6/11) - • See page 36 for Waveforms. • See page 70 for IC Block Diagrams.



6-14. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (7/11) - • See page 36 for Waveforms. • See page 70 for IC Block Diagrams. • See page 76 for IC Pin Function Descriptions.

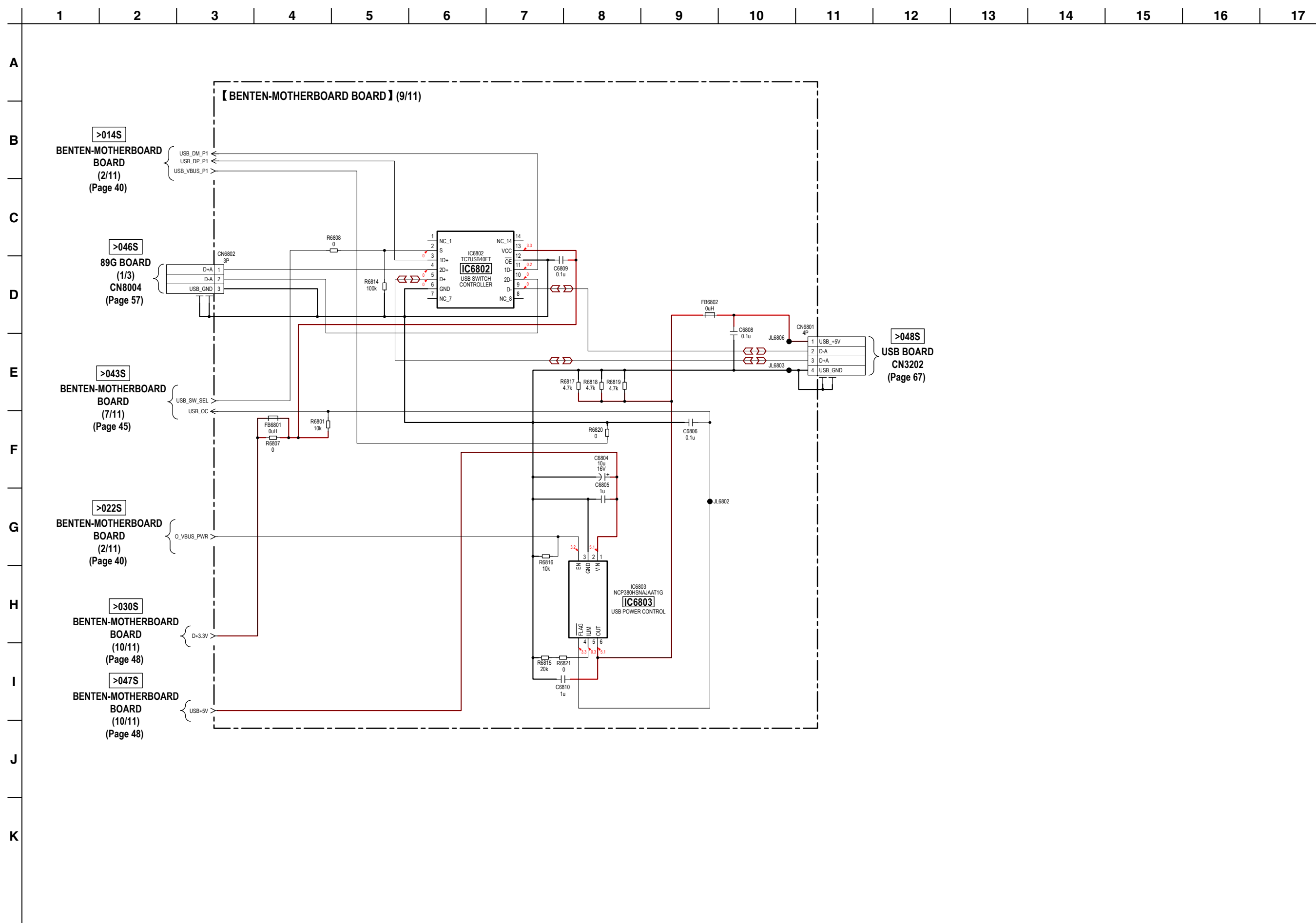


6-15. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (8/11) - • See page 76 for IC Pin Function Descriptions.

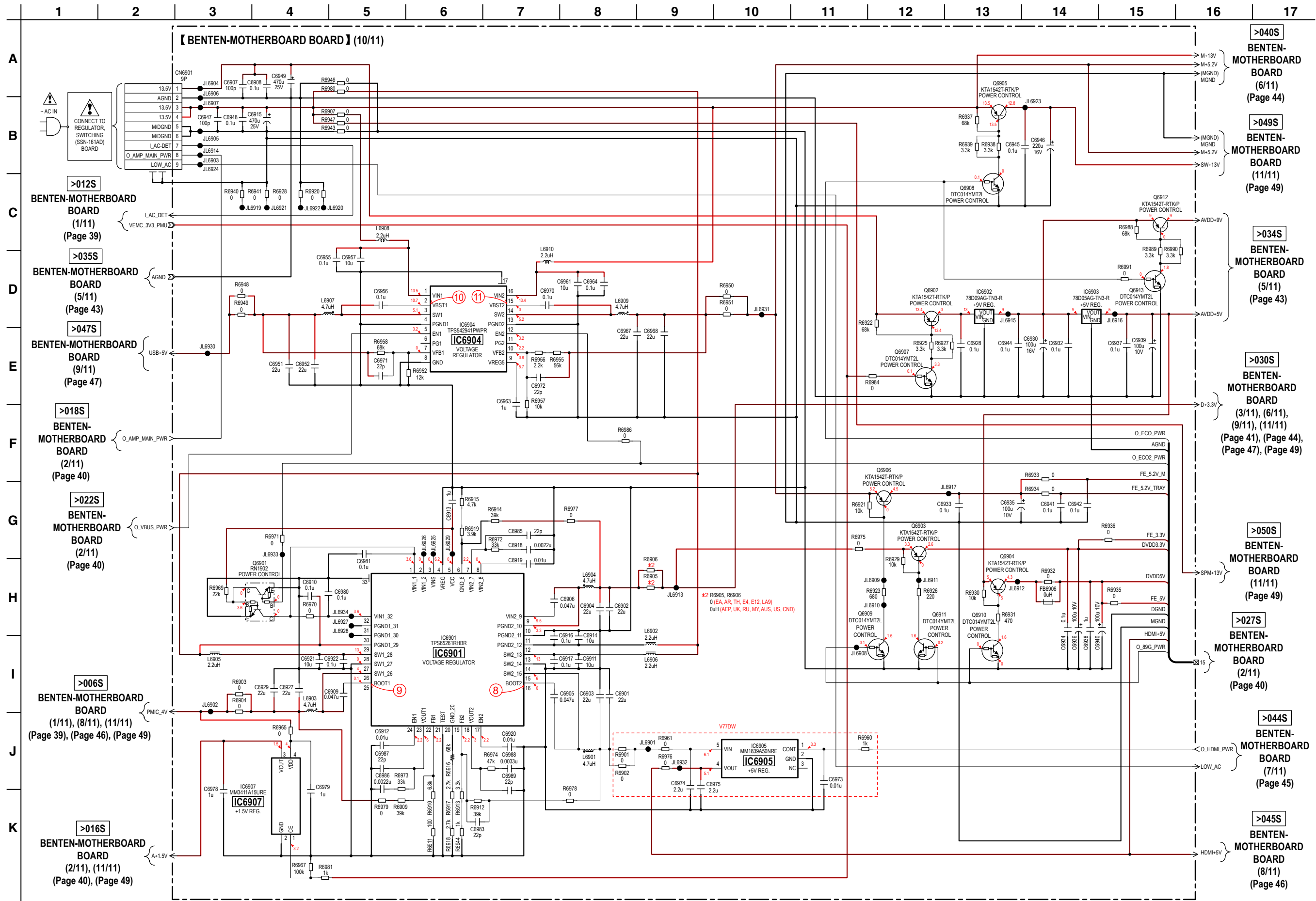


Note: IC6001 on the BENTEN-MOTHERBOARD board cannot exchange with single. When this part on the BENTEN-MOTHERBOARD board is damaged, exchange the entire mounted board.

6-16. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (9/11) - • See page 70 for IC Block Diagrams.

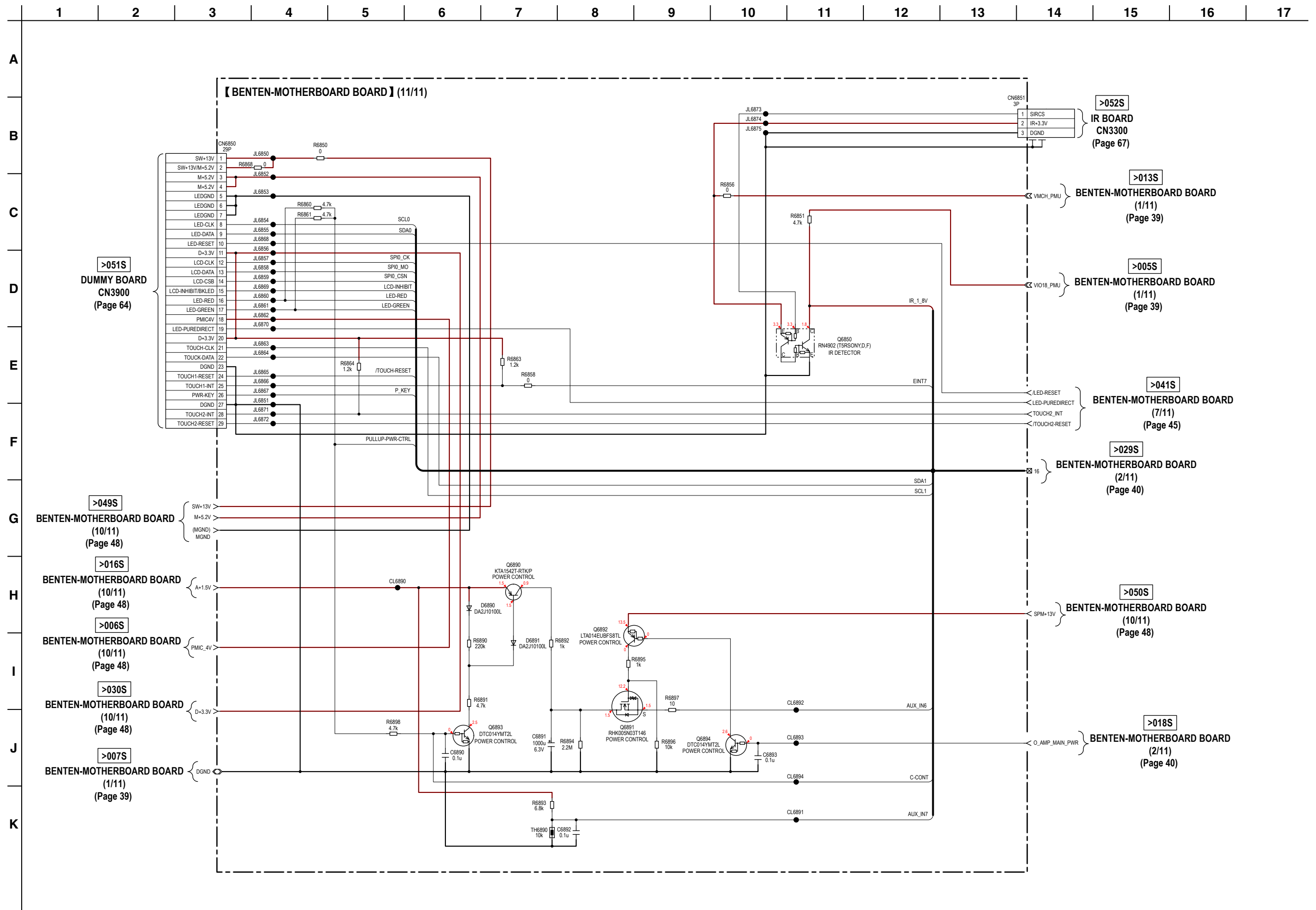



6-17. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (10/11) - • See page 36 for Waveforms.

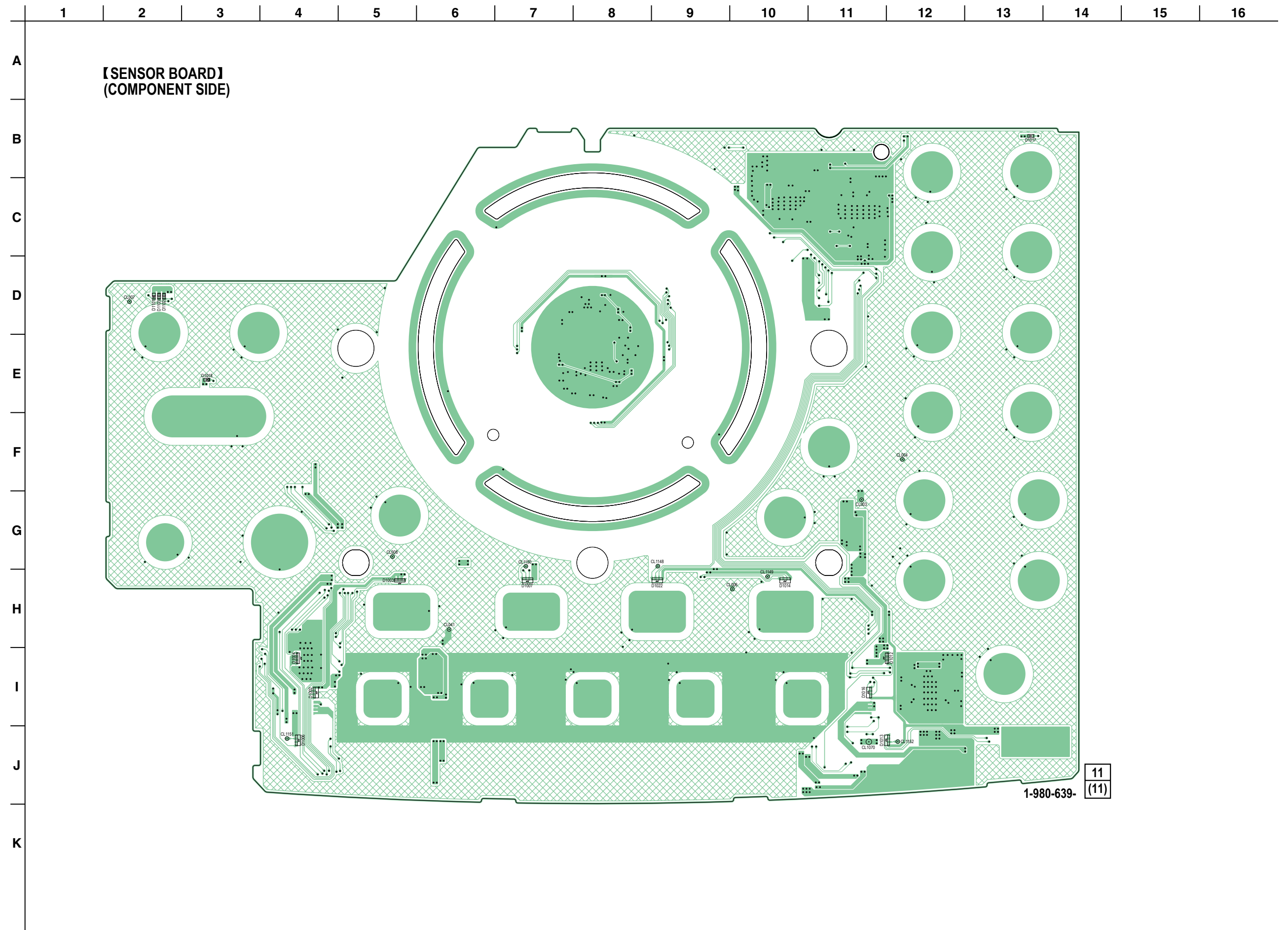



Note: IC6901 and IC6907 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

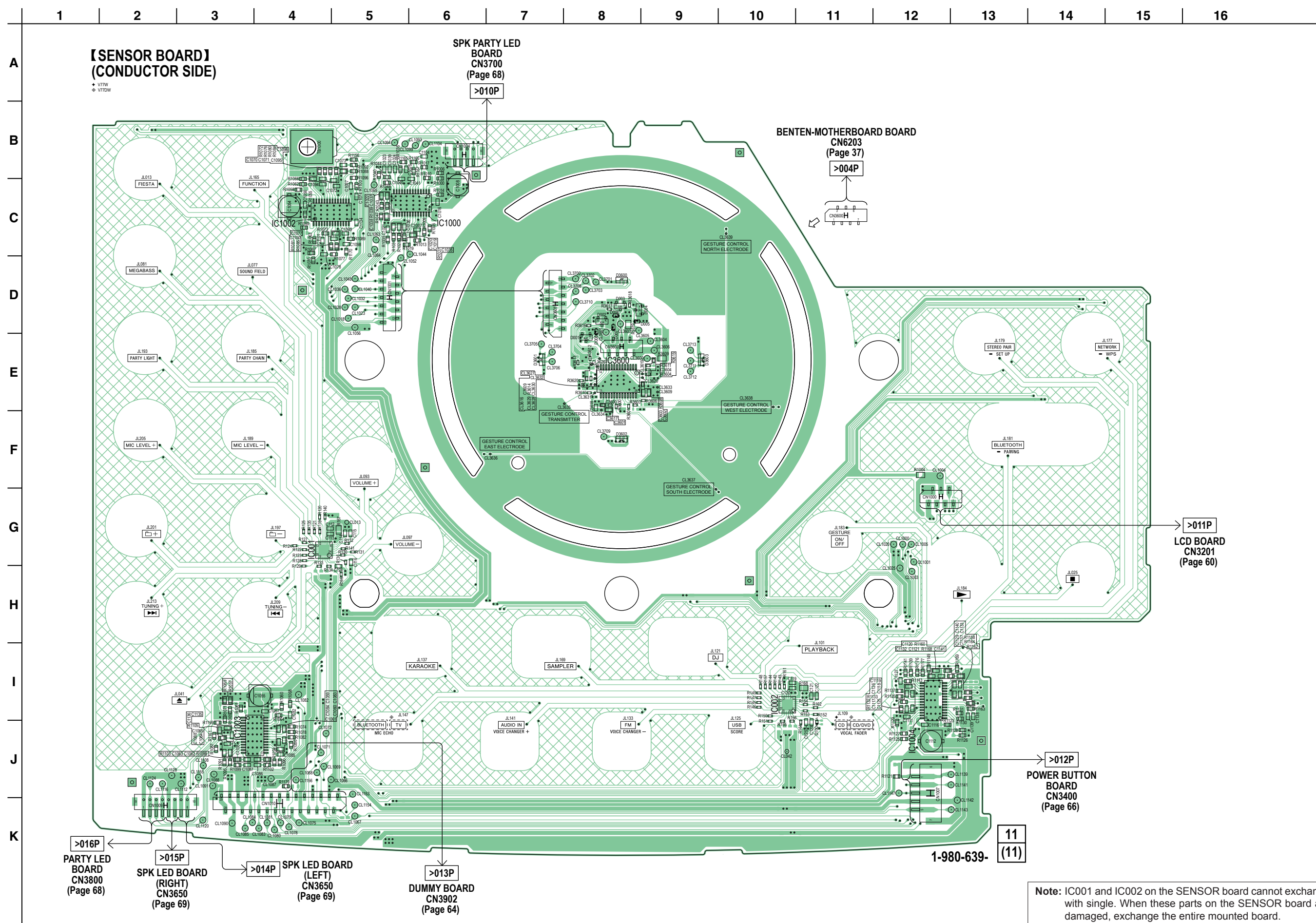
6-18. SCHEMATIC DIAGRAM - BENTEN-MOTHERBOARD Board (11/11) -



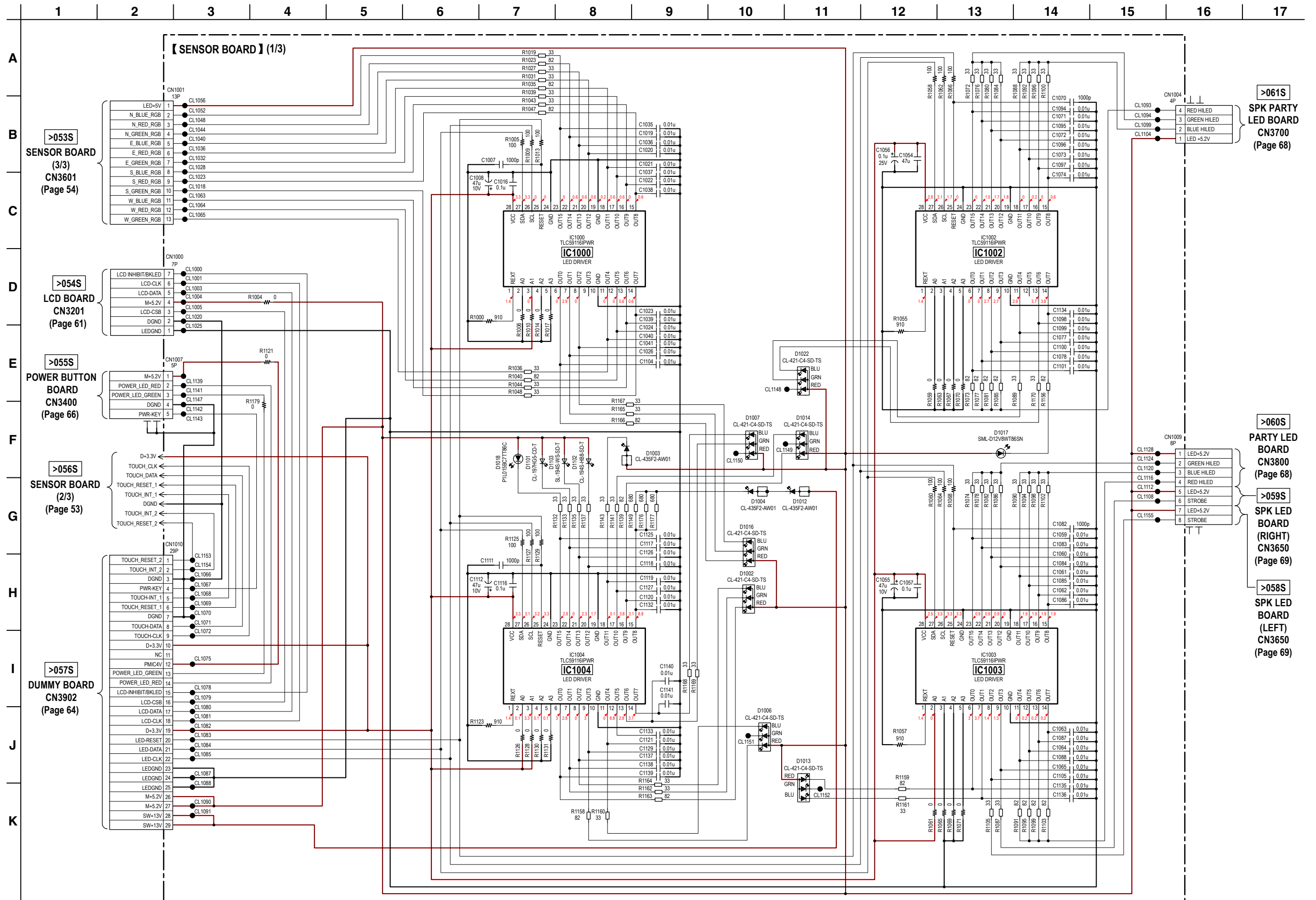
6-19. PRINTED WIRING BOARD - SENSOR Board (Component Side) - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



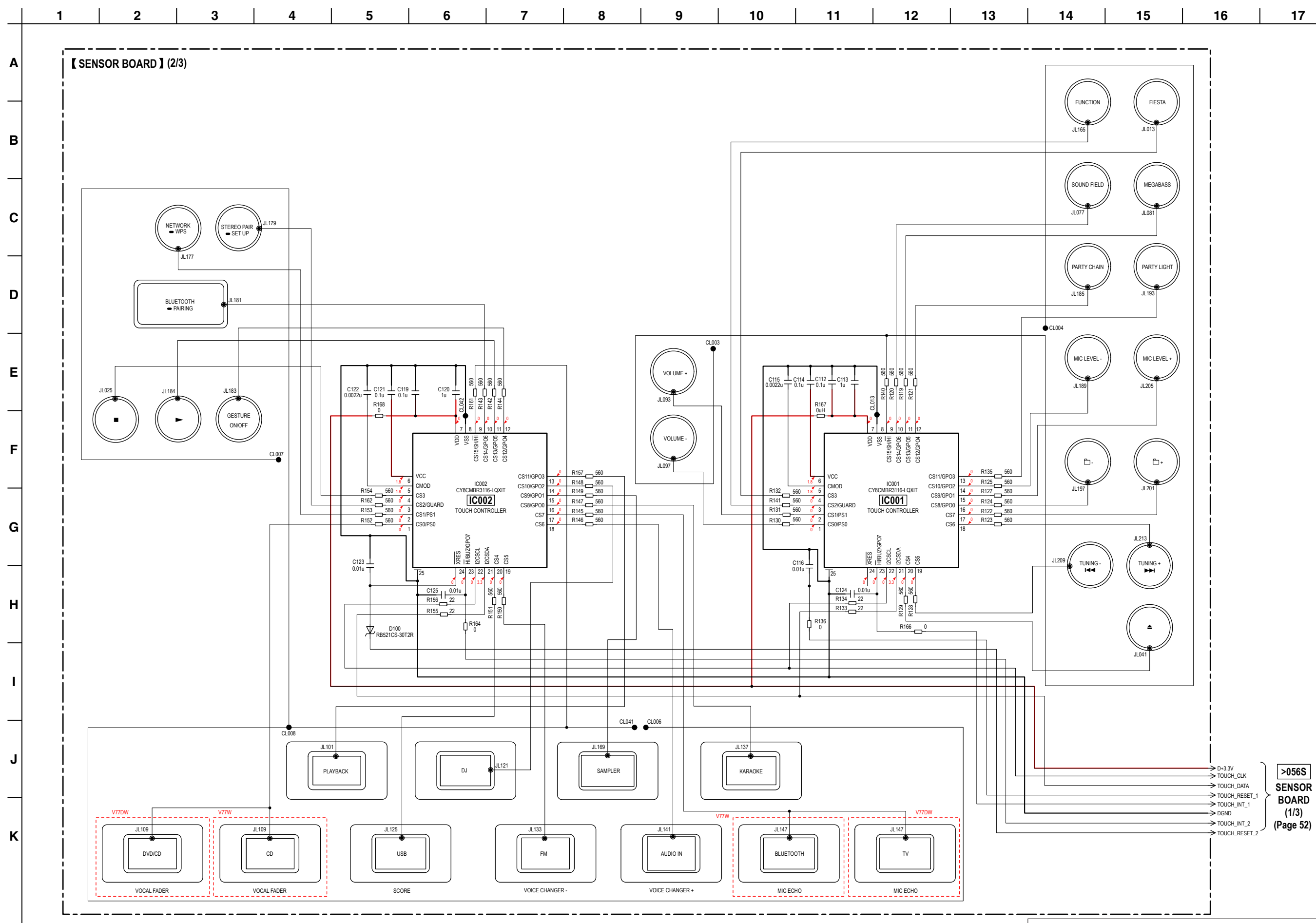
6-20. PRINTED WIRING BOARD - SENSOR Board (Conductor Side) - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



6-21. SCHEMATIC DIAGRAM - SENSOR Board (1/3) - • See page 70 for IC Block Diagrams.

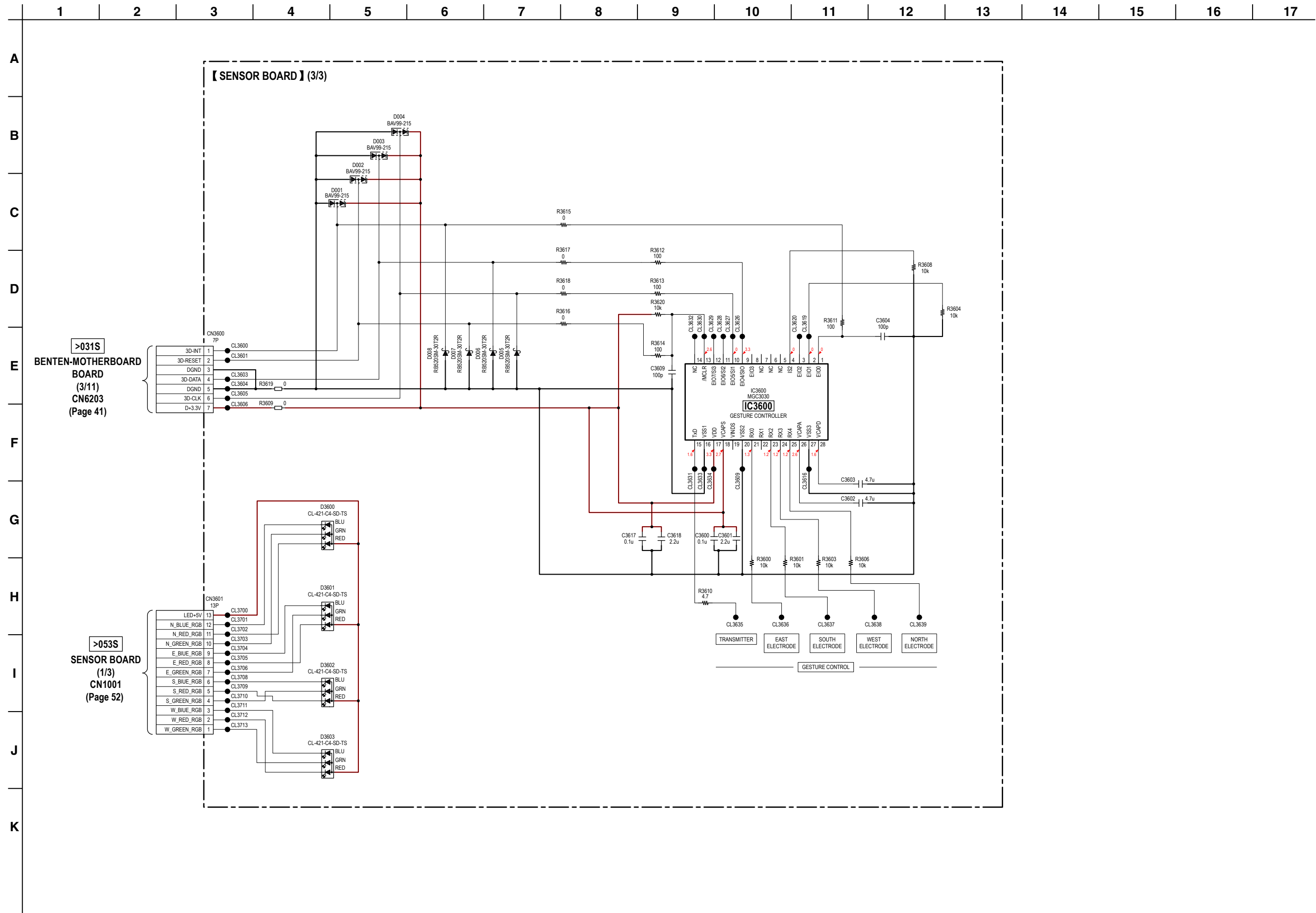


6-22. SCHEMATIC DIAGRAM - SENSOR Board (2/3) - • See page 70 for IC Block Diagrams.

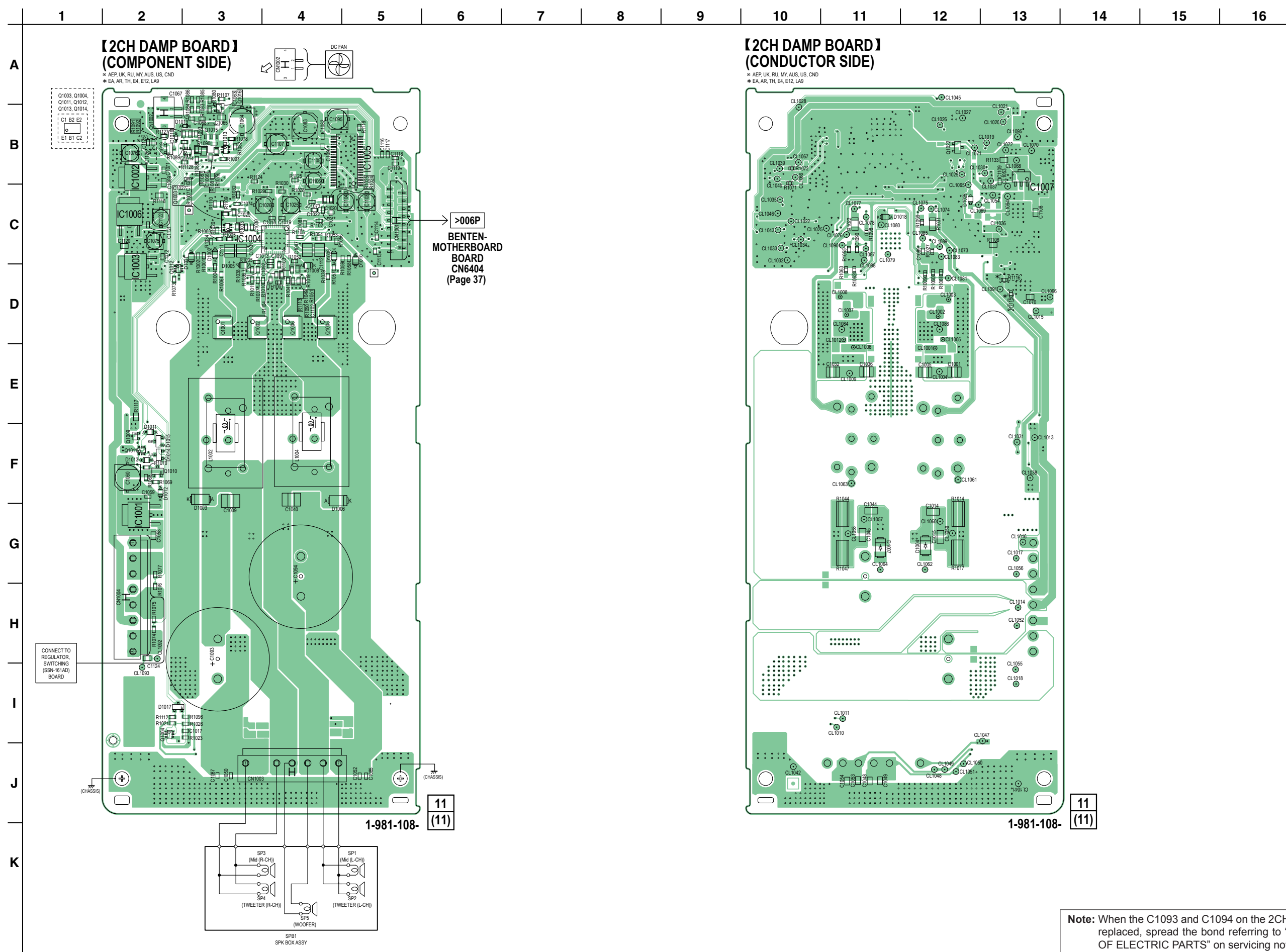


Note: IC001 and IC002 on the SENSOR board cannot exchange with single. When these parts on the SENSOR board are damaged, exchange the entire mounted board.

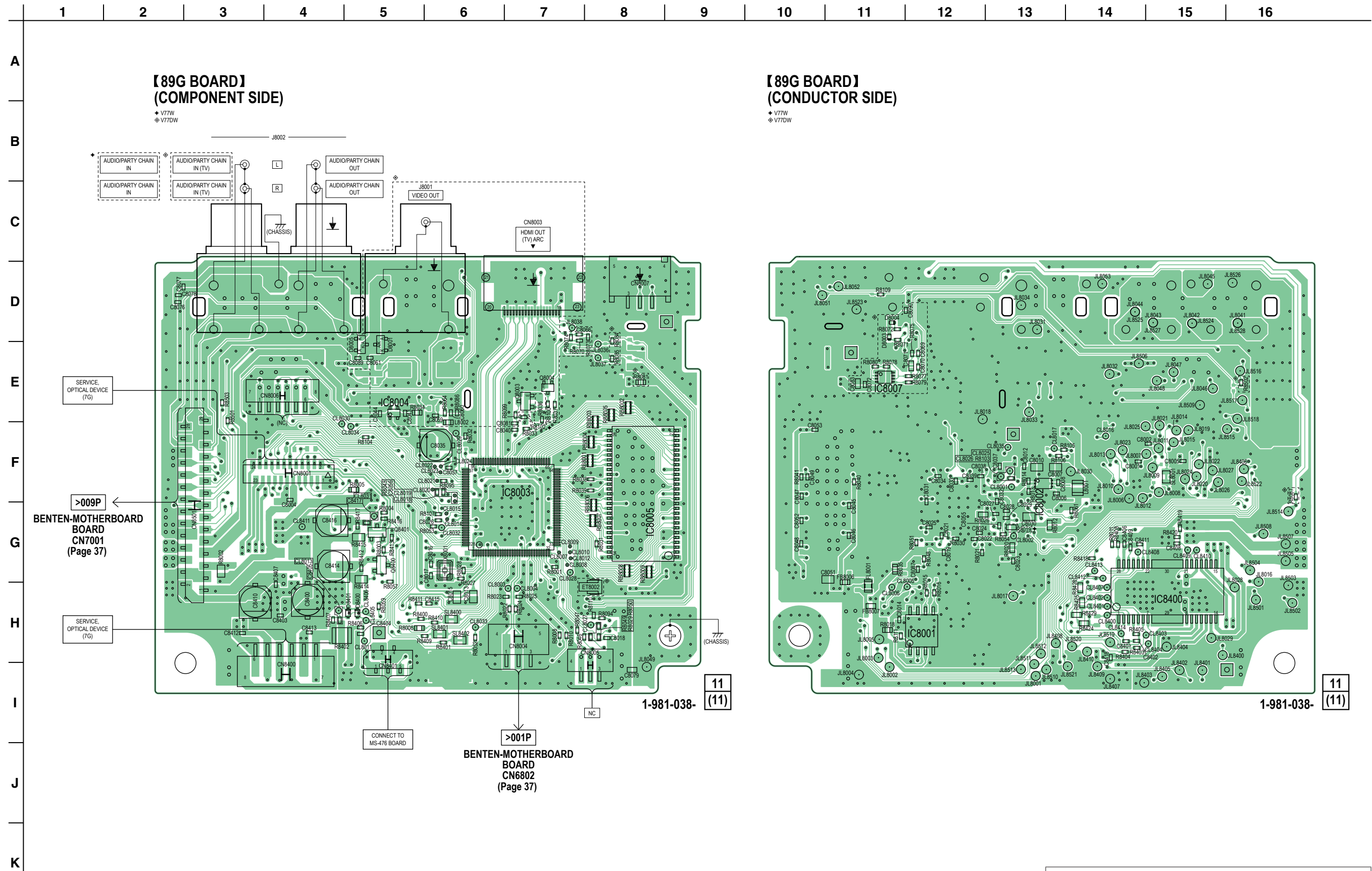
6-23. SCHEMATIC DIAGRAM - SENSOR Board (3/3) - • See page 70 for IC Block Diagrams.



6-24. PRINTED WIRING BOARD - 2CH DAMP Board - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



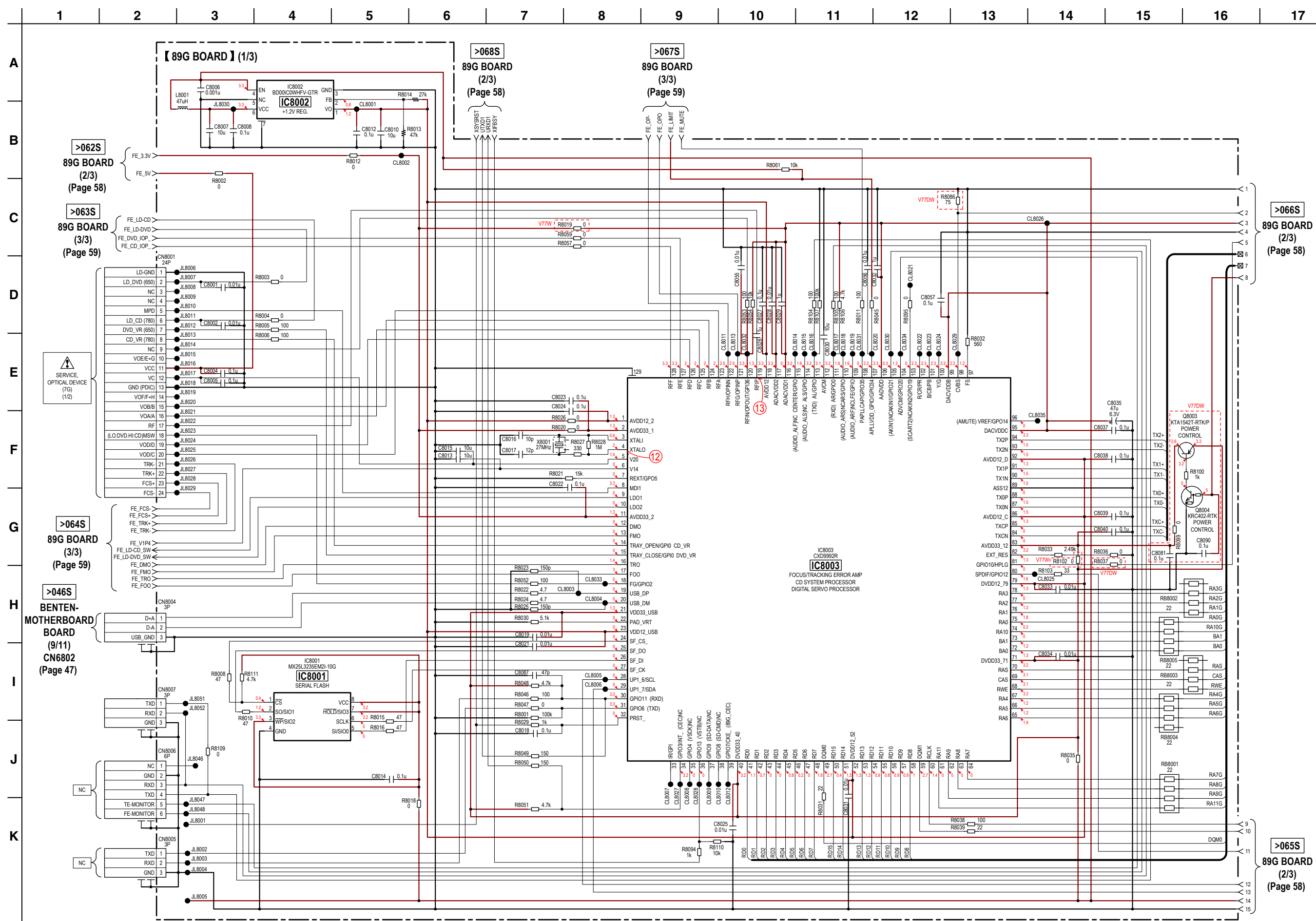
6-25. PRINTED WIRING BOARD - 89G Board - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



Note 1: IC8001 and IC8003 on the 89G board cannot exchange with single. When these parts on the 89G board are damaged, exchange the entire mounted board.

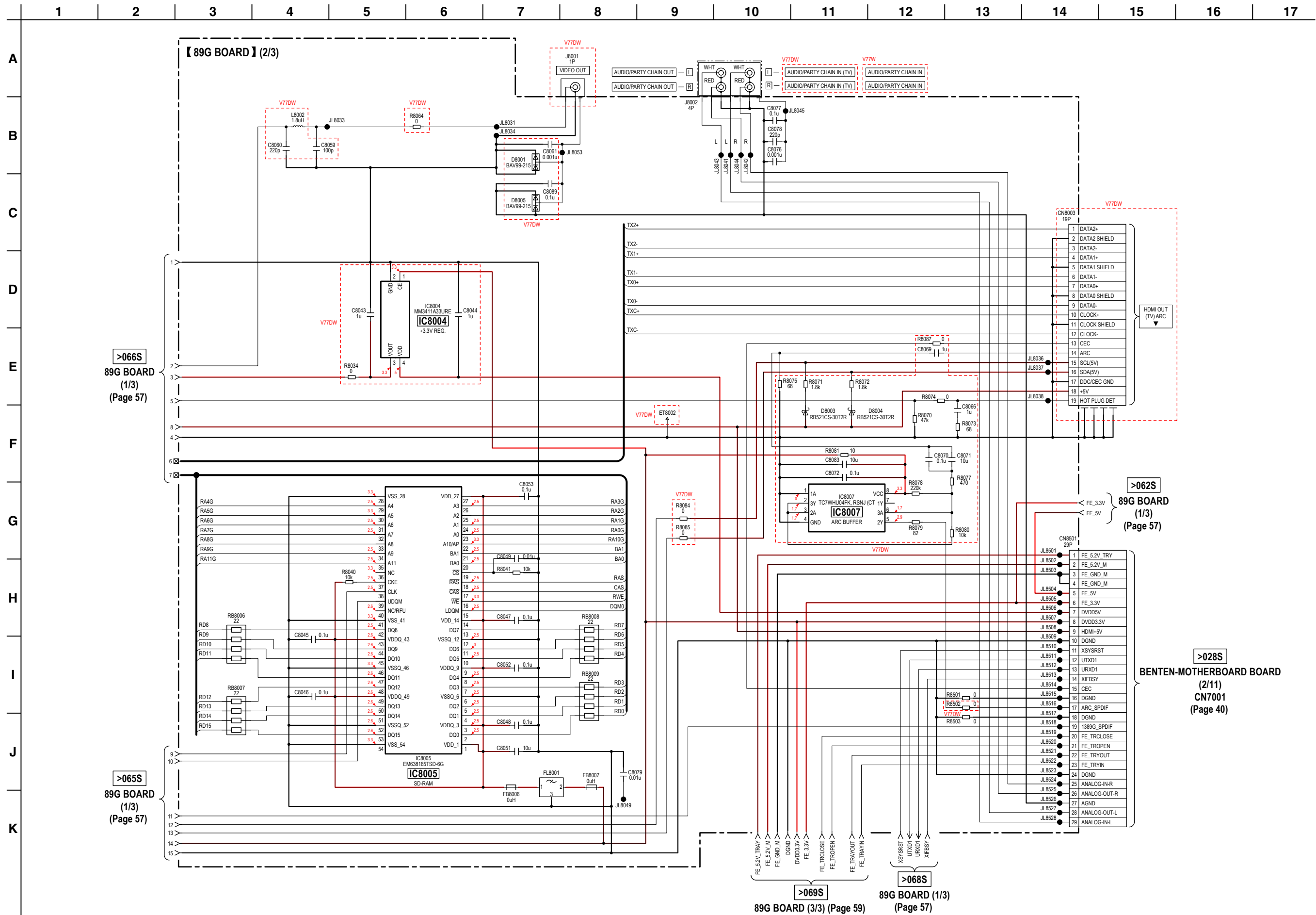
Note 2: When the MS-476 board is defective, exchange the entire LOADING COMPLETE ASSY (T).

6-26. SCHEMATIC DIAGRAM - 89G Board (1/3) - • See page 36 for Waveforms. • See page 70 for IC Block Diagrams. • See page 76 for IC Pin Function Descriptions.

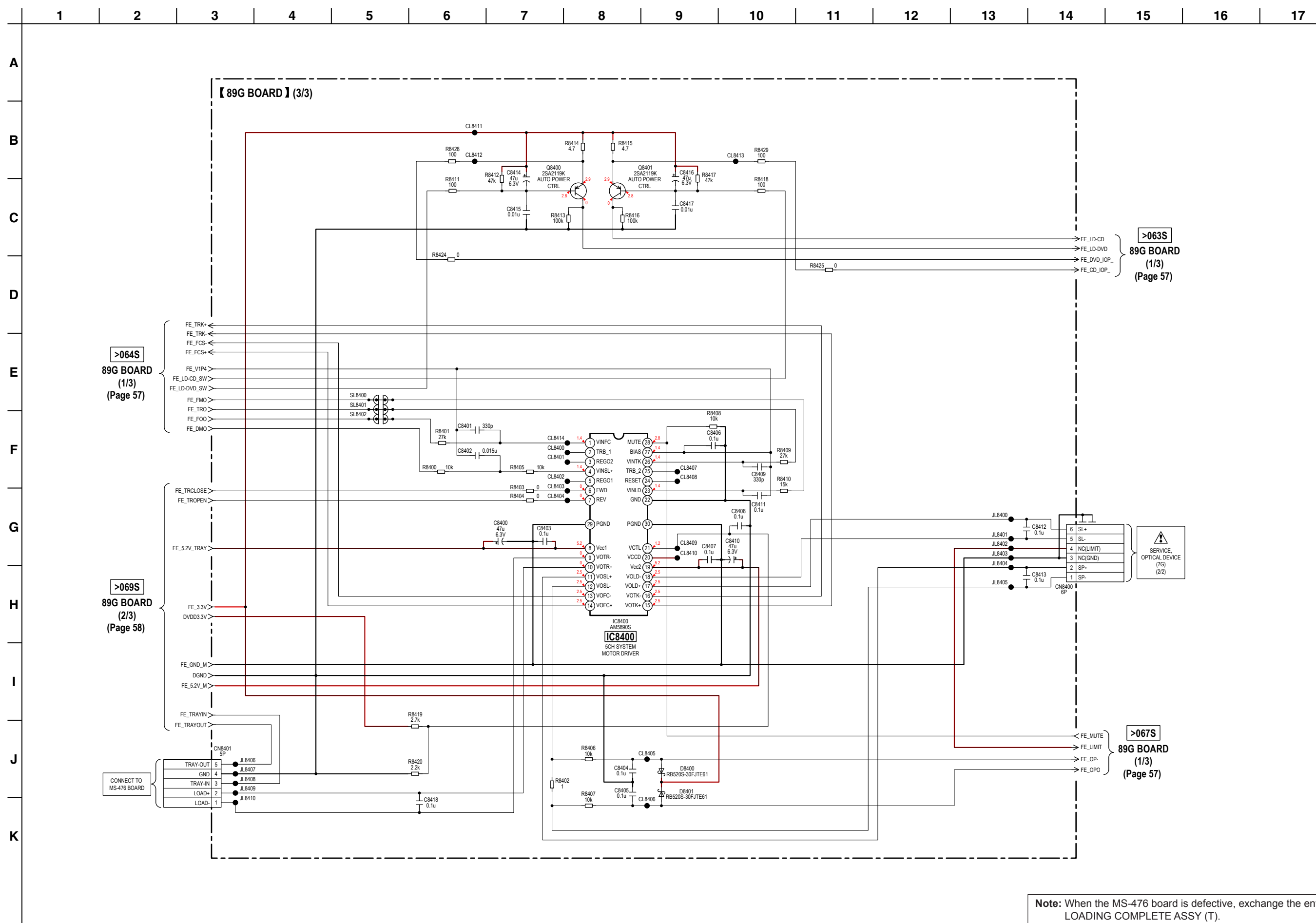


Note: IC8001 and IC8003 on the 89G board cannot exchange with single. When these parts on the 89G board are damaged, exchange the entire mounted board.

6-27. SCHEMATIC DIAGRAM - 89G Board (2/3) - See page 70 for IC Block Diagrams.

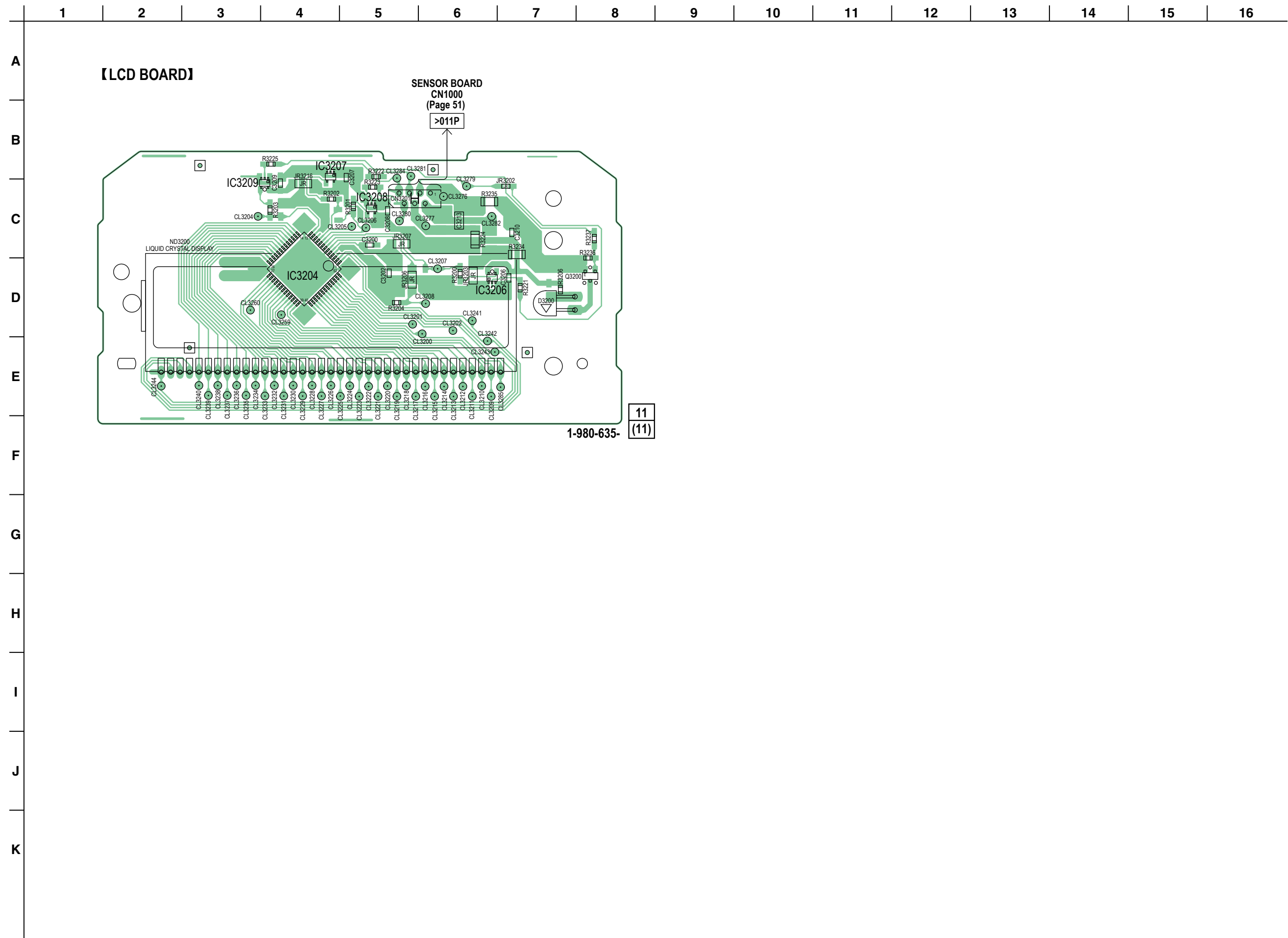


6-28. SCHEMATIC DIAGRAM - 89G Board (3/3) - • See page 70 for IC Block Diagrams.



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

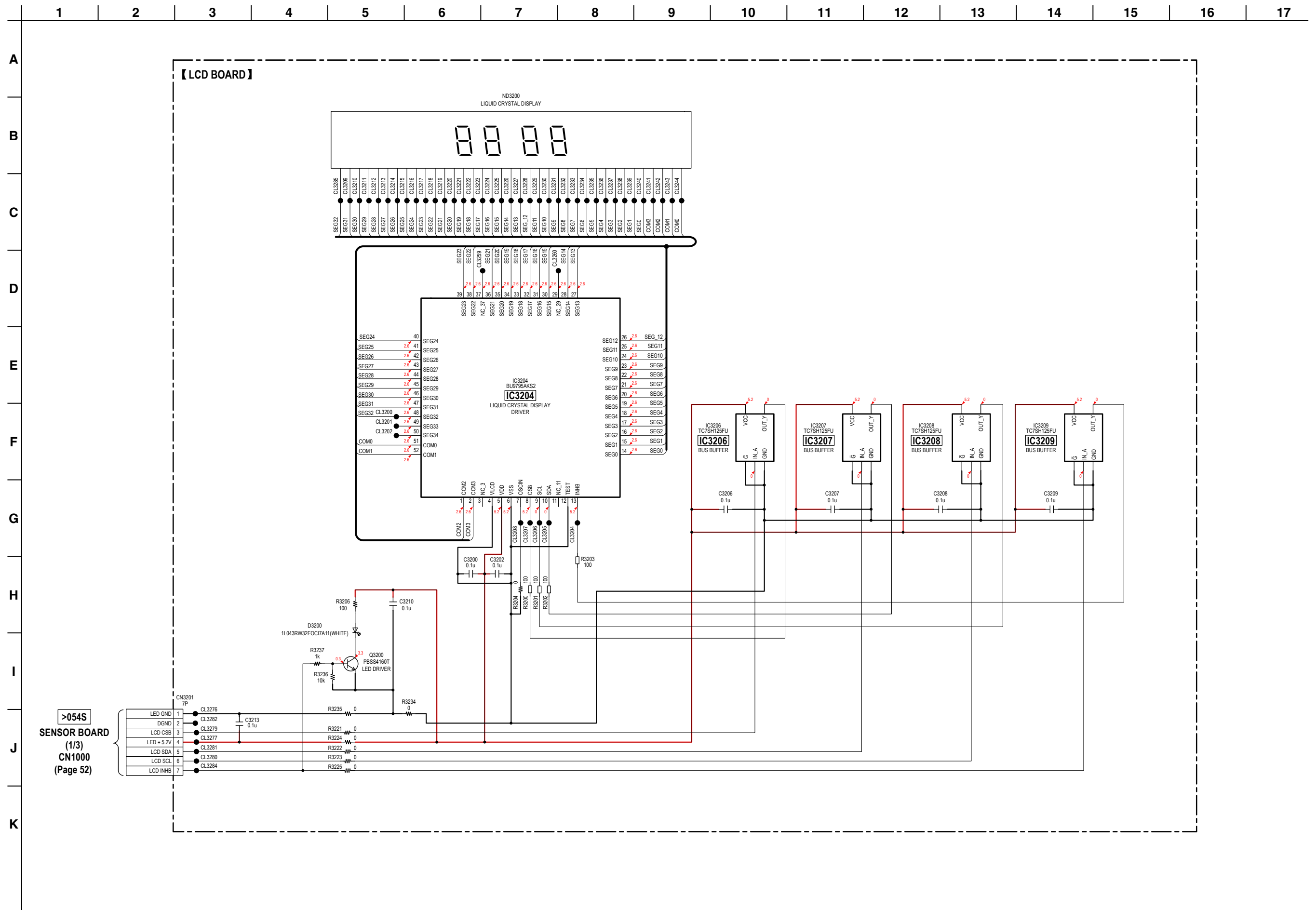
6-29. PRINTED WIRING BOARD - LCD Board - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.




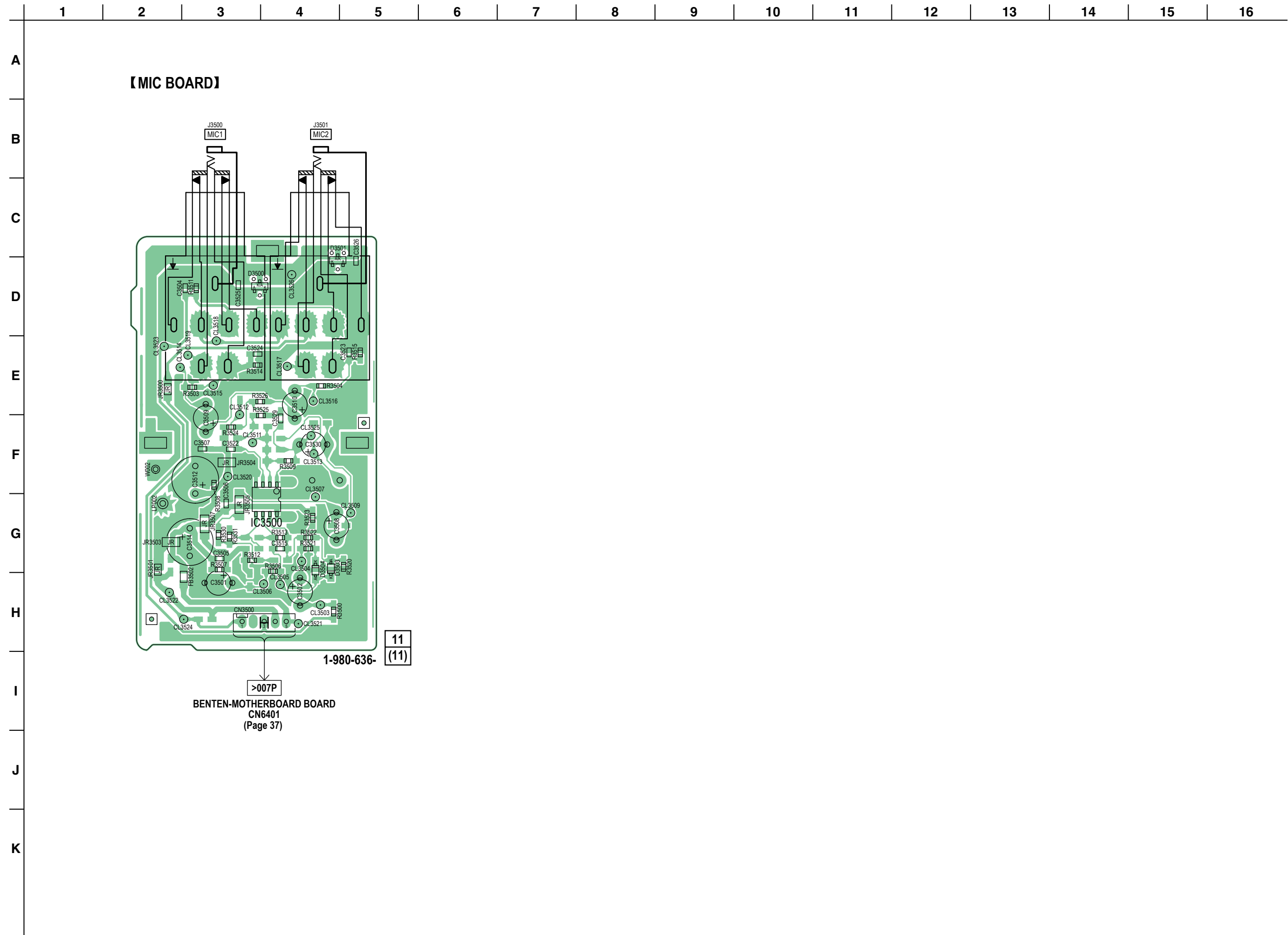
1-980-635-

11
(11)

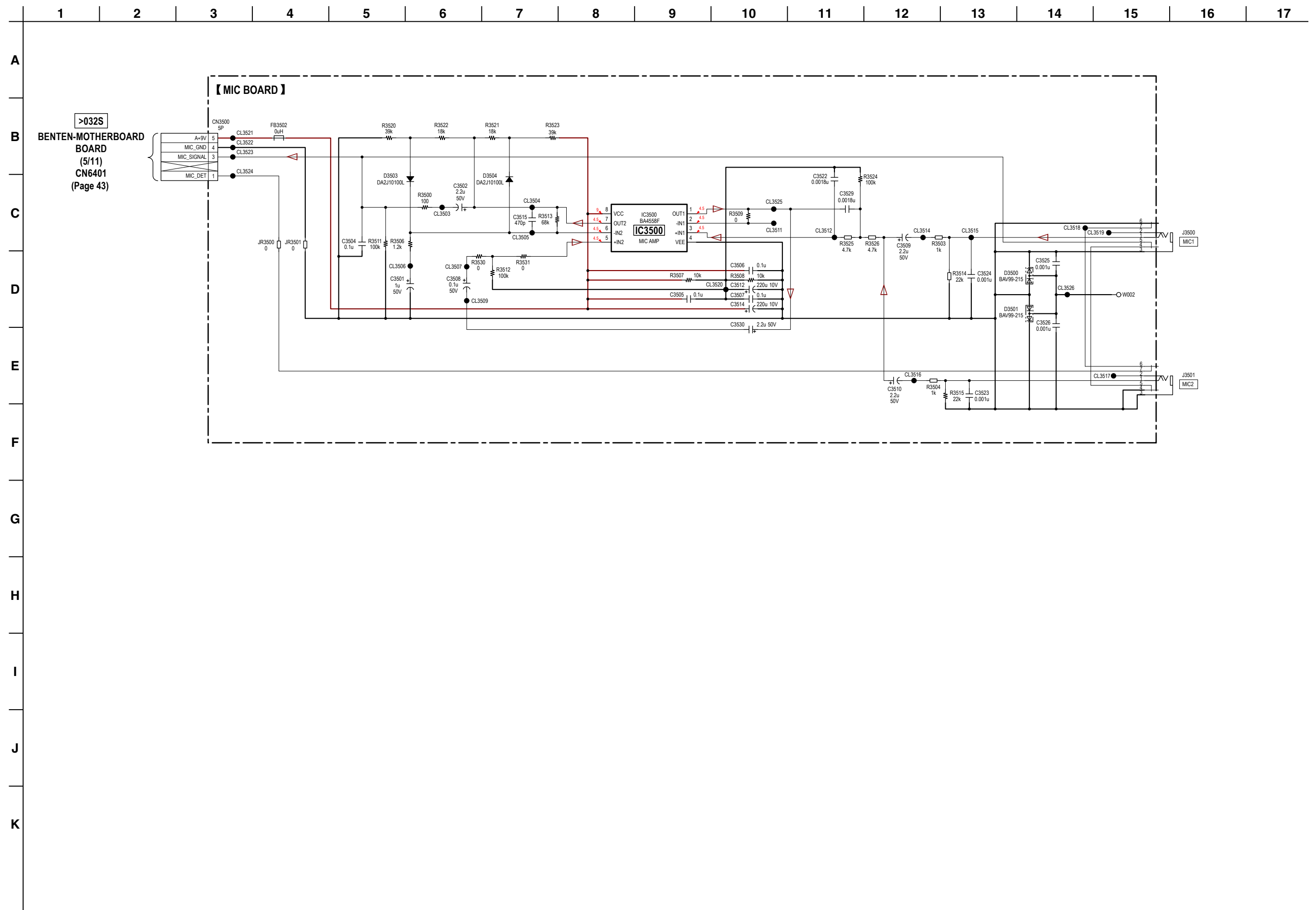
6-30. SCHEMATIC DIAGRAM - LCD Board - • See page 70 for IC Block Diagrams.



6-31. PRINTED WIRING BOARD - MIC Board - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.

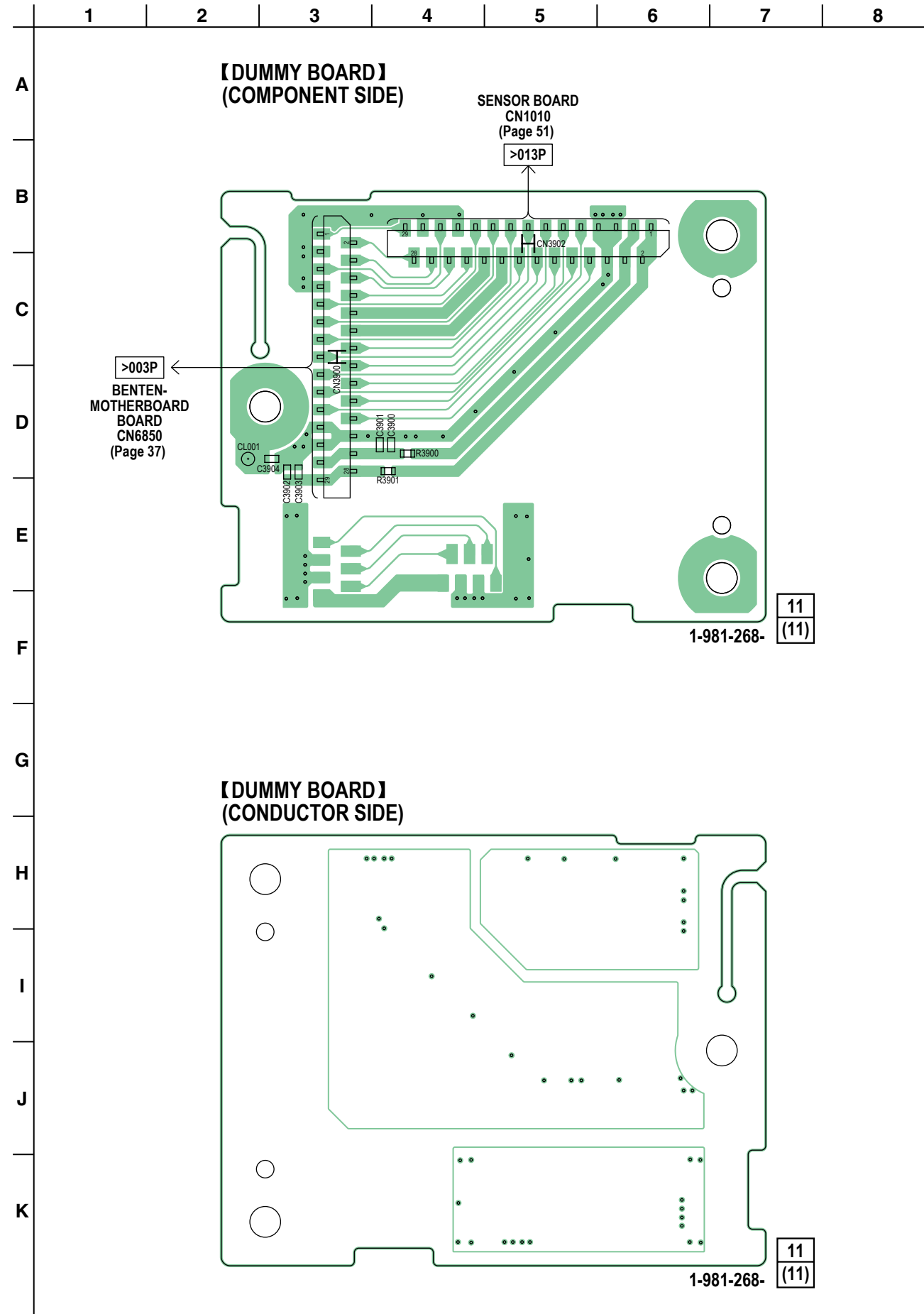


6-32. SCHEMATIC DIAGRAM - MIC Board -

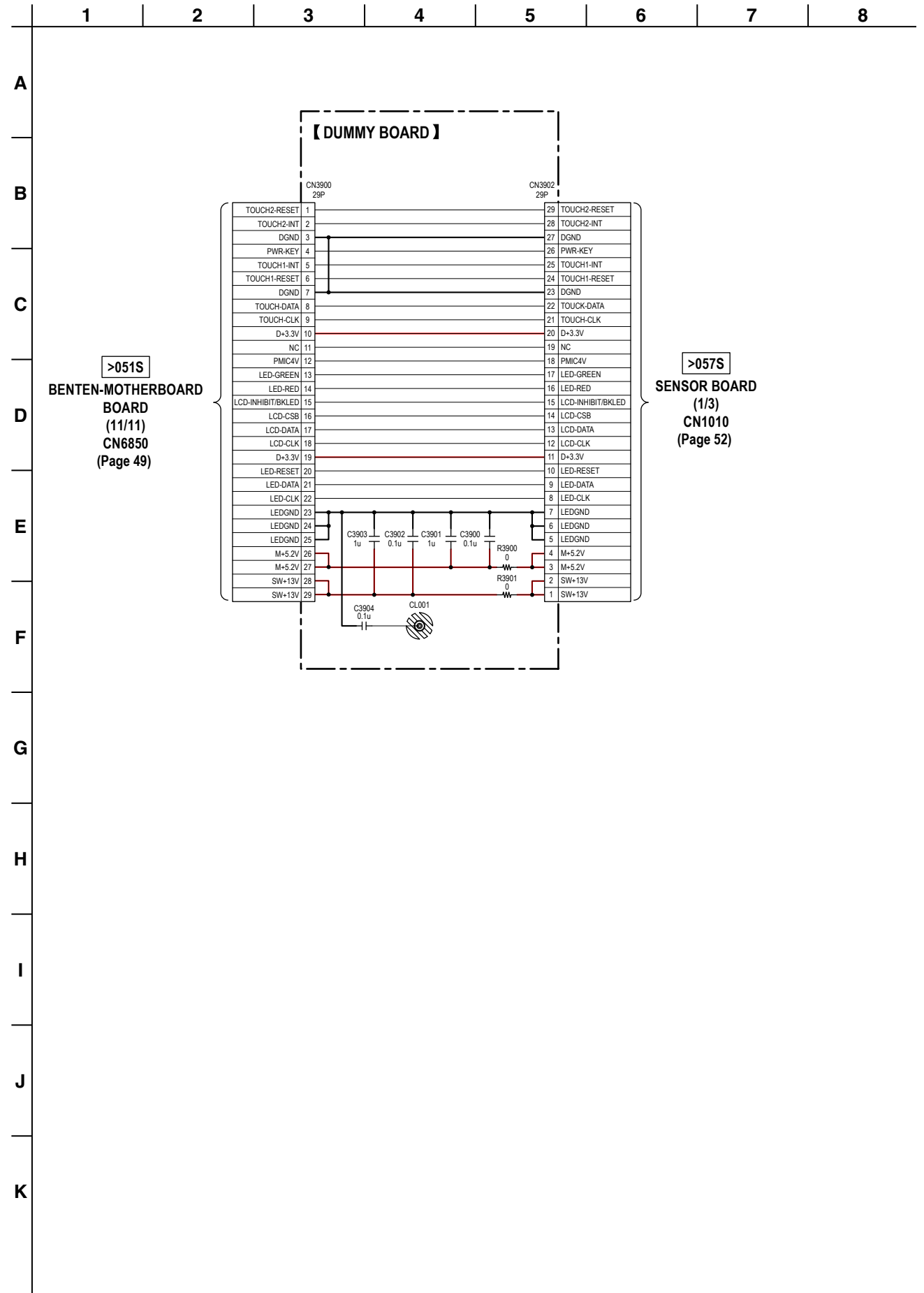


6-33. PRINTED WIRING BOARD - DUMMY Board -

• See page 30 for Circuit Boards Location. • : Uses unleaded solder.



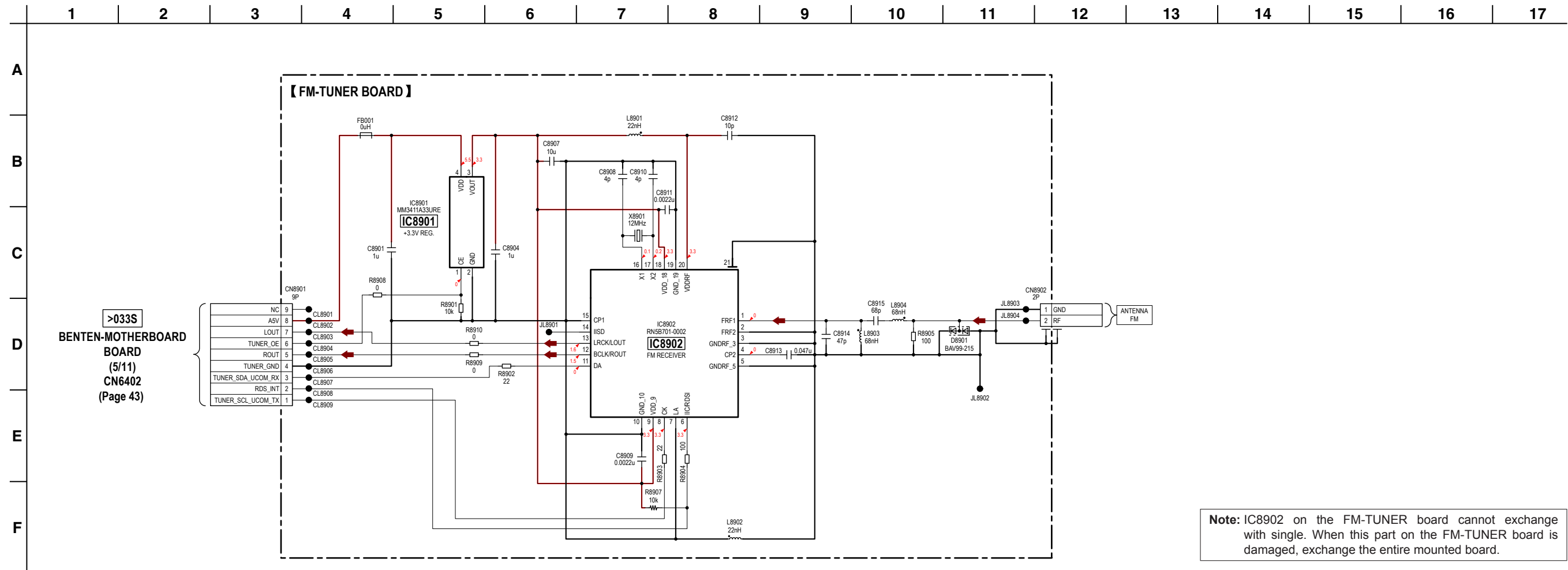
6-34. SCHEMATIC DIAGRAM - DUMMY Board -



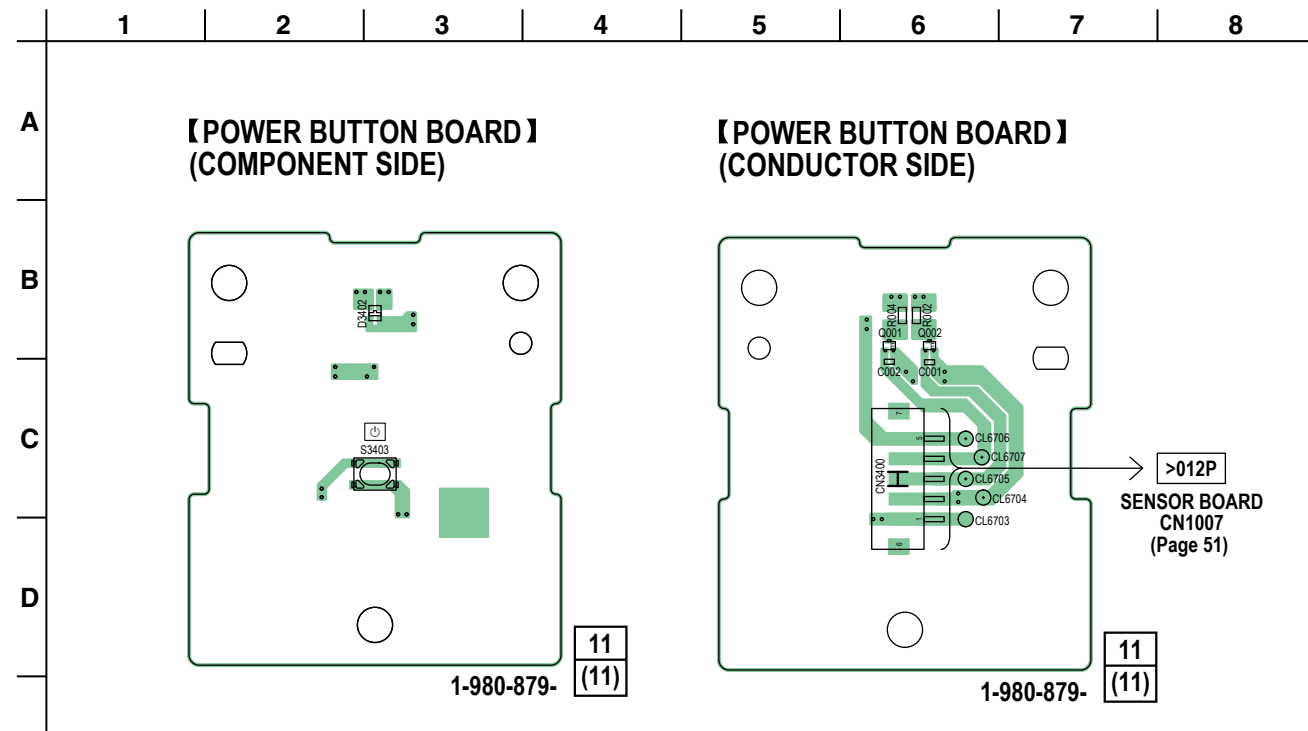
6-35. PRINTED WIRING BOARD - FM-TUNER Board - • See page 30 for Circuit Boards Location. •  : Uses unleaded solder.



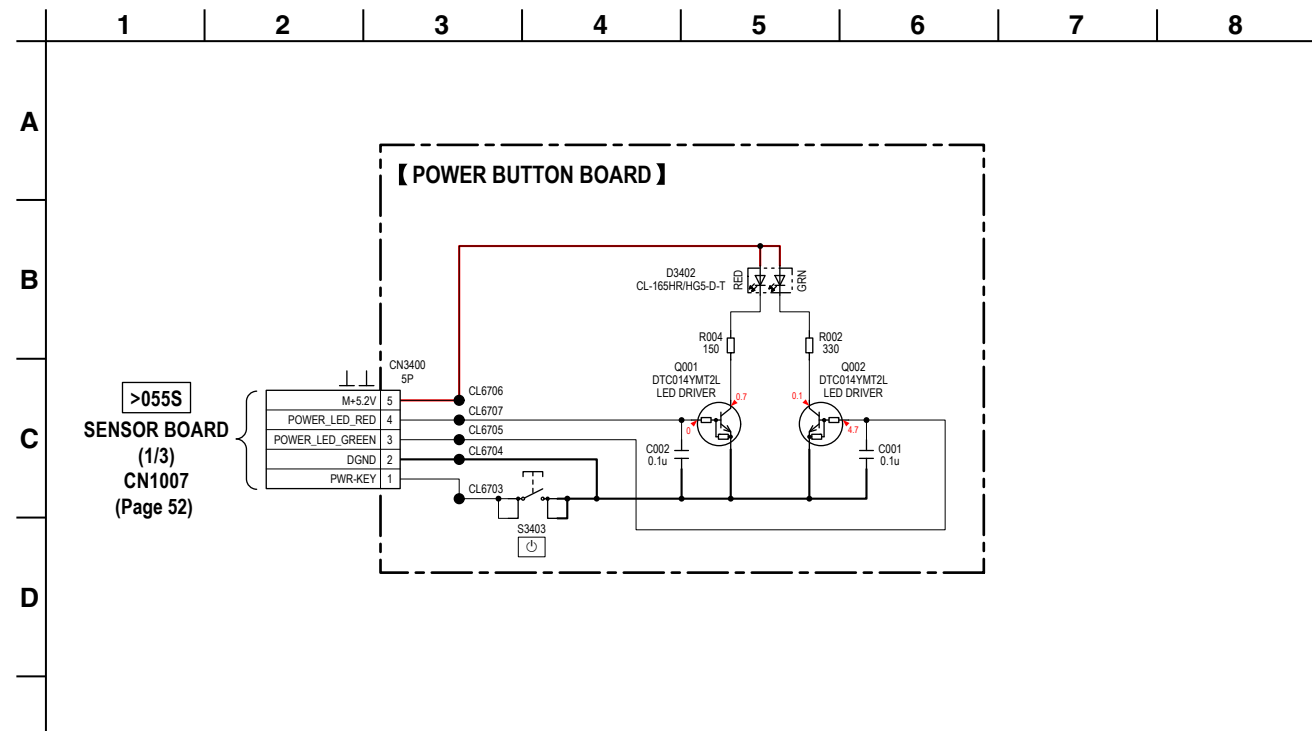
6-36. SCHEMATIC DIAGRAM - FM-TUNER Board - • See page 70 for IC Block Diagrams.



6-37. PRINTED WIRING BOARD - POWER BUTTON Board -
• See page 30 for Circuit Boards Location. • : Uses unleaded solder.

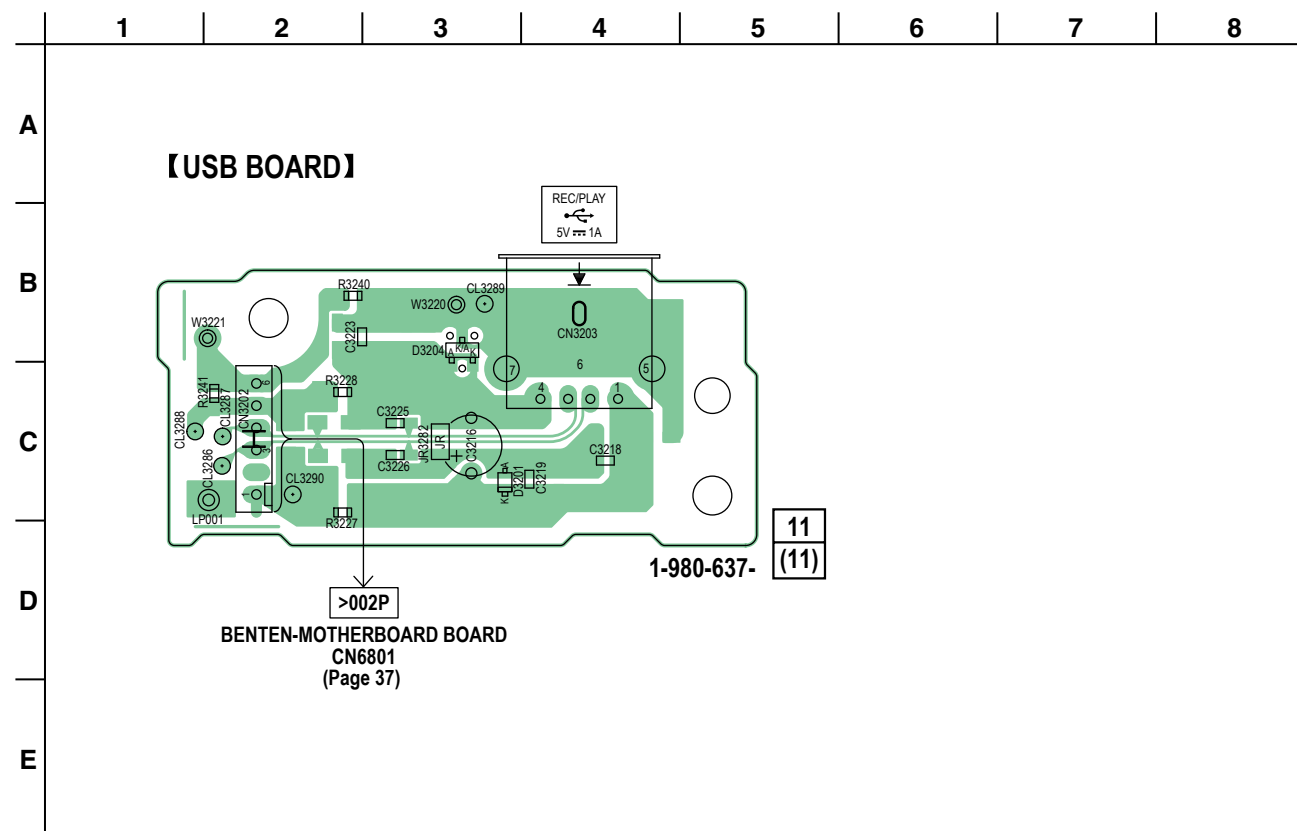


6-38. SCHEMATIC DIAGRAM - POWER BUTTON Board -



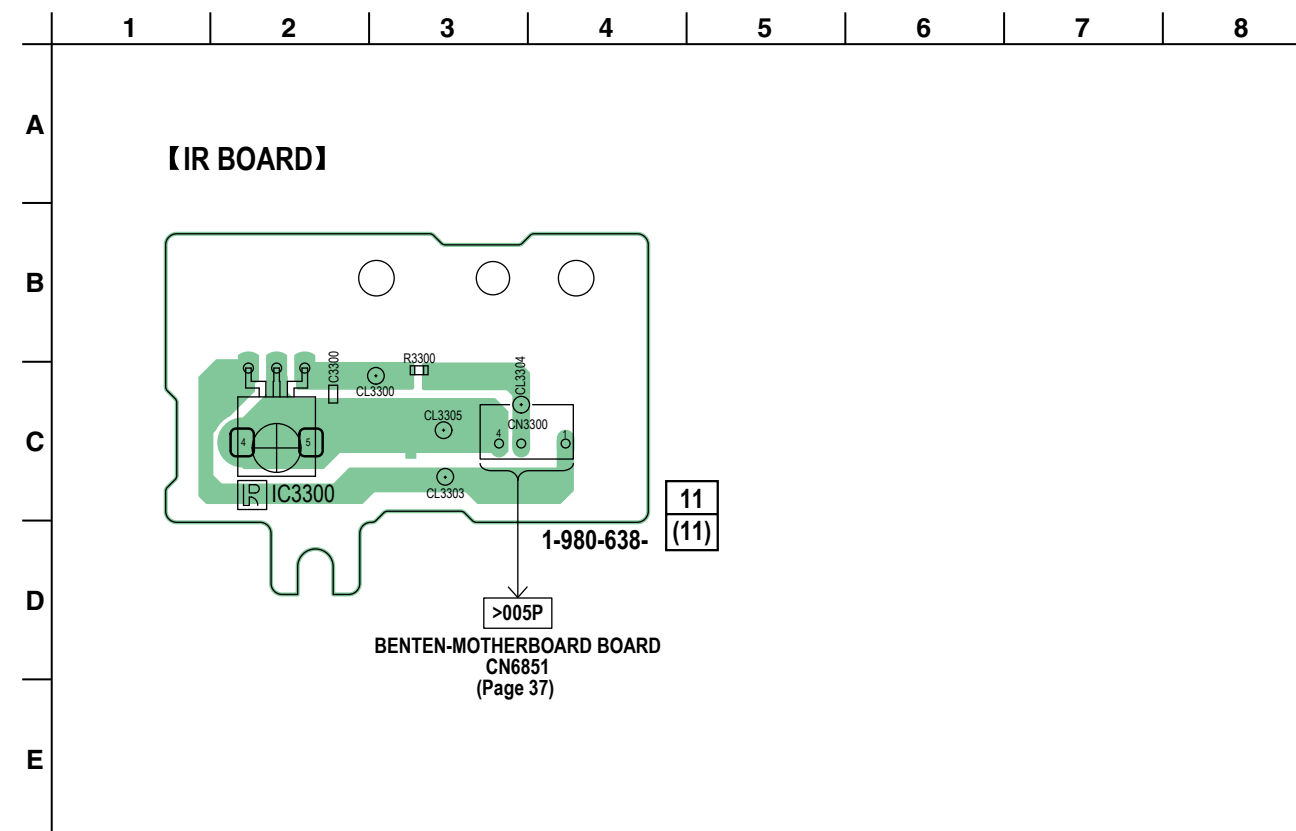
6-39. PRINTED WIRING BOARD - USB Board -

• See page 30 for Circuit Boards Location. • : Uses unleaded solder.

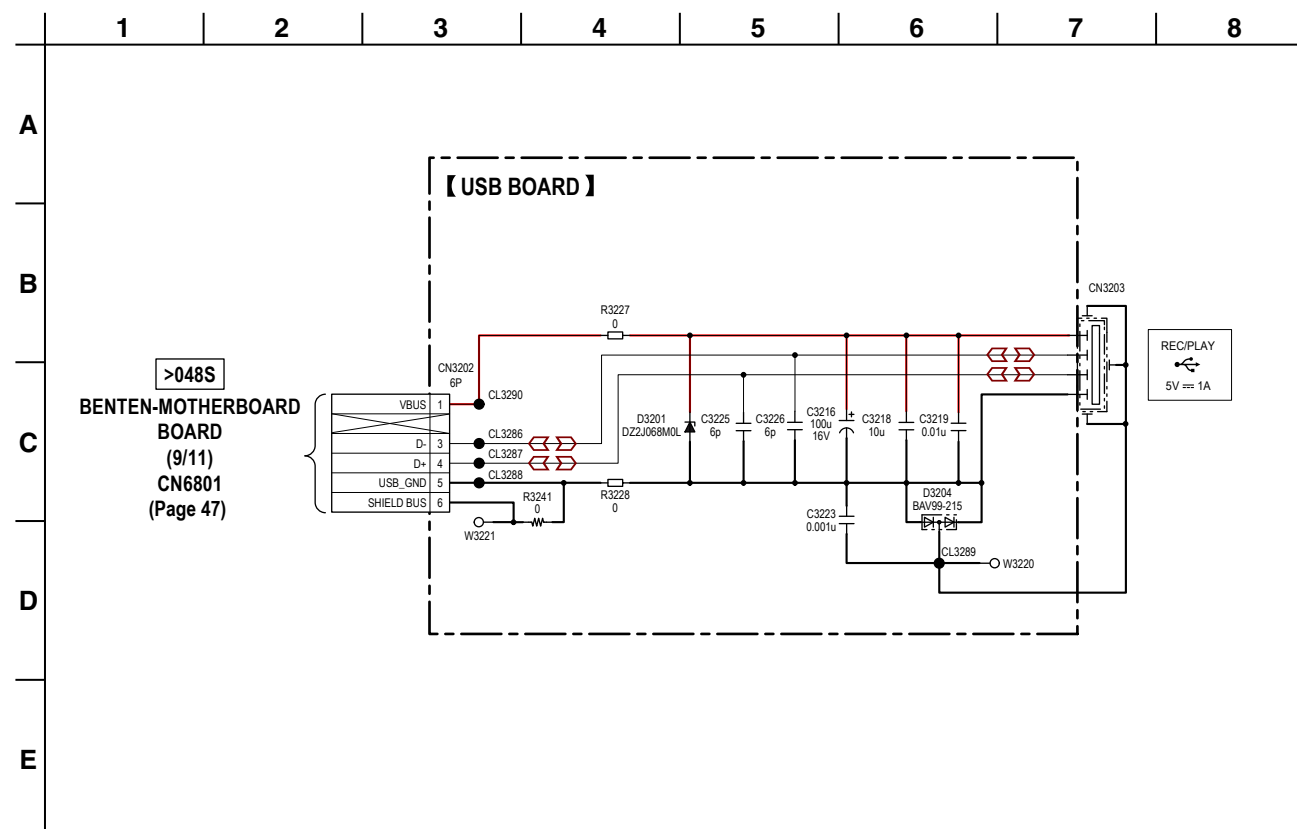


6-41. PRINTED WIRING BOARD - IR Board -

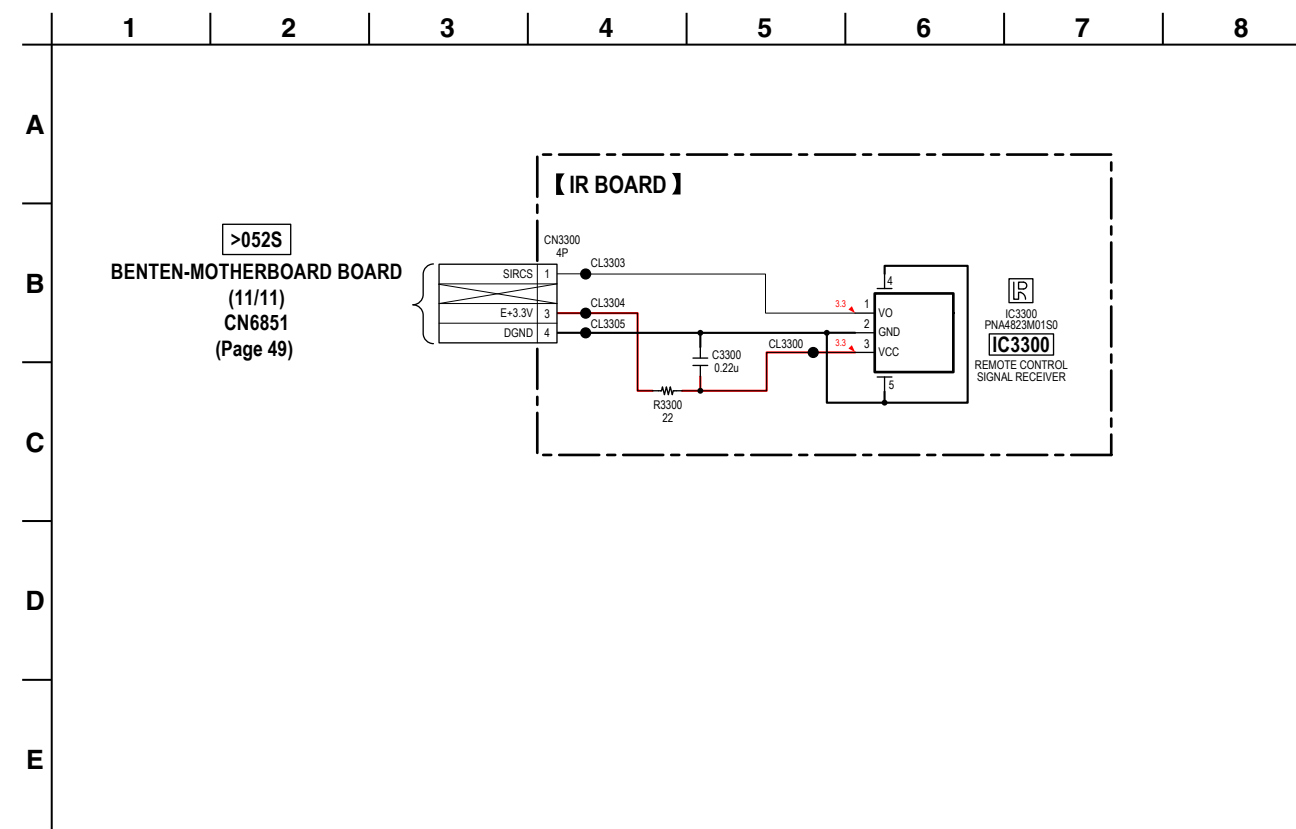
• See page 30 for Circuit Boards Location. • : Uses unleaded solder.



6-40. SCHEMATIC DIAGRAM - USB Board -

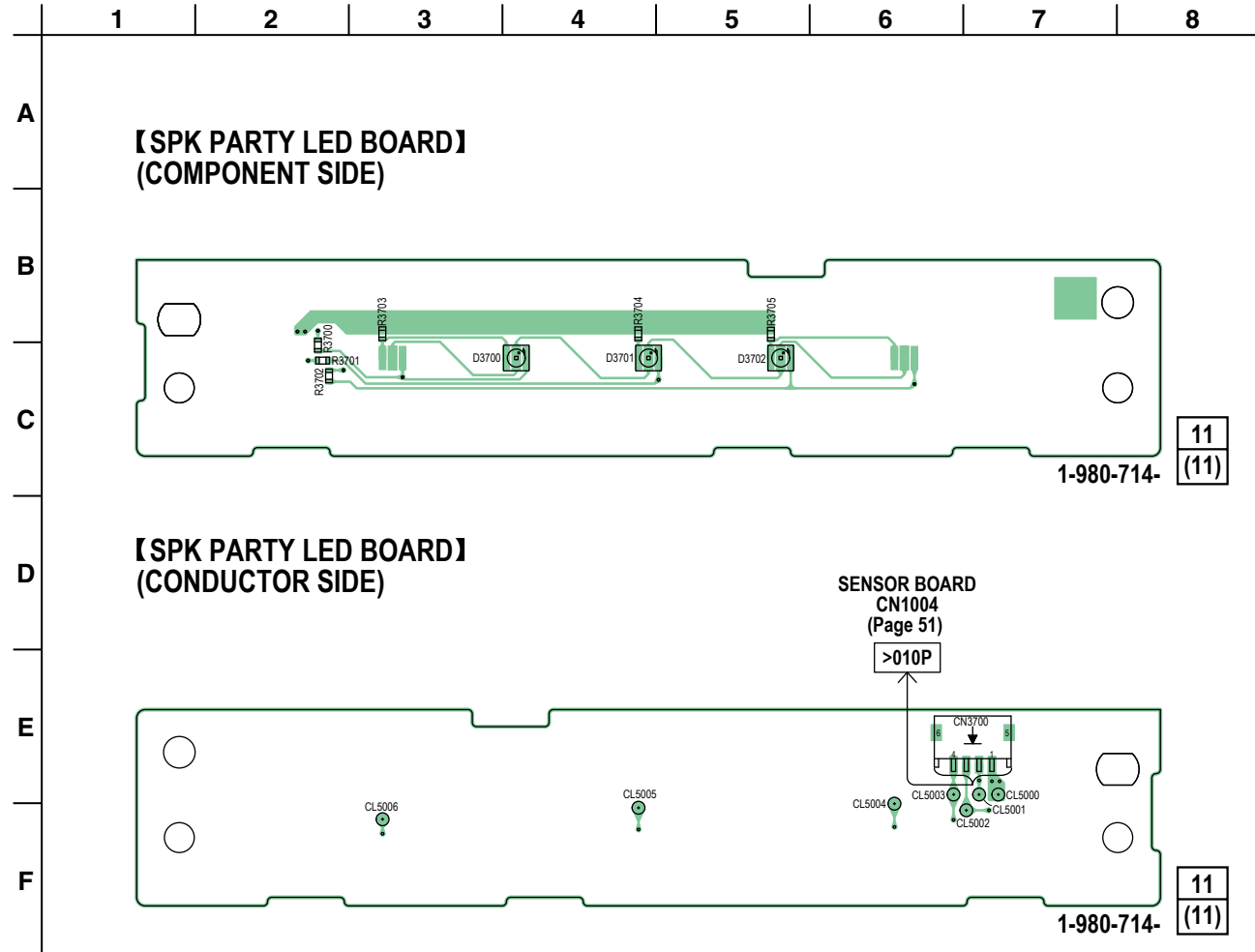


6-42. SCHEMATIC DIAGRAM - IR Board -

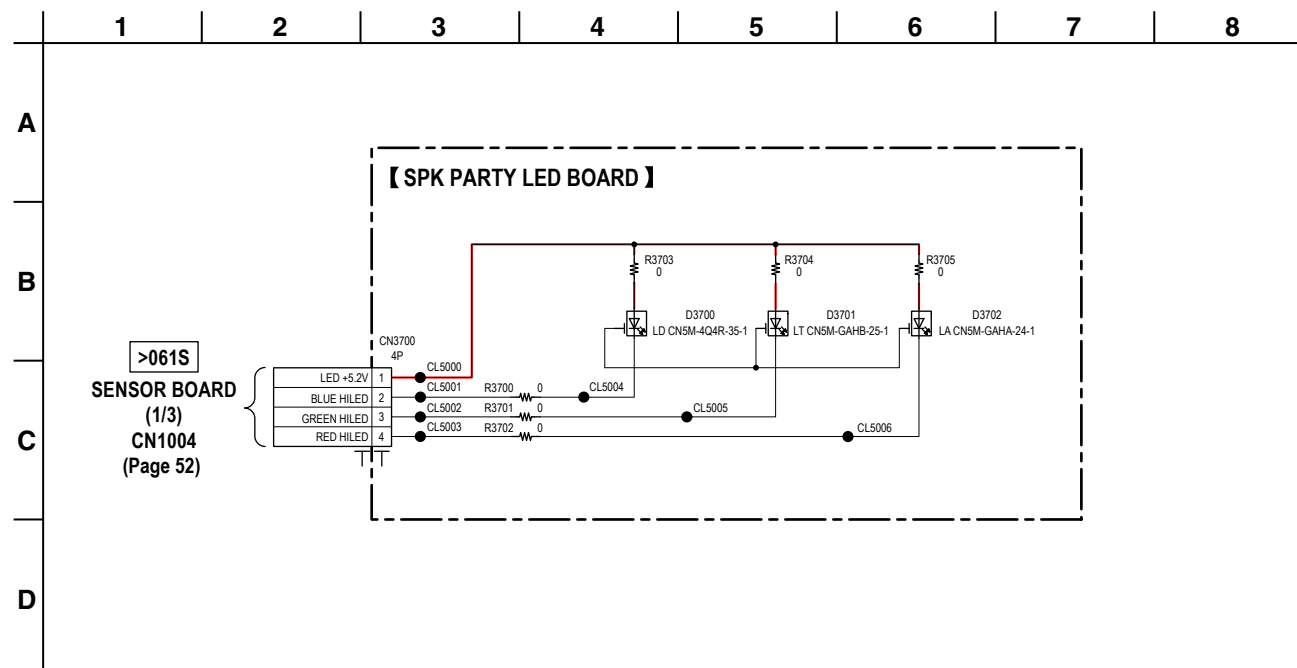


6-43. PRINTED WIRING BOARD - SPK PARTY LED Board -

• See page 30 for Circuit Boards Location. • : Uses unleaded solder.

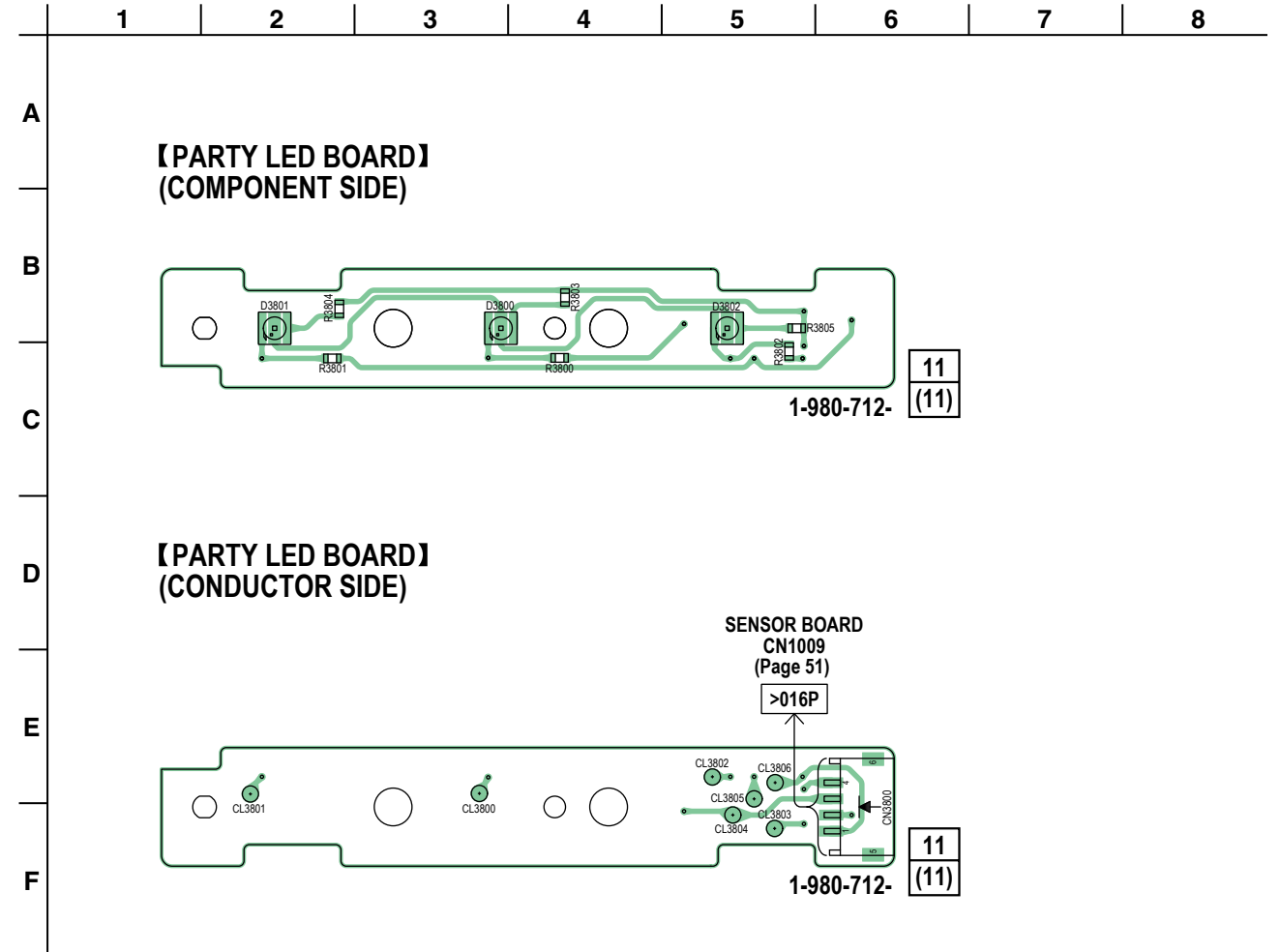


6-44. SCHEMATIC DIAGRAM - SPK PARTY LED Board -

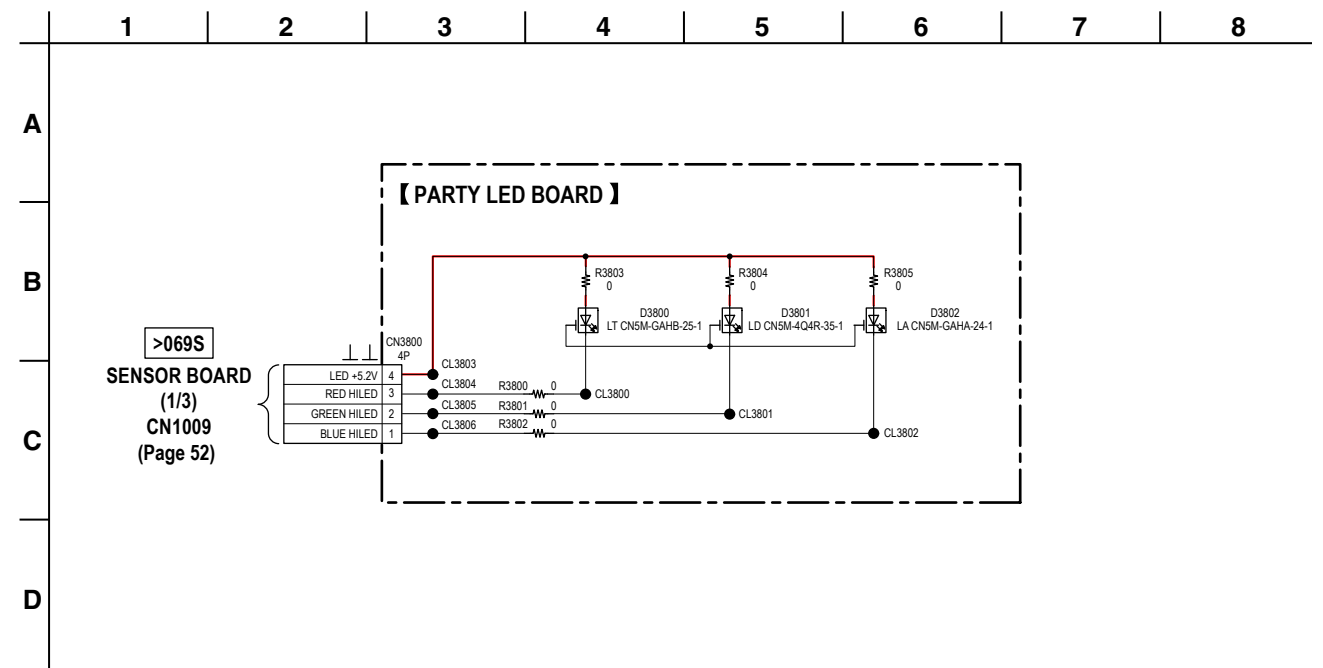


6-45. PRINTED WIRING BOARD - PARTY LED Board -

• See page 30 for Circuit Boards Location. • : Uses unleaded solder.

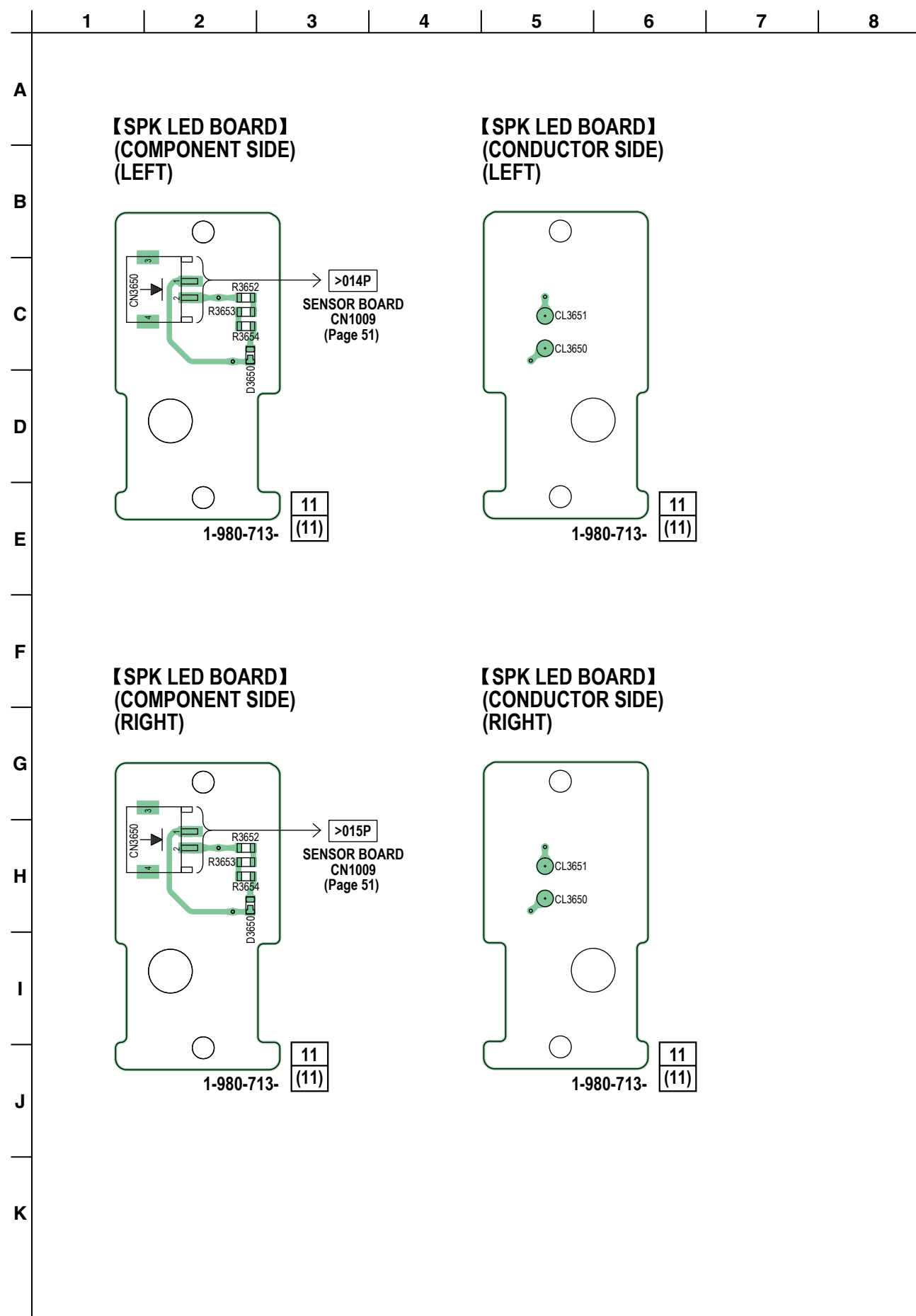


6-46. SCHEMATIC DIAGRAM - PARTY LED Board -

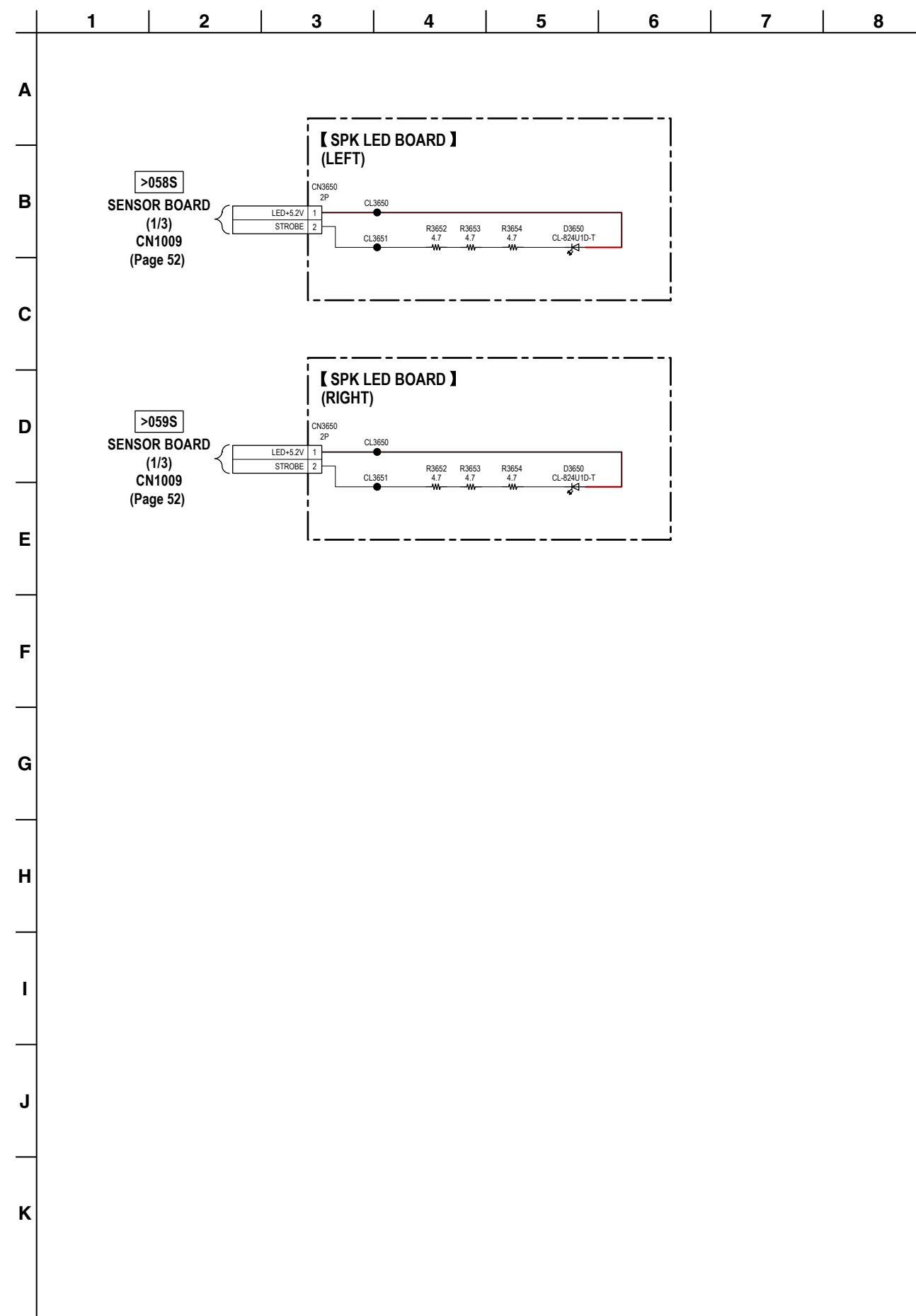


6-47. PRINTED WIRING BOARD - SPK LED Board -

• See page 30 for Circuit Boards Location. • : Uses unleaded solder.

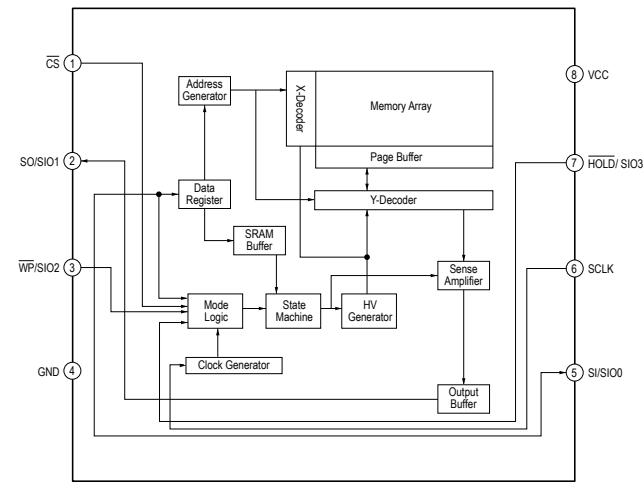


6-48. SCHEMATIC DIAGRAM - SPK LED Board -

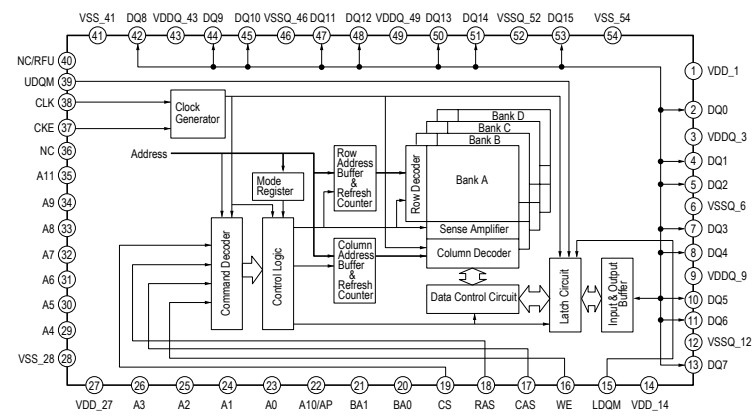


• IC Block Diagrams

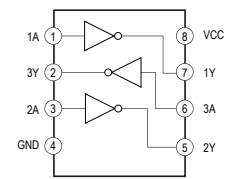
IC8001 MX25L3235EM2I-10G (89G BOARD (1/3))



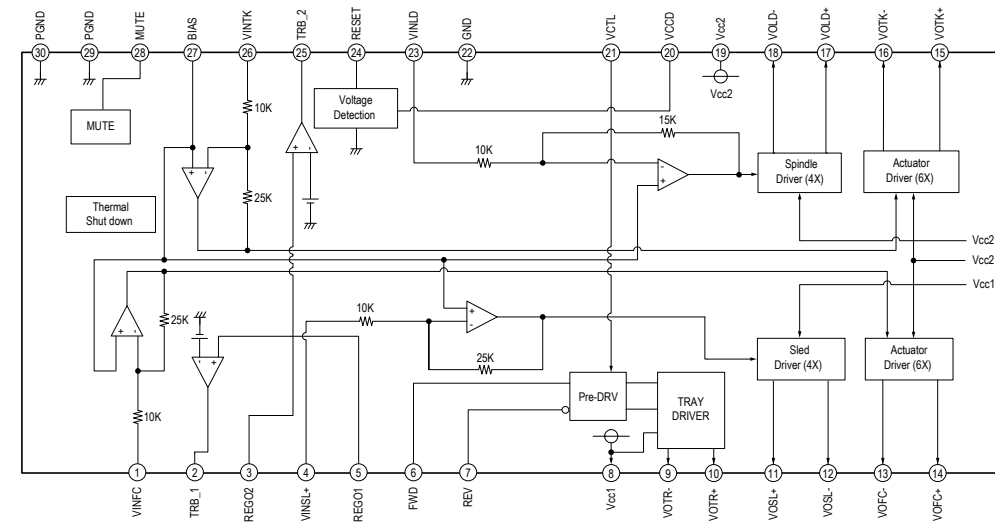
IC8005 EM638165TSD-6G (89G BOARD (2/3))



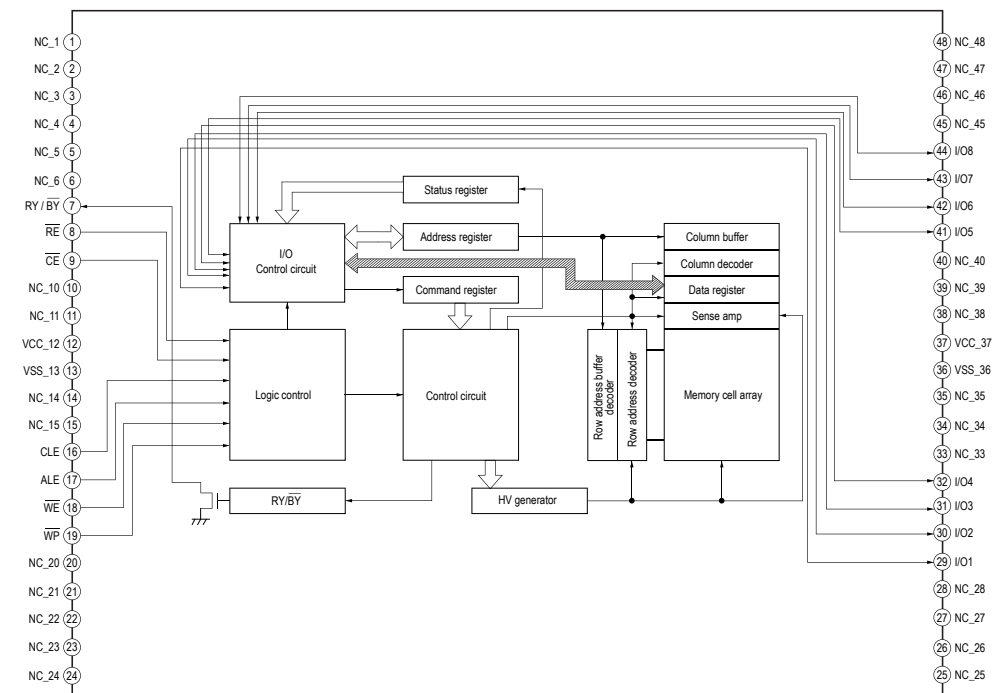
IC8007 TC7WHU04FK, RSNJ (CT (89G BOARD (2/3)) (V77DW))



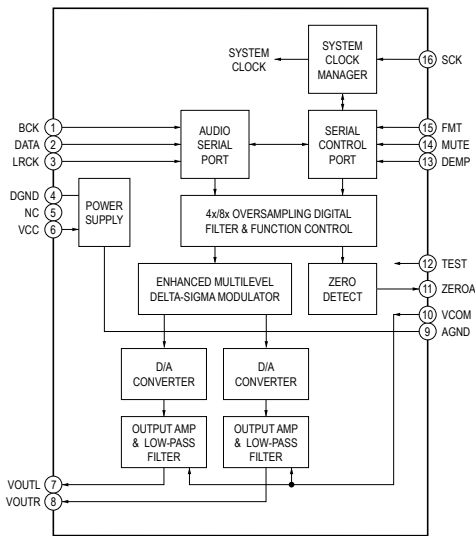
IC8400 AM5890S (89G BOARD (3/3))



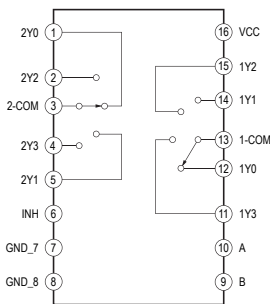
IC6202 TH58NVG3S0HTAI0 (BENTEN-MOTHERBOARD BOARD (3/11))



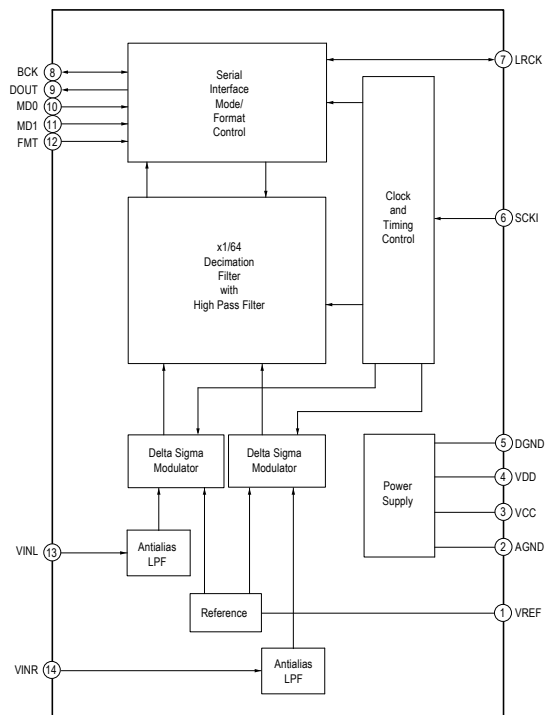
IC6401 PCM1754DBQR (BENTEN-MOTHERBOARD BOARD (5/11))



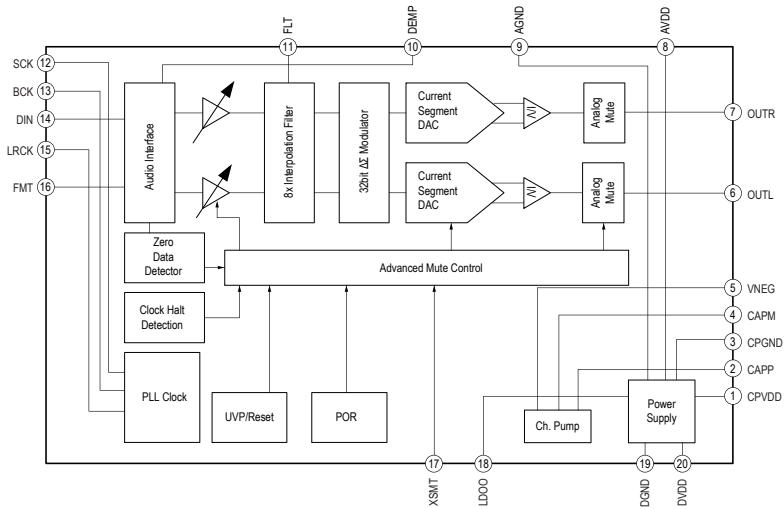
IC6403, IC6406 SN74LV4052APWR (BENTEN-MOTHERBOARD BOARD (5/11))



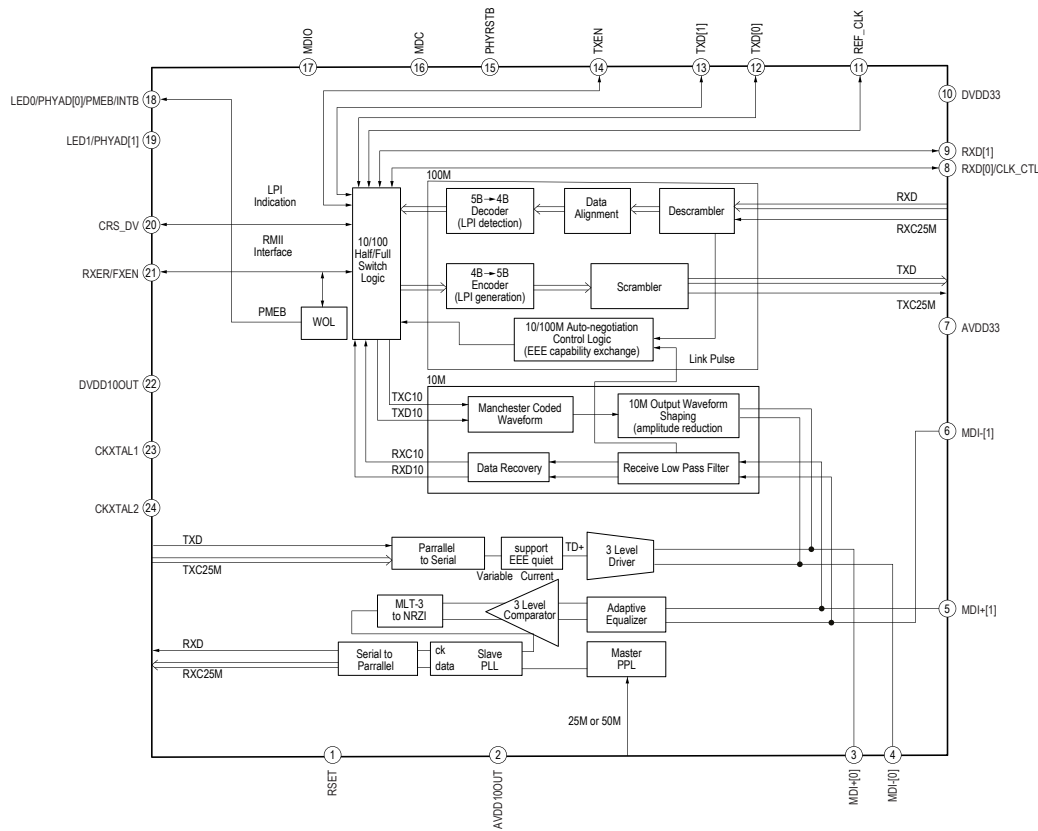
IC6405, IC6407 PCM1808PWR (BENTEN-MOTHERBOARD BOARD (5/11))



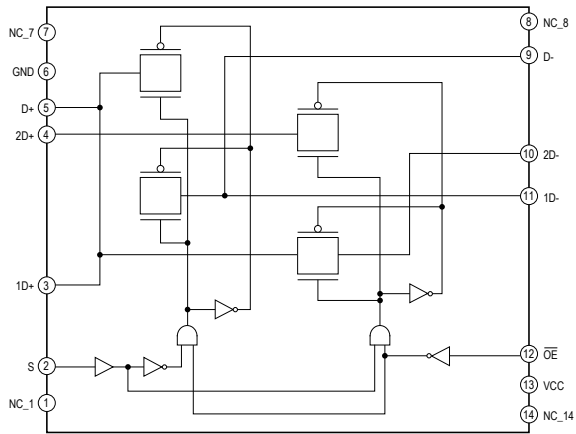
IC6409 PCM5101 (BENTEN-MOTHERBOARD BOARD (6/11))



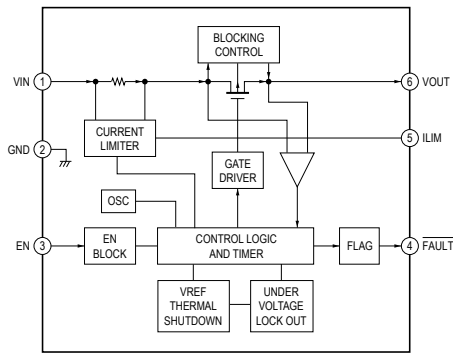
IC6602 RTL8201FR-VB-CGT (ASE) (BENTEN-MOTHERBOARD BOARD (7/11))



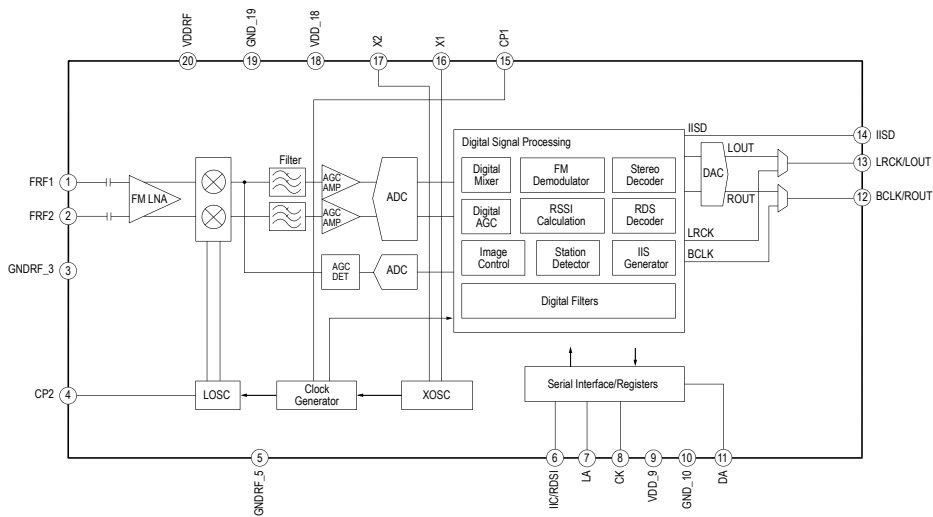
IC6802 TC7USB40FT (BENTEN-MOTHERBOARD BOARD (9/11))



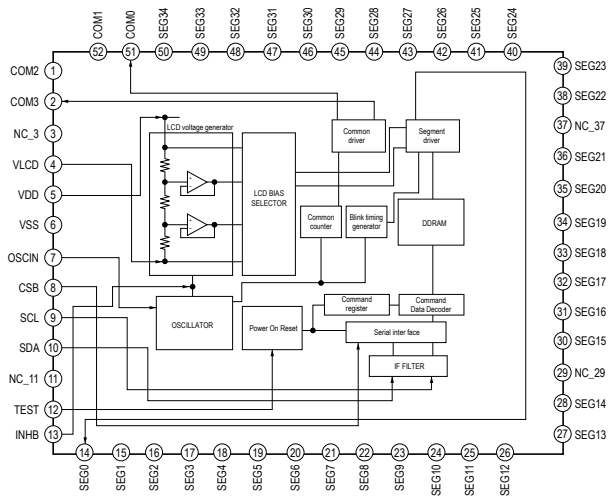
IC6803 NCP380HSNAJAAT1G (BENTEN-MOTHERBOARD BOARD (9/11))



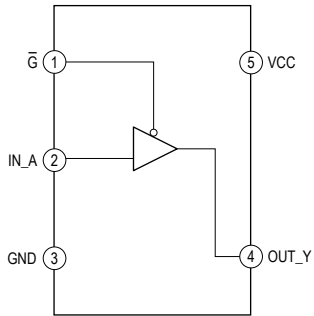
IC8902 RN5B701-0002 (FM-TUNER BOARD)



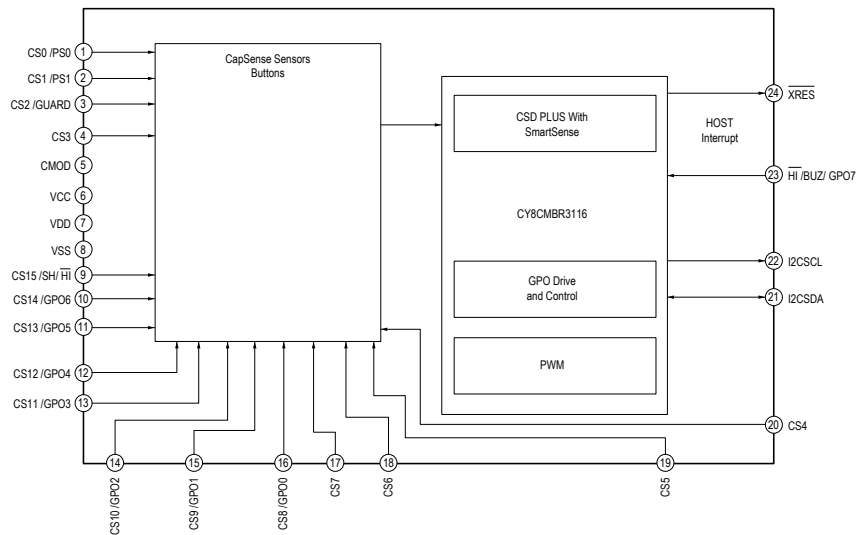
IC3204 BU9795AKS2 (LCD BOARD)



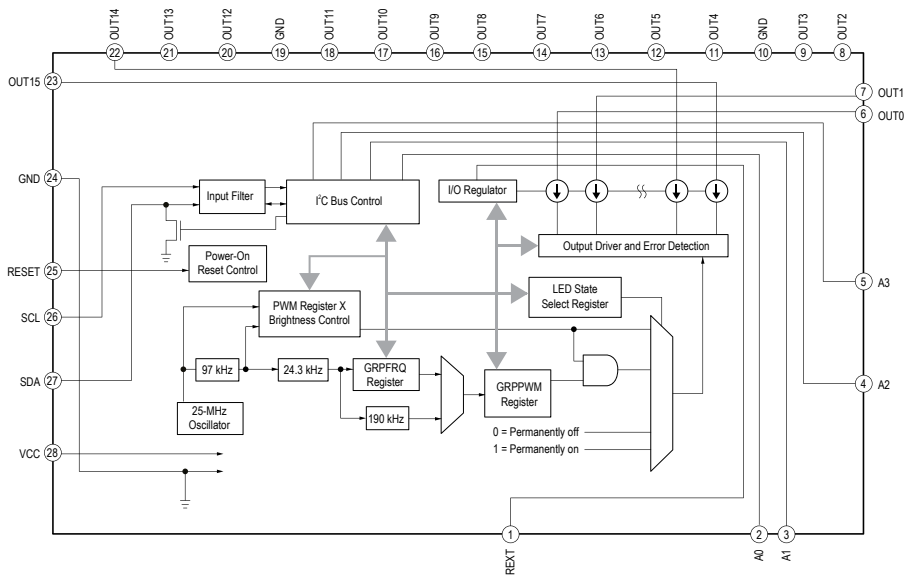
IC3206, IC3207, IC3208, IC3209 TC7SH125FU (LCD BOARD)



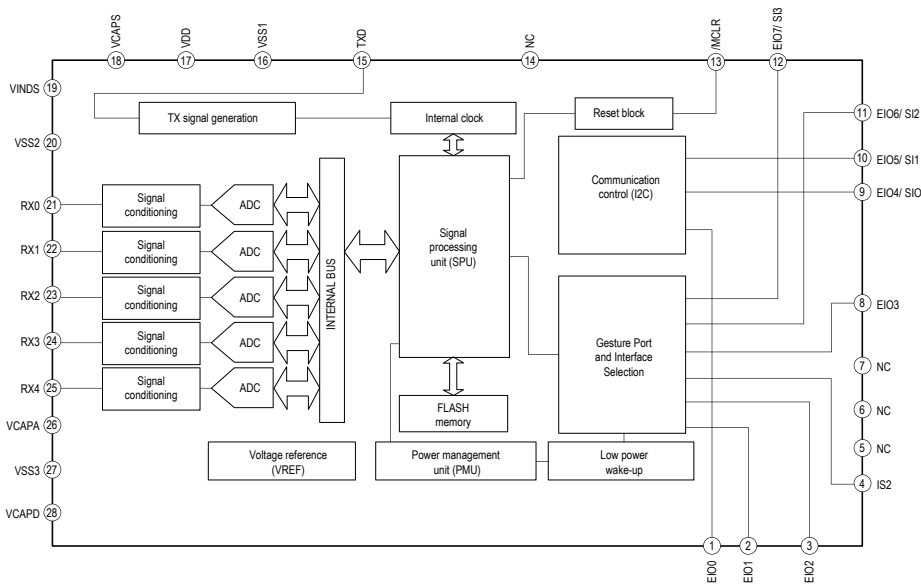
IC001, IC002 CY8CMBR3116-LQXIT (SENSOR BOARD (2/3))



IC1000, IC1002, IC1003, IC1004 TLC59116IPWR (SENSOR BOARD (1/3))



IC3600 MGC3030 (SENSOR BOARD (3/3))



• IC Pin Function Descriptions

89G BOARD (1/3) IC8003 CXD9992R (FOCUS/TRACKING ERROR AMP CD SYSTEM PROCESSOR DIGITAL SERVO PROCESSOR)

Pin No.	Pin Name	I/O	Description
1	AVDD12_2	-	Power supply terminal (+1.2V) (for analog system)
2	AVDD33_1	-	Power supply terminal (+3.3V) (for analog system)
3	XTALI	I	System clock input terminal (27 MHz)
4	XTALO	O	System clock output terminal (27 MHz)
5	V20	O	Reference voltage (+2V) output to the optical pick-up block
6	V14	O	Reference voltage (+1.4V) output to the coil/motor driver
7	REXT / GPO5	I	Current reference input terminal
8	MDI1	I	Laser power monitor input from the optical pick-up block
9	LDO1	O	Laser diode drive signal output to the optical pick-up block (for CD)
10	LDO2	O	Laser diode drive signal output to the optical pick-up block (for DVD)
11	AVDD33_2	-	Power supply terminal (+3.3V) (for analog system)
12	DMO	O	Spindle motor control signal output to the motor driver
13	FMO	O	Sled motor control signal output to the motor driver
14	TRAY_OPEN/ GPIO CD_VR	O	Variable resistor control signal output to the optical pick-up block (for CD)
15	TRAY_CLOSE/ GPIO DVD_VR	O	Variable resistor control signal output to the optical pick-up block (for DVD)
16	TRO	O	Tracking coil control signal output to the coil/motor driver
17	FOO	O	Focus coil control signal output to the coil/motor driver
18	FG/ GPIO2	O	The switch of OPU PDIC
19	USB_DP	I/O	Two-way USB data (+) bus terminal
20	USB_DM	I/O	Two-way USB data (-) bus terminal
21	VDD33_USB	-	Power supply terminal (+3.3V) (for USB)
22	PAD_VRT	I/O	USB generating reference current terminal
23	VDD12_USB	-	Power supply terminal (+1.2V) (for USB)
24	SF_CS_	O	Chip select signal output to the serial flash
25	SF_DO	O	Serial data output to the serial flash
26	SF_DI	I	Serial data input from the serial flash
27	SF_CK	O	Serial clock signal output to the serial flash
28	UP1_6 / SCL	I/O	Two-way I2C clock signal with the EEPROM
29	UP1_7 / SDA	I/O	Two-way I2C data signal with the EEPROM
30	GPIO11 (RXD)	-	BENTEN/UTXD1
31	GPIO6 (TXD)	-	HA7 connector
32	PRST_	I	Reset signal input from the system controller "L": reset
33	IR / GPI	-	NO-USE PIN
34	GPIO3 / INT_ (CEC) NC	-	URXD1
35	GPIO4 (VSCK) NC	-	NC
36	GPIO13 (VSTB) NC	-	XIFBSY
37	GPIO9 (SD-DATA) NC	-	NC
38	GPIO8 (SD-CMD) NC	-	NC
39	GPIO7 / CKE_ (89G_ CEC)	-	NC
40	DVDD33_40	-	Power supply terminal (+3.3V) (for digital system)
41	RD0	I/O	Two-way data bus with the SD-RAM
42	RD1	I/O	Two-way data bus with the SD-RAM
43	RD2	I/O	Two-way data bus with the SD-RAM
44	RD3	I/O	Two-way data bus with the SD-RAM
45	RD4	I/O	Two-way data bus with the SD-RAM
46	RD5	I/O	Two-way data bus with the SD-RAM
47	RD6	I/O	Two-way data bus with the SD-RAM
48	RD7	I/O	Two-way data bus with the SD-RAM
49	DQM0	O	Data mask signal output to the SD-RAM
50	RD15	I/O	Two-way data bus with the SD-RAM
51	RD14	I/O	Two-way data bus with the SD-RAM

Pin No.	Pin Name	I/O	Description
52	DVDD12_52	-	Power supply terminal (+1.2V) (for digital system)
53	RD13	I/O	Two-way data bus with the SD-RAM
54	RD12	I/O	Two-way data bus with the SD-RAM
55	RD11	I/O	Two-way data bus with the SD-RAM
56	RD10	I/O	Two-way data bus with the SD-RAM
57	RD9	I/O	Two-way data bus with the SD-RAM
58	RD8	I/O	Two-way data bus with the SD-RAM
59	DQM1	O	Data mask signal output to the SD-RAM
60	RCLK	O	Clock signal output to the SD-RAM
61	RA11	O	Address signal output to the SD-RAM
62	RA9	O	Address signal output to the SD-RAM
63	RA8	O	Address signal output to the SD-RAM
64	RA7	O	Address signal output to the SD-RAM
65	RA6	O	Address signal output to the SD-RAM
66	RA5	O	Address signal output to the SD-RAM
67	RA4	O	Address signal output to the SD-RAM
68	RWE	O	Write enable signal output to the SD-RAM
69	CAS	O	Column address strobe signal output to the SD-RAM
70	RAS	O	Row address strobe signal output to the SD-RAM
71	DVDD33_71	-	Power supply terminal (+3.3V) (for digital system)
72	BA0	O	Bank address signal output to the SD-RAM
73	BA1	O	Bank address signal output to the SD-RAM
74	RA10	O	Address signal output to the SD-RAM
75	RA0	O	Address signal output to the SD-RAM
76	RA1	O	Address signal output to the SD-RAM
77	RA2	O	Address signal output to the SD-RAM
78	RA3	O	Address signal output to the SD-RAM
79	DVDD12_79	-	Power supply terminal (+1.2V) (for digital system)
80	SPDIF/GPIO12	-	Not used
81	GPIO10/HPLG	-	HDMI SW/HPD1
82	EXT_RES	I	Ext. resistor connected terminal
83	AVDD33_12	-	Power supply terminal (+3.3V) (for analog system)
84	TXCN	O	N/A
85	TXCP	O	N/A
86	AVDD12_C	-	Power supply terminal (+1.2V) (for analog system)
87	TX0N	O	N/A
88	TX0P	O	N/A
89	ASS12	-	Power/GND
90	TX1N	O	N/A
91	TX1P	O	N/A
92	AVDD12_D	-	Power supply terminal (+1.2V) (for analog system)
93	TX2N	O	N/A
94	TX2P	O	N/A
95	DACVDDC	-	Power supply terminal (+3.3V) (for D/A converter)
96	(AMUTE) VREF/ GPO14	I	Band gap reference voltage terminal
97	FS	I	Full scale adjustment terminal
98	CVBS	O	Composite video signal output terminal
99	DACVDDB	-	Power supply terminal (+3.3V) (for D/A converter)
100	Y/G	-	Not used
101	B/CB/PB	-	Not used
102	R/CR/PR	-	Not used
103	(SCART2) NC AKIN2/ GPIO19	-	Servo_Monitor
104	ADVCM/GPIO20	-	Servo_Monitor
105	(AKIN1) NC AKIN1/ GPIO21	-	Servo_Monitor

Pin No.	Pin Name	I/O	Description
106	AADVDD	-	Power supply terminal (+3.3V) (for A/D converter)
107	APLLVDD_GPIO/ GPIO34	-	FE_LIMIT
108	PAPLLCAP/GPIO35	-	MotorDriver/MUTE/STBY
109	(AUDIO_ARF) NC LFE/GPIO	-	NC
110	(AUDIO_ARS) NC ARS/GPIO	-	NC
111	(RXD) AR/GPIO0	-	RXD/RS232_Connector
112	AVCM	I	Audio D/A converter reference voltage terminal
113	(TXD) AL/GPIO	-	TXD/RS232_Connector
114	(AUDIO_ALS) NC ALS/GPIO	-	NC
115	(AUDIO_ALF) NC CENTER/GPIO	-	NC
116	ADACVDD1	-	Power supply terminal (+3.3V) (for D/A converter)
117	ADACVDD2	-	Power supply terminal (+3.3V) (for D/A converter)
118	AVDD12	-	Power supply terminal (+1.2V) (for analog system)
119	RFIP	I	AC coupled RF signal input from the optical pick-up block
120	RFIN/OPOUT/GPI36	-	OPDIST
121	RFG/OPINP	-	Traverse/SP Motor
122	RFH/OPINN	-	MotorDriver/SP-
123	RFA	-	RF main beam A input from the optical pick-up block
124	RFB	I	RF main beam B input from the optical pick-up block
125	RFC	-	OP/A
126	RFD	-	OP/D
127	RFE	-	DVD_IOP
128	RFF	-	CD_IOP

BENTEN-MOTHERBOARD BOARD (1/11), (2/11), (4/11), (7/11), (8/11) IC6001 MT8591AOAT (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Description
A1	GNDK_A1	-	Ground pin
A2	GNDK_A2	-	Ground pin
A3	REXTDN	I/O	DRAM REXTDN pin
A4	RDQ8	I/O	DRAM data pin 8
A5	RDQ14	I/O	DRAM data pin 14
A6	RDQ1	I/O	DRAM data pin 1
A7	RDQ5	I/O	DRAM data pin 5
A8	NO_USE	-	Not used
A9	RDQ0	I/O	DRAM data pin 0
A10	RDQ13	I/O	DRAM data pin 13
A11	RDQ11	I/O	DRAM data pin 11
A12	RCKE	I/O	DRAM command output CKE
A13	NO_USE	-	Not used
A14	RA1	I/O	DRAM address output 1
A15	NO_USE	-	Not used
A16	RA5	I/O	DRAM address output 5
A17	RA9	I/O	DRAM address output 9
A18	RCS_	I/O	DRAM chip select 0
A19	RRAS_	I/O	DRAM cmd row strobe output
A20	RBA2	I/O	DRAM banks address
A21	RDQ24	I/O	DRAM data pin 24
A22	NO_USE	-	Not used
A23	RDQ19	I/O	DRAM data pin 19
A24	RDQ23	I/O	DRAM data pin 23
A25	NO_USE	-	Not used
A26	RDQ31	I/O	DRAM data pin 31
A27	RDQ25	I/O	DRAM data pin 25
A28	GNDK_A28	-	Ground pin
A29	GNDK_A29	-	Ground pin
B1	GNDK_B1	-	Ground pin
B2	MSDC1_DAT2	I/O	MSDC1 data 2
B3	FSOURCE_P0	-	E-FUSE blowing power control
B4	GNDK_B4	-	Ground pin
B5	RDQ10	I/O	DRAM data pin 10
B6	RDQ12	I/O	DRAM data pin 12
B7	RDQ3	I/O	DRAM data pin 3
B8	RDQ4	I/O	DRAM data pin 4
B9	RDQ2	I/O	DRAM data pin 2
B10	RDQ15	I/O	DRAM data pin 15
B11	GNDK_B11	-	Ground pin
B12	RA10	I/O	DRAM address output 10
B13	RA8	I/O	DRAM address output 8
B14	RA4	I/O	DRAM address output 4
B15	RBA1	I/O	DRAM banks address
B16	RA3	I/O	DRAM address output 3
B17	RA13	I/O	DRAM address output 13
B18	RWE_	I/O	DRAM cmd write enable
B19	RCAS_	I/O	DRAM cmd column strobe output
B20	RCS1_	I/O	DRAM chip select 1
B21	RDQ26	I/O	DRAM data pin 26
B22	RDQ28	I/O	DRAM data pin 28
B23	RDQ17	I/O	DRAM data pin 17
B24	RDQ21	I/O	DRAM data pin 21
B25	RDQ22	I/O	DRAM data pin 22
B26	RDQ16	I/O	DRAM data pin 16

Pin No.	Pin Name	I/O	Description
B27	RDQ29	I/O	DRAM data pin 29
B28	RDQ27	I/O	DRAM data pin 27
B29	GNDK_B29	-	Ground pin
C1	MSDC1_CMD	I/O	MSDC1 command pin
C2	MSDC1_DAT3	I/O	MSDC1 data 3
C3	NO_USE	-	Not used
C4	NO_USE	-	Not used
C5	GNDK_C5	-	Ground pin
C6	NO_USE	-	Not used
C7	NO_USE	-	Not used
C8	RDQ7	I/O	DRAM data pin 7
C9	RDQ6	I/O	DRAM data pin 6
C10	RDQ9	I/O	DRAM data pin 9
C11	RDQM1	I/O	DRAM DQM 1
C12	NO_USE	-	Not used
C13	RA14	I/O	DRAM address output 14
C14	RA6	I/O	DRAM address output 6
C15	RA0	I/O	DRAM address output 0
C16	GNDK_C16	-	Ground pin
C17	NO_USE	-	Not used
C18	GNDK_C18	-	Ground pin
C19	DDR3RSTB	I/O	DDR3 reset pin output
C20	GNDK_C20	-	Ground pin
C21	RDQ30	I/O	DRAM data pin 30
C22	RDQM2	I/O	DRAM DQM 2
C23	NO_USE	-	Not used
C24	GNDK_C24	-	Ground pin
C25	RDQ20	I/O	DRAM data pin 20
C26	RDQ18	I/O	DRAM data pin 18
C27	GNDK_C27	-	Ground pin
C28	MSDC0_DAT6	I/O	MSDC0 data 6 / NAND flash data 6
C29	MSDC0_DAT7	I/O	MSDC0 data 7 / NAND flash data 7
D1	MSDC1_CLK	I/O	MSDC1 clock output
D2	MSDC1_INS	I/O	MSDC1 insertion detect
D3	GNDK_D3	-	Ground pin
D4	GNDK_D4	-	Ground pin
D5	NO_USE	-	Not used
D6	GNDK_D6	-	Ground pin
D7	NO_USE	-	Not used
D8	NO_USE	-	Not used
D9	NO_USE	-	Not used
D10	RDQS1	I/O	DRAM DQS 1
D11	GNDK_D11	-	Ground pin
D12	NO_USE	-	Not used
D13	NO_USE	-	Not used
D14	GNDK_D14	-	Ground pin
D15	RA7	I/O	DRAM address output 7
D16	NO_USE	-	Not used
D17	NO_USE	-	Not used
D18	RBA0	I/O	DRAM banks address
D19	RCLK1	I/O	DRAM clock output 1
D20	NO_USE	-	Not used
D21	NO_USE	-	Not used
D22	RDQS2_	I/O	DRAM DQS 2 #
D23	GNDK_D23	-	Ground pin
D24	RDQM3	I/O	DRAM DQM 3

Pin No.	Pin Name	I/O	Description
D25	NO_USE	-	Not used
D26	GNDK_D26	-	Ground pin
D27	MSDC0_DAT2	I/O	MSDC0 data 2 / NAND flash data 2
D28	MSDC0_DAT5	I/O	MSDC0 data 5 / NAND flash data 5
D29	NO_USE	-	Not used
E1	MSDC1_DAT1	I/O	MSDC1 data 1
E2	MSDC1_DAT0	I/O	MSDC1 data 0
E3	NO_USE	-	Not used
E4	NO_USE	-	Not used
E5	NO_USE	-	Not used
E6	NO_USE	-	Not used
E7	GNDK_E7	-	Ground pin
E8	RDQM0	I/O	DRAM DQM 0
E9	NO_USE	-	Not used
E10	RDQS1_	I/O	DRAM DQS 1 #
E11	NO_USE	-	Not used
E12	RDQS0	I/O	DRAM DQS 0
E13	NO_USE	-	Not used
E14	RCLK0_	I/O	DRAM clock output 0#
E15	RA12	I/O	DRAM address output 12
E16	NO_USE	-	Not used
E17	NO_USE	-	Not used
E18	RA2	I/O	DRAM address output 2
E19	RCLK1_	I/O	DRAM clock output 1#
E20	NO_USE	-	Not used
E21	NO_USE	-	Not used
E22	RDQS2	I/O	DRAM DQS 2
E23	RDQS3	I/O	DRAM DQS 3
E24	NO_USE	-	Not used
E25	AVDD18_MEMPLL	-	Analog power input 1.8V for MEMPLL
E26	DVDD18_IO_MSDC0	-	Digital power input 1.8V for MSDC0/NAND flash
E27	MSDC0_DAT1	I/O	MSDC0 data 1 / NAND flash data 1
E28	MSDC0_DAT0	I/O	MSDC0 data 0 / NAND flash data 0
E29	MSDC0_DAT4	I/O	MSDC0 data 4 / NAND flash data 4
F1	AVDD12_GLOBAL	-	Analog power input 1.2V
F2	DVSS18_MIPITX_F2	-	Ground pin
F3	NO_USE	-	Not used
F4	DVDD28_MSDC1	-	Digital power input 1.8/3.3V for MSDC1
F5	DVDD18_IO_MSDC1	-	Digital power input 1.8V for MSDC1
F6	NO_USE	-	Not used
F7	NO_USE	-	Not used
F8	DVDD18_EFUSE	-	Digital power input for EFUSE
F9	NO_USE	-	Not used
F10	GNDK_F10	-	Ground pin
F11	NO_USE	-	Not used
F12	RDQS0_	I/O	DRAM DQS 0 #
F13	NO_USE	-	Not used
F14	RCLK0	I/O	DRAM clock output 0
F15	RA11	I/O	DRAM address output 11
F16	NO_USE	-	Not used
F17	NO_USE	-	Not used
F18	RA15	I/O	DRAM address output 15
F19	TP_MEMPLL	I/O	MEMPLL differential output P for debugging
F20	NO_USE	-	Not used
F21	NO_USE	-	Not used
F22	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
F23	RDQS3_	I/O	DRAM DQS 3 #
F24	NO_USE	-	Not used
F25	EXT_SCK	I/O	SPI NOR flash clock
F26	NRNB	I/O	NAND flash read/busy
F27	DVDD28_MSDC0	-	Digital power input 1.8/3.3V for MSDC0/NAND flash
F28	MSDC0_CLK	I/O	MSDC0 clock output / NWEB
F29	MSDC0_DAT3	I/O	MSDC0 data 3 / NAND flash data 3
G1	TDN0	I/O	MIPI DSI lane0 N
G2	TDP0	I/O	MIPI DSI lane0 P
G3	DVSS18_MIPITX_G3	-	Ground pin
G4	NO_USE	-	Not used
G5	NO_USE	-	Not used
G6	NO_USE	-	Not used
G7	NO_USE	-	Not used
G8	VCCK_G8	-	Digital power input for core
G9	NO_USE	-	Not used
G10	NO_USE	-	Not used
G11	VDD_EMI_G11	-	Digital power input 1.2V for EMI
G12	VDD_EMI_G12	-	Digital power input 1.2V for EMI
G13	NO_USE	-	Not used
G14	RVREF1	I/O	DRAM voltage reference 1
G15	VDD_EMI_G15	-	Digital power input 1.2V for EMI
G16	NO_USE	-	Not used
G17	NO_USE	-	Not used
G18	VDD_EMI_G18	-	Digital power input 1.2V for EMI
G19	RVREF0	I/O	DRAM voltage reference 0
G20	NO_USE	-	Not used
G21	VDD_EMI_G21	-	Digital power input 1.2V for EMI
G22	VDD_EMI_G22	-	Digital power input 1.2V for EMI
G23	GNDK_G23	-	Ground pin
G24	NO_USE	-	Not used
G25	EXT_SDIO1	I/O	SPI NOR flash data1
G26	NO_USE	-	Not used
G27	NREB	I/O	NAND flash read enable
G28	NCEB0	I/O	NAND flash chip enable 0
G29	NO_USE	-	Not used
H1	TDN1	I/O	MIPI DSI lane1 N
H2	TDP1	I/O	MIPI DSI lane1 P
H3	NO_USE	-	Not used
H4	NO_USE	-	Not used
H5	NO_USE	-	Not used
H6	NO_USE	-	Not used
H7	NO_USE	-	Not used
H8	NO_USE	-	Not used
H9	NO_USE	-	Not used
H10	NO_USE	-	Not used
H11	NO_USE	-	Not used
H12	VDD_EMI_H12	-	Digital power input 1.2V for EMI
H13	NO_USE	-	Not used
H14	VDD_EMI_H14	-	Digital power input 1.2V for EMI
H15	NO_USE	-	Not used
H16	GNDK_H16	-	Ground pin
H17	GNDK_H17	-	Ground pin
H18	NO_USE	-	Not used
H19	VDD_EMI_H19	-	Digital power input 1.2V for EMI
H20	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
H21	NO_USE	-	Not used
H22	NO_USE	-	Not used
H23	NO_USE	-	Not used
H24	NO_USE	-	Not used
H25	NO_USE	-	Not used
H26	NO_USE	-	Not used
H27	NCEB1	I/O	NAND flash chip enable 1
H28	NO_USE	-	Not used
H29	NCLE	I/O	NAND flash command latch enable
J1	TCN	I/O	MIPI DSI CK lane N
J2	TCP	I/O	MIPI DSI CK lane P
J3	VRT	I/O	External resistor for DSI bias Connect 1.5K ohm 1 % resistor to ground
J4	AVDD33_GLOBAL	-	Analog power input 3.3V
J5	DVDD18_MIPITX	-	Analog power input 1.8V for MIPI DSI
J6	NO_USE	-	Not used
J7	AVDD18_GLOBAL_J7	-	Analog power input 1.8V
J8	AVDD18_GLOBAL_J8	-	Analog power input 1.8V
J9	VCCK_J9	-	Digital power input for core
J10	VCCK_J10	-	Digital power input for core
J11	NO_USE	-	Not used
J12	VCCK_J12	-	Digital power input for core
J13	NO_USE	-	Not used
J14	VCCK_J14	-	Digital power input for core
J15	VCCK_J15	-	Digital power input for core
J16	GNDK_J16	-	Ground pin
J17	NO_USE	-	Not used
J18	AVSS18_MEMPLL	-	Ground pin
J19	NO_USE	-	Not used
J20	NO_USE	-	Not used
J21	VCCK_J21	-	Digital power input for core
J22	NO_USE	-	Not used
J23	EXT_SDIO0	I/O	SPI NOR flash data0
J24	EXT_SDIO2	I/O	SPI NOR flash data2
J25	EXT_XCS	I/O	SPI NOR flash chip select
J26	EXT_SDIO3	I/O	SPI NOR flash data3
J27	DVDD28_NOR	-	Digital power input 1.8/3.3V for SPI NOR flash / SPI0
J28	MSDC0_CMD	I/O	MSDC0 command pin / NALE
J29	MSDC0_RSTB	I/O	MSDC0 reset output / NAND flash DQS signal
K1	DVSS18_MIPITX_K1	-	Ground pin
K2	DVSS18_MIPITX_K2	-	Ground pin
K3	NO_USE	-	Not used
K4	NO_USE	-	Not used
K5	NO_USE	-	Not used
K6	NO_USE	-	Not used
K7	NO_USE	-	Not used
K8	NO_USE	-	Not used
K9	NO_USE	-	Not used
K10	GNDK_K10	-	Ground pin
K11	GNDK_K11	-	Ground pin
K12	GNDK_K12	-	Ground pin
K13	GNDK_K13	-	Ground pin
K14	GNDK_K14	-	Ground pin
K15	GNDK_K15	-	Ground pin
K16	GNDK_K16	-	Ground pin
K17	GNDK_K17	-	Ground pin

Pin No.	Pin Name	I/O	Description
K18	GNDK_K18	-	Ground pin
K19	GNDK_K19	-	Ground pin
K20	GNDK_K20	-	Ground pin
K21	NO_USE	-	Not used
K22	NO_USE	-	Not used
K23	NO_USE	-	Not used
K24	NO_USE	-	Not used
K25	DVDD18_IO_NOR	-	Digital power input 1.8V for SPI NOR flash / SPI0
K26	DVDD18_IO2	-	Digital power input 1.8V for IO
K27	SPI0_CK	I/O	SPI0 clock
K28	SPI0_MI	I/O	SPI0 master data output to slave
K29	NO_USE	-	Not used
L1	MSDC2_CMD	I/O	MSDC2 command pin
L2	MSDC2_DAT2	I/O	MSDC2 data 2
L3	MSDC2_DAT0	I/O	MSDC2 data 0
L4	DVDD18_IO_MSDC2	-	Digital power input 1.8V for MSDC2
L5	NO_USE	-	Not used
L6	NO_USE	-	Not used
L7	AVDD18_GLOBAL_L7	-	Analog power input 1.8V
L8	VCCK_L8	-	Digital power input for core
L9	VCCK_L9	-	Digital power input for core
L10	GNDK_L10	-	Ground pin
L11	GNDK_L11	-	Ground pin
L12	GNDK_L12	-	Ground pin
L13	GNDK_L13	-	Ground pin
L14	GNDK_L14	-	Ground pin
L15	GNDK_L15	-	Ground pin
L16	GNDK_L16	-	Ground pin
L17	GNDK_L17	-	Ground pin
L18	GNDK_L18	-	Ground pin
L19	GNDK_L19	-	Ground pin
L20	VCCK_L20	-	Digital power input for core
L21	HDMI_0_RX_2	I/O	HDMI receiver channel2
L22	HDMI_0_RX_2B	I/O	HDMI receiver channel2 #
L23	HDMI_0_RX_1	I/O	HDMI receiver channel1
L24	HDMI_0_RX_1B	I/O	HDMI receiver channel1 #
L25	MHL_SENCE	I/O	GPIO
L26	NO_USE	-	Not used
L27	SPI0_MO	I/O	SPI0 slave data output to master
L28	SPI0_CSN	I/O	SPI0 chip select
L29	AVDD12_HDMI_0_RX	-	Analog power input 1.2V for HDMI receiver
M1	NO_USE	-	Not used
M2	MSDC2_DAT3	I/O	MSDC2 data 3
M3	MSDC2_DAT1	I/O	MSDC2 data 1
M4	NO_USE	-	Not used
M5	NO_USE	-	Not used
M6	NO_USE	-	Not used
M7	NO_USE	-	Not used
M8	NO_USE	-	Not used
M9	NO_USE	-	Not used
M10	GNDK_M10	-	Ground pin
M11	GNDK_M11	-	Ground pin
M12	GNDK_M12	-	Ground pin
M13	GNDK_M13	-	Ground pin
M14	GNDK_M14	-	Ground pin
M15	GNDK_M15	-	Ground pin

Pin No.	Pin Name	I/O	Description
M16	GNDK_M16	-	Ground pin
M17	GNDK_M17	-	Ground pin
M18	GNDK_M18	-	Ground pin
M19	GNDK_M19	-	Ground pin
M20	VCCK_M20	-	Digital power input for core
M21	NO_USE	-	Not used
M22	NO_USE	-	Not used
M23	NO_USE	-	Not used
M24	NO_USE	-	Not used
M25	HDMI_SCL_RX	I/O	HDMI receiver I2C clock
M26	HDMI_TESTOUTP_RX	I/O	HDMI receiver test pin
M27	HDMI_HPDI_CBUS_RX	I/O	HDMI receiver hot plug signal
M28	AVDD33_HDMI_0_RX	-	Analog power input 3.3V for HDMI receiver
M29	AVDD18_HDMI_0_RX	-	Analog power input 1.8V for HDMI receiver
N1	I2S3_MCLK	I/O	I2S channel 3 master clock
N2	MSDC2_CLK	I/O	MSDC2 clock output
N3	I2S4_DATA_IN	I/O	I2S channel 4 input data
N4	I2S4_MCLK	I/O	I2S channel 4 master clock
N5	I2S4_BCK	I/O	I2S channel 4 clock
N6	I2S4_DATA	I/O	I2S channel 4 data
N7	I2S4_LRCK	I/O	I2S channel 4 word select
N8	DVDD28_MSDC2	-	Digital power input 1.8/3.3V for MSDC2
N9	VCCK_N9	-	Digital power input for core
N10	GNDK_N10	-	Ground pin
N11	GNDK_N11	-	Ground pin
N12	GNDK_N12	-	Ground pin
N13	GNDK_N13	-	Ground pin
N14	GNDK_N14	-	Ground pin
N15	GNDK_N15	-	Ground pin
N16	GNDK_N16	-	Ground pin
N17	GNDK_N17	-	Ground pin
N18	GNDK_N18	-	Ground pin
N19	GNDK_N19	-	Ground pin
N20	VCCK_N20	-	Digital power input for core
N21	NO_USE	-	Not used
N22	NO_USE	-	Not used
N23	NO_USE	-	Not used
N24	NO_USE	-	Not used
N25	HDMI_SDA_RX	I/O	HDMI receiver I2C data
N26	NO_USE	-	Not used
N27	NO_USE	-	Not used
N28	CHD_DP_P0	I/O	Battery Charge DP
N29	CHD_DM_P0	I/O	Battery Charge DM
P1	I2S3_DATA_IN	I/O	I2S channel 3 input data
P2	I2S3_DATA	I/O	I2S channel 3 data
P3	I2S3_LRCK	I/O	I2S channel 3 word select
P4	NO_USE	-	Not used
P5	I2S5_MCLK	I/O	I2S channel 5 master clock
P6	I2S5_DATA	I/O	I2S channel 5 data
P7	I2S5_LRCK	I/O	I2S channel 5 word select
P8	NO_USE	-	Not used
P9	NO_USE	-	Not used
P10	GNDK_P10	-	Ground pin
P11	GNDK_P11	-	Ground pin
P12	GNDK_P12	-	Ground pin
P13	GNDK_P13	-	Ground pin

Pin No.	Pin Name	I/O	Description
P14	GNDK_P14	-	Ground pin
P15	GNDK_P15	-	Ground pin
P16	GNDK_P16	-	Ground pin
P17	GNDK_P17	-	Ground pin
P18	GNDK_P18	-	Ground pin
P19	GNDK_P19	-	Ground pin
P20	VCCK_P20	-	Digital power input for core
P21	HDMI_0_RX_0	I/O	HDMI receiver channel0
P22	HDMI_0_RX_0B	I/O	HDMI receiver channel0 #
P23	HDMI_0_RX_C	I/O	HDMI receiver clock
P24	HDMI_0_RX_CB	I/O	HDMI receiver clock#
P25	AVSS33_HDMI_0_RX_P25	-	Ground pin
P26	USB_VBUS_P1	I	USB port1 power for connected device +3.3V
P27	USB_VBUS_P0	I	USB port0 power for connected device +3.3V
P28	NO_USE	-	Not used
P29	NO_USE	-	Not used
R1	NO_USE	-	Not used
R2	I2S3_BCK	I/O	I2S channel 3 clock
R3	I2S2_BCK	I/O	I2S channel 2 clock
R4	NO_USE	-	Not used
R5	NO_USE	-	Not used
R6	NO_USE	-	Not used
R7	NO_USE	-	Not used
R8	VCCK_R8	-	Digital power input for core
R9	VCCK_R9	-	Digital power input for core
R10	GNDK_R10	-	Ground pin
R11	GNDK_R11	-	Ground pin
R12	GNDK_R12	-	Ground pin
R13	GNDK_R13	-	Ground pin
R14	GNDK_R14	-	Ground pin
R15	GNDK_R15	-	Ground pin
R16	GNDK_R16	-	Ground pin
R17	GNDK_R17	-	Ground pin
R18	GNDK_R18	-	Ground pin
R19	GNDK_R19	-	Ground pin
R20	VCCK_R20	-	Digital power input for core
R21	NO_USE	-	Not used
R22	NO_USE	-	Not used
R23	NO_USE	-	Not used
R24	AVSS33_HDMI_0_RX_R24	-	Ground pin
R25	NO_USE	-	Not used
R26	USB_VRT	I/O	USB output for bias current; connect with 5.1K 1% Ohm to GND
R27	AVSS33_USB_R27	-	Ground pin
R28	USB_DP_P0	I/O	USB port0 D+ differential data line
R29	USB_DM_P0	I/O	USB port0 D- differential data line
T1	I2S2_DATA_IN	I/O	I2S channel 2 input data
T2	I2S2_LRCK	I/O	I2S channel 2 word select
T3	PWM4	I/O	PWM channel 4
T4	I2S2_MCLK	I/O	I2S channel 2 master clock
T5	I2S2_DATA	I/O	I2S channel 2 data
T6	I2S5_BCK	I/O	I2S channel 5 clock
T7	I2S5_DATA_IN	I/O	I2S channel 5 input data
T8	NO_USE	-	Not used
T9	AVDD12_GLOBAL_G1	-	Analog power input 1.2V

Pin No.	Pin Name	I/O	Description
T10	GNDK_T10	-	Ground pin
T11	GNDK_T11	-	Ground pin
T12	GNDK_T12	-	Ground pin
T13	GNDK_T13	-	Ground pin
T14	GNDK_T14	-	Ground pin
T15	GNDK_T15	-	Ground pin
T16	GNDK_T16	-	Ground pin
T17	GNDK_T17	-	Ground pin
T18	GNDK_T18	-	Ground pin
T19	NO_USE	-	Not used
T20	NO_USE	-	Not used
T21	NO_USE	-	Not used
T22	NO_USE	-	Not used
T23	VDAC_C	O	VDAC CVBS channel output
T24	UTXD0	I/O	UART0 Tx
T25	AVDD33_USB	-	Analog power 3.3V for USB
T26	NO_USE	-	Not used
T27	AVDD18_USB	-	Analog power input 1.8V for USB
T28	USB_DP_P1	I/O	USB port1 D+ differential data line
T29	USB_DM_P1	I/O	USB port1 D differential data line
U1	NO_USE	-	Not used
U2	PWM1	I/O	PWM channel 1
U3	PWM0	I/O	PWM channel 0
U4	NO_USE	-	Not used
U5	NO_USE	-	Not used
U6	NO_USE	-	Not used
U7	NO_USE	-	Not used
U8	NO_USE	-	Not used
U9	NO_USE	-	Not used
U10	GNDK_U10	-	Ground pin
U11	GNDK_U11	-	Ground pin
U12	GNDK_U12	-	Ground pin
U13	GNDK_U13	-	Ground pin
U14	GNDK_U14	-	Ground pin
U15	GNDK_U15	-	Ground pin
U16	GNDK_U16	-	Ground pin
U17	GNDK_U17	-	Ground pin
U18	GNDK_U18	-	Ground pin
U19	GNDK_U19	-	Ground pin
U20	VCCK_VPROC_U20	-	Digital power input for processor
U21	AVSS33_VDAC	-	Ground pin
U22	AVDD33_VDAC	-	Analog power 3.3V for VDAC
U23	NO_USE	-	Not used
U24	URXD0	I/O	UART0 Rx
U25	NO_USE	-	Not used
U26	NO_USE	-	Not used
U27	SDA2	I/O	I2C 1 data
U28	SCL2	I/O	I2C 2 clock
U29	AVSS33_USB_U29	-	Ground pin
V1	PWM3	I/O	PWM channel 3
V2	PWM2	I/O	PWM channel 2
V3	NO_USE	-	Not used
V4	SPDIF_IN0	I/O	SPDIF input data channel 0
V5	SPDIF_IN1	I/O	SPDIF input data channel 1
V6	SPDIF_OUT	I/O	SPDIF output data
V7	DVDD18_IO_SPDIF	-	Digital power input 1.8V for I2S(exc. 0/1)/SPDIF/PWM

Pin No.	Pin Name	I/O	Description
V8	DVDD18_IO_I2S	-	Digital power input 1.8V for I2S channel 0/1
V9	AVDD18_GLOBAL_V9	-	Analog power input 1.8V
V10	GNDK_V10	-	Ground pin
V11	GNDK_V11	-	Ground pin
V12	GNDK_V12	-	Ground pin
V13	GNDK_V13	-	Ground pin
V14	GNDK_V14	-	Ground pin
V15	GNDK_V15	-	Ground pin
V16	GNDK_V16	-	Ground pin
V17	GNDK_V17	-	Ground pin
V18	GNDK_V18	-	Ground pin
V19	GNDK_V19	-	Ground pin
V20	VCCK_VPROC_V20	-	Digital power input for processor
V21	VCCK_VPROC_V21	-	Digital power input for processor
V22	VCCK_VPROC_V22	-	Digital power input for processor
V23	NO_USE	-	Not used
V24	UTXD1	I/O	UART1 Tx
V25	URXD1	I/O	UART1 Rx
V26	PWRAP_SPI0_CSN	I/O	PMIC SPI control interface
V27	PWRAP_SPI0_CSN2	I/O	GPIO
V28	PWRAP_SPI0_MI	I/O	PMIC SPI control interface
V29	NO_USE	-	Not used
W1	I2S1_MCLK	I/O	I2S channel 1 master clock
W2	I2S1_DATA	I/O	I2S channel 1 data
W3	I2S1_DATA_IN	I/O	I2S channel 1 input data
W4	SDA0	I/O	I2C 0 data
W5	SCL0	I/O	I2C 0 clock
W6	DSI_TE	I/O	DSI tearing effect control
W7	DVDD28_SPDIF	-	Digital power input 1.8V/3.3V for I2S(exc. 0/1)/SPDIF/PWM
W8	DVDD28_I2S	-	Digital power input 1.8V/3.3V for I2S channel 0/1
W9	VCCK_W9	-	Digital power input for core
W10	GNDK_W10	-	Ground pin
W11	GNDK_W11	-	Ground pin
W12	GNDK_W12	-	Ground pin
W13	GNDK_W13	-	Ground pin
W14	GNDK_W14	-	Ground pin
W15	GNDK_W15	-	Ground pin
W16	NO_USE	-	Not used
W17	GNDK_W17	-	Ground pin
W18	GNDK_W18	-	Ground pin
W19	VCCK_VPROC_W19	-	Digital power input for processor
W20	VCCK_VPROC_W20	-	Digital power input for processor
W21	NO_USE	-	Not used
W22	VCCK_VPROC_W22	-	Digital power input for processor
W23	NO_USE	-	Not used
W24	DAC_A_OUTPUT	-	Not used
W25	AVSS18_DAC	-	Ground pin
W26	PWRAP_SPI0_CK	I/O	PMIC SPI control interface
W27	PWRAP_SPI0_CK2	I/O	GPIO
W28	PWRAP_INT	I/O	PMIC SPI control interface
W29	DVDD18_IO0	-	Digital power input 1.8V for IO
Y1	NO_USE	-	Not used
Y2	I2S1_LRCK	I/O	I2S channel 1 word select
Y3	I2S1_BCK	I/O	I2S channel 1 clock
Y4	NO_USE	-	Not used
Y5	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
Y6	LCM_RST	I/O	LCM reset
Y7	NO_USE	-	Not used
Y8	NO_USE	-	Not used
Y9	NO_USE	-	Not used
Y10	VCCK_Y10	-	Digital power input for core
Y11	GNDK_Y11	-	Ground pin
Y12	GNDK_Y12	-	Ground pin
Y13	GNDK_Y13	-	Ground pin
Y14	VCCK_Y14	-	Digital power input for core
Y15	VCCK_Y15	-	Digital power input for core
Y16	GNDK_Y16	-	Ground pin
Y17	VCCK_VPROC_Y17	-	Digital power input for processor
Y18	VCCK_VPROC_Y18	-	Digital power input for processor
Y19	VCCK_VPROC_Y19	-	Digital power input for processor
Y20	VCCK_VPROC_Y20	-	Digital power input for processor
Y21	GNDK_Y21	-	Ground pin
Y22	GNDK_Y22	-	Ground pin
Y23	NO_USE	-	Not used
Y24	DAC_B_OUTPUT	-	Not used
Y25	AVDD18_DAC	-	Analog power input 1.8V for General DAC
Y26	SYSRSTB	I	System reset input
Y27	SRCLKENAI	I/O	26MHz co-clock enable input
Y28	PWRAP_SPI0_MO	I/O	PMIC SPI control interface
Y29	NO_USE	-	Not used
AA1	I2S0_DATA	I/O	I2S channel 0 data
AA2	I2S0_DATA_IN	I/O	I2S channel 0 input data
AA3	NO_USE	-	Not used
AA4	AUD_EXT_CK2	I/O	Audio external clock input
AA5	AUD_EXT_CK1	I/O	Audio external clock input
AA6	NO_USE	-	Not used
AA7	NO_USE	-	Not used
AA8	NO_USE	-	Not used
AA9	NO_USE	-	Not used
AA10	NO_USE	-	Not used
AA11	GNDK_AA11	-	Ground pin
AA12	VCCK_AA12	-	Digital power input for core
AA13	GNDK_AA13	-	Ground pin
AA14	VCCK_AA14	-	Digital power input for core
AA15	AVDD18_AP	-	Analog power input 1.8V for AuxADC and TSENSE
AA16	NO_USE	-	Not used
AA17	VCCK_VPROC_AA17	-	Digital power input for processor
AA18	VCCK_VPROC_AA18	-	Digital power input for processor
AA19	NO_USE	-	Not used
AA20	VCCK_VPROC_AA20	-	Digital power input for processor
AA21	NO_USE	-	Not used
AA22	GNDK_AA22	-	Ground pin
AA23	NO_USE	-	Not used
AA24	NO_USE	-	Not used
AA25	NO_USE	-	Not used
AA26	NO_USE	-	Not used
AA27	SRCLKENA	I/O	26MHz co-clock enable output
AA28	WATCHDOG	I/O	Watchdog reset output
AA29	RTC32K_CK	I/O	32K clock input
AB1	I2S0_LRCK	I/O	I2S channel 0 word select
AB2	I2S0_BCK	I/O	I2S channel 0 clock
AB3	I2S0_MCLK	I/O	I2S channel 0 master clock

Pin No.	Pin Name	I/O	Description
AB4	DVDD18_IO_WBCT	-	Digital power input 1.8V for WBCT/I2C0/LCD
AB5	WB_RSTB	I/O	WBG reset signal
AB6	F2W_DATA	I/O	FM 2 wire I2S data
AB7	NO_USE	-	Not used
AB8	NO_USE	-	Not used
AB9	G2_RXC	I/O	MAC receiver Clock
AB10	VCCK_AB10	-	Digital power input for core
AB11	VCCK_AB11	-	Digital power input for core
AB12	VCCK_AB12	-	Digital power input for core
AB13	VCCK_AB13	-	Digital power input for core
AB14	NO_USE	-	Not used
AB15	REFP	I/O	Positive reference port for internal circuit
AB16	NO_USE	-	Not used
AB17	NO_USE	-	Not used
AB18	VCCK_VPROC_AB18	-	Digital power input for processor
AB19	VCCK_VPROC_AB19	-	Digital power input for processor
AB20	VCCK_VPROC_AB20	-	Digital power input for processor
AB21	NO_USE	-	Not used
AB22	DVDD18_IO_DPI	-	Digital power input 1.8V for EINT / PCM / UART2
AB23	NO_USE	-	Not used
AB24	GNDK_AB24	-	Ground pin
AB25	NO_USE	-	Not used
AB26	NO_USE	-	Not used
AB27	IR	I/O	Infrared input
AB28	NO_USE	-	Not used
AB29	NO_USE	-	Not used
AC1	NO_USE	-	Not used
AC2	WB_CRTL5	I/O	WBG data bus 5
AC3	WB_CRTL4	I/O	WBG data bus 4
AC4	NO_USE	-	Not used
AC5	NO_USE	-	Not used
AC6	F2W_CLK	I/O	FM2 wire I2S clock
AC7	NO_USE	-	Not used
AC8	DVDD18_IO_RGMII	-	Digital power input 1.8V for ethernet
AC9	G2_RXDV	I/O	MAC receiver data valid
AC10	NO_USE	-	Not used
AC11	NO_USE	-	Not used
AC12	NO_USE	-	Not used
AC13	VCCK_AC13	-	Digital power input for core
AC14	NO_USE	-	Not used
AC15	AVSS18_AP	-	Ground pin
AC16	NO_USE	-	Not used
AC17	NO_USE	-	Not used
AC18	VCCK_VPROC_AC18	-	Digital power input for processor
AC19	VCCK_VPROC_AC19	-	Digital power input for processor
AC20	NO_USE	-	Not used
AC21	AVDD18_GLOBAL_G1	-	Analog power input 1.8V
AC22	NO_USE	-	Not used
AC23	NO_USE	-	Not used
AC24	GNDK_AC24	-	Ground pin
AC25	NO_USE	-	Not used
AC26	MSDC0E_RSTB	I/O	MSDC0E reset output
AC27	MSDC0E_DSL	I/O	MSDC0E data strobe
AC28	MSDC0E_DAT6	I/O	MSDC0E data 6
AC29	MSDC0E_DAT7	I/O	MSDC0E data 7
AD1	WB_CRTL2	I/O	WBG data bus 2

Pin No.	Pin Name	I/O	Description
AD2	WB_CRTL3	I/O	WBG data bus 3
AD3	NO_USE	-	Not used
AD4	WB_SDATA	I/O	WBG SPI control data
AD5	WB_SCLK	I/O	WBG SPI control clock
AD6	WB_SEN	I/O	WBG SPI control enable
AD7	NO_USE	-	Not used
AD8	G2_RXD0	I/O	MAC receiver data 0
AD9	NO_USE	-	Not used
AD10	GNDK_AD10	-	Ground pin
AD11	AUX_IN1	I/O	AuxADC external input channel 1
AD12	AUX_IN4	I/O	AuxADC external input channel 4
AD13	VCCK_AD13	-	Digital power input for core
AD14	AUX_IN9	I/O	AuxADC external input channel 9
AD15	AUX_IN7	I/O	AuxADC external input channel 7
AD16	NO_USE	-	Not used
AD17	HDMISD	I/O	HDMI transmitter I2C data
AD18	VCCK_VPROC_AD18	-	Digital power input for processor
AD19	VCCK_VPROC_AD19	-	Digital power input for processor
AD20	NO_USE	-	Not used
AD21	JTDI	I/O	JTDI
AD22	JTMS	I/O	JTMS
AD23	NO_USE	-	Not used
AD24	PCM_CLK	I/O	PCM audio interface
AD25	PCM_TX	I/O	PCM audio interface
AD26	MSDC0E_CLK	I/O	MSDC0E clock output
AD27	NO_USE	-	Not used
AD28	MSDC0E_DAT2	I/O	MSDC0E data 2
AD29	NO_USE	-	Not used
AE1	WB_CRTL0	I/O	WBG data bus 0
AE2	WB_CRTL1	I/O	WBG data bus 1
AE3	NO_USE	-	Not used
AE4	NO_USE	-	Not used
AE5	NO_USE	-	Not used
AE6	XIN_WBG	I/O	CONN_ABB 26MHz input
AE7	AVDD18_WBG_AE7	-	Analog power input 1.8V for WiFi/BT/GPS
AE8	G2_RXD1	I/O	MAC receiver data 1
AE9	G2_RXD3	I/O	MAC receiver data 3
AE10	NO_USE	-	Not used
AE11	AUX_IN0	I/O	AuxADC external input channel 0
AE12	AUX_IN5	I/O	AuxADC external input channel 5
AE13	NO_USE	-	Not used
AE14	AUX_IN6	I/O	AuxADC external input channel 6
AE15	AUX_IN3	I/O	AuxADC external input channel 3
AE16	NO_USE	-	Not used
AE17	HDMISCK	I/O	HDMI transmitter I2C clock
AE18	CEC	I/O	HDMI CEC pin
AE19	SCL1	I/O	I2C 1 clock
AE20	SDA1	I/O	I2C 1 data
AE21	JTDO	I/O	JTDO
AE22	NO_USE	-	Not used
AE23	UTXD2	I/O	UART2 Tx
AE24	NO_USE	-	Not used
AE25	NO_USE	-	Not used
AE26	NO_USE	-	Not used
AE27	MSDC0E_CMD	I/O	MSDC0E command pin
AE28	MSDC0E_DAT5	I/O	MSDC0E data 5

Pin No.	Pin Name	I/O	Description
AE29	MSDC0E_DAT1	I/O	MSDC0E data 1
AF1	WB_RXIN	I/O	WiFi/BT RX I negative channel
AF2	WB_RXIP	I/O	WiFi/BT RX I positive channel
AF3	NO_USE	-	Not used
AF4	NO_USE	-	Not used
AF5	AVSS18_WBG_AF5	-	Ground pin
AF6	NO_USE	-	Not used
AF7	AVSS18_WBG_AF7	-	Ground pin
AF8	DVDD28_RGMII	-	Digital power input 1.8/3.3V for ethernet
AF9	G2_RXD2	I/O	MAC receiver data 2
AF10	NO_USE	-	Not used
AF11	NO_USE	-	Not used
AF12	NO_USE	-	Not used
AF13	NO_USE	-	Not used
AF14	AUX_IN2	I/O	AuxADC external input channel 2
AF15	AUX_IN8	I/O	AuxADC external input channel 8
AF16	NO_USE	-	Not used
AF17	HTPLG	I/O	HDMI transmitter Hot Plug
AF18	JTAG_RESET	I/O	JTAG_RESET
AF19	NO_USE	-	Not used
AF20	NO_USE	-	Not used
AF21	JTCK	I/O	JTCK
AF22	NO_USE	-	Not used
AF23	URXD2	I/O	UART2 Rx
AF24	UCTS2	I/O	UART2 CTS
AF25	URTS2	I/O	UART2 RTS
AF26	PCM_RX	I/O	PCM audio interface
AF27	PCM_SYNC	I/O	PCM audio interface
AF28	MSDC0E_DAT4	I/O	MSDC0E data 4
AF29	MSDC0E_DAT0	I/O	MSDC0E data 0
AG1	WB_RXQN	I/O	WiFi/BT RX Q negative channel
AG2	WB_RXQP	I/O	WiFi/BT RX Q positive channel
AG3	AVSS18_WBG_AG3	-	Ground pin
AG4	NO_USE	-	Not used
AG5	AVSS18_WBG_AG5	-	Ground pin
AG6	AVSS18_WBG_AG6	-	Ground pin
AG7	NO_USE	-	Not used
AG8	NO_USE	-	Not used
AG9	G2_TXD1	I/O	MAC transmitter data 1
AG10	G2_TXD3	I/O	MAC transmitter data 3
AG11	MDIO	I/O	MAC mangement data
AG12	AVSS18_HDMITX_AG12	-	Ground pin
AG13	AVSS18_HDMITX_AG13	-	Ground pin
AG14	NO_USE	-	Not used
AG15	NO_USE	-	Not used
AG16	NO_USE	-	Not used
AG17	NO_USE	-	Not used
AG18	TESTMODE	I	Test mode
AG19	NO_USE	-	Not used
AG20	NO_USE	-	Not used
AG21	SPI1_MO	I/O	SPI1 slave data output to master
AG22	SPI2_MO	I/O	SPI2 slave data output to master
AG23	NO_USE	-	Not used
AG24	EINT0	I/O	GPIO

Pin No.	Pin Name	I/O	Description
AG25	EINT3	I/O	GPIO
AG26	EINT5	I/O	GPIO
AG27	NO_USE	-	Not used
AG28	MSDC0E_DAT3	I/O	MSDC0E data 3
AG29	DVDD18_IO_MSDC0E	-	Digital power input 1.8V for MSDC0E
AH1	AVSS18_WBG_AH1	-	Ground pin
AH2	NO_USE	-	Not used
AH3	WB_TXIP	I/O	WiFi/BT TX I positive channel
AH4	WB_TXQP	I/O	Wifi/BT TX Q positive channel
AH5	GPS_RXIP	I/O	GPS Rx I positive channel
AH6	GPS_RXQP	I/O	GPS Rx Q positive channel
AH7	AVSS18_WBG_AH7	-	Ground pin
AH8	G2_TXEN	I/O	MAC transmitter data valid
AH9	GNDK_AH9	-	Ground pin
AH10	G2_TXD2	I/O	MAC transmitter data 2
AH11	GNDK_AH11	-	Ground pin
AH12	HDMITX_REXT	I/O	External resistor for HDMITX bias
AH13	AVSS18_HDMITX_AH13	-	Ground pin
AH14	HDMITX_CLK_M	I/O	HDMI transmitter channel CK M
AH15	HDMITX_CH0_M	I/O	HDMI transmitter channel 0 M
AH16	HDMITX_CH1_M	I/O	HDMI transmitter channel 1 M
AH17	HDMITX_CH2_M	I/O	HDMI transmitter channel 2 M
AH18	AVSS18_PLLGP_AH18	-	Ground pin
AH19	26M_CLKSQ	I/O	26MHz clock input for AP
AH20	AVSS18_PLLGP_AH20	-	Ground pin
AH21	SPI1_CSN	I/O	SPI1 chip select
AH22	SPI1_CLK	I/O	SPI1 clock
AH23	SPI2_MI	I/O	SPI2 master data output to slave
AH24	SPI2_CLK	I/O	SPI2 clock
AH25	EINT4	I/O	GPIO
AH26	EINT1	I/O	GPIO
AH27	EINT7	I/O	GPIO
AH28	DVDD28_DPI	-	Digital power input 1.8V for EINT / PCM / UART2
AH29	GNDK_AH29	-	Ground pin
AJ1	AVSS18_WBG_AJ1	-	Ground pin
AJ2	AVSS18_WBG_AJ2	-	Ground pin
AJ3	WB_TXIN	I/O	WiFi/BT TX I negative channel
AJ4	WB_TXQN	I/O	WiFi/BT TX Q negative channel
AJ5	GPS_RXIN	I/O	GPS Rx I negative channel
AJ6	GPS_RXQN	I/O	GPS Rx Q negative channel
AJ7	AVSS18_WBG_AJ7	-	Ground pin
AJ8	G2_TXC	I/O	MAC transmitter Clock
AJ9	G2_TXD0	I/O	MAC transmitter data 0
AJ10	NO_USE	-	Not used
AJ11	MDC	I/O	MAC mangement clock
AJ12	AVDD18_HDMITX	-	Analog power input 1.8V for HDMI transmitter
AJ13	NO_USE	-	Not used
AJ14	HDMITX_CLK_P	I/O	HDMI transmitter channel CK P
AJ15	HDMITX_CH0_P	I/O	HDMI transmitter channel 0 P
AJ16	HDMITX_CH1_P	I/O	HDMI transmitter channel 1 P
AJ17	HDMITX_CH2_P	I/O	HDMI transmitter channel 2 P
AJ18	AVDD18_PLLGP	-	Analog power input 1.8V for PLL
AJ19	NO_USE	-	Not used
AJ20	DVDD18_IO1	-	Digital power input 1.8V for IO
AJ21	SPI1_MI	I/O	SPI1 master data output to slave

Pin No.	Pin Name	I/O	Description
AJ22	NO_USE	-	Not used
AJ23	SPI2_CSN	I/O	SPI2 chip select
AJ24	GNDK_AJ24	-	Ground pin
AJ25	NO_USE	-	Not used
AJ26	EINT6	I/O	GPIO
AJ27	EINT2	I/O	GPIO
AJ28	GNDK_AJ28	-	Ground pin
AJ29	GNDK_AJ29	-	Ground pin

BENTEN-MOTHERBOARD BOARD (1/11) IC6002 MT6323L (POWER MANAGEMENT)

Pin No.	Pin Name	I/O	Description
A1	SYRSTB	I	Watchdog reset from AP
A2	SRCLKEN	I	Enables 26MHz CLK
A3	XIN	I	1. One of 32K crystal connection port while using crystal to generate 32kHz clock 2. Tie to ground with 32kHz crystal absence
A4	XOUT	I	1. One of 32K crystal connection port while using crystal to generate 32kHz clock 2. External 32kHz clocks input with 32kHz crystal absence
A5	DVDD18_IO	-	Power of VIO18 IO/CORE
A6	AUD_MISO	O	Uplink AUDIO ADC serial data
A8	DVDD18_DIG	-	Power of VDIG18
A10	FSOURCE	-	EFUSE power source
A11	CHG_DM	I	USB D- for BC1.1 standard
A12	CHG_DP	I	USB D+ for BC1.1 standard
A13	VCDDT	I	Fractional charger input voltage for charger detection
A14	VBAT_VPA_A14	-	Battery power supply input of VPA
A15	VPA_A15	O	SW node of VPA
B1	AUXADC_AUXIN_GPS	I	AUXADC input
B2	AVSS28_AUXADC	-	GND for AUXADC
B3	GND_LDO_B3	-	Ground for LDO
B6	SIM2_AP_SCLK	I	AP/PMIC SIM2 clock
B7	SPI_CSN	I	SPI interface's chip select signal to identify which device is selected
B8	AUD_MOSI	I	Downlink DAC serial data
B9	SPI_MISO	I/O	SPI interface's serial data signal.Default: Output only.
B10	SPI_CLK	I	SPI interface's clock
B11	ISINK3	O	Current sink channel 3 output
B13	VPA_FB	I	Feedback of VPA
B14	VBAT_VPA_B14	-	Battery power supply input of VPA
B15	VPA_B15	O	SW node of VPA
C1	AVDD33_RTC	-	RTC LDO output. Supply of RTC macro where backup battery can be added.
C2	AUXADC_VREF18	O	1.8V AUXADC reference output
C5	RTC_32K2V8	O	RTC domain 32kHz clock output
C7	INT	O	Default: Output 0 Interrupt to BB, high active
C8	SIM1_AP_SCLK	I	AP/PMIC SIM1 clock
C9	AUD_CLK	I	26M clock (can be hopping)
C10	ISINK0	O	Current sink channel 0 output
C11	ISINK1	O	Current sink channel 1 output
C13	VPROC_FB	I	Feedback of VPROC
C15	VPROC_C15	O	SW node of VPROC
D2	AVDD28_AUXADC	-	2.8V power input for AUXADC
D3	AU_VIN0_P	I	Analog input 1 positive
D4	AU_VIN0_N	I	Analog input 1 negative
D5	GND_LDO_D5	-	Ground for LDO
D6	RTC_32K1V8	O	VIO18 domain 32kHz clock output
D7	SIM2_AP_SRST	I	AP/PMIC SIM2 SRST
D8	SIM1_AP_SRST	I	AP/PMIC SIM1 SRST
D9	SPI_MOSI	I/O	SPI interface's serial data signal. Default: Input only.
D11	ISINK2	O	Current sink channel 2 output
D13	GND_VPROC_FB	I	Remote sense on ground of VPROC
D15	VPROC_D15	O	SW node of VPROC
E1	AU_VIN2_N	I	Analog input 3 negative
E2	AU_VIN2_P	I	Analog input 3 positive
E6	GND_LDO_E6	-	Ground for LDO
E9	GND_LDO_E9	-	Ground for LDO
E11	GND_ISINK	-	GND for ISINK
E13	GND_VPROC_E13	-	Ground of VPROC

Pin No.	Pin Name	I/O	Description
E14	VBAT_VPROC_E14	-	Battery power supply input of VPROC
E15	VPROC_E15	O	SW node of VPROC
F2	CLK26M	I	26MHz CLK
F3	GND_ABB_F3	-	GND of ABB
F5	GND_LDO_F5	-	Ground for LDO
F6	GND_LDO_F6	-	Ground for LDO
F9	GND_LDO_F9	-	Ground for LDO
F11	GND_VPROC_F11	-	Ground of VPROC
F12	GND_VPROC_F12	-	Ground of VPROC
F14	VBAT_VPROC_F14	-	Battery power supply input of VPROC
F15	VBAT_VPROC_F15	-	Battery power supply input of VPROC
G1	AU_VIN1_P	I	Analog input 2 positive
G2	AU_VIN1_N	I	Analog input 2 negative
G3	ACCDET	I	Accessory detection input
G6	GND_LDO_G6	-	Ground for LDO
G7	GND_LDO_G7	-	Ground for LDO
G8	GND_LDO_G8	-	Ground for LDO
G9	GND_LDO_G9	-	Ground for LDO
G10	GND_LDO_G10	-	Ground for LDO
G11	GND_VPROC_G11	-	Ground of VPROC
G13	GND_VPA	-	Ground of VPA
G15	VBAT_VPROC_G15	-	Battery power supply input of VPROC
H1	AU_MICBIAS0	-	Microphone bias for main and 2nd microphone
H2	AU_MICBIAS1	-	Microphone bias for earphone
H3	AU_HSN	O	Receiver output
H4	AU_HSP	O	Receiver output
H5	GND_LDO_H5	-	Ground for LDO
H6	GND_LDO_H6	-	Ground for LDO
H8	GND_LDO_H8	-	Ground for LDO
H10	GND_LDO_H10	-	Ground for LDO
H11	GND_LDO_H11	-	Ground for LDO
H13	VBAT_VSYS	-	Battery power supply input of VSYS BUCK
H15	VSYS	O	SW node of VSYS BUCK
J1	AVDD28_ABB	-	2.8V power input for ABB
J2	AU_HPL	O	Headphone L-ch output
J5	GND_LDO_J5	-	Ground for LDO
J7	GND_LDO_J7	-	Ground for LDO
J8	GND_LDO_J8	-	Ground for LDO
J9	GND_LDO_J9	-	Ground for LDO
J11	GND_LDO_J11	-	Ground for LDO
J12	GND_VSYS	-	Ground of VSYS BUCK
J15	VM	O	VM output voltage
K2	AU_HPR	O	Headphone R-ch output
K3	BATON	I	Battery NTC pin for battery and its temperature sensing
K4	GND_ABB_K4	-	GND of ABB
K6	GND_LDO_K6	-	Ground for LDO
K7	GND_LDO_K7	-	Ground for LDO
K8	GND_LDO_K8	-	Ground for LDO
K10	GND_LDO_K10	-	Ground for LDO
K11	GND_LDO_K11	-	Ground for LDO
K12	VRF18	O	VRF18 output voltage
K14	VCN18	O	VCN18 output voltage
K15	AVDD22_BUCK_K15	-	Power supply input of VSYSLDO
L1	SPK_P	O	Positive output for internal speaker amp
L2	GND_SPK	-	Ground for VBAT_SPK
L6	GND_LDO_L6	-	Ground for LDO

Pin No.	Pin Name	I/O	Description
L8	VGP2	O	VGP2 output voltage
L9	GND_LDO_L9	-	Ground for LDO
L11	GND_LDO_L11	-	Ground for LDO
L12	VIO18	O	VIO18 output voltage
L15	VCAMD	O	VCAMD output voltage
M1	SPK_N	O	Negative output for Internal Speaker Amp
M3	RESETB	O	System reset release signal
M4	VA	O	VA output voltage
M6	VMC	O	VMC output voltage
M8	VIBR	O	VIBR output voltage
M10	SIMLS2_SCLK	O	SIMLS2 SCLK
M12	GND_LDO_M12	-	Ground for LDO
M13	VCAM_IO	O	VCAM_IO output voltage
M15	VGP3	O	VGP3 output voltage
N1	FCHR_ENB	I	Force charging ENB
N2	PMU_TESTMODE	I	PMU testmode signal (tie to GND in normal operation)
N3	VTCXO	O	VTLDO output voltage
N6	VUSB	O	VSUB output voltage
N7	VCN33	O	VCN33 output voltage
N8	VGP1	O	VGP1 output voltage
N10	SIMLS2_SRST	O	SIMLS2 SRST
N11	SIMLS1_SCLK	O	SIMLS1 SCLK
N12	SIMLS1_SIO	I/O	SIMLS1 data signal
N13	GND_LDO_N13	-	Ground for LDO
N15	AVDD22_BUCK_N15	-	Power supply input of VSYSLDO
P1	PWRKEY	I	Power key signal
P2	VCN28	O	VCN28 output voltage
P3	VIO28	O	VIO28 output voltage
P6	VCAM_AF	O	VCAM_AF output voltage
P7	VBAT_LDOS3_P7	-	LDO3 VBAT power
P8	VSIM2	O	VSIM2 output voltage
P10	SIMLS1_SRST	O	SIMLS1 SRST
P11	SIMLS1_AP_SIO	I/O	SIM1_AP data signal
P12	EXT_PMIC_EN	O	Enables external PMIC (VBAT domain)
P13	BATSNS	I	Negative terminal for battery's charging current sensing resistor
P14	VDRV	O	Charger current drive output
P15	VREF	O	Bandgap reference voltage
R1	VBAT_SPK	-	Battery power supply input of SPK
R2	VBAT_LDOS1	-	LDO1 VBAT power
R3	VCAMA	O	VCAMA output voltage
R4	VMCH	O	VMCH output voltage
R5	VBAT_LDOS2	-	LDO2 VBAT power
R6	VEMC_3V3	O	VEMC_3V3 output voltage
R7	VBAT_LDOS3_R7	-	LDO3 VBAT power
R8	VSIM1	O	VSIM1 output voltage
R10	SIMLS2_SIO	I/O	SIMLS2 data signal
R11	SIMLS2_AP_SIO	I/O	SIM2_AP data signal
R13	ISENSE	I	Positive terminal for battery's charging current sensing resistor
R14	CHRLDO	O	Charger LDO28 output
R15	GND_VREF	-	Ground for bandgap

BENTEN-MOTHERBOARD BOARD (4/11) IC6341, IC6342 NT5CB128M16IP-EK (SD-RAM)

Pin No.	Pin Name	I/O	Description
A1	VDDQ_A1	-	DQ Power Supply: 1.5V +/-0.075V
A2	DQU5	I/O	Data Input/output: Bi-directional data bus.
A3	DQU7	I/O	Data Input/output: Bi-directional data bus.
A4	NO_USE	-	Not used
A5	NO_USE	-	Not used
A6	NO_USE	-	Not used
A7	DQU4	I/O	Data Input/output: Bi-directional data bus.
A8	VDDQ_A8	-	DQ Power Supply: 1.5V +/-0.075V
A9	VSS_A9	-	Ground
B1	VSSQ_B1	-	DQ Ground
B2	VDD_B2	-	Power Supply: 1.5V +/-0.075
B3	VSS_B3	-	Ground
B4	NO_USE	-	Not used
B5	NO_USE	-	Not used
B6	NO_USE	-	Not used
B7	$\overline{\text{DQSU}}$	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
B8	DQU6	I/O	Data Input/output: Bi-directional data bus.
B9	VSSQ_B9	-	DQ Ground
C1	VDDQ_C1	-	DQ Power Supply: 1.5V +/-0.075V
C2	DQU3	I/O	Data Input/output: Bi-directional data bus.
C3	DQU1	I/O	Data Input/output: Bi-directional data bus.
C4	NO_USE	-	Not used
C5	NO_USE	-	Not used
C6	NO_USE	-	Not used
C7	DQSU	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
C8	DQU2	I/O	Data Input/output: Bi-directional data bus.
C9	VDDQ_C9	-	DQ Power Supply: 1.5V +/-0.075V
D1	VSSQ_D1	-	DQ Ground
D2	VDDQ_D2	-	DQ Power Supply: 1.5V +/-0.075V
D3	DMU	I	Input Data Mask: DM is an input mask signal for write data. Input data is masked when DM is sampled HIGH coincident with that input data during a Write access. DM is sampled on both edges of DQS. For x8 device, the function of DM or TDQS/ $\overline{\text{TDQS}}$ is enabled by Mode Register A11 setting in MR1.
D4	NO_USE	-	Not used
D5	NO_USE	-	Not used
D6	NO_USE	-	Not used
D7	DQU0	I/O	Data Input/output: Bi-directional data bus.
D8	VSSQ_D8	-	DQ Ground
D9	VDD_D9	-	Power Supply: 1.5V +/-0.075
E1	VSS_E1	-	Ground
E2	VSSQ_E2	-	DQ Ground
E3	DQL0	I/O	Data Input/output: Bi-directional data bus.
E4	NO_USE	-	Not used
E5	NO_USE	-	Not used
E6	NO_USE	-	Not used

Pin No.	Pin Name	I/O	Description
E7	DML	I	Input Data Mask: DM is an input mask signal for write data. Input data is masked when DM is sampled HIGH coincident with that input data during a Write access. DM is sampled on both edges of DQS. For x8 device, the function of DM or TDQS/ $\overline{\text{TDQS}}$ is enabled by Mode Register A11 setting in MR1.
E8	VSSQ_E8	-	DQ Ground
E9	VDDQ_E9	-	DQ Power Supply: 1.5V +/-0.075V
F1	VDDQ_F1	-	DQ Power Supply: 1.5V +/-0.075V
F2	DQL2	I/O	Data Input/output: Bi-directional data bus.
F3	DQSL	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
F4	NO_USE	-	Not used
F5	NO_USE	-	Not used
F6	NO_USE	-	Not used
F7	DQL1	I/O	Data Input/output: Bi-directional data bus.
F8	DQL3	I/O	Data Input/output: Bi-directional data bus.
F9	VSSQ_F9	-	DQ Ground
G1	VSSQ_G1	-	DQ Ground
G2	DQL6	I/O	Data Input/output: Bi-directional data bus.
G3	$\overline{\text{DQSL}}$	I/O	Data Strobe: Output with read data, input with write data. Edge-aligned with read data, centered in write data. For the x16, DQSL: corresponds to the data on DQL0-DQL7; DQSU corresponds to the data on DQU0-DQU7. The data strobe DQS, DQSL and DQSU are paired with differential signals DQS, DQSL and DQSU, respectively, to provide differential pair signaling to the system during reads and writes. DDR3 SDRAM supports differential data strobe only and does not support single-ended.
G4	NO_USE	-	Not used
G5	NO_USE	-	Not used
G6	NO_USE	-	Not used
G7	VDD_G7	-	Power Supply: 1.5V +/-0.075
G8	VSS_G8	-	Ground
G9	VSSQ_G9	-	DQ Ground
H1	VREFDQ	-	Reference voltage for DQ
H2	VDDQ_H2	-	DQ Power Supply: 1.5V +/-0.075V
H3	DQL4	I/O	Data Input/output: Bi-directional data bus.
H4	NO_USE	-	Not used
H5	NO_USE	-	Not used
H6	NO_USE	-	Not used
H7	DQL7	I/O	Data Input/output: Bi-directional data bus.
H8	DQL5	I/O	Data Input/output: Bi-directional data bus.
H9	VDDQ_H9	-	DQ Power Supply: 1.5V +/-0.075V
J1	NC_J1	-	No Connect: No internal electrical connection is present.
J2	VSS_J2	-	Ground
J3	$\overline{\text{RAS}}$	I	Command Input: $\overline{\text{RAS}}$ (along with $\overline{\text{CS}}$) define the command being entered.
J4	NO_USE	-	Not used
J5	NO_USE	-	Not used
J6	NO_USE	-	Not used
J7	CK	I	Clock: CK is differential clock input. All address and control input signals are sampled on the crossing of the positive edge of CK. Output (read) data is referenced to the crossing of CK.
J8	VSS_J8	-	Ground
J9	NC_J9	-	No Connect: No internal electrical connection is present.
K1	ODT	I	On Die Termination: ODT (registered HIGH) enables termination resistance internal to the DDR3 SDRAM. When enabled, ODT is only applied to each DQ, DQS, DQS and DM/TDQS, NU/TDQS (When TDQS is enabled via Mode Register A11=1 in MR1) signal for x8 configurations. The ODT pin will be ignored if the Mode Register (MR1) is programmed to disable ODT.
K2	VDD_K2	-	Power Supply: 1.5V +/-0.075
K3	$\overline{\text{CAS}}$	I	Command Input: $\overline{\text{CAS}}$ (along with $\overline{\text{CS}}$) define the command being entered.

Pin No.	Pin Name	I/O	Description
K4	NO_USE	-	Not used
K5	NO_USE	-	Not used
K6	NO_USE	-	Not used
K7	$\overline{\text{CK}}$	I	Clock: $\overline{\text{CK}}$ is differential clock input. All address and control input signals are sampled on the crossing of the negative edge of $\overline{\text{CK}}$. Output (read) data is referenced to the crossing of $\overline{\text{CK}}$.
K8	VDD_K8	-	Power Supply: 1.5V +/-0.075
K9	CKE	I	Clock Enable: CKE HIGH activates, and CKE LOW deactivates, internal clock signal and device input buffers and output drivers. Talking CKE LOW provides Precharge Power-Down and Self Refresh operation (all banks idle), or Active Power-Down (Row Active in any bank). CKE is asynchronous for self refresh exit. After V _{REFCA} has become stable during the power on and initialization sequence, it must be maintained during all operations (including Self-Refresh). CKE must be maintained high throughout read and write accesses. Input buffers, excluding CK, $\overline{\text{CK}}$, ODT and CKE are disabled during power-down. Input buffers, excluding CKE, are disabled during Self-Refresh.
L1	NC_L1	-	No Connect: No internal electrical connection is present.
L2	$\overline{\text{CS}}$	I	Chip Select: All commands are masked when $\overline{\text{CS}}$ is registered HIGH. $\overline{\text{CS}}$ provides for external Rank selection on system with multiple Ranks. $\overline{\text{CS}}$ is considered part of the command code.
L3	$\overline{\text{WE}}$	I	Command Input: $\overline{\text{WE}}$ (along with $\overline{\text{CS}}$) define the command being entered.
L4	NO_USE	-	Not used
L5	NO_USE	-	Not used
L6	NO_USE	-	Not used
L7	A10/AP	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands. Autoprecharge: A10 is sampled during Read/Write commands to determine whether Autoprecharge should be performed to the accessed bank after the Read/Write operation. (HIGH: Autoprecharge; LOW: No Autoprecharge) A10 is sampled during a Precharge command to determine the Precharge applies to one bank (A10 LOW) or all banks (A10 HIGH). If only one bank is to be precharged, the bank is selected by bank addresses.
L8	ZQ	-	Reference Pin for ZQ calibration
L9	NC_L9	-	No Connect: No internal electrical connection is present.
M1	VSS_M1	-	Ground
M2	BA0	I	Bank Address Inputs: BA0 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.
M3	BA2	I	Bank Address Inputs: BA2 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.
M4	NO_USE	-	Not used
M5	NO_USE	-	Not used
M6	NO_USE	-	Not used
M7	NC_M7	-	No Connect: No internal electrical connection is present.
M8	VREFCA	-	Reference voltage for CA
M9	VSS_M9	-	Ground
N1	VDD_N1	-	Power Supply: 1.5V +/-0.075
N2	A3_N2	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
N3	A0_N3	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
N4	NO_USE	-	Not used
N5	NO_USE	-	Not used
N6	NO_USE	-	Not used
N7	$\overline{\text{A12/BC}}$	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands. Burst Chop: A12 is sampled during Read and Write commands to determine if burst chop (on-the-fly) will be performed. (HIGH: no burst chop, LOW: burst chopped).
N8	BA1	I	Bank Address Inputs: BA1 define to which bank an Active, Read, Write or Precharge command is being applied. Bank address also determines if the mode register or extended mode register is to be accessed during a MRS cycle.

Pin No.	Pin Name	I/O	Description
N9	VDD_N9	-	Power Supply: 1.5V +/-0.075
P1	VSS_P1	-	Ground
P2	A5_P2	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P3	A2_P3	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P4	NO_USE	-	Not used
P5	NO_USE	-	Not used
P6	NO_USE	-	Not used
P7	A1_P7	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P8	A4_P8	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
P9	VSS_P9	-	Ground
R1	VDD_R1	-	Power Supply: 1.5V +/-0.075
R2	A7_R2	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R3	A9_R3	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R4	NO_USE	-	Not used
R5	NO_USE	-	Not used
R6	NO_USE	-	Not used
R7	A11_R7	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R8	A6_R8	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
R9	VDD_R9	-	Power Supply: 1.5V +/-0.075
T1	VSS_T1	-	Ground
T2	$\overline{\text{RESET}}$	I	Active Low Asynchronous Reset: Reset is active when $\overline{\text{RESET}}$ is LOW, and inactive when $\overline{\text{RESET}}$ is HIGH. $\overline{\text{RESET}}$ must be HIGH during normal operation. $\overline{\text{RESET}}$ is CMOS rail to rail signal with DC high and low at 80% and 20% of V_{DD} , example, 1.20V for DC high and 0.30V for DC low.
T3	A13_T3	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
T4	NO_USE	-	Not used
T5	NO_USE	-	Not used
T6	NO_USE	-	Not used
T7	NC_T7	-	No Connect: No internal electrical connection is present.
T8	A8_T8	I	Address inputs: Provided the row address for active commands and the column address for Read/Write commands to select one location out of the memory array in the respective bank. The address inputs also provide the op-code during Mode Register Set commands.
T9	VSS_T9	-	Ground

SECTION 7 EXPLODED VIEWS

Note:

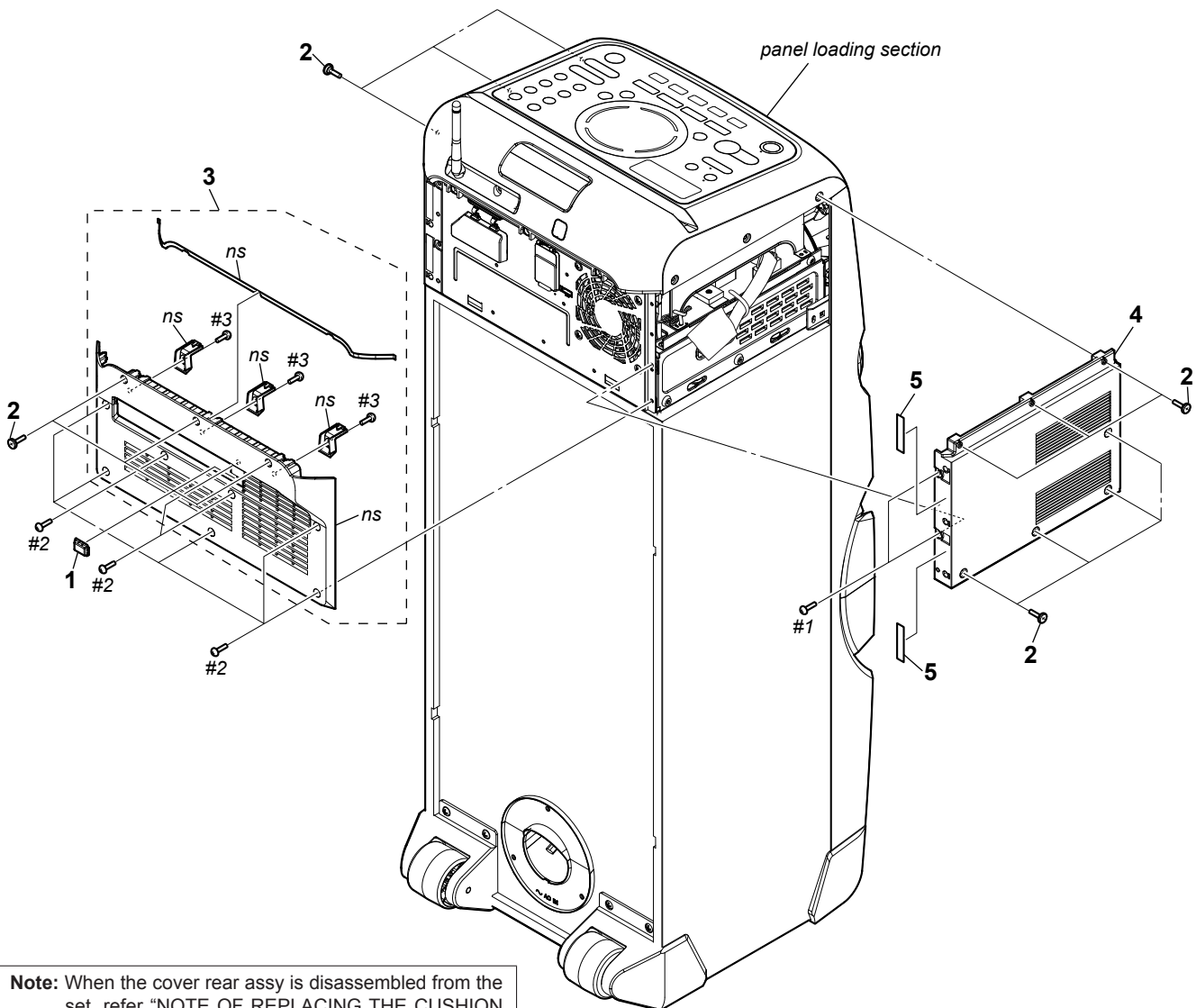
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service.
Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Accessories are given in the last of this parts list.
- Abbreviation
 AR : Argentina model
 AUS : Australian model
 CND : Canadian model
 E4 : African model
 E12 : 220-240 V AC area in E model
 EA : Saudi Arabia model
 LA9 : Latin-American model
 MY : Malaysia model
 RU : Russian model
 TH : Thai model

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

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

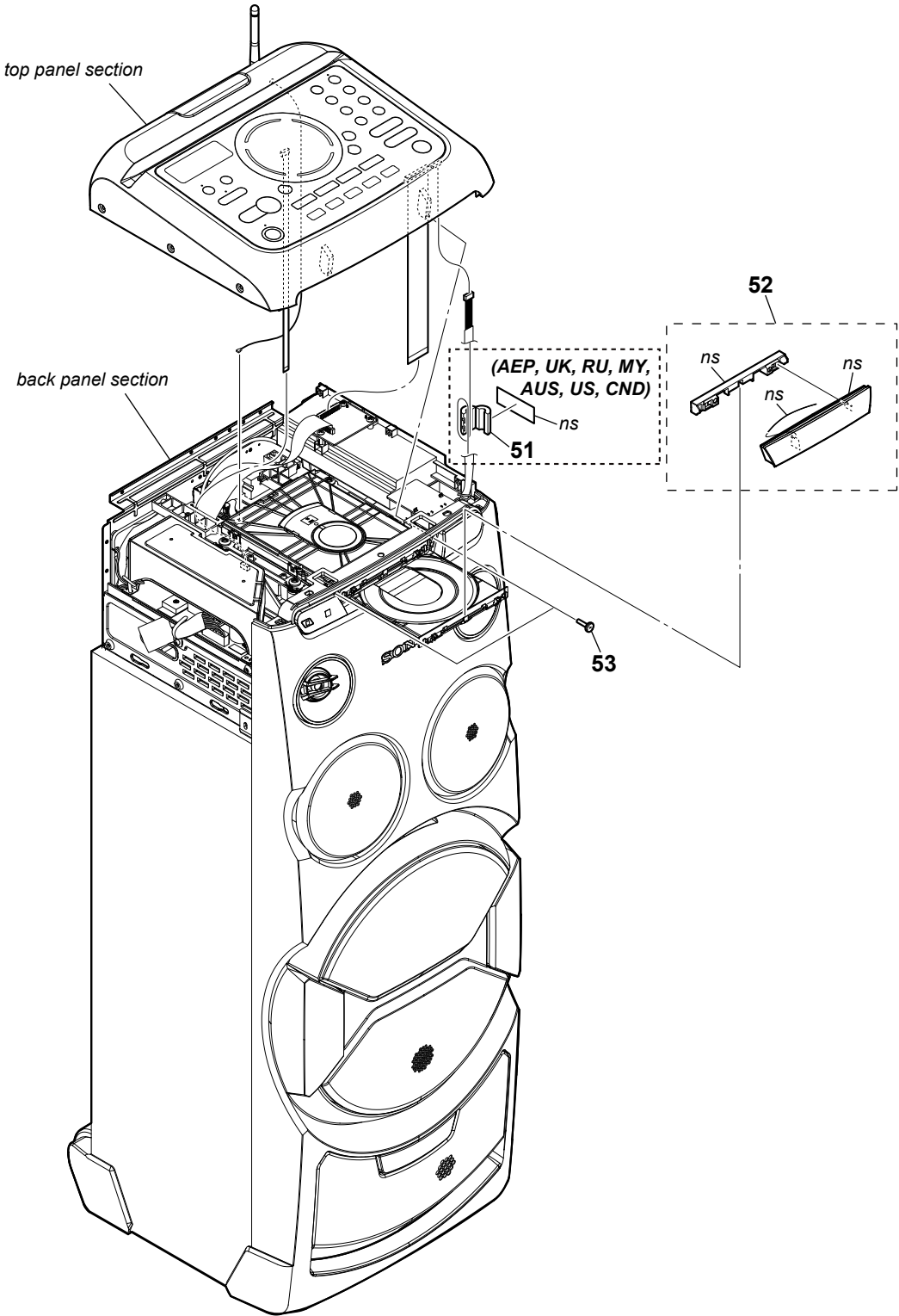
7-1. COVER, REAR, PANEL SIDE, L



Note: When the cover rear assy is disassembled from the set, refer "NOTE OF REPLACING THE CUSHION REAR ON THE COVER REAR ASSY" on page 5.

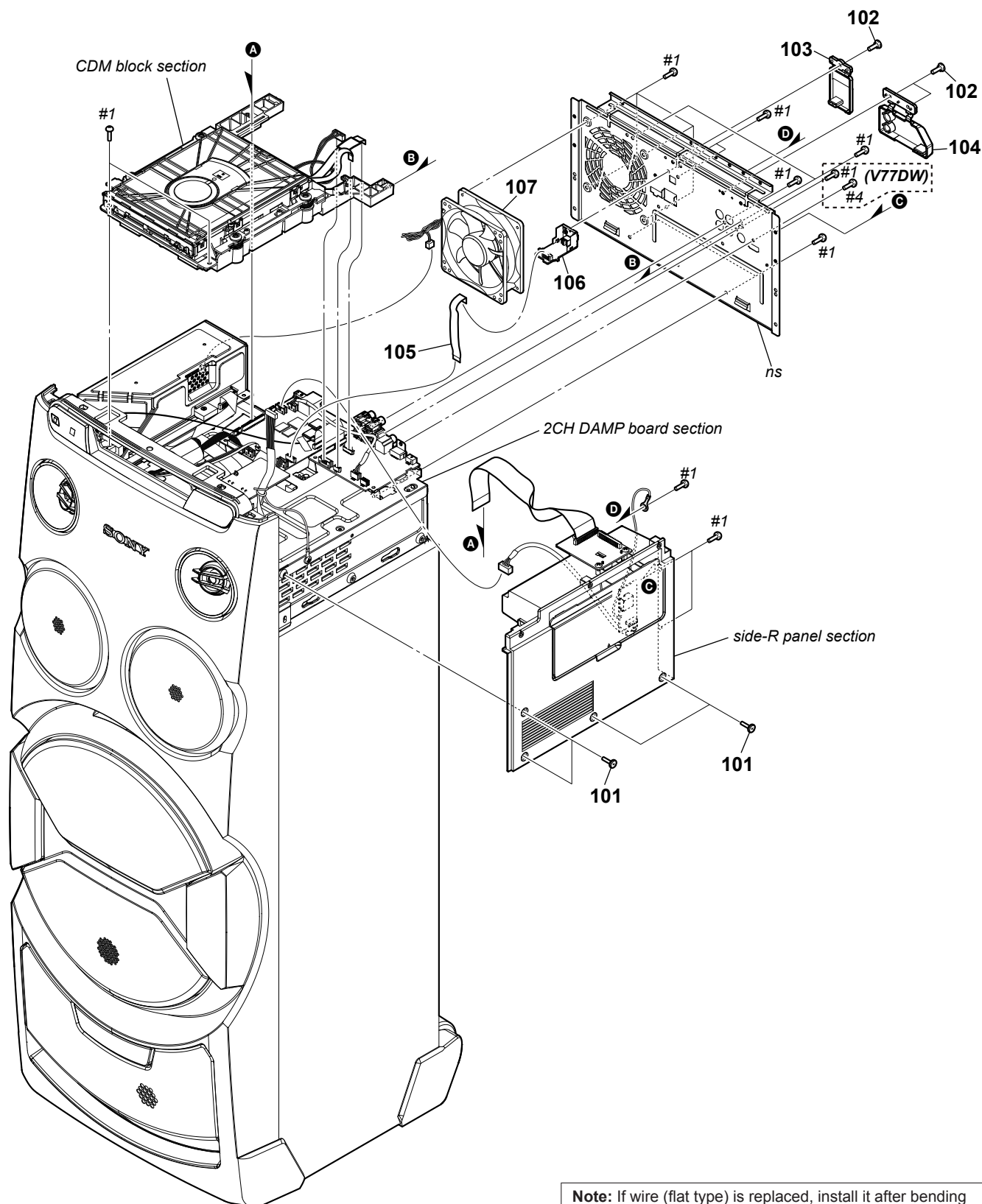
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-690-023-02	CONNECTOR, COVER		5	3-287-010-01	SHEET (B)	
2	4-591-404-11	SCREW, TAPPING (FLAT HEAD)		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
3	X-2593-468-2	COVER, REAR ASSY		#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
4	4-591-411-01	PANEL SIDE, L (V77DW)		#3	7-685-133-19	SCREW +P 2.6X6 TYPE2	
4	4-591-411-11	PANEL SIDE, L (V77W)		ns		not supplied	

7-2. PANEL LOADING SECTION



Ref. No.	Part No.	Description	Remark
* 51	1-500-082-11	CLAMP, SLEEVE FERRITE (AEP, UK, RU, MY, AUS, US, CND)	
52	X-2593-461-1	PANEL, LOADING ASSY	
53	4-591-404-01	SCREW, TAPPING (FLAT HEAD)	
ns		not supplied	

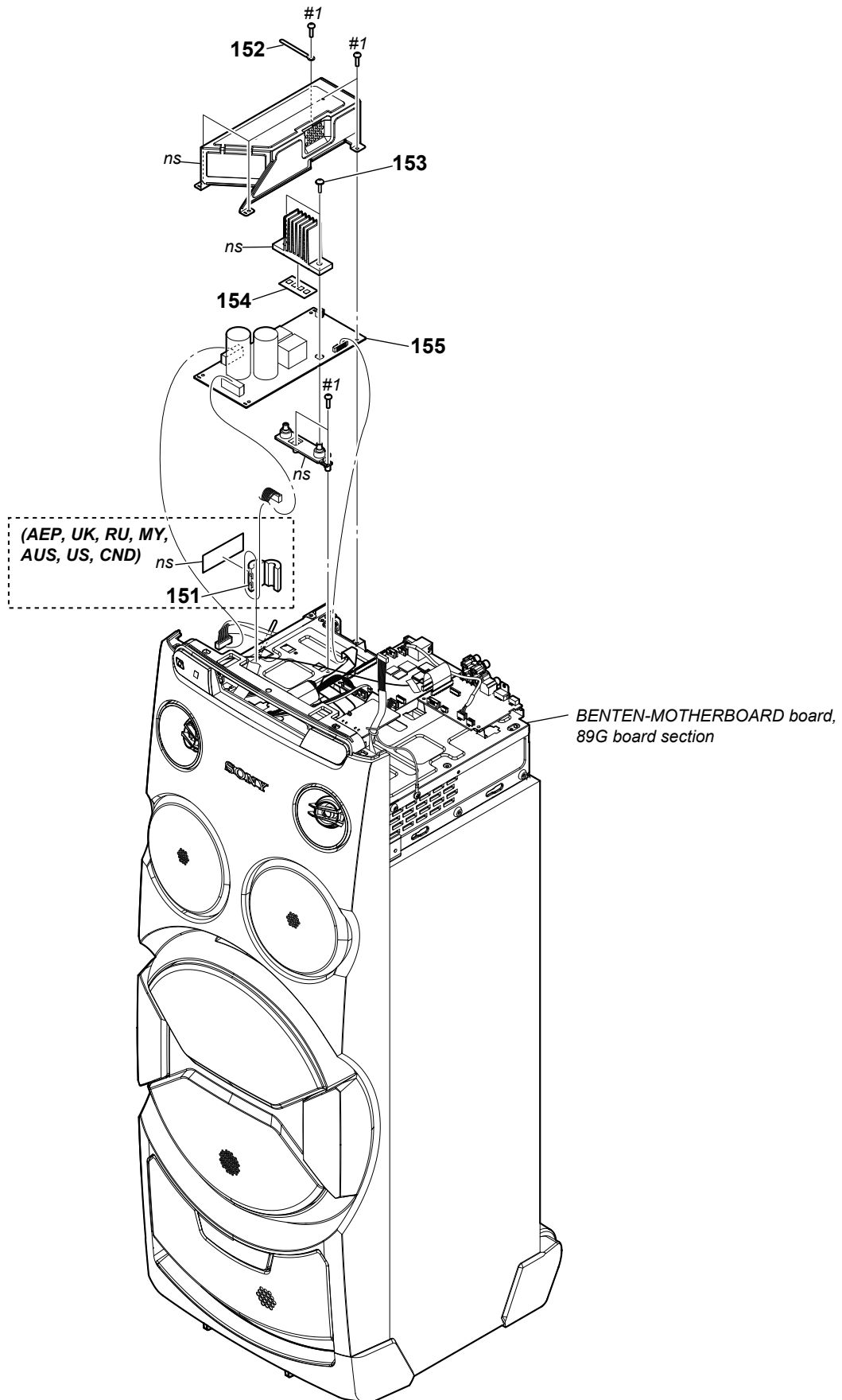
7-3. BACK PANEL SECTION



Ref. No.	Part No.	Description	Remark
101	4-591-404-01	SCREW, TAPPING (FLAT HEAD)	
102	3-531-576-41	RIVET (DIA. 3), NYLON	
103	4-598-988-02	COVER, LAN	
104	4-598-987-03	COVER, JACK (V77DW)	
104	4-694-448-01	COVER, JACK (CD) (V77W)	
105	1-849-864-11	WIRE (FLAT TYPE) (9 CORE)	

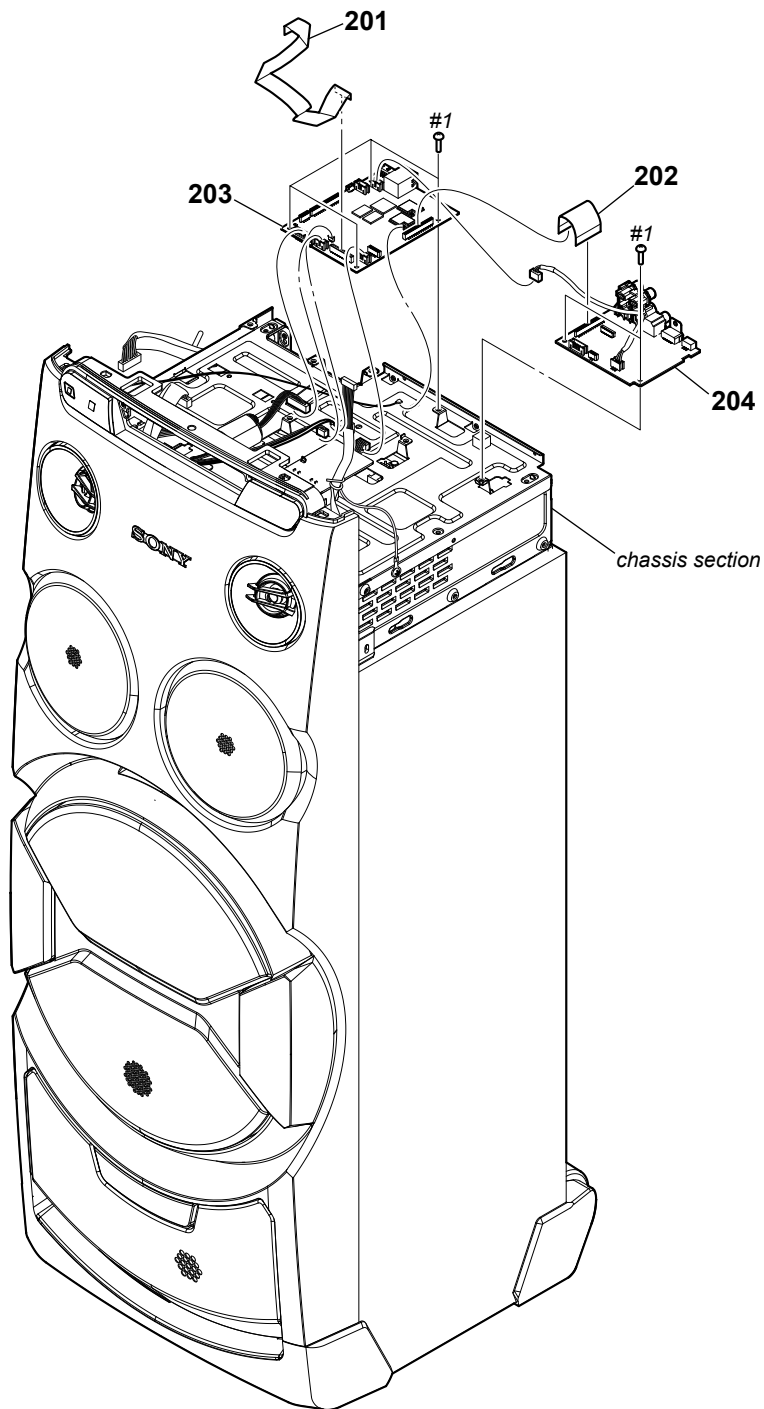
Ref. No.	Part No.	Description	Remark
106	A-2116-541-A	FM-TUNER BOARD, COMPLETE	
107	1-855-340-11	DC FAN	
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
#4	7-682-547-04	SCREW +B 3X6 (V77DW)	
ns		not supplied	

7-4. 2CH DAMP BOARD SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	1-457-369-12	CORE, FERRITE (AEP, UK, RU, MY, AUS, US, CND)		△ 155	A-2119-859-A	2CH DAMP BOARD, COMPLETE (EA, AR, TH, E4, E12, LA9)	
* 152	3-703-150-11	CLAMP		△ 155	A-2166-746-A	2CH DAMP BOARD, COMPLETE (AEP, UK, RU, MY, AUS, US, CND)	
153	4-435-965-01	SCREW+PTPWH 2.6XL (DIA8.0)		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
154	4-585-699-11	SHEET, THERMAL		ns		not supplied	

7-5. BENTEN-MOTHERBOARD BOARD, 89G BOARD SECTION



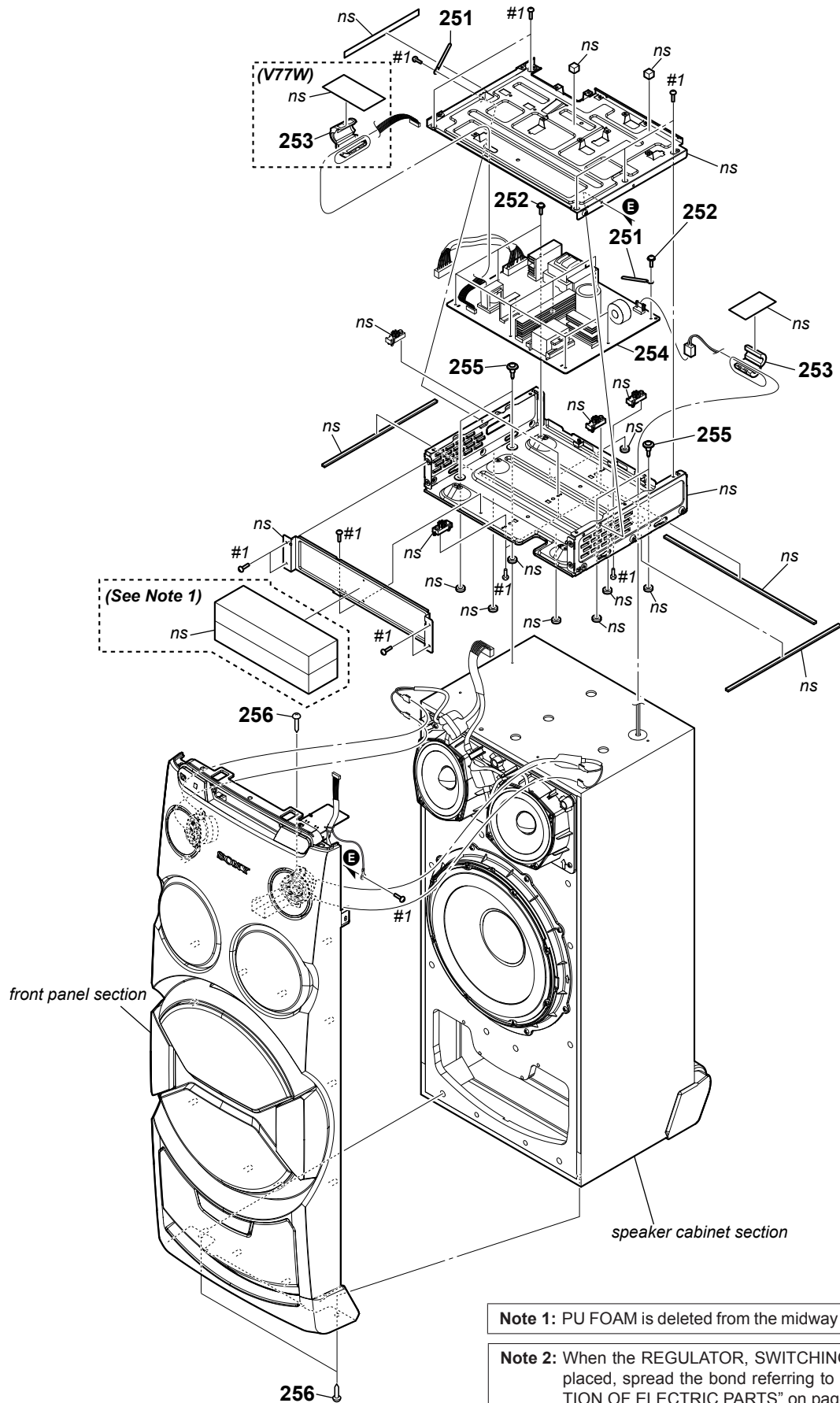
Note 1: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.

Note 2: If wire (flat type) is replaced, install it after bending it in the same form as that before replacement.

Ref. No.	Part No.	Description	Remark
201	1-849-862-11	WIRE (FLAT TYPE) (17 CORE)	
202	1-849-863-11	WIRE (FLAT TYPE) (29 CORE)	
203	A-2166-173-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (AR, LA9)	
203	A-2166-174-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (RU)	
203	A-2166-175-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (AUS)	
203	A-2166-176-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (TH)	
203	A-2166-177-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (E12)	

Ref. No.	Part No.	Description	Remark
203	A-2166-178-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (EA, E4)	
203	A-2166-179-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (AEP, UK)	
203	A-2170-098-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (MY)	
203	A-2181-551-A	BENTEN-MOTHERBOARD BOARD, COMPLETE (for SERVICE) (V77W)	
204	A-2165-594-A	89G BOARD, COMPLETE (for SERVICE) (V77DW)	
204	A-2181-552-A	89G BOARD, COMPLETE (for SERVICE) (V77W)	
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	

7-6. CHASSIS SECTION

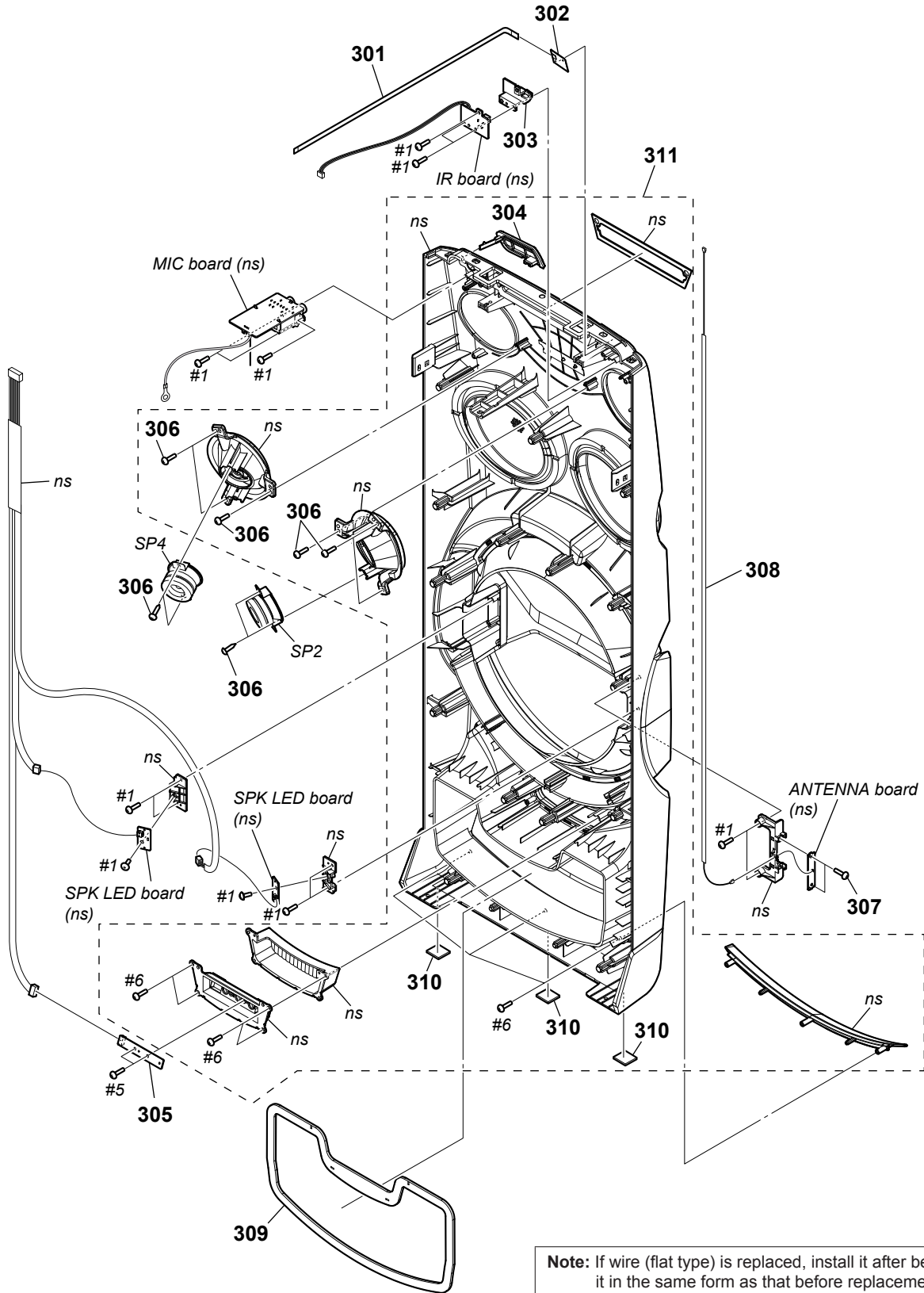


Note 1: PU FOAM is deleted from the midway of production.

Note 2: When the REGULATOR, SWITCHING board is replaced, spread the bond referring to "BOND FIXATION OF ELECTRIC PARTS" on page 6.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 251	3-703-150-11	CLAMP		255	4-558-595-01	STEP SCREW M4	
252	2-677-839-01	+PWH 3X8 (SUMITITE)		256	4-532-593-02	SCREW (4X13) (TR-184A)	
253	1-457-369-12	CORE, FERRITE		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
△ 254	1-474-657-21	REGULATOR, SWITCHING (SSN-161AD)		ns		not supplied	

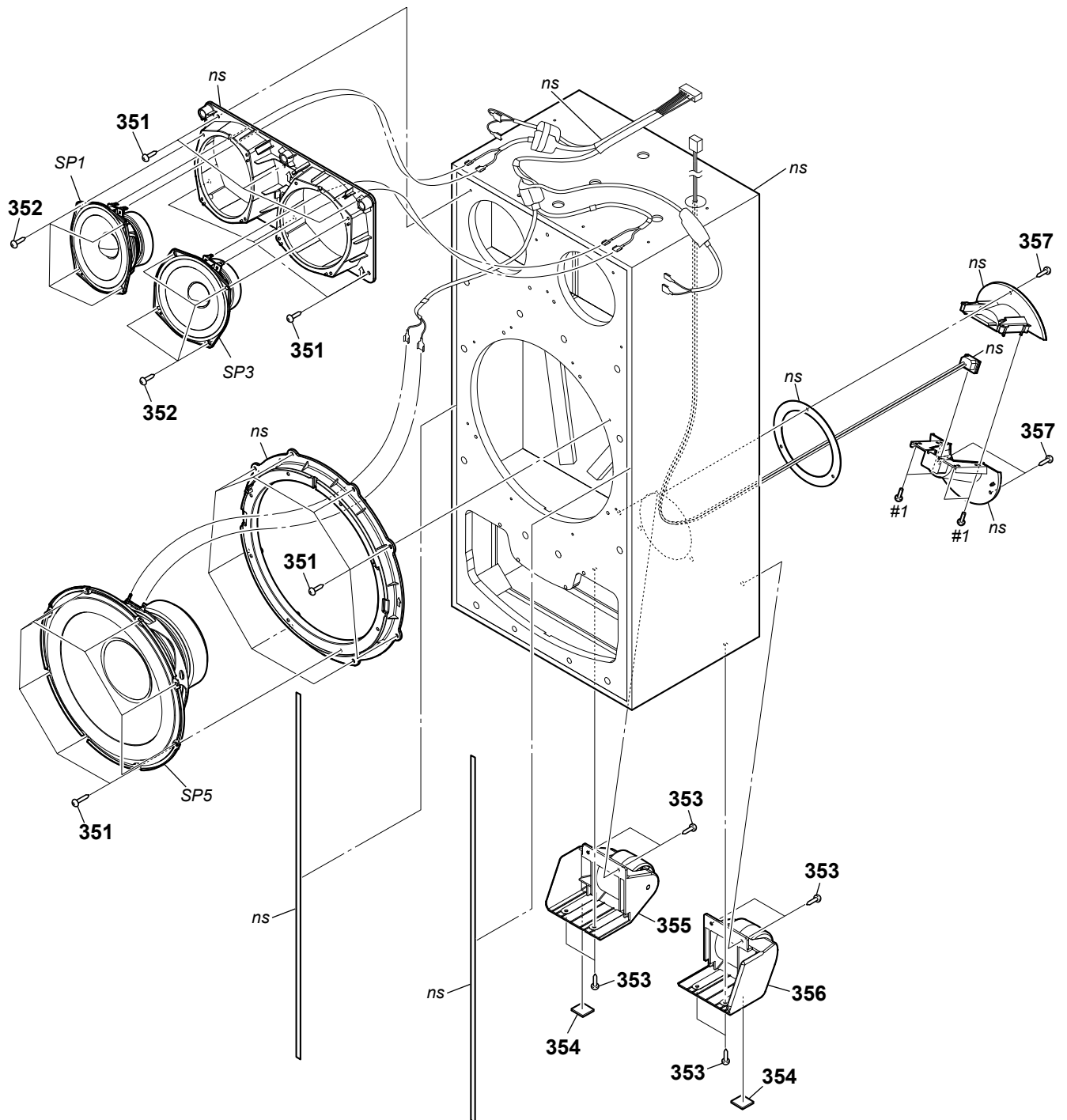
7-7. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
301	1-849-865-11	WIRE (FLAT TYPE) (6 CORE)	
302	8-989-602-00	RC-S730 (WW)	
303	4-591-391-01	COVER, MIC	
304	4-591-387-01	WINDOW, IR	
305	A-2092-726-A	PARTY LED BOARD, COMPLETE	
306	4-874-614-02	SCREW (1) (3.5X14), TAPPING	
307	3-087-053-01	+BVTP2.6 (3CR)	
308	1-971-356-31	HARNESS, COAXIAL (720MM)	
309	4-591-415-01	PACKING, DUCT	

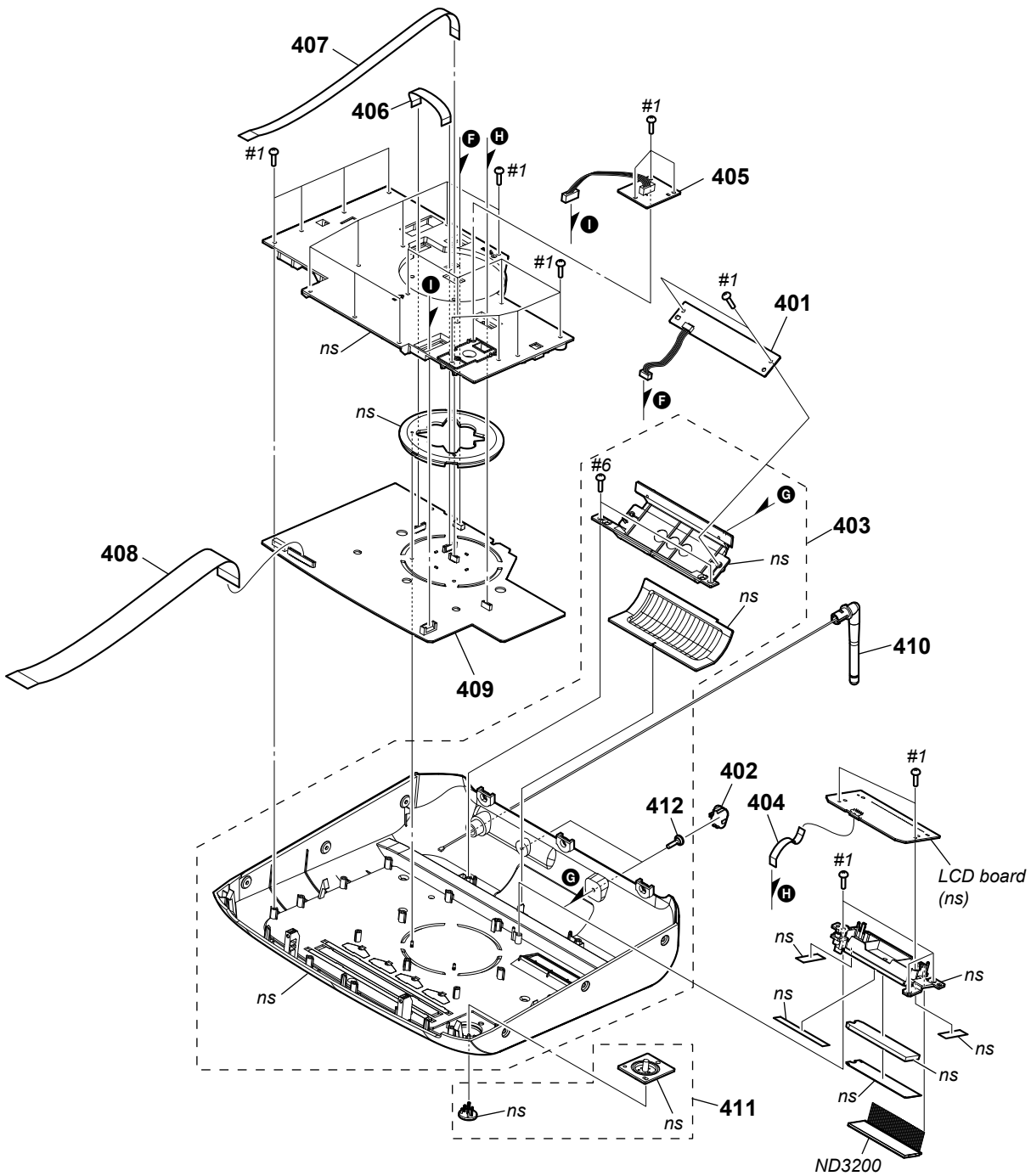
Ref. No.	Part No.	Description	Remark
310	4-578-508-01	FOOT	
311	X-2593-460-2	PANEL, FRONT ASSY (V77DW)	
311	X-2594-672-1	PANEL, FRONT ASSY (UC2) (V77W)	
SP2	1-859-191-11	LOUDSPEAKER (37MM) (Tweeter) (L-CH)	
SP4	1-859-191-11	LOUDSPEAKER (37MM) (Tweeter) (R-CH)	
#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
#5	7-685-645-71	SCREW +BVTP 3X6 TYPE2 IT-3	
#6	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
ns		not supplied	

7-8. SPEAKER CABINET SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	4-238-407-12	SCREW (1) (4X20), +BV TAPPING		357	4-874-614-12	SCREW (1) (3.5X14), TAPPING	
352	4-874-614-02	SCREW (1) (3.5X14), TAPPING		SP1	1-859-181-11	LOUDSPEAKER (120MM)-181-11 (Mid) (L-CH)	
353	4-532-593-02	SCREW (4X13) (TR-184A)		SP3	1-859-181-11	LOUDSPEAKER (120MM)-181-11 (Mid) (R-CH)	
354	4-578-508-01	FOOT		SP5	1-859-180-11	LOUDSPEAKER (260MM)-180-11 (Woofer)	
355	A-2166-460-A	SERVICE, CASTER L ASSY		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
356	A-2166-461-A	SERVICE, CASTER R ASSY		ns		not supplied	

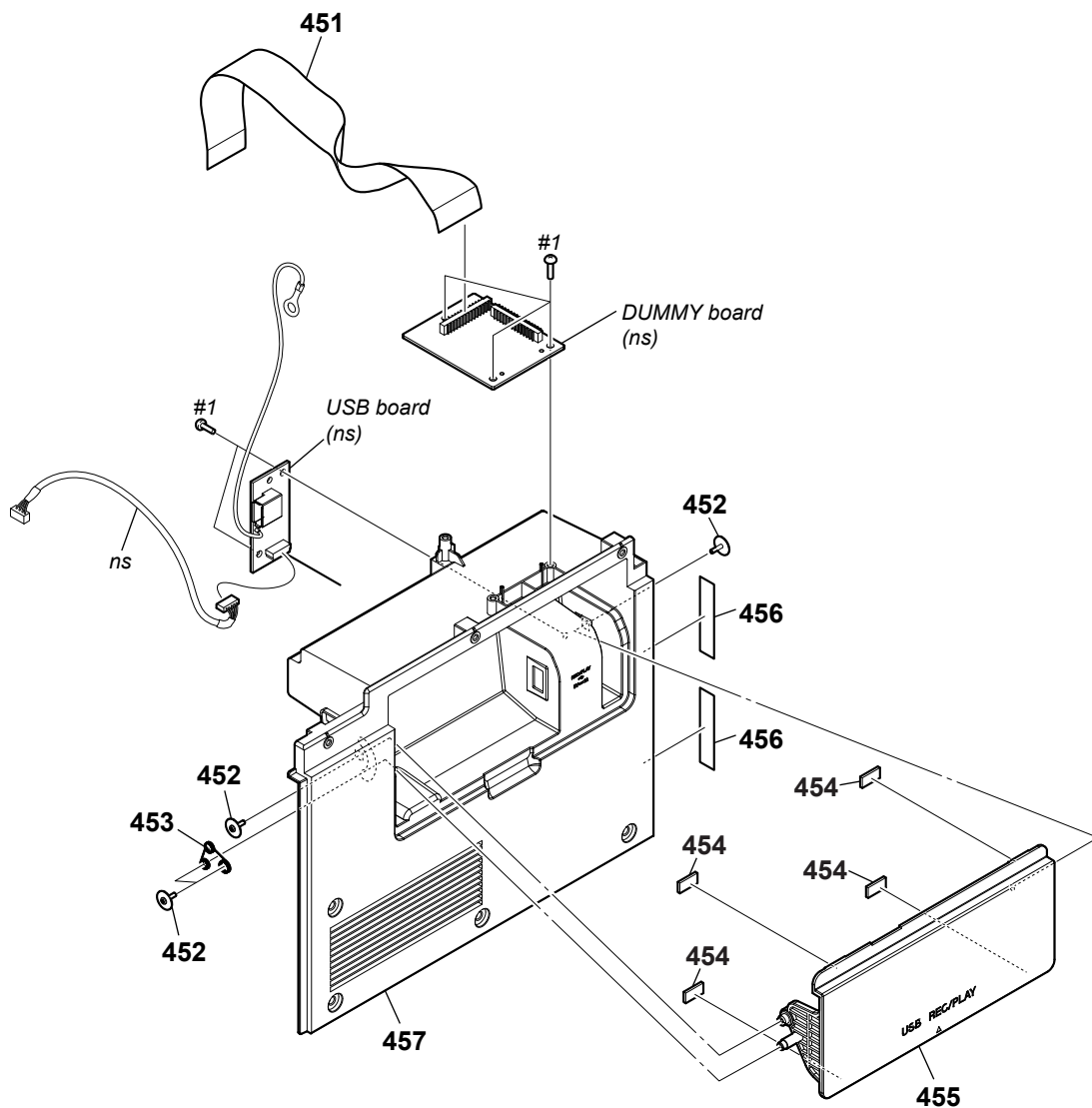
7-9. TOP PANEL SECTION



Note: If wire (flat type) 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-2092-728-A	SPK PARTY LED BOARD, COMPLETE		409	A-2178-560-A	SENSOR BOARD, COMPLETE	
402	4-591-427-01	COVER, SCREW		410	1-754-993-11	DUAL-BAND DIPOLE ANTENNA	
403	A-2166-458-A	SERVICE, PANEL TOP ASSY (V77DW)		411	X-2593-464-1	BUTTON, POWER ASSY	
403	A-2188-590-A	SERVICE, PANEL TOP ASSY (V77W)		412	4-591-404-01	SCREW, TAPPING (FLAT HEAD)	
404	1-849-860-11	WIRE (FLAT TYPE) (7 CORE)		ND3200	1-493-124-11	LIQUID CRYSTAL DISPLAY	
405	A-2121-754-A	POWER BUTTON BOARD, COMPLETE		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
406	1-849-861-11	WIRE (FLAT TYPE) (13 CORE)		#6	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
407	1-849-858-11	WIRE (FLAT TYPE) (7 CORE)		ns		not supplied	
408	1-849-859-11	WIRE (FLAT TYPE) (29 CORE)					

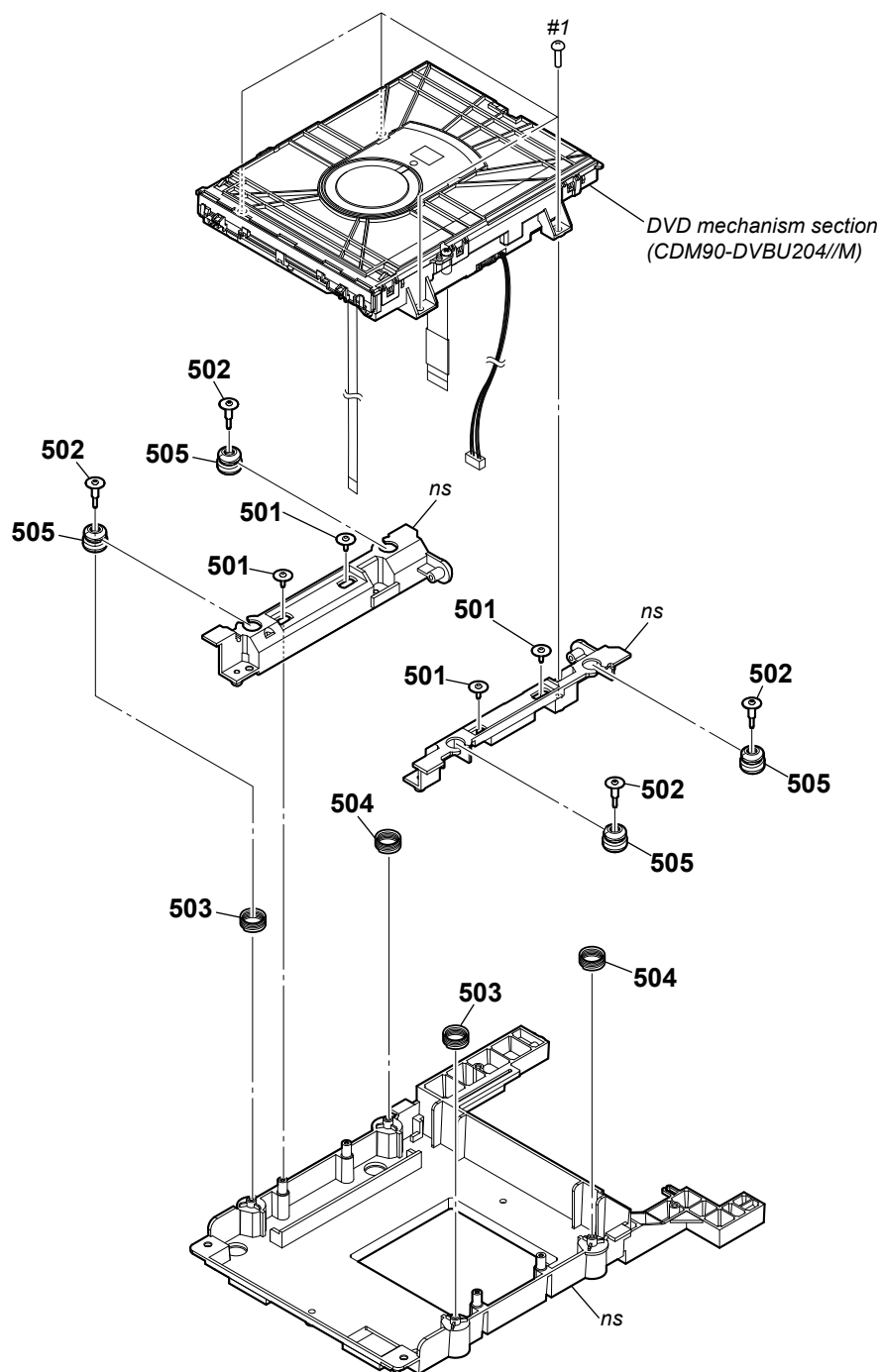
7-10. SIDE-R PANEL SECTION



Note: If wire (flat type) is replaced, install it after bending it in the same form as that before replacement.

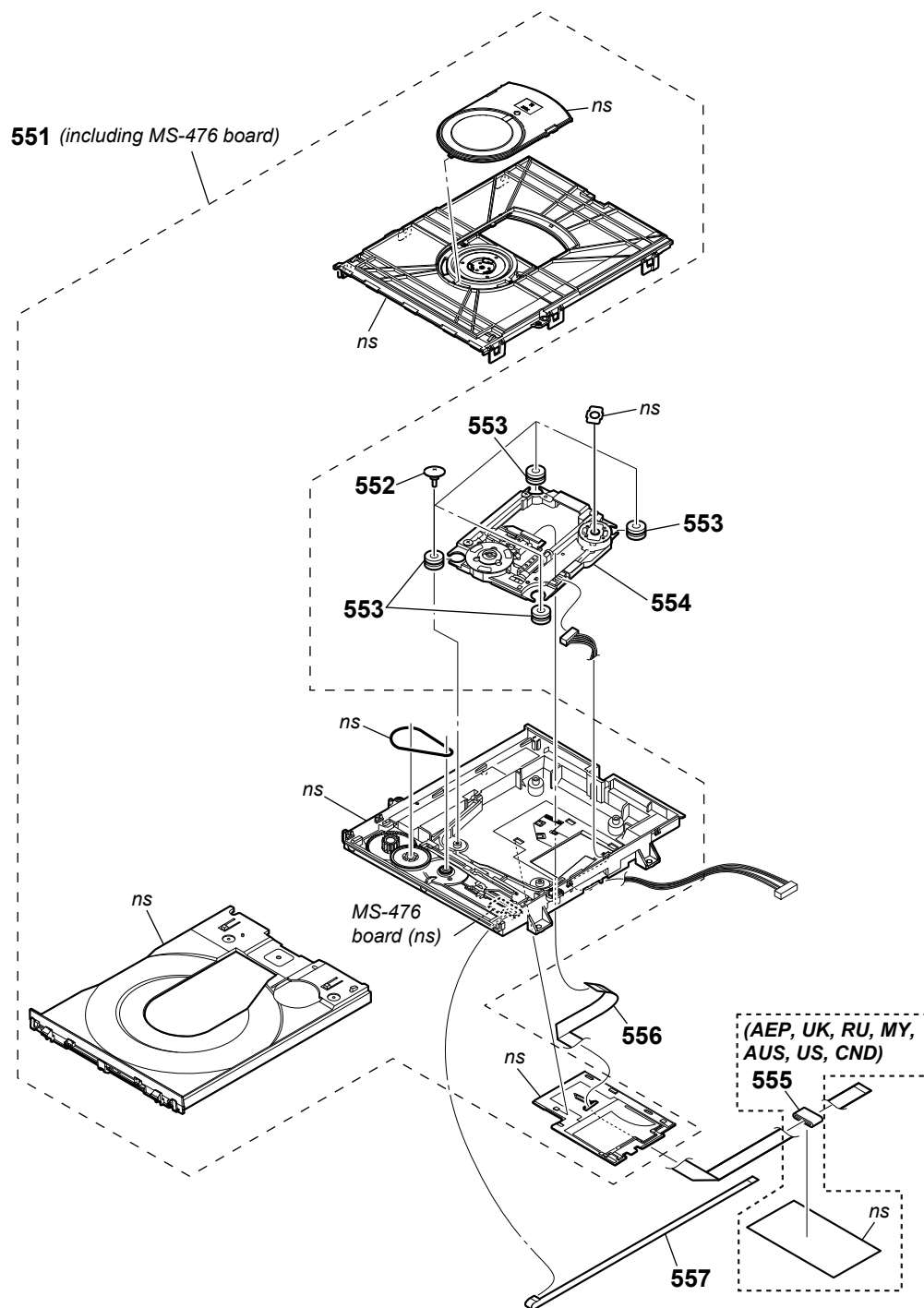
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
451	1-849-857-11	WIRE (FLAT TYPE) (29 CORE)		456	3-287-010-01	SHEET (B)	
452	2-345-115-01	SCREW (S), FLOAT		457	4-591-412-01	PANEL, SIDE-R (V77DW)	
453	4-591-410-01	SPRING, USB		457	4-591-412-11	PANEL, SIDE-R (V77W)	
454	4-591-417-01	CUSHION (6X12)		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
455	4-591-414-01	DOOR, USB		ns		not supplied	

7-11. CDM BLOCK SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
501	2-345-115-01	SCREW (S), FLOAT		505	4-533-382-01	INSULATOR	
502	4-535-577-01	STEP SCREW M2.6		#1	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3	
503	4-533-939-01	SPRING, INSULATOR (F)		ns		not supplied	
504	4-533-940-01	SPRING, INSULATOR (R)					

7-12. 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
551	A-1896-391-B	LOADING COMPLETE ASSY (T) (including MS-476 board)		555	1-469-829-11	CORE, FERRITE (AEP, UK, RU, MY, AUS, US, CND)	
552	3-087-599-01	INSULATOR SCREW		556	1-849-855-11	FLEXIBLE FLAT CABLE (24P)	
553	2-634-618-21	INSULATOR		557	1-849-856-11	FLEXIBLE FLAT CABLE (5P)	
△ 554	A-2046-956-A	SERVICE, OPTICAL DEVICE (7G)		ns		not supplied	

SECTION 8
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
- Items marked "*" are not stocked since they are seldom required for routine service.
Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . . : μ A. . . , uPA. . . , μ PA. . . ,
uPB. . . : μ PB. . . , uPC. . . , μ PC. . . ,
uPD. . . : μ PD. . .
- CAPACITORS
uF: μ F
- COILS
uH: μ H
- Abbreviation
AR : Argentina model
AUS : Australian model
CND : Canadian model
E4 : African model
E12 : 220-240 V AC area in E model
EA : Saudi Arabia model
LA9 : Latin-American model
MY : Malaysia model
RU : Russian model
TH : Thai model

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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
\triangle	A-2119-859-A	2CH DAMP BOARD, COMPLETE (EA, AR, TH, E4, E12, LA9)				< FERRITE BEAD >	
\triangle	A-2166-746-A	2CH DAMP BOARD, COMPLETE (AEP, UK, RU, MY, AUS, US, CND) ***** < IC >		FB8006	1-481-348-21	EMI FERRITE (SMD) (1608)	
				FB8007	1-481-348-21	EMI FERRITE (SMD) (1608)	
						< FILTER >	
				FL8001	1-234-494-21	FILTER, EMI REMOVAL (SMD)	
						< IC >	
	IC1001	6-722-001-01 IC 78D12AG-TN3-R		IC8001	(Not supplied)	IC MX25L3235EM2I-10G	
	IC1002	6-722-002-01 IC 78D07AG-TN3-R		IC8002	6-720-509-01	IC BD00IC0WHFV-GTR	
	IC1003	6-722-003-01 IC 79D07AG-TN3-R		IC8003	(Not supplied)	IC CXD9992R	
	IC1006	6-721-872-01 IC 78D09AG-TN3-R		IC8004	6-719-198-01	IC MM3411A33URE (V77DW)	
	IC1007	6-723-100-01 IC 78L15G-AB3-R		IC8005	6-720-801-01	IC EM638165TSD-6G	
		*****		IC8007	6-722-615-01	IC TC7WHU04FK, RSNJ (CT (V77DW)	
\square	A-2165-594-A	89G BOARD, COMPLETE (for SERVICE) (V77DW)		IC8400	6-720-195-01	IC AM5890S	
	A-2181-552-A	89G BOARD, COMPLETE (for SERVICE) (V77W) ***** < CONNECTOR >				< JACK >	
	CN8001	1-844-191-11 FFC ST CONNECTOR (NON-ZIF) 24P		J8001	1-794-970-11	JACK, PIN 1P (VIDEO OUT) (V77DW)	
	CN8003	1-821-398-41 HDMI CONNECTOR (HDMI OUT (TV) ARC ▼) (V77DW)		J8002	1-794-981-11	JACK, PIN 4P (AUDIO/PARTY CHAIN OUT L/R, AUDIO/PARTY CHAIN IN (TV) L/R) (V77DW) (AUDIO/PARTY CHAIN OUT L/R, AUDIO/PARTY CHAIN IN L/R) (V77W)	
	CN8004	1-794-509-11 CONNECTOR 3P				< TRANSISTOR >	
	CN8005	1-691-550-11 PIN, CONNECTOR (1.5MM) (SMD) 3P		Q8003	6-553-509-01	TR KTA1542T-RTK/P (V77DW)	
	CN8006	1-573-806-21 PIN, CONNECTOR (1.5MM) (SMD) 6P		Q8004	8-729-054-16	TRANSISTOR KRC402-RTK (V77DW)	
	CN8007	1-844-161-11 PIN, CONNECTOR 3P		Q8400	6-551-120-01	TRANSISTOR 2SA2119K	
	CN8400	1-770-470-21 PIN, CONNECTOR (PC BOARD) 6P		Q8401	6-551-120-01	TRANSISTOR 2SA2119K	
	CN8401	1-794-362-51 CONNECTOR, FFC/FPC 5P				< COMPOSITION CIRCUIT BLOCK >	
	CN8501	1-820-125-51 CONNECTOR, FFC/FPC 29P		RB8001	1-234-370-21	RES, NETWORK 22 (1005X4)	
		< DIODE >		RB8002	1-234-370-21	RES, NETWORK 22 (1005X4)	
	D8001	6-500-400-01 DIODE BAV99-215 (V77DW)		RB8003	1-234-370-21	RES, NETWORK 22 (1005X4)	
	D8003	6-501-568-01 DIODE RB521CS-30T2R (V77DW)		RB8004	1-234-370-21	RES, NETWORK 22 (1005X4)	
	D8004	6-501-568-01 DIODE RB521CS-30T2R (V77DW)		RB8005	1-234-370-21	RES, NETWORK 22 (1005X4)	
	D8005	6-500-400-01 DIODE BAV99-215 (V77DW)					
	D8400	8-719-069-29 DIODE RB520S-30FJTE61		RB8006	1-234-370-21	RES, NETWORK 22 (1005X4)	
	D8401	8-719-069-29 DIODE RB520S-30FJTE61		RB8007	1-234-370-21	RES, NETWORK 22 (1005X4)	
		< EARTH TERMINAL >		RB8008	1-234-370-21	RES, NETWORK 22 (1005X4)	
	ET8002	1-780-945-11 TERMINAL, CONTACT (V77DW)		RB8009	1-234-370-21	RES, NETWORK 22 (1005X4)	

Note: IC8001 and IC8003 on the 89G board cannot exchange with single. When these parts on the 89G board are damaged, exchange the entire mounted board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< VIBRATOR >					
X8001	1-814-023-11	QUARTS CRYSTAL UNIT (27MHz)		IC6002	(Not supplied)	IC MT6323L	
*****				IC6202	(Not supplied)	IC TH58NVG3S0HTA10	
		ANTENNA BOARD		IC6203	(Not supplied)	IC MFI337S3959	
		*****		IC6341	(Not supplied)	IC NT5CB128M16IP-EK	
		< JACK >		IC6342	(Not supplied)	IC NT5CB128M16IP-EK	
J1301	1-820-196-11	RECEPTACLE, COAXIAL CONNECTOR		IC6401	6-705-973-01	IC PCM1754DBQR	
*****				IC6402	8-759-909-71	IC BA4558F	
A-2166-173-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6403	8-759-596-39	IC SN74LV4052APWR	
		(for SERVICE) (AR, LA9)		IC6404	8-759-909-71	IC BA4558F	
A-2166-174-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6405	6-710-554-01	IC PCM1808PWR	
		(for SERVICE) (RU)		IC6406	8-759-596-39	IC SN74LV4052APWR	
A-2166-175-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6407	6-710-554-01	IC PCM1808PWR	
		(for SERVICE) (AUS)		IC6409	6-721-848-01	IC PCM5101	
A-2166-176-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6410	6-719-198-01	IC MM3411A33URE	
		(for SERVICE) (TH)		IC6411	6-719-198-01	IC MM3411A33URE	
A-2166-177-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6602	(Not supplied)	IC RTL8201FR-VB-CGT (ASE)	
		(for SERVICE) (E12)		IC6802	6-721-811-01	IC TC7USB40FT	
A-2166-178-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6803	6-717-848-01	IC NCP380HNSAJAAT1G	
		(for SERVICE) (EA, E4)		IC6901	(Not supplied)	IC TPS65261RHBR	
A-2166-179-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6902	6-721-872-01	IC 78D09AG-TN3-R	
		(for SERVICE) (AEP, UK)		IC6903	6-721-766-01	IC 78D05AG-TN3-R	
A-2170-098-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6904	6-721-079-01	IC TPS542941PWPR	
		(for SERVICE) (MY)		IC6905	6-718-999-01	IC MM1839A50NRE (V77DW)	
A-2181-551-A		BENTEN-MOTHERBOARD BOARD, COMPLETE		IC6907	(Not supplied)	IC MM3411A15URE	
		(for SERVICE) (V77W)				< JACK >	
		*****		J6601	1-844-187-11	ETHERNET CONNECTOR (LAN (100))	
		< CONNECTOR >				< TRANSISTOR >	
CN6201	1-816-654-61	FFC/CONNECTOR, FPC (LIF) 6P		Q6002	8-729-054-16	TRANSISTOR KRC402-RTK	
		(FOR SERVICE ONLY ▼)		Q6003	8-729-054-16	TRANSISTOR KRC402-RTK	
CN6202	1-820-821-71	CONNECTOR, FFC/FPC (LIF) 6P		Q6401	6-550-978-01	TR RN1902	
CN6203	1-785-466-51	CONNECTOR, FFC/FPC 7P		Q6402	8-729-427-72	TRANSISTOR XP4501	
CN6204	1-779-884-11	CONNECTOR 4P		Q6403	6-551-039-01	TRANSISTOR RN4902 (T5RSony, D, F)	
CN6205	1-770-161-21	PIN, CONNECTOR (PC BOARD) 6P		Q6404	6-551-039-01	TRANSISTOR RN4902 (T5RSony, D, F)	
		(FOR SERVICE ONLY ▼)		Q6405	6-552-922-01	TR LTA014EUBFS8TL	
CN6401	1-764-250-21	PIN, CONNECTOR (PC BOARD) 4P		Q6406	6-550-978-01	TR RN1902	
CN6402	1-820-112-51	CONNECTOR, FFC/FPC 9P		* Q6407	6-551-959-01	TR IMX25T110	
CN6404	1-820-116-51	CONNECTOR, FFC/FPC 17P		Q6601	8-729-054-16	TRANSISTOR KRC402-RTK	
CN6801	1-764-250-21	PIN, CONNECTOR (PC BOARD) 4P		Q6850	6-551-039-01	TRANSISTOR RN4902 (T5RSony, D, F)	
CN6802	1-794-509-11	PIN, CONNECTOR (PC BOARD) (3P)		Q6890	6-553-509-01	TR KTA1542T-RTK/P	
CN6850	1-820-125-51	CONNECTOR, FFC/FPC 29P		Q6891	6-552-967-01	TR RHK005N03T146	
CN6851	1-794-509-11	PIN, CONNECTOR (PC BOARD) (3P)		Q6892	6-552-922-01	TR LTA014EUBFS8TL	
CN6901	1-816-296-21	PIN, CONNECTOR (PC BOARD) 9P		Q6893	6-552-958-01	TR DTC014YMT2L	
CN7001	1-820-125-51	CONNECTOR, FFC/FPC 29P		Q6894	6-552-958-01	TR DTC014YMT2L	
		< DIODE >		Q6901	6-550-978-01	TR RN1902	
D6701	6-501-568-01	DIODE RB521CS-30T2R (V77DW)		Q6902	6-553-509-01	TR KTA1542T-RTK/P	
D6890	6-502-961-01	DI DA2J10100L		Q6903	6-553-509-01	TR KTA1542T-RTK/P	
D6891	6-502-961-01	DI DA2J10100L		Q6904	6-553-509-01	TR KTA1542T-RTK/P	
		< FERRITE BEAD >		Q6905	6-553-509-01	TR KTA1542T-RTK/P	
FB6701	1-481-067-21	BEAD, FERRITE (1005)		Q6906	6-553-509-01	TR KTA1542T-RTK/P	
FB6802	1-481-348-21	EMI FERRITE (SMD) (1608)		Q6907	6-552-958-01	TR DTC014YMT2L	
		< IC >		Q6908	6-552-958-01	TR DTC014YMT2L	
IC6001	(Not supplied)	IC MT8591AOAT		Q6909	6-552-958-01	TR DTC014YMT2L	

Note 1: IC6001, IC6002, IC6202, IC6203, IC6341, IC6342, IC6602, IC6901 and IC6907 on the BENTEN-MOTHERBOARD board cannot exchange with single. When these parts on the BENTEN-MOTHERBOARD board are damaged, exchange the entire mounted board.

Note 2: When the BENTEN-MOTHERBOARD board is replaced, refer to "IMPORTANT NOTE OF REPLACING THE BENTEN-MOTHERBOARD BOARD" on page 5 and "IMPORTANT NOTE OF DHSR-SY30 AT BENTEN-MOTHERBOARD BOARD" on page 6.

MHC-V77W/V77DW

Ver. 1.4

BENTEN-MOTHERBOARD **DUMMY** **FM-TUNER** **IR** **LCD** **MIC** **MS-476** **PARTY LED**

Ref. No.	Part No.	Description	Remark
		< COMPOSITION CIRCUIT BLOCK >	
* RB6601	1-234-723-21	RES, NETWORK 75 (1005X4)	
		< TRANSFORMER >	
*△T6601	1-697-376-11	PULSE TRANSFORMER	
*△T6602	1-697-376-11	PULSE TRANSFORMER	
		< THERMISTOR >	
TH6890	1-804-949-11	THERMISTOR, NTC (SMD)	
		< VIBRATOR >	
* X6601	1-814-676-11	QUARTZ CRYSTAL UNIT (25MHz)	

		DUMMY BOARD	

		< CONNECTOR >	
CN3900	1-820-125-51	CONNECTOR, FFC/FPC 29P	
CN3902	1-820-125-51	CONNECTOR, FFC/FPC 29P	

	A-2116-541-A	FM-TUNER BOARD, COMPLETE	

		< CONNECTOR >	
CN8901	1-820-112-51	CONNECTOR, FFC/FPC 9P	
CN8902	1-770-160-21	PIN, CONNECTOR (PC BOARD) 2P	(ANTENNA FM)
		< DIODE >	
D8901	6-500-400-01	DIODE BAV99-215	
		< FERRITE BEAD >	
FB001	1-481-349-21	EMI FERRITE (SMD) (1608)	
		< IC >	
IC8901	6-719-198-01	IC MM3411A33URE	
IC8902	(Not supplied)	IC RN5B701-0002	
		< VIBRATOR >	
X8901	1-814-926-11	QUARTS CRYSTAL UNIT (12MHz)	

		IR BOARD	

		< IC >	
IC3300	6-600-766-01	IC PNA4823M01S0 (IR)	

		LCD BOARD	

		< CONNECTOR >	
CN3201	1-779-275-11	CONNECTOR, FFC (LIF (NON-ZIF)) 7P	
		< DIODE >	
D3200	6-503-770-01	DI 1L043RW32EOCI7A11 (WHITE)	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC3204	6-720-239-01	IC BU9795AKS2	
IC3206	6-710-786-01	IC TC7SH125FU	
IC3207	6-710-786-01	IC TC7SH125FU	
IC3208	6-710-786-01	IC TC7SH125FU	
IC3209	6-710-786-01	IC TC7SH125FU	
		< JUMPER RESISTOR >	
JR3202	1-216-864-91	SHORT CHIP	0
JR3203	1-216-296-11	SHORT CHIP	0
JR3206	1-216-296-11	SHORT CHIP	0
JR3207	1-216-296-11	SHORT CHIP	0
JR3216	1-216-296-11	SHORT CHIP	0
		< LIQUID CRYSTAL DISPLAY >	
ND3200	1-493-124-11	LIQUID CRYSTAL DISPLAY	
		< TRANSISTOR >	
Q3200	6-553-083-01	TR	PBSS4160T

		MIC BOARD	

		< DIODE >	
D3500	6-500-400-01	DIODE BAV99-215	
D3501	6-500-400-01	DIODE BAV99-215	
D3503	6-502-961-01	DI DA2J10100L	
D3504	6-502-961-01	DI DA2J10100L	
		< FERRITE BEAD >	
FB3502	1-469-670-21	FERRITE, EMI (SMD) (2012)	
		< IC >	
IC3500	8-759-909-71	IC BA4558F	
		< JACK >	
J3500	1-822-967-12	JACK (MIC1)	
J3501	1-822-967-12	JACK (MIC2)	
		< JUMPER RESISTOR >	
JR3500	1-216-295-91	SHORT CHIP	0
JR3501	1-216-295-91	SHORT CHIP	0
JR3503	1-216-296-11	SHORT CHIP	0
JR3504	1-216-296-11	SHORT CHIP	0
JR3505	1-216-296-11	SHORT CHIP	0
JR3507	1-216-296-11	SHORT CHIP	0

		MS-476 BOARD	

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

	A-2092-726-A	PARTY LED BOARD, COMPLETE	

		< CONNECTOR >	
CN3800	1-580-057-11	PIN, CONNECTOR (SMD) 4P	

Note: IC8902 on the FM-TUNER board cannot exchange with single. When this part on the FM-TUNER board is damaged, exchange the entire mounted board.

PARTY LED **POWER BUTTON** **SENSOR** **SPK LED** **SPK PARTY LED** **USB**

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< DIODE >		IC1002	6-722-838-01	IC TLC59116IPWR	
D3800	6-504-104-01	DI LT CN5M-GAHB-25-1		IC1003	6-722-838-01	IC TLC59116IPWR	
D3801	6-504-102-01	DI LD CN5M-4Q4R-35-1					
D3802	6-504-103-01	DI LA CN5M-GAHA-24-1		IC1004	6-722-838-01	IC TLC59116IPWR	
*****				IC3600	6-722-772-01	IC MGC3030	
	A-2121-754-A	POWER BUTTON BOARD, COMPLETE		*****			
		< CONNECTOR >				SPK LED BOARD	

CN3400	1-843-886-11	PIN, CONNECTOR (PC BOARD) 5P				< CONNECTOR >	
		< DIODE >		* CN3650	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
D3402	6-502-843-01	DI CL-165HR/HG5-D-T				< DIODE >	
		< TRANSISTOR >		D3650	6-504-314-01	DI CL-824U1D-T	
Q001	6-552-958-01	TR DTC014YMT2L		*****			
Q002	6-552-958-01	TR DTC014YMT2L			A-2092-728-A	SPK PARTY LED BOARD, COMPLETE	
		< SWITCH >				*****	
S3403	1-786-653-11	SWITCH, TACTILE (♻)				< CONNECTOR >	
*****				CN3700	1-580-057-11	PIN, CONNECTOR (SMD) 4P	
	A-2178-560-A	SENSOR BOARD, COMPLETE				< DIODE >	
		*****		D3700	6-504-102-01	DI LD CN5M-4Q4R-35-1	
		< CONNECTOR >		D3701	6-504-104-01	DI LT CN5M-GAHB-25-1	
				D3702	6-504-103-01	DI LA CN5M-GAHA-24-1	
CN1000	1-785-466-51	CONNECTOR, FFC/FPC 7P		*****			
CN1001	1-785-468-51	CONNECTOR, FFC/FPC 13P				USB BOARD	
CN1004	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD) 4P				*****	
CN1007	1-843-886-11	PIN, CONNECTOR (PC BOARD) 5P				< CONNECTOR >	
* CN1009	1-691-591-11	PIN, CONNECTOR (1.5MM) (SMD) 8P		CN3203	1-822-423-11	CONNECTOR, USB (A) (REC/PLAY ⏪ 5V ⚡ 1A)	
CN1010	1-820-125-51	CONNECTOR, FFC/FPC 29P				< DIODE >	
CN3600	1-785-466-51	CONNECTOR, FFC/FPC 7P		D3201	6-502-970-01	DI DZ2J068M0L	
CN3601	1-785-468-51	CONNECTOR, FFC/FPC 13P		D3204	6-500-400-01	DIODE BAV99-215	
		< DIODE >				< JUMPER RESISTOR >	
D001	6-500-400-01	DIODE BAV99-215		JR3282	1-216-296-11	SHORT CHIP 0	
D002	6-500-400-01	DIODE BAV99-215		*****			
D003	6-500-400-01	DIODE BAV99-215				MISCELLANEOUS	
D004	6-500-400-01	DIODE BAV99-215				*****	
* D005	6-503-578-01	DI RB520SM-30T2R		* 51	1-500-082-11	CLAMP, SLEEVE FERRITE	
* D006	6-503-578-01	DI RB520SM-30T2R				(AEP, UK, RU, MY, AUS, US, CND)	
* D007	6-503-578-01	DI RB520SM-30T2R		105	1-849-864-11	WIRE (FLAT TYPE) (9 CORE)	
* D008	6-503-578-01	DI RB520SM-30T2R		107	1-855-340-11	DC FAN	
D100	6-501-568-01	DIODE RB521CS-30T2R		151	1-457-369-12	CORE, FERRITE	
* D1003	6-503-911-01	DI CL-435F2-AW01				(AEP, UK, RU, MY, AUS, US, CND)	
* D1004	6-503-911-01	DI CL-435F2-AW01		* 152	3-703-150-11	CLAMP	
* D1012	6-503-911-01	DI CL-435F2-AW01					
D1017	6-502-193-01	DI SML-D12V8WT86SN		201	1-849-862-11	WIRE (FLAT TYPE) (17 CORE)	
D1018	6-502-542-02	DI P1L015BC7TT86C		202	1-849-863-11	WIRE (FLAT TYPE) (29 CORE)	
D1101	6-501-358-01	DIODE CL-197HG5-CD-T		* 251	3-703-150-11	CLAMP	
D1102	6-502-383-11	DI CL-194S-HB8-SD-T		253	1-457-369-12	CORE, FERRITE	
D1103	6-502-395-01	DI SL-194S-WS-SD-T		△ 254	1-474-657-21	REGULATOR, SWITCHING (SSN-161AD)	
		< IC >		301	1-849-865-11	WIRE (FLAT TYPE) (6 CORE)	
IC001	(Not supplied)	IC CY8CMBR3116-LQXIT					
IC002	(Not supplied)	IC CY8CMBR3116-LQXIT					
IC1000	6-722-838-01	IC TLC59116IPWR					

Note 1: IC001 and IC002 on the SENSOR board cannot exchange with single. When these parts on the SENSOR board are damaged, exchange the entire mounted board.

Note 2: If wire (flat type) is replaced, install it after bending it in the same form as that before replacement.

Note 3: When the REGULATOR, SWITCHING board is replaced, spread the bond referring to "BOND FIXATION OF ELECTRIC PARTS" on page 6.

MHC-V77W/V77DW

Ver. 1.4

Ref. No.	Part No.	Description	Remark
302	8-989-602-00	RC-S730 (WW)	
404	1-849-860-11	WIRE (FLAT TYPE) (7 CORE)	
406	1-849-861-11	WIRE (FLAT TYPE) (13 CORE)	
407	1-849-858-11	WIRE (FLAT TYPE) (7 CORE)	
408	1-849-859-11	WIRE (FLAT TYPE) (29 CORE)	
451	1-849-857-11	WIRE (FLAT TYPE) (29 CORE)	
551	A-1896-391-B	LOADING COMPLETE ASSY (T) (including MS-476 board)	
△ 554	A-2046-956-A	SERVICE, OPTICAL DEVICE (7G)	
555	1-469-829-11	CORE, FERRITE (AEP, UK, RU, MY, AUS, US, CND)	
556	1-849-855-11	FLEXIBLE FLAT CABLE (24P)	
557	1-849-856-11	FLEXIBLE FLAT CABLE (5P)	
SP1	1-859-181-11	LOUDSPEAKER (120MM)-181-11 (Mid) (L-CH)	
SP2	1-859-191-11	LOUDSPEAKER (37MM) (Tweeter) (L-CH)	
SP3	1-859-181-11	LOUDSPEAKER (120MM)-181-11 (Mid) (R-CH)	
SP4	1-859-191-11	LOUDSPEAKER (37MM) (Tweeter) (R-CH)	
SP5	1-859-180-11	LOUDSPEAKER (260MM)-180-11 (Woofer)	

ACCESSORIES *****			
	1-493-194-11	REMOTE COMMANDER (RMT-AM211U) (V77DW) (including BATTERY LID)	
	1-493-294-11	REMOTE COMMANDER (RMT-AM330U) (V77W)	
	1-754-852-11	ANTENNA (FM)	
△	1-785-504-21	ADAPTOR, CONVERSION (MY, E4, LA9)	
△	1-846-075-21	CORD SET, POWER-SUPPLY (TH)	
△	1-846-425-42	CORD SET, POWER-SUPPLY (V77W)	
△	1-846-426-52	CORD SET, POWER-SUPPLY (AR)	
△	1-846-428-53	CORD SET, POWER-SUPPLY (AEP, RU, MY, E4, LA9)	
△	1-846-429-81	CORD SET, POWER-SUPPLY (UK, EA)	
△	1-846-430-52	CORD SET, POWER-SUPPLY (AUS)	
△	1-848-142-31	POWER-SUPPLY CORD SET (E12)	
	4-596-076-15	MANUAL, INSTRUCTION (ENGLISH) (UK, EA, MY, AUS, E4, E12, LA9)	
	4-596-076-23	MANUAL, INSTRUCTION (SPANISH) (AEP)	
	4-596-076-33	MANUAL, INSTRUCTION (FRENCH) (AEP, EA, E4)	
	4-596-076-43	MANUAL, INSTRUCTION (GERMAN, DUTCH) (AEP)	
	4-596-076-53	MANUAL, INSTRUCTION (ITALIAN, POLISH) (AEP)	
	4-596-076-64	MANUAL, INSTRUCTION (TRADITIONAL CHINESE/MALAY) (MY)	
	4-596-076-73	MANUAL, INSTRUCTION (ARABIC) (EA, E4)	
	4-596-076-83	MANUAL, INSTRUCTION (THAI) (TH)	
	4-596-076-93	MANUAL, INSTRUCTION (PORTUGUESE) (E4)	
	4-685-609-13	MANUAL, INSTRUCTION (SPANISH) (AR)	
	4-685-609-23	MANUAL, INSTRUCTION (SPANISH) (LA9)	
	4-685-609-33	MANUAL, INSTRUCTION (RUSSIAN) (RU)	
	4-695-546-12	MANUAL, INSTRUCTION (ENGLISH (US)) (V77W)	
	4-695-546-22	MANUAL, INSTRUCTION (FRENCH/SPANISH) (V77W)	

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

REVISION HISTORY

Ver.	Date	Description of Revision
1.0	2016.08	New
1.1	2016.11	<p>Addition of 220 - 240 V AC area in E model and Argentina models.</p> <p>Add illustration of CONNECTOR, COVER in page 5.</p> <p>Add P/N and description for SERVICE, CASTER L ASSY and SERVICE, CASTER R ASSY in page 109.</p> <p>Add P/N and description of SERVICE, PANEL TOP ASSY in page 110.</p> <p>Add R6905 and R6906 for destination AEP, UK, RU, MY, AUS in BENTEN-MOTHERBOARD board.</p> <p>Change disassembly step of REAR COVER ASSY in page 11 and 102.</p> <p>Change location of MAC address label in page 5.</p> <p>Change note for "BOND FIXATION OF ELECTRIC PARTS" in page 6 and 7.</p> <p>Change note for "PLAYABLE DISCS" in page 5.</p> <p>Change of P/N and description of screw type from SCREW, FLATHEAD (TP) to SCREW, TAPPING (FLAT HEAD) (not supplied) and SCREW +BVTP 3X12 TYPE2 IT-3 in page 110.</p> <p>Change P/N and description of R167 in SENSOR board.</p> <p>Change P/N and description of screw type from SCREW, FLATHEAD (TP) to SCREW +BVTP 3X12 TYPE2 IT-3 in page 108.</p> <p>Change P/N of SENSOR BOARD, COMPLETE in page 110 and 117.</p> <p>Change page number of Servicing Notes "BOND FIXATION OF ELECTRIC PARTS" in page 107 and 117.</p> <p>Change suffix number from 3 to 4 for PANEL, FRONT ASSY in page 108.</p>
1.2	2016.12	<p>Add " * " mark for Ref. No. 51 in page 103 and 117.</p> <p>Add COVER LAN, COVER JACK and CONNECTOR COVER illustration in page 4.</p> <p>Add destination (AEP, UK, RU, MY, AUS) for cushion, saranet (30X50) and core, ferrite in page 15.</p> <p>Add destination (AEP, UK, RU, MY, AUS) for Ref. No. 555 in page 113 and 118.</p> <p>Change description of screw type from SCREW, FLATHEAD (TP) to SCREW, TAPPING (FLAT HEAD) in page 11, 13 and 14.</p> <p>Change of P/N and description of screw type from SCREW, FLATHEAD (TP) to SCREW, TAPPING (FLAT HEAD) in page 102, 103 and 104.</p> <p>Change service code of SCREW, TAPPING (FLAT HEAD) from "not supplied" to "supplied" in page 110.</p> <p>Change suffix number from 2 to 1 of REGULATOR, SWITCHING (SSN-161AD) in page 107 and 117.</p> <p>Change suffix number of MANUAL, INSTRUCTION in ACCESSORIES section.</p>
1.3	2017.02	<p>Add note for PU FOAM in page 107.</p> <p>Add Part Number and Destination Code in page 4.</p> <p>Change picture of wire setting in page 17 and 18.</p> <p>Change value of R8049 and R8050 in page 57.</p> <p>Delete word "(for service)" in page 109 and 110.</p>
1.4	2017.05	<p>Addition of MHC-V77W model.</p> <p>Add information for SPECIFICATION in page 2.</p> <p>Add P/N and description of SCREW, TAPPING (FLAT HEAD) in page 102.</p> <p>Add picture of wire setting in page 22.</p> <p>Add safety mark for SERVICE, OPTICAL DEVICE (7G).</p> <p>Change destination name and add abbreviation in page 24.</p>

