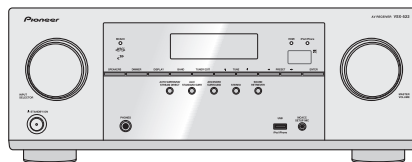


**Pioneer**

# Service Manual



VSX-522-K

ORDER NO.  
**RRV4296**

AV Receiver

# VSX-522-K

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Model     | Type   | Power Requirement | Remarks |
|-----------|--------|-------------------|---------|
| VSX-522-K | CUXESM | AC 120 V          |         |



# SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## WARNING

This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

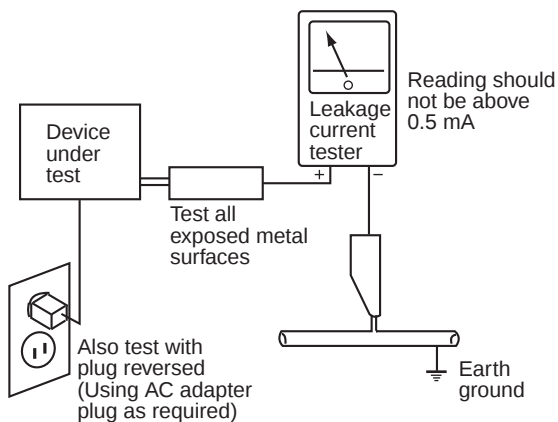
(FOR USA MODEL ONLY)

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120 V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

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# 1. SERVICE PRECAUTIONS

## 1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.  
Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.
- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C. Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:  
GYP1006 1.0 in dia.  
GYP1007 0.6 in dia.  
GYP1008 0.3 in dia.

## 1.2 NOTES ON REPLACING PARTS

The part listed below is difficult to replace as a discrete component part.

When the part listed in the table is defective, replace whole Assy.

| Assy Name   | Parts that is Difficult to Replace |                              |          |                  |
|-------------|------------------------------------|------------------------------|----------|------------------|
|             | Ref No.                            | Function                     | Part No. | Remarks          |
| D-MAIN Assy | IC2000                             | HDMI Receiver                | _____    | IC with heat-pad |
|             | IC2007                             | D-MAIN 3.3 V Power Supply IC | _____    | IC with heat-pad |
|             | IC2008                             | D-MAIN 5 V Power Supply IC   | _____    | IC with heat-pad |
|             | IC2013                             | DSP 1.2 V Power Supply IC    | _____    | IC with heat-pad |
|             | IC2015                             | DSP 1.8 V Power Supply IC    | _____    | IC with heat-pad |
|             | IC2016                             | DSP IC                       | _____    | IC with heat-pad |
|             | IC2024                             | USB 5 V SW IC                | _____    | IC with heat-pad |

## 1.3 SERVICE NOTICE

### • Discharging

For more detail, please refer to "7. DISASSEMBLY - 1. Discharging".

### • Notes on Ground Points Connection

For more detail, please refer to "7. DISASSEMBLY - 2. Notes on Ground Points Connection".

**Amplifier section**

**Continuous average power output of 80 watts\* per channel, min., at 8 ohms, from 20 Hz to 20 000 Hz with no more than 0.08 %\*\* total harmonic distortion.**

Front (stereo) ..... 80 W + 80 W  
Power output (1 kHz, 6 Ω, 1 %) ..... 140 W per channel  
Guaranteed speaker impedance ..... 6 Ω to 16 Ω

\* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers

\*\* Measured by Audio Spectrum Analyzer

**Audio Section**

Input (Sensitivity/Impedance)

LINE ..... 200 mV/47 kΩ

Signal-to-Noise Ratio (IHF, short circuited, A network)

LINE ..... 98 dB

Signal-to-Noise Ratio [EIA, at 1 W (1 kHz)]

LINE ..... 79 dB

**Video Section**

Signal level

Composite ..... 1 Vp-p (75 Ω)

**Tuner Section**

Frequency Range (FM) ..... 87.5 MHz to 108 MHz

Antenna Input (FM) ..... 75 Ω unbalanced

Frequency Range (AM) ..... 530 kHz to 1700 kHz

Antenna (AM) ..... Loop antenna

**Digital In/Out Section**

HDMI terminal ..... Type A (19-pin)

HDMI output type ..... 5 V, 100 mA

USB (iPod) terminal ..... USB2.0 Full Speed (Type A)

**Miscellaneous**

Power Requirements ..... AC 120 V, 60 Hz

Power Consumption ..... 415 W

In standby ..... 0.4 W (ARC OFF)

Dimensions ..... 435 mm (W) x 168 mm (H) x 342.5 mm (D)

17 3/16 in. (W) x 6 5/8 in. (H) x 13 1/2 in. (D)

Weight (without package) ..... 8.7 kg (19 lb 3 oz)

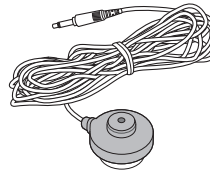
**Note**

- Specifications and the design are subject to possible modifications without notice, due to improvements.

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*Manufactured under license under U.S. Patent Nos: 5,956,674; 5,974,380; 6,226,616; 6,487,535; 7,212,872; 7,333,929; 7,392,195; 7,272,567 & other U.S. and worldwide patents issued & pending. DTS-HD, the Symbol, & DTS-HD and the Symbol together are registered trademarks & DTS-HD Master Audio is a trademark of DTS, Inc. Product includes software. © DTS, Inc. All Rights Reserved.*

**Accessories**



Microphone (for Auto MCACC setup)  
(APM7010)



Remote control (AXD7660)  
(8300766000010-IL)



Dry cell batteries  
(AAA size IEC R03) x2



AM loop antenna  
(E601019000010-IL)



FM wire antenna  
(E605010140010-IL)

Warranty card  
Quick start guide (5707000006490-IL)  
Safety Brochure  
Operating instructions (CD-ROM)(6517000000500-IL)

## 3. BASIC ITEMS FOR SERVICE

### 3.1 CHECK POINTS AFTER SERVICING

#### A Items to be checked after servicing

To keep the product quality after servicing, confirm recommended check points shown below.

| No. | Procedures                                                                                                                                                                                               | Check points                                                                                 |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1   | Confirm whether the customer complain has been solved.<br>If the customer complain occurs with the particular source, such as Dolby Digital, DTS, AAC, DVD-A and HDMI, input it for the operation check. | The customer complain must not be reappeared.<br>Video, Audio and operations must be normal. |
| 2   | Check the analog audio playback.<br>(Make the analog connections with a DVD player.)                                                                                                                     | Each channel audio and operations must be normal.                                            |
| 3   | Check the digital audio playback.<br>(Make the digital connections with a DVD player.)                                                                                                                   | Each channel audio and operations must be normal.                                            |
| 4   | Check surround playback.<br>(Select Surround mode and check the multichannel operations via the DSP circuit.)                                                                                            | Each channel audio and operations must be normal.                                            |
| 5   | Check the video outputs.<br>(Connect with a DVD player.)                                                                                                                                                 | Video and operations must be normal.                                                         |
| 6   | Check the tuner (AM and FM) operations.                                                                                                                                                                  | Audio and operations must be normal.                                                         |
| 7   | Check the sound from headphone output.                                                                                                                                                                   | Sound must be normal, without noise.                                                         |
| 8   | Check the appearance of the product.                                                                                                                                                                     | No scratches or dirt on its appearance after receiving it for service.                       |

See the table below for the items to be checked regarding video and audio.

| Item to be checked regarding video | Item to be checked regarding audio |
|------------------------------------|------------------------------------|
| Block noise                        | Distortion                         |
| Horizontal noise                   | Noise                              |
| Flicker                            | Volume too low                     |
| Disturbed image (video jumpiness)  | Volume too high                    |
| Too dark                           | Volume fluctuating                 |
| Too bright                         | Sound interrupted                  |
| Mottled color                      |                                    |

### 3.2 JIGS LIST

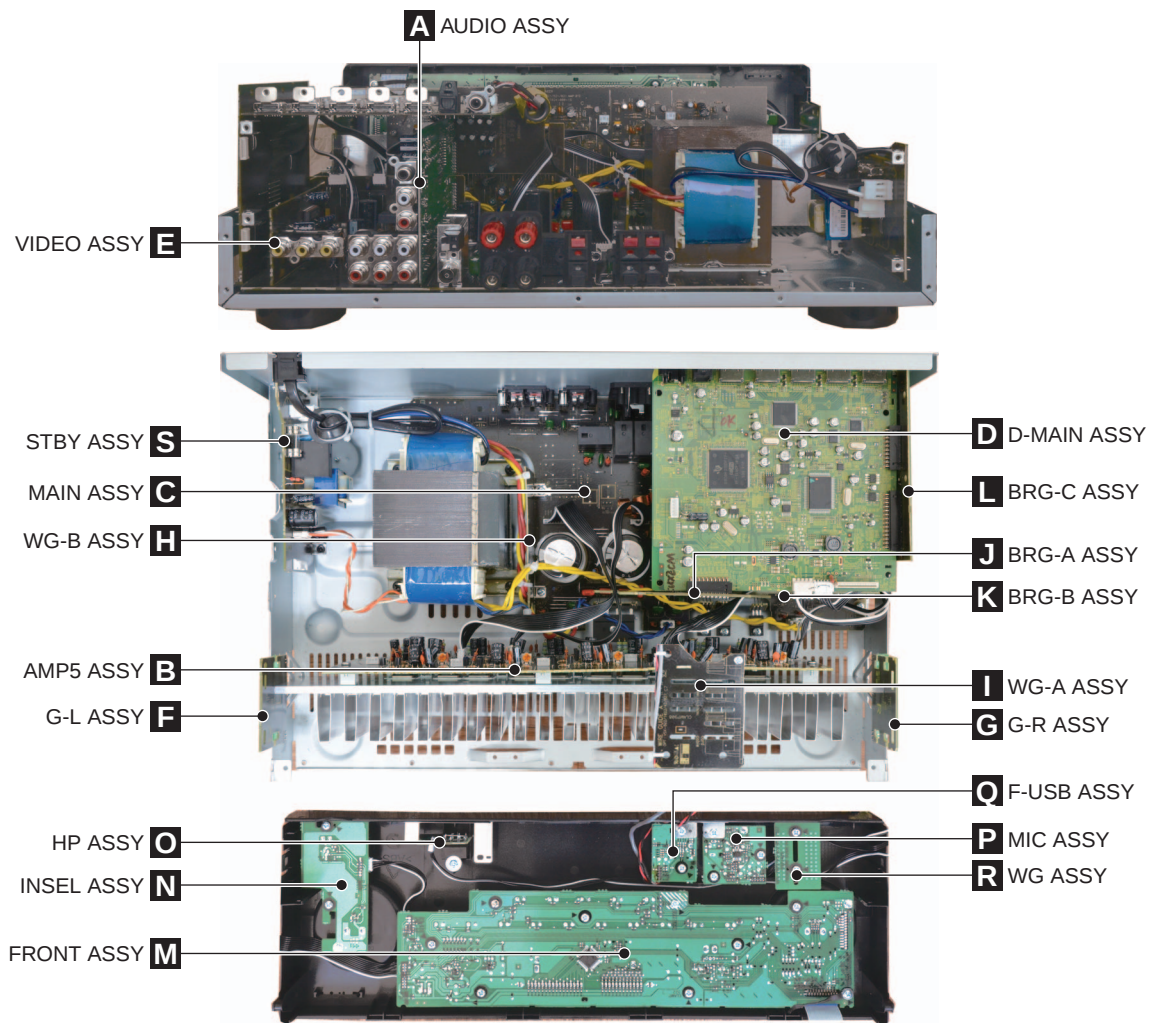
#### Jigs List

| Jig Name                                       | Part No.            | Remarks                                                              |
|------------------------------------------------|---------------------|----------------------------------------------------------------------|
| RS-232C update jig (Jig + 10P FFC)             | GGF1642             | MAIN microcomputer firmware update<br>(RS-232C ↔ Rear panel)         |
| RS-232C cable (9-pin to 9-pin, straight cable) | (Marketing product) |                                                                      |
| RS-232C update jig                             | GGF1646             | HDMI (SUB) & CEC microcomputer firmware update<br>(USB ↔ Rear panel) |
| USB cable (USB A-Type ↔ USB B-Type)            | (Marketing product) |                                                                      |
| 9P extension jig cable                         | GGD1739             | Diagnosis (AMP5 Assy ↔ AUDIO Assy)                                   |
| Board to board extension jig cable             | GGD1756             | Diagnosis (D-MAIN Assy ↔ BRG-A Assy)                                 |
| Board to board extension jig cable             | GGD1798             | Diagnosis (D-MAIN Assy ↔ BRG-C Assy)                                 |
| Board to board extension jig cable             | GGD1799             | Diagnosis (D-MAIN Assy ↔ BRG-C Assy)                                 |

#### Lubricants and Glues List



| Name             | Part No.               | Remarks                          |
|------------------|------------------------|----------------------------------|
| Silicon grease   | GEM1057                | Refer to "9.2 EXTERIOR SECTION". |
| Silicon adhesive | GYA1011<br>(KE40RTV-W) | Refer to "9.2 EXTERIOR SECTION". |



NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.  
● The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.  
Therefore, when replacing, be sure to use parts of identical designation.

| Mark               | No.                   | Description      | Part No. | Mark                  | No.              | Description | Part No. |
|--------------------|-----------------------|------------------|----------|-----------------------|------------------|-------------|----------|
| LIST OF ASSEMBLIES |                       |                  |          |                       |                  |             |          |
| NSP                | 1..PCB TTL ASSY MAIN  | 7025HK1106010-IL | NSP      | 1..PCB TTL ASSY AUDIO | 7025HK1106013-IL | E           |          |
|                    | 2..MAIN ASSY          | 7028071611060-IL |          | 2..AUDIO ASSY         | 7028071641060-IL |             |          |
|                    | 2..G-R ASSY           | 7028071614060-IL |          |                       |                  |             |          |
|                    | 2..G-L ASSY           | 7028071615060-IL |          | 1..PCB TTL ASSY DMAIN | 7025HK1106014-IL |             |          |
|                    | 2..WG-A ASSY          | 7028071616060-IL |          | 2..D-MAIN ASSY        | 7028071651010-IL |             |          |
|                    | 2..WG-B ASSY          | 7028071617060-IL | NSP      | 1..PCB TTL ASSY AMP5  | 7025HK1106015-IL |             |          |
|                    |                       |                  |          | 2..AMP5 ASSY          | 7028070243010-IL |             |          |
| NSP                | 1..PCB TTL ASSY VIDEO | 7025HK1106012-IL | NSP      | 1.PCB TTL ASSY FRONT  | 7025HK1106011-IL |             |          |
|                    | 2..VIDEO ASSY         | 7028071631010-IL |          | 2..FRONT ASSY         | 7028071621060-IL |             |          |
|                    | 2..STBY ASSY          | 7028071632010-IL |          | 2..HP ASSY            | 7028071622060-IL |             |          |
|                    | 2..BRG-A ASSY         | 7028071633010-IL |          | 2..INSEL ASSY         | 7028071623060-IL |             |          |
|                    | 2..BRG-B ASSY         | 7028071634010-IL |          | 2..MIC ASSY           | 7028071624060-IL |             |          |
|                    | 2..BRG-C ASSY         | 7028071635010-IL |          | 2..F-USB ASSY         | 7028071625060-IL | F           |          |
|                    |                       |                  |          | 2..WG ASSY            | 7028071627060-IL |             |          |

# 4. BLOCK DIAGRAM

## 4.1 OVERALL WIRING DIAGRAM

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

**R** WG ASSY  
(7028071627060-IL)

**P** MIC ASSY  
(7028071624060-IL)

**O** HP ASSY  
(7028071622060-IL)

**B (B1/2- B2/2)**  
AMP5 ASSY  
(7028070243010-IL)

FROM MAIN TRANS

CP1 1 AC  
2 GND  
3 AC

CP2 1 AC  
2 AC  
3 AC

CP3 1 AC  
2 AGND  
3 AC

CN3 1 +HIGHB  
2 +HIGHB  
3 +HIGHB  
4 -HIGHB  
5 -HIGHB  
6 -HIGHB  
7 HIGHGND  
8 HIGHGND  
9 HIGHGND  
10 PREGND

CN1 1 FL  
2 FR  
3 C  
4 SL  
5 SR

CP403 +HIGHB 1  
+HIGHB 2  
+HIGHB 3  
-HIGHB 4  
-HIGHB 5  
-HIGHB 6  
HIGHGND 7  
HIGHGND 8  
HIGHGND 9  
PREGND10

CP402 FL 1  
FR 2  
C 3  
SL 4  
SR 5

CN404 DC\_DET4 1  
DC\_DET3 2  
ASO\_DET 3  
RADI\_THERMAL4  
TR\_THERMAL5

CP401 1 FL 6 AGND  
2 AGND 7 SR  
3 SL 8 AGND  
4 AGND 9 FR  
5 C 10 AGND

CN5 DGN1 1  
DGN1 2  
+12V 3  
+12V 4

**C** MAIN ASSY  
(7028071611060-IL)

**K** BRG-B ASSY  
(7028071634010-IL)

**A** AUDIO ASSY  
(7028071641060-IL)

**E** VIDEO ASSY  
(7028071631010-IL)

**J** BRG-A ASSY  
(7028071633010-IL)

**F** G-L ASSY  
(7028071615060-IL)

**G** G-R ASSY  
(7028071614060-IL)

**H** WG-B ASSY  
(7028071617060-IL)

**I** WG-A ASSY  
(7028071616060-IL)

VSX-522-K

**ASSY**  
**8071627060-IL)**

**M FRONT ASSY**  
**(7028071621060-IL)**

1 HDMI+12V  
2 STBY RLY  
3 PDN  
4 CPU ST VCC  
5 CPU\_+3.3V  
6 GNDU  
7 FL2  
8 FLCT  
9 FL1

1 -30V  
2 -30V  
3 CPU\_ST\_VCC  
4 CPU\_ST\_VCC  
5 GNDU  
6 GNDU  
7 CPU\_+3.3V  
8 CPU\_+3.3V  
9 ST\_H+5V  
10 POWERDOWN  
11 RMC  
12 STBY\_RLY

CN702  
STBY\_KEY 4  
INPUT\_UP 3  
GNDU 2  
INPUT\_DOWN 1

13 FLR\_DATA  
14 FLT\_CLK  
15 FLT\_CE  
16 INPUT\_UP  
17 KEY2  
18 KEY3  
19 KEY1 (STBY\_KEY)  
20 INPUT\_DN  
21 VOL\_UP  
22 VOL\_DN  
23 THRU\_LED

**N INSEL ASSY**  
**(7028071623060-IL)**

CP702  
1 STBY\_KEY  
2 INPUT\_UP  
3 GNDU  
4 INPUT\_DOWN

**Q F-USB ASSY**  
**(7028071625060-IL)**

1 GNDUSB  
2 D+  
3 D-  
4 GNDUSB  
5 USB+5V

AIN TRANS

2 AC  
1 AC  
2 AC  
3 AC

CP301  
LIVE 1  
AC CORD NEUTRAL 2  
CP303  
VOL SEL 1  
2  
3  
CP302  
TRANS 1  
2  
CP304  
FLAC 1  
TRANS FLCT 2  
FLAC 3

CP701  
1 FLAC  
2 FLCT  
3 FLAC  
4 CPU GND  
5 CPU+3.3V  
6 STBY VCC  
7 PDN  
8 STBY RLY  
9 CPU\_ST\_VCC

STBYB'D

**S STBY ASSY**  
**(7028071632010-IL)**

CN704B  
1 THRU\_LED  
2 VOL\_DN  
3 VOL\_UP  
4 IN\_DN  
5 KEY1  
6 KEY3  
7 KEY2  
8 IN\_UP  
9 FLT\_CE  
10 FLT\_CLK  
11 FLT\_DATA  
12 STBY\_RLY

CP2006  
1 UCHGND  
2 D+  
3 D-  
4 USBGND  
5 USB+5V

CP2005  
1 DC\_DET4  
2 DC\_DET3  
3 ASO\_DET  
4 RAD1\_DET  
5 TRTHER\_DET

CP2004  
1 D+12V  
2 D+12V  
3 DGND  
4 DGND

**SY**  
**611060-IL)**

**L BRG-C ASSY**  
**(7028071635010-IL)**

CN204  
1 HP DET  
2 MIC DET  
3 VOL DATA  
4 VOL\_CLK  
5 SW SUM  
6 HP RLY  
7 A MUTE  
8 SB MUTE  
9 NC

CP2001  
HP DET 1  
MIC DET 2  
VOL DATA 3  
VOL\_CLK 4  
SB MUTE 5  
A MUTE 6  
SW SUM 7  
HP RLY 8  
GNDU 9  
FL-30V 10  
DC DET 11  
F RLY 12  
C RLY 13  
S RLY 14  
MUTE B+ 15  
GNDU 16  
TUNER\_SCLK17  
TUNER\_SDIO18  
TUNER\_SEN19  
TUNER\_RST20  
TUNER\_INT21  
V CTL B 22  
V CTL A 23  
OSD DATA 24  
OSD\_CLK 25  
OSD\_CE 26  
OSD\_RST 27

CP2002  
V+5V 1  
CPU+3.3V 2  
VIDEO MUTE 3  
SCLK\_JTAG 4  
BUSY\_JTAG 5  
CE 6  
EPM UP 7  
CNVSS UP 8  
232 TX/U RX 9  
232 RX/U TX 10  
RESET 11  
CEC RXD 12  
CEC TXD 13  
CEC OPO 14  
SUB RXD 15  
SUB TXD 16  
GNDU 17  
SUB OPO 18  
H+5V 19

CN13  
1 GNDU  
2 TUNER INT  
3 TUNER SDIO  
4 TUNER\_SCLK  
5 TUNER\_SEN  
6 TUNER\_RST  
7 NC

CN16  
1 OSD\_RST  
2 OSD\_CE  
3 OSD\_CLK  
4 OSD\_DATA  
5 V CTL A  
6 V CTL B  
7 GNDU  
8 V+5V(A+5V)  
9 VIDEO MUTE

CN11  
1 GNDU  
2 MUTE B+  
3 GNDU  
4 NC  
5 NC  
6 S RLY  
7 C RLY  
8 F RLY  
9 DC DET  
10 FL-30V  
11 GNDU

CN2001  
1 HP DET  
2 MIC DET  
3 VOL DATA  
4 VOL\_CLK  
5 SB MUTE  
6 A MUTE  
7 SW SUM  
8 HP RLY  
9 GNDU  
10 FL-30V  
11 DC DET  
12 F RLY  
13 C RLY  
14 S RLY  
15 MUTE B+  
16 GNDU  
17 TUNER\_SCLK  
18 TUNER\_SDIO  
19 TUNER\_SEN  
20 TUNER\_RST  
21 TUNER\_INT  
22 BH76330 B  
23 BH76330 A  
24 OSD DATA  
25 OSD\_CLK  
26 OSD\_CE  
27 OSD\_RST

CN2002  
1 V+5V  
2 CPU+3.3V  
3 VIDEO MUTE  
4 SCLK\_JTAG  
5 BUSY\_JTAG  
6 CE  
7 EPM UP  
8 CNVSS UP  
9 232TX/U RX  
10 232RX/U TX  
11 RESET  
12 CEC\_RXD  
13 CEC\_TXD  
14 CEC\_OPO  
15 SUB\_RXD  
16 SUB\_TXD  
17 GNDU  
18 SUB\_OPO  
19 H+5V

**D (D1/4-D4/4)**  
**D-MAIN ASSY**  
**(7028071651010-IL)**

1 AINR  
2 AGND  
3 AINL  
4 AGND  
5 FR  
6 AGND  
7 FL  
8 AGND  
9 SR  
10 AGND

11 SL  
12 AGND  
13 C  
14 AGND  
15 SW  
16 AGND  
17 SBR  
18 AGND  
19 SBL

CN2003

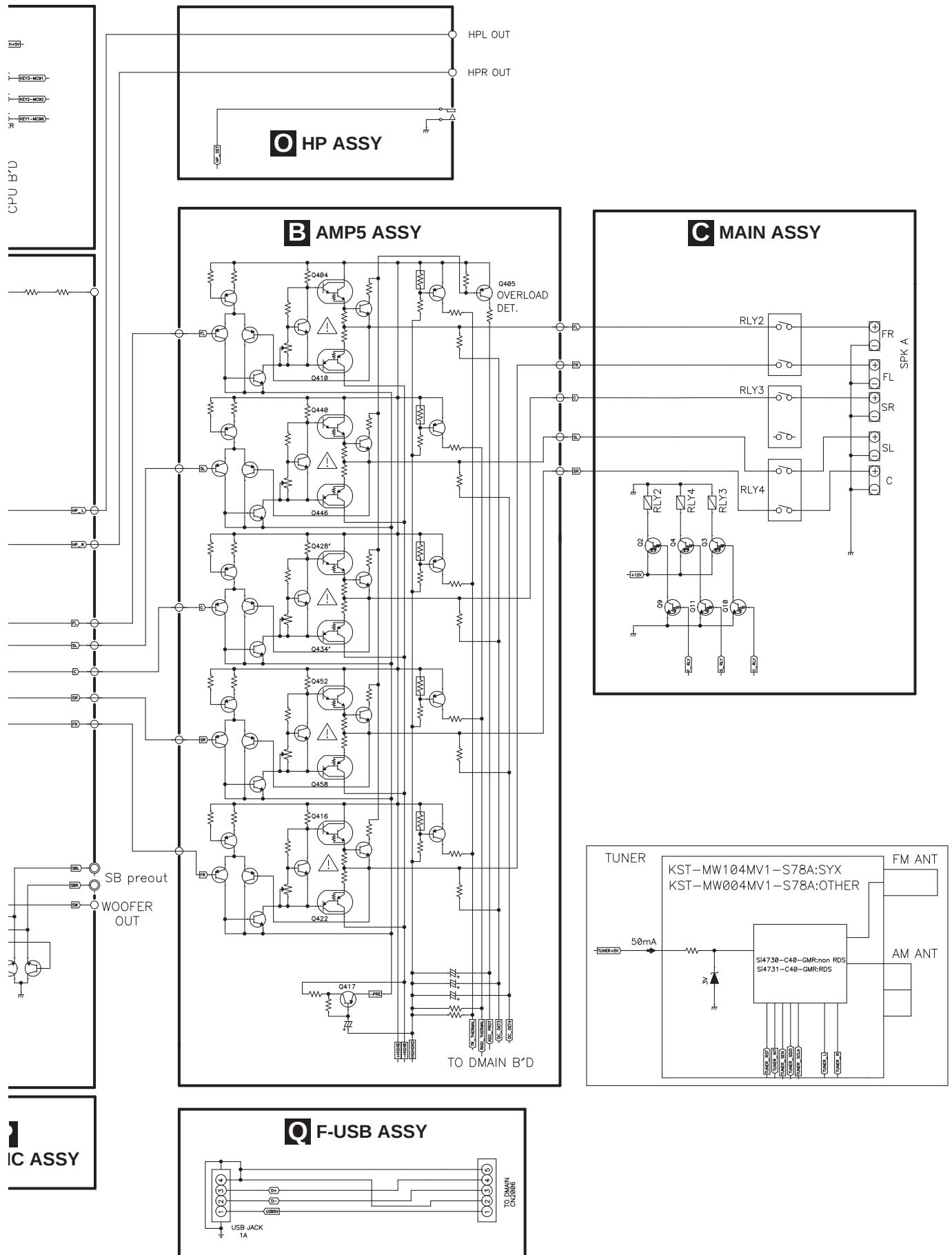
CP2003  
1 AIN R  
2 GND A  
3 AIN L  
4 GND A  
5 FR OUT  
6 GND A  
7 FL OUT  
8 GND A  
9 SR OUT  
10 GND A

11 SL OUT  
12 GND A  
13 C OUT  
14 GND A  
15 SW OUT  
16 GND A  
17 SBR OUT  
18 GND A  
19 SBL OUT

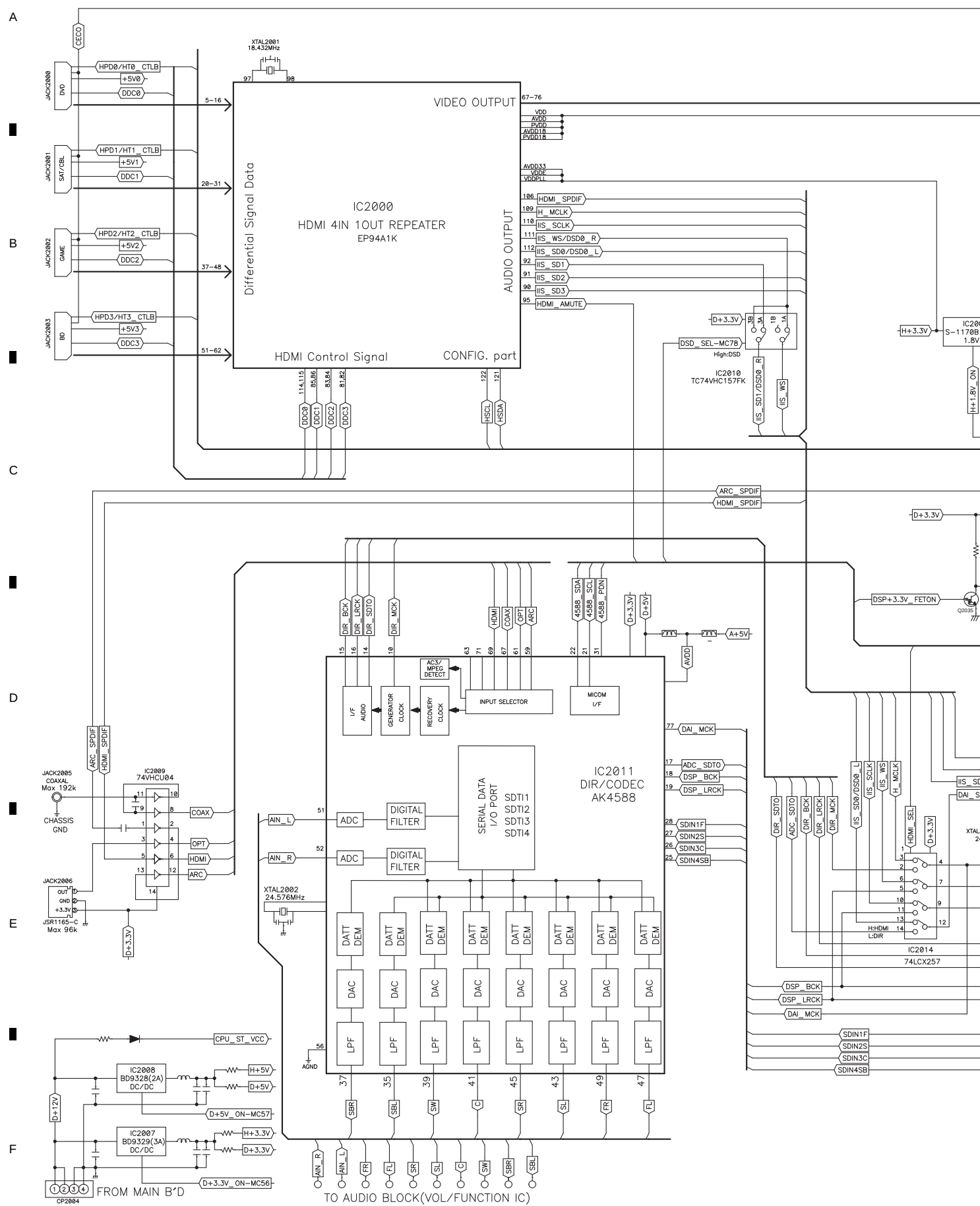
VSX-522-K

△





4.3 D-MAIN BLOCK DIAGRAM



*A*



C

C

E

F

1 2 3 4

# 4.4 POWER SUPPLY BLOCK DIAGRAM

A

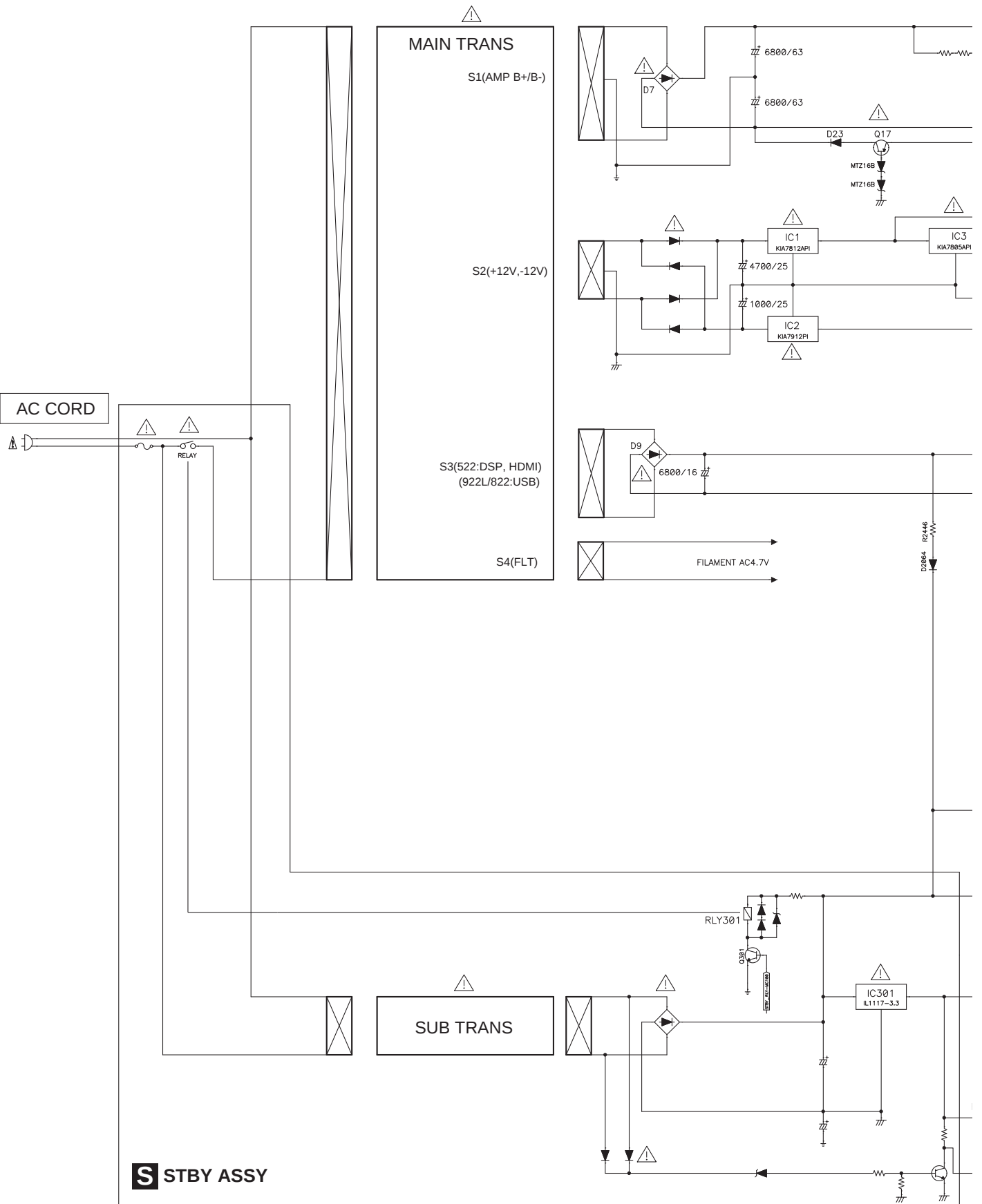
B

C

D

E

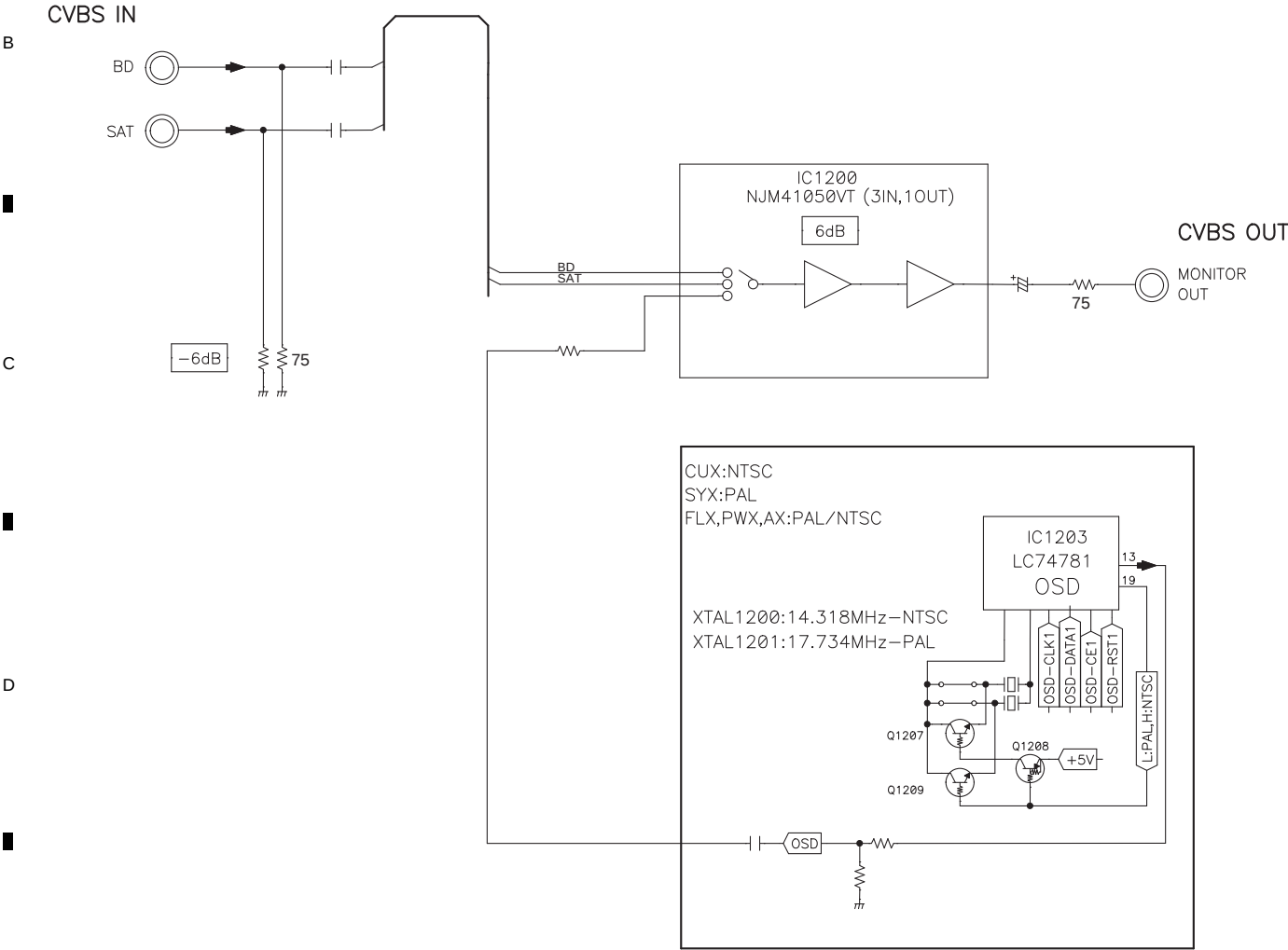
F





A

E VIDEO ASSY



D

E

F

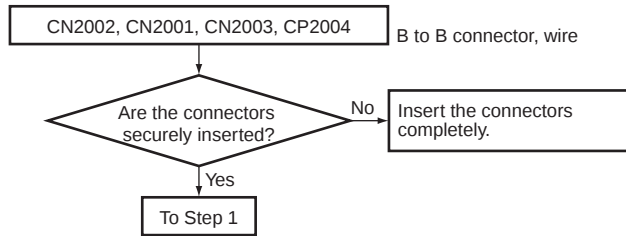
# 5. DIAGNOSIS

## 5.1 TROUBLESHOOTING

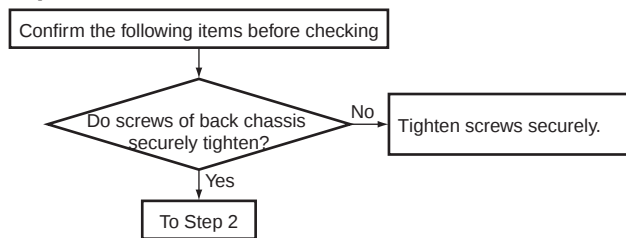
### [1] DSP TROUBLESHOOTING

#### ■ TROUBLESHOOTING FOR ALL DESTINATION

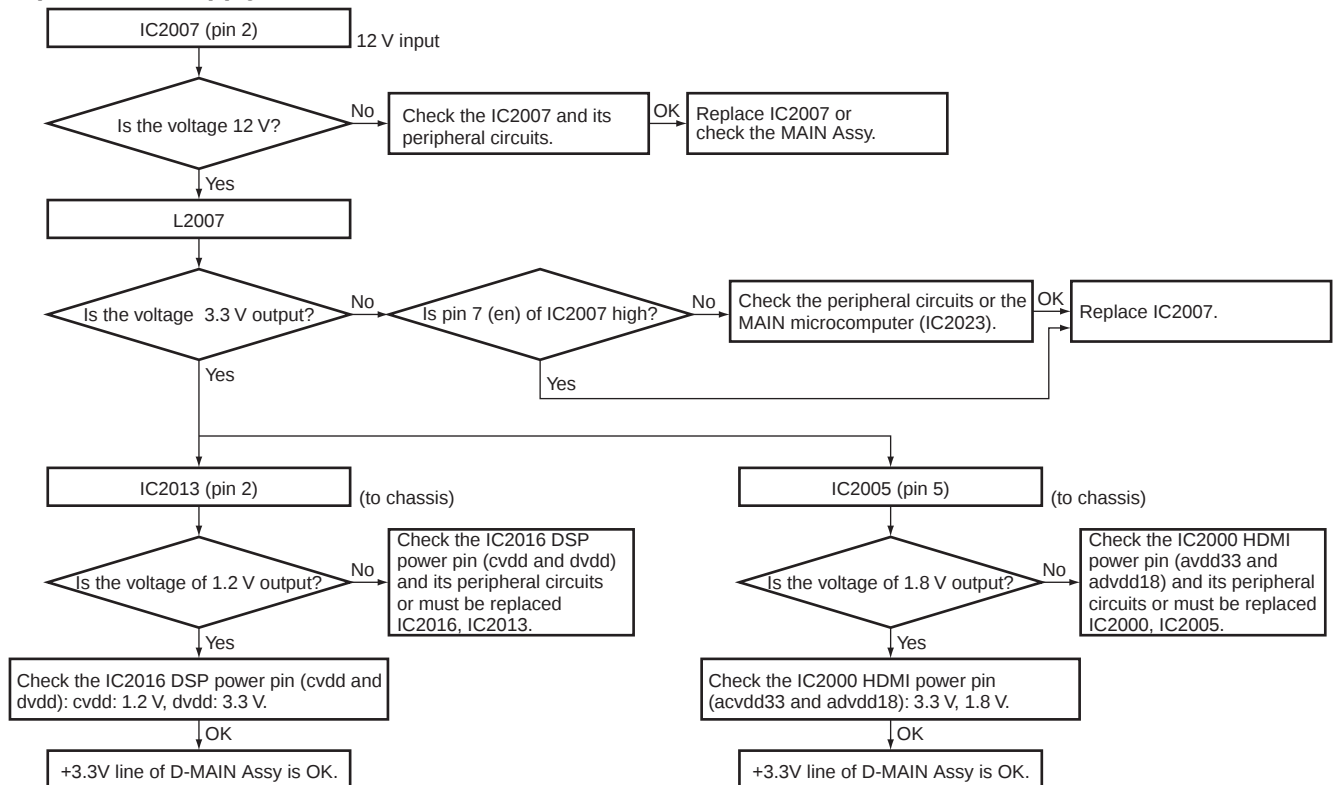
##### Step 0: Preliminary confirmation



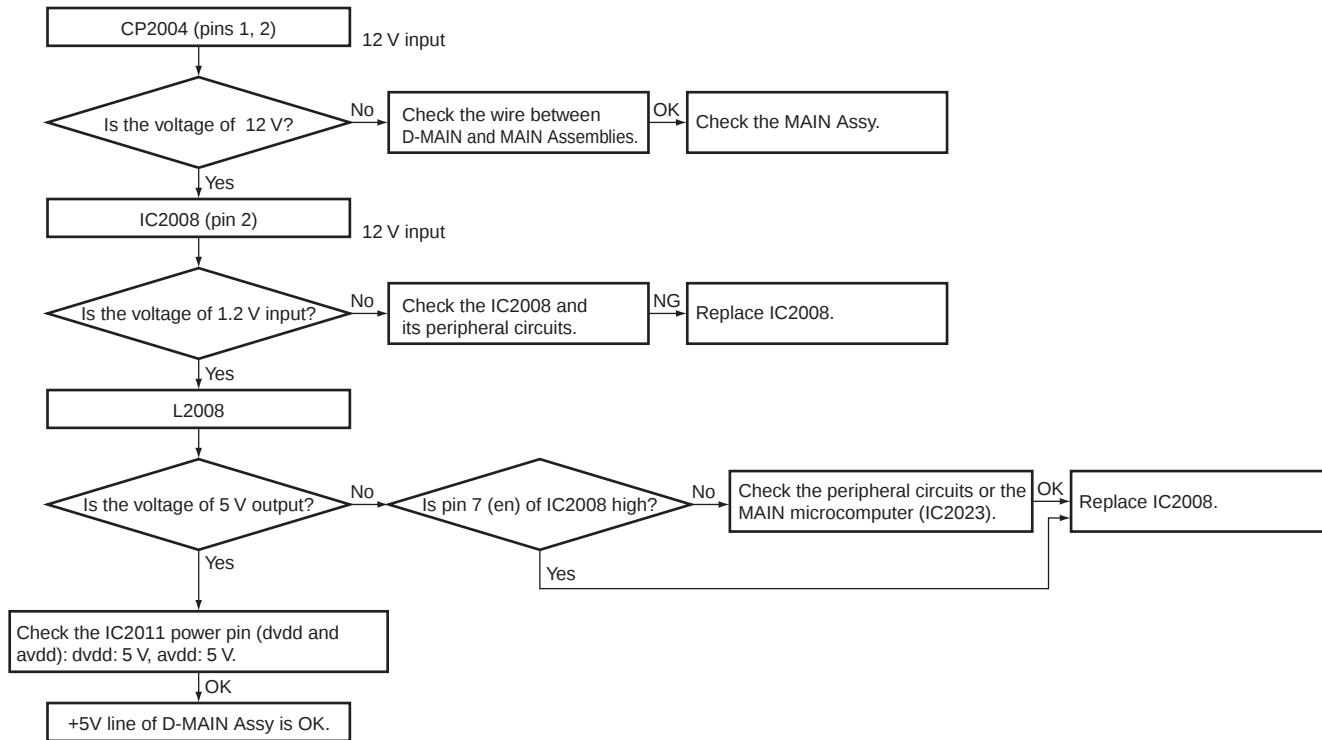
##### Step 1: Fixed board



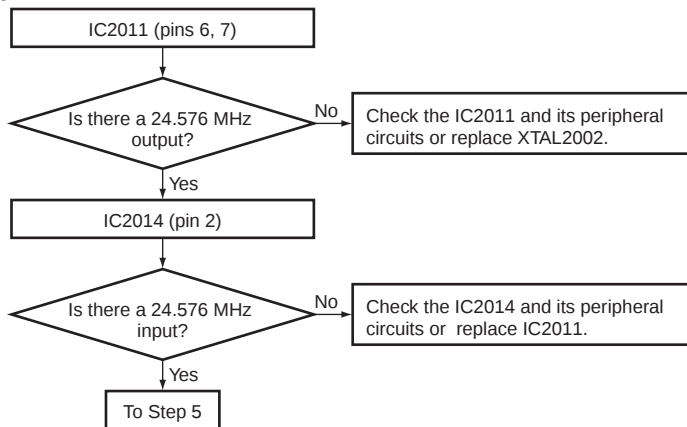
##### Step 2: Power supply



### A Step 3: Power supply

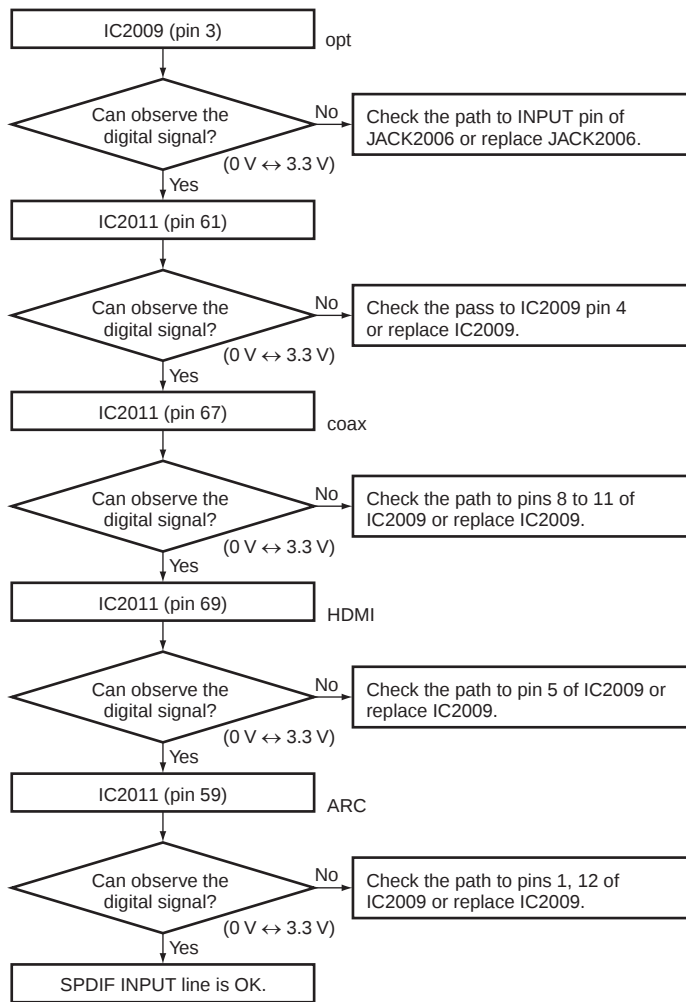


### D Step 4: X'tal

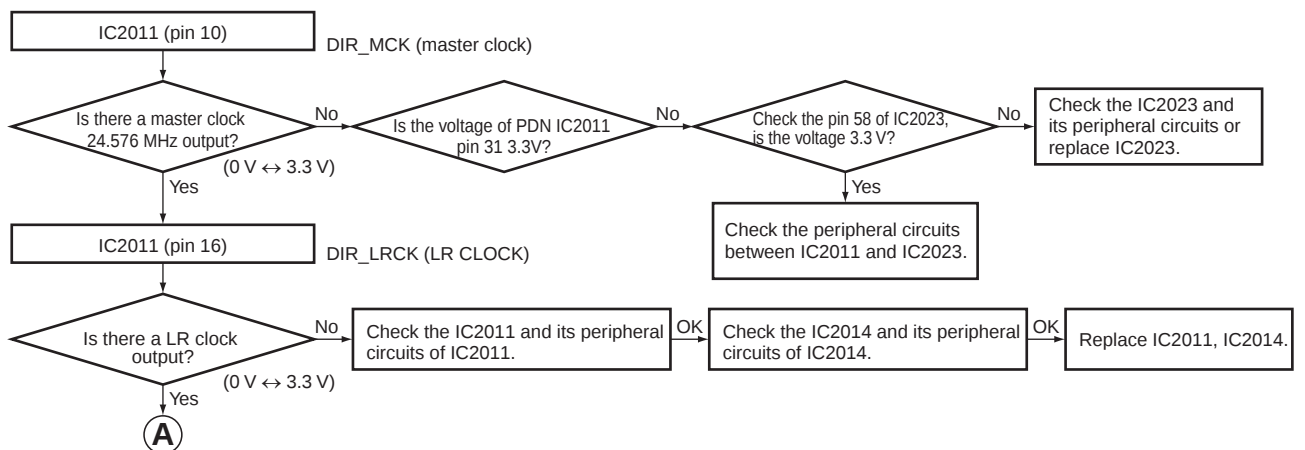


## Step 5: DIR

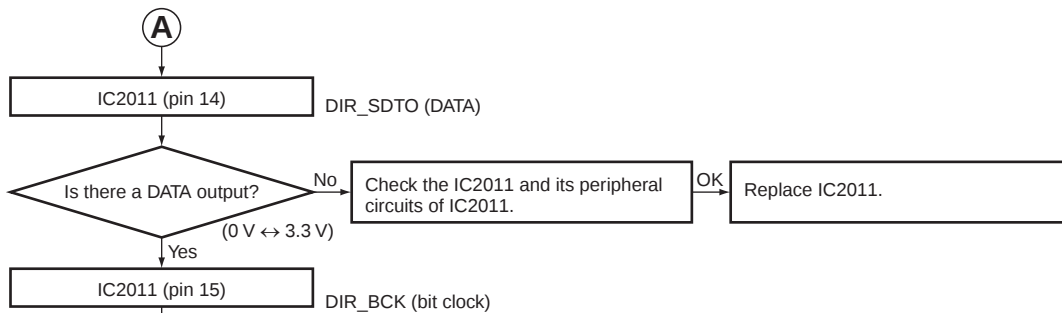
Check that the S/PDIF signal is input.  
Check that changes by pulling out and inserting the digital input lines.



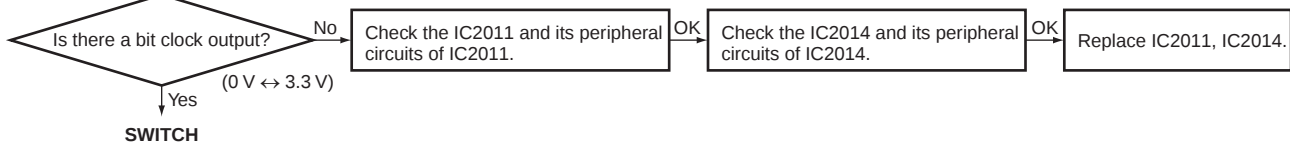
Check that the data and clock signals are output.



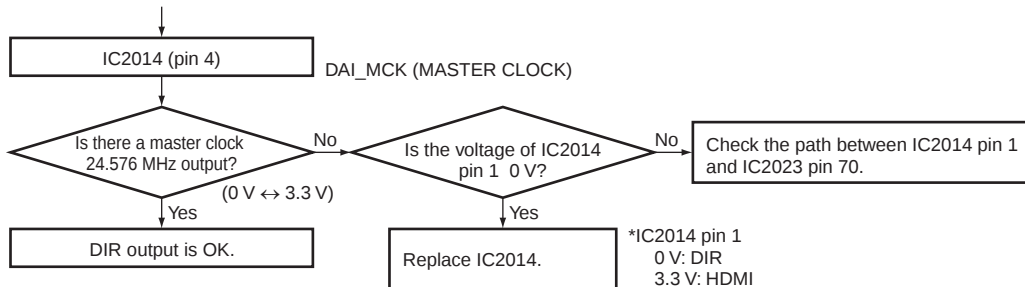
A



B



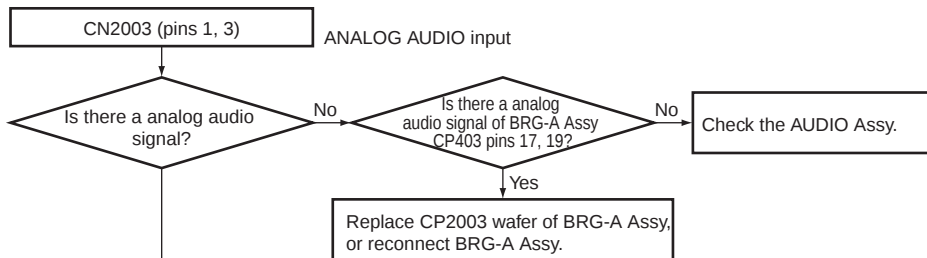
C



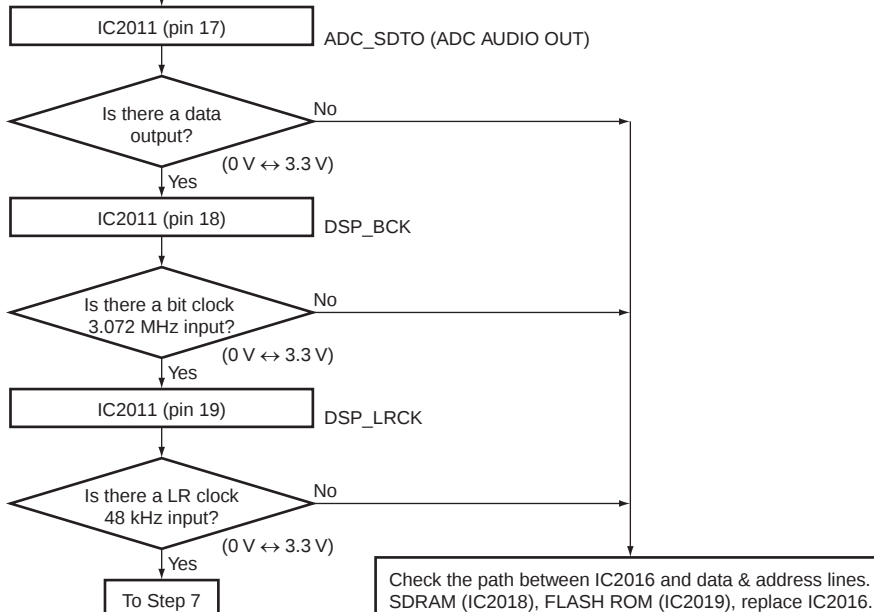
## Step 6: ADC

Check that the ANALOG input to DSP mode.

D



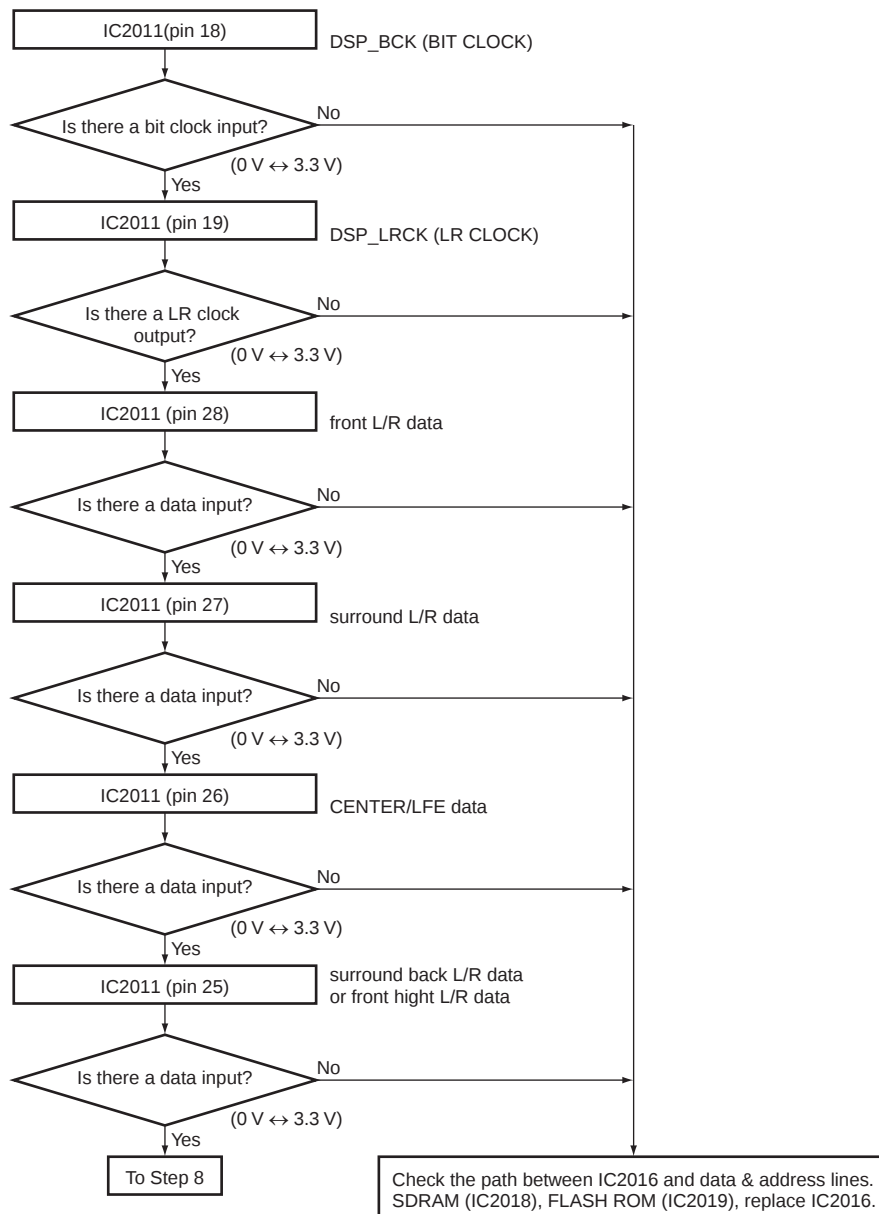
E



F

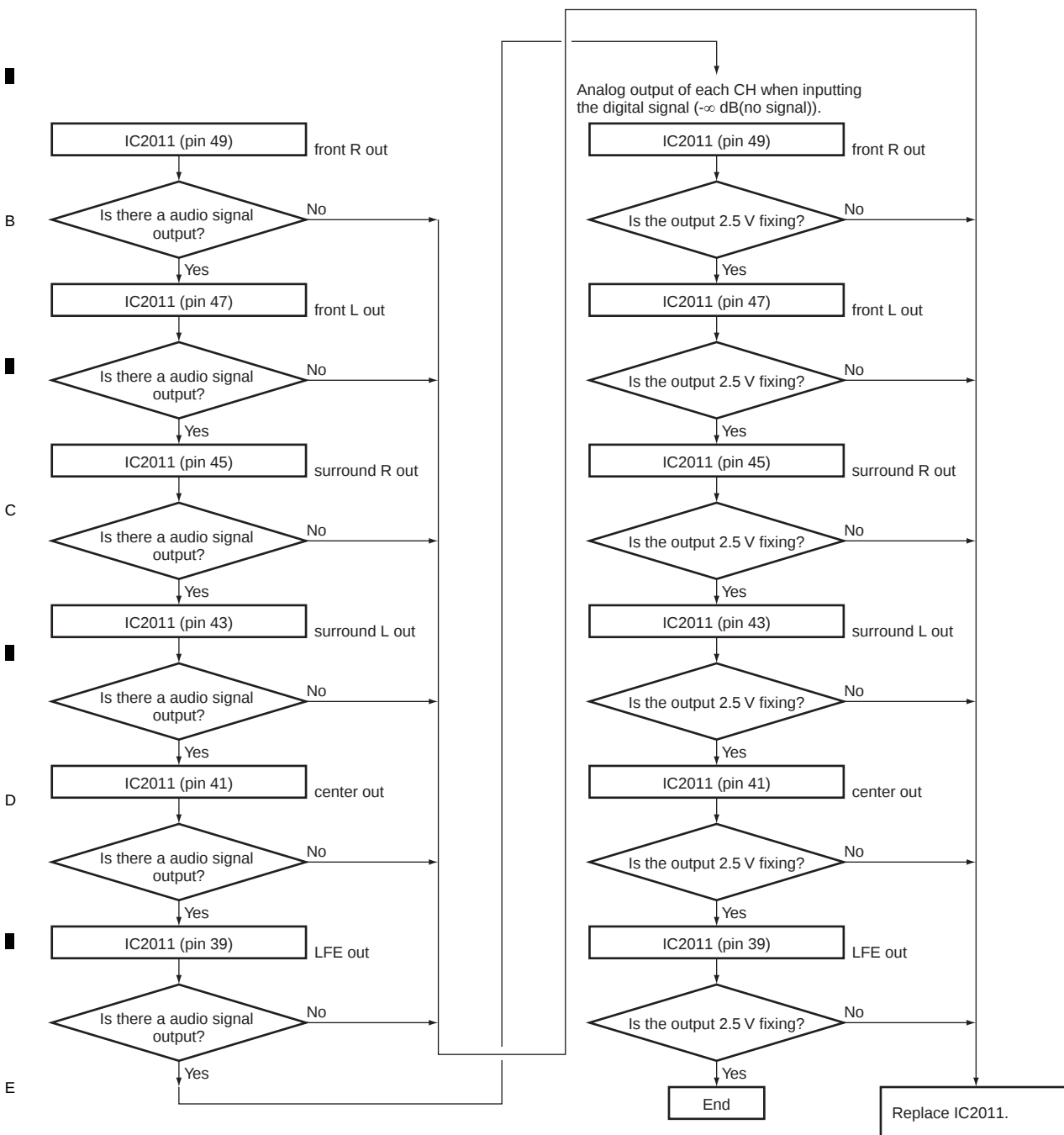
## Step 7: DSP mode audio output

Digital output of each CH when inputting the digital signal with audio.



### A Step 8: CODEC output (ANALOG AUDIO OUT)

Analog output of each CH when inputting the digital signal with audio.



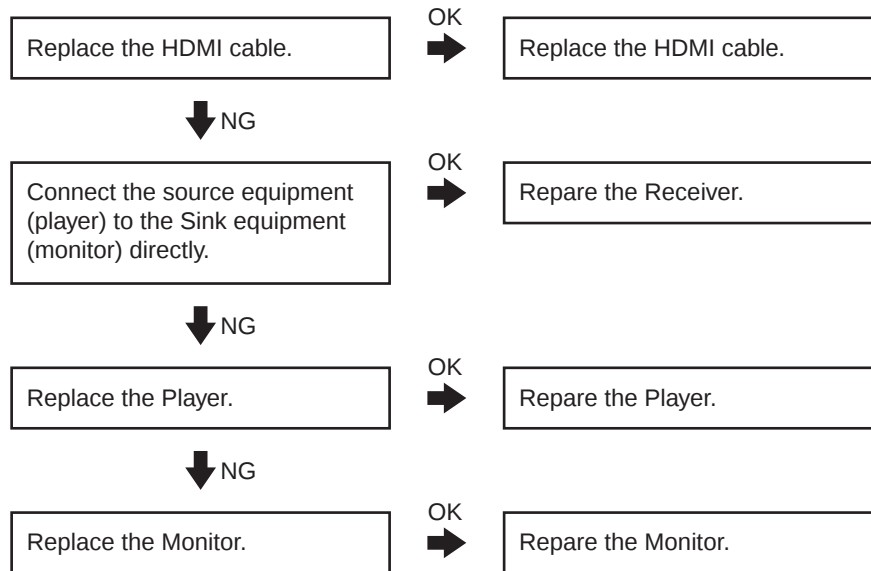
## [2] HDMI TROUBLESHOOTING

### ■ HDMI Troubleshooting

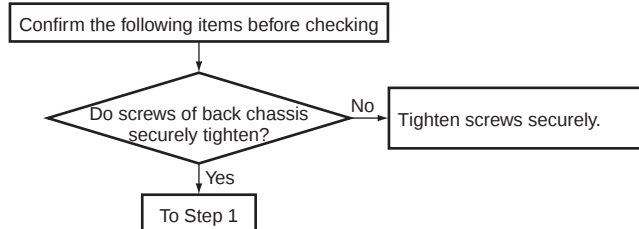
Cause for noncompletion of HDMI authentication between the source equipment and this unit.  
(the HDMI indicator is unlit or flasher)

### ■ HDMI Simple Diagnosis

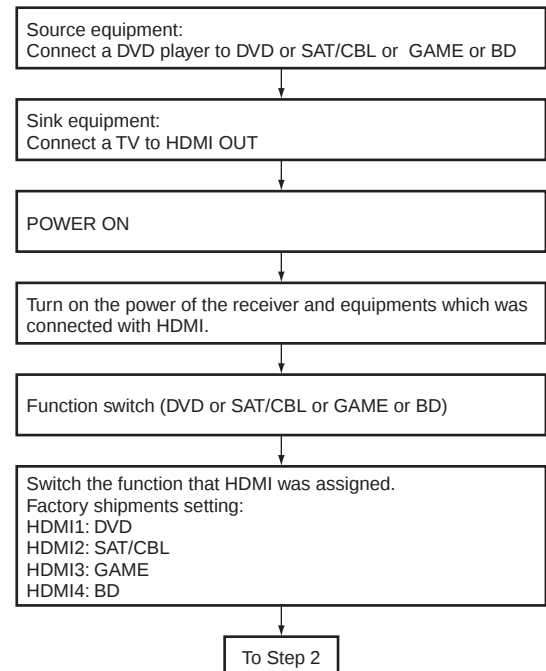
Causes for no display or sound from the monitor



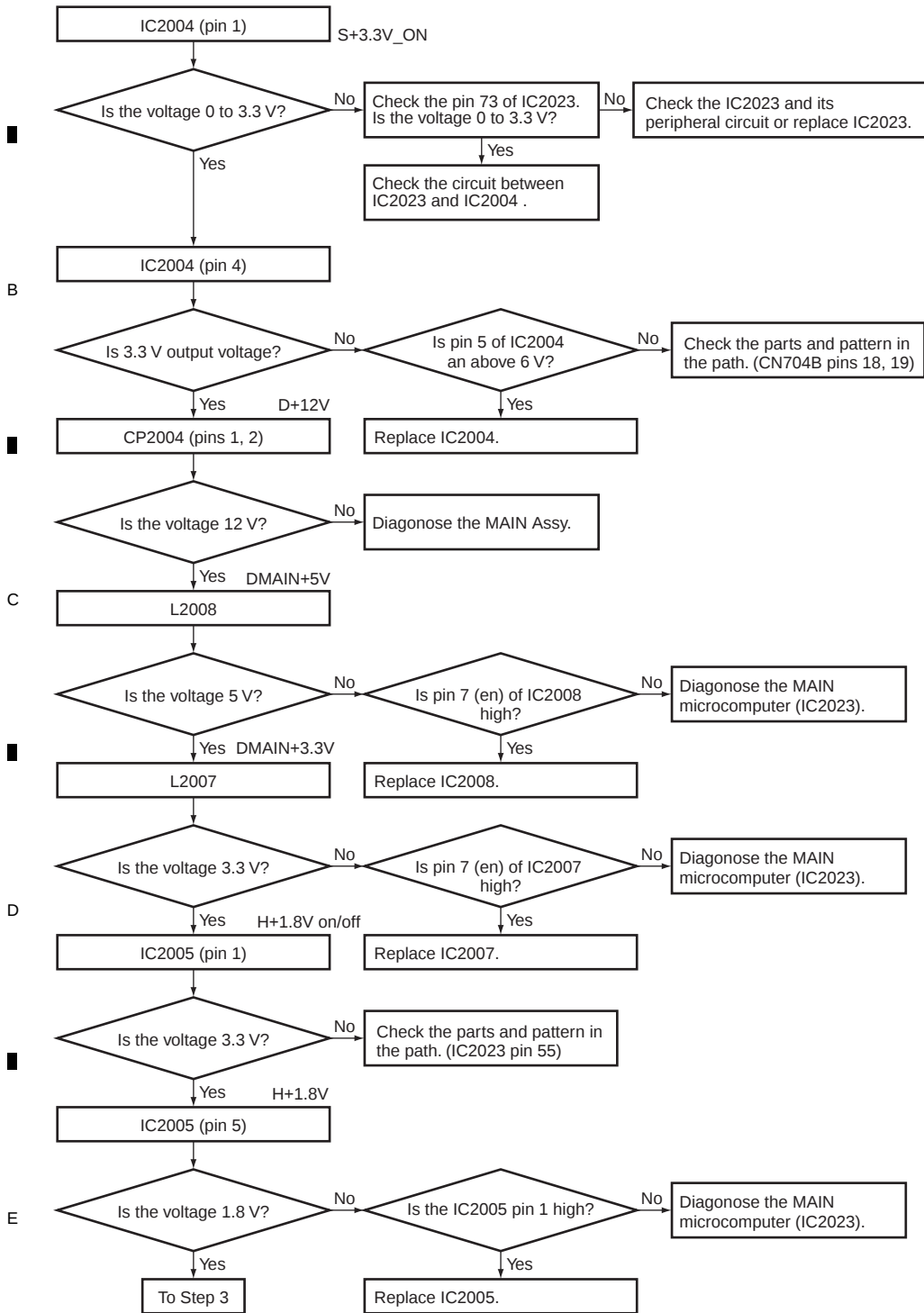
### Step 0: Preliminary confirmation



### Step 1: Connect the HDMI equipment



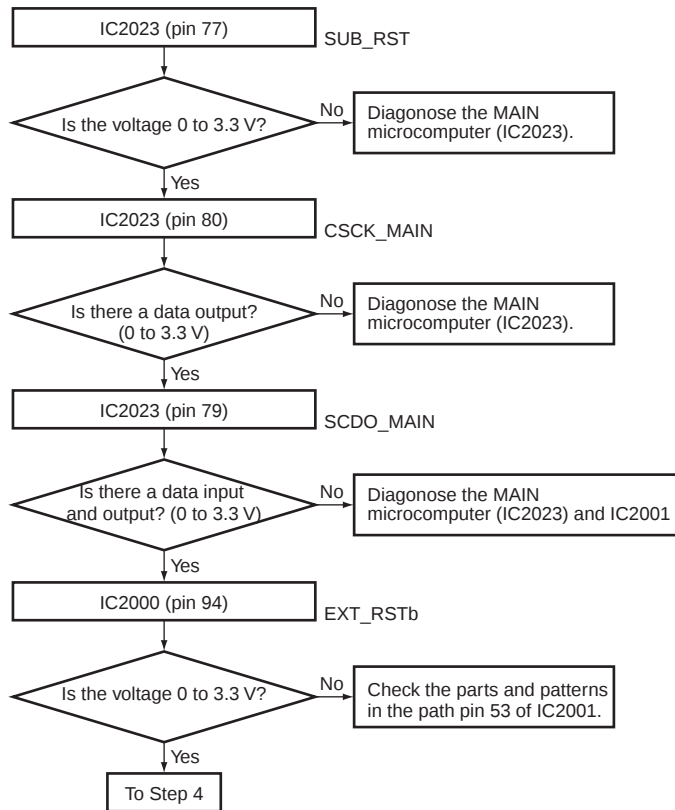
## A Step 2: Power supply



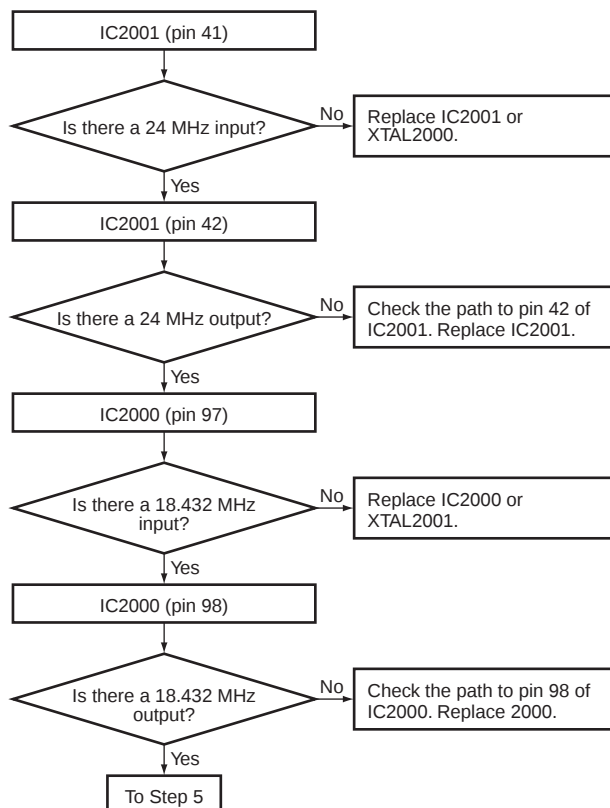
F

### Step 3: Diagnosis

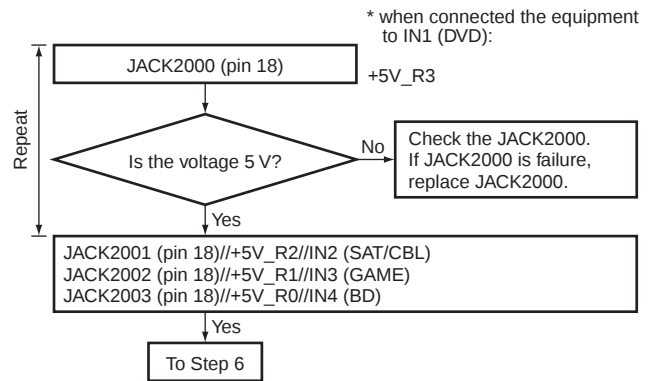
Each data lines confirmation checks it after standby off/on.



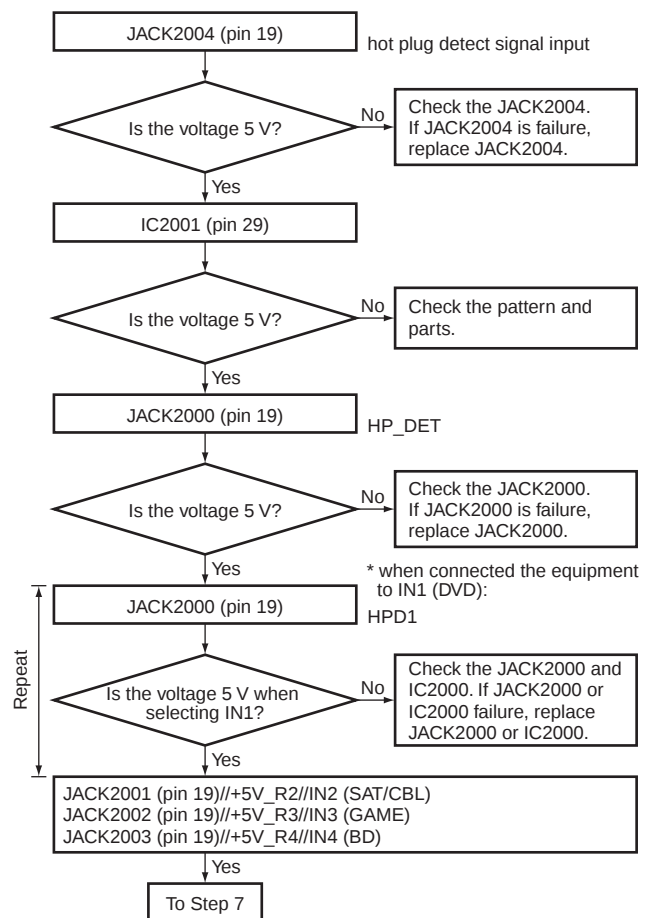
### Step 4: X'TAL



### Step 5: INPUT/OUTPUT Diagnosis



### Step 6: Hot Plug Detect



## A Step 7: SDA /SCL

## Step 8: TMDS

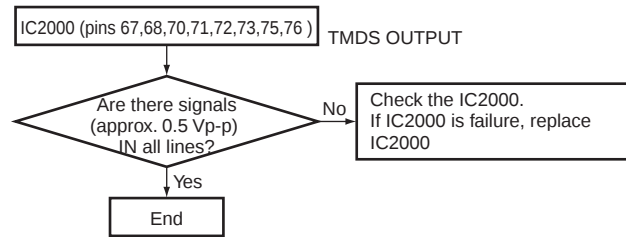
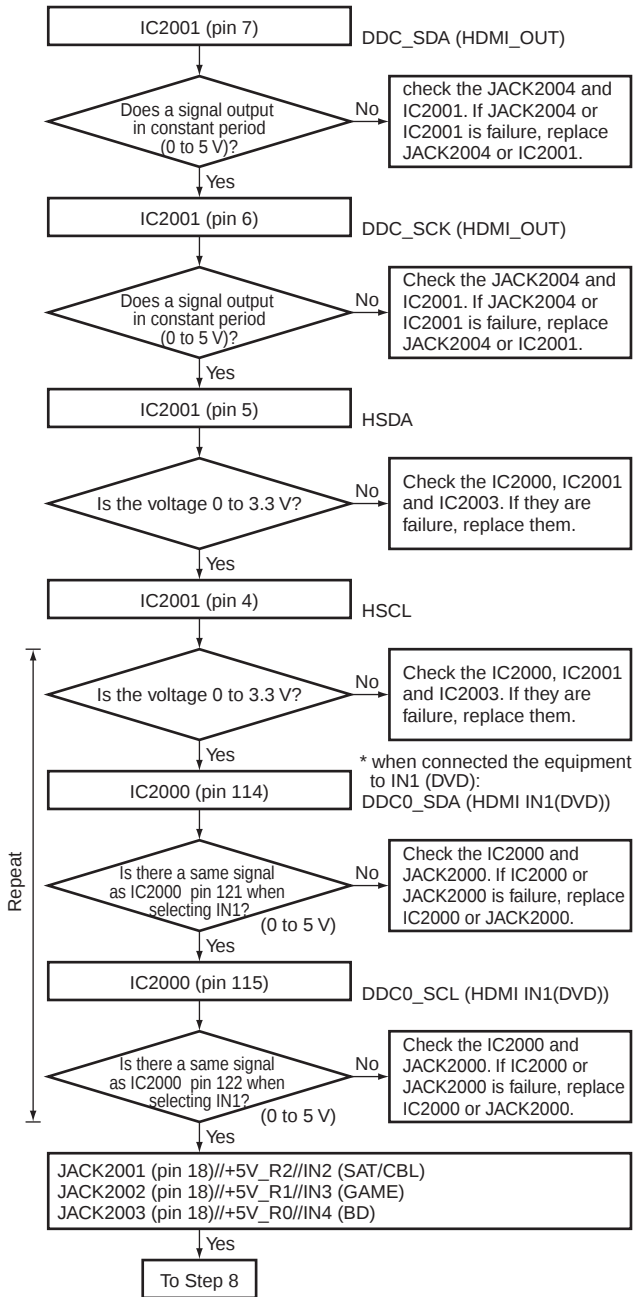
B

C

D

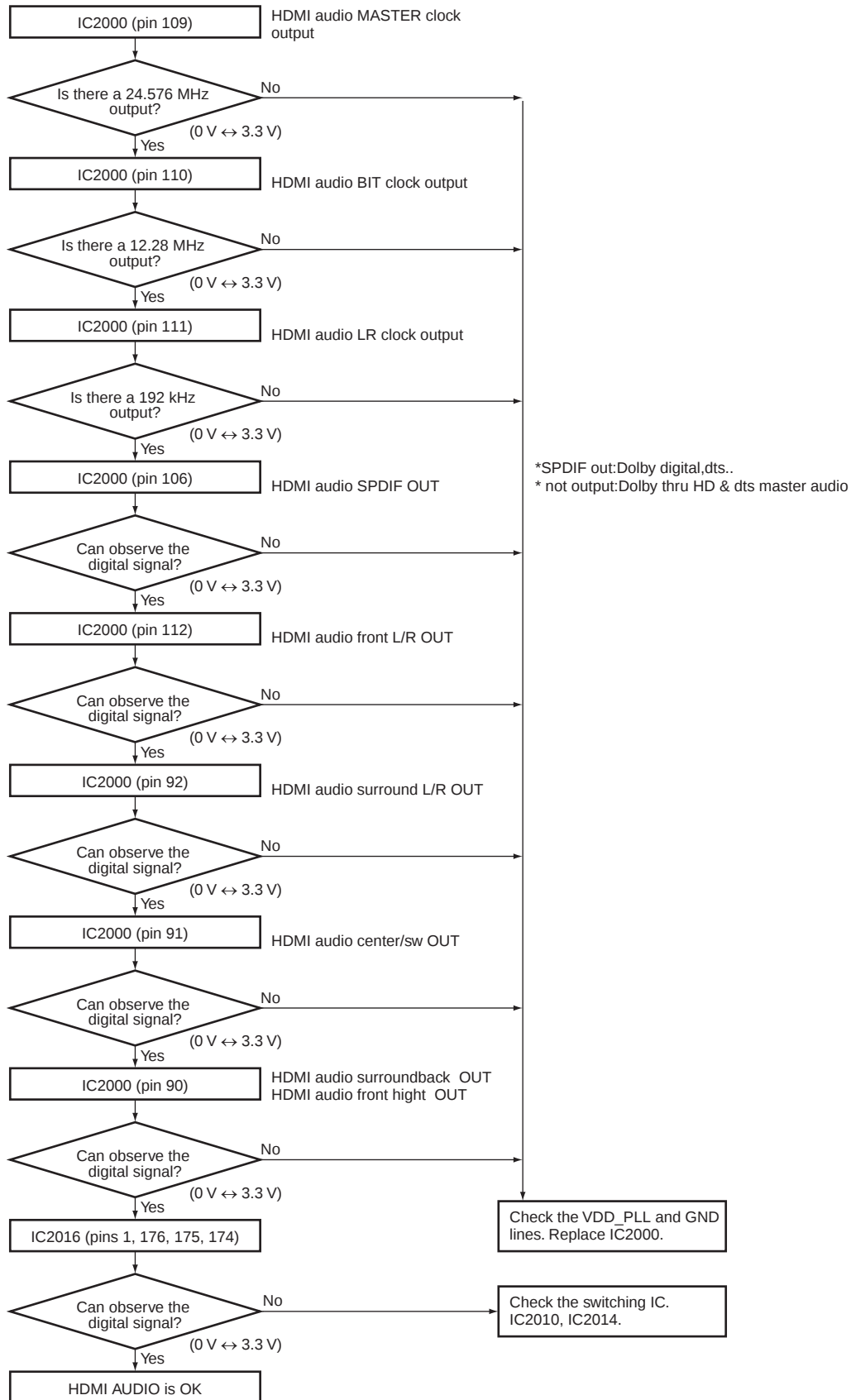
E

F



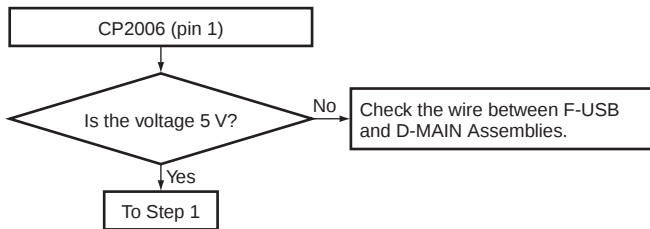
## Step 9: HDMI AUDIO

\*play is Dolby thru HD @ dts master audio source



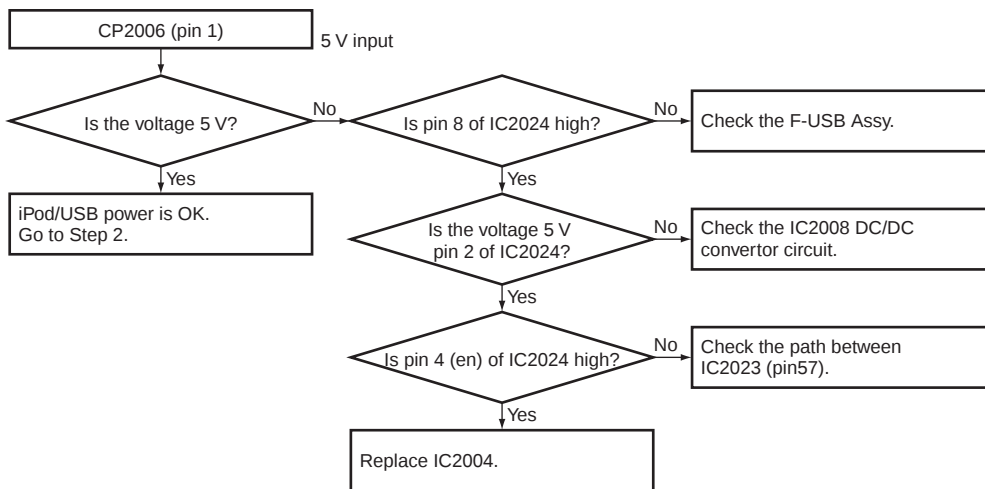
## A [3] iPod TROUBLESHOOTING

### Step 0: iPod/USB Power supply



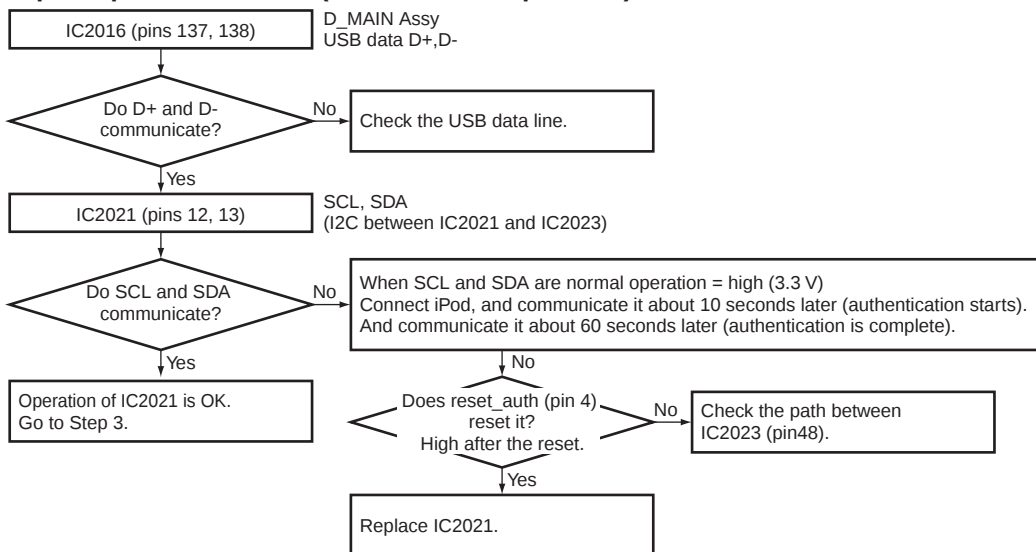
B

### Step 1: Power supply



C

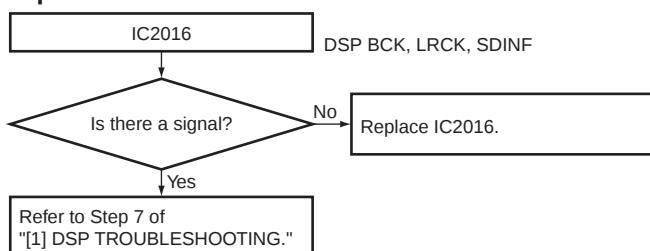
### Step 2: Operation of iPod (Authentication process)



D

E

### Step 3: Audio out check



F

Functional Name

iPod ERROR MESSAGE

Outline

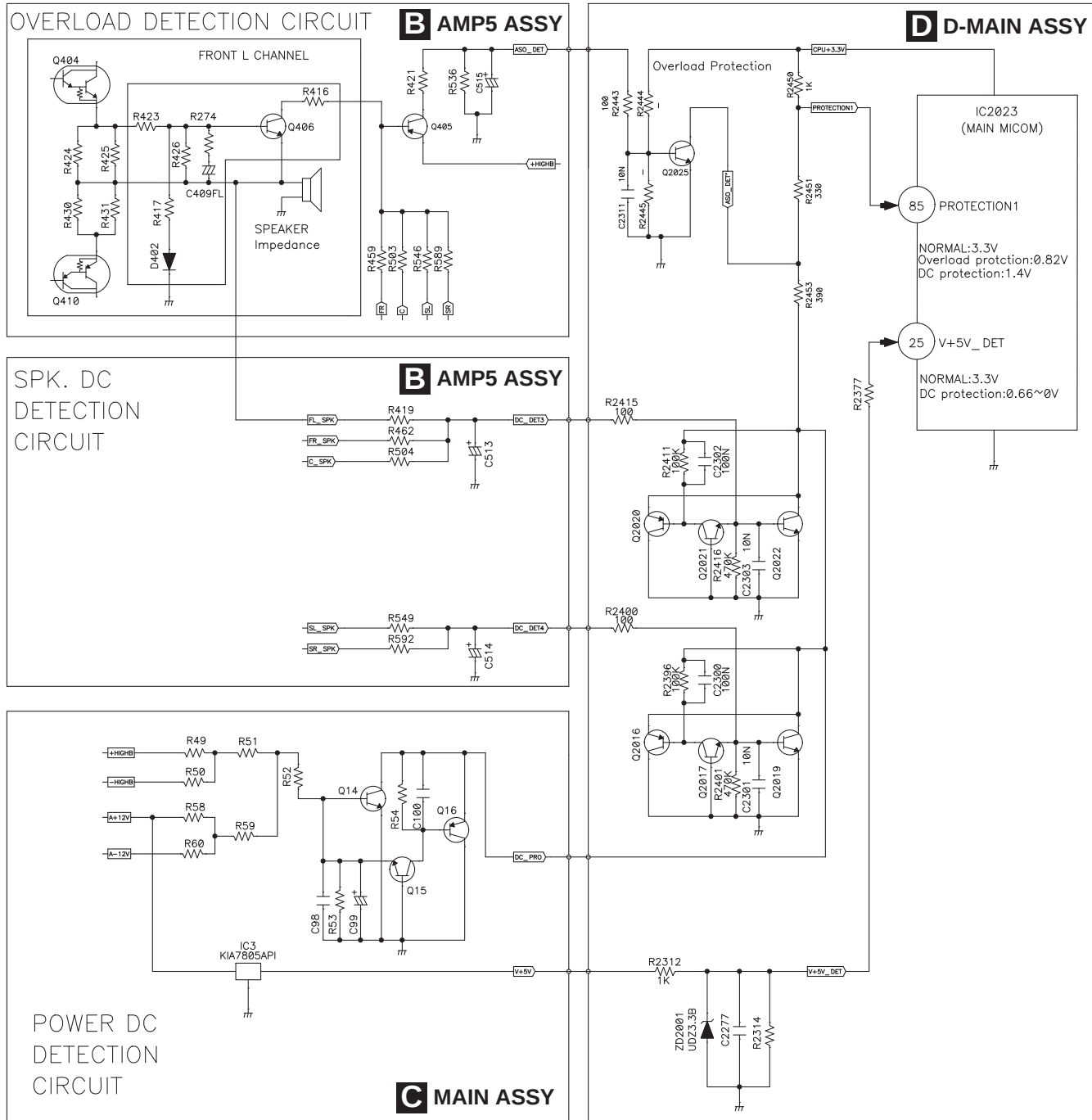
Error message is displayed at abnormality time.

Basic Operation

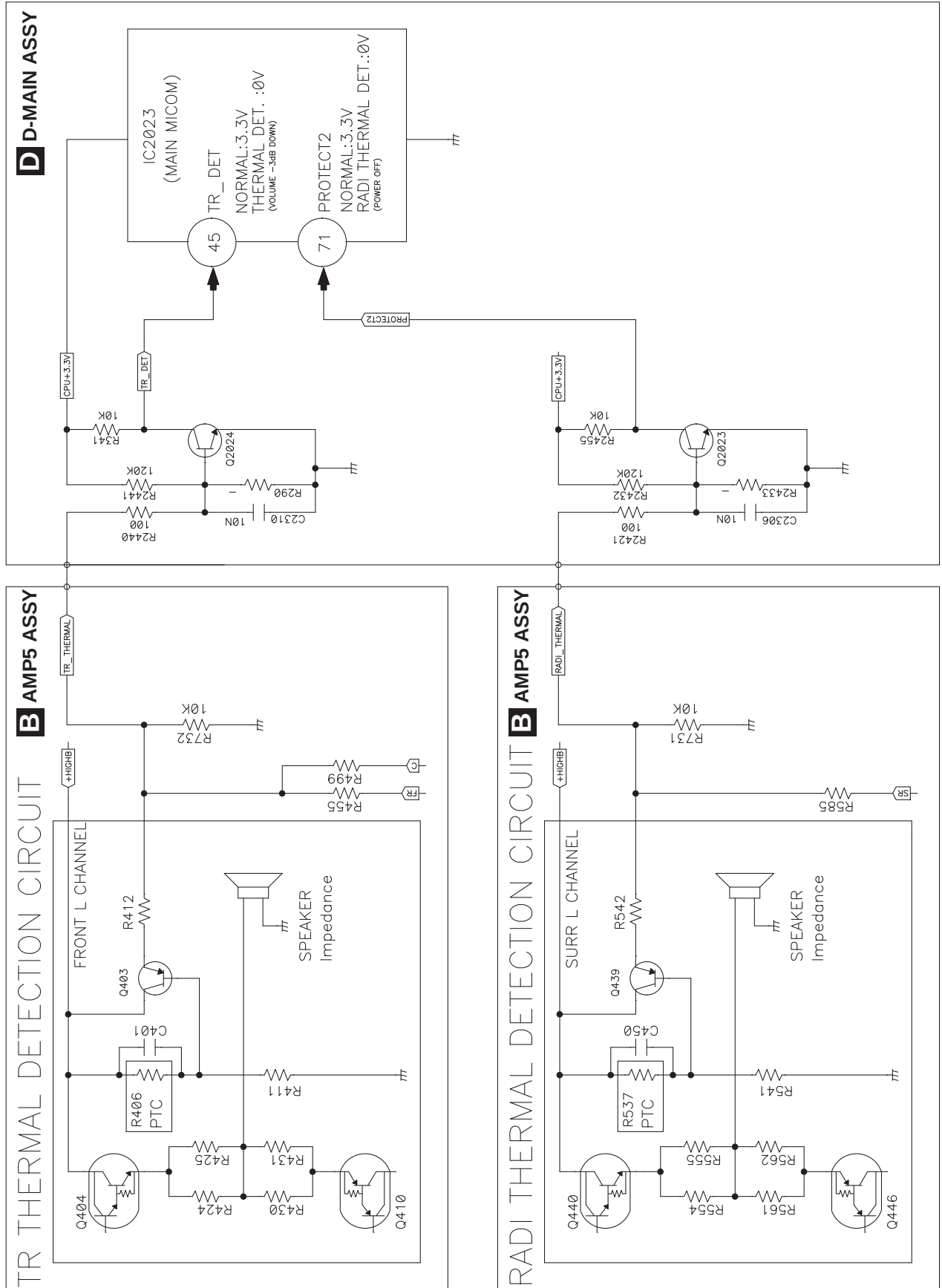
| Front Key Sequence Change | OSD display                                                                                                                                                                                                          | Time (sec) | FL Display                 |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|
| Over Current Error        | <div><div>123456789012345678901234</div><div>1iPod</div><div>2</div><div>3</div><div>4iPod / USB Error 4</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>0</div><div>1</div><div>2</div></div> |            | <div>I / UERR4</div>       |
| No Track Caution          | <div><div>123456789012345678901234</div><div>1iPod</div><div>2</div><div>3</div><div>4No Track</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>0</div><div>1</div><div>2</div></div>           |            | <div>N O : T R A C K</div> |

## 5.3 DETECTION CIRCUIT

### [1] Overload and DC Protection Circuit



## [2] TEMP Protection Circuit



## 5.4 IC INFORMATION

### A ■ (M3030RFGPFP\_256K)(D-MAIN ASSY: IC2023)

MAIN Microcomputer

#### • Pin Function

| Pin  | Symbol       | I/O | Description                                                                |
|------|--------------|-----|----------------------------------------------------------------------------|
| 1    | A_MUTE       | O   | Audio output control pins at Mute Tr (active at L)                         |
| 2    | SB_MUTE      | O   | SB ch. Audio output control pins at Mute Tr (active at L)                  |
| 3    | F_RLY        | O   | Tr driven control pins at the Front speaker output Relay. (active at H)    |
| 4    | S_RLY        | O   | Tr driven control pins at the Surround speaker output Relay. (active at H) |
| 5    | C_RLY        | O   | Tr driven control pins at the Center speaker output Relay. (active at H)   |
| 6    | AC_VOLT_DET  | I   | AC x2 Voltage detection pin (normal: H)                                    |
| B 7  | RMC          | I   | Remote control signal input pin                                            |
| 8    | BYTE         | I   | The data bus is 16 bits long when the this pin is held "L" (GND)           |
| 9    | CNVSS_UP     | I   | Switches processor mode                                                    |
| 10   | 24C16_SDA    | I/O | Data signal input & output for data backup of main CPU                     |
| 11   | 24C16_SCL    | O   | Clock signal output for data backup of main CPU                            |
| 12   | /RESET       | I   | Micom reset signal input pin (active at L)                                 |
| 13   | XOUT         | O   | Output for 16 MHz Crystal                                                  |
| 14   | VSS          |     | Ground                                                                     |
| 15   | XIN          | I   | Input for 16 MHz Crystal                                                   |
| 16   | VCC1         |     | +3.3 V power supply                                                        |
| 17   | /NMI         | I   | Input pin for the NMI interrupt                                            |
| 18   | TUNER_INT    | I   | Tuner Interrupt signal input pin                                           |
| C 19 | PDN          | I   | Power down signal input pin                                                |
| 20   | OSD/FLT_DATA | O   | OSD & FL drive IC output pin of the Data                                   |
| 21   | MUTE_B+_CTL  | O   | Power control pin mute B+                                                  |
| 22   | VIDEO_MUTE   | O   | Not used                                                                   |
| 23   | HP_DET       | I   | Monitoring the input pin headphone connection                              |
| 24   | OSD_CE       | O   | OSD IC enable signal output pin                                            |
| 25   | V+5V_DET     | I   | VIDEO +5 Voltage monitor input pin DC protection                           |
| 26   | V_CTL_B      | O   | IC control signal B output pin for selecting the video input               |
| 27   | V_CTL_A      | O   | IC control signal A output pin for selecting the video input               |
| 28   | OSD/FLT_CLK  | O   | OSD & FL drive IC output pin of the Clock                                  |
| 29   | H+3.3V_FETON | O   | Not used                                                                   |
| 30   | H+5V_FETON   | O   | Not used                                                                   |
| 31   | 232_RX/U_TX  | O   | Output for Upgrade (UART)                                                  |
| D 32 | 232_TX/U_RX  | I   | Input for Upgrade (UART)                                                   |
| 33   | SCLK_JTAG    | I   | Serial clock input pin                                                     |
| 34   | BUSY_JTAG    | O   | BUSY signal output pin                                                     |
| 35   | 2162_SDA     | I/O | MFI IC serial data I/O PIN                                                 |
| 36   | 2162_SCL     | I/O | MFI IC transfer clock I/O PIN                                              |
| 37   | D+5V_FETON   | O   | Not used                                                                   |
| 38   | D+3.3V_FETON | O   | Not used                                                                   |
| 39   | OSD_RST      | O   | OSD IC Reset signal output pin                                             |
| 40   | TUNER_SCLK   | O   | Clock signal output for Tuner Pack                                         |
| 41   | EPM_UP       | I   | Upgrade                                                                    |
| 42   | TUNER_SDIO   | I/O | Data signal input & output for Tuner Pack                                  |
| 43   | TUNER_SEN    | O   | Output for Tuner Pack Serial Enable Input (active at L)                    |
| E 44 | TUNER_RST    | O   | Output to reset Tuner Pack (active at L)                                   |
| 45   | TR_DET       | I   | Output for HDMI_HD / SACD_DSD Select (L: HDMI_HD, H: SACD_DSD)             |
| 46   | CE           | O   | Upgrade                                                                    |
| 47   | 2162_PWR     | O   | MFI IC pin of the power control                                            |
| 48   | 2162_RST     | O   | MFI IC Reset signal output pin                                             |
| 49   | VOL_DATA     | O   | Data signal output for R2A15219 (I2C)                                      |
| 50   | VOL_CLK      | O   | CLK signal output for R2A15219 (I2C)                                       |

## • Pin Function

| Pin | Symbol        | I/O | Description                                                                |
|-----|---------------|-----|----------------------------------------------------------------------------|
| 51  | SW_SUM        | O   | Output for Sub Woofer SUMMING Control (H: SUMMING)                         |
| 52  | MIC_DET       | I   | Monitoring the input pin microphone connection (detection: L)              |
| 53  | HP_RLY        | O   | Headphone audio output control pins at Mute Tr (active at L)               |
| 54  | DSP+3.3_FETON | O   | DSP 3.3 V Power on/off control pin (on: H)                                 |
| 55  | H+1.8V_ON     | O   | Control pin HDMI IC +1.8 V REG. IC (on: H)                                 |
| 56  | D+3.3V_ON     | O   | Control pin digital +3.3 V DC/DC IC (on: H)                                |
| 57  | D+5V_ON       | O   | Control pin digital +5 V DC/DC IC (on: H)                                  |
| 58  | 4588_PDN      | O   | Output for AK4588 power down                                               |
| 59  | 4588_SDA      | O   | Data signal output for AK4588 (I2C)                                        |
| 60  | 4588_SCL      | O   | Clock signal output for AK4588 (I2C)                                       |
| 61  | DSP_SIMO      | O   | Data signal output for DA808 (SPI)                                         |
| 62  | VCC2          |     | +3.3 V power supply                                                        |
| 63  | DSP_SPICLK/B7 | O   | Clock signal output for DA808 (SPI)                                        |
| 64  | VSS           |     | Ground                                                                     |
| 65  | DSP_RST       | O   | Output to reset DA808                                                      |
| 66  | USB5V_DET     | I   | USB+5 Voltage monitor input pin overcurrent protection.                    |
| 67  | DSP_SOMI      | I   | Data signal Input from DA808                                               |
| 68  | DSP_SPICS     | O   | Chip select signal output for DA808                                        |
| 69  | DSP_SPIEN     | I   | SPI Enable signal input from DA808                                         |
| 70  | HDMI_SEL      | O   | IC signal of the control pins at select HDMI or analog audio               |
| 71  | PROTECT2      | I   | AMP Assy input signal of the RADIATOR THERMAL pin (L = PROTECTION)         |
| 72  | MAIN_IRQ      | O   | Interrupt Output to sub CPU                                                |
| 73  | S+3.3V_ON     | O   | Output for sub CPU Power ON/OFF cotrol pin                                 |
| 74  | SUB_IRQ       | I   | Interrupt Input from sub MICOM                                             |
| 75  | HDMI_AMUTE    | I   | Input for HDMI_RX_MUTE condition                                           |
| 76  | USB5V_ON      | O   | Output for power down of SUB microcomputer                                 |
| 77  | SUB_RST       | O   | Output to reset sub CPU                                                    |
| 78  | DSD_SEL       | O   | Output for DSD audio signal selector ic control pin.                       |
| 79  | SCDO_MAIN     | O   | Data signal output to SUB microcomputer                                    |
| 80  | CSCK_MAIN     | O   | Clock signal output for SUB microcomputer                                  |
| 81  | SET_OPTION    | I   | Input for Set option                                                       |
| 82  | STEP_OPTION   | I   | Input for Step (Group) option                                              |
| 83  | NC            | O   | Not used                                                                   |
| 84  | NC            | O   | Not used                                                                   |
| 85  | PROTECT1      | I   | AMP Assy Protection detection signal input pin (ASO = 0.82 V, DC = 1.39 V) |
| 86  | VOL_DN        | I   | Data input for VOLUME encoder (VOLUME DOWN is counterclockwise direction)  |
| 87  | VOL_UP        | I   | Data input for VOLUME encoder (VOLUME UP is clockwise direction)           |
| 88  | IN_DN         | I   | Data input for INPUT selector encoder                                      |
| 89  | NC            | I   | Not used                                                                   |
| 90  | KEY1          | I   | Data input for Key1 scan                                                   |
| 91  | KEY3          | I   | Data input for Key3 scan                                                   |
| 92  | KEY2          | I   | Data input for Key2 scan                                                   |
| 93  | IN_UP         | I   | Data input for INPUT selector encoder                                      |
| 94  | FLT_CE        | O   | Output for chip enable of SC16315                                          |
| 95  | NC            | O   | Not used                                                                   |
| 96  | GND           |     | Ground                                                                     |
| 97  | NC            | O   | Not used                                                                   |
| 98  | VREF          |     | Reference voltage (Connected to +3.3 V)                                    |
| 99  | AVCC          |     | +3.3 V power supply                                                        |
| 100 | STBY_RLY      | O   | Output to ST-BY Relay ON/OFF (active at H)                                 |

## A ■ (EPF021A)(D-MAIN ASSY: IC2001)

SUB Microcomputer

### • Pin Function

| Pin | Symbol      | I/O | Description                                             |
|-----|-------------|-----|---------------------------------------------------------|
| 1   | NC          | I   | Not used                                                |
| 2   | CCLK_MAIN   | I   | Clock signal input from MAIN microcomputer              |
| 3   | SCDO_MAIN   | I   | Data signal Input from MAIN microcomputer               |
| 4   | HSCL        | O   | IIC clock signal output pin (EP94A1K & EPF011C)         |
| 5   | HSDA        | I/O | IIC data signal in/output pin (EP94A1K & EPF011C)       |
| 6   | DDC_SCK     | O   | IIC clock signal output pin for HDMI output jack        |
| 7   | DDC_SDA     | I/O | IIC data signal in/output pin for HDMI output jack      |
| 8   | VDD         |     | +3.3 V power supply                                     |
| 9   | GND         |     | Ground                                                  |
| 10  | NC          | I   | Not used                                                |
| 11  | NC          | I   | Not used                                                |
| 12  | VDD         |     | +3.3 V power supply                                     |
| 13  | NC          | I   | Not used                                                |
| 14  | NC          | I   | Not used                                                |
| 15  | SUB_RST     | I   | SUB microcomputer reset signal input pin                |
| 16  | SUB_OPO     | I   | Chip operation mode select signal input pin (0: normal) |
| 17  | GND         |     | Ground                                                  |
| 18  | NC          | I   | Not used                                                |
| 19  | NC          | O   | Not used                                                |
| 20  | NC          | O   | Not used                                                |
| 21  | NC          | O   | Not used                                                |
| 22  | NC          | O   | Not used                                                |
| 23  | NC          | O   | Not used                                                |
| 24  | NC          | O   | Not used                                                |
| 25  | NC          | O   | Not used                                                |
| 26  | NC          | O   | Not used                                                |
| 27  | NC          | O   | Not used                                                |
| 28  | NC          | O   | Not used                                                |
| 29  | HPD_IN      | I   | HDMI Hot plug detect signal input pin                   |
| 30  | NC          | I   | Not used                                                |
| 31  | NC          | I   | Not used                                                |
| 32  | NC          | I   | Not used                                                |
| 33  | NC          | I   | Not used                                                |
| 34  | NC          | I   | Not used                                                |
| 35  | MAIN_IRQ    | I   | Interrupt signal Input pin from MAIN microcomputer      |
| 36  | SUB_IRQ     | O   | Interrupt signal output pin to MAIN microcomputer       |
| 37  | THRU_LED    | O   | HDMI LED on/off control pin                             |
| 38  | NC          | O   | Not used                                                |
| 39  | VDD         |     | +3.3 V power supply                                     |
| 40  | GND         |     | Ground                                                  |
| 41  | XIN         | I   | Input for 24 MHz Crystal                                |
| 42  | XO          | O   | Output for 24 MHz Crystal                               |
| 43  | VDD         |     | +3.3 V power supply                                     |
| 44  | GND         |     | Ground                                                  |
| 45  | NC          | O   | Not used                                                |
| 46  | NC          | O   | Not used                                                |
| 47  | CEC_MCU_RST | O   | CEC microcomputer Reset signal output pin               |
| 48  | NC          | I   | Not used                                                |
| 49  | HT0_CTLB    | O   | Hot plug detect signal output pin (DVD FUNCTION)        |
| 50  | HT1_CTLB    | O   | Hot plug detect signal output pin (SAT/CBL FUNCTION)    |

## • Pin Function

| Pin | Symbol          | I/O | Description                                                     |
|-----|-----------------|-----|-----------------------------------------------------------------|
| 51  | HT2_CTLB        | O   | Hot plug detect signal output pin (GAME FUNCTION)               |
| 52  | HT3_CTLB        | O   | Hot plug detect signal output pin (BD FUNCTION)                 |
| 53  | EP94A1K_RST     | O   | Reset signal output pin for EP94A1K IC                          |
| 54  | NC              | O   | Not used                                                        |
| 55  | NC              | O   | Not used                                                        |
| 56  | NC              | I   | Not used                                                        |
| 57  | NC              | I   | Not used                                                        |
| 58  | CEC MCU_IIC_SCL | O   | IIC clock signal output pin for CEC microcomputer               |
| 59  | CEC MCU_IIC_SDA | I/O | IIC data signal in/output pin for CEC microcomputer             |
| 60  | NC              | I   | Not used                                                        |
| 61  | NC              | I   | Not used                                                        |
| 62  | SUB_RXD         | I   | Soft update UART communication data input pin (UPDATE JIG B'D)  |
| 63  | SUB_TXD         | O   | Soft update UART communication data output pin (UPDATE JIG B'D) |
| 64  | INTb            | I   | Interrupt signal input pin from EP94A1K & EPF011C               |

## ■ (EPF011C)(D-MAIN ASSY: IC2003)

CEC Microcomputer

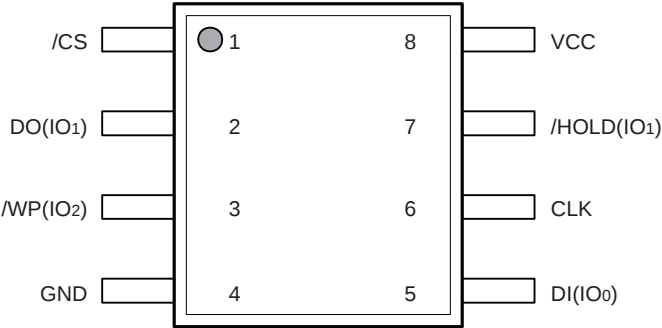
## • Pin Function

| Pin | Symbol  | I/O | Description                                                     |
|-----|---------|-----|-----------------------------------------------------------------|
| 1   | RXD     | I   | Soft update UART communication data input pin (UPDATE JIG B'D)  |
| 2   | TXD     | O   | Soft update UART communication data output pin (UPDATE JIG B'D) |
| 3   | CECin   | I   | HDMI CEC signal input pin                                       |
| 4   | DDC_SCL | I   | IIC clock signal input pin from SUB microcomputer               |
| 5   | DDC_SDA | I/O | IIC data signal in/output pin from SUB microcomputer            |
| 6   | SCL     | I   | IIC clock signal input pin (EP94A1K & EPF011C)                  |
| 7   | SDA     | I/O | IIC data signal in/output pin (EP94A1K & EPF011C)               |
| 8   | RSTb    | I   | CEC microcomputer Reset signal input pin                        |
| 9   | OP_MODE | I   | Chip operation mode select signal input pin(0:normal)           |
| 10  | IO3     | -   | Not used (PULL_UP)                                              |
| 11  | IO2     | -   | Not used (PULL_UP)                                              |
| 12  | INTb    | I   | Interrupt signal input pin from EP94A1K                         |
| 13  | A0      | -   | Ground                                                          |
| 14  | A1      | -   | Ground                                                          |
| 15  | A15     | -   | Ground                                                          |
| 16  | VDD     |     | +3.3 V power supply                                             |
| 17  | VSS     |     | Ground                                                          |
| 18  | XIN     | I   | 24 MHz Crystal input                                            |
| 19  | XO      | O   | Not used                                                        |
| 20  | VDD     |     | +3.3 V power supply                                             |
| 21  | VSS     |     | Ground                                                          |
| 22  | CECO    | O   | HDMI CEC signal output pin                                      |
| 23  | A6      | -   | Ground                                                          |
| 24  | BIST    | -   | Ground                                                          |

A ■ **J005253200020-IL (W25Q32BV\_SS1G)(D-MAIN ASSY: IC2019)**  
32M-bit Serial Flash Memory with uniform 4KB sectors and Dual/Quad SPI

■ **• Pin Arrangement (Top View)**

B



■ **• Pin Function**

C

| No. | Pin Name   | I/O | Function                                     |
|-----|------------|-----|----------------------------------------------|
| 1   | /CS        | I   | Chip select input                            |
| 2   | DO(IO1)    | I/O | Data output (Data input output 1) *1         |
| 3   | /WP(IO2)   | I/O | Write protect input (Data input output 2) *2 |
| 4   | GND        |     | Ground                                       |
| 5   | DI(IO0)    | I/O | Data input (Data input output 0) *1          |
| 6   | CLK        | I   | Serial clock input                           |
| 7   | /HOLD(IO0) | I/O | Hold input (Data input output 3) *2          |
| 8   | VCC        |     | Power supply                                 |

\*1 IO0 and IO1 are used for Standard and Dual SPI instructions.  
\*2 IO0 - IO3 are used for Quad SPI instructions.

D

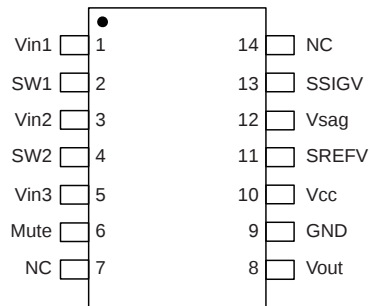
E

F

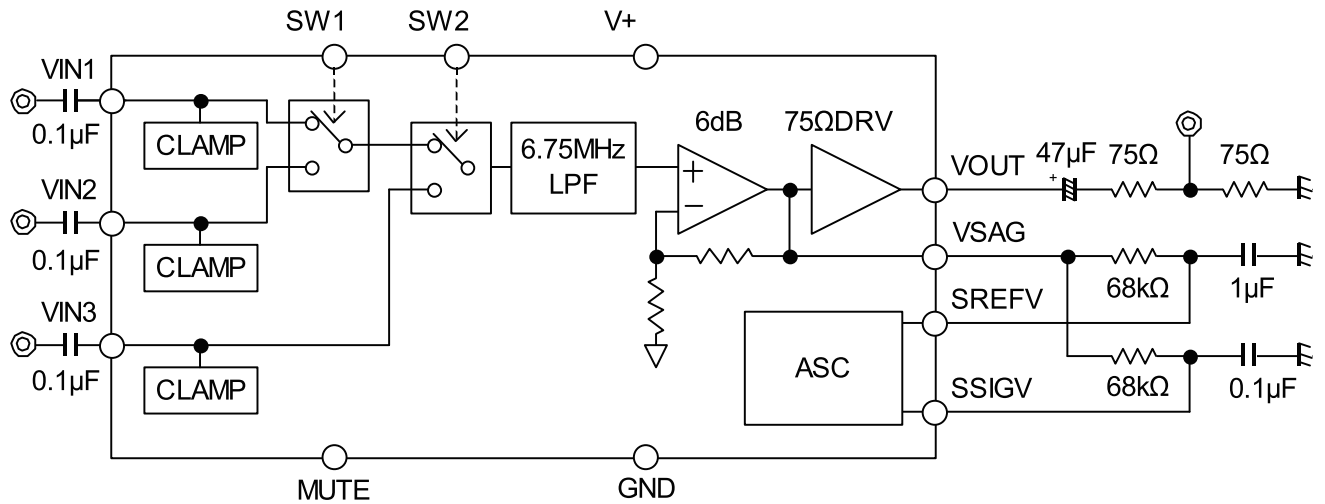
# **J127410500010-IL (NJM41050V)(VIDEO ASSY: IC1200)**

47 $\mu$ F AC-Coupling Capacitor 3-Input 1-Output Video Driver with LPF

## **• Pin Arrangement (Top View)**



## **• Block Diagram**



## 6. SERVICE MODE

### 6.1 SERVICE MODE

#### [1] Display mode for numbers of protection detections

##### [Purpose]

The numbers of detections for various protection processes are displayed.

##### [How to enter/exit]

During Standby mode, simultaneously press and hold the [PRESET ◀] and [STANDBY/ON] keys for 2 seconds to enter this mode.

The display will return to the normal indication when no key operation is performed for 5 seconds.

##### [Basic operations]

| Key Operation                                          | FL Display  | Time (sec.)      | Description of Indications                      |
|--------------------------------------------------------|-------------|------------------|-------------------------------------------------|
| (STANDBY state)                                        |             |                  |                                                 |
| [PRESET ◀] +<br>[STANDBY/ON] keys<br>(Initial display) |             |                  |                                                 |
| [ENTER] key                                            | DC 005 *2   | 5 (-> normal) *1 | Number of DC error detections                   |
| [ENTER] key                                            | OVER 003 *2 | 5 (-> normal) *1 | Number of OVERLOAD error detections             |
| [ENTER] key                                            | TEMP 007 *2 | 5 (-> normal) *1 | Number of abnormal-temperature error detections |
| (Initial display)                                      |             |                  |                                                 |

\*1 "5 (-> normal)" denotes that the display will return to the normal indication when no key operation is performed for 5 seconds.

\*2 Variable range: 0 to 255

The above-mentioned Display mode is available only when the product operates properly.

If any protection function is activated while the product is in use, the product cannot be turned ON and enter the above Display mode. In such a case, cancel the protection function, referring to "3.4 How to cancel the status after detection of the DC error." If a protection function is activated immediately after the previous protection function is canceled, cancel that protection function again then enter STBY mode immediately. You can then see the error logs, following the above procedures, until a next protection function is activated.

## [2] Reset mode for numbers of protection detections

### [Purpose]

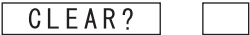
For clearing all the counts of protection detections.  
(This mode resets the counts of protection detections.)

### [How to enter/exit]

During Standby mode, simultaneously press and hold the [ALC/STANDARD SURR] and [STANDBY/ON] keys for 10 seconds to enter this mode.

The display will return to the normal indication when no key operation is performed for 5 seconds.

### [Basic operations]

| Key Operation                                                                              | FL Display                                                                               | Time (sec.)      | Description of Indications |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|----------------------------|
| (STANDBY state)                                                                            |         |                  |                            |
| [ALC/STANDARD SURR]<br>+ [STANDBY/ON] keys<br>(press and hold the keys<br>for 10 seconds.) |         | 5 (-> normal) *1 |                            |
| [ENTER] key<br>↓                                                                           |         | 5 (-> normal) *1 |                            |
| (Counter Clear end)                                                                        |                                                                                          |                  |                            |
| (Normal display)                                                                           | <br>*2 | usually          |                            |

\*1 "5 (-> normal)" denotes that the display will return to the normal indication when no key operation is performed for 5 seconds.

\*2 Indication when the BD function is selected

### [Detailed explanations]

- When the procedures for Reset mode for numbers of protection detections are completed, all the counters will be reset to "000."
- Prohibitions:  
The protection detection counts cannot be cleared (reset to 000) with the MEMORY CLEAR process.  
They can only be cleared when the procedures of Reset mode are completed.

A [3] The unit's operation when a error is detected

[Purpose]

- The unit's operation when a DC/OVER/TEMP error is detected is described here.
- How to cancel the status after detection of a DC error is described here, because no key input will be accepted after a DC error detection.

Basic operations

3.1 DC (AMP is abnormality) error detection

| Key Operation                              | FL Display                | Time (sec.) | Description of Indications |
|--------------------------------------------|---------------------------|-------------|----------------------------|
| (Normal display)                           | <div>BD</div> <div></div> | usually     | Normal display             |
| (DC detection)                             | <div>BD</div> <div></div> |             |                            |
| ↓ (Auto)<br>(RECEIVER POWER OFF)<br>*1, *2 | <div></div> <div></div>   |             |                            |

3.2 OVERLOAD (overcurrent) error detection

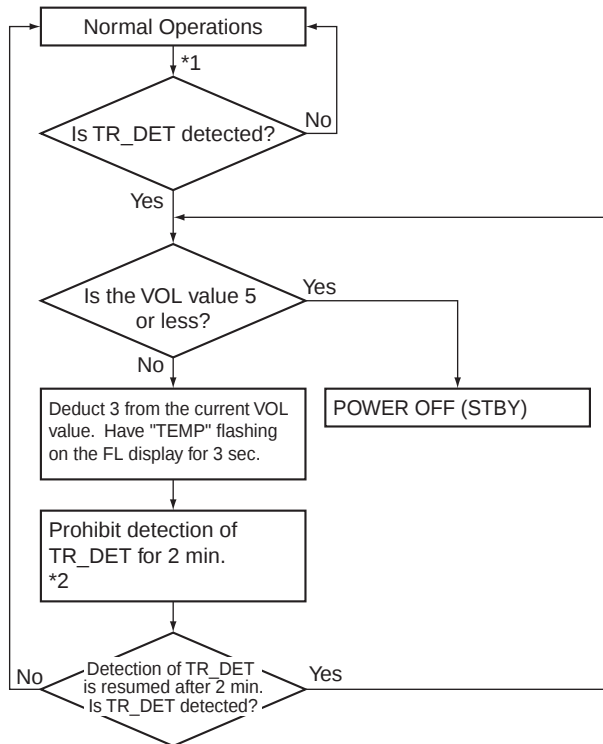
| Key Operation                          | FL Display                | Time (sec.) | Description of Indications |
|----------------------------------------|---------------------------|-------------|----------------------------|
| (Normal display)                       | <div>BD</div> <div></div> | usually     | Normal display             |
| (OVERLOAD detection)                   | <div>BD</div> <div></div> |             |                            |
| ↓ (Auto)<br>(RECEIVER POWER OFF)<br>*1 | <div></div> <div></div>   |             |                            |

### 3.3 TEMP (AMP overheat) error detection

For detection of a TEMP error, the unit monitors both the TR\_DET and PROTECT2 signals. If a TEMP error is detected, the processes shown below will be performed. The processes shown below are rough operational specifications and are not the actual commands from the mounted components.

After a TEMP error is detected, the count of protection activation detections will be updated.

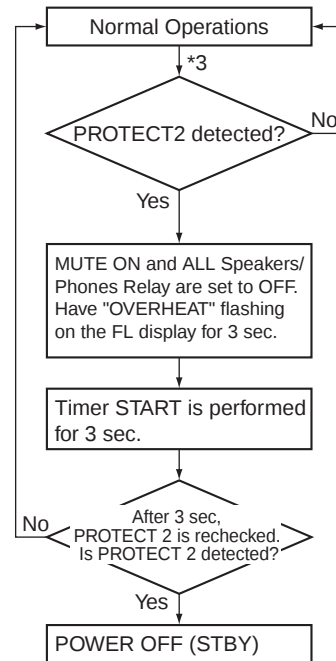
**Counter: Temp2** TR\_DET  
P6\_4 (34 pin)  
(TRTHER\_DET from AMP Assy)



\*1: The detection interval must be 1 sec or less.

\*2: If PROTECT 2 is detected while TR\_DET detection is prohibited for 2 min, the PROTECT 2 function will be activated.

**Counter: Temp1** PROTECT2  
PL2\_1 (71 pin)  
(RADI\_DET from AMP Assy)



\*3: The detection interval must be 1 sec or less.

### 3.4 How to cancel the status after detection of the DC error

| Key Operation                                                                                                                      | FL Display                                                                                                                                                                                                                                                                                                                                                                                                                              | Time (sec.) | Description of Indications |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------|
| (STANDBY state)<br>[ADVANCED SURROUND]<br>+ [STANDBY/ON] keys<br>(press and hold the keys for 2 seconds.)<br>↓<br>(Normal display) | <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 60px; height: 20px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div><br><br><div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">BD</div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> | usually     | Normal display             |

#### [Detailed explanations]

Simultaneously holding the [ADVANCED SURROUND] and [STANDBY/ON] keys on the front panel pressed for 2 seconds will cancel Key Input Inhibition mode after a DC error detection and turn the unit ON.

# 7. DISASSEMBLY

## Note:

- (1) Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
- (2) For performing the diagnosis shown below, the following jigs for service is required:
  - 9P extension jig cable (GGD1739)
  - Board to board extension jig cable (GGD1756)
  - Board to board extension jig cable (GGD1798)
  - Board to board extension jig cable (GGD1799)

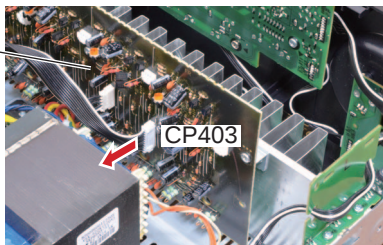
## 1. Discharging

### [1] MAIN Assy Capacitor (C55, C58)

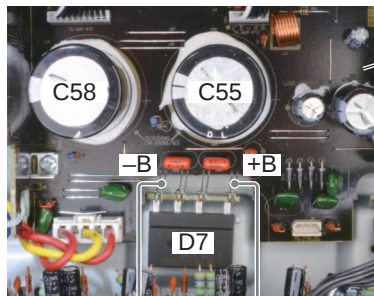
#### [Procedures]

- (1) Unplug the power cord.
- (2) Disconnect the 10P connector from CP403 of the AMP5 Assy between CN3 of the MAIN Assy.
- (3) Connect +B and -B terminal of the D7, using resistor leads with 47 - 100 ohms (2 W or higher), for discharging.
  - \* Discharging time: 30 - 60 seconds, depending on the level of resistance.
- (4) Check that the voltage between the +B and -B terminals is less than 1 V, using a tester.
  - \* Be sure to connect the GND terminal of the tester to the chassis.
  - \* If the voltage is still 1 V or higher, repeat Step (3).

AMP5 Assy



MAIN Assy



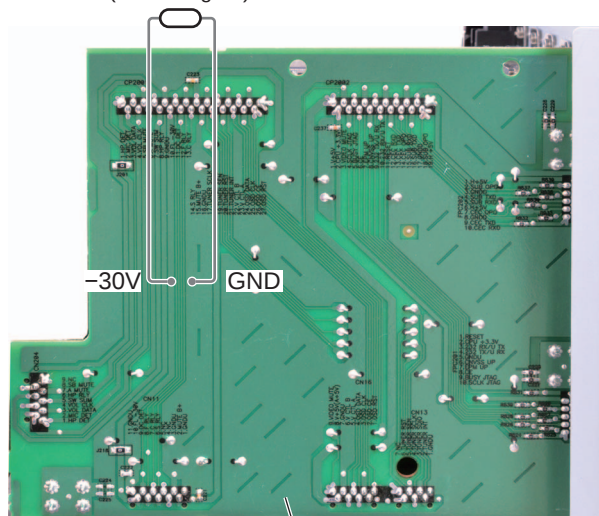
47 - 100 ohms  
(2 W or higher)

### [2] FL-30 V Capacitor (MAIN Assy C101)

#### [Procedures]

- (1) Unplug the power cord.
- (2) Connect -30V and GND terminal of the BRG-C Assy, using resistor leads with 47-100 ohms (2 W or higher), for discharging.
  - \* Discharging time: 5 - 10 seconds, depending on the level of resistance.
- (3) Check that the voltage between the -30V terminal is less than 1 V, using a tester.
  - \* Be sure to connect the GND terminal of the tester to the chassis.
  - \* If the voltage is still 1 V or higher, repeat Step (2).

47 - 100 ohms  
(2 W or higher)



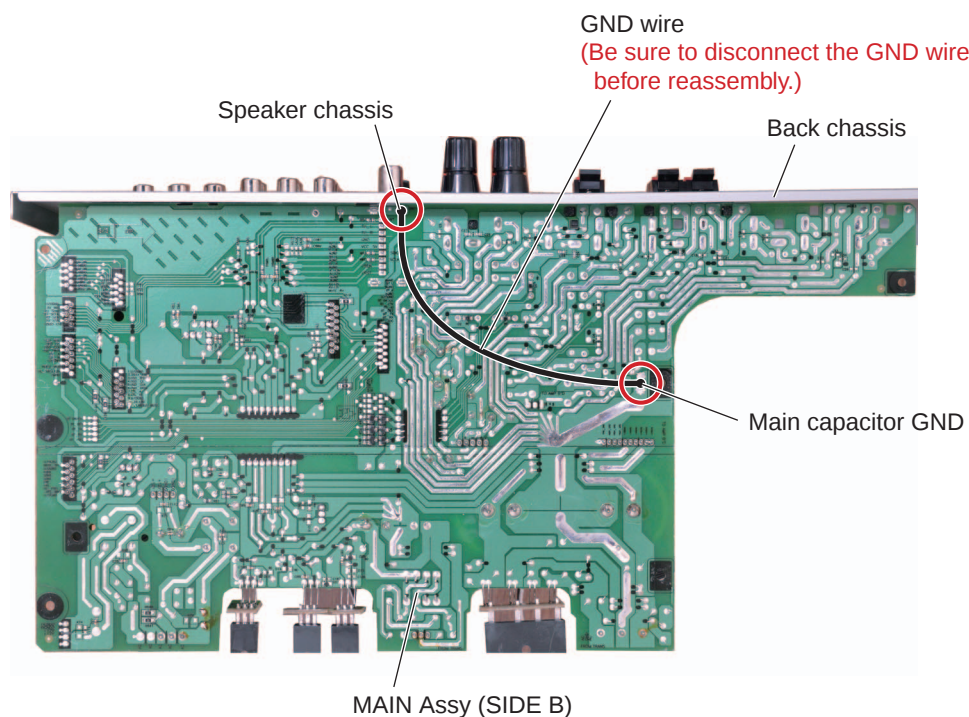
BRG-C Assy

## 2. Notes on Ground Points Connection

### [Note]

During repair, before checking the MAIN Assy, etc., with the rear chassis removed, be sure to connect the GND terminal of the main capacitor to the back chassis (speaker chassis), as shown below, then connect the power cord.

**Without grounding connection, the protection circuit will be activated.  
After repairing, be sure to remove the ground wire before reassembling.**

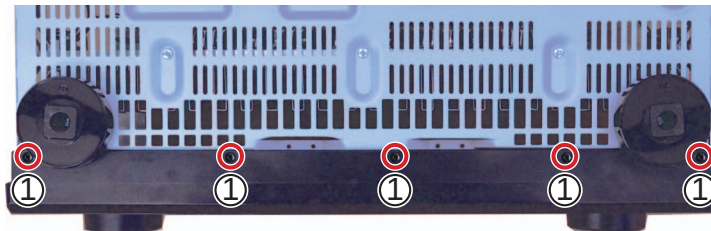


### A 3. Disassembly

#### [1] Front Panel Section

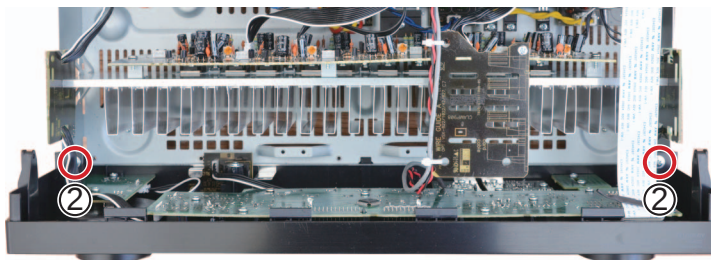
Remove the cabinet by removing the 10 screws.

(1) Remove the five screws. (BBZ30P080FTB)

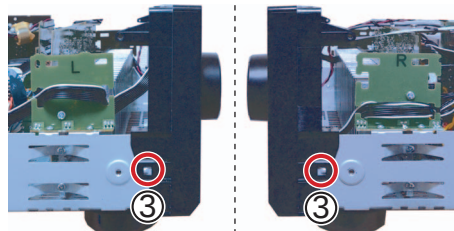


• Bottom view

(2) Remove the two screws.  
(15000001206010-IL)

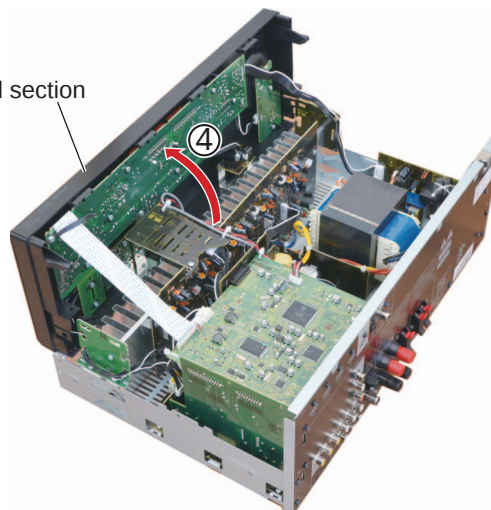


(3) Unhook the two hooks.



(4) Arrange the front panel section as shown  
in the photo below.

Front panel section

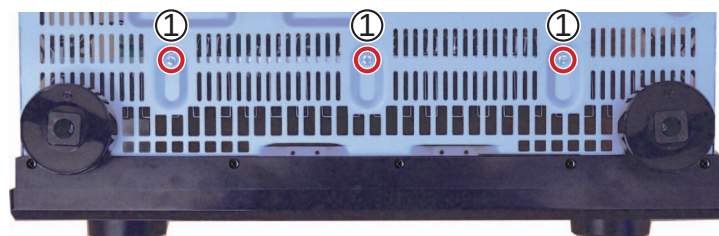


## [2] Heatsink Section

**Caution:** Heatsink section in work becomes hot, and be careful with it.

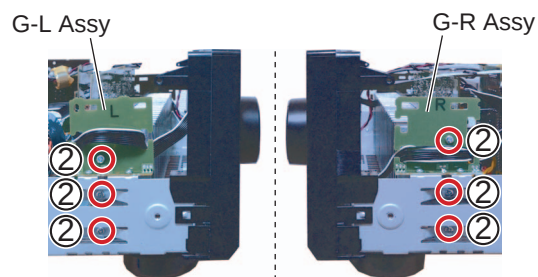
Remove the cabinet by removing the 10 screws.

(1) Remove the three screws. (BBZ30P080FTC)

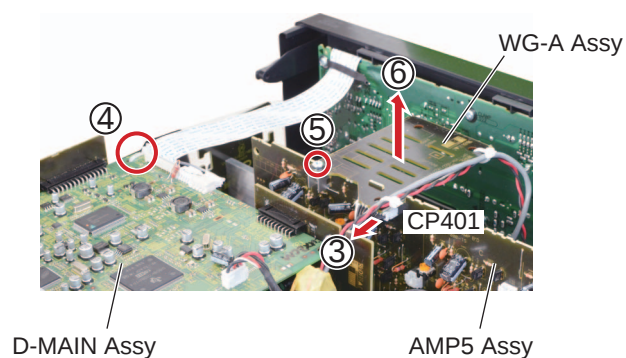


• Bottom view

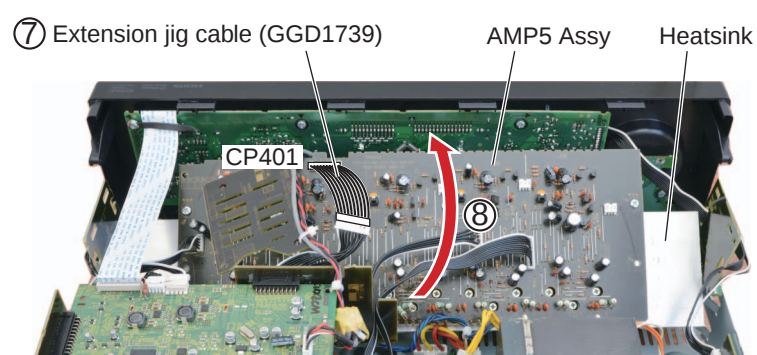
(2) Remove the six screws. (BBZ30P080FTC)



- (3) Disconnect the one connector. (CP401)
- (4) Cut the binder.
- (5) Remove the one screw. (BBZ30P080FTC)
- (6) Remove the WG-A Assy.



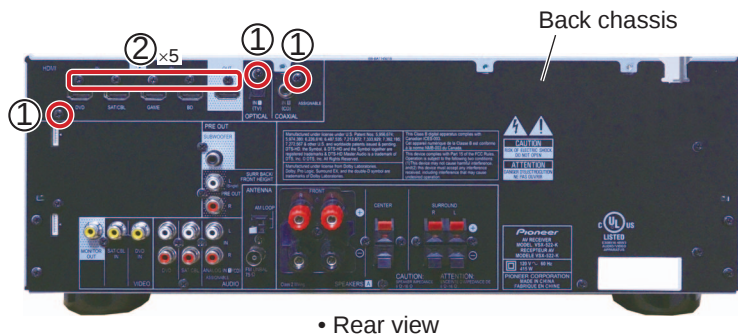
- (7) Connect the extension jig cable.
- (8) Rotate the heatsink section in the direction of the arrow.



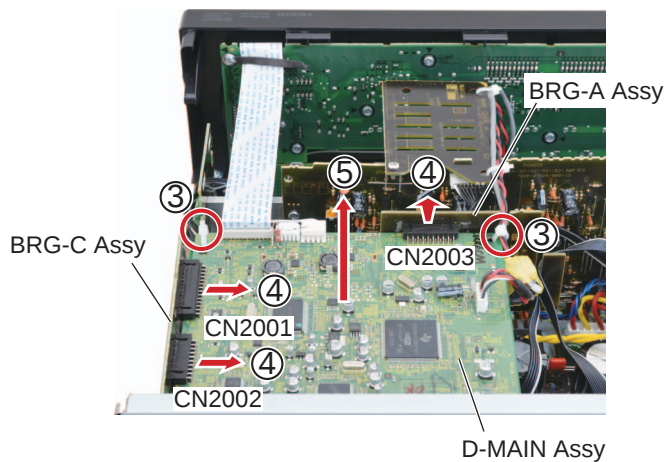
### A [3] D-MAIN Assy

Remove the cabinet by removing the 10 screws.

- (1) Remove the three screws. (BBT30P100FTB)
- (2) Remove the five screws. (BSZ30P040FTB)



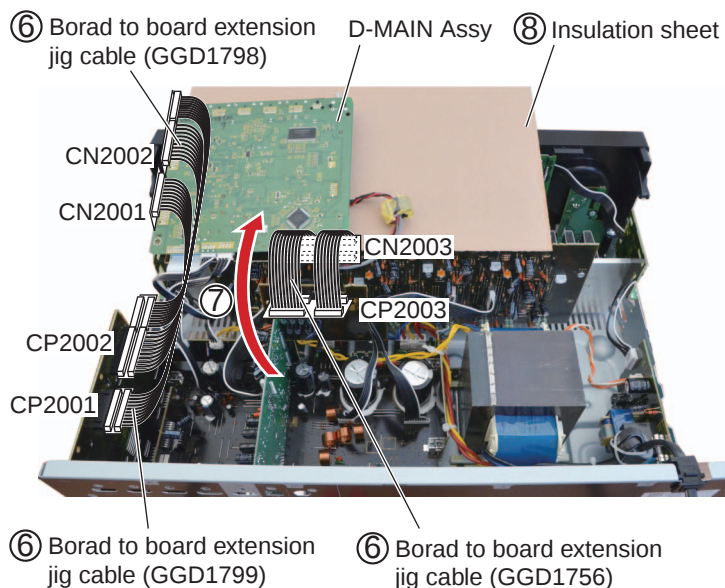
- (3) Cut the two binders.
- (4) Disconnect the three B to B connectors. (CN2001 to CN2003)
- (5) Remove the D-MAIN Assy.



- (6) Connect the three extension jig cables.
- (7) Arrange the D-MAIN Assy in the photo below.
- (8) Insert any insulation sheet.

#### Note:

15 pin connector on GGD1798 is not used in this case.  
9 pin connector on GGD1756 is not used in this case.

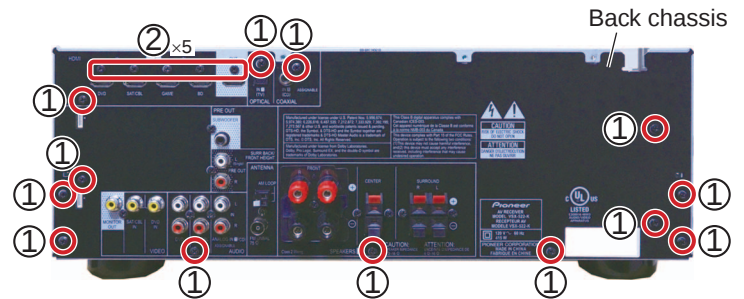


## [4] MAIN Assy

Remove the cabinet by removing the 10 screws.

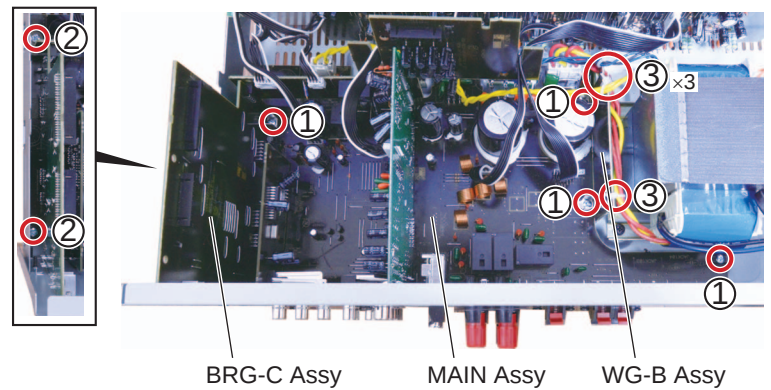
### [4-1] Back chassis, D-MAIN Assy

- (1) Remove the 13 screws. (BBT30P100FTB)
- (2) Remove the five screws. (BSZ30P040FTB)
- (3) Remove the D-MAIN Assy.  
(See procedure [3].)

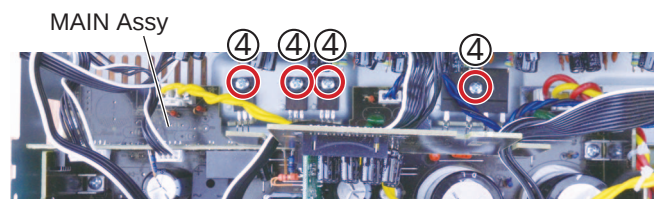


### [4-2] MAIN Assy

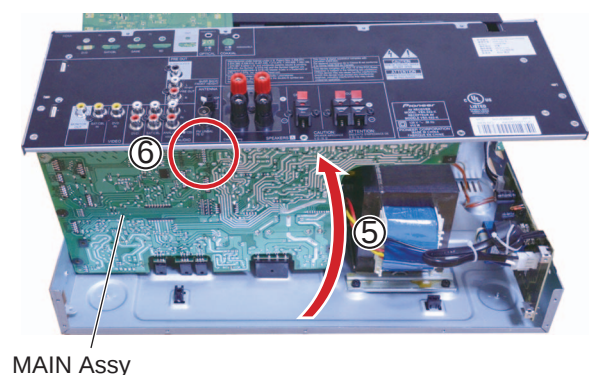
- (1) Remove the four screws. (BBZ30P180FTC)
- (2) Remove the two screws. (BBZ30P080FTC)
- (3) Cut the four binders.



- (4) Remove the four screws. (BBZ30P080FTC)

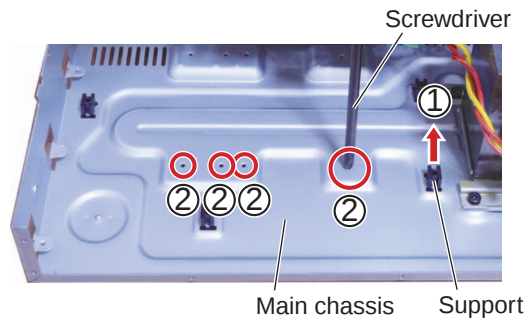


- (5) Arrange the unit as shown in the photo below.
- (6) Connect the chassis ground.  
See "2. Notes on Ground Points Connection".



#### A [4-3] Regulator ICs and Rectifier diode

- (1) Remove the support.
- (2) Tighten then loosen the screw in each of the four holes for temporary joining that are located on the rear side of the main chassis. (This is for shaving the thread grooves to facilitate attachment in the next step.)

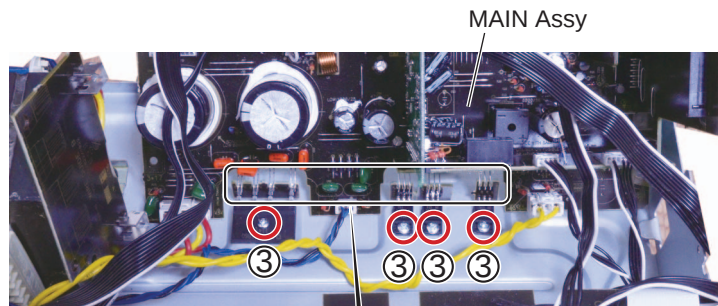


B



C

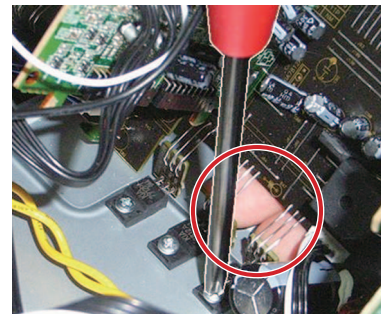
- (3) Attach the three regulator ICs and a rectifier diode to the holes tapped in Step (2). Be sure to place them in a direction perpendicular to the board and take care that the jumper wires will not become distorted.



D

#### Note:

While securing the regulator ICs and rectifier diode to the holes for temporary joining, tighten the screws while holding the regulator ICs and rectifier diode with your fingers so that the jumper wires will not become distorted.



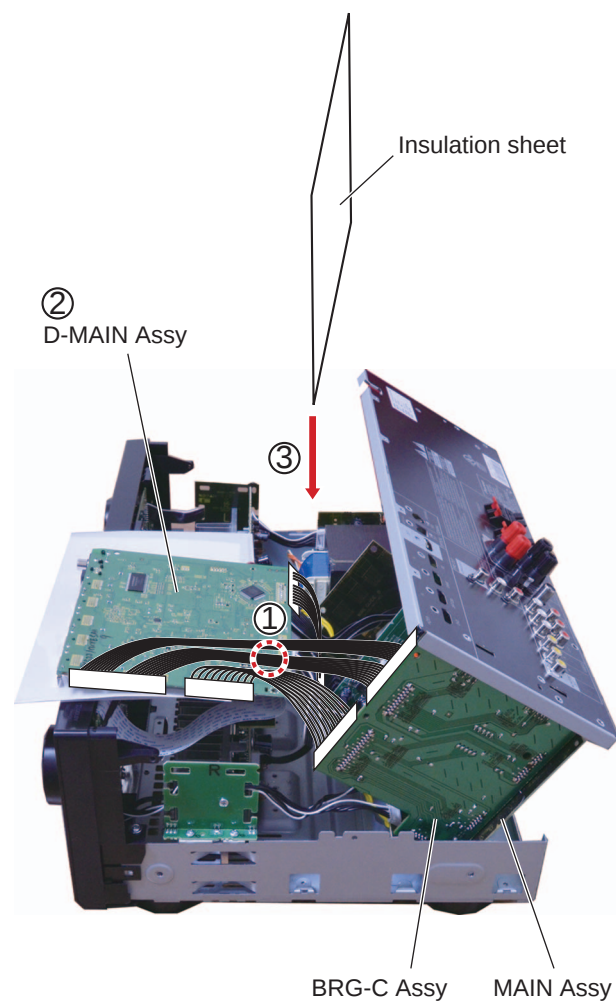
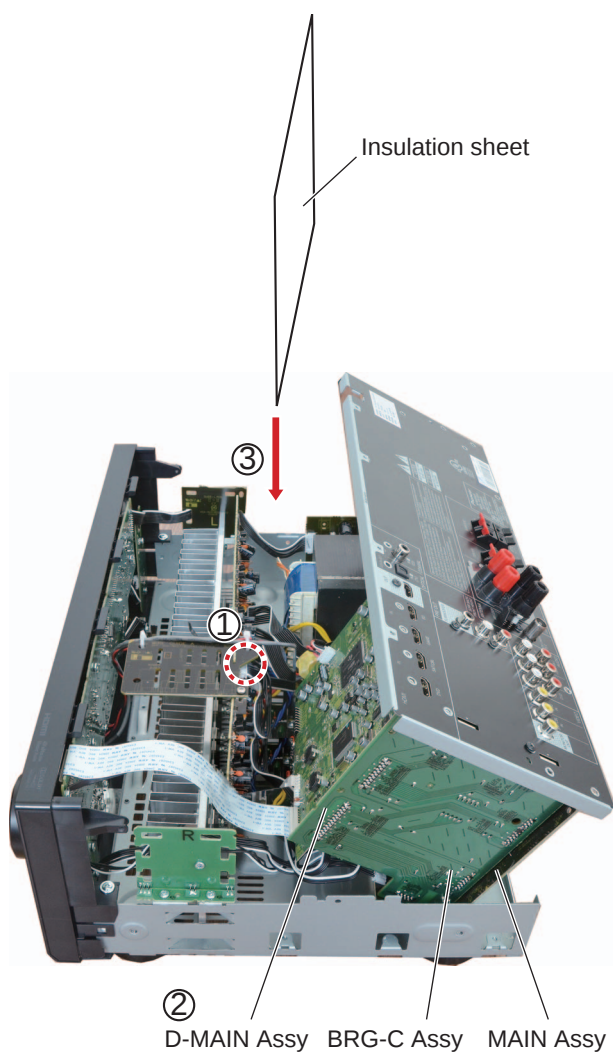
E

F



#### [4-4] Diagnosis

- (1) Connect the CP401 on the AMP5 Assy with extension jig cable. (See procedure [2].)
- (2) Reassemble the D-MAIN Assy to the rear panel or put it on the AMP5 Assy with extension jig cables. (See procedure [3].)
- (3) Insert any insulation sheet between AMP5 Assy and MAIN Assy.



# 8. EACH SETTING AND ADJUSTMENT



A

- If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
- Any value changed in Adjustment mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
- Use a stable AC power supply.

B

## 8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

■

|                  |   |                                             |
|------------------|---|---------------------------------------------|
| AMP5 Assy        | ➡ | "8.3 IDLE CURRENT ADJUSTMENT" (All channel) |
| Other assemblies | ➡ | No adjustment required                      |

C

■ When any of the following parts is replaced

■

|                  |   |                                                                      |
|------------------|---|----------------------------------------------------------------------|
| AMP5 Assy        | ➡ | "8.3 IDLE CURRENT ADJUSTMENT"<br>(Only channel of replacement parts) |
| Other assemblies | ➡ | No adjustment required                                               |

D

Note:  
Some parts on D-MAIN Assy can not be replaced due to using heat-pad connection between the board.  
Please refer to [1.2 NOTES ON REPLACING PARTS], when the parts listed in the table is defective, replace whole Assy.

E

■

F

## 8.2 UPDATING OF THE FIRMWARE

### [Purpose]

Refer to this section when updating the firmware of each microcomputer is required by the service information, etc.

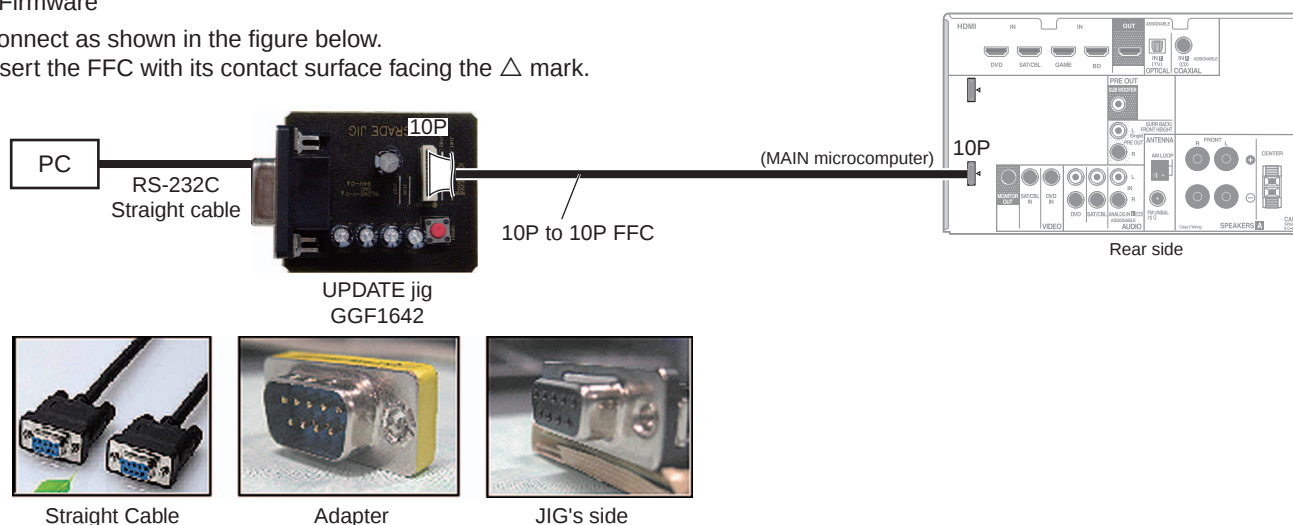
### [Necessary Tools and Connections]

#### ① MAIN microcomputer

- PC with a serial port
- RS-232C cable (9-pin to 9-pin, straight cable) (Marketing product)
- UPDATE jig: GGF1642 (Use FFC of GGF1642. (10P to 10P FFC))
- Firmware

Connect as shown in the figure below.

Insert the FFC with its contact surface facing the △ mark.



#### ② HDMI (SUB) and CEC microcomputer

- PC with a USB port
- USB cable (Marketing product)
- UPDATE jig: GGF1646 (Use FFC of GGF1642. (10P to 10P FFC))
- Firmware

#### <PC setting>

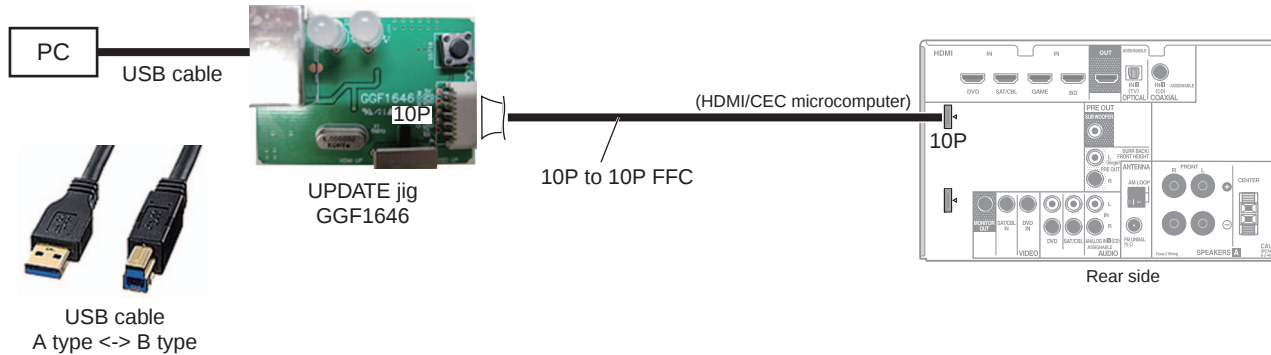
1. Thaw the upgrade program.zip.  
Appear the below folderes and files.  
Folder name: CDM20812  
Folder name: EPConsole  
Folder name: EPFlash\_1\_1\_0\_8  
dotNetFx40\_Full\_setup.exe
2. Install the driver.  
Request the driver at the time of the connecting the Upgrade Jig and the PC with the USB cable.  
Install the Driver (CDM20812).
3. Install .NET Framework 3.0 service pack1.  
To work EPFlash.exe (application for rewriting the HDMI u-co), request to be installed the .NET Framework 3.0 service pack1 on the PC.  
For installation of .NET Framework, Internet connection is required.

To confirm if .NET Framework 3.0 Service Pack 1 has been installed on your PC or not, select Settings > Control Panel > Add or Remove Programs. This confirmation method may be different, depending on the PC. Refer to the operation manual of the PC you use on how to execute Add or Remove Programs.

4. Install .NET Framwork 4.  
To work EPConsole.exe , operate dotNETFx40\_Full\_setup.exe and install .NET Framework 4.  
If .NET Framework 3.0 service pack1 doesn't install on the PC, you can not install .NET Framework 4.  
Please operate 4. after 3.  
For installation of .NET Framework, Internet connection is required.

A

Connect as shown in the figure below.  
Insert the FFC with its contact surface facing the  $\Delta$  mark.



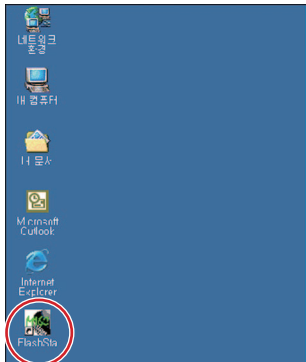
B

## Microcomputers update

### [Procedures]

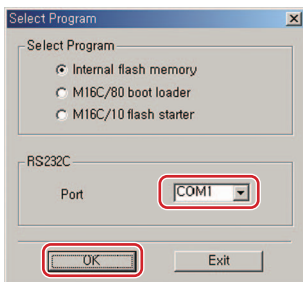
#### ■ for MAIN microcomputer

1. Unplug the AC cord.  
Connect the FFC cable. ( MAIN microcomputer )  
Start up application FlashSta on the PC.



2. Plug the AC cord. (STANDBY mode)  
For updating of the MAIN microcomputer, proceed with the following steps in STANDBY mode.

3. Press the OK button.



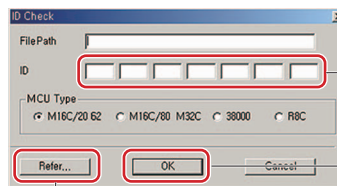
Select for COM port.

[ if the following messages are displayed ]



Please push the cancel button and press the JIG's RESET button.  
And confirm a connection of FFC.  
Please return to procedure 1.

4. Select the update file and enter ID.

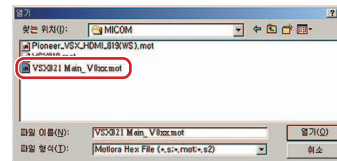


① Selection of upgrade file

② Enter ID.  
Enter "ff" in all field.

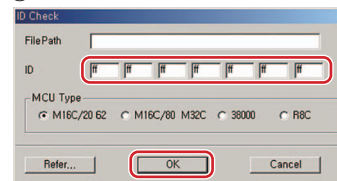
③ Press OK button to go to next step.

① Select the update file



Select "VSX521 Main V1xx.mot" file to update the MCU.

② Enter ID.

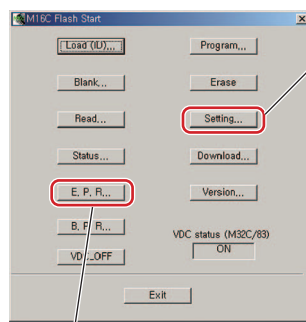


Press the OK button.



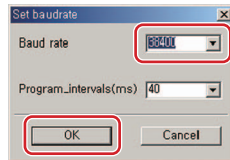
Press the OK button.

## 5. Set speed update and update the MCU.



① Set speed of update.

① Set speed of update.  
Set Baud rate to 38400.



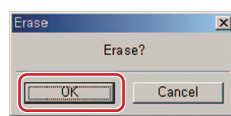
Press the OK button.

② Update the MCU.

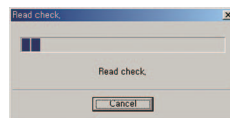
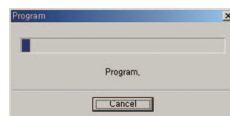
E.P.R=>Erase+Program+Read

② Update the MCU

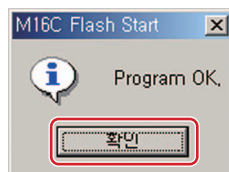
Press the E.P.R ... button



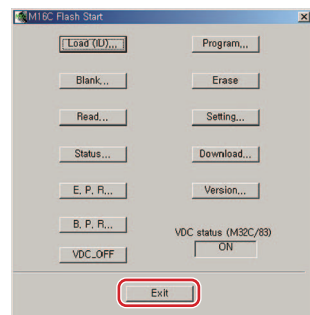
Press OK button.



## 6. Update Finished MAIN microcomputer.

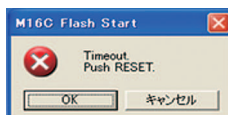


Press the OK button.

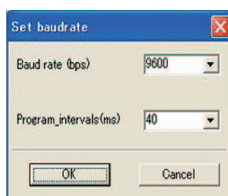


Press the Exit button.  
Please wait for until this window disappears.

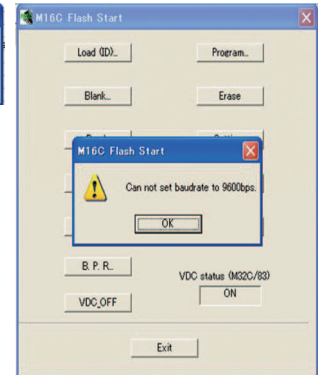
If the following messages are displayed, shut the update program down, and start the update again from step 1.



Push the JIG's RESET button during 1 sec.  
Press the OK button.



Select the 9600 of the Board rate then press the OK button



## 7. Unplug the AC cord.

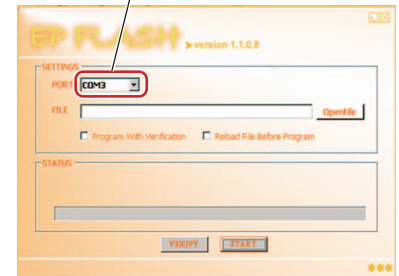
Disconnect the FFC cable.

## for HDMI (SUB) microcomputer

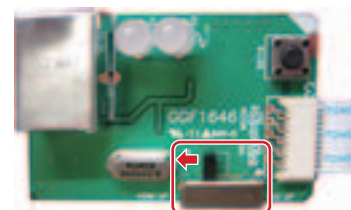
## 8. Unplug the AC cord.

Start up the application EPFlash on the PC.

When the PC and the Upgrade Jig is connecting, the COM PORT is set automatically.



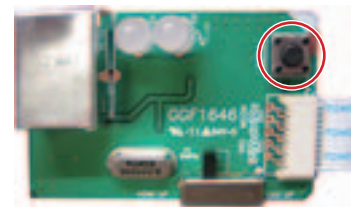
## 9. Select "HDMI UP" on the Upgrade Jig.



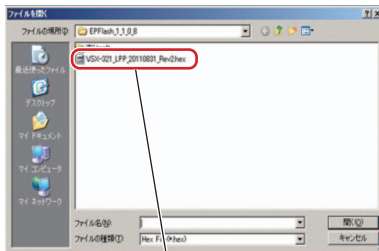
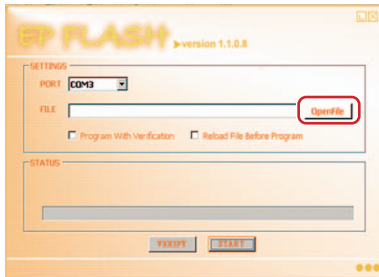
Connect the PC and the Upgrade Jig.  
Connect the FFC cable. (HDMI microcomputer)  
Plug the AC cord. (STANDBY mode)

## 10. While holding down the tact switch of the Upgrade Jig, press STANDBY/ON button.

After 2 or 3 seconds, release the tact switch button.

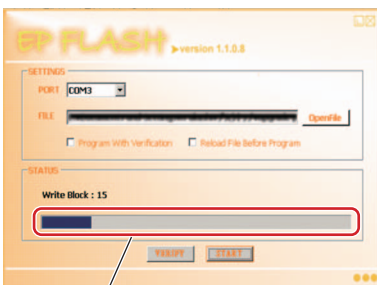
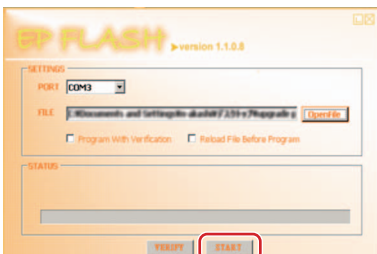


11. Select the update file. Press the "OpenFile" button.



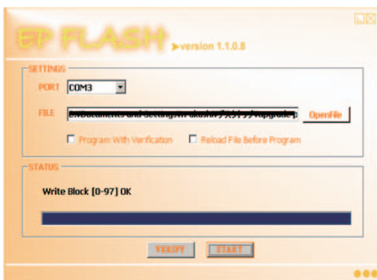
Select "VSX-522\_LPP\_\*\*\*\*\*.hex" file to update MCU.

12. Press the "START" button to update the firmware.

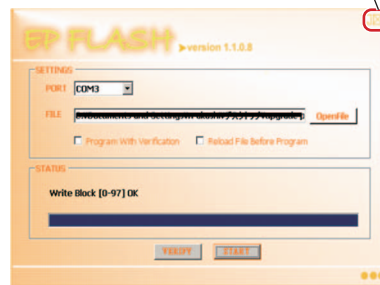


Rate of the progression is appeared.

13. Update Finished HDMI microcomputer.



End the application EPFlash.



If the following messages are displayed, shut the update program down, and start the update again from step 8.

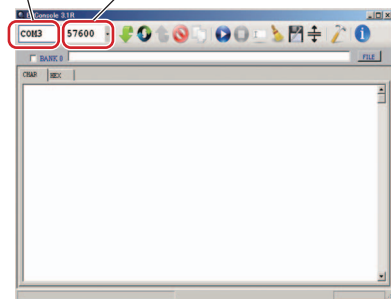
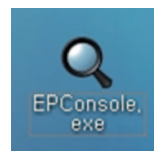


14. Turn the unit off (STANDBY mode) and unplug the AC cord.  
Disconnect the FFC cable.

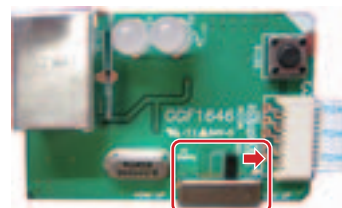
### for CEC microcomputer

15. Unplug the AC cord.  
Start up the application EPConsole on the PC.

When the PC and the Upgrade Jig are connecting, the COM PORT is set automatically.

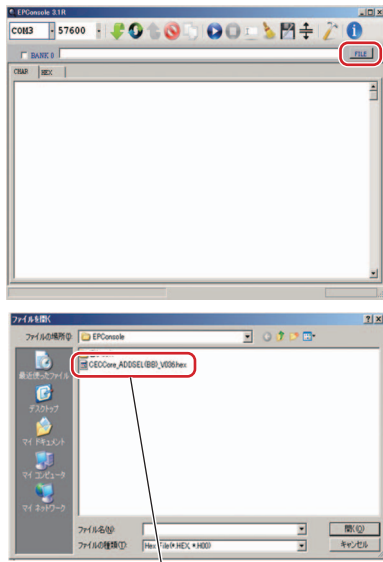


16. Select "CEC UP" on the Upgrade Jig.



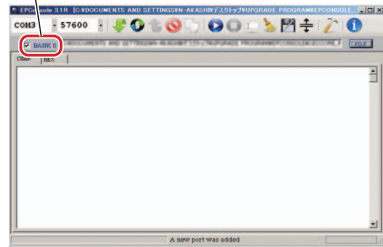
Connect the PC and the Upgrade Jig.  
Connect the FFC cable. (CEC microcomputer)  
Plug the AC cord. (STANDBY mode)

17. Select the update file. Press the "FILE" button.

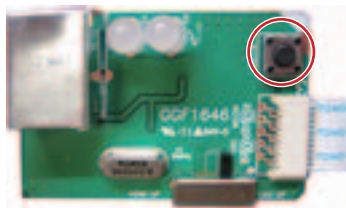


Select "CECCore\_ADDSEL(BB)\_V\*\*\*.hex" file to update MCU.

When the update file is selecting, the check box is automatically on.

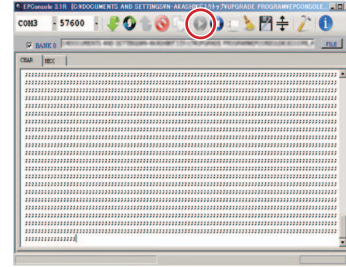


18. While holding down the tact switch of the Upgrade Jig, press STANDBY/ON button.  
After 2 or 3 seconds, release the tact switch button.

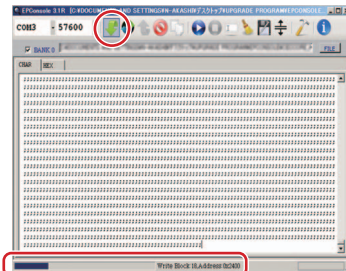


19. Press the  button.

PC's monitor is appeared the below display. By this display, you understand that the PC and the product are communicating.

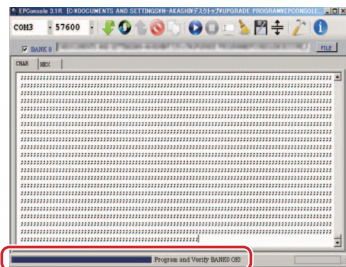


20. Press the  button to update the firmware.

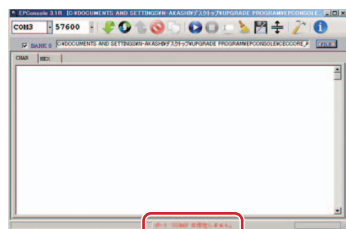


Rate of the progression is appeared.

21. Update Finished CEC microcomputer.



If the following messages are displayed, shut the update program down, and start the update again from step 15.

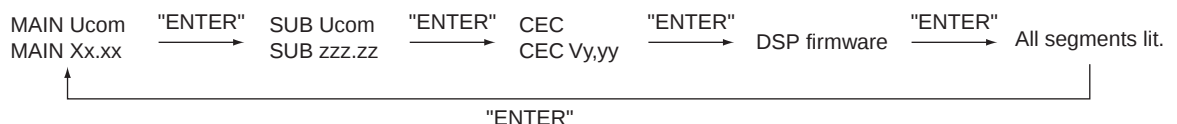


22. Turn the unit off (STANDBY mode) and unplug the AC cord. Disconnect the FFC cable.

### Check to the software version of MAIN, HDMI (SUB) and CEC microcomputers

23. Make sure that the main unit is in STANDBY mode.

Press and hold the "ENTER" and "STANDBY/ON" keys, then press the "ENTER" key to display each UCOM version.  
Each time the "ENTER" key is pressed, then indications on the FL display change as follows:



24. Turn the unit off.

A ■ **DSP firmware update**

**[Procedures]**

1. Select TV fucntion, and, with Signal select as OPTICAL1 then set the unit to STBY\_Off mode.
2. Press the SPEAKERS and STANDBY/ON keys simultaneously to enter DSP UpDate mode. ("DSP UP" is displayed.)
3. When "PLAY" is displayed, playback of the .wav file starts. (Play the file only once. NEVER repeat playback.) ("PLAY" is displayed.)
4. After playback is finished and "ENTER" is displayed, press the ENTER key on the front panel. ("ENTER" is displayed.)
5. "WRITING" is automatically displayed.
6. After writing is completed, "COMPLETE" is displayed.
7. Turn the unit off then confirm that the version has been updated.

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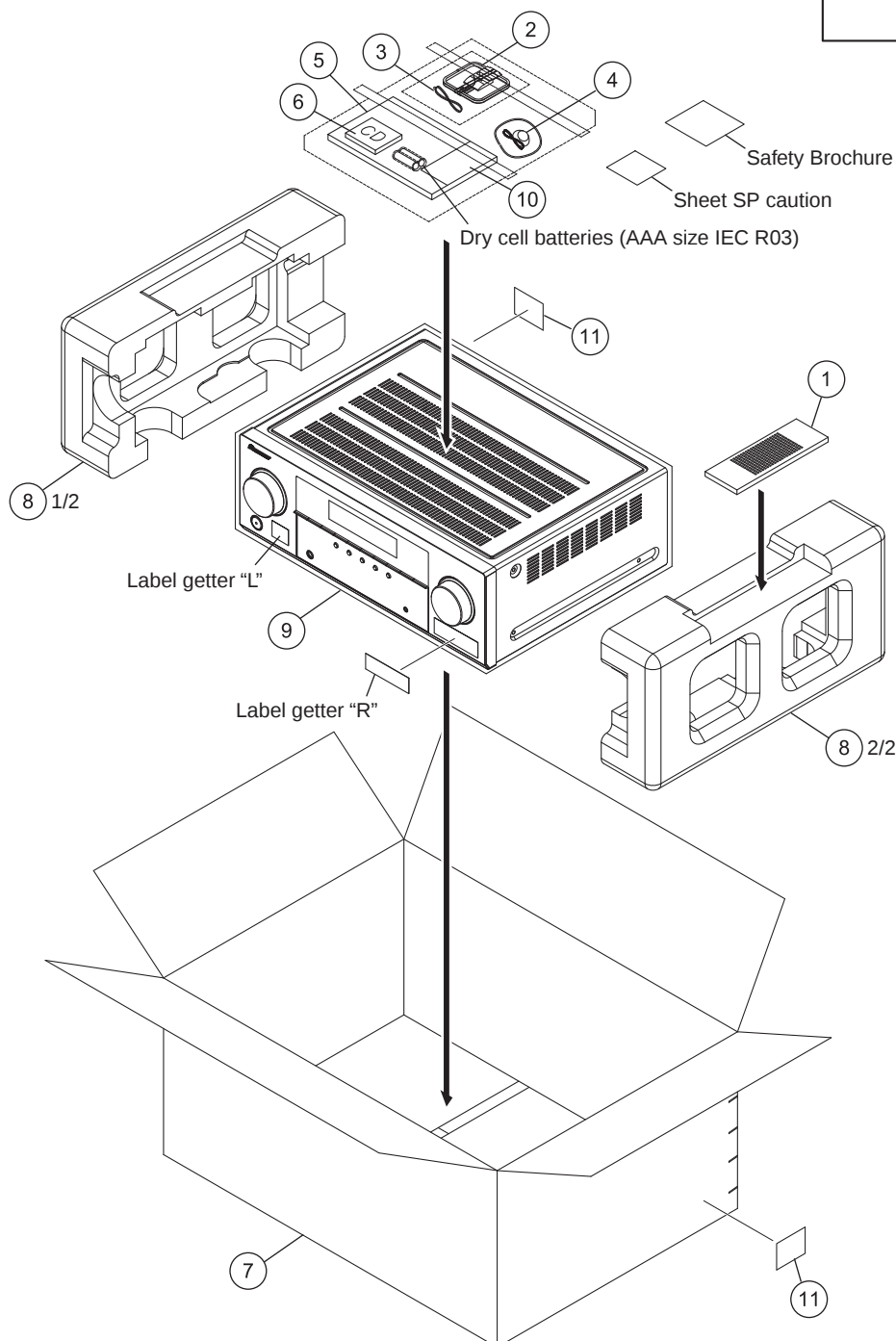
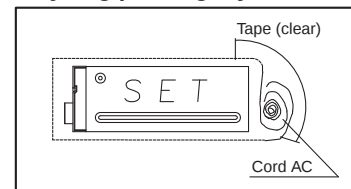


# 9. EXPLODED VIEWS AND PARTS LIST

- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - Screws adjacent to  $\nabla$  mark on product are used for disassembly.
  - For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)

## 9.1 PACKING SECTION

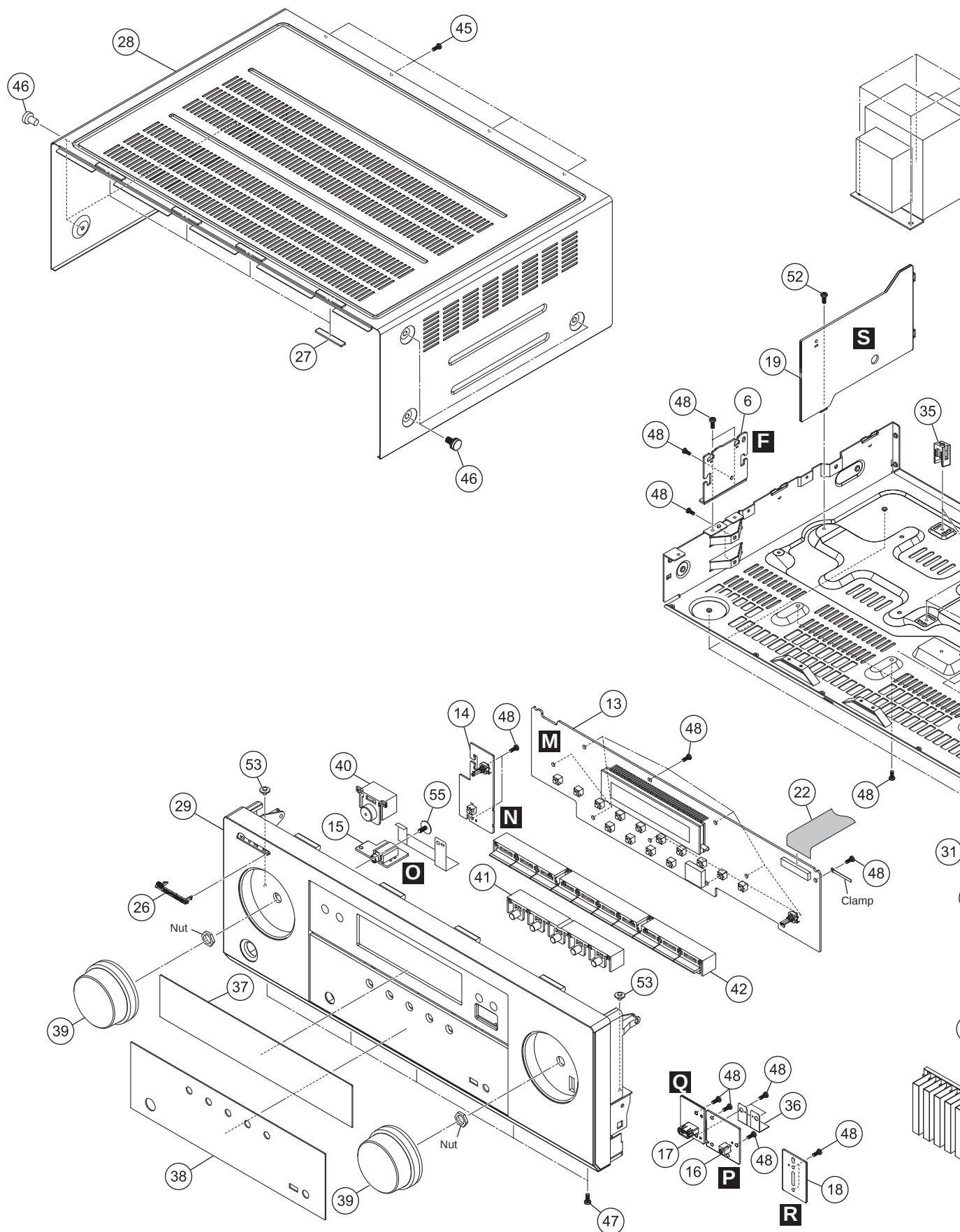
Poly bag packing style





△

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## EXTERIOR SECTION PARTS LIST

|   | <u>Mark No.</u> | <u>Description</u>    | <u>Part No.</u>   | <u>Mark No.</u> | <u>Description</u> | <u>Part No.</u>  |
|---|-----------------|-----------------------|-------------------|-----------------|--------------------|------------------|
| A | 1               | AUDIO Assy            | 7028071641060-IL  | 46              | Screw              | BBT40P080FTB     |
|   | 2               | AMP5 Assy             | 7028070243010-IL  | 47              | Screw              | BBZ30P080FTB     |
|   | 3               | MAIN Assy             | 7028071611060-IL  | 48              | Screw              | BBZ30P080FTC     |
|   | 4               | D-MAIN Assy           | 7028071651010-IL  | 49              | Screw              | BBZ30P180FTC     |
|   | 5               | VIDEO Assy            | 7028071631010-IL  | 50              | Screw              | BSZ30P040FTB     |
|   | 6               | G-L Assy              | 7028071615060-IL  | 51              | Screw Tapping Assy | B018230141H11-IL |
|   | 7               | G-R Assy              | 7028071614060-IL  | 52              | Screw, Tap Tite    | B020230063B10-IL |
|   | 8               | WG-B Assy             | 7028071617060-IL  | 53              | Screw              | 1500001206010-IL |
|   | 9               | WG-A Assy             | 7028071616060-IL  | 54              | Screw              | B028940101B11-IL |
|   | 10              | BRG-A Assy            | 7028071633010-IL  | 55              | Screw              | 1500001456010-IL |
| B | 11              | BRG-B Assy            | 7028071634010-IL  |                 |                    |                  |
|   | 12              | BRG-C Assy            | 7028071635010-IL  |                 |                    |                  |
|   | 13              | FRONT Assy            | 7028071621060-IL  |                 |                    |                  |
|   | 14              | INSEL Assy            | 7028071623060-IL  |                 |                    |                  |
|   | 15              | HP Assy               | 7028071622060-IL  |                 |                    |                  |
|   | 16              | MIC Assy              | 7028071624060-IL  |                 |                    |                  |
|   | 17              | F-USB Assy            | 7028071625060-IL  |                 |                    |                  |
|   | 18              | WG Assy               | 7028071627060-IL  |                 |                    |                  |
|   | 19              | STBY Assy             | 7028071632010-IL  |                 |                    |                  |
|   | 20              | Cord Assy             | L068125101710-IL  |                 |                    |                  |
| C | 21              | Power Trans 522CU     | 8200960611230-IL  |                 |                    |                  |
|   | 22              | Cable Flat Card 1.0   | N711231712480-IL  |                 |                    |                  |
|   | 23              | Transistor            | J5011560Y0000-IL  |                 |                    |                  |
|   | 24              | Semi, TR/GE NPN 2SC   | J502396400010-IL  |                 |                    |                  |
|   | 25              | Transistor            | J5032390Y0000-IL  |                 |                    |                  |
|   | 26              | Pioneer Badge B (PLS) | XAM3006           |                 |                    |                  |
|   | 27              | Sheet                 | 1210210235000-IL  |                 |                    |                  |
|   | 28              | Cabinet VSX-522       | 3007212006000-IL  |                 |                    |                  |
|   | 29              | Front Panel 522CU     | 3067215481000-IL  |                 |                    |                  |
|   | 30              | Back Chassis 522CU    | 3207214176000S-IL |                 |                    |                  |
| D | 31              | Foot (PLS)            | 4000210391000-IL  |                 |                    |                  |
|   | 32              | Bracket               | 4010056906010-IL  |                 |                    |                  |
|   | 33              | Cushion               | 4050211605000-IL  |                 |                    |                  |
|   | 34              | Screw Cover           | 4050211745100-IL  |                 |                    |                  |
|   | 35              | Support               | 4070001601010-IL  |                 |                    |                  |
|   | 36              | USB Mic Plate 522     | 4470212416000-IL  |                 |                    |                  |
|   | 37              | Window 522CU Upper    | 5077213113080-IL  |                 |                    |                  |
|   | 38              | Window 522CU Lower    | 5077213123300-IL  |                 |                    |                  |
|   | 39              | Knob                  | 5080212431000-IL  |                 |                    |                  |
|   | 40              | Button                | 5090213741100-IL  |                 |                    |                  |
| E | 41              | 5 Key Button          | 5090214561000-IL  |                 |                    |                  |
|   | 42              | 10 Key Button         | 5090214571000-IL  |                 |                    |                  |
|   | 43              | •••••                 |                   |                 |                    |                  |
|   | 44              | •••••                 |                   |                 |                    |                  |
|   | 45              | Screw                 | BBT30P100FTB      |                 |                    |                  |
| F |                 |                       |                   |                 |                    |                  |

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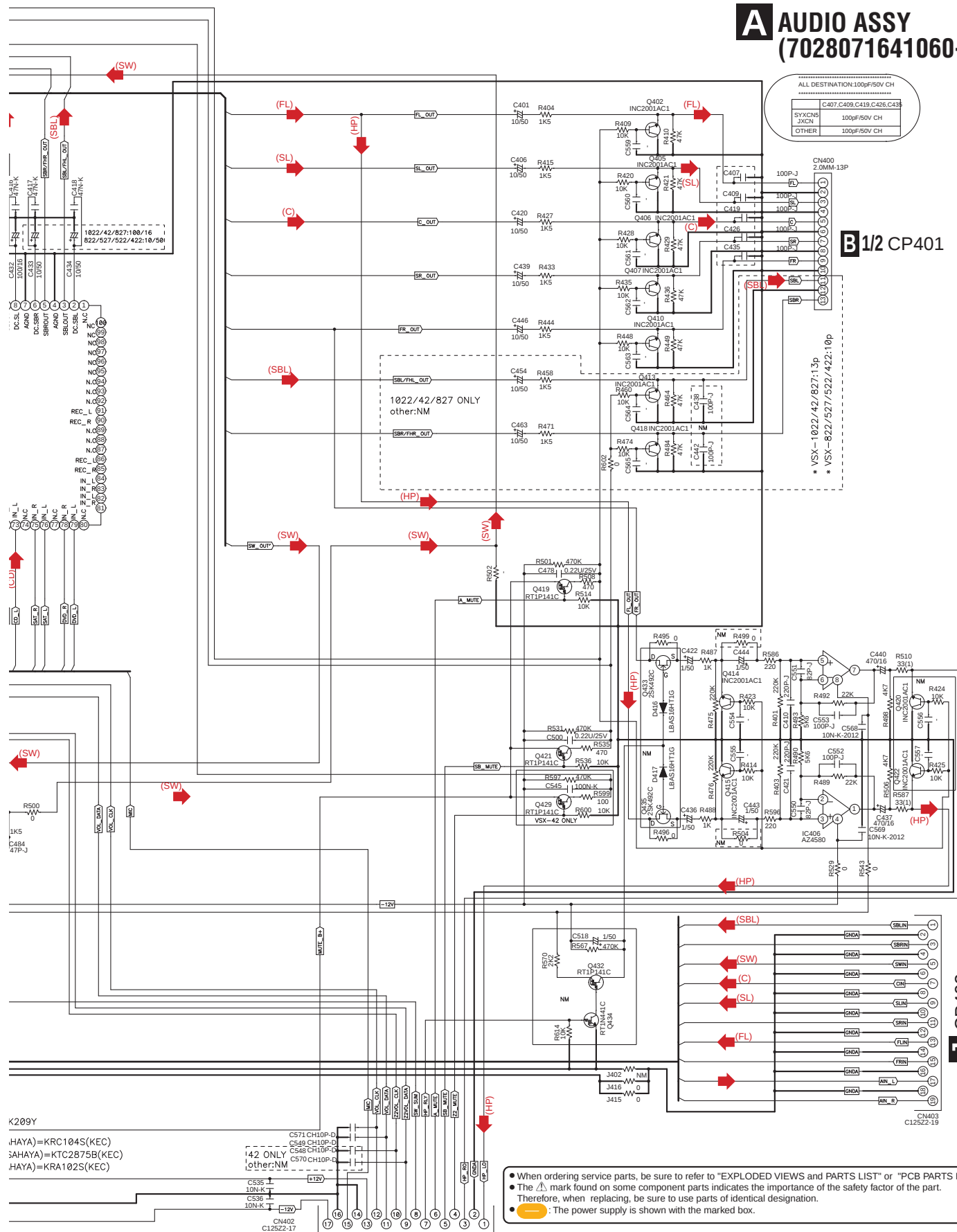
■

## 10.1 AUDIO ASSY



# **A** AUDIO ASSY (7028071641060-IL)

|                               |                              |
|-------------------------------|------------------------------|
| ALL DESTINATION: 100PF/50V CH | C407, C409, C419, C426, C435 |
| SYXCN                         | 100PF/50V CH                 |
| JXCN                          | 100PF/50V CH                 |
| OTHER                         | 100PF/50V CH                 |

**B** 1/2 CP401


- When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "PCB PARTS LIST".
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- $\Delta$  : The power supply is shown with the marked box.

**K** CP402

VSX-522-K

**A**

## 10.2 AMP5 ASSY (1/2)

### B 1/2 AMP5 ASSY (7028070243010-IL)

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B

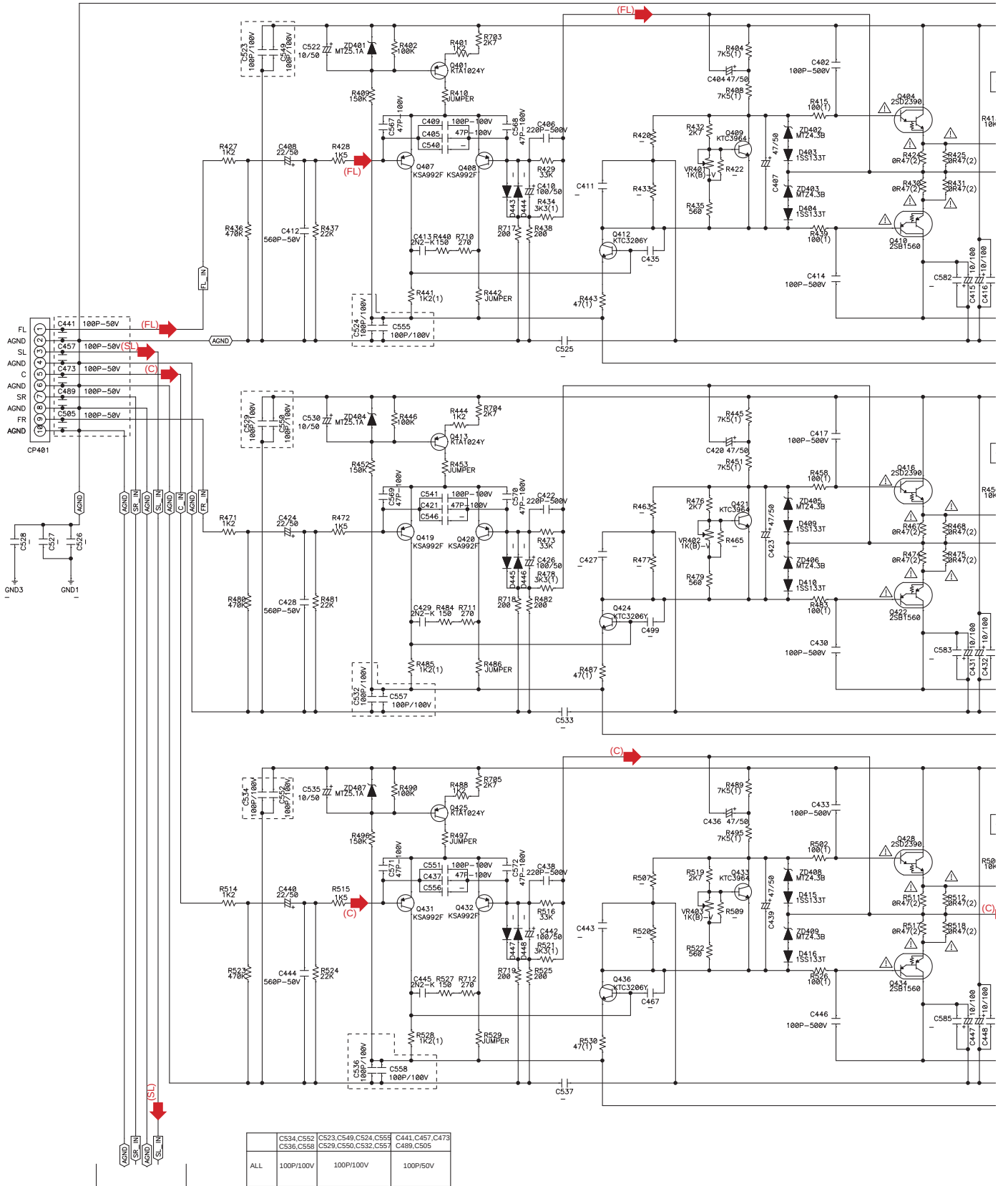
C

D

E

F

A CN400



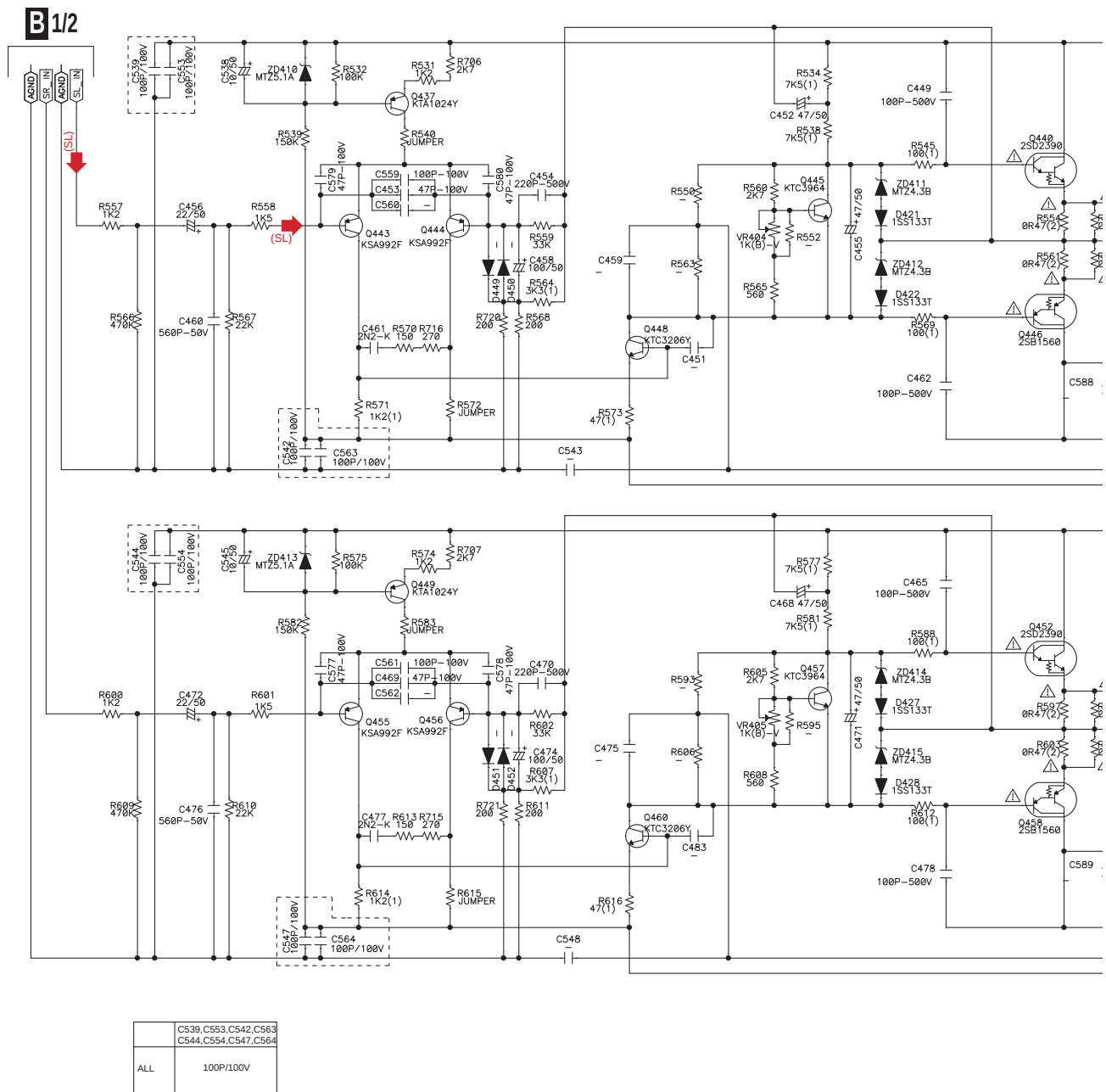
B 2/2

B 1/2



**B 2/2 AMP5 ASSY (7028070243010-IL)**

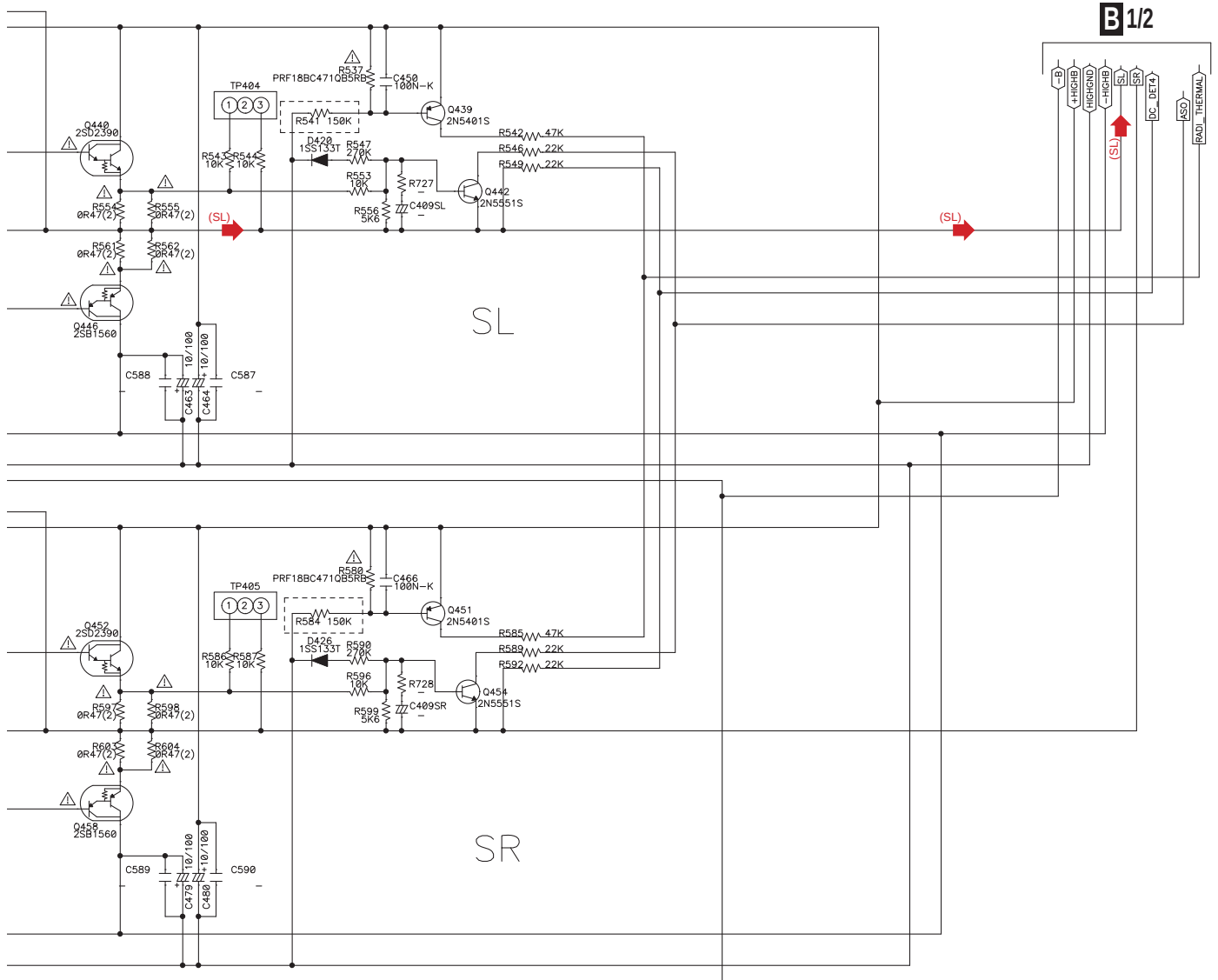
A



E

F

(SL) : Audio Signal Route (Surround L ch)

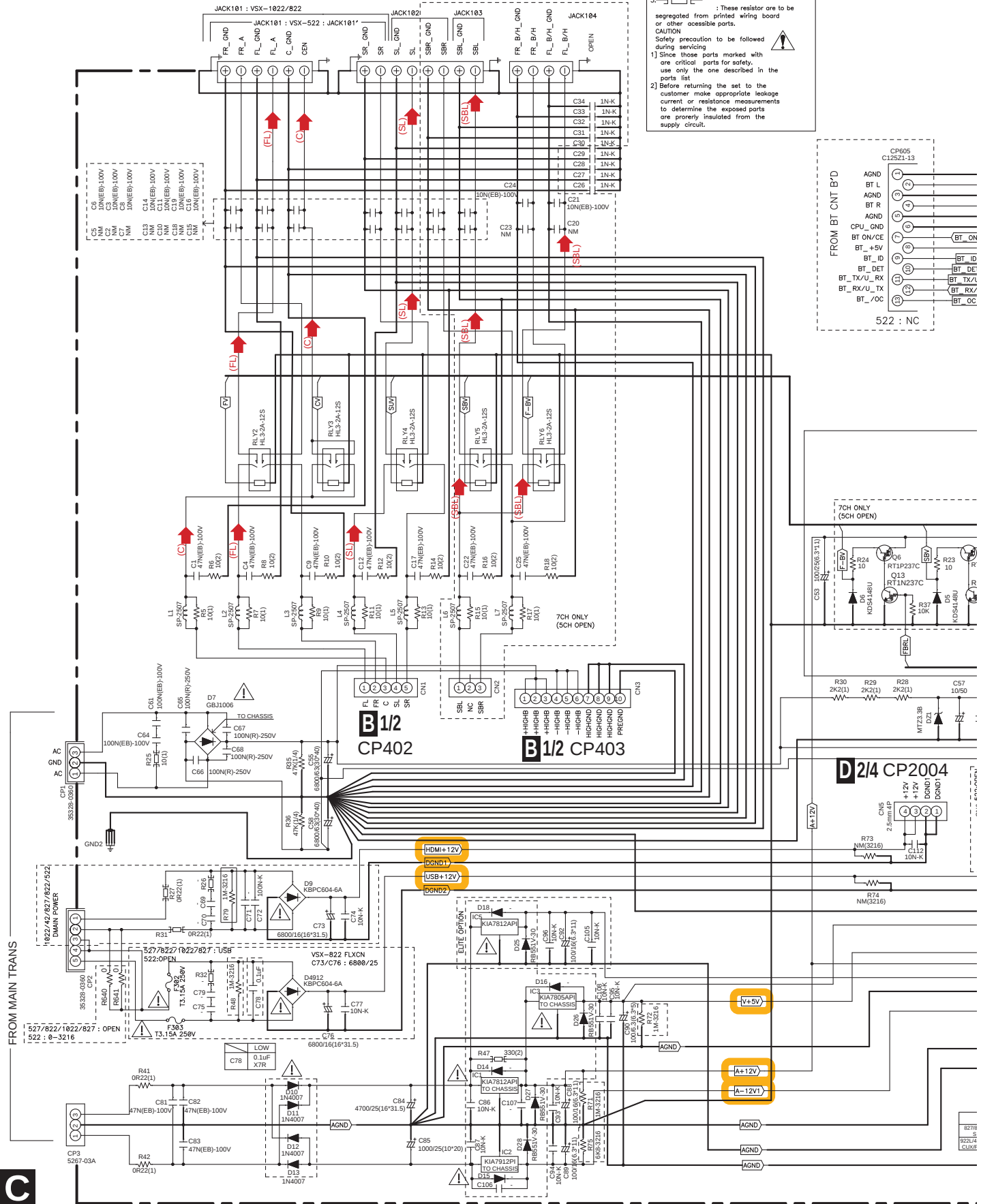
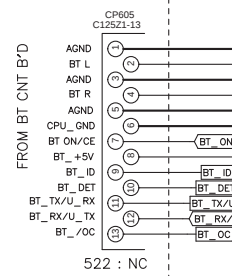


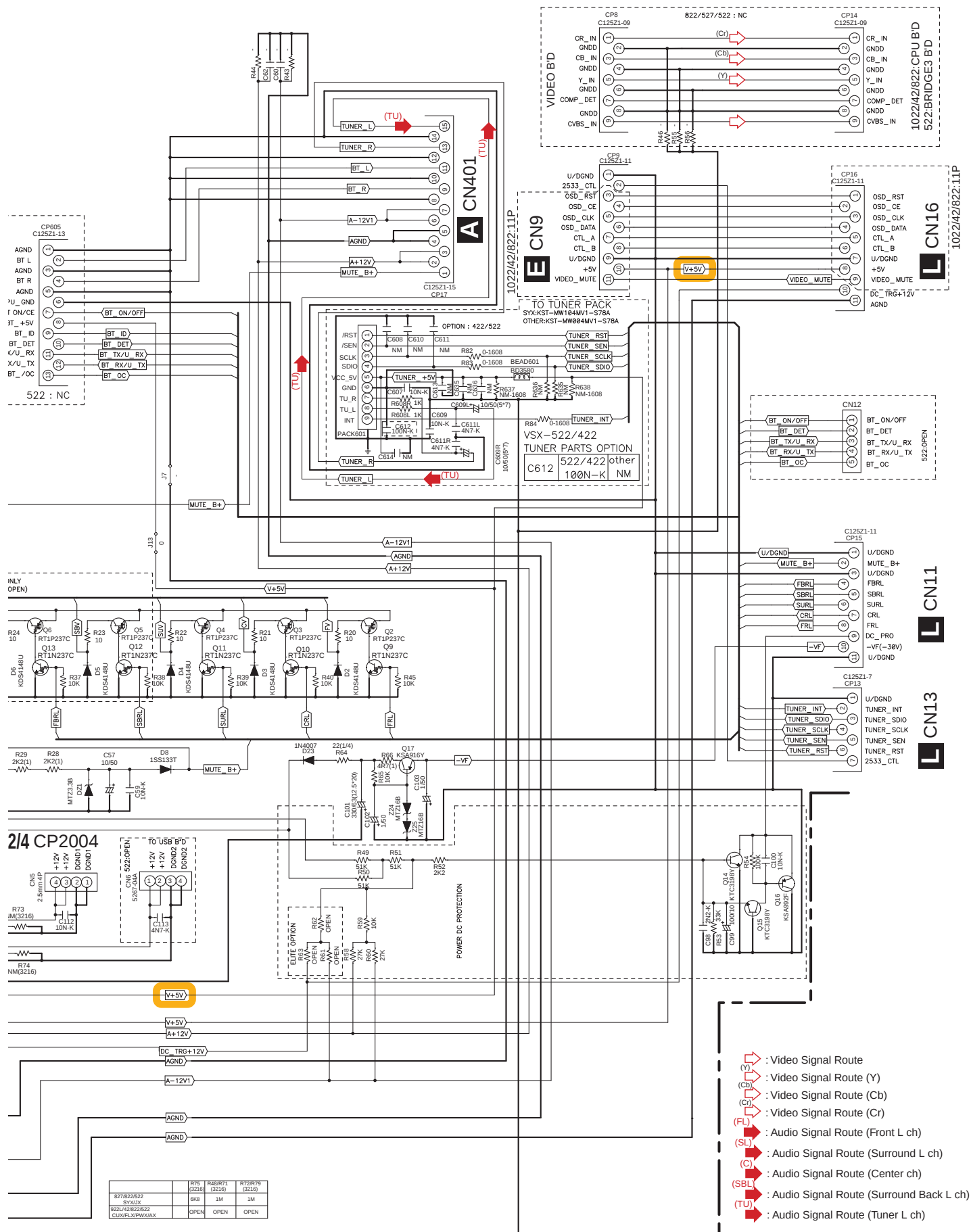
# 10.4 MAIN ASSY

## C MAIN ASSY (7028071611060-IL)

### SPEAKER TERMINAL

- NOTES
1. Resistor values are indicated in ohms unless otherwise specified.  
[ k = 1,000 m = 1,000,000 ]
  2. Capacitor values are indicated in microfarads unless otherwise specified.  
[ p = micro-microfarads ]
  3. : These resistor are to be segregated from printed wiring board or other accessible parts.  
CAUTION  
Safety precaution to be followed during servicing
- 1) Since those parts marked with are critical parts for safety, use only the one described in the parts list
- 2) Before returning the set to the customer, make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.



A  
B  
C  
D  
E  
F





# 10.6 D-MAIN ASSY (2/4)

A

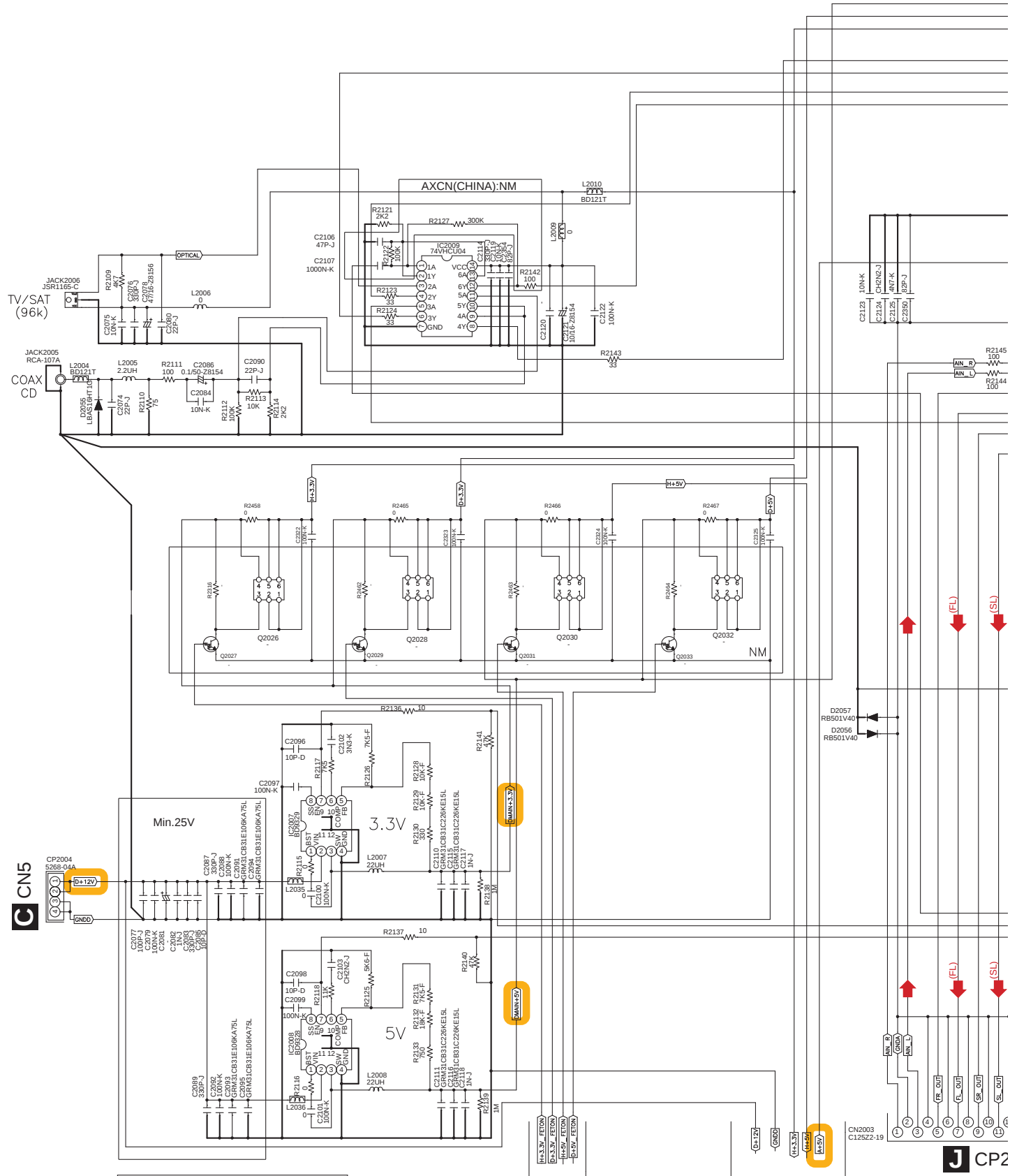
B

C

D

E

F



The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

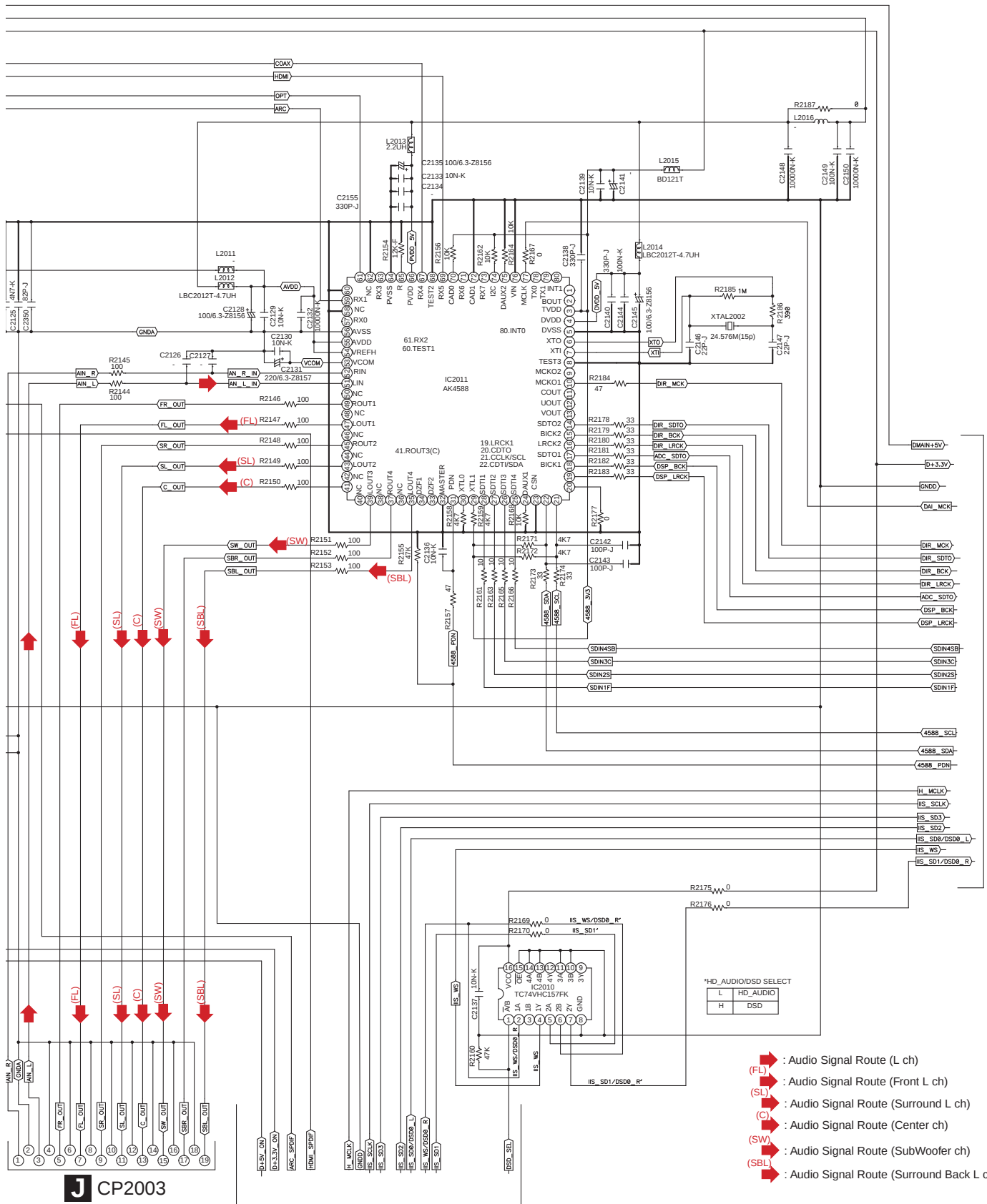
D 2/4

D 4/4

D 1/4

CP2

# D2/4 D-MAIN ASSY (7028071651010-IL)

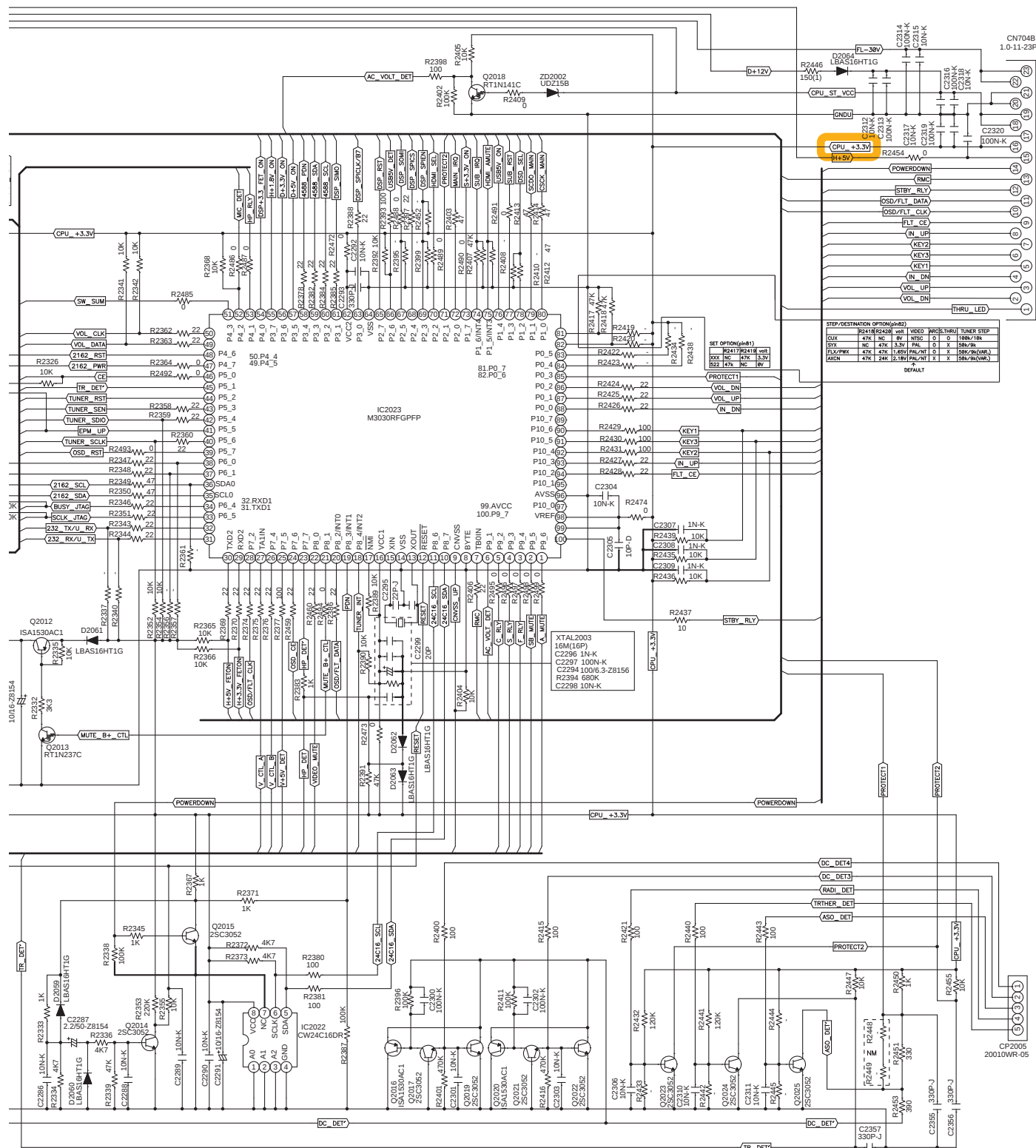


D3/4









The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

CAUTION  
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,  
REPLACE WITH SAME TYPE AND RATINGS OF FUSE.

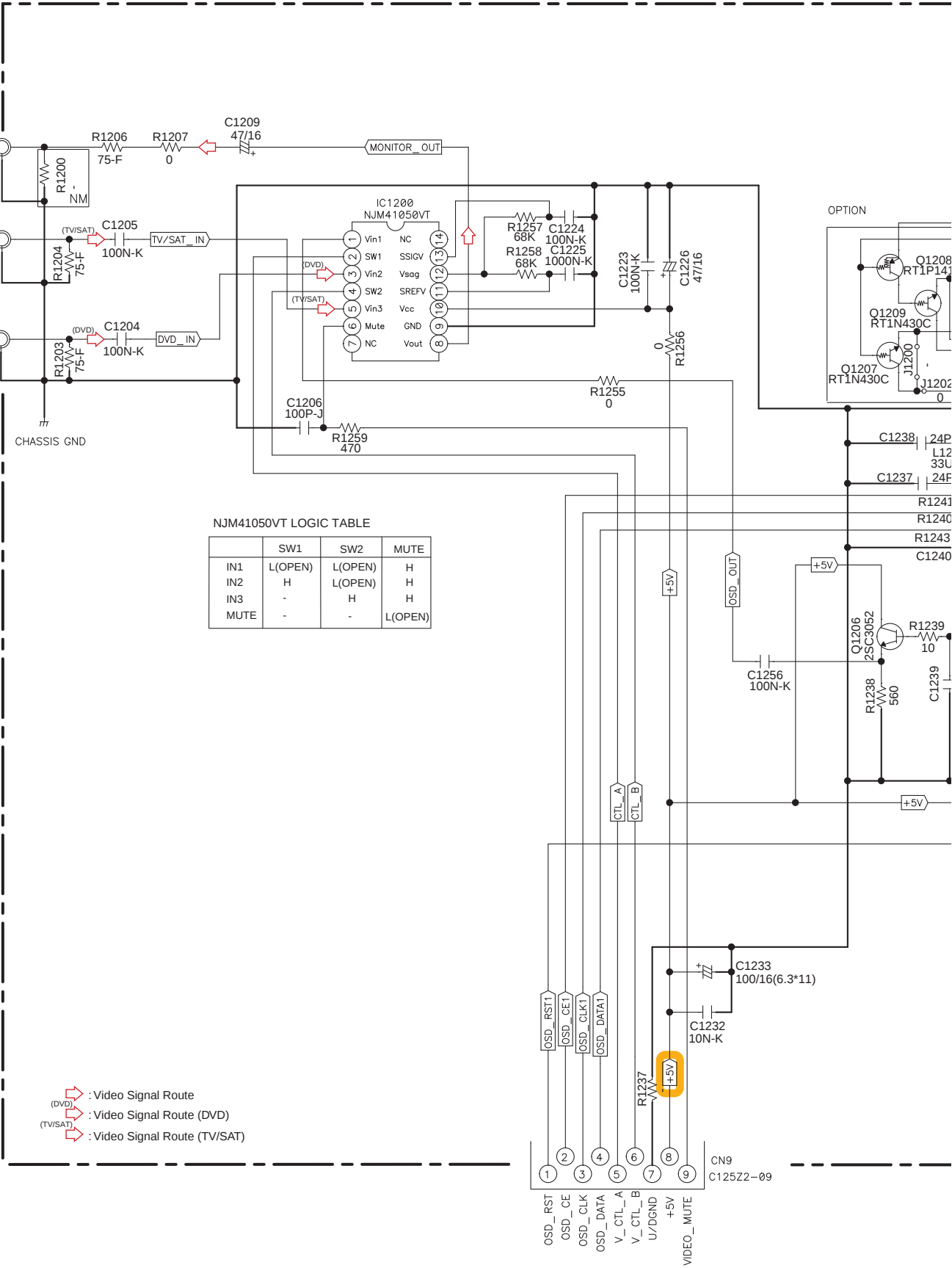
PROTECT1(SOFT)  
1.2<DC PROTECTION<2.68  
0.55<OVER PROTECTION<1.2  
(ASO PROTECTION)

**M** CN704AA

**B** 1/2 CN404

10.9 VIDEO, G-L, G-R, WG-B and WG-A ASSYS

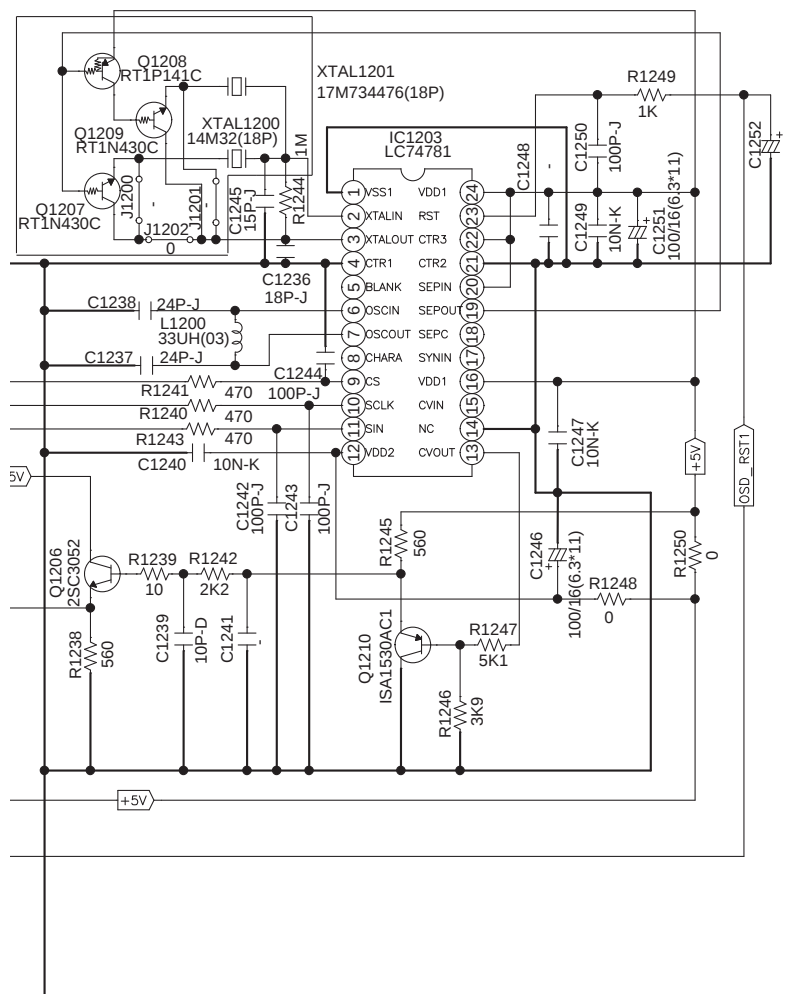
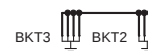
E VIDEO ASSY (7028071631010-IL)



\* OSD OPTION TABLE

| NO. | MODEL<br>REF. NO. | CUX/JX<br>(NTSC) | SYX<br>(PAL) | FLX/AX/PWX<br>(NTSC / PAL SELECT) |
|-----|-------------------|------------------|--------------|-----------------------------------|
| 1   | XTAL1200          | 14M318(18P)      | NM           | 14M318(18P)                       |
| 2   | J1200             | 0-1608           | NM           | NM                                |
| 3   | XTAL1201          | NM               | 17M734(18P)  | 17M734(18P)                       |
| 4   | J1201             | NM               | 0-1608       | NM                                |
| 5   | Q1207<br>Q1209    | NM               | NM           | RT1N430C                          |
| 6   | Q1208             | NM               | NM           | RT1P141C                          |
| 7   | J1202             | 0-1608           | NM           | 0-1608                            |

OPTION

**F G-L ASSY (7028071615060-IL)****G G-R ASSY (7028071614060-IL)****H WG-B ASSY (7028071617060-IL)****I WG-A ASSY (7028071616060-IL)**



## A



- C



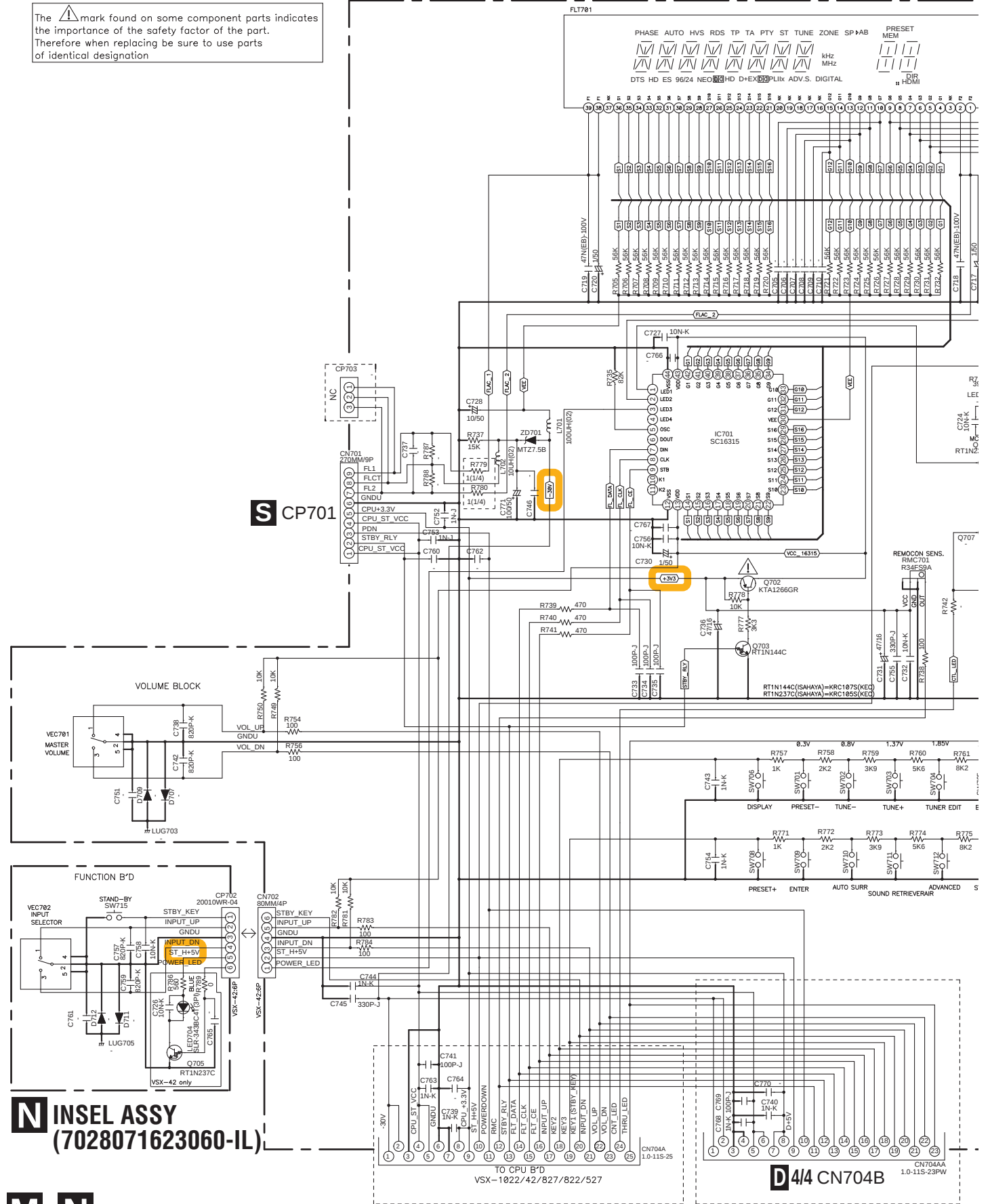
E

F

# 10.11 FRONT, INSEL, HP, MIC, F-USB and WG ASSYS

## FRONT ASSY (7028071621060-IL)

The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

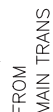


**M N**



△

**S**



**NOTES**

1. Resistor values are indicated in ohms unless otherwise specified  
[  $k = 1.000 \quad m = 1.000.000$  ]
2. Capacitor values are indicated in microfarades unless otherwise specified.  
[  $p = \text{micro-microfarades}$  ]

3.  : These resistor are to be segregated from printed wiring board or other accessible parts.

**CAUTION**

Safety precaution to be followed during servicing

- 1] Since those parts marked with are critical parts for safety, use only the one described in the parts list
- 2] Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

8

■

VSX-522-K

# 11. PCB CONNECTION DIAGRAM

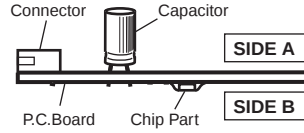
## 11.1 AUDIO ASSY

**SIDE A**

### NOTE FOR PCB DIAGRAMS :

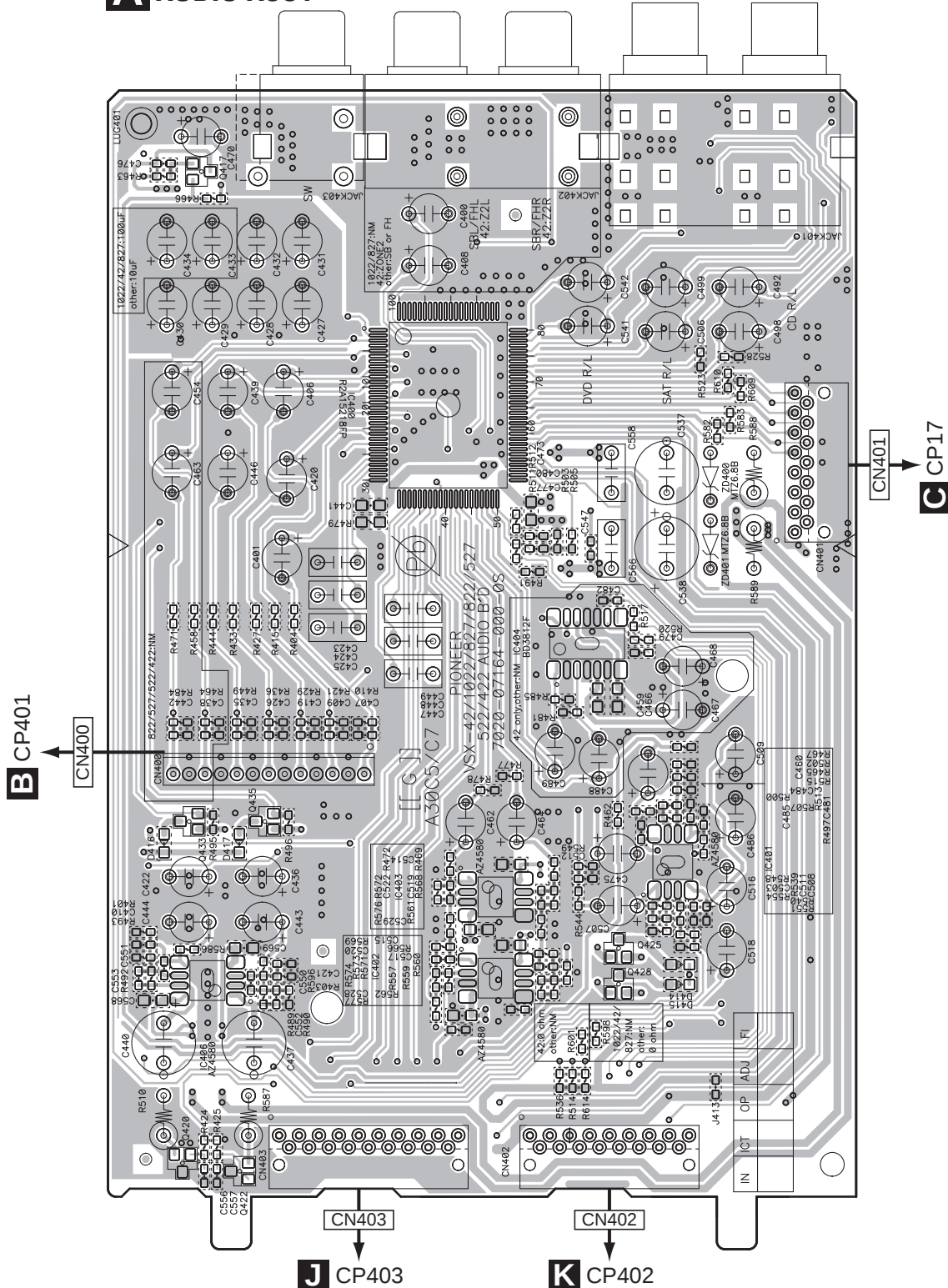
1. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

2. View point of PCB diagrams.



**SIDE A**

## A AUDIO ASSY



**A**



11.2 AMP5 ASSY

SIDE A

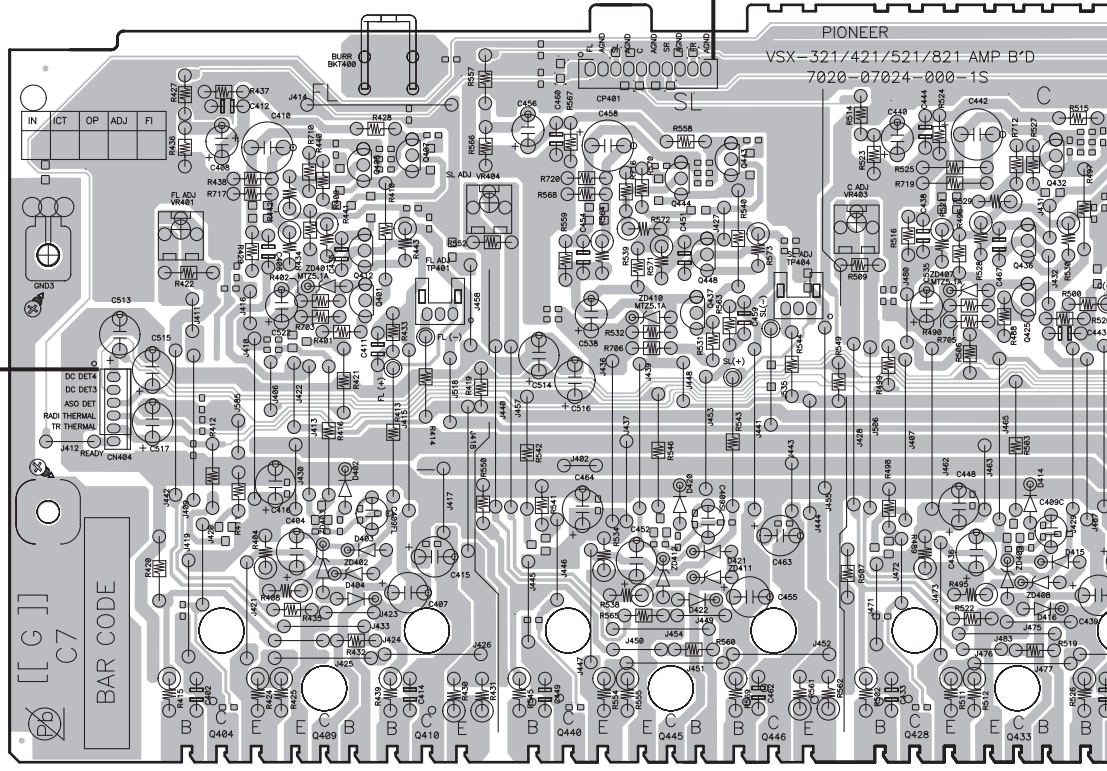
B AMP5 ASSY

D CP2005

CN404

CP401

A CN400



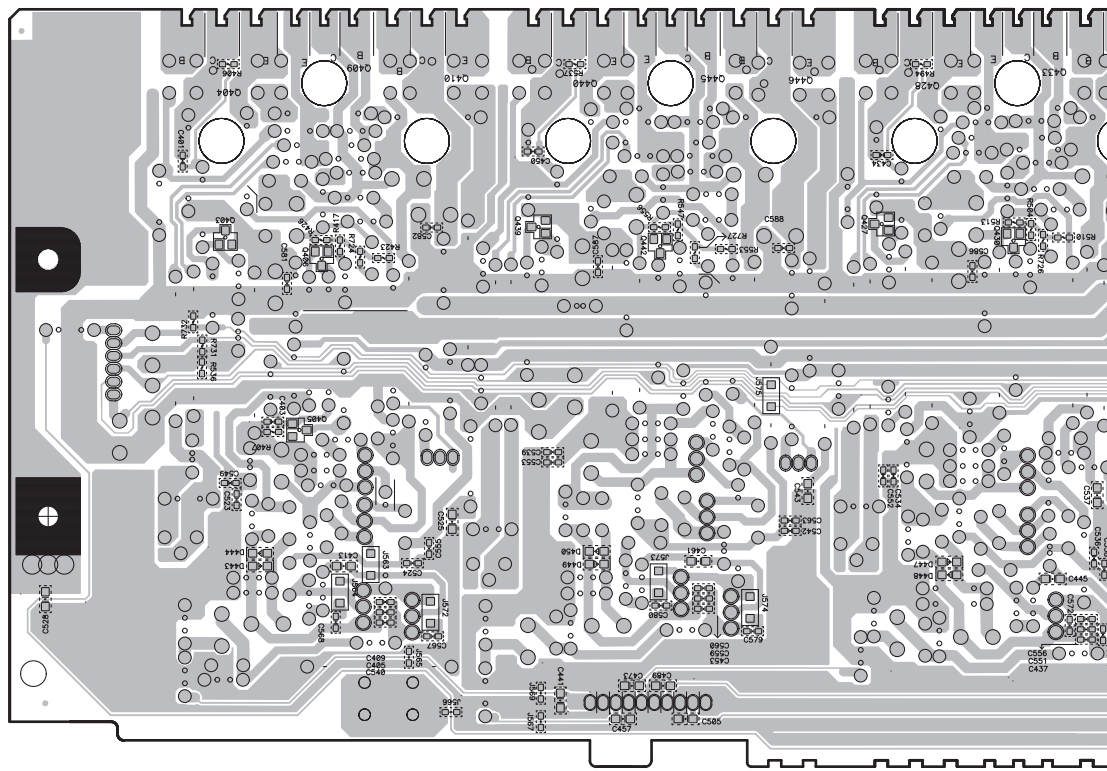
Q408 Q407 Q444 Q443 Q432  
Q412 Q409 Q448 Q436  
Q401 Q437 Q425  
Q404 Q445 Q446 Q428 Q443 Q

SIDE B

B AMP5 ASSY

CN404

CP401



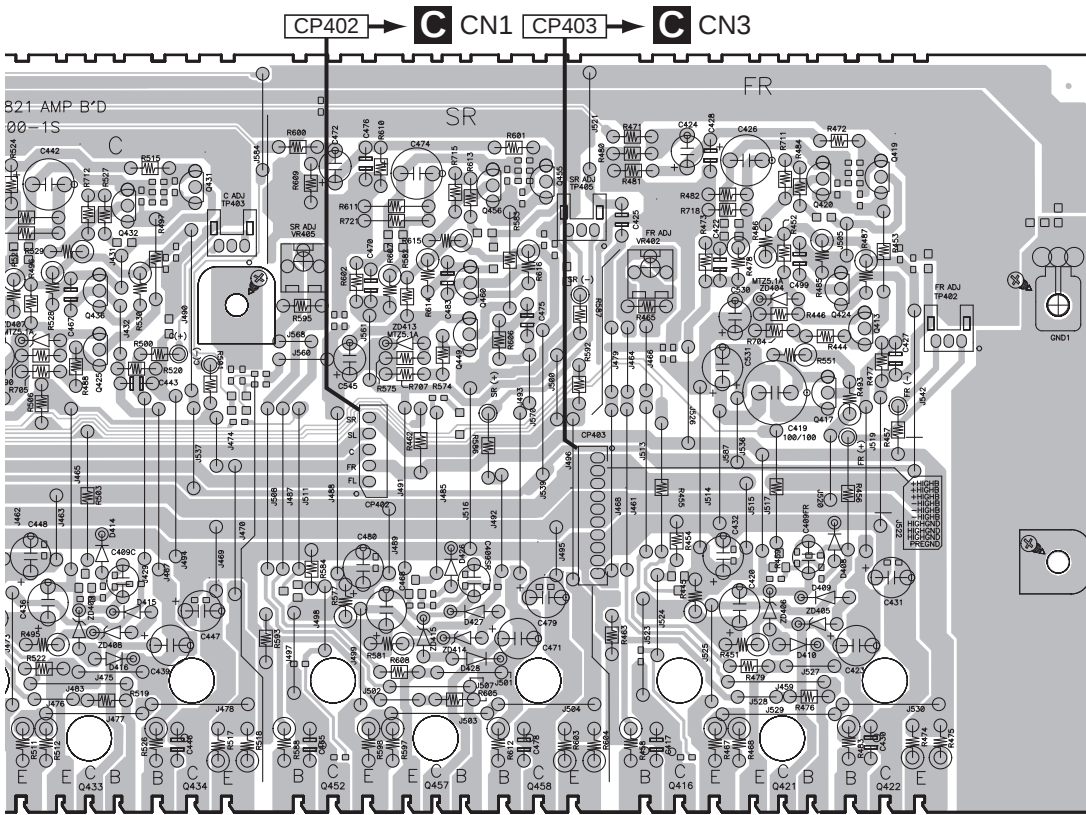
Q403 Q406 Q439 Q442 Q427 Q430

B  
90

VSX-522-K

SIDE A

A



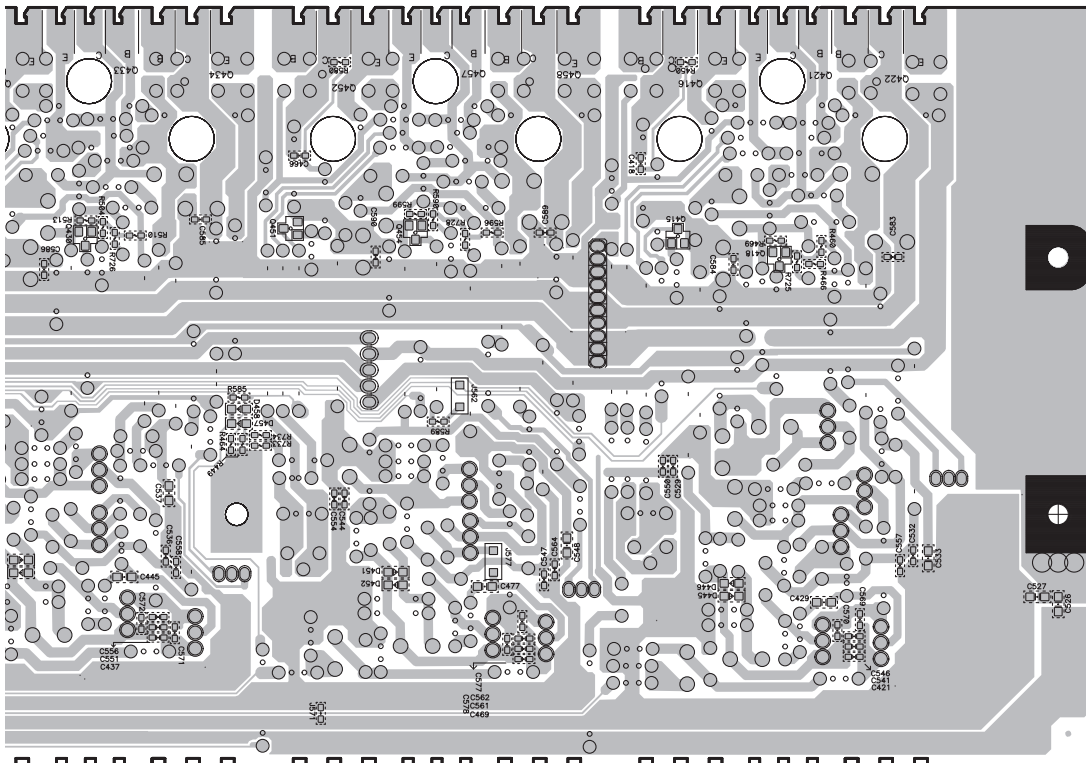
B

C

Q432 Q431 Q456 Q455 Q420 Q419  
 Q436 Q460 Q424  
 Q425 Q449 Q417 Q413  
 Q443 Q434 Q452 Q457 Q458 Q416 Q421 Q422

SIDE B

D



E

F

CP402 CP403  
 Q430 Q451 Q454 Q415 Q418

VSX-522-K

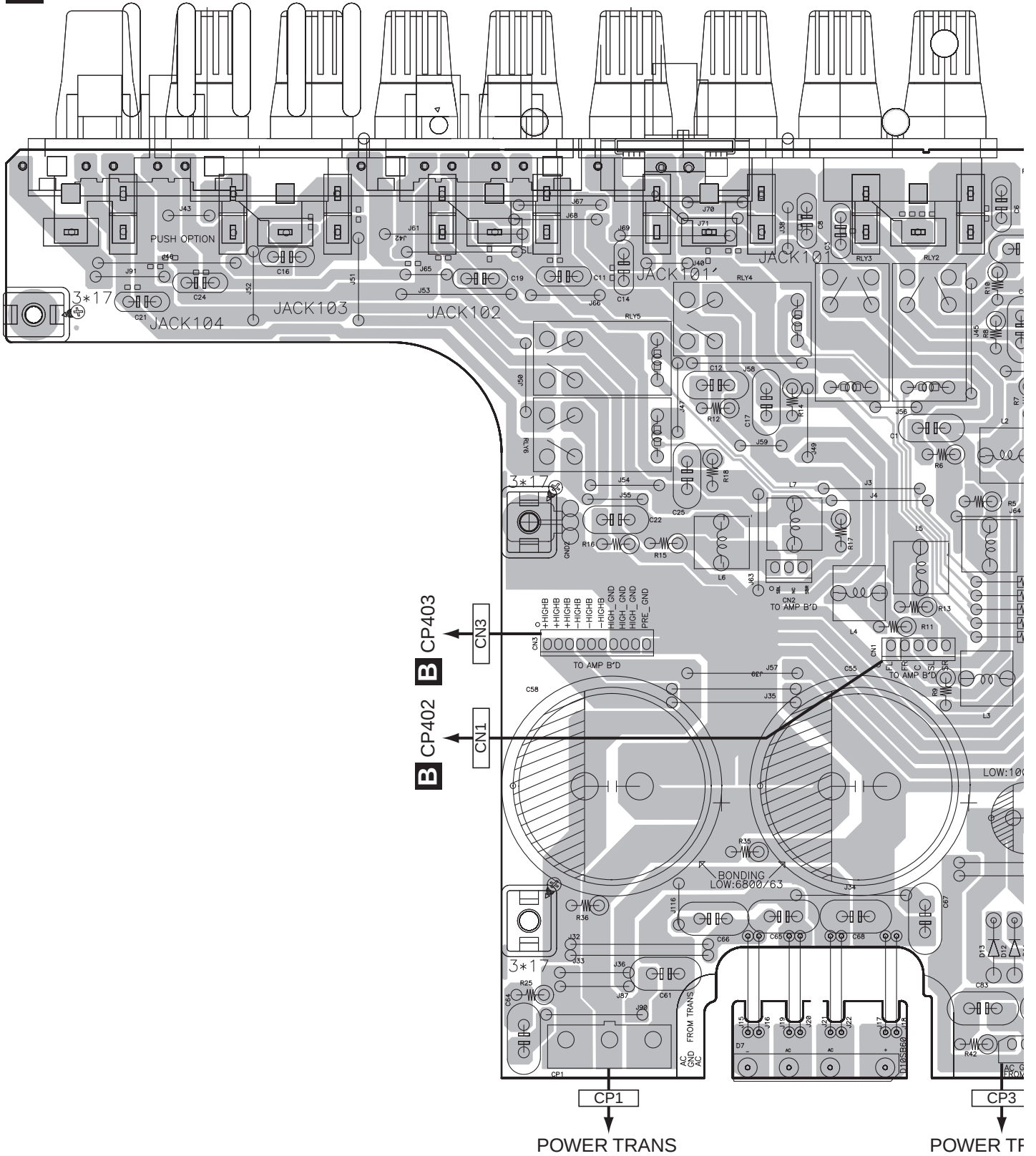
B

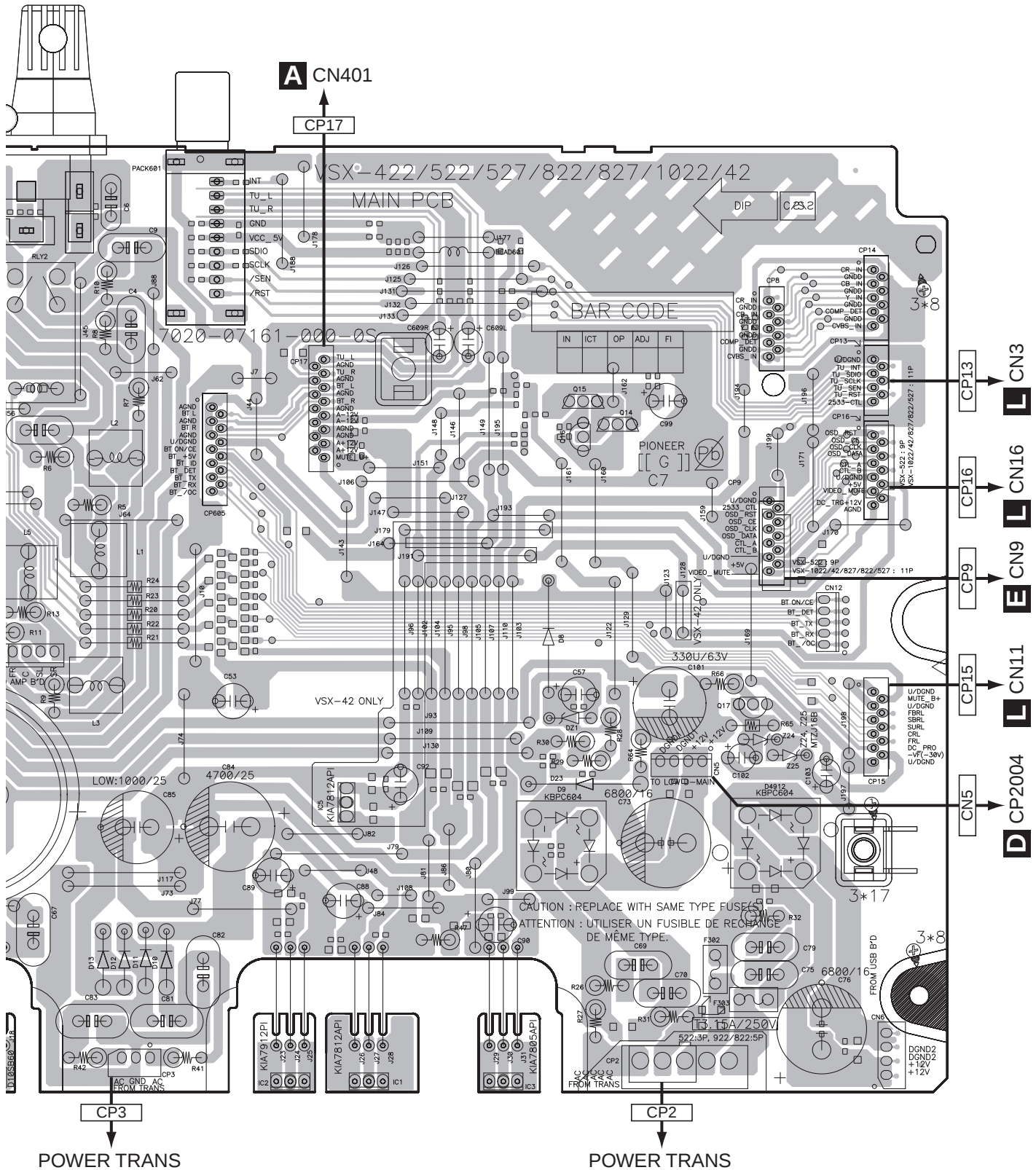
91

# 11.3 MAIN ASSY

SIDE A

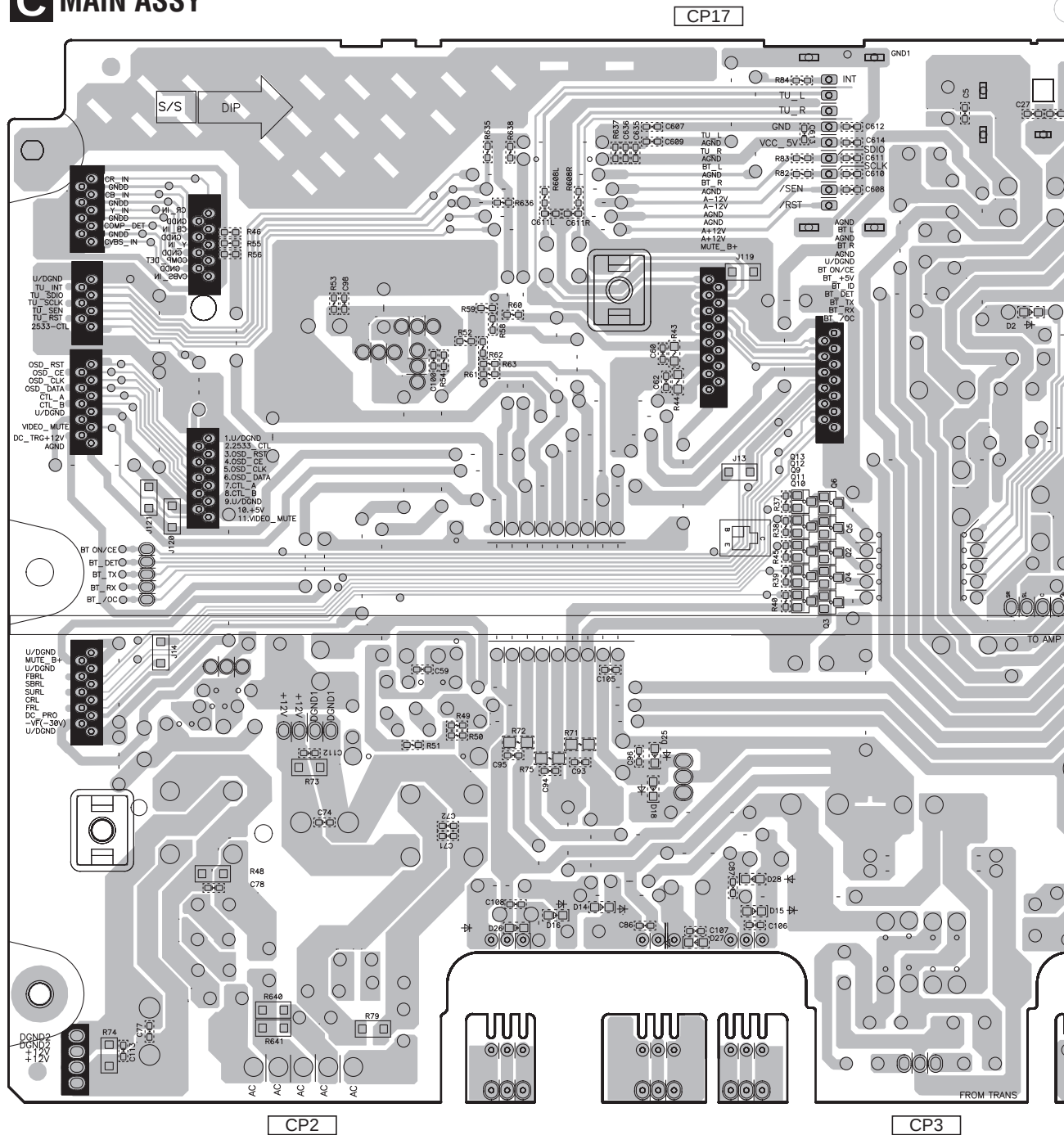
C MAIN ASSY





SIDE B

## C MAIN ASSY



Q9-Q13 Q2-Q6

C

94

VSX-522-K

SIDE B

A

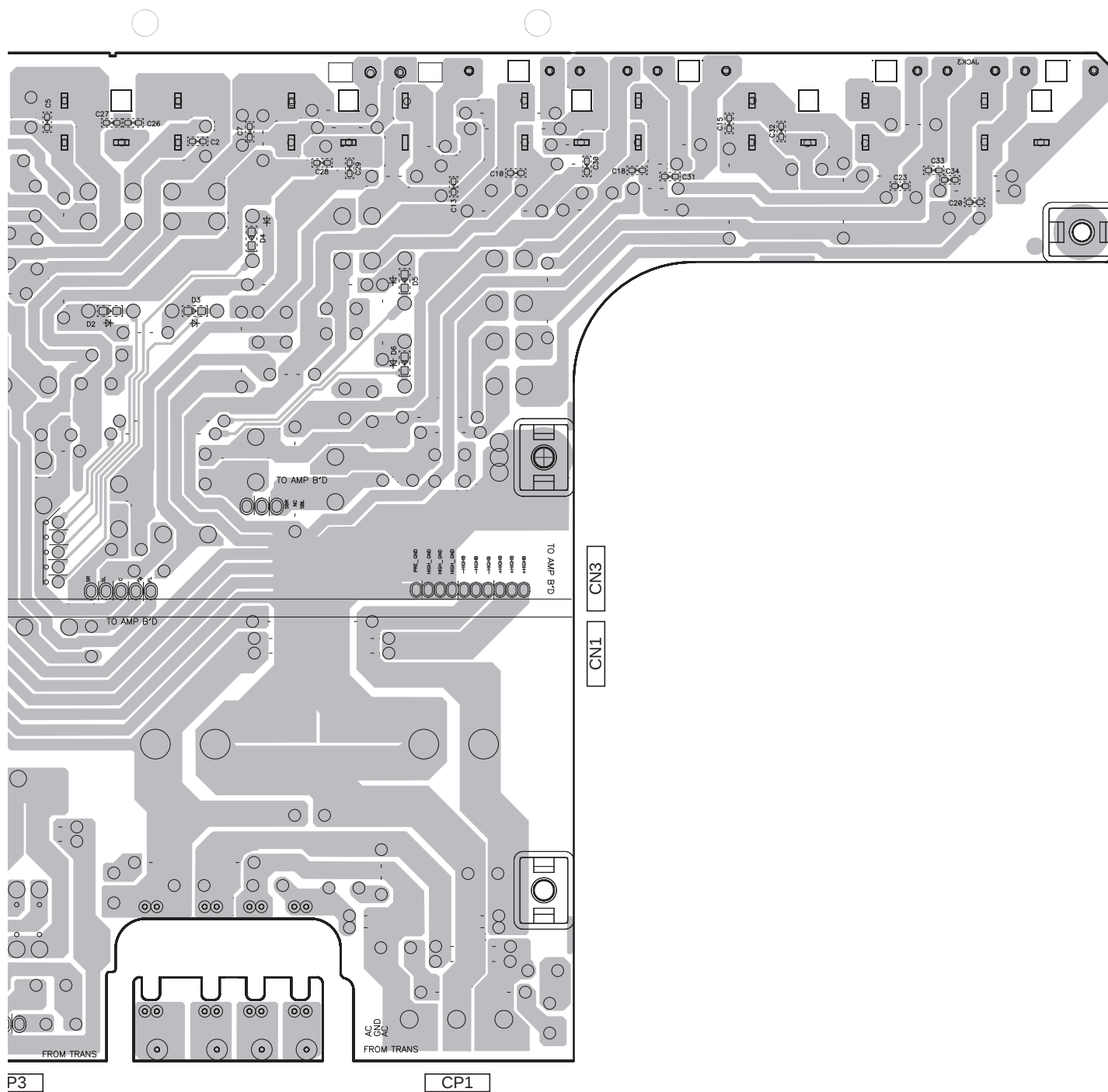
B

C

D

E

F



# 11.4 D-MAIN ASSY

SIDE A

**D** D-MAIN ASSY

**Q** CN2006

CP2006

CN2003

**J** CP2003

CP2004

**C** CN5

VSX-522-K



SIDE B

A

B

C

D

E

F

D D-MAIN ASSY

- IC2018
- IC2002
- IC2010
- Q2010
- Q2011
- Q2013
- Q2019
- Q2017
- Q2022
- Q2021
- IC2011
- Q2025
- Q2023
- Q2024

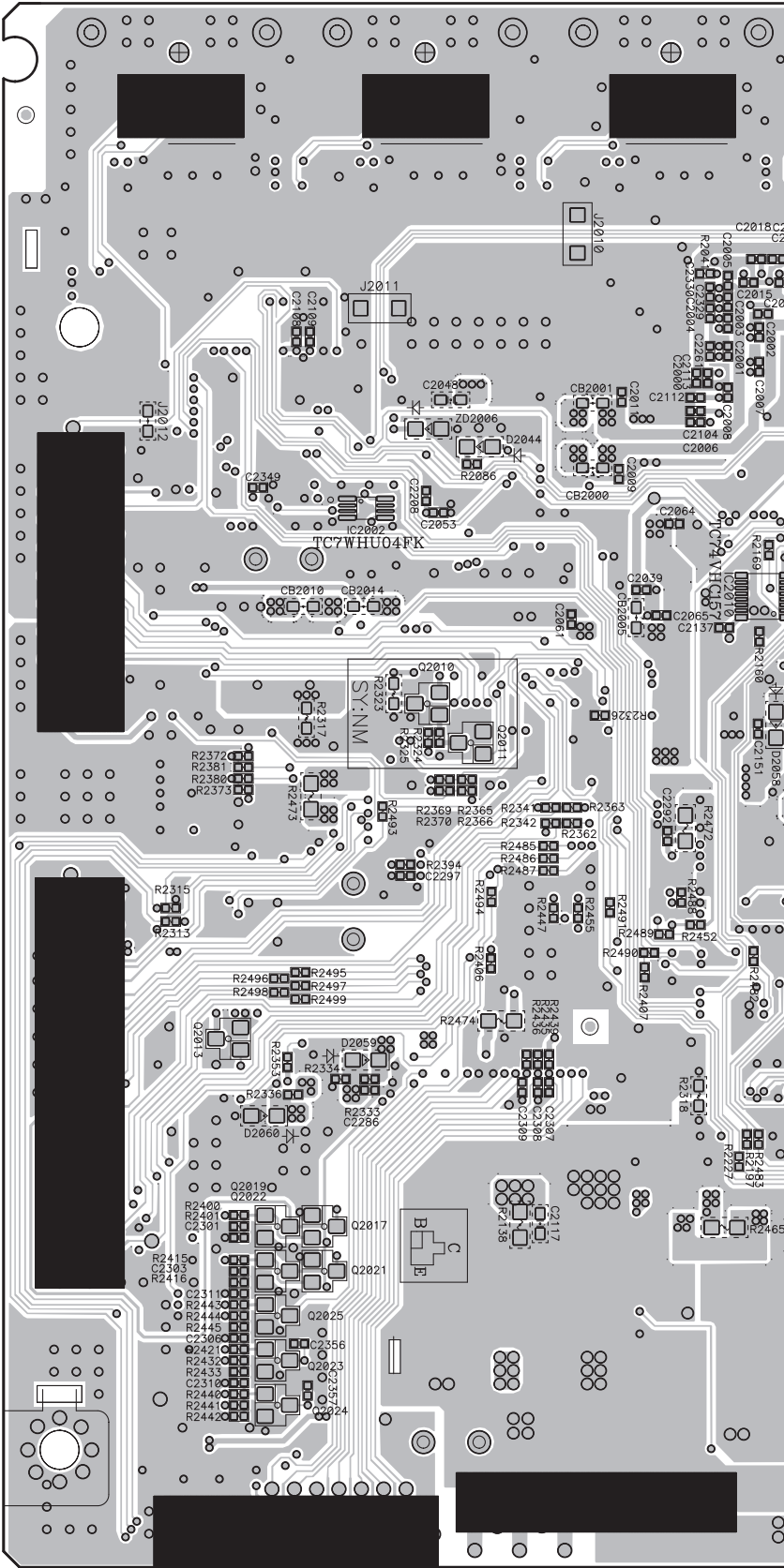
CN2002

CN2001

CN704B

CP2005

CP2004



D

SIDE B

A

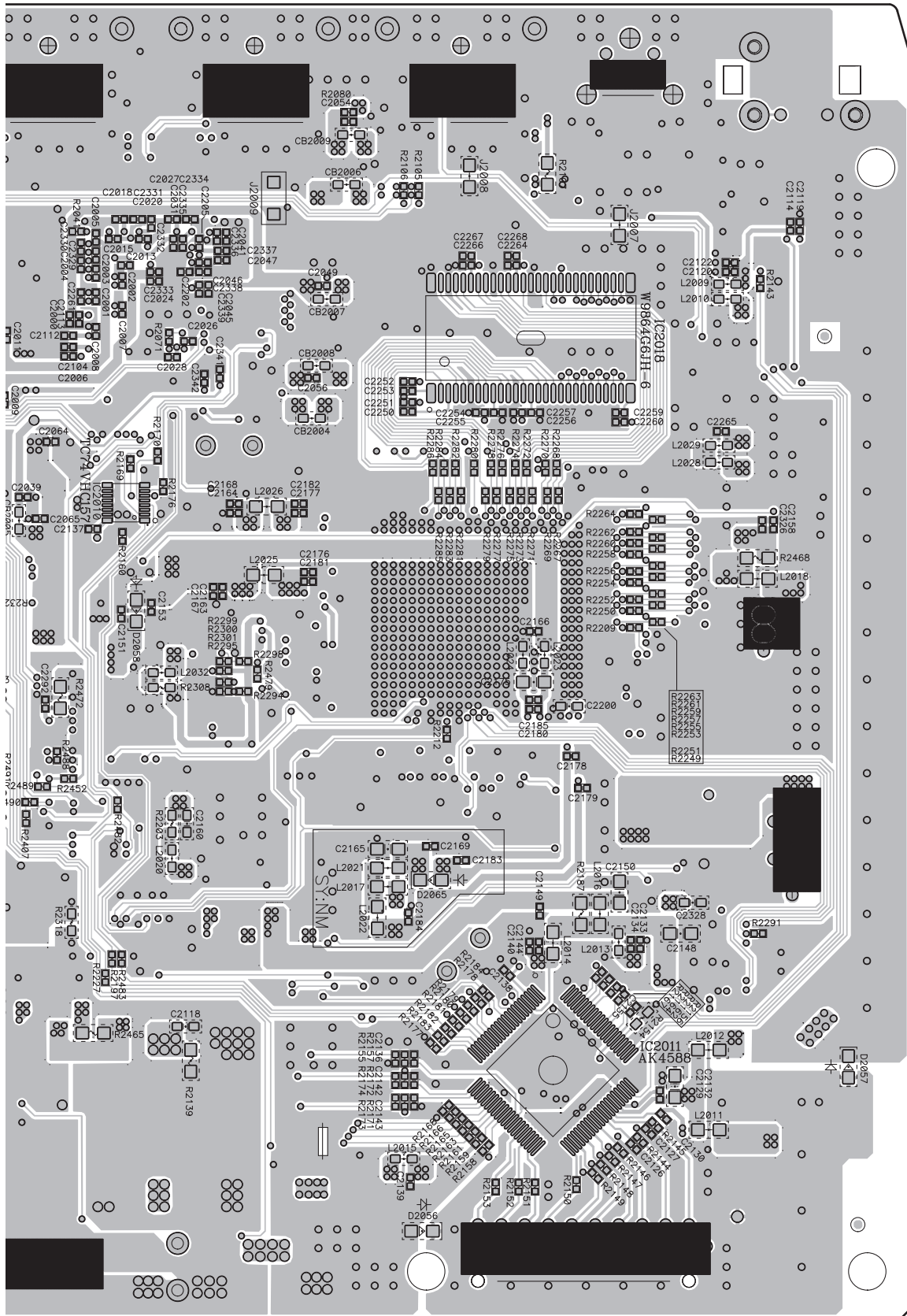
B

C

D

E

F



CP2000

CP2004

CN2003

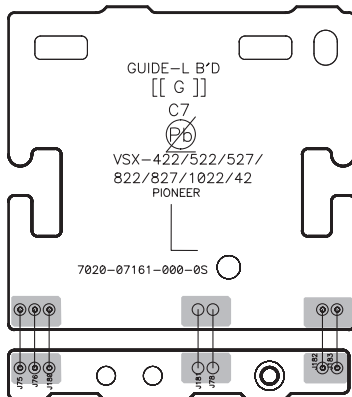
VSX-522-K



5 6 7 8

# 11.6 G-L, G-R, WG-B and WG-A ASSYS

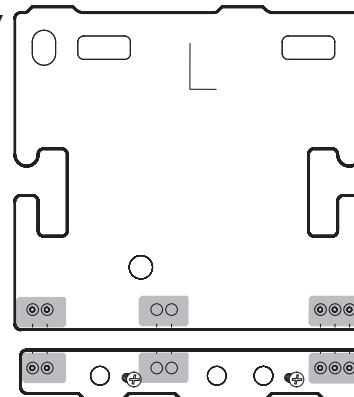
**SIDE A**



**F** G-L ASSY

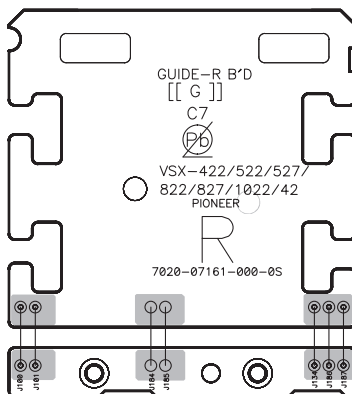
**SIDE B**

**F** G-L ASSY



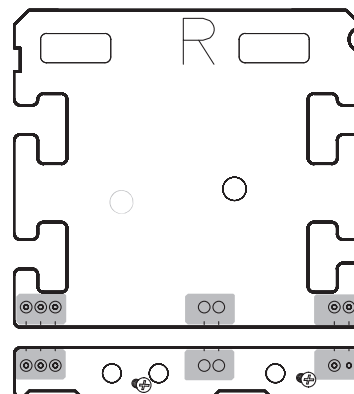
A

B



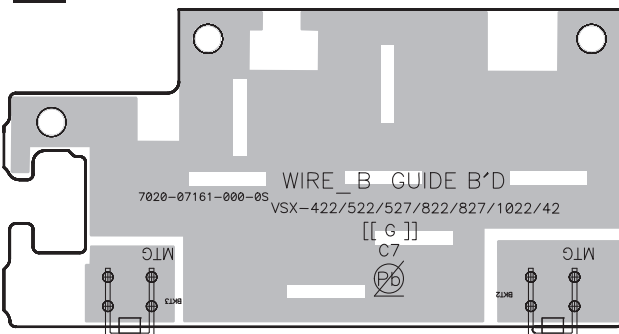
**G** G-R ASSY

**G** G-R ASSY

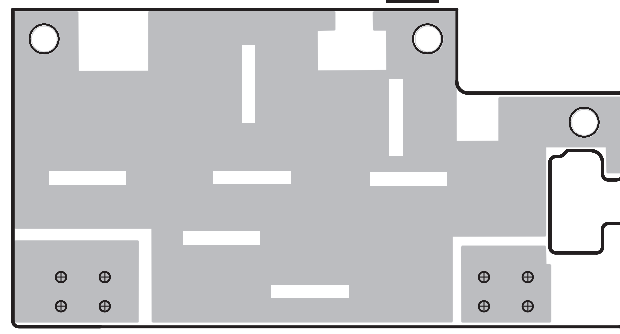


C

**H** WG-B ASSY

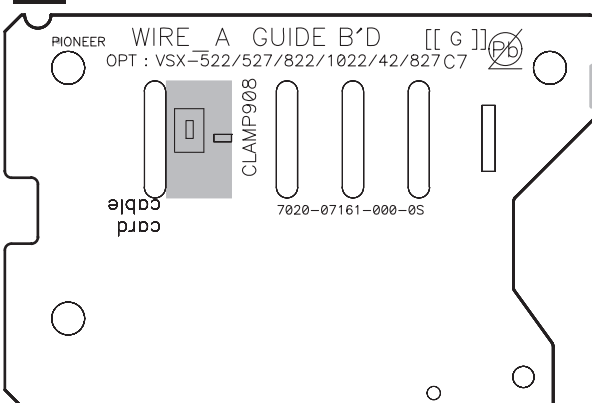


**H** WG-B ASSY

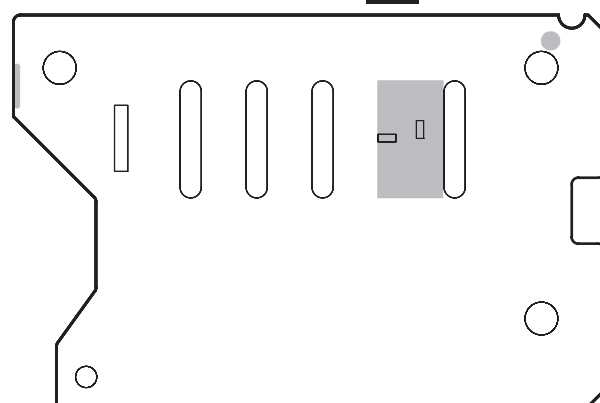


D

**I** WG-A ASSY



**I** WG-A ASSY

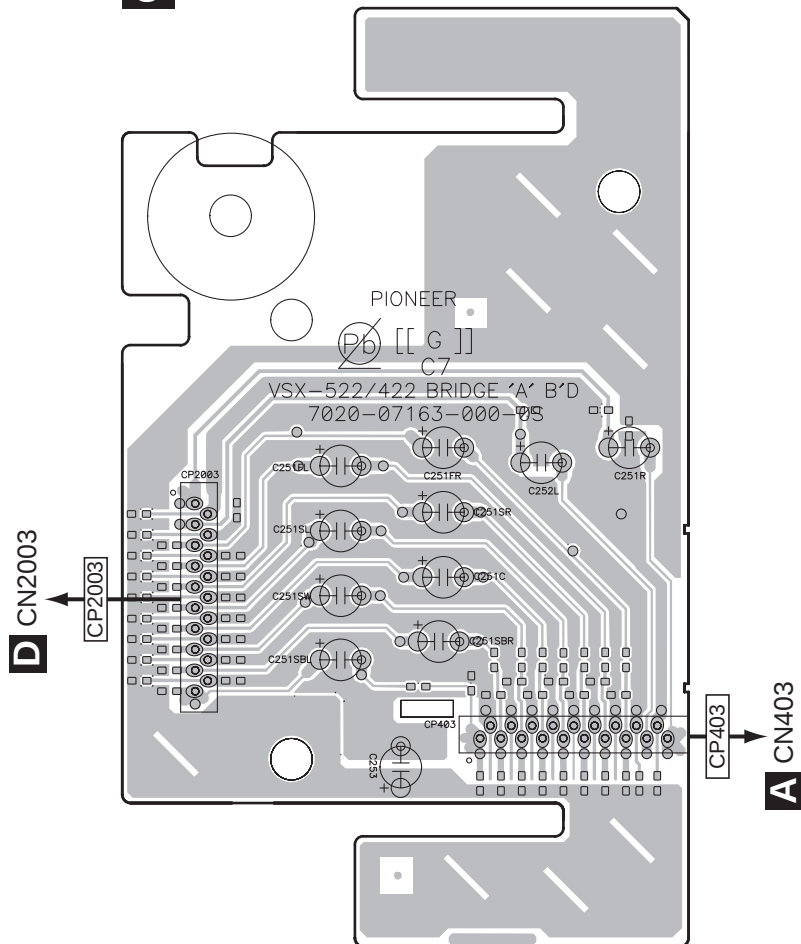
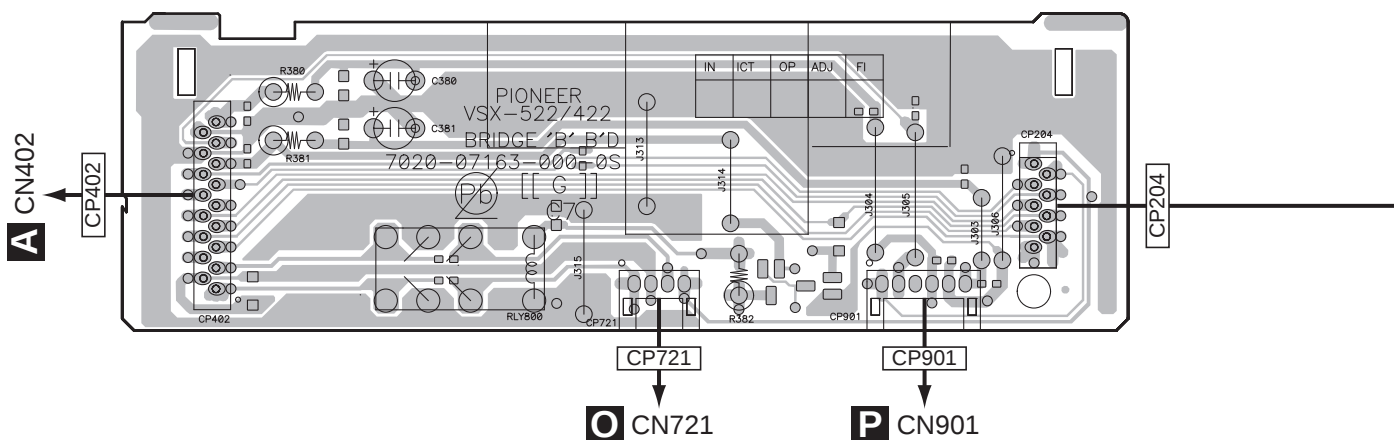


E

F

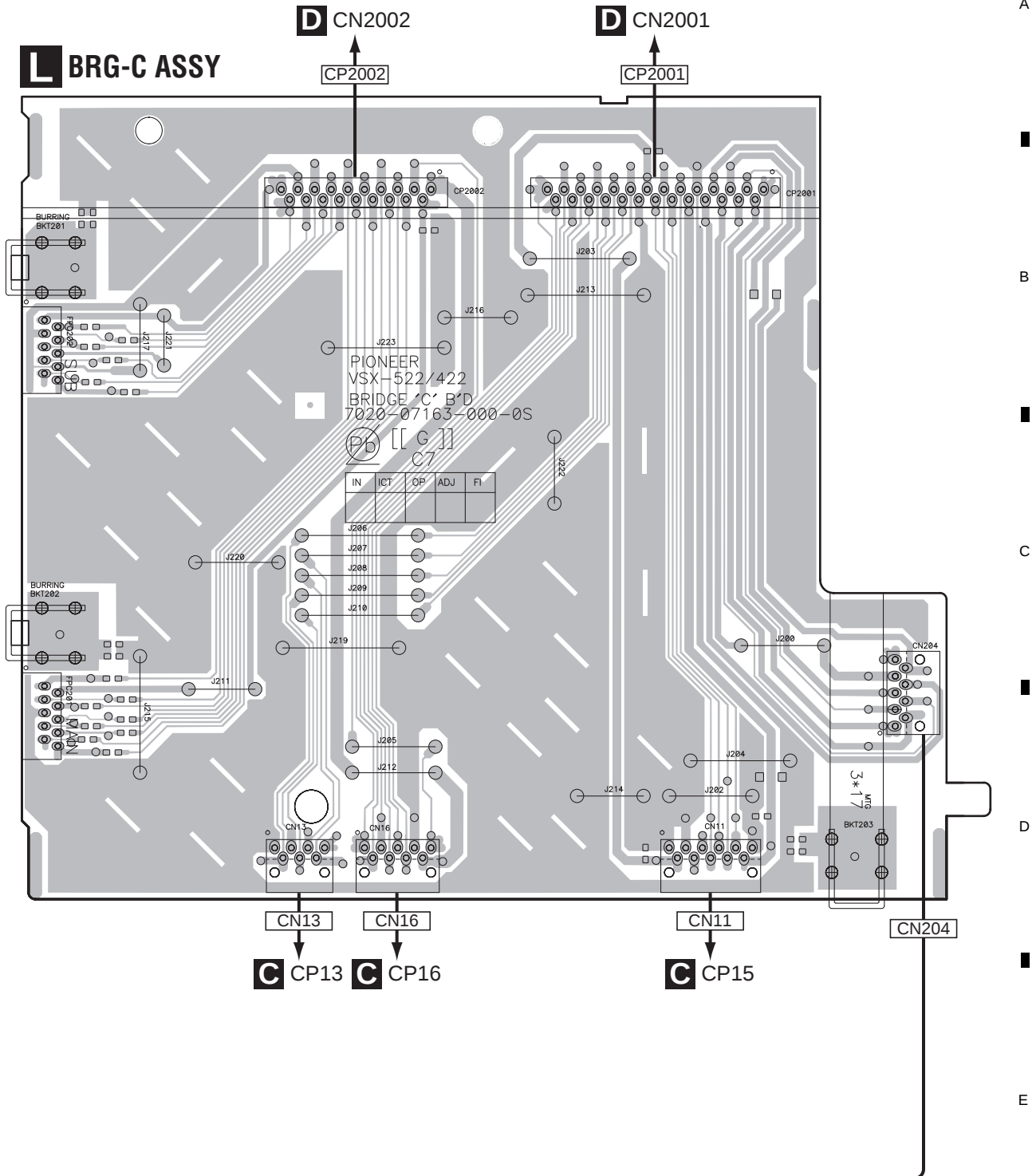
**F G H I**

## SIDE A

**J BRG-A ASSY****K BRG-B ASSY**

**J K**

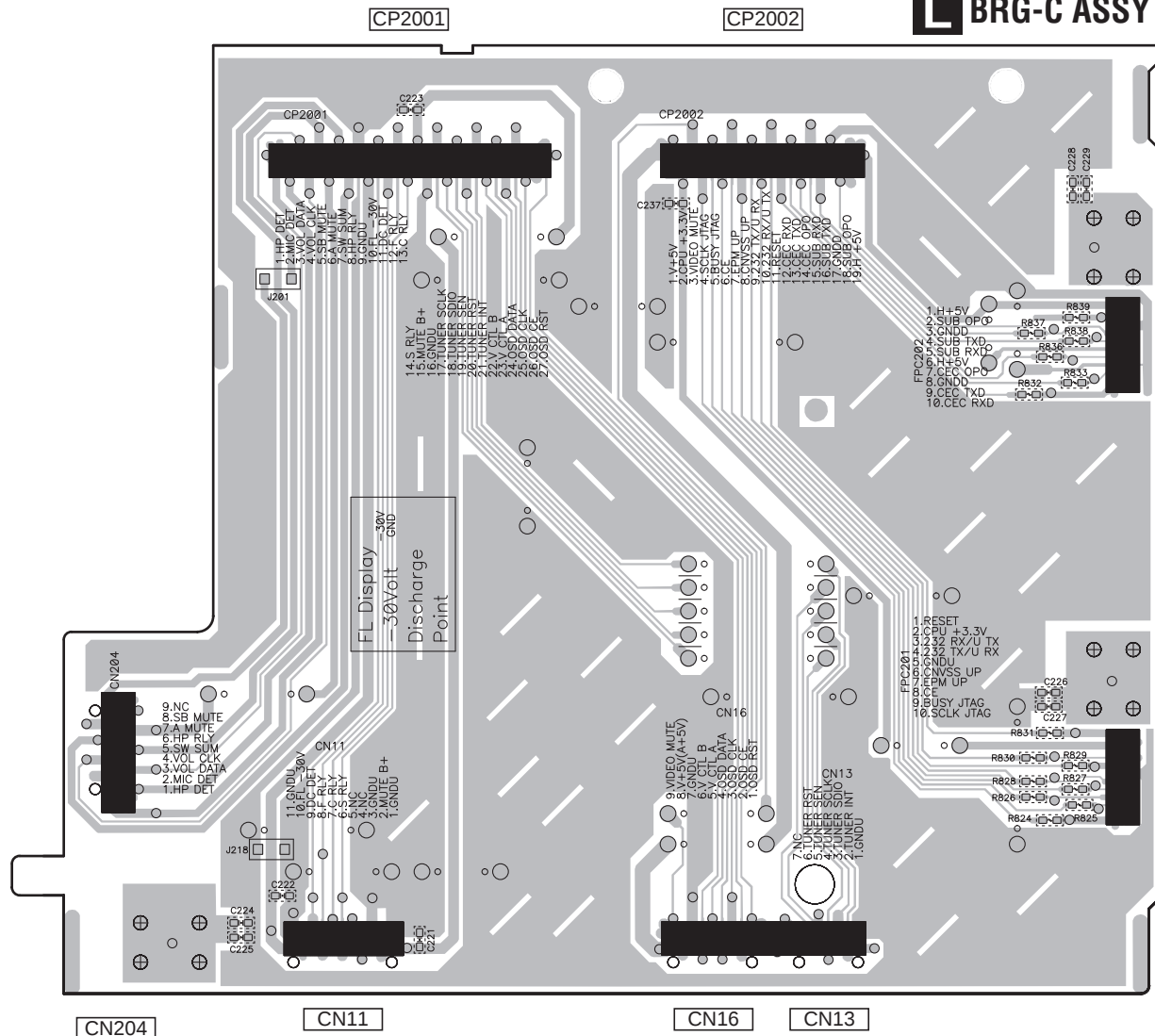
SIDE A



L

# SIDE B

**BRG-C ASSY**





## SIDE A

## CP701



TACT SW  
VSX42:SW717  
OTHER:SW715

VSX42  
LED784A  
LED784

SW717  
SW715

PIONEER  
VSX-1022/42/827/822/527/522/422  
INPUT SEL B'D  
7020-07162-000-0S

[[ G ]]  $\Phi$  C7

VEC782

1622/527/822/527/522/422  
4P WAFER  
VSX42:  
6P WAFER

CP702

POWER\_LED

(SOFT TYPE)

LUG785

CP702

[illegible]

**K** CP721

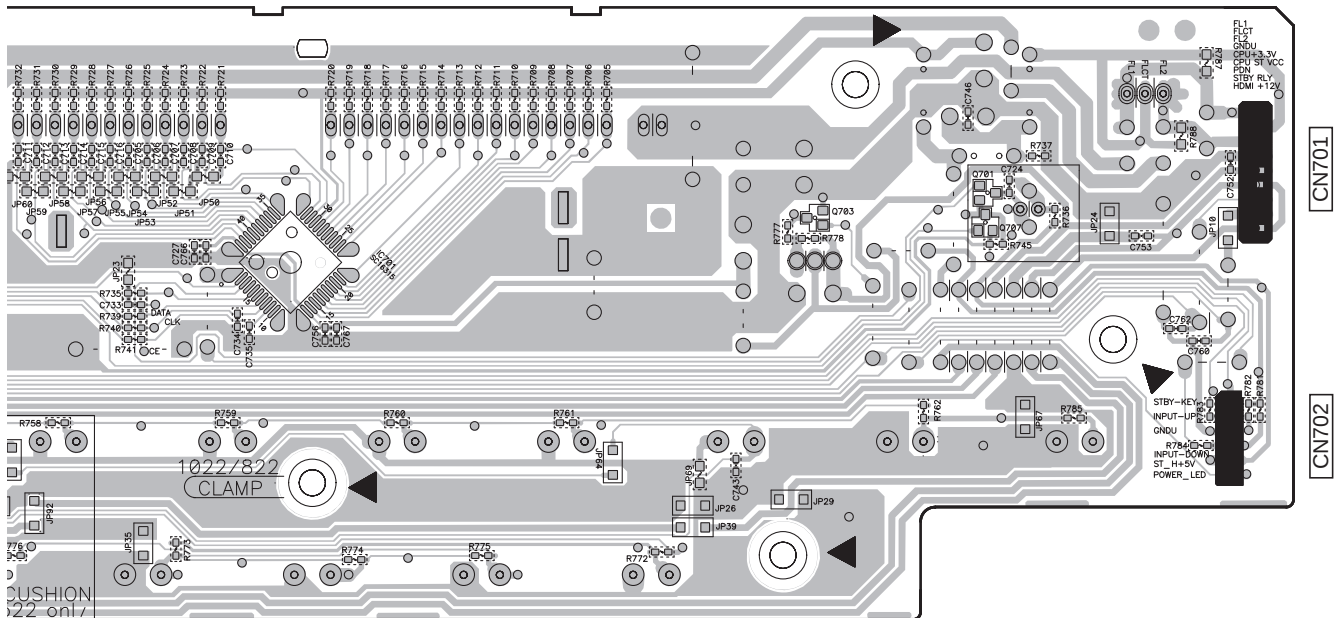




SIDE B

A

## M FRONT ASSY



IC701

Q703

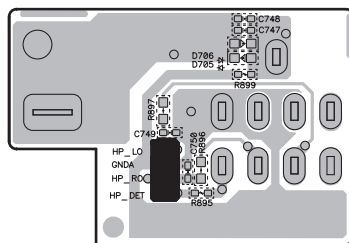
Q701  
Q707

B

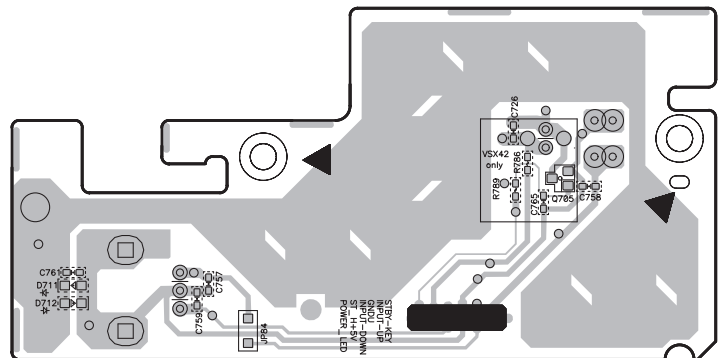
C

## N INSEL ASSY

## O HP ASSY



CN721



CP702

Q705

D

E

M N O

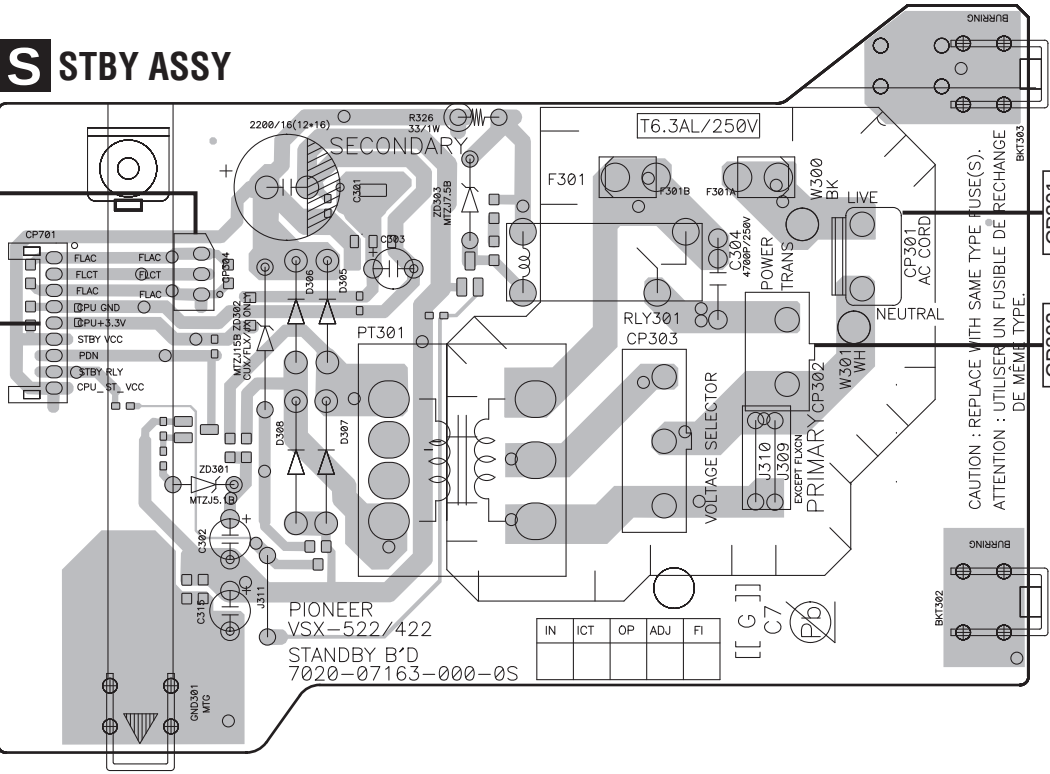
VSX-522-K

109

11.9 STANDBY ASSY

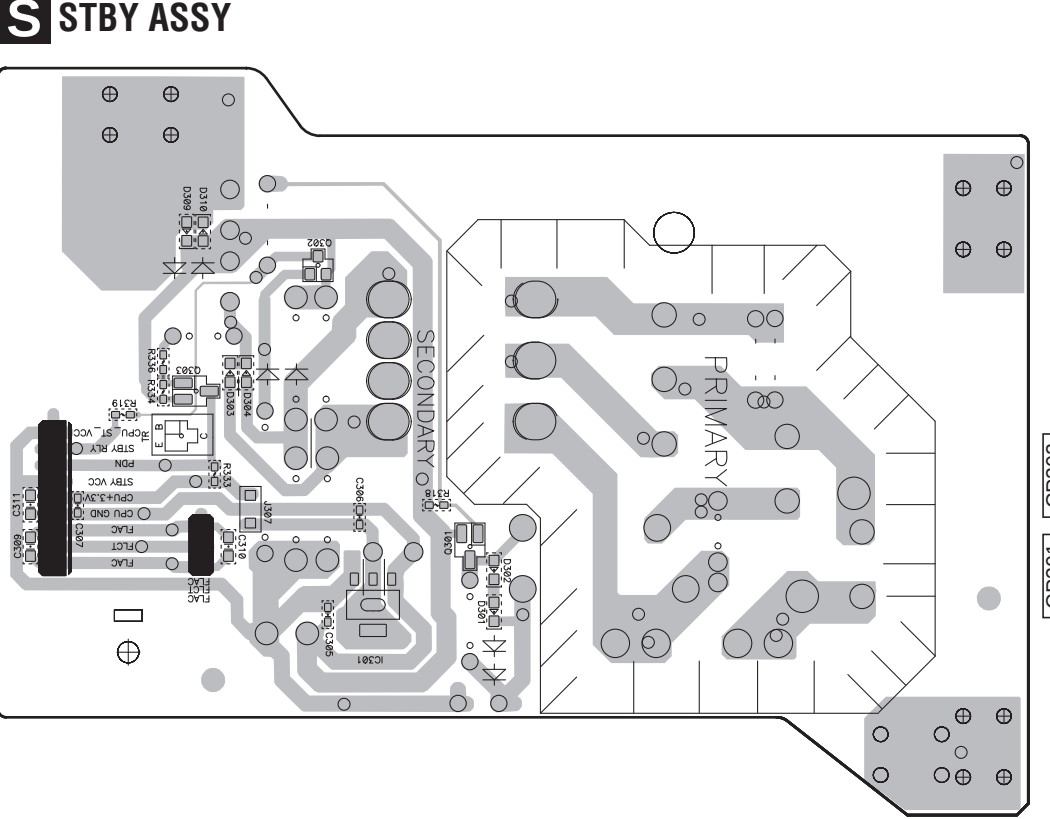
SIDE A

SIDE A



SIDE B

SIDE B



**S**

# 12. PCB PARTS LIST

- NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
- Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).
- 560  $\Omega$  → 56 × 10<sup>1</sup> → 561.....RD1/4PU

47 k $\Omega$  → 47 × 10<sup>3</sup> → 473.....RD1/4PU

0.5  $\Omega$  → R50.....RN2H

1  $\Omega$  → 1R0.....RS1P
- Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
- 5.62 k $\Omega$  → 562 × 10<sup>1</sup> → 5621.....RN1/4PC
- Meaning of the figures and others in the parentheses in the parts list.
- Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.
- IC 301 (A, 91, 111) IC NJM2068V

● SCHEMATIC DIAGRAM and PCB CONNECTION DIAGRAM → ● PCB PARTS LIST

|       |          |      |          |      |         |     |         |
|-------|----------|------|----------|------|---------|-----|---------|
| BKT   | → none   | BEAD | → L      | RLY  | → RY    | SW  | → S     |
| CLAMP | → none   | F    | → FU     | RMC  | → U     | VEC | → S9*** |
| W     | → none   | FLT  | → V      | RES  | → X     | GND | → KN    |
| LUG   | → none   | JACK | → JA     | XTAL | → X9*** |     |         |
| P     | → none   | JACK | → JA9*** | BD   | → L7*** |     |         |
| PACK  | → 9***   | JK   | → JA     | LED  | → D8*** |     |         |
| CP    | → CN     | PT   | → T      | Z    | → D9*** |     |         |
| CP    | → CN9*** | REG  | → IC     | ZD   | → D9*** |     |         |
| FPC   | → CN9*** | REG  | → IC9*** | DZ   | → D9*** |     |         |

| Mark                      | No.                   | Description      | Part No. |
|---------------------------|-----------------------|------------------|----------|
| <b>LIST OF ASSEMBLIES</b> |                       |                  |          |
| NSP                       | 1..PCB TTL ASSY MAIN  | 7025HK1106010-IL |          |
|                           | 2..MAIN ASSY          | 7028071611060-IL |          |
|                           | 2..G-R ASSY           | 7028071614060-IL |          |
|                           | 2..G-L ASSY           | 7028071615060-IL |          |
|                           | 2..WG-A ASSY          | 7028071616060-IL |          |
|                           | 2..WG-B ASSY          | 7028071617060-IL |          |
| NSP                       | 1..PCB TTL ASSY VIDEO | 7025HK1106012-IL |          |
|                           | 2..VIDEO ASSY         | 7028071631010-IL |          |
|                           | 2..STBY ASSY          | 7028071632010-IL |          |
|                           | 2..BRG-A ASSY         | 7028071633010-IL |          |
|                           | 2..BRG-B ASSY         | 7028071634010-IL |          |
|                           | 2..BRG-C ASSY         | 7028071635010-IL |          |
| NSP                       | 1..PCB TTL ASSY AUDIO | 7025HK1106013-IL |          |
|                           | 2..AUDIO ASSY         | 7028071641060-IL |          |
| NSP                       | 1..PCB TTL ASSY DMAIN | 7025HK1106014-IL |          |
|                           | 2..D-MAIN ASSY        | 7028071651010-IL |          |
| NSP                       | 1..PCB TTL ASSY AMP5  | 7025HK1106015-IL |          |
|                           | 2..AMP5 ASSY          | 7028070243010-IL |          |
| NSP                       | 1..PCB TTL ASSY FRONT | 7025HK1106011-IL |          |
|                           | 2..FRONT ASSY         | 7028071621060-IL |          |
|                           | 2..HP ASSY            | 7028071622060-IL |          |
|                           | 2..INSEL ASSY         | 7028071623060-IL |          |
|                           | 2..MIC ASSY           | 7028071624060-IL |          |
|                           | 2..F-USB ASSY         | 7028071625060-IL |          |
|                           | 2..WG ASSY            | 7028071627060-IL |          |

| Mark                  | No.                            | Description      | Part No. |
|-----------------------|--------------------------------|------------------|----------|
| <b>A AUDIO ASSY</b>   |                                |                  |          |
| <b>SEMICONDUCTORS</b> |                                |                  |          |
|                       | IC 400                         | J084152180010-IL |          |
|                       | IC 401-403,406                 | J121458000020-IL |          |
|                       | D 9400,9401                    | K06006R844520-IL |          |
| <b>MISCELLANEOUS</b>  |                                |                  |          |
|                       | JA 401 TER,RCA 6PIN            | G603610A0001Y-IL |          |
|                       | JA 402 TER,RCA 2PIN            | G601206A0005Y-IL |          |
|                       | JA 403 TER,RCA 1PIN            | G600107A0000Y-IL |          |
| <b>RESISTORS</b>      |                                |                  |          |
|                       | R 510,587                      | C060033065050-IL |          |
|                       | R 588,589                      | C060010165060-IL |          |
| <b>B AMP5 ASSY</b>    |                                |                  |          |
| <b>SEMICONDUCTORS</b> |                                |                  |          |
|                       | Q 401,413,437,449              | J5001024Y0050-IL |          |
|                       | Q 407,408,419,420              | J5000992F0050-IL |          |
|                       | Q 412,436,448,460              | J5023206Y0050-IL |          |
|                       | Q 417                          | J5000992F0050-IL |          |
|                       | Q 424                          | J5023206Y0050-IL |          |
|                       | Q 425                          | J5001024Y0050-IL |          |
|                       | Q 431,432,443,444              | J5000992F0050-IL |          |
|                       | Q 455,456                      | J5000992F0050-IL |          |
|                       | D 9401,9404,9407,9410          | K06005R134520-IL |          |
|                       | D 9402,9403,9405,9406          | K06004R344520-IL |          |
|                       | D 9408,9409,9411,9412          | K06004R344520-IL |          |
|                       | D 9413                         | K06005R134520-IL |          |
|                       | D 9414,9415                    | K06004R344520-IL |          |
| <b>MISCELLANEOUS</b>  |                                |                  |          |
|                       | VR 401-405 VR,SEMI CARBON MOLD | C541102315000-IL |          |

| Mark | No. | Description | Part No.         |
|------|-----|-------------|------------------|
|      | 400 | BRACKET     | 4010210196100-IL |

**RESISTORS**

|   |   |                 |                  |
|---|---|-----------------|------------------|
| ⚠ | R | 406,450,494,537 | F320184710050-IL |
|   | R | 424,425         | N113136647820-IL |
| ⚠ | R | 430,431,467,468 | N113136647820-IL |
|   | R | 443,487,530,573 | C060047065060-IL |
| ⚠ | R | 474,475,511,512 | N113136647820-IL |

|   |   |                 |                  |
|---|---|-----------------|------------------|
| ⚠ | R | 493             | C060033065050-IL |
| ⚠ | R | 517,518,554,555 | N113136647820-IL |
| ⚠ | R | 561,562,597,598 | N113136647820-IL |
| ⚠ | R | 580             | F320184710050-IL |
| ⚠ | R | 603,604         | N113136647820-IL |

|  |   |     |                  |
|--|---|-----|------------------|
|  | R | 616 | C060047065060-IL |
|--|---|-----|------------------|

**CAPACITORS**

|  |   |     |                  |
|--|---|-----|------------------|
|  | C | 419 | D04010108C240-IL |
|--|---|-----|------------------|

## C MAIN ASSY

### SEMICONDUCTORS

|   |    |       |                  |
|---|----|-------|------------------|
| ⚠ | IC | 1     | J126781200040-IL |
| ⚠ | IC | 2     | J126791200060-IL |
| ⚠ | IC | 3     | J126780500110-IL |
|   | Q  | 14,15 | J5023198Y0000-IL |
|   | Q  | 16    | J5000992F0050-IL |

|   |   |       |                  |
|---|---|-------|------------------|
|   | Q | 17    | J5000916Y0050-IL |
| ⚠ | D | 7     | K047100600220-IL |
| ⚠ | D | 9     | K047604000020-IL |
| ⚠ | D | 10-13 | K000400700220-IL |
|   | D | 23    | K000400700220-IL |

|  |   |           |                  |
|--|---|-----------|------------------|
|  | D | 9001      | K06003R344520-IL |
|  | D | 9024,9025 | K06016R044520-IL |

**MISCELLANEOUS**

|  |    |           |                    |                  |
|--|----|-----------|--------------------|------------------|
|  | JA | 101       | TER,BOARD SCREW 4P | G612405E0200Y-IL |
|  | JA | 102       | TER,BOARD PUSH 4P  | G594408SA030Y-IL |
|  | JA | 9101      | TER,BOARD PUSH 2P  | G592212A0300Y-IL |
|  | RY | 2-4       | RELAY              | G680120502050-IL |
|  | CN | 9009,9016 | CN.WAFER           | L109012510720-IL |

|  |    |      |             |                  |
|--|----|------|-------------|------------------|
|  | CN | 9013 | CN.WAFER    | L109012510720-IL |
|  | CN | 9015 | CN.WAFER    | L109012511120-IL |
|  | CN | 9017 | CN.WAFER    | L109012511120-IL |
|  |    | 601  | TUNER,FM/AM | E903004100780-IL |

**RESISTORS**

|  |   |             |                  |
|--|---|-------------|------------------|
|  | R | 5,7,9,11    | C060010065050-IL |
|  | R | 6,8,10,12   | C060010066050-IL |
|  | R | 13,25       | C060010065050-IL |
|  | R | 14          | C060010066050-IL |
|  | R | 27,31,41,42 | C060R22065050-IL |

|  |   |    |                  |
|--|---|----|------------------|
|  | R | 64 | C060022063050-IL |
|  | R | 66 | C0604R7065050-IL |

**CAPACITORS**

|  |   |       |                  |
|--|---|-------|------------------|
|  | C | 55,58 | D040682088010-IL |
|  | C | 73    | D040682083000-IL |
|  | C | 84    | D040472084020-IL |
|  | C | 85    | D040102084060-IL |
|  | C | 101   | D040331088230-IL |

| Mark | No. | Description | Part No. |
|------|-----|-------------|----------|
|------|-----|-------------|----------|

## D D-MAIN ASSY

### SEMICONDUCTORS

|   |    |      |                  |
|---|----|------|------------------|
| ⚠ | IC | 2004 | NJM2831F33       |
| ⚠ | IC | 2005 | S-1170B18UC-OTD  |
|   | IC | 2009 | J040740400270-IL |
|   | IC | 2010 | TC74VHC157FK     |
|   | IC | 2011 | AK4588VQ         |

|  |    |      |                  |
|--|----|------|------------------|
|  | IC | 2014 | J040742570040-IL |
|  | IC | 2018 | J001986466010-IL |
|  | IC | 2020 | J040740800240-IL |
|  | IC | 2021 | 341S2162         |
|  | IC | 2022 | J000241600170-IL |

|  |   |      |                  |
|--|---|------|------------------|
|  | Q | 2034 | J543608000010-IL |
|--|---|------|------------------|

**MISCELLANEOUS**

|  |    |      |                      |                  |
|--|----|------|----------------------|------------------|
|  | JA | 2005 | TER,RCA 1PIN         | G600107A0000Y-IL |
|  | JA | 2006 | OPTICAL RECEIVER     | E100116500040-IL |
|  | X  | 2000 | CRYSTAL (24 MHz)     | E80024R000030-IL |
|  | X  | 2001 | CRYSTAL (18.432 MHz) | E80018R432050-IL |
|  | X  | 2002 | CRYSTAL (24.576 MHz) | E80024R576030-IL |

|  |   |      |                  |                  |
|--|---|------|------------------|------------------|
|  | X | 2003 | CRYSTAL (16 MHz) | E80016R000030-IL |
|--|---|------|------------------|------------------|

**RESISTORS**

|  |   |      |                  |
|--|---|------|------------------|
|  | R | 2446 | C060015165050-IL |
|--|---|------|------------------|

## E VIDEO ASSY

### SEMICONDUCTORS

|  |    |      |                  |
|--|----|------|------------------|
|  | IC | 1200 | J127410500010-IL |
|  | IC | 1203 | J170747810010-IL |

**MISCELLANEOUS**

|  |    |      |                         |                  |
|--|----|------|-------------------------|------------------|
|  | JA | 1200 | TER,RCA 3PIN            | G606305AW140Y-IL |
|  | X  | 1200 | CRYSTAL (17.734476 MHz) | E80014R318080-IL |

## F G-L ASSY

There is no service parts.

## G G-R ASSY

There is no service parts.

## H WG-B ASSY

There is no service parts.

## I WG-A ASSY

There is no service parts.

## J BRG-A ASSY

### MISCELLANEOUS

|  |  |             |          |                  |
|--|--|-------------|----------|------------------|
|  |  | CN 403,2003 | CN.WAFER | L109012511920-IL |
|--|--|-------------|----------|------------------|

| Mark     | No. | Description                | Part No.         | Mark     | No. | Description                                | Part No.         |
|----------|-----|----------------------------|------------------|----------|-----|--------------------------------------------|------------------|
| <b>K</b> |     | <b>BRG-B ASSY</b>          |                  | <b>S</b> |     | <b>STBY ASSY</b>                           | A                |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     | <u>SEMICONDUCTORS</u>                      |                  |
|          |     | RY 800 RELAY               | G680240202030-IL |          |     | IC 301                                     | J126111700041-IL |
|          |     | CN 204 CN.WAFER            | L109012510920-IL |          |     | D 303,304                                  | K005041480230-IL |
|          |     | CN 402 CN.WAFER            | L109012511720-IL |          |     | D 305-308                                  | K000400700220-IL |
|          |     |                            |                  |          |     | D 9301                                     | K06005R144520-IL |
|          |     |                            |                  |          |     | D 9302                                     | K06015R044520-IL |
|          |     |                            |                  |          |     | D 9303                                     | K06007R544520-IL |
|          |     | <u>RESISTORS</u>           |                  |          |     |                                            |                  |
|          |     | ⚠ R 380,381                | C060010163050-IL |          |     |                                            |                  |
|          |     | R 382                      | C060010063050-IL |          |     |                                            |                  |
| <b>L</b> |     | <b>BRG-C ASSY</b>          |                  |          |     | <u>MISCELLANEOUS</u>                       |                  |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     | ⚠ RY 301 RELAY                             | G680060102020-IL |
|          |     | CN 2001 CN.WAFER           | L109012512720-IL |          |     | ⚠ T 301 POWER TRANS                        | 8200280150620-IL |
|          |     | CN 2002 CN.WAFER           | L109012511920-IL |          |     | ⚠ CN 301 CONNECTOR                         | L108202000220-IL |
|          |     | 201,202 BRACKET            | 4010210196100-IL |          |     | ⚠ CN 302 CN.WAFER 7.92MM                   | L108011430210-IL |
|          |     |                            |                  |          |     | 302,303 BRACKET                            | 4010210196100-IL |
|          |     |                            |                  |          |     | ⚠ FU 301 FUSE GLASS TUBE 20MM (T6.3AL250V) | N751506301160-IL |
| <b>M</b> |     | <b>FRONT ASSY</b>          |                  |          |     | <u>RESISTORS</u>                           |                  |
|          |     | <u>SEMICONDUCTORS</u>      |                  |          |     | R 326                                      | C060033065050-IL |
|          |     | IC 701                     | J127163150010-IL |          |     |                                            |                  |
|          |     | ⚠ Q 702                    | J5001266G0050-IL |          |     | <u>CAPACITORS</u>                          |                  |
|          |     | D 8701                     | K06007R544520-IL |          |     | C 301                                      | D040222083010-IL |
|          |     | D 9701-9703                | K500052009011-IL |          |     | ⚠ C 304                                    | D00847208H010-IL |
|          |     |                            |                  |          |     |                                            | C                |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     |                                            |                  |
|          |     | H 701 FL HOLDER            | 4320211016000-IL |          |     |                                            |                  |
|          |     | V 701 DISPLAY,FLT          | K530126600010-IL |          |     |                                            |                  |
|          |     | S 701-714,716 SWITCH       | G180501000010-IL |          |     |                                            |                  |
|          |     | S 9701 SW,ENCODER          | G121125042011-IL |          |     |                                            |                  |
|          |     | U 701 MODULE,REMOCON       | E940349003810-IL |          |     |                                            |                  |
|          |     |                            |                  |          |     |                                            |                  |
|          |     | <u>RESISTORS</u>           |                  |          |     |                                            |                  |
|          |     | R 779,780                  | C060001063050-IL |          |     |                                            |                  |
| <b>N</b> |     | <b>INSEL ASSY</b>          |                  |          |     |                                            | D                |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     |                                            |                  |
|          |     | S 715 SWITCH               | G180501000010-IL |          |     |                                            |                  |
|          |     | S 9702 SW,ENCODER          | G121125052011-IL |          |     |                                            |                  |
| <b>O</b> |     | <b>HP ASSY</b>             |                  |          |     |                                            |                  |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     |                                            |                  |
|          |     | JA 701 JACK,D6.5           | G402PJ612A09Y-IL |          |     |                                            |                  |
|          |     |                            |                  |          |     |                                            |                  |
| <b>P</b> |     | <b>MIC ASSY</b>            |                  |          |     |                                            | E                |
|          |     | <u>SEMICONDUCTORS</u>      |                  |          |     |                                            |                  |
|          |     | IC 902                     | J121458000020-IL |          |     |                                            |                  |
|          |     |                            |                  |          |     |                                            |                  |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     |                                            |                  |
|          |     | JA 901 JACK,D3.5           | G401PJ354H40Y-IL |          |     |                                            |                  |
| <b>Q</b> |     | <b>F-USB ASSY</b>          |                  |          |     |                                            |                  |
|          |     | <u>MISCELLANEOUS</u>       |                  |          |     |                                            |                  |
|          |     | JA 3000 CN,PLUG CONTACT    | G480040000180-IL |          |     |                                            |                  |
|          |     |                            |                  |          |     |                                            |                  |
| <b>R</b> |     | <b>WG ASSY</b>             |                  |          |     |                                            | F                |
|          |     | There is no service parts. |                  |          |     |                                            |                  |