Pioneer

Service Manual

SX-SWR1

ORDER NO.
RRV4006

AUDIO/VIDEO MULTI-CHANNEL RECEIVER SUBWOOFER

SX-SWR1

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

Model	Type	Power Requirement	Remarks
SX-SWR1	VYXCN5	AC 220 V to 240 V	
SX-SWR1	LXCN	AC 220 V to 240 V	

For details, refer to "Important Check Points for good servicing".

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T-ZZK NOV. 2009 Printed in Japan

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

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

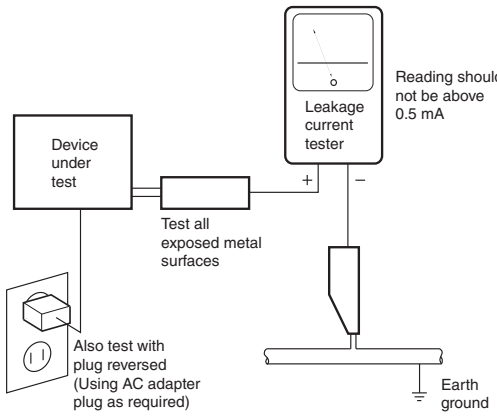
(FOR USA MODEL ONLY)

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 120V 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.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

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 ºC.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 ºC 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.

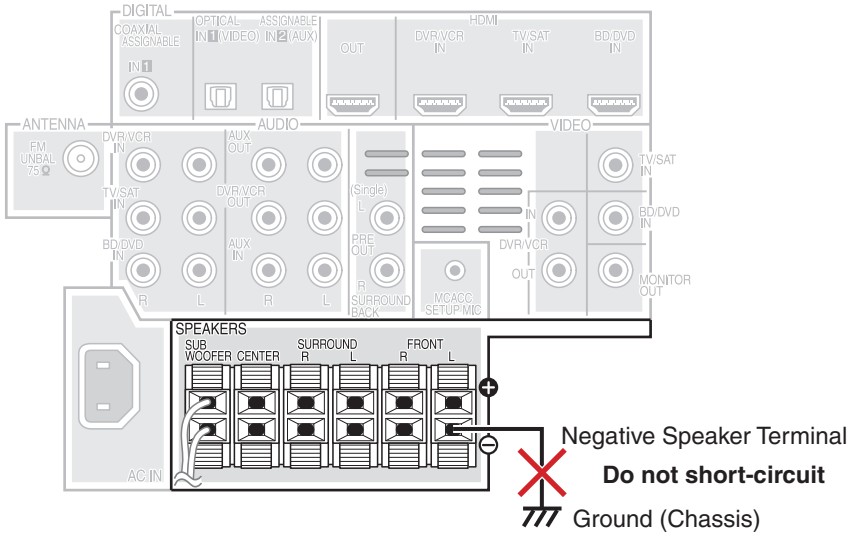
Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

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 CAUTION

NOTES ON BTL DRIVE

As a signal to drive the BTL is output from the negative speaker terminal, DO NOT short-circuit between the negative speaker terminal and ground, such as the chassis.
Do not short-circuit between the plus speaker terminal and ground, such as the chassis, too.



2. SPECIFICATIONS
2.1 SPECIFICATIONS

•Audio section
Rated power output
Front, Center, Surround. . . 100 W per channel (1 kHz, 4 Ω, 10 %)
Subwoofer. . . . . 100 W (100 Hz, 4 Ω, 10 %)

•FM tuner Section
Frequency Range . . . . . 87.5 MHz to 108 MHz
Antenna Input . . . . . 75 Ω unbalanced

•Input/Output section
HDMI terminal:
Input. 19-pin x3
Output . . . . . 19-pin (5 V, 100 mA)
Audio input . . . . . .Coaxial x1, Optical x2 (Digital)
RCA (2-pin) x4 (Analog)
Audio output . . . . . RCA (2-pin) x2 (Analog)
Video input . . . . . .RCA x3
Video output . . . . . .RCA x2
MCACC input . . . . . Mini jack
iPod terminal. . . . . .USB + Video (Composite)

•Speaker section
Enclosure. . . . . Bass-reflex floor type
System. . . . . 16 cm 1-way system
Speakers . . . . . .16 cm cone type x1
Impedance. . . . . 4 Ω
Frequency range . . . . . 35 Hz to 1 000 Hz
Maximum input power. 100W

•Miscellaneous
Power Requirements
. . . . . AC 220 V to 240 V, 50 Hz/60 Hz
Power Consumption. . . . . .61 W
In standby . . . . . 0.6 W
Dimensions
. . . .230 mm (W) x 360.5 mm (H) x 422.5 mm (D)
Weight (without package) . . . . . .11 kg

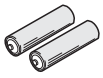
•Accessories
Remote control 1
Dry cell batteries (AAA size IEC R03). 2
iPod cable (Except LXCN) 1
FM wire antenna 1
Microphone (for Auto MCACC setup) 1
Power cords. 2
Large non-skid pads (for receiver subwoofer). . . .4
Warranty card (Except LXCN). 1
Operating instructions

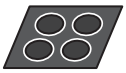
Note

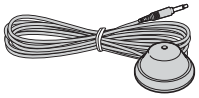
- The specifications are applicable when the power supply is 230 V.
- Specifications and the design are subject to possible modifications without notice, due to improvements.

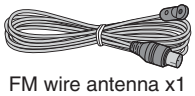
•Accessories

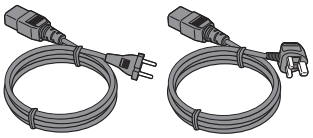
Remote control x1
(8300756900010-IL)

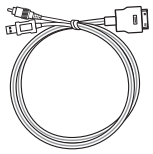

Dry cell batteries
(AAA size IEC R03) x2


Large non-skid pads (for receiver subwoofer) x4
(4050212705000-IL)


Microphone (for Auto MCACC setup) x1
(M040000300100-IL)

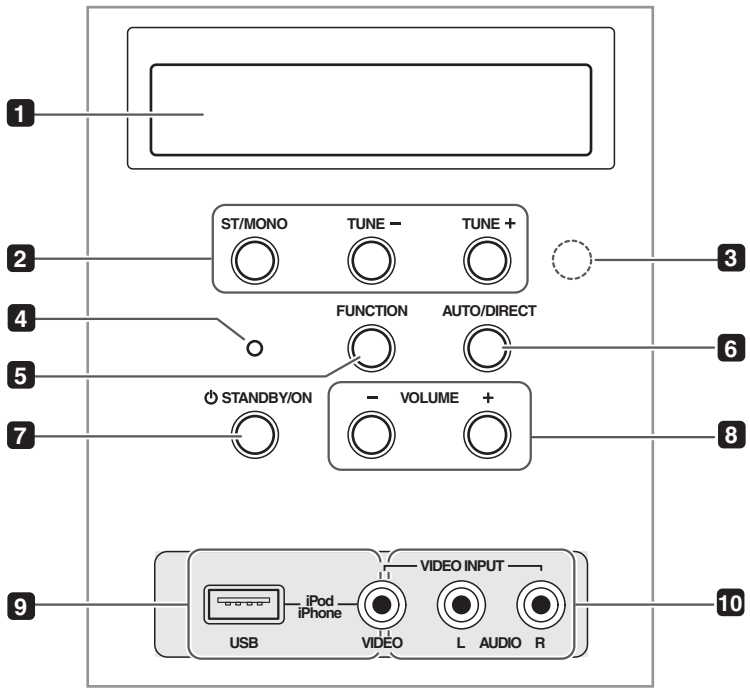

FM wire antenna x1
(E605010070001-IL)


Power cords x2
(L068250160020-IL) (L068250100040-IL)


iPod cable x1 (Except LXCN)
(L308102013010-IL)

2.2 PANEL FACILITIES

Front panel



1 Front panel display
See Display for details.

2 Tuner control buttons

ST/MONO
Switches between auto stereo mode and mono reception mode.

TUNE +/–
Used to find radio frequencies.

3 IR remote sensor

4 Power indicator

5 FUNCTION button
Selects an input source.

6 AUTO/DIRECT
Switches between Auto surround mode (Auto playback) and Stream Direct playback.

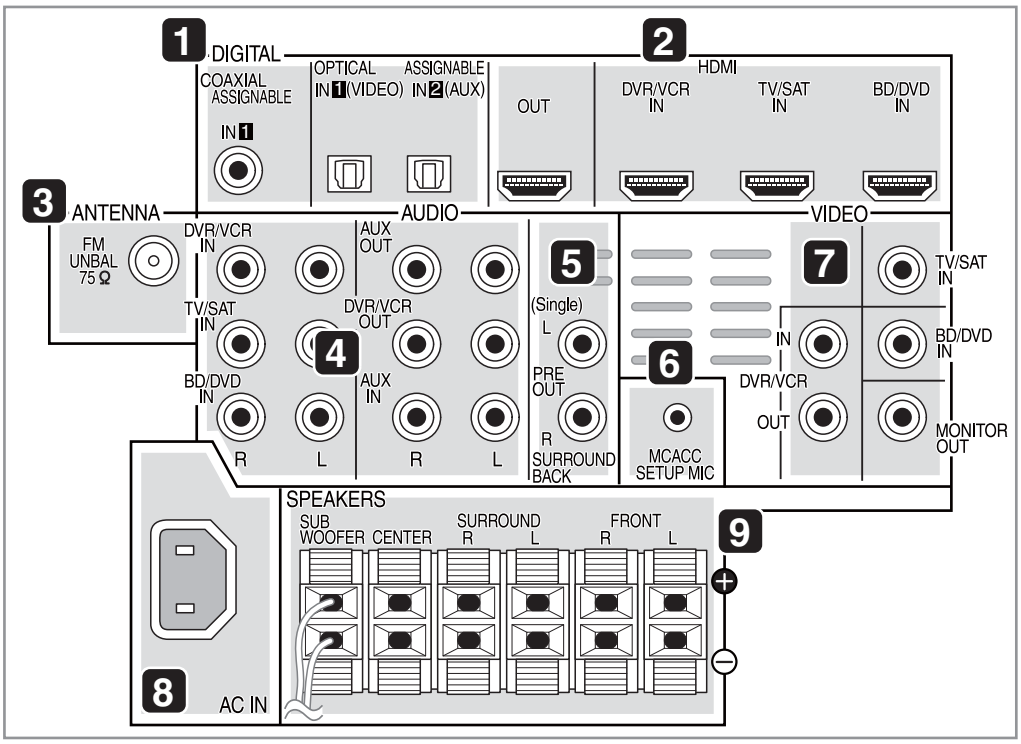
7 ⏻ STANDBY/ON
Switches the system on or into standby.

8 VOLUME +/–
Adjusts the volume.

9 iPod/USB terminal
Use to connect your Apple iPod or USB mass storage device as an audio source.

10 AUDIO/VIDEO input
See Connecting to the front panel video terminal.

Rear panel



1 Coaxial/Optical digital audio inputs (x3)
Use for digital audio sources, including DVD players/recorders, digital satellite receivers, CD players, etc.

2 HDMI inputs (x3)/output (x1)
Multiple inputs and one output for high-quality audio/video connection to compatible HDMI devices.

3 FM antenna socket

4 Stereo analog audio inputs/outputs
Use for connection to audio sources such as CD players, tape decks, turntables, etc.

5 Surround back pre-amplifier outputs
Use to connect separate amplifiers for surround back channels.

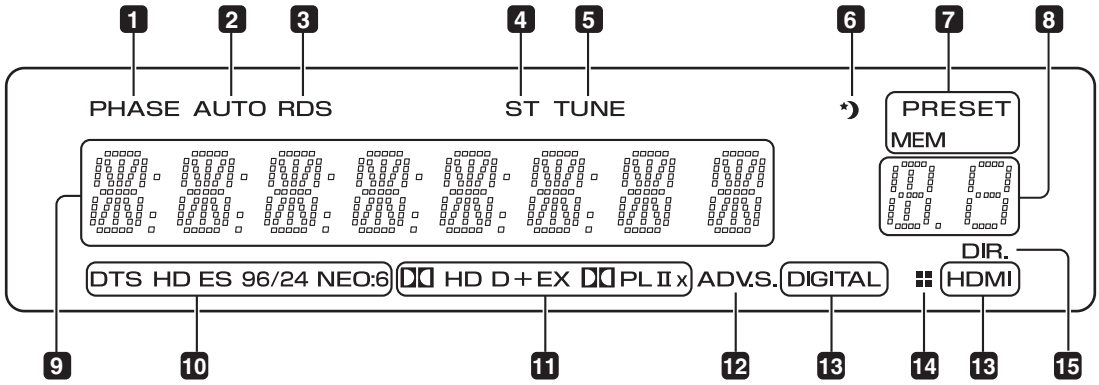
6 MCACC SETUP MIC jack
Use to connect the supplied microphone for the Auto MCACC setup.

7 Video inputs/outputs
Use for connection to video sources, such as DVD players/recorders, VCRs, etc.

8 AC IN – Power inlet

9 SPEAKERS terminals
Match the colors of the speaker cables to their respective connectors.

Display



1 PHASE
Lights when the Phase Control is switched.

2 AUTO
Lights when the Auto Surround feature is switched on (see Auto playback).

3 RDS
Lights when an RDS broadcast is received.

4 ST
Lights when a stereo FM broadcast is being received in auto stereo mode.

5 TUNE
Lights when a normal broadcast channel is being received.

6 Sleep timer indicator
Lights when the system is in sleep mode.

7 Tuner preset indicators

PRESET
Shows when a preset radio station is registered or called.

MEM
Blinks when a radio station is registered.

8 PRESET Information or Input signal indicator
Shows the preset number of the tuner or the input signal type, etc.

9 Character display
Displays various system information.

10 DTS indicators

DTS
Lights when a source with DTS encoded audio signals is detected.

HD
Lights when a source with DTS-EXPRESS or DTS-HD encoded audio signals is detected.

ES
Lights when a source with DTS-ES encoded audio signals is detected.

96/24
Lights when a source with DTS 96/24 encoded audio signals is detected.

NEO:6
When one of the NEO:6 modes of the system is on, this lights to indicate NEO:6 processing.

11 Dolby Digital indicators

D
Lights when a Dolby Digital encoded signal is detected.

D+
Lights when a source with Dolby Digital Plus encoded audio signals is detected.

HD
Lights when a source with Dolby TrueHD encoded audio signals is detected.

EX
Lights when a source with Dolby Digital EX encoded audio signals is detected.

PLII(x)
Lights to indicate Pro Logic II / Pro Logic IIx decoding.

12 ADV.S.
Lights when one of the Advanced Surround modes has been selected.

13 SIGNAL SELECT indicators

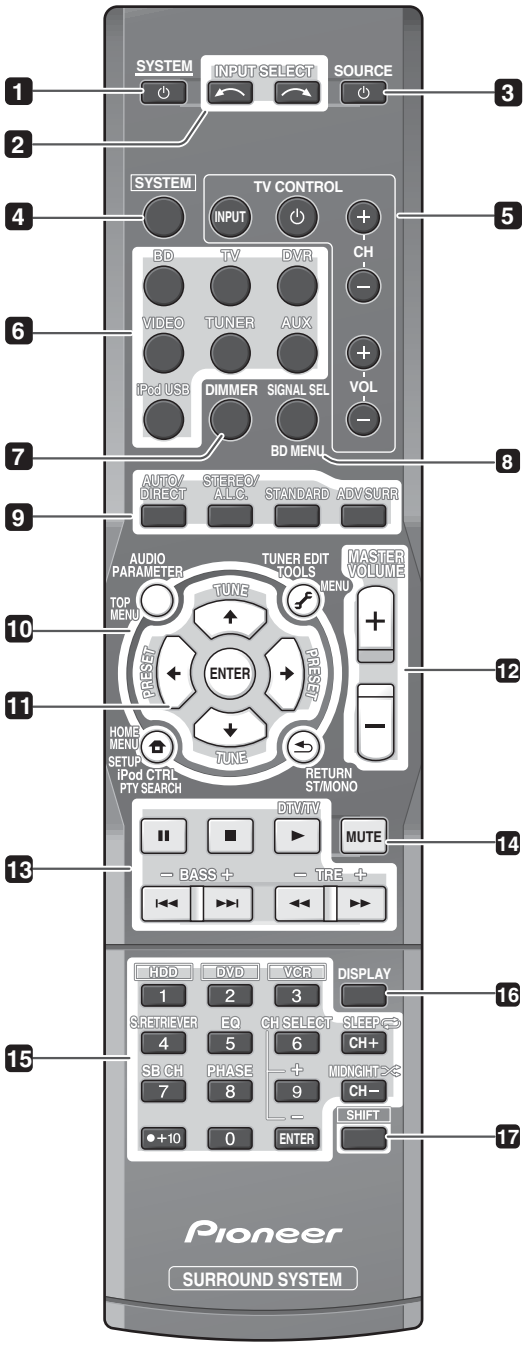
DIGITAL
Lights when a digital audio signal is selected.
Blinks when a digital audio signal is not selected.

HDMI
Lights when an HDMI signal is selected.
Blinks when an HDMI signal is not selected.

14 UP MIX indicator
Lights when the UP MIX Setting is set to **ON**. Also, lights when DIMMER is set to off.

15 DIR.
Lights when the **DIRECT** or **PURE DIRECT** mode is switched on.

Remote control



1 ⏻ SYSTEM
Switches the system between standby and on.

2 INPUT SELECT
Use to select the input source.

3 ⏻SOURCE
Press to turn on/off other components connected to the system.

4 SYSTEM
Switches the remote to control the system (used to select the white commands above the number buttons (**S.RETRIEVER**, etc)). Also use this button to set up surround sound or Audio parameters.

5 TV CONTROLbuttons
These buttons are dedicated to control the TV assigned to the **TV** button. Thus if you only have one TV to hook up to this system assign it to the **TV** button.

⏻
Use to turn on/off the power of the TV.

INPUT
Use to select the TV input signal.

CH +/–
Use to select channels.

VOL +/–
Use to adjust the volume on your TV.

6 MULTI CONTROLbuttons
Press to select control of other components (see Controlling the rest of your system).

7 DIMMER
Dims or brightens the display. The brightness can be controlled in four steps.

8 SIGNAL SEL
Use to select an input signal.

Press **BD** first to access:

BD MENU
Displays the disc menu of Blu-ray Discs.

9 Listening mode buttons

AUTO/DIRECT
Switches between Auto surround mode (Auto playback) and Stream Direct playback. Stream Direct playback bypasses the tone controls for the most accurate reproduction of a source.

STEREO/A.L.C.
Switches between stereo playback, Auto level control stereo mode and Front Stage Surround Advance modes.

STANDARD
Press for Standard decoding and to switch between DD Pro Logic II options.

ADV SURR
Switches between the various surround modes.

10 System Setupand Component control buttons
The following button controls can be accessed after you have selected the corresponding **MULTI CONTROL** button (**BD**, **TV**, etc.).

Press SYSTEM first to access:

AUDIO PARAMETER
Use to access the Audio options.

SETUP
Press to access the System Setup menu.

RETURN
Confirm and exit the current menu screen.

Press **BD** or **DVR** first to access:

TOP MENU
Displays the disc 'top' menu of a BD/DVD.

HOME MENU
Displays the HOME MENU screen.

RETURN
Confirm and exit the current menu screen.

MENU
Displays the TOOLS menu screen of Blu-ray Disc player.

Press **TUNER** first to access:

TUNER EDIT
Memorizes/names stations for recall.

ST/MONO
Switches between auto stereo mode and mono reception mode.

PTY SEARCH
Use to search for RDS program types.

Press **iPod USB** first to access:

iPod CTRL
Switches between the iPod controls and the system controls.

11 ⬆⬇⬅➡ (TUNE ⬆/⬇, PRESET ⬅/➡), ENTER
Use the arrow buttons when setting up your surround sound system. Also used to control BD/DVD menus/options.

Use the **TUNE ⬆/⬇** buttons can be used to find radio frequencies and the **PRESET ⬅/➡** buttons can be used to select preset radio stations.

12 MASTER VOLUME +/–
Use to set the listening volume.

13 Component control buttons
The main buttons (▶, ■, etc.) are used to control a component after you have selected it using the input source buttons.

The controls above these buttons can be accessed after you have selected the corresponding input source button (for example **BD**, **DVR** or **TV**). These buttons also function as described below.

Press SYSTEM first to access:

BASS –/+
Use to adjust Bass[1]

TRE –/+
Use to adjust Treble[1]

Press **TV** first to access:

DTV/TV
Switches between the DTV and analog TV input modes for Pioneer flat screen TVs.

14 MUTE
Mutes/unmutes the sound.

15 Number buttons and other component controls
Use the number buttons to directly select a radio frequency or the tracks on a CD, DVD, etc. There are other buttons that can be accessed after the SYSTEM button is pressed. (For example **MIDNIGHT**, etc.)

HDD*, DVD*, VCR*
These buttons switch between the hard disk, DVD and VCR controls for HDD/DVD/VCR recorders.

S.RETRIEVER
Press to restore CD quality sound to compressed audio sources.

EQ
Press to switch on/offAcoustic Calibration EQ setting.

CH SELECT
Press repeatedly to select a channel, then use **+/–** to adjust the level.

CH SELECT +/–
Use to adjust the channel level.

SB CH
Use to select the surround back channel mode.

PHASE
Press to switch on/off Phase Control.

MIDNIGHT
Switches to Midnight or Loudness listening.

SLEEP
Press to change the amount of time before the system switches into standby (**30 min – 60 min – 90 min – Off**). You can check the remaining sleep time at any time by pressing **SLEEP** once.

16 DISPLAY
Switches the display of this unit. The input name, listening mode or sound volume can be checked by selecting an input source.

17 SHIFT
Press to access the 'boxed' commands (above the buttons) on the remote. These buttons are marked with an asterisk (*) in this section.

Note
1The tone controls are disabled when the listening mode is set to **DIRECT** or **PURE DIRECT**.

3. BASIC ITEMS FOR SERVICE
3.1 CHECK POINTS AFTER SERVICING

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. 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. Video, Audio and operations must be normal.
2	Check the analog audio playback. (Make the analog connections with a DVD player.)	Each channel audio and operations must be normal.
3	Check the digital audio playback. (Make the digital connections with a DVD player.)	Each channel audio and operations must be normal.
4	Check surround playback. (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. (Connect with a DVD player.)	Video and operations must be normal.
6	Check the tuner (FM) operations.	Audio and operations must be normal.
7	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	

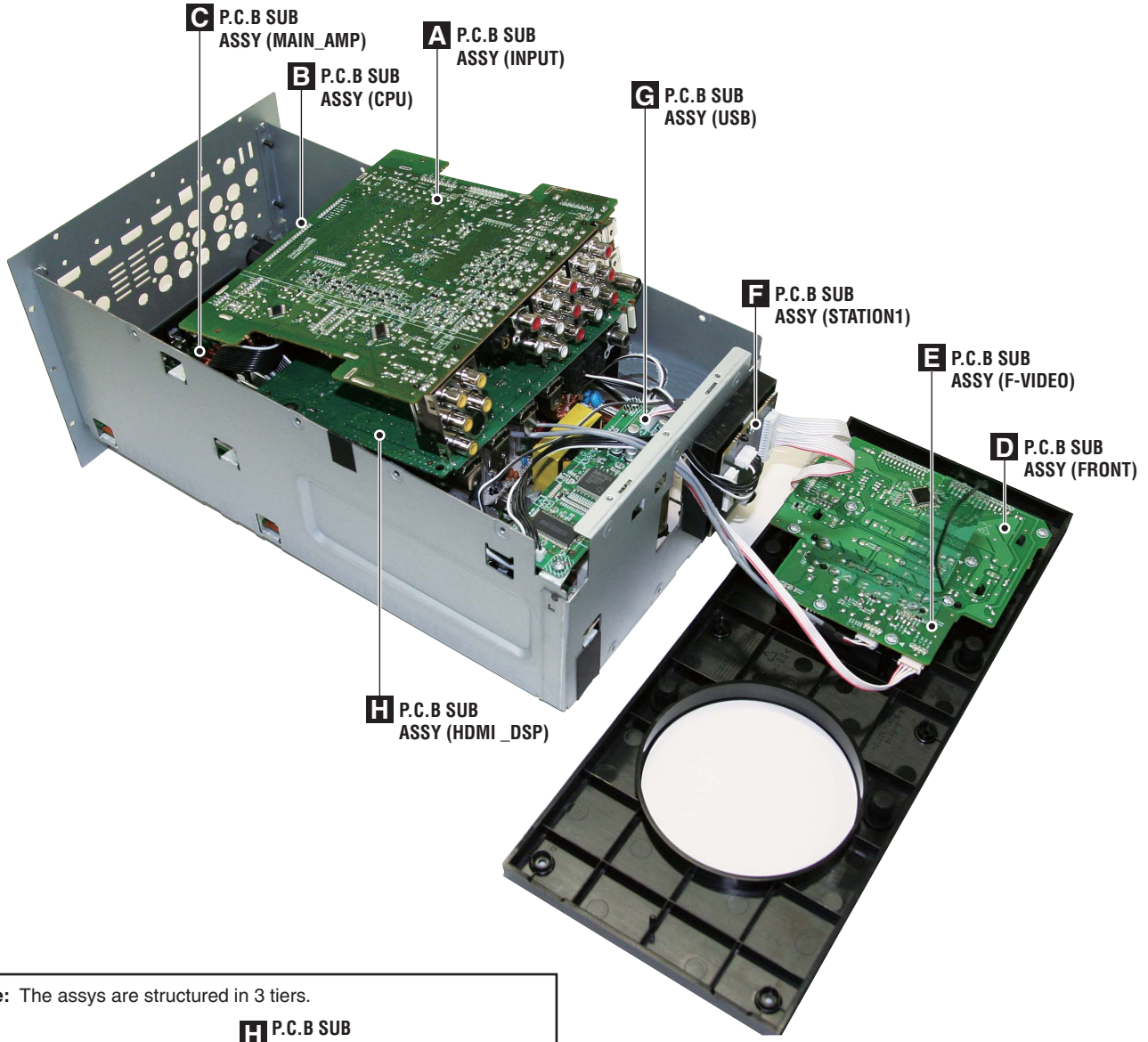
Cleaning

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools.

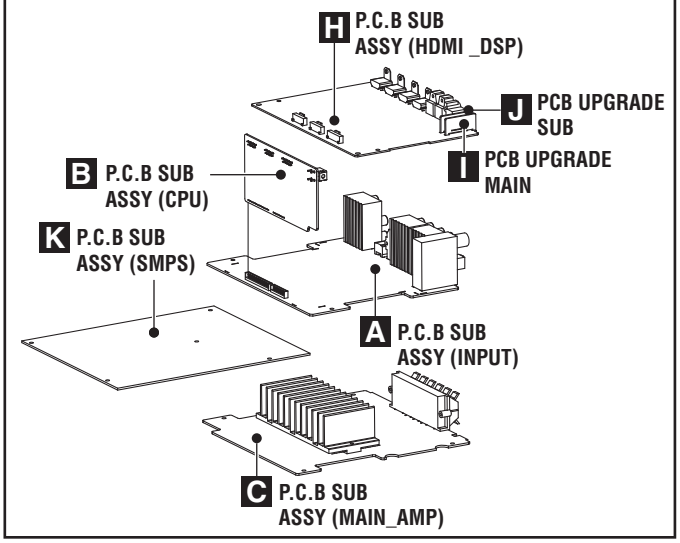
Position to be cleaned	Name	Part No.	Remarks
Fans	Cleaning paper	GED-008	

3.2 PCB LOCATIONS

Note: The photo below shows a state where the assys are raised.



Note: The assys are structured in 3 tiers.



Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP	1	P.C.B TOTAL ASSY (MAIN_AMP)	7025HK0914020-IL
	2	P.C.B SUB ASSY (MAIN_AMP)	7028068991020-IL
NSP	2	PCB UPGRADE MAIN	
NSP	2	PCB UPGRADE SUB	
NSP	1	P.C.B TOTAL ASSY (INPUT) (VYXCN5)	7025HK0914021-IL
	2	P.C.B SUB ASSY (INPUT) (VYXCN5)	7028069001020-IL
	2	P.C.B SUB ASSY (CPU) (VYXCN5)	7028069002020-IL
NSP	1	P.C.B TOTAL ASSY (INPUT) (LXCN)	7025HK0914031-IL
	2	P.C.B SUB ASSY (INPUT) (LXCN)	7028069001030-IL
	2	P.C.B SUB ASSY (CPU) (LXCN)	7028069002030-IL
NSP	1	P.C.B TOTAL ASSY (HDMI_DSP)	7025HK0914012-IL
	2	P.C.B SUB ASSY (HDMI_DSP)	7028069011010-IL
NSP	1	P.C.B TOTAL ASSY (FRONT)	7025HK0914013-IL
	2	P.C.B SUB ASSY (FRONT)	7028069021010-IL
	2	P.C.B SUB ASSY (F-VIDEO)	7028069022010-IL
	2	P.C.B SUB ASSY (STATION1)	7028069023010-IL
NSP	1	P.C.B TOTAL ASSY (USB)	7025HK0914014-IL
	2	P.C.B SUB ASSY (USB)	7028069031010-IL
⚠	1	SMPS ASSY	8208000850020-IL

3.3 JIGS LIST

■ Jigs list

Name	Jig No.	Remarks
19P FFC	GGD1662	Diagnosis
12P extension jig cable	GGD1663	Diagnosis
RS-232C Interface jig	GGF1642	Firmware update

A

B

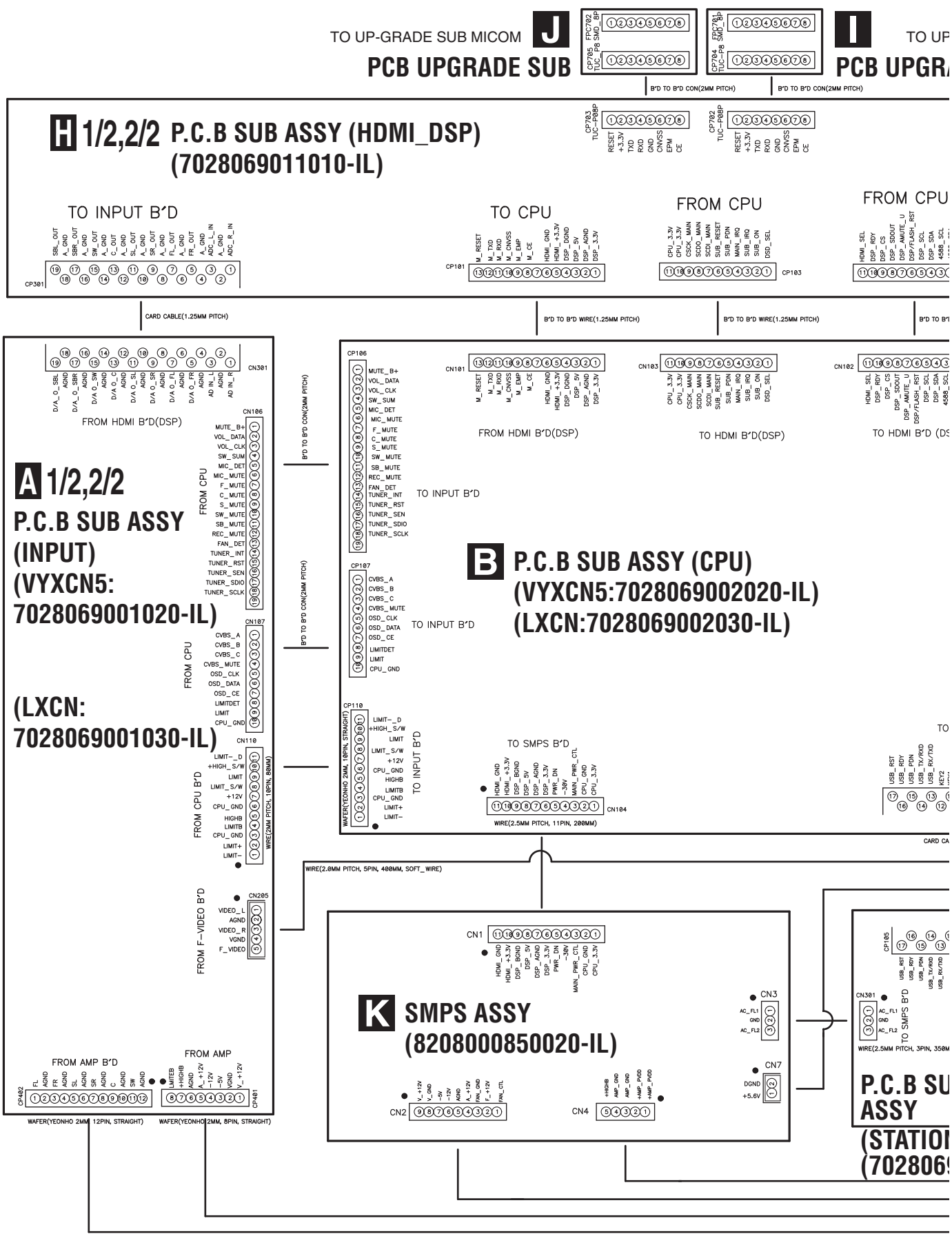
C

D

E

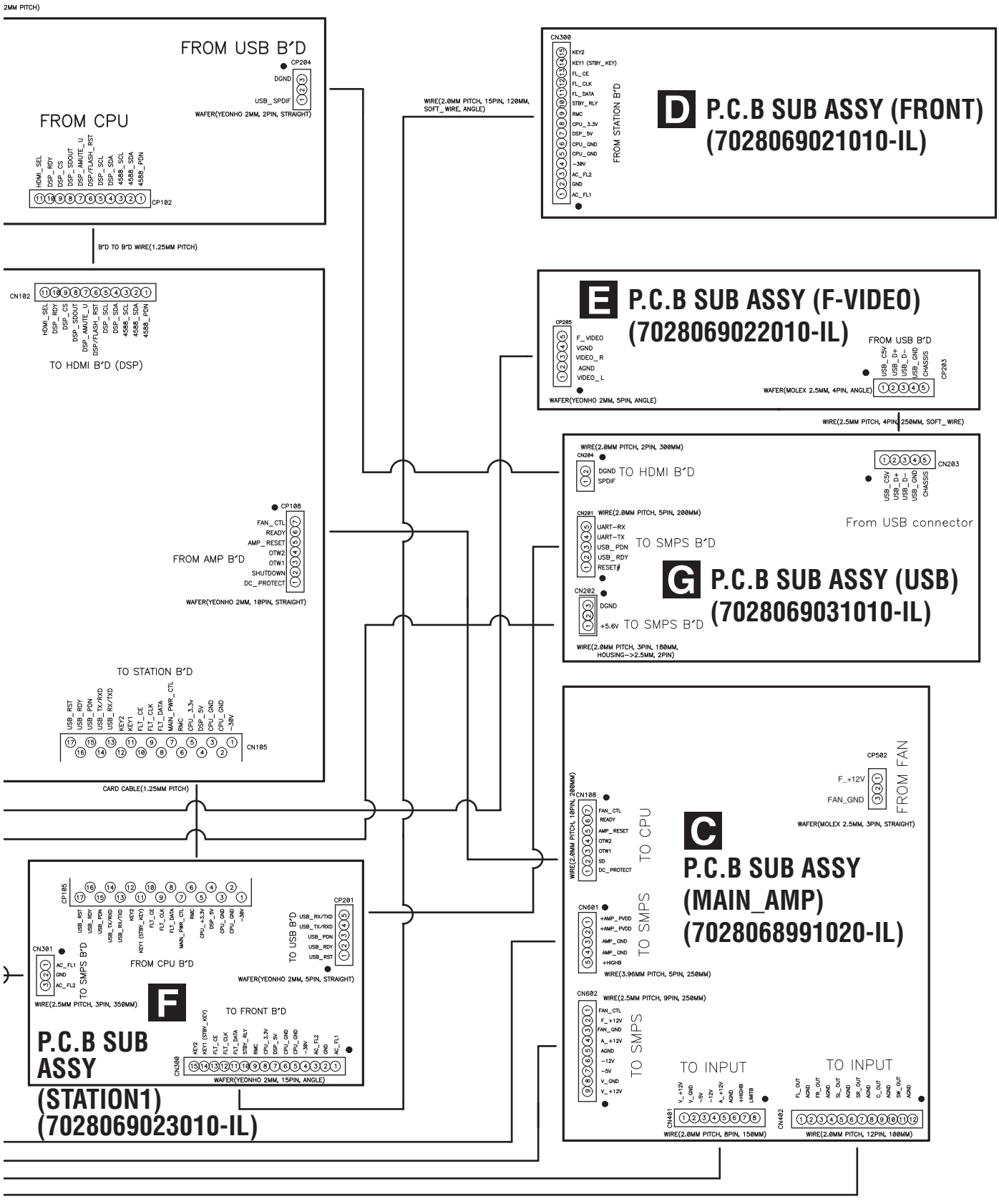
F

4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM

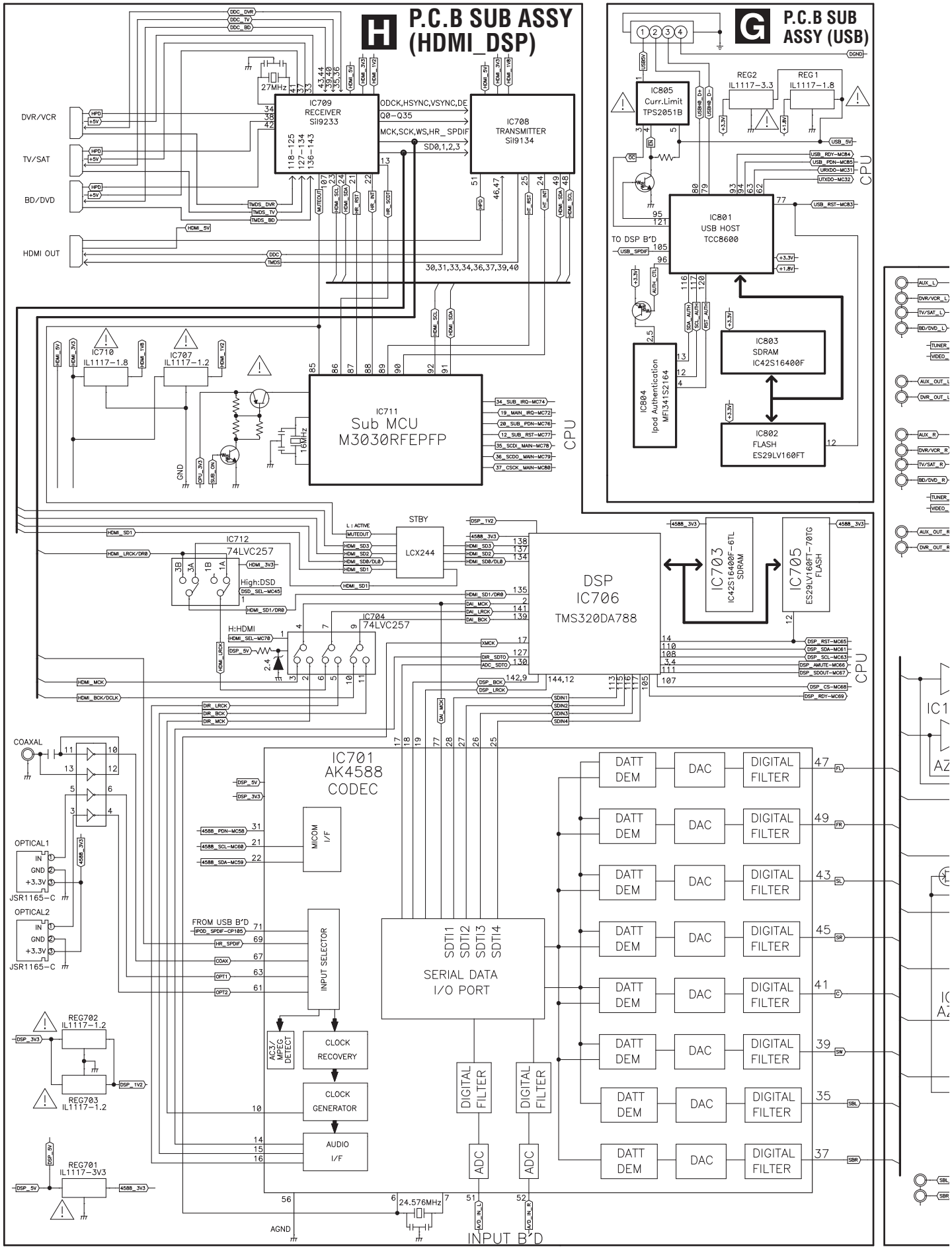


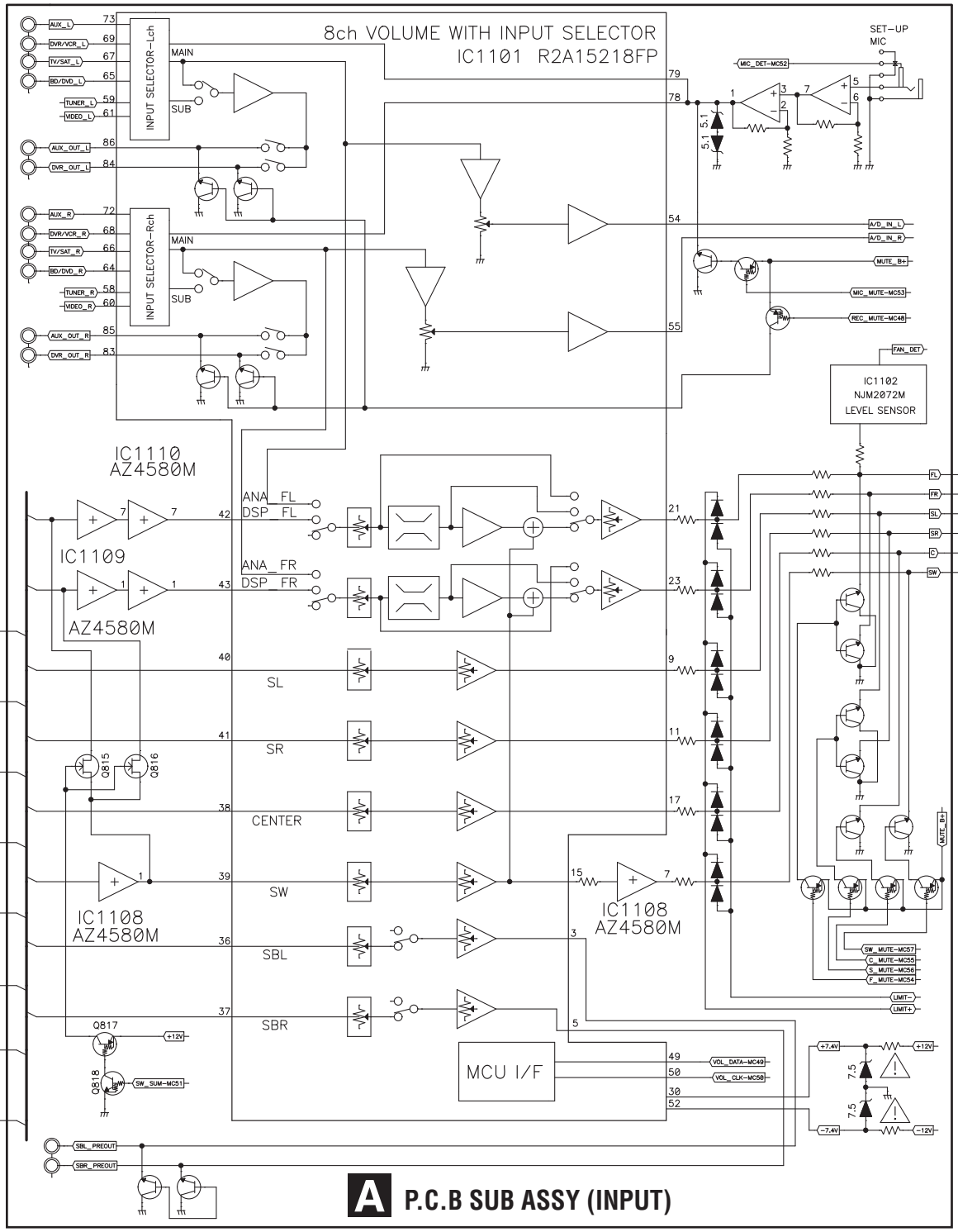
I TO UP-GRADE SUB MICOM

PCB UPGRADE MAIN

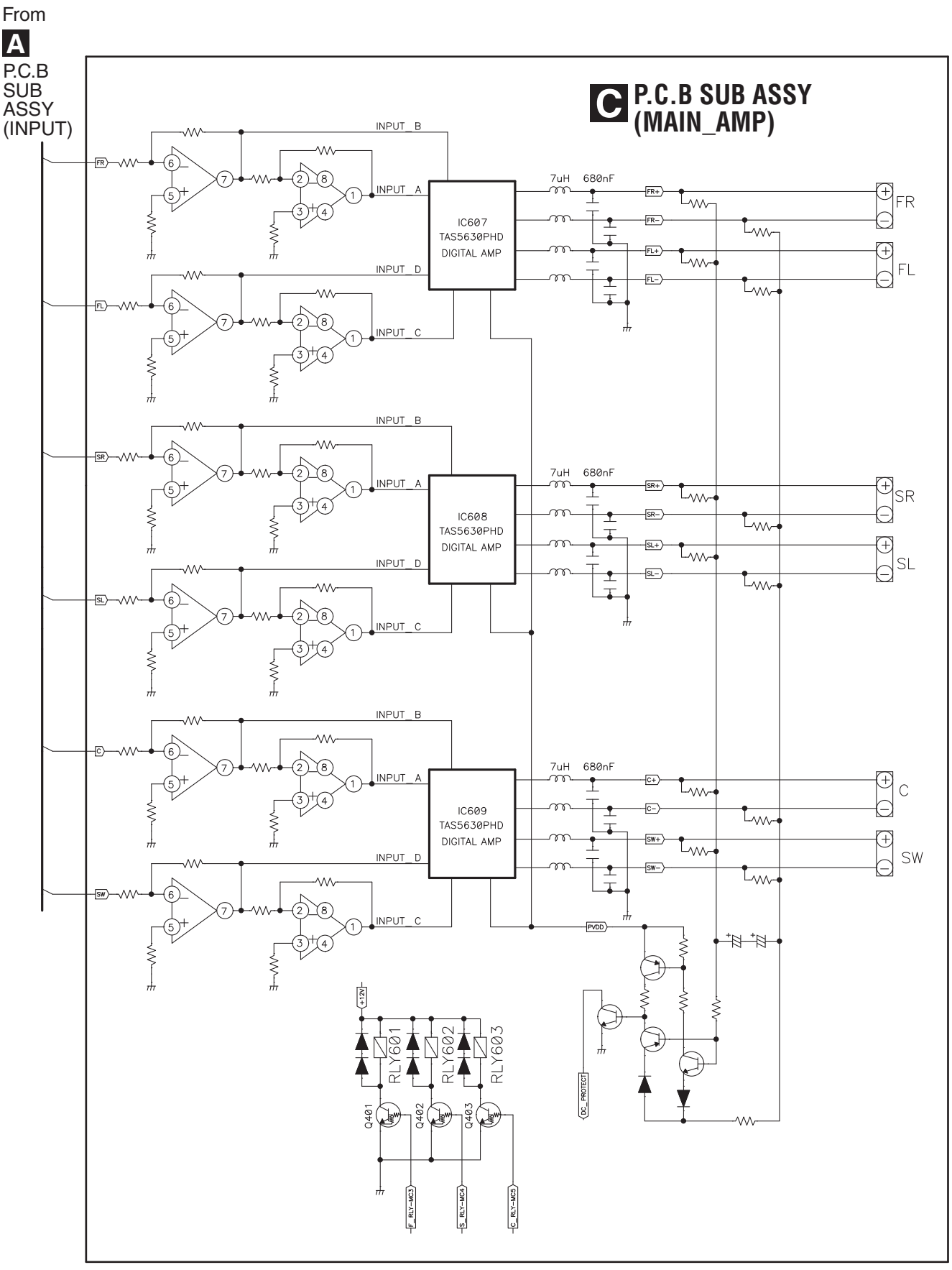


4.2 AUDIO BLOCK DIAGRAM (1/2)

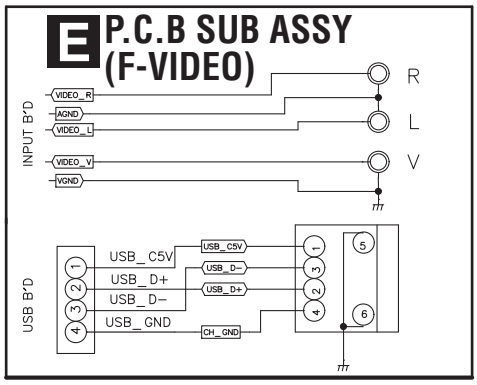


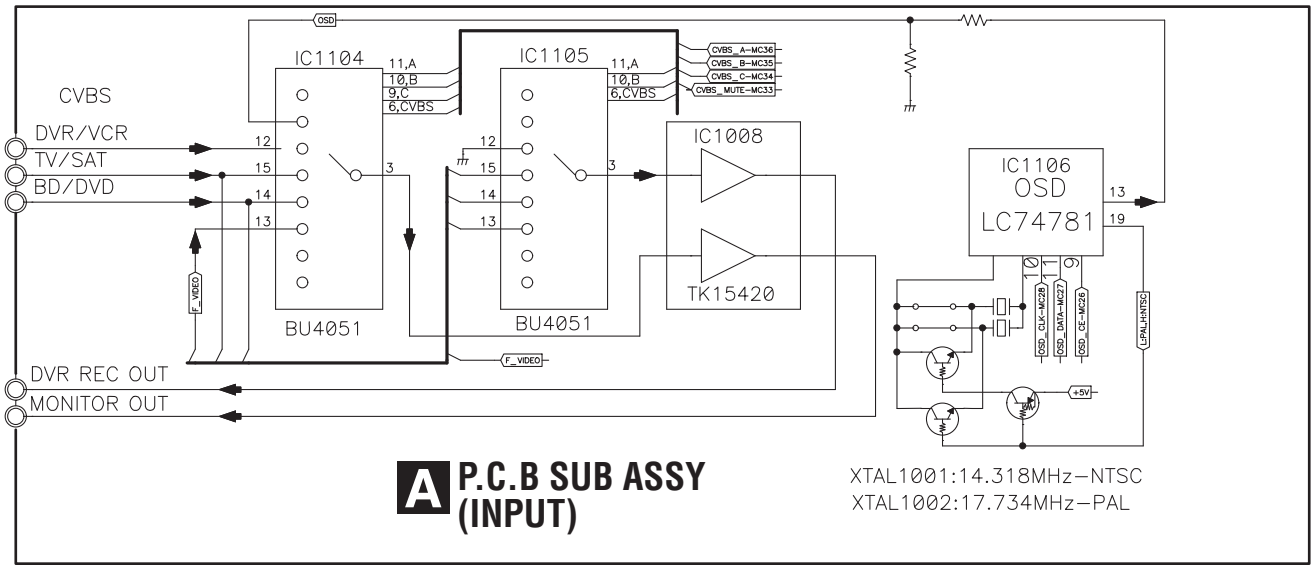

8ch VOLUME WITH INPUT SELECTOR
IC1101 R2A15218FP
INPUT SELECTOR-Lch
INPUT SELECTOR-Rch
MAIN
SUB
SET-UP MIC
IC1102 NJM2072M LEVEL SENSOR
IC1110 AZ4580M
IC1109 AZ4580M
IC1108 AZ4580M
IC1108 AZ4580M
ANA_FL
DSP_FL
ANA_FR
DSP_FR
SL
SR
CENTER
SW
SBL
SBR
MCU I/F
To C P.C.B SUB ASSY (MAIN_AMP)
A P.C.B SUB ASSY (INPUT)

4.3 AUDIO BLOCK DIAGRAM (2/2)

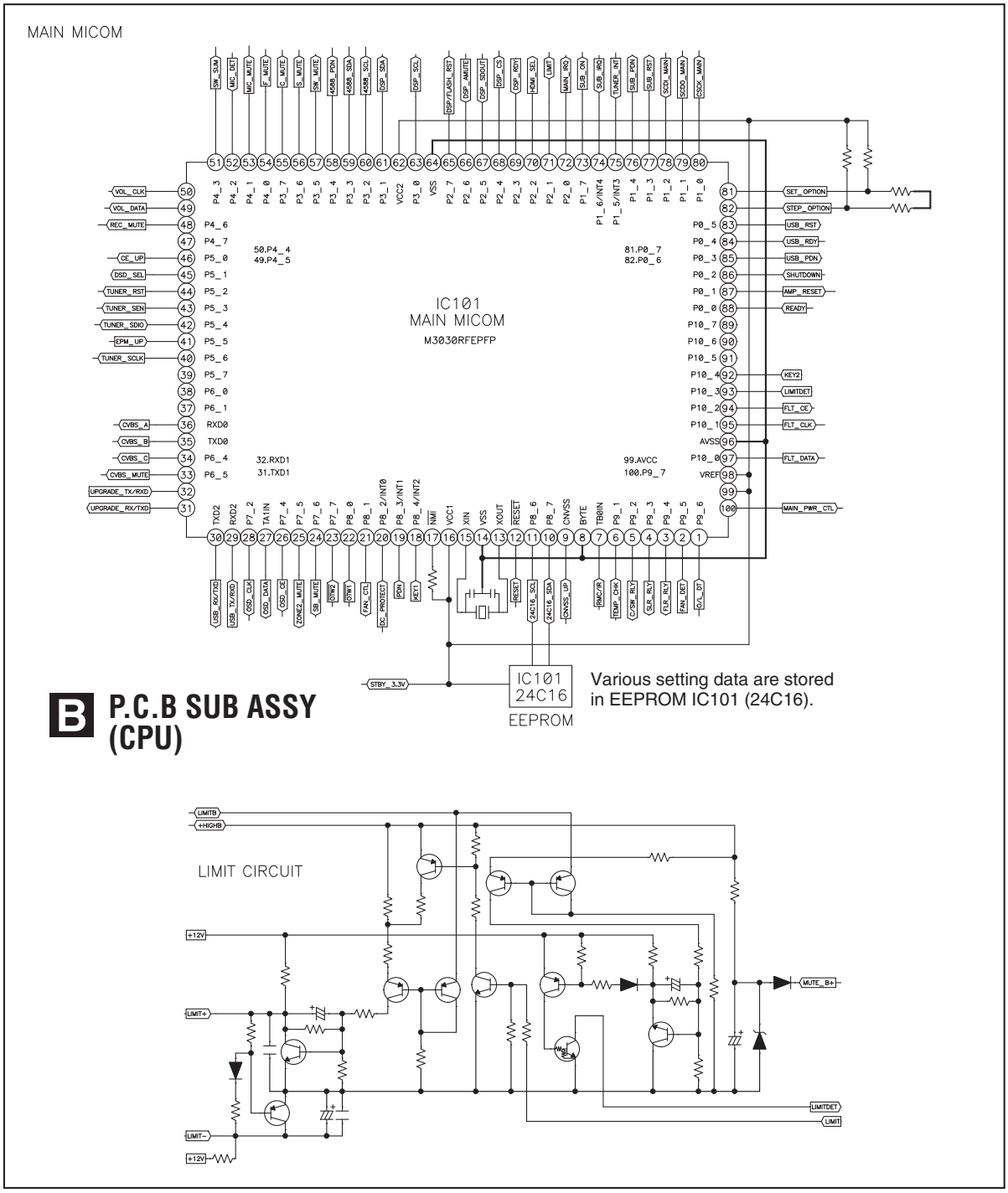


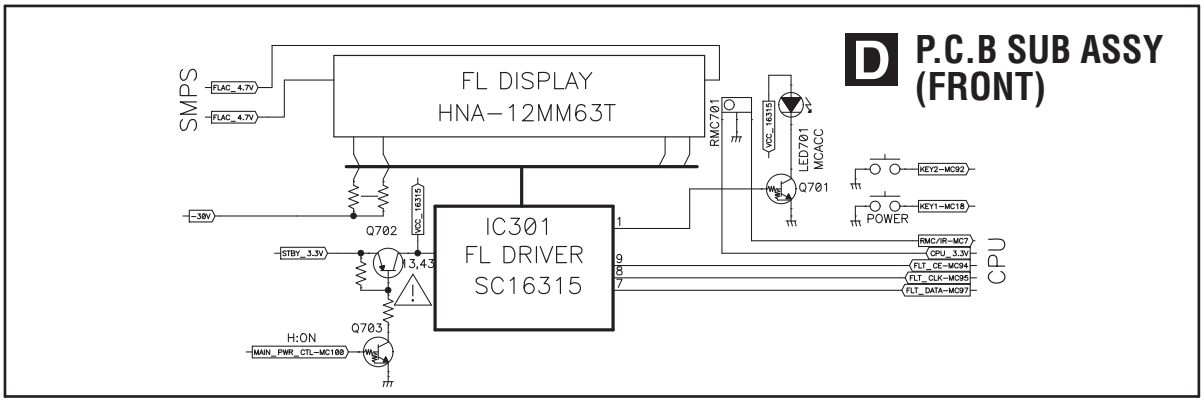
4.4 VIDEO BLOCK DIAGRAM



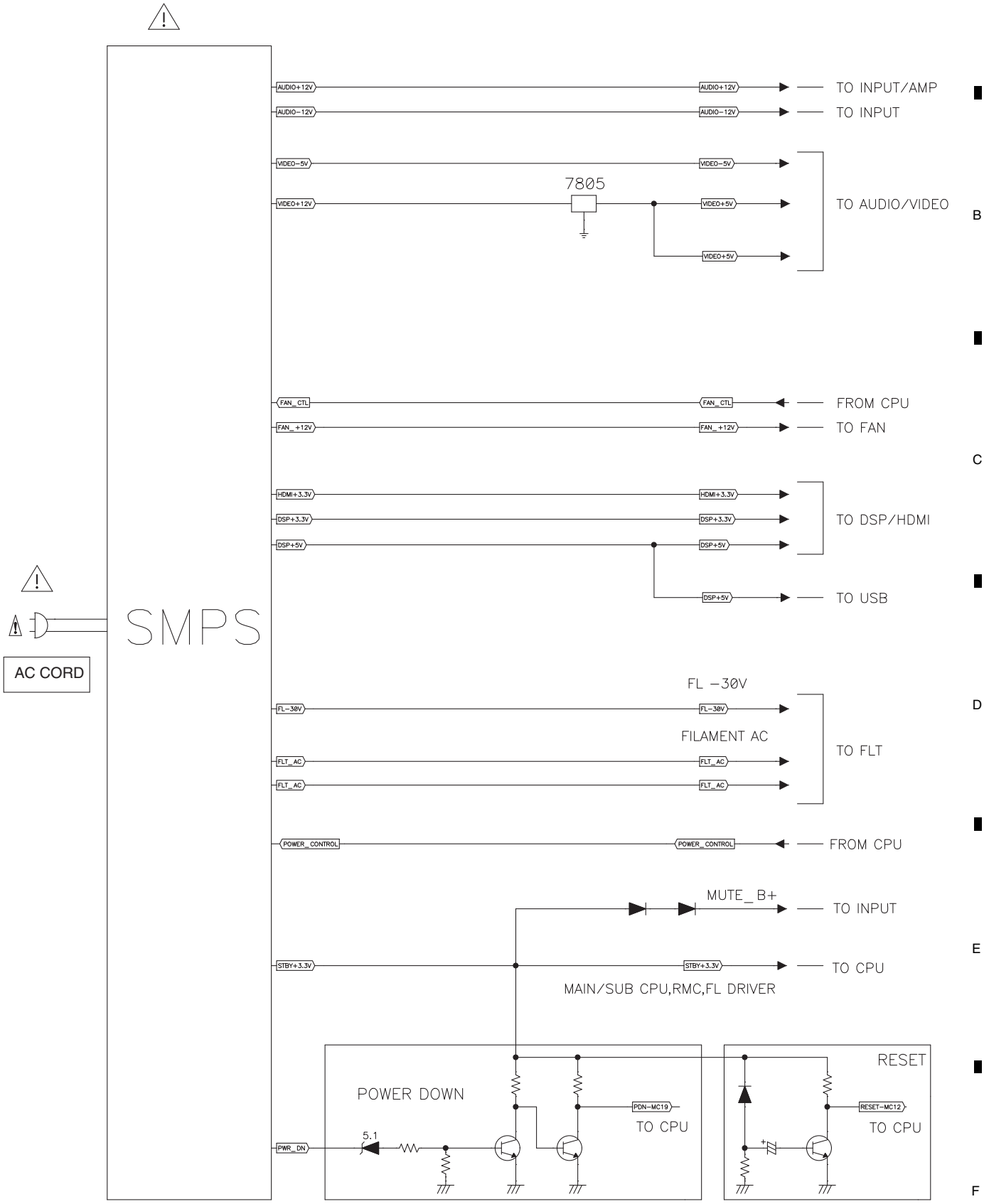


4.5 U-COM BLOCK DIAGRAM





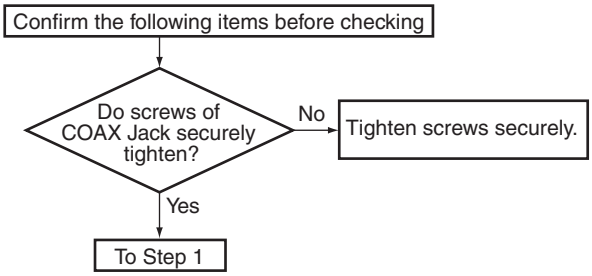
4.6 POWER SUPPLY BLOCK DIAGRAM



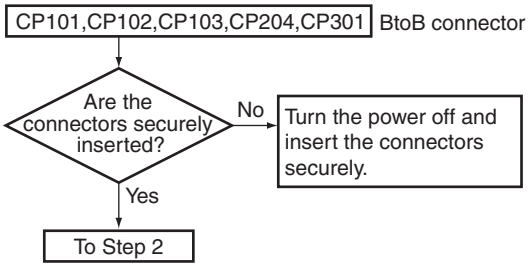
5. DIAGNOSIS
5.1 DIAGNOSIS FLOWCHART

[1] DSP TROUBLESHOOTING
■ Troubleshooting

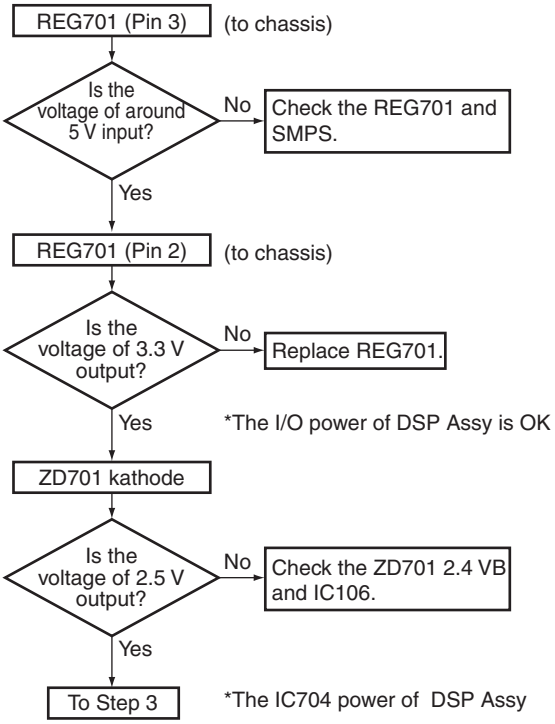
Step 0: Preliminary confirmation



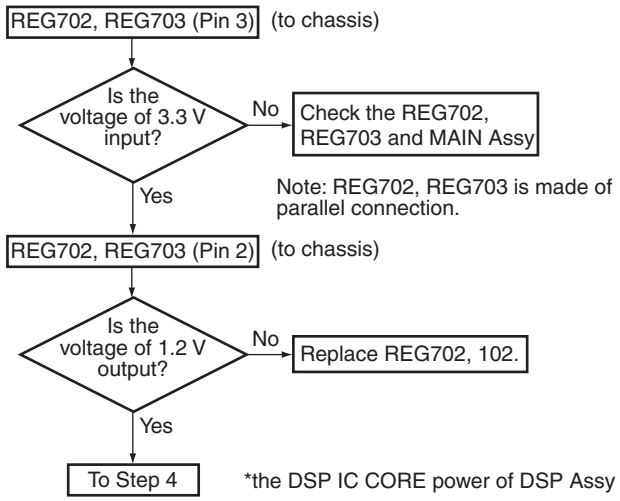
Step 1: BtoB connector



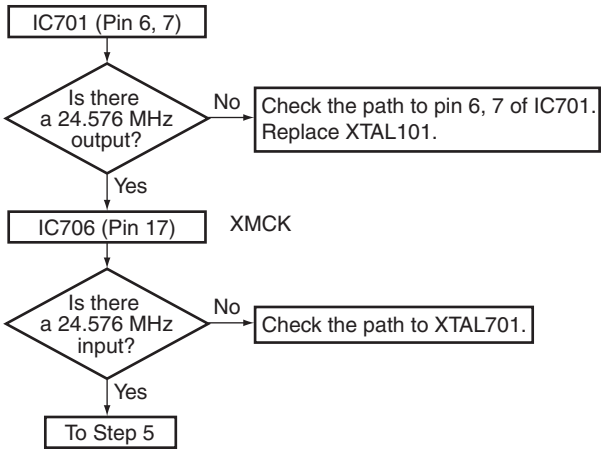
Step 2: Regulator IC



Step 3: Regulator IC

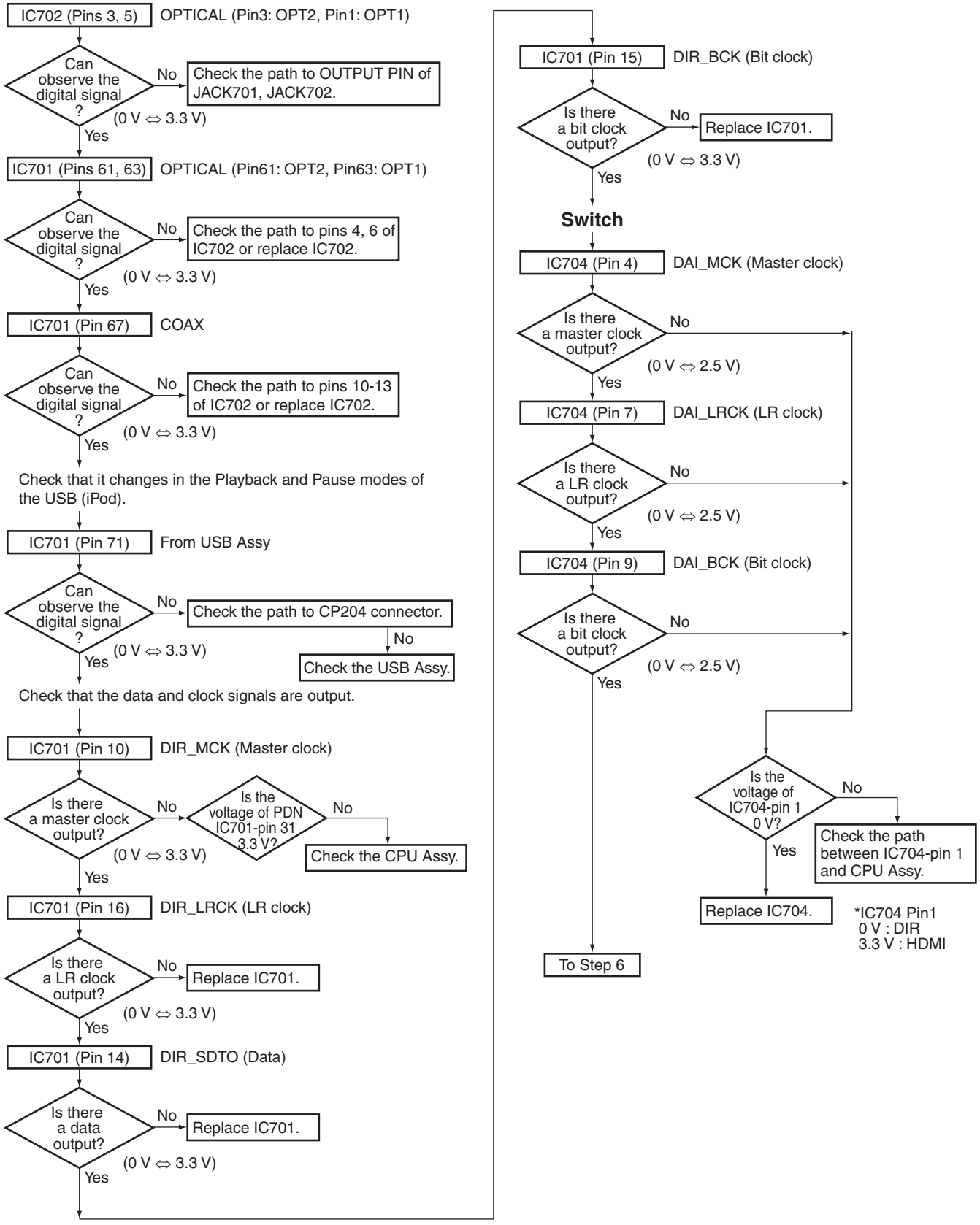


Step 4: X'tal



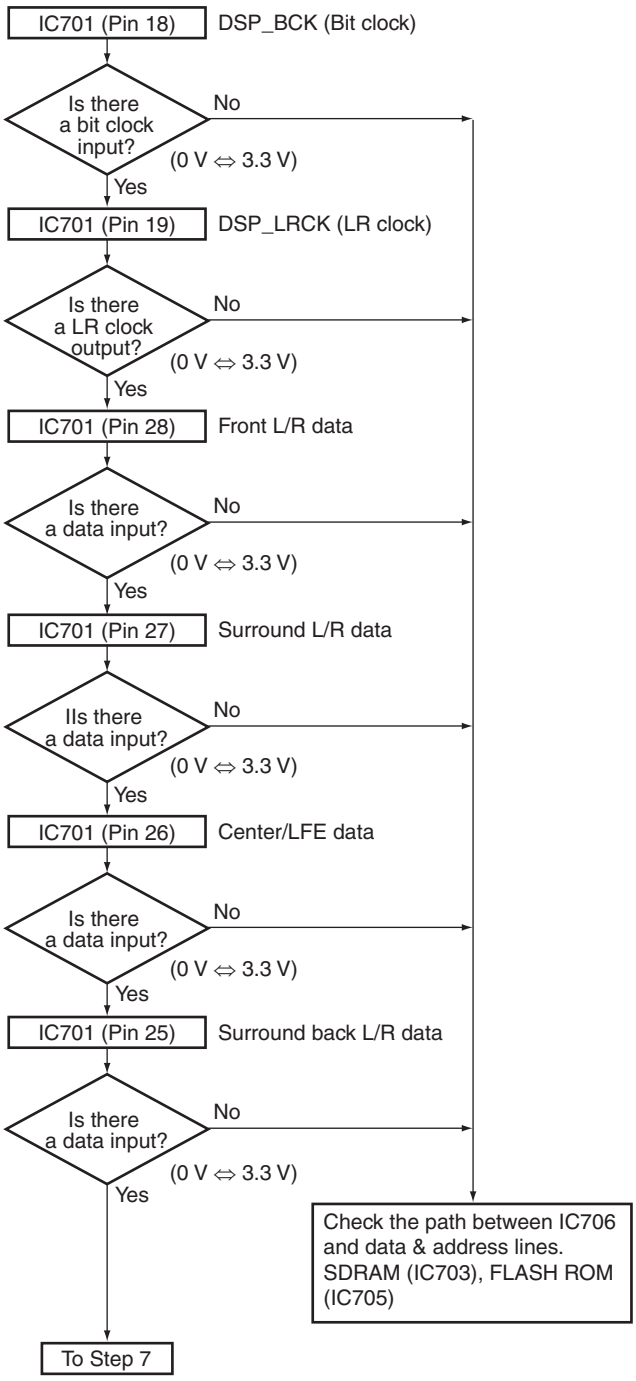
Step 5: DIR

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



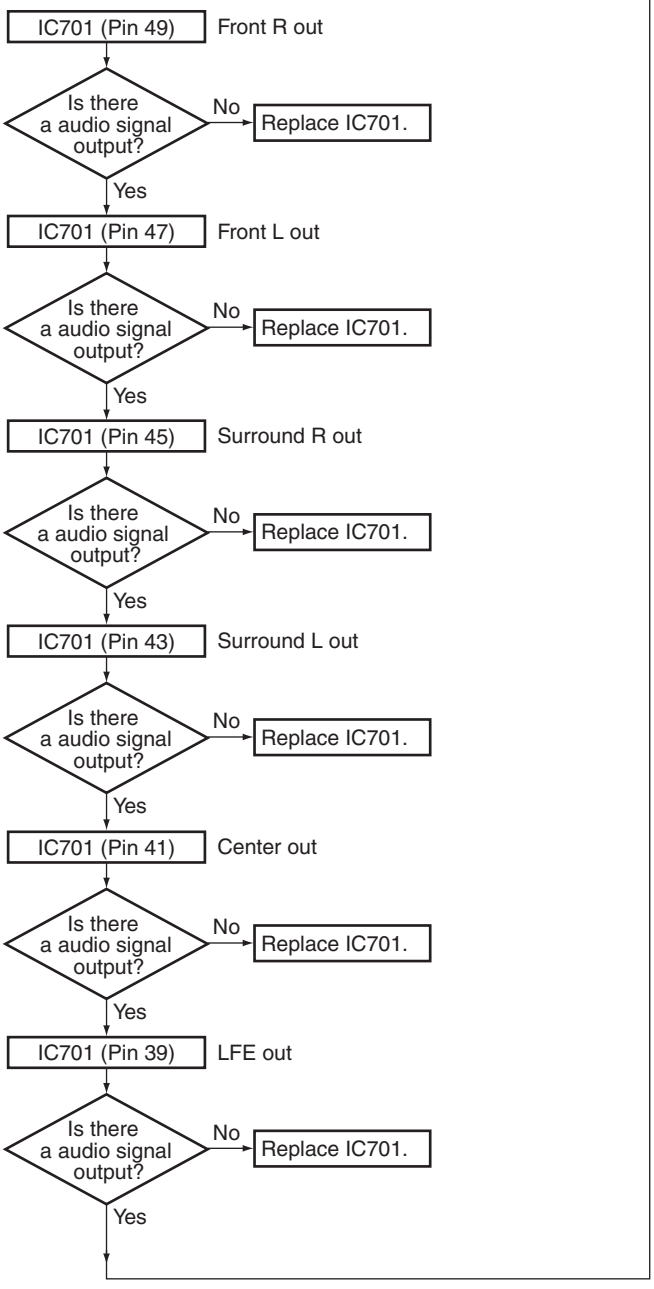
Step 6: DSP output (digital)

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

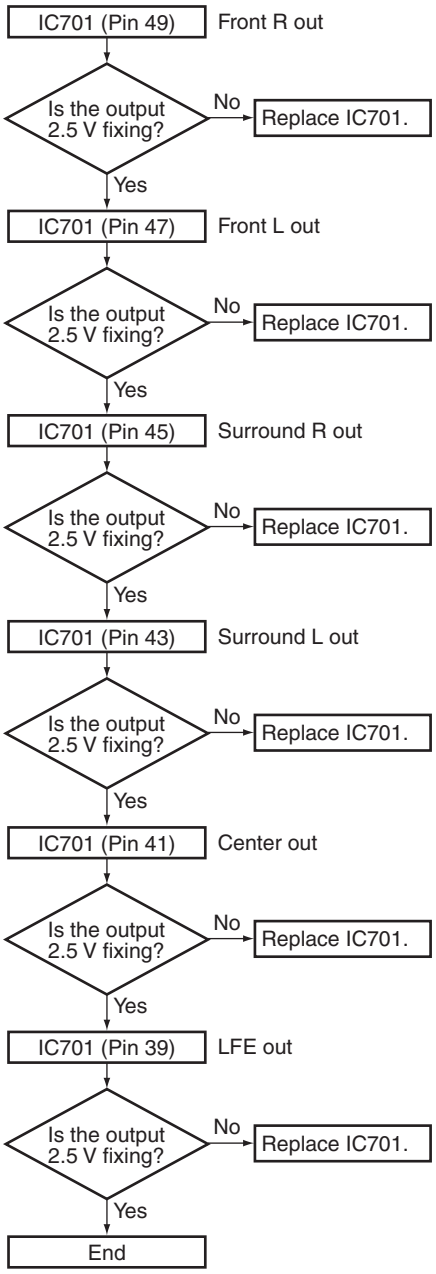


Step 7: Codec output (analog)

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



Analog output of each CH when inputting the digital signal (-∞ dB (no signal)).

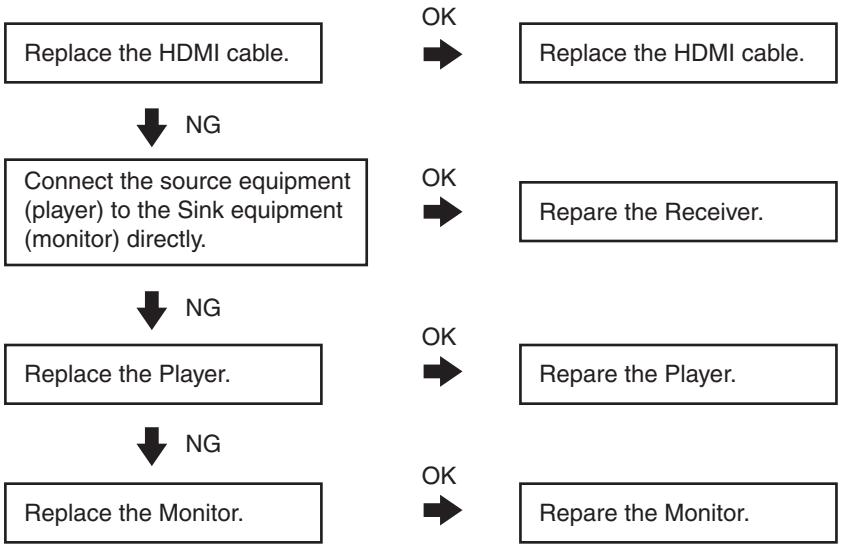


[2] HDMI TROUBLESHOOTING

1. Causes for noncompletion of HDMI authentication between the source equipment and this unit (the HDMI indicator is unlit or flashes)

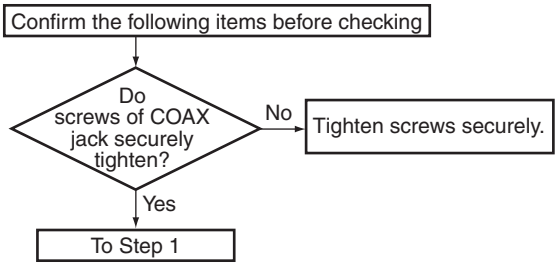
■ HDMI Simple Diagnosis

Causes for no display or sound from the monitor

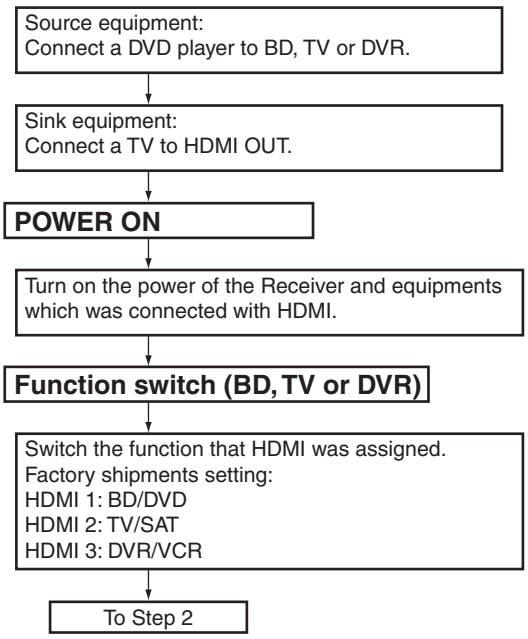


■ HDMI Troubleshooting

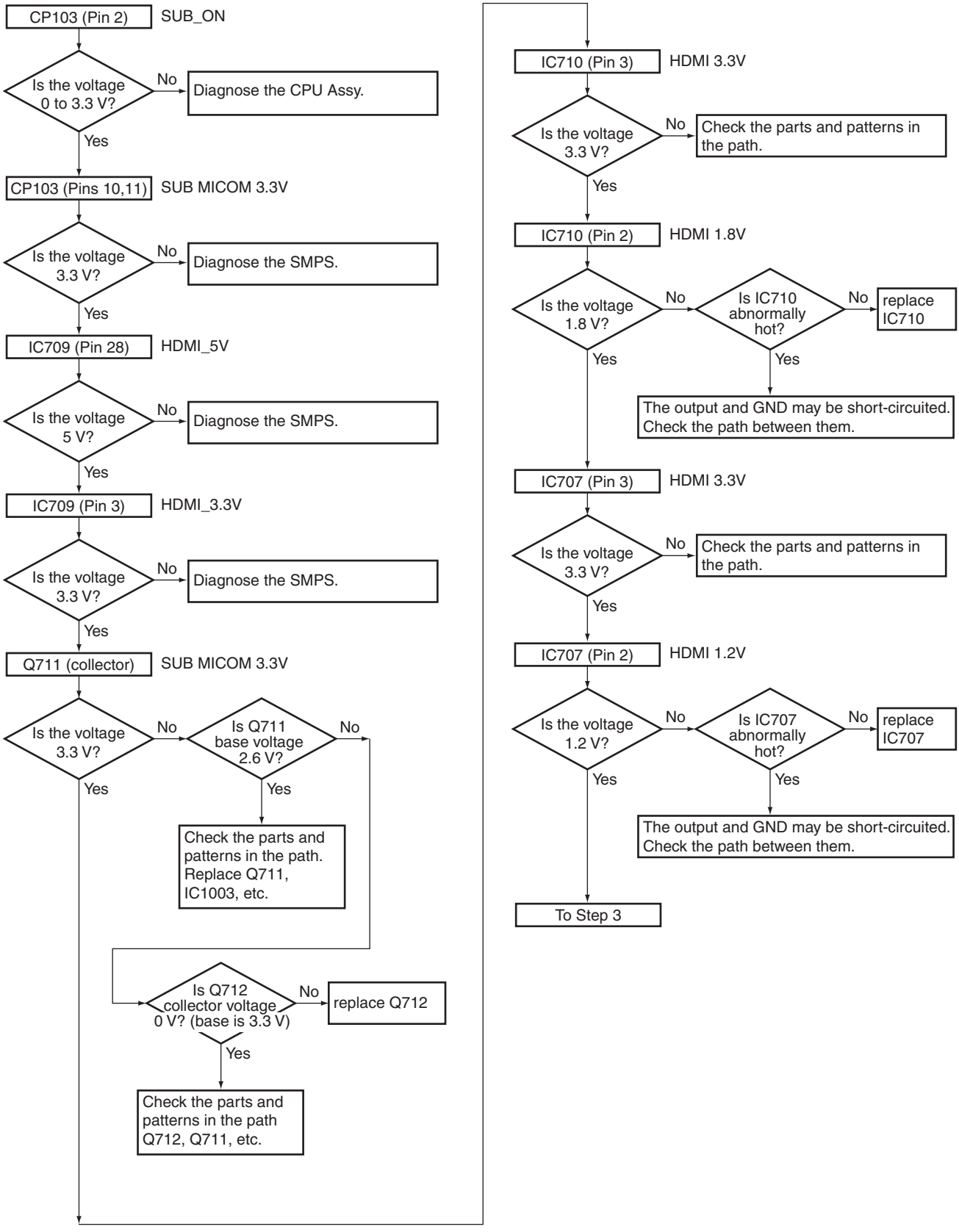
Step 0: Preliminary confirmation



Step 1: Connect the HDMI equipment

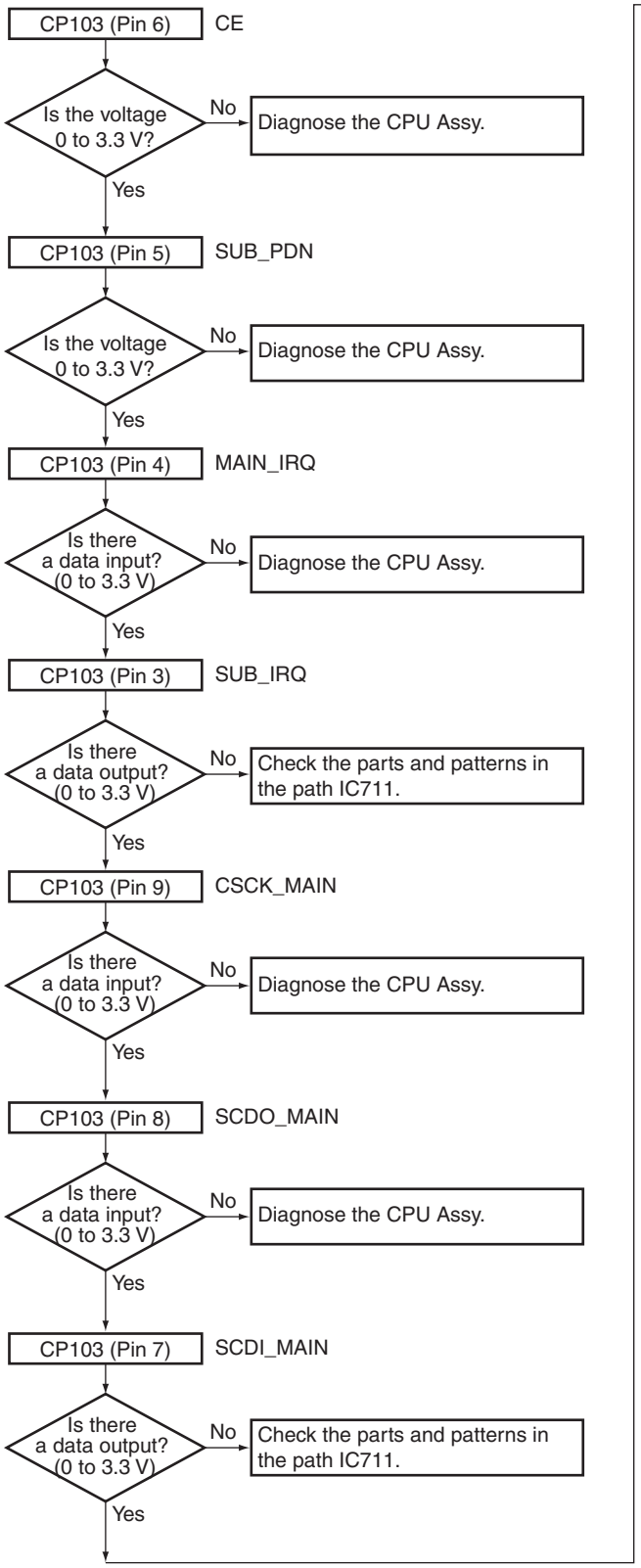


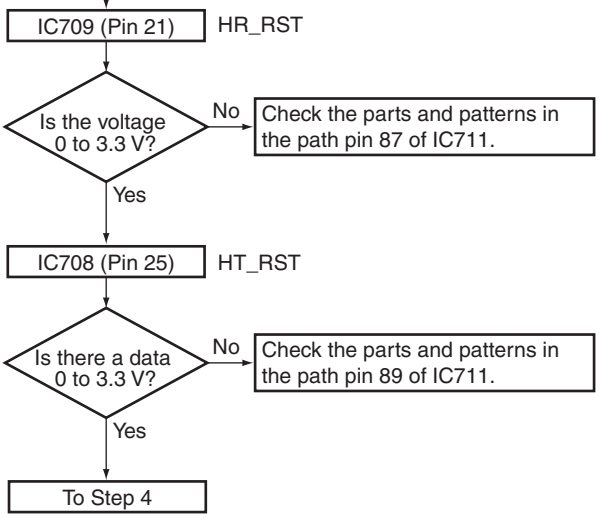
Step 2: Power supply



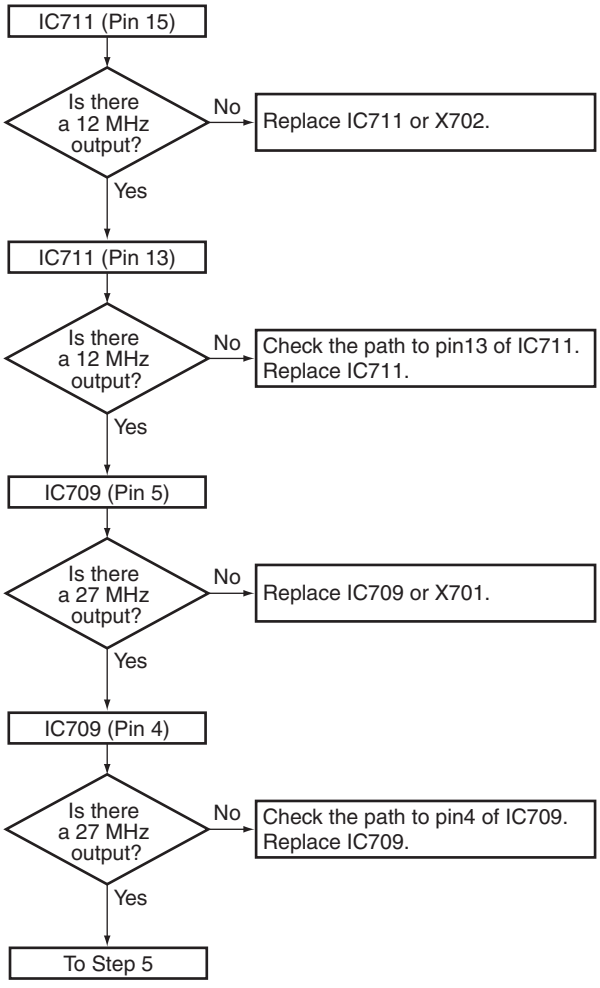
Step 3: Diagnosis

Each data lines confirmation checks it after standby OFF/ON.

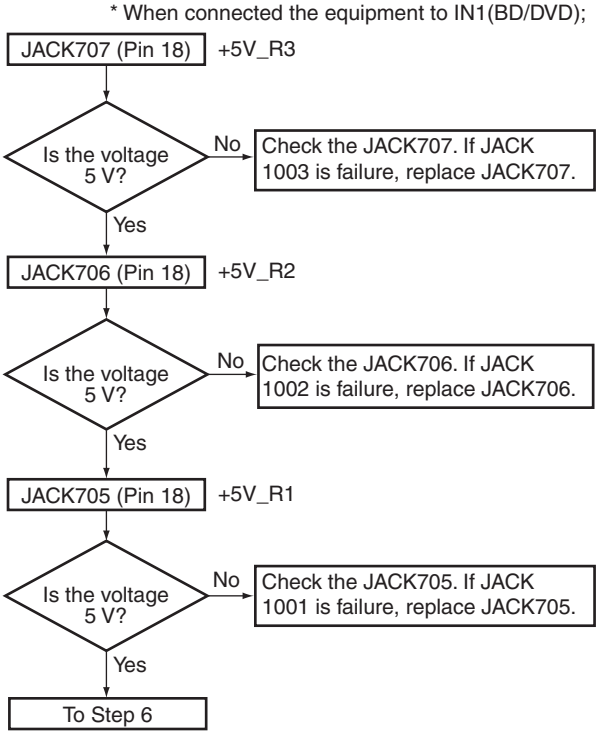




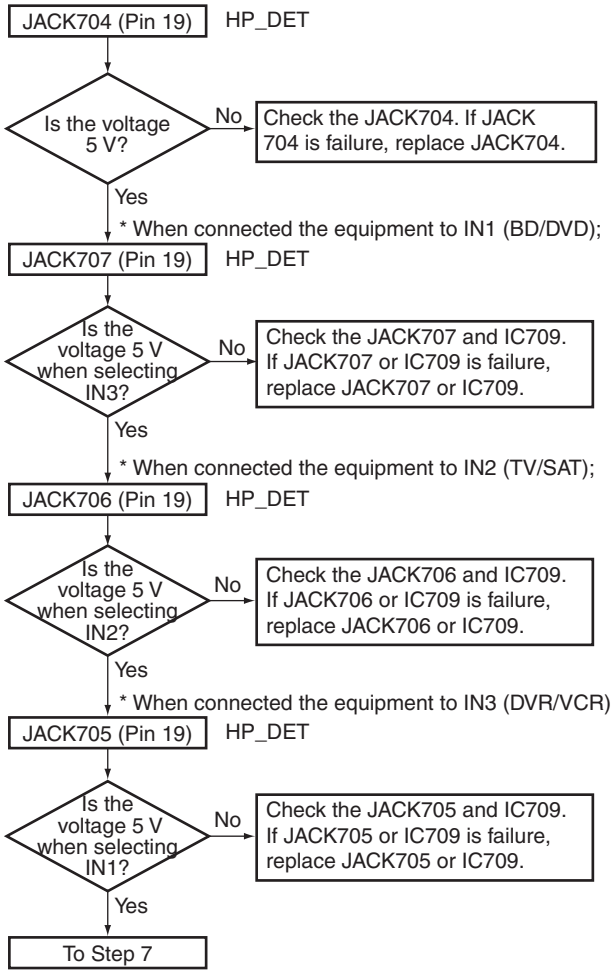
Step 4: X'TAL



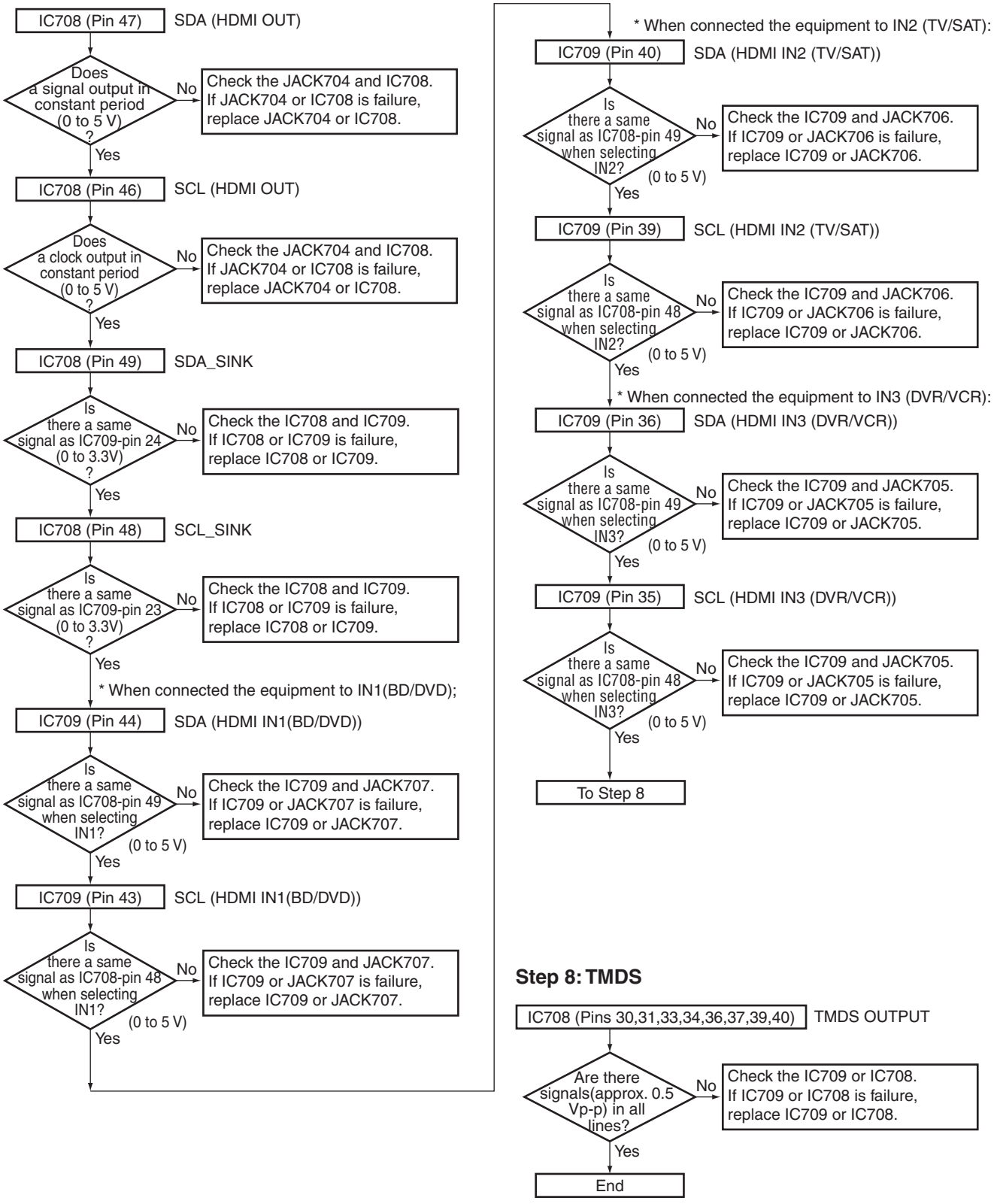
Step 5: IN/OUTPUT Diagnosis



Step 6: Hot plug detect



Step 7: SDA /SCL

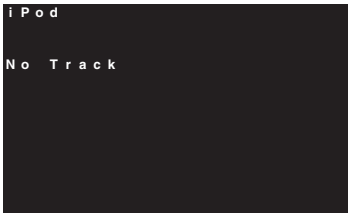


Step 8: TMDS

[3] USB iPod TROUBLESHOOTING

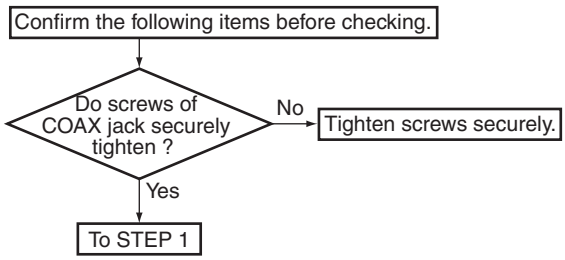
iPod Error Message

When the abnormality occurred, the error messages are indicated.

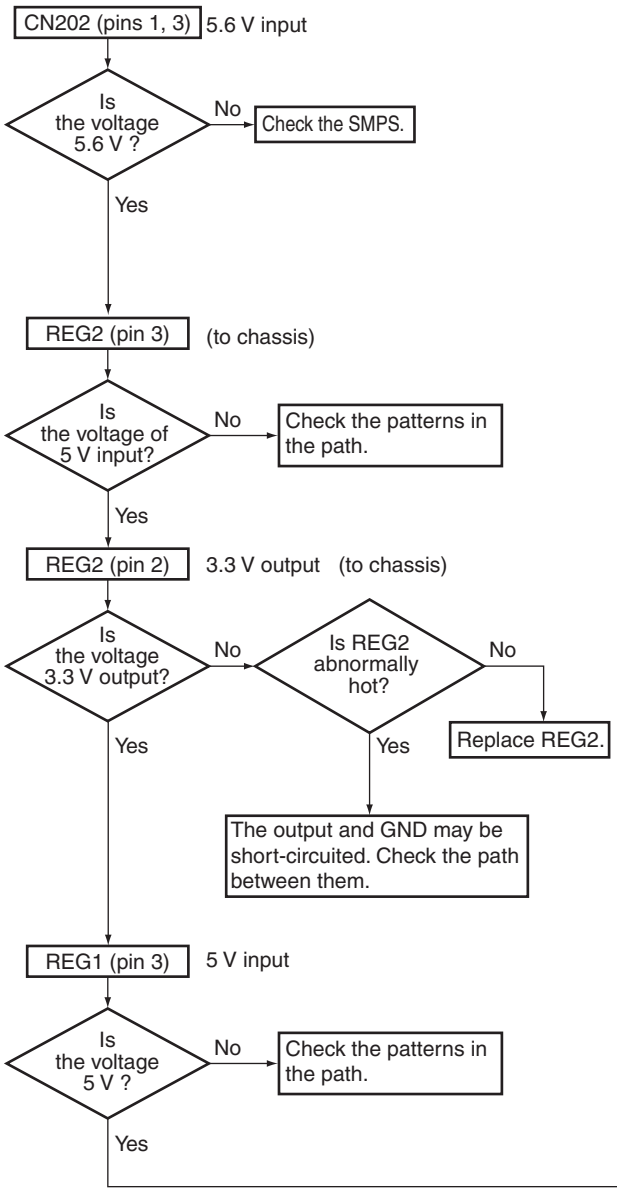
key sequence change	OSD display	FL display
Error 1 Communication Error When the communication is not possible normally. [Procedure] Disconnect a connector once, then connect a connector surely again after the main menu of the iPod was displayed. Nevertheless, reset the iPod when the iPod does not operate normally.		
Error 2 Generation Error (in the Type 1 operation only) When the non-support model for the iPod Mode Type 1 was connected. When the non-support function will be executed. When a version of the iPod software is old. [Procedure] Change the iPod Mode to Type2. Update the iPod software to the newest version.		
Error 3 Loading Error When there is no response from the iPod. [Procedure] The power is shut off once, then the unit back on. Reset the iPod. Update the iPod software to the newest version.		
Error 4 OverHeat Error		
No Track No Music Track Cautuion When a track does not exist in the selected category [Procedure] Select another category.		

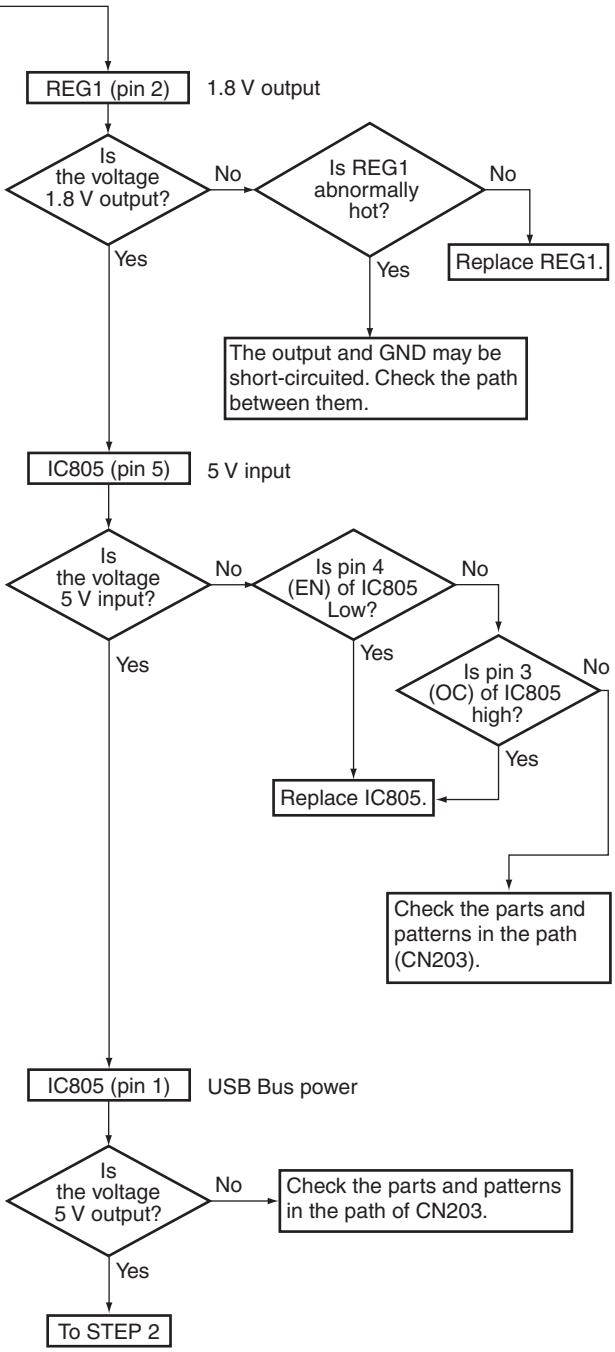
iPod Troubleshooting

Step 0: Preliminary confirmation



Step 1: Power supply





Step 2: Operation of USB Media control IC

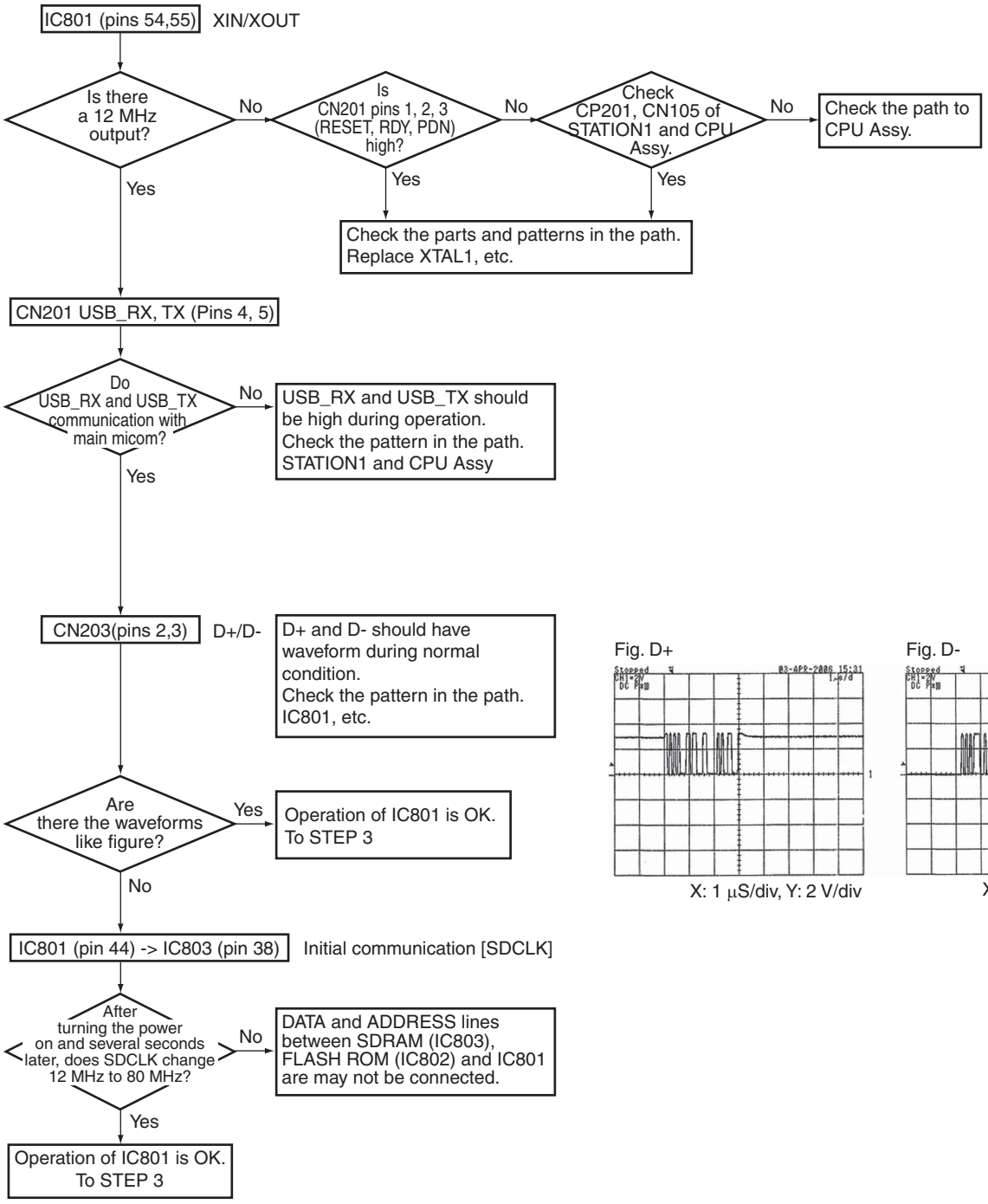
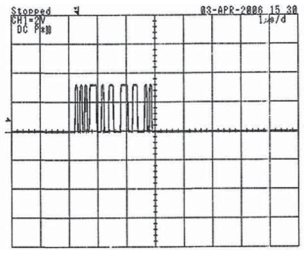


Fig. D+

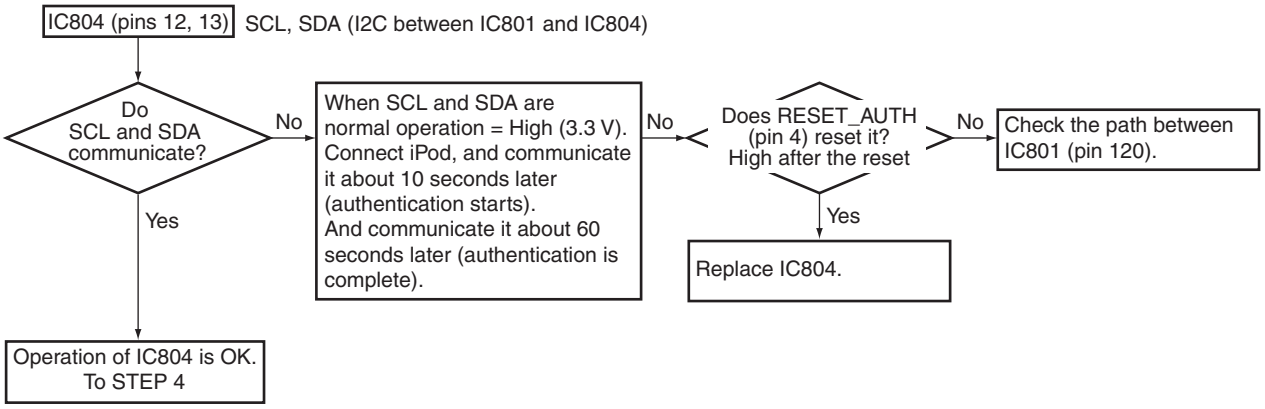
X: 1 μS/div, Y: 2 V/div

Fig. D-

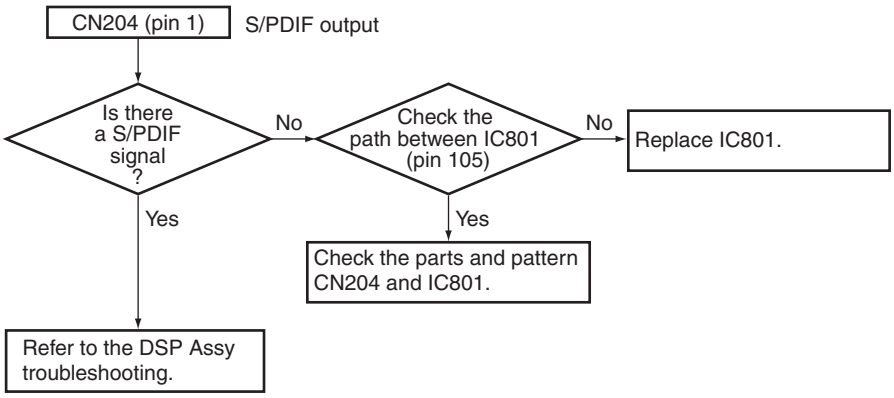


X: 1 μS/div, Y: 2 V/div

Step 3: Operation of iPod (Authentication process)

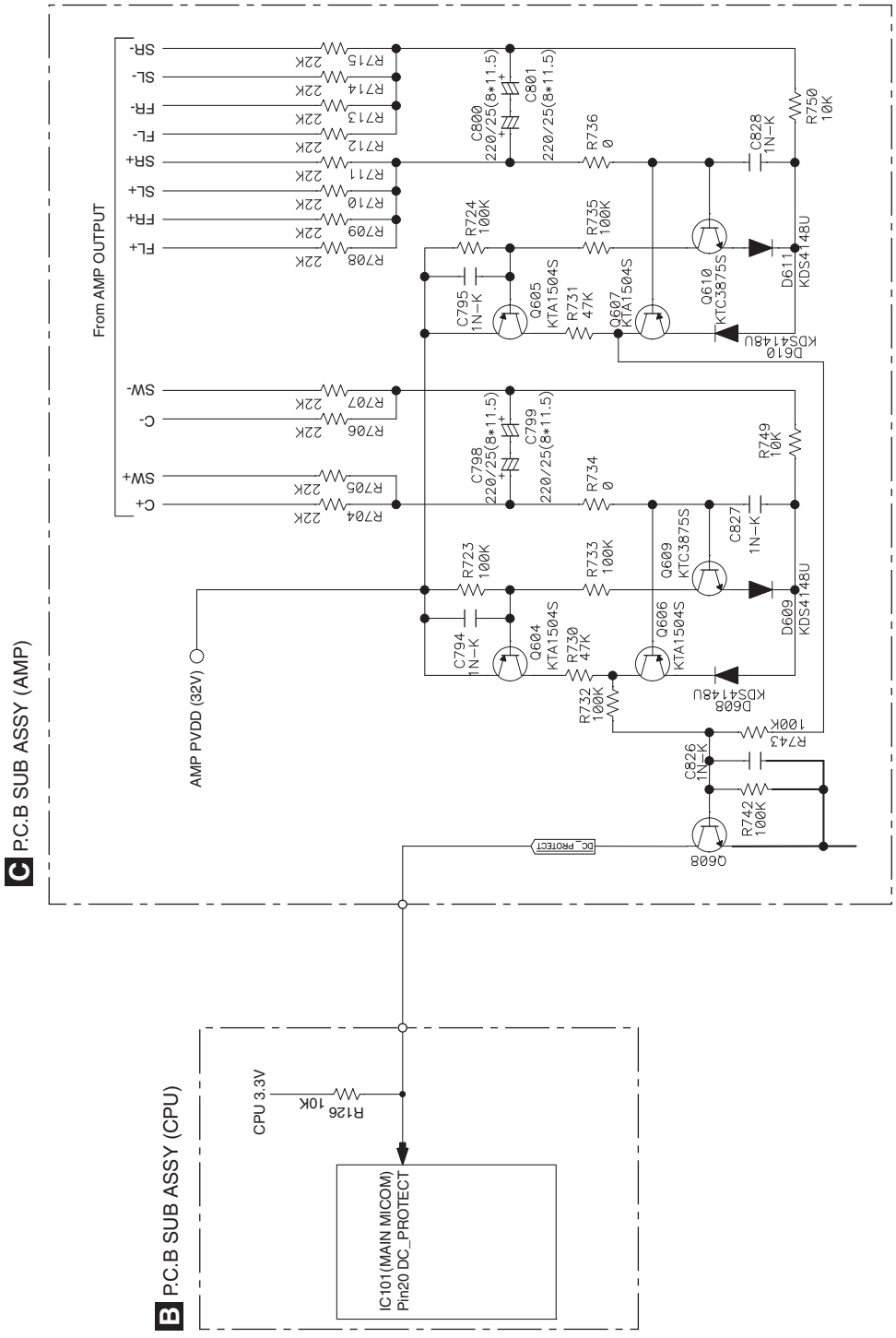


Step 4 Audio Out check

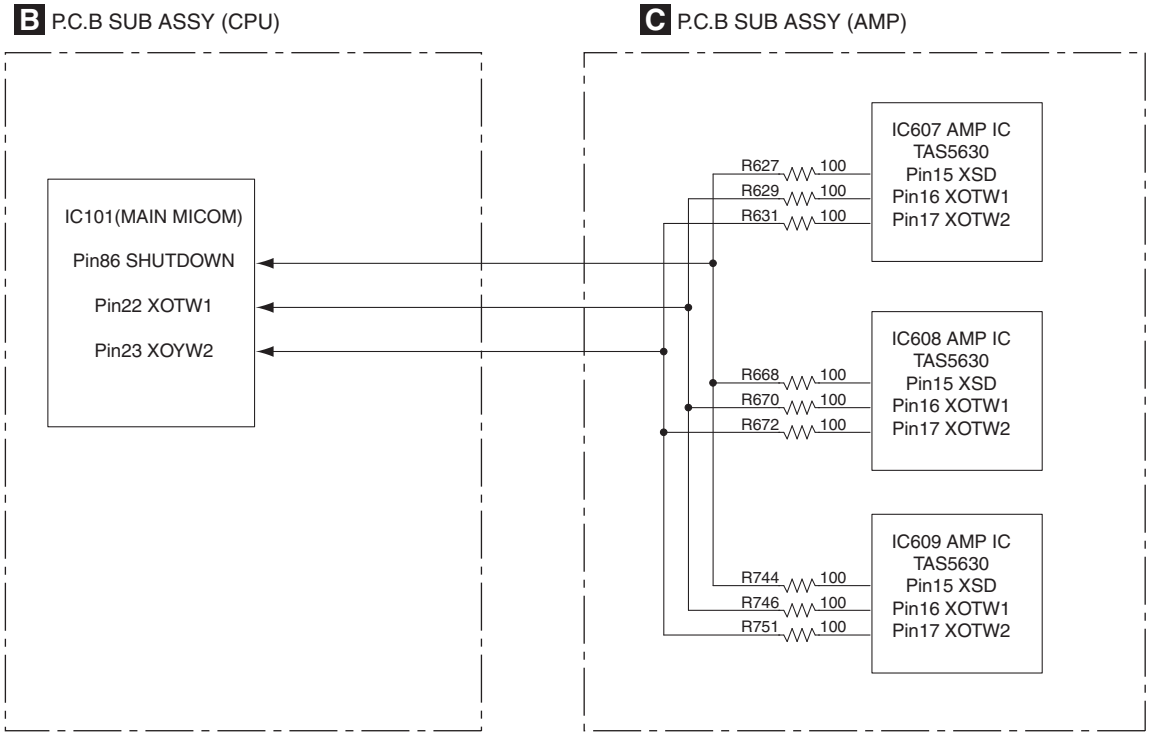


5.2 DETECTION CIRCUIT

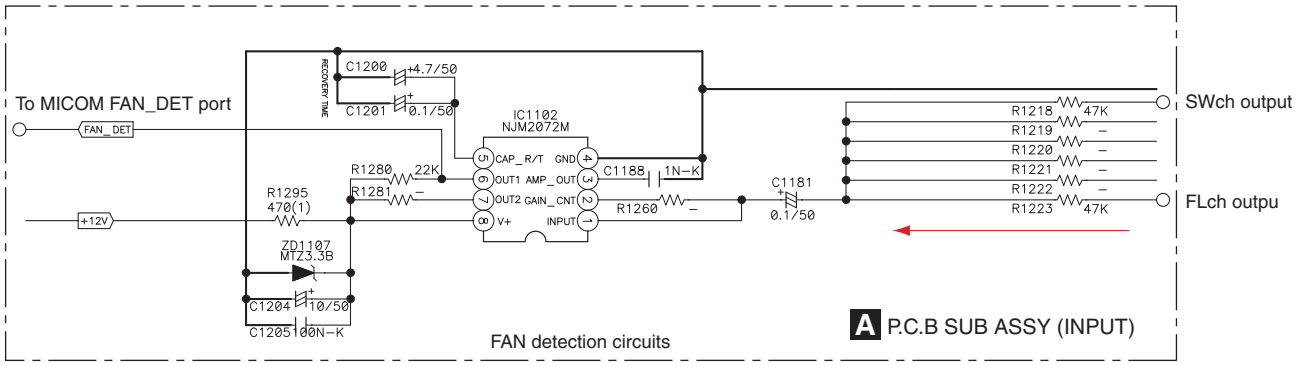
[1] DC Protection Circuit Diagram



[2] Overload Protection Circuit Diagram



[3] Operations of the FAN circuits



<Description of FAN operations>

• In Normal mode

Rotation of the fan is controlled by detecting the audio output levels of the front-L and subwoofer channels.
The FL- and SW-channel audio signals are input to the level-detection IC (IC1102). If the signal level exceeds the input sensitivity level (–36 dBV), the FAN_DET signal from Pin 6 becomes active and is output to the MAIN MICOM (IC101 Pin 2) of the CPU Assy.
Only while the FAN_DET signal is detected by the MAIN MICOM, the FAN control port is active and the fan rotates.
As soon as the FAN_DET signal is off, rotation of the fan stops.

• In a case where the temperature of the amp becomes high

Apart from the above conditions, the fan will rotate continuously in response to temperature rise at AMP ICs TAS5630 (IC607, 608, and 609).

	$\overline{SD}$	$\overline{OTW1}$	$\overline{OTW2}$, $\overline{OTW}$	Description
	0	0	0	Over temperature (OTE) or overload (OLP) or under voltage (UVP)
	0	0	1	Overload (OLP) or under voltage (UVP). Junction temperature higher than 100 °C (over temperature warning)
	0	1	1	Overload (OLP) or under voltage (UVP)
①	1	0	0	Junction temperature higher than 125 °C (over temperature warning)
②	1	0	1	Junction temperature higher than 100 °C (over temperature warning)
	1	1	1	Junction temperature lower than 100 °C and no OLP or UVP faults (normal operation)

The fan starts rotating when the junction temperature at TAS5630 reaches 100 °C (state of ②). The rotation of the fan continues for 5 minutes after the state of ② is canceled by temperature drop.
The fan starts rotating when the junction temperature reaches 125 °C (state of ①). The rotation of the fan continues for 15 minutes after the state of ① is canceled.

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]

To enter this mode, during Normal Display mode simultaneously press the [AUTO SURR/STREAM DIRECT] key on the main unit and the [MUTE] key on the remote control unit supplied with the SX-SWR1 or the AV amp.
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
(Normal display)	BD/DVD *1		
[AUTO SURR/ STREAM DIRECT] + Remote Control [MUTE] (Initial display)	DC 005 *3 → Counter	5 (-> normal) *2	Number of DC error detections
[AUTO SURR/ STREAM DIRECT]	OVER 000	5 (-> normal) *2	No use
[AUTO SURR/ STREAM DIRECT]	TEMP 007 *3 → Counter	5 (-> normal) *2	Number of abnormal-temperature error detections and OVERLOAD error detections
[AUTO SURR/ STREAM DIRECT] (Initial display)			

*1 Indication when the BD/DVD function is selected
*2 "5 (-> normal)" denotes that the display will return to the normal indication when no key operation is performed for 5 seconds.
*3 Variable range: 0-255

[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 [VOL +] and [STANDBY/ON] keys for 5 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)			
[VOL +] + [STANDBY/ON] (press and hold the keys for 5 seconds.)	CLEAR?	5 (-> normal) *1	
[TUNE+ key]	↓		
(Counter Clear end)	0 K	5 (-> normal) *1	
(Normal display)	BD/DVD *2		

*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/DVD function is selected

[Detailed explanations]

1. When the procedures for Reset mode for numbers of protection detections are completed, all the counters will be reset to "000."
2. 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.

[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)	BD/DVD	usually	Normal display
(DC detection)	BD/DVD		
↓ (Auto)			
(RECEIVER POWER OFF) *1, *2			

3.2 OVERLOAD (overcurrent) error detection

Key Operation	FL Display	Time (sec.)	Description of Indications
(Normal display)	BD/DVD	usually	Normal display
(OVERLOAD detection)	BD/DVD		
↓ (Auto)			
(RECEIVER POWER OFF) *1			

3.3 TEMP (AMP overheat) error detection

Key Operation	FL Display	Time (sec.)	Description of Indications
(Normal display)	BD/DVD	usually	Normal display
(TEMP detection)	BD/DVD		
↓ (Auto)			
(RECEIVER POWER OFF) *1			

*1 The time required for the unit to be shut off after an error is detected depends on the circuit configuration.
*2 If the unit is automatically shut off after a DC error is detected, no key input will be accepted afterward.
(The power will not be turned ON.)
To turn it on again, see "3.4 How to cancel the status after detection of a DC error" below.
A key input will not be inhibited after an OVERLOAD/TEMP error is detected. (The unit can be turned ON.)

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

Key Operation	FL Display	Time (sec.)	Description of Indications
(STANDBY state)			
[AUTO SURR /STREAM DIRECT] + [STANDBY/ON] (press and hold the keys for 2 seconds.)			
↓			
(Normal display)	BD/DVD	usually	Normal display

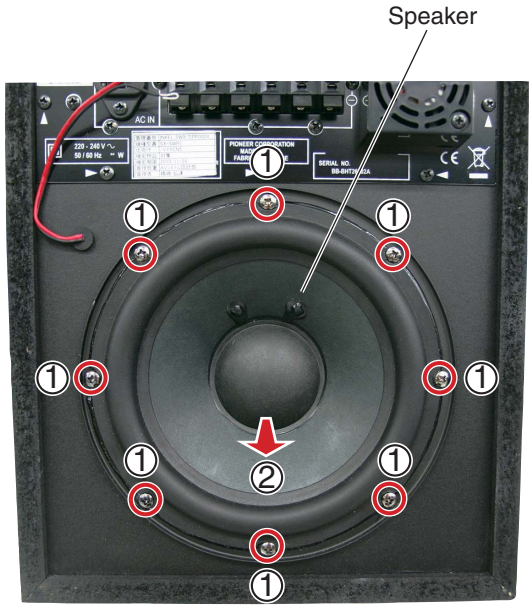
[Detailed explanations] Simultaneously holding the [AUTO SURR/STREAM DIRECT] and [STANDBY/ON] keys on the front panel pressed for 2 seconds will cancel Key Input Inhibition mode after a DC error detection and turn the unit ON.

7. DISASSEMBLY
7.1 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.
Note 2: For performing the diagnosis shown below, the following jigs for service is required:
- 19P FFC (1.25 mm pitch) (GGD1662)
- 12P extension jig cable (GGD1663)

[1] Speaker

(1) Remove the eight screws.
(2) Remove the speaker.



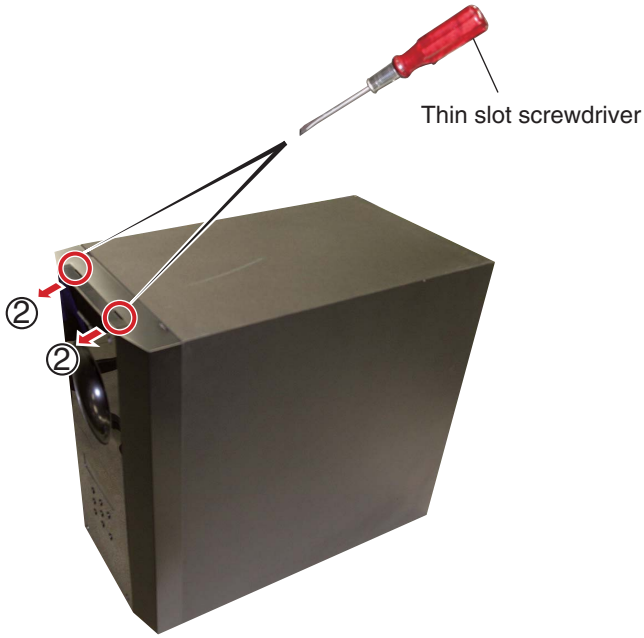
(3) Disconnect the connection cord.

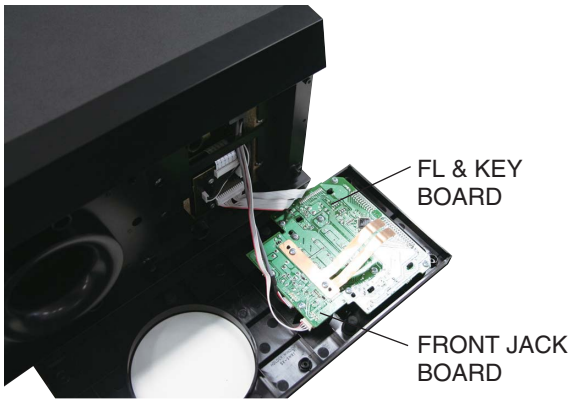
[2-1] FRONT

(1) Remove the four screws.

(2) Insert a thin slot screwdriver into the gap between the Display Assy and the Panel Front and gently pry the the Display Assy away.

Note: To avoid damage, alternately pry at two points, as shown in the photo below, little by little, not in a single motion.





[2-2] CHASSIS

(1) Remove the six screws.

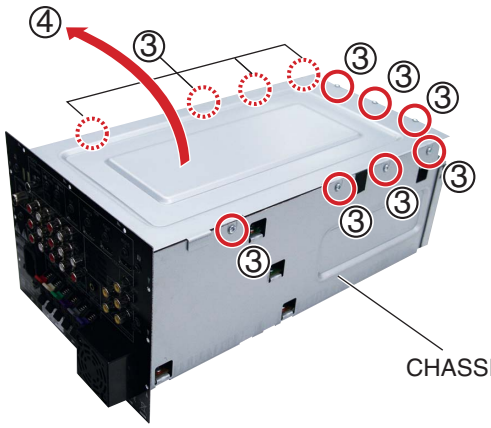
Bottom

Top

(2) Remove the twelve screws.
Pull out the Amp Section.

Rear panel

(3) Remove the eleven screws.
(4) Remove the CHASSIS TOP.

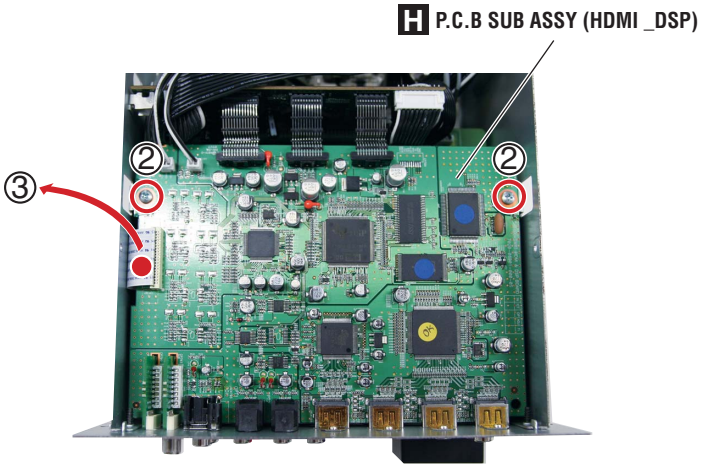


[2-3] P.C.B SUB ASSY (HDMI _DSP)

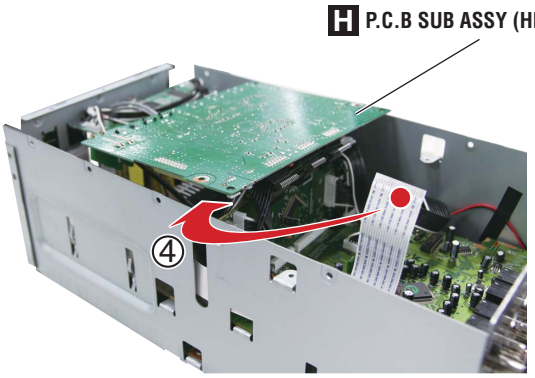
(1) Remove the seven screws.

Rear panel

(2) Remove the two screws.
(3) Disconnect the one flexible cable (19P FFC).
Raise the P.C.B SUB ASSY (HDMI _DSP).



(4) Connect the one extension jig cables.

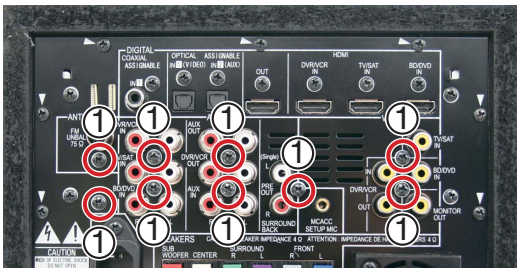


19P FFC (1.25mm pitch)
(GGD1662)

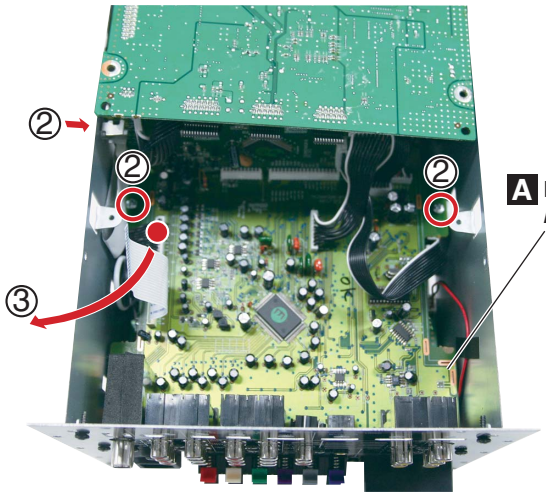
[2-4] P.C.B SUB ASSY (INPUT), P.C.B SUB ASSY (CPU)

(1) Remove the nine screws.

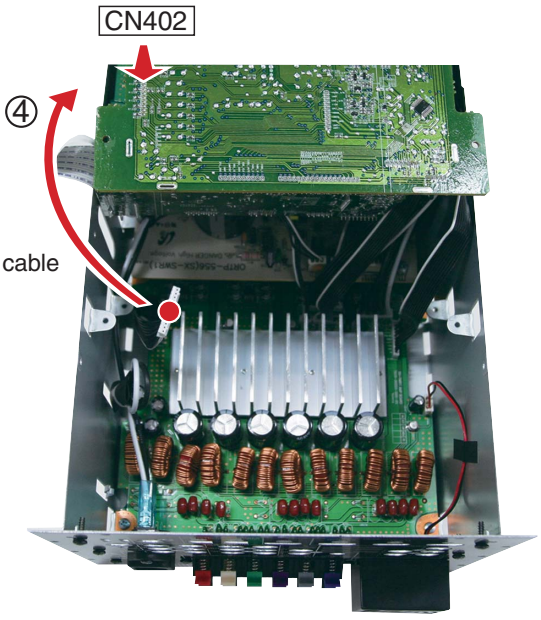
Rear panel



(2) Remove the three screws.
(3) Disconnect the one connector (12P).
Raise the P.C.B SUB ASSY (INPUT).

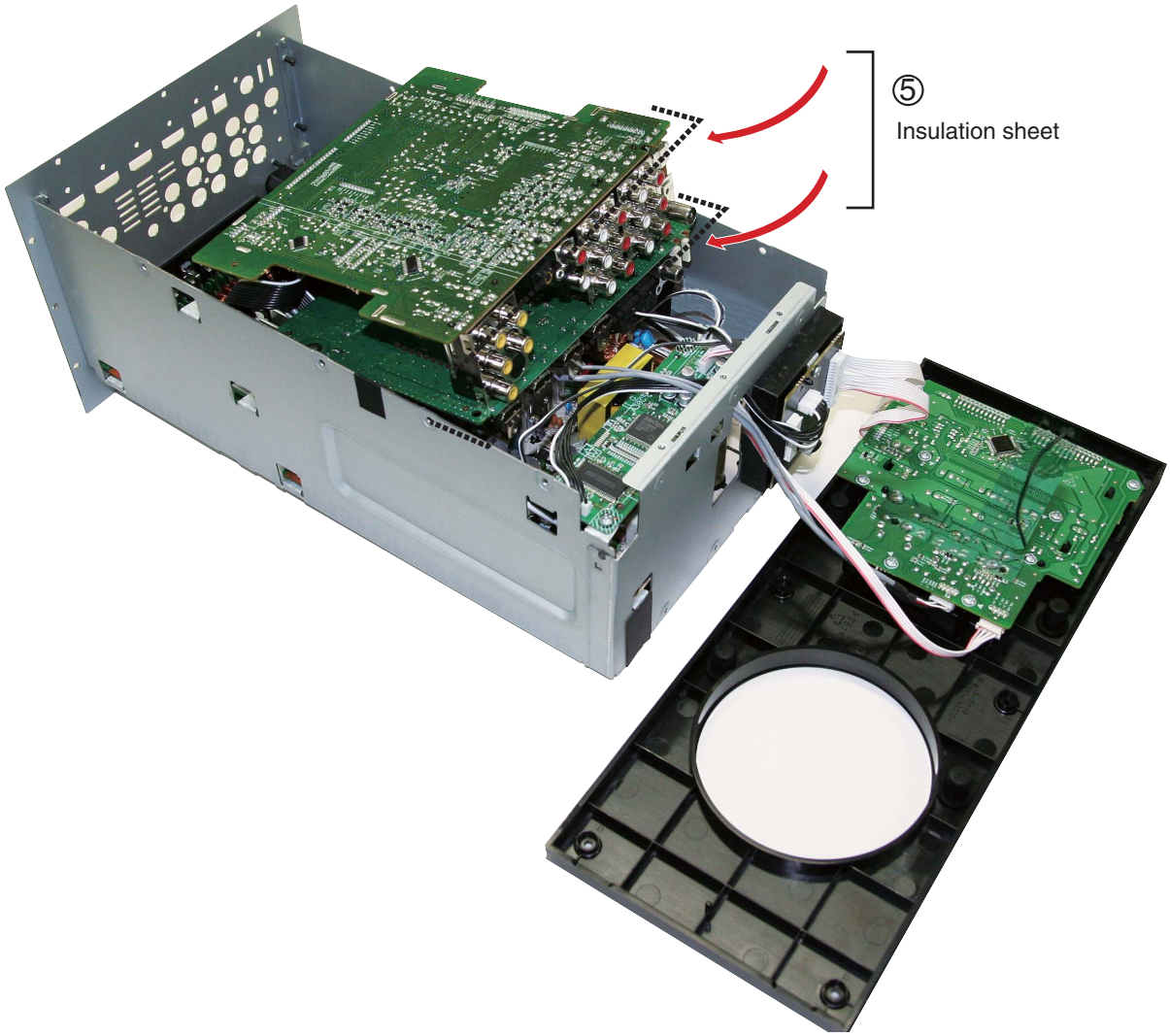


(4) Connect the one extension jig cables.



12P extension jig cable
(GGD1663)

(5) Insert the insulation sheet between the P.C.B SUB ASSY (INPUT) and the P.C.B SUB ASSY (HDMI_DSP).
Insert the insulation sheet between the P.C.B SUB ASSY (HDMI_DSP) and the P.C.B SUB ASSY (MAIN_AMP).



Diagnosis

8. EACH SETTING AND ADJUSTMENT
8.1 HOW TO UPDATE THE FIRMWARE

■ Version Indication

[Purpose]

The version of software for each microcomputer is indicated.

[How to enter/exit]

To enter this mode, during Normal Display mode simultaneously press the [AUTO SURR/STREAM DIRECT] key on the main unit and the [Dimmer] key on the remote control unit supplied with the SX-SWR1 or the AV amp.
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
(Normal display) [AUTO SURR/ STREAM DIRECT] + Remote Control [Dimmer]	BD/DVD *1		
(Initial display) [AUTO SURR/ STREAM DIRECT]	MAIN:V0.16	5 (-> normal) *2	The version of Main microcomputer
[AUTO SURR/ STREAM DIRECT]	SUB: V1.06	5 (-> normal) *2	The version of Sub microcomputer
[AUTO SURR/ STREAM DIRECT]	DSP:8:03.11	5 (-> normal) *2	The version of DSP microcomputer
[AUTO SURR/ STREAM DIRECT]	USB: V0.33 *3	5 (-> normal) *2	The version of USB microcomputer
(Initial display)			

*1 Indication when the BD/DVD function is selected
*2 “5 (-> normal)” denotes that the display will return to the normal indication when no key operation is performed for 5 seconds.
*3 Indication when the USB/iPod function is selected

■ MAIN and SUB microcomputer

[Purpose]

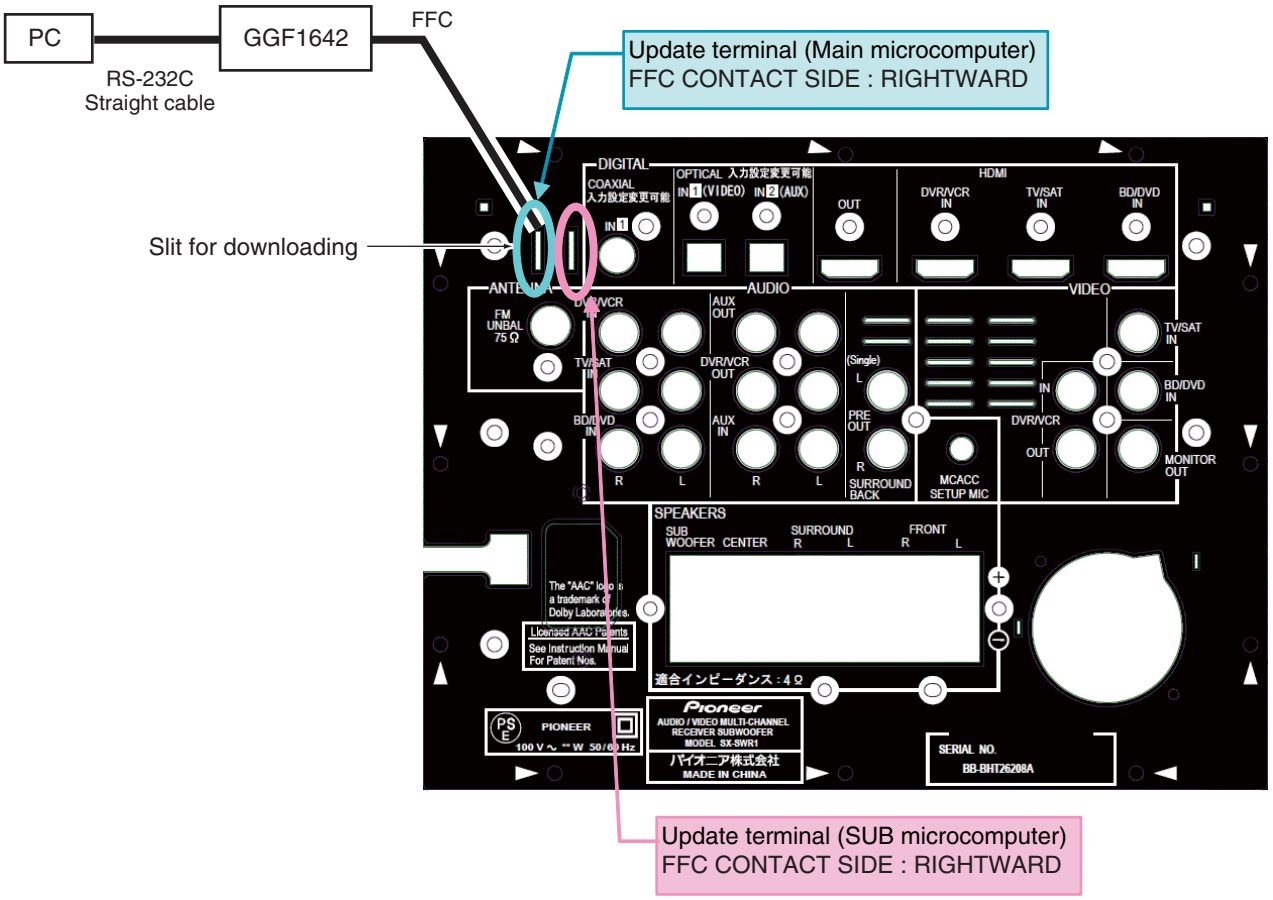
Refer to this section when updating the firmware of each microcomputer is required by the service information, etc.

[Necessary Tools]

- PC with RS232C port
- RS-232C straight cable (9pin female ↔ 25pin male)
- RS-232C Interface jig : GGF1642
- Updating program : FlashSta.exe
- Firmware file : “ .mot” file

[Connections]

Connect as shown in the figure below.

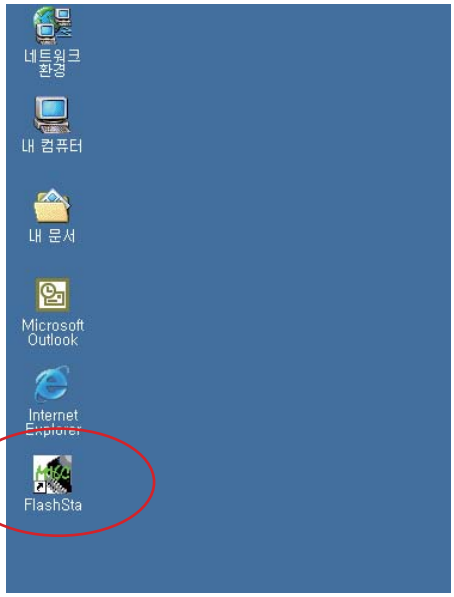


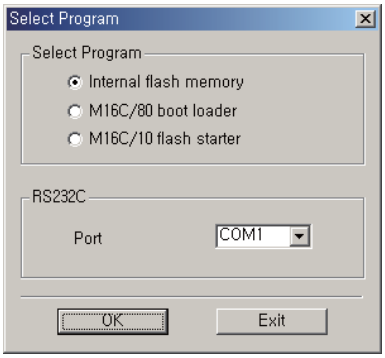
[Note]
Do NOT disconnect the AC power cords of this unit and the PC during a downloading.

[Procedures]

1. Connect the PC and the unit as shown in "Connections".

2. Double-click the "FlashSta.exe".

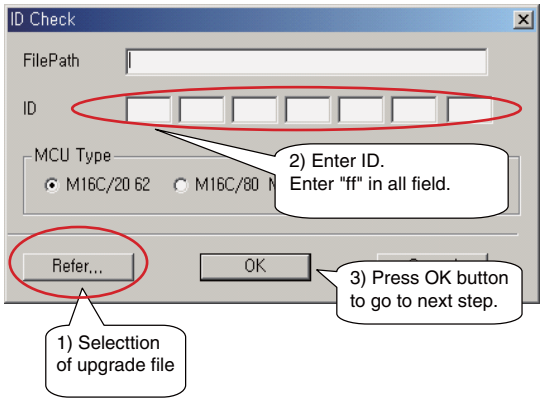




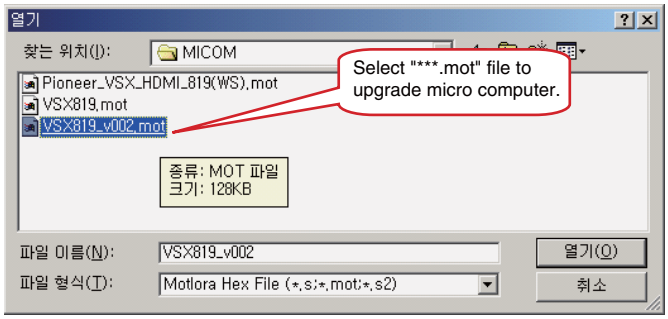
3. Connect the AC power cord of the unit.
   In a case of the submicrocomputer, turn the main unit on.

4. Click the "OK" button.

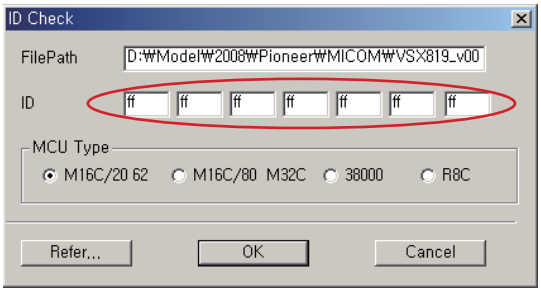
5. Select the firmware file (****.mot file) for updating each ucom and enter ID



1) Selection of upgrade file
Note: Do NOT download the firmware file for other ucom.

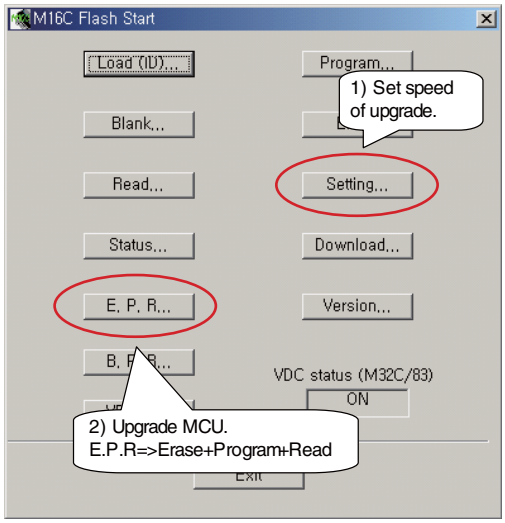


2) Enter ID. (Enter "ff" in all field.)

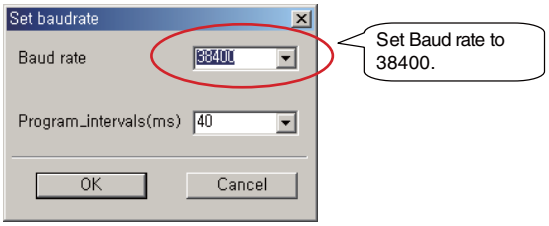


3) Click the "OK" button to go to next step.

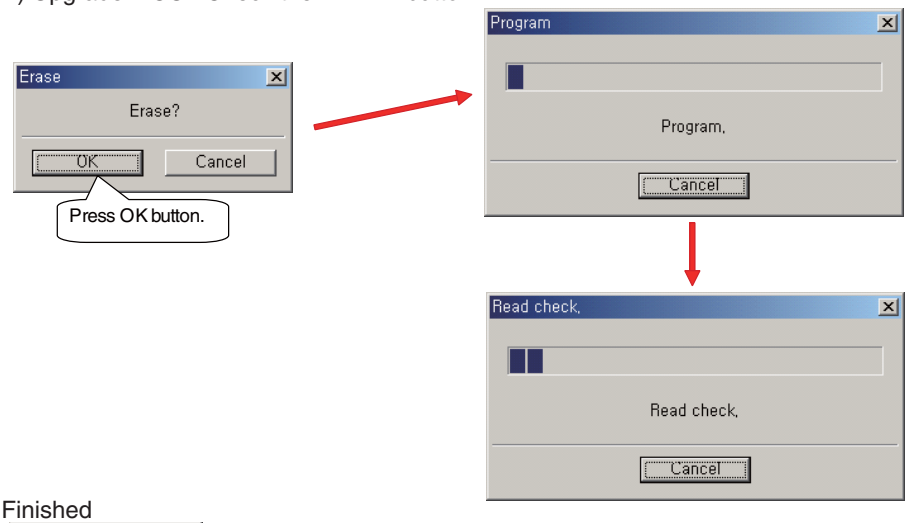
6. Select the communication speed and upgrade MCU.



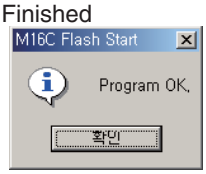
1) Set speed of upgrade. (Baud rate: 38400)



2) Upgrade MCU : Check the "E.P.R" button.



7. Finished



8. Unplug the AC cord.
9. Disconnect the RS-232C interface special tool.
10. Wait about 1 minute.
11. Plug in the AC cord.
12. Initialize the main unit.

Resetting the main unit

Use this procedure to reset all the system's settings to the factory default. Use the front panel controls to do this.

1 Switch the system into standby.

2 While holding down the ST/MONO button, press and hold the ⏻ STANDBY/ON button for about two seconds.

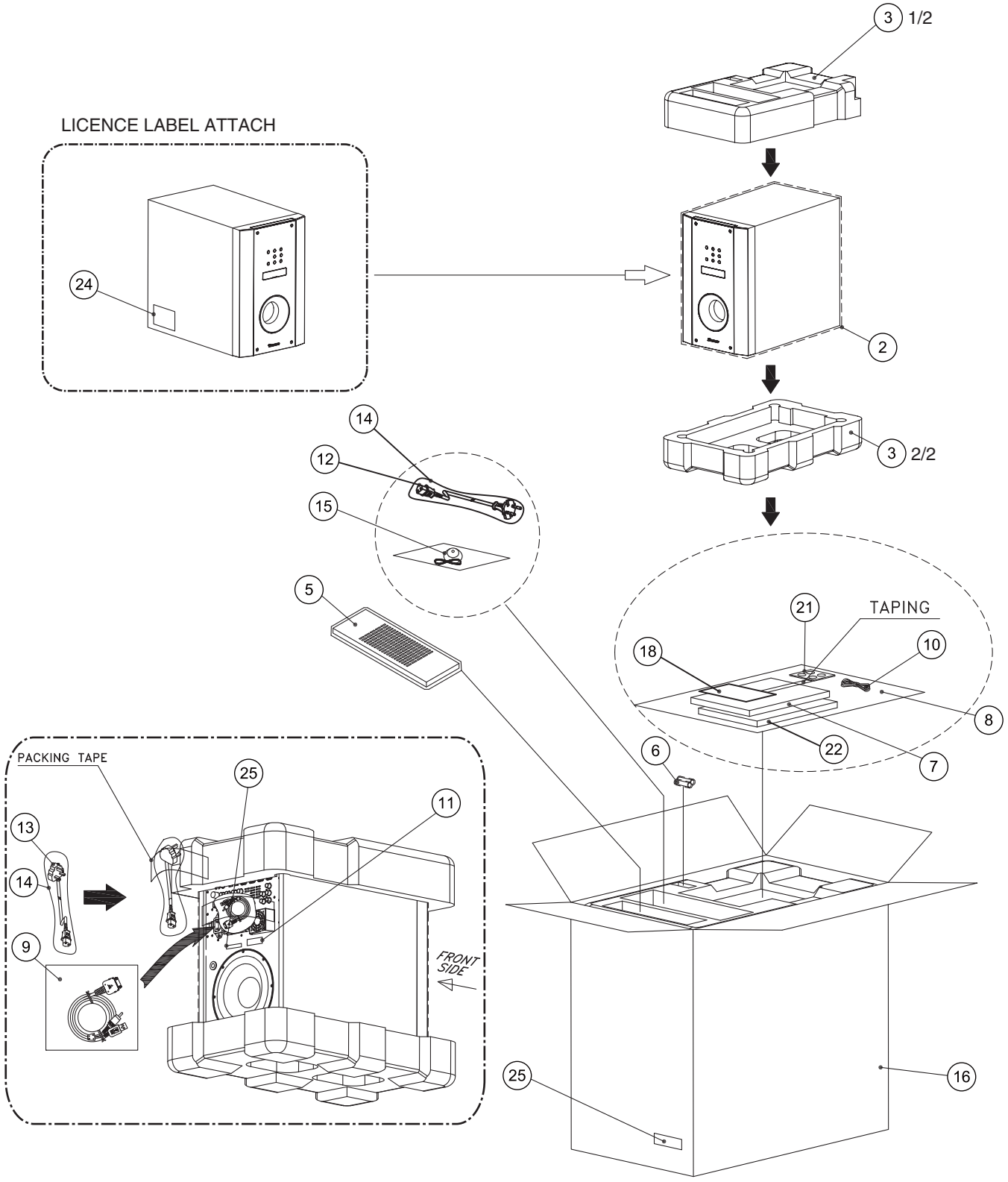
3 When you see RESET? appear in the display, press TUNE –.
OK? shows in the display.

4 Press TUNE + to confirm.
OK appears in the display to indicate that the system has been reset to the factory settings.

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 ⚠ 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 ▼ 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



PACKING SECTION PARTS LIST

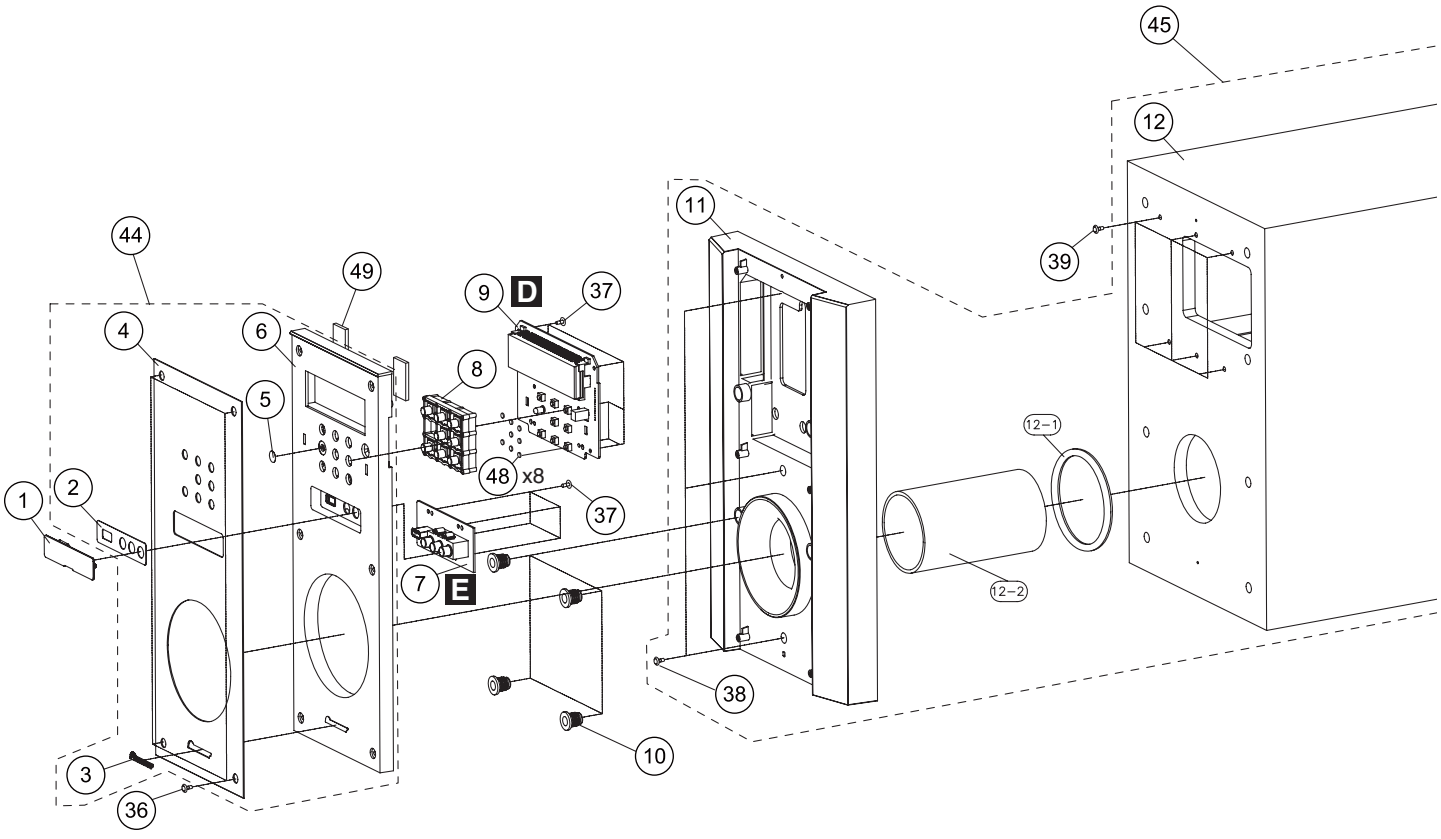
Mark	No.	Description	Part No.
	1	• • • • •	
	2	PE, Sheet	6327040059000-IL
	3	Cushion, Snow Top/Bottom	6230212754000-IL
	4	• • • • •	
	5	Remote Control (AXD7569)	8300756900010-IL
NSP	6	Dry Cell Batteries (AAA/R03)	G670001R50210-IL
	7	Operating Instructions	See Contrast table (2)
NSP	8	Polyethylene Bag	6337040062010-IL
	9	iPod Cable	See Contrast table (2)
	10	FM Wire Antenna	E605010070001-IL
	11	CPA Label	See Contrast table (2)
⚠	12	Power Cord (E)	L068250160020-IL
⚠	13	Power Cord (UK)	L068250100040-IL
	14	Polyethylene Bag	6330210089000-IL
	15	Microphone (for Auto MCACC setup)	M040000300100-IL
	16	Box, Gift SWR1	See Contrast table (2)
	17	• • • • •	
NSP	18	Warranty Card	See Contrast table (2)
	19	• • • • •	
	20	• • • • •	
	21	Large Non-skid Pads (for receiver subwoofer)	4050212705000-IL
	22	Operating Instructions	See Contrast table (2)
	23	• • • • •	
NSP	24	License Label	See Contrast table (2)
NSP	25	Serial Label S	VRW2017

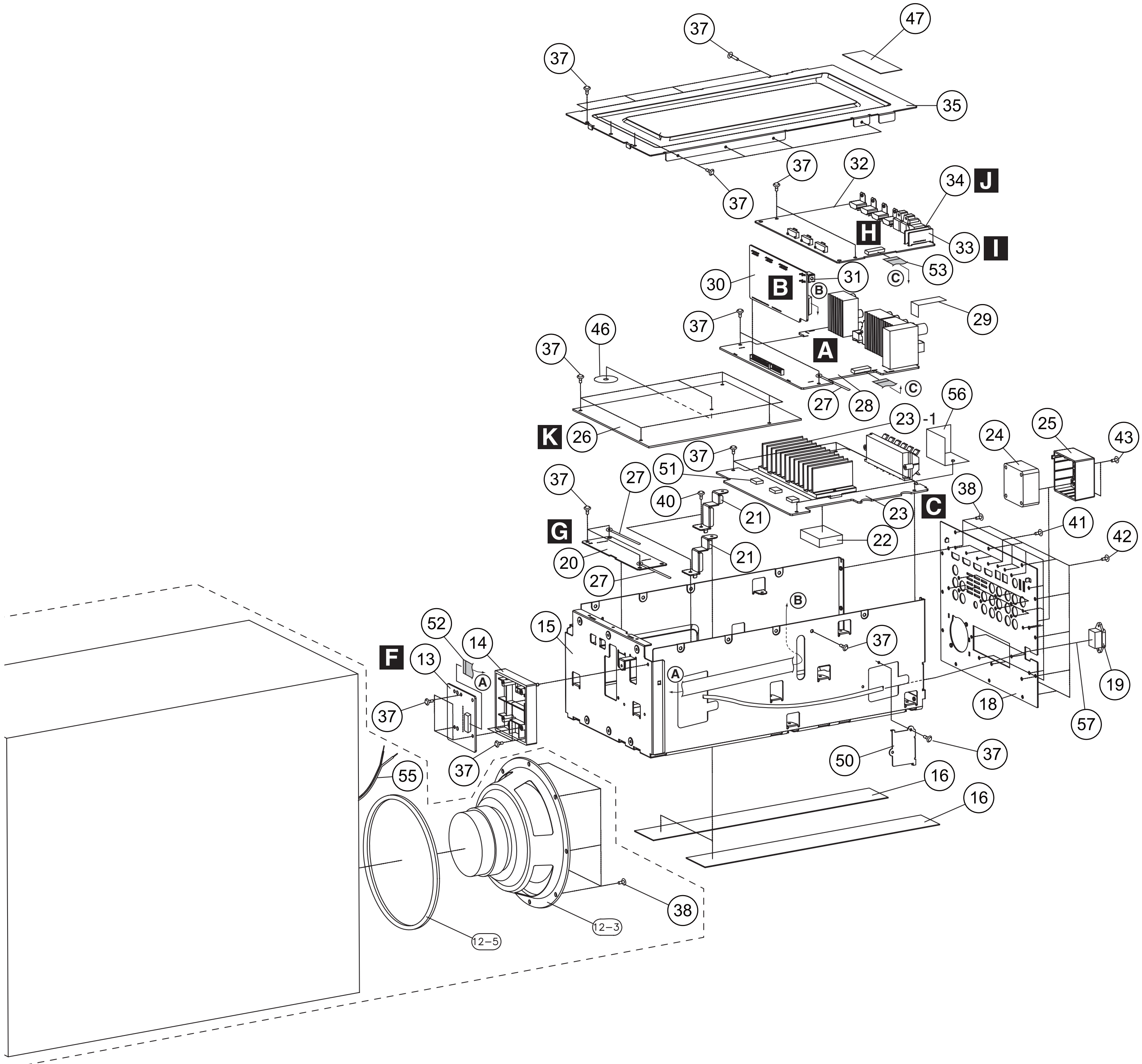
(2) CONTRAST TABLE

SX-SWR1/VYXCN5 and SX-SWR1/LXCN are constructed the same except for the following:

Mark	No.	Symbol and Description	SX-SWR1/VYXCN5	SX-SWR1/LXCN
	7	Operating Instructions (En/Fr/Nl)	5707000003020-IL	Not used
	7	Operating Instructions (En/Zhtw)	Not used	5707000003040-IL
	9	iPod Cable	L308102013010-IL	Not used
	11	CPA Label	Not used	5507000004280-IL
	16	Box, Gift SWR1	6007211600010-IL	6007211600020-IL
NSP	18	Warranty Card	ARY7127	Not used
	22	Operating Instructions (It/Es/De)	5707000003030-IL	Not used
NSP	24	License Label	5507000004160-IL	5507000004150-IL

9.2 EXTERIOR SECTION




37
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38
C
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20
27
B
52
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14
37
F
13
A
A
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12-5
12-3

EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cover USB	4310215071000-IL
NSP	2	Sheet USB	•••••
NSP	3	Pioneer Badge	•••••
NSP	4	Window Display	•••••
NSP	5	Sheet LED	•••••
NSP	6	Holder Window	•••••
	7	P.C.B SUB ASSY (F-VIDEO)	7028069022010-IL
	8	Button Function	5090214291000-IL
	9	P.C.B SUB ASSY (FRONT)	7028069021010-IL
	10	Rubber Boss	4110210035000-IL
NSP	11	Panel Front	•••••
NSP	12	Wood Cabinet Unit Assy	•••••
	13	P.C.B SUB ASSY (STATION1)	7028069023010-IL
	14	Holder PCB Cnt	4320210991000-IL
NSP	15	Chassis Main	3200213386000-IL
	16	Cushion Main	4050212715000-IL
	17	•••••	
	18	Chassis Back	See Contrast table (2)
	19	Socket,Power AC	G430000180010-IL
	20	P.C.B SUB ASSY (USB)	7028069031010-IL
	21	Bracket	4010214646000-IL
	22	Cushion	4050212685000-IL
	23	P.C.B SUB ASSY (MAIN_AMP)	7028068991020-IL
NSP	23-1	Heat Sink Main	2120211708000-IL
	24	Fan DC	G720124020010-IL
	25	Cover Fan	4310215081000-IL
⚠	26	Power Trans (SMPS PCB)	8208000850020-IL
	27	Clamp Mtg	4330000310000-IL
	28	P.C.B SUB ASSY (INPUT)	See Contrast table (2)
	29	Cushion	4050211385000-IL
	30	P.C.B SUB ASSY (CPU)	See Contrast table (2)

Mark	No.	Description	Part No.
NSP	31	Bracket Screw	•••••
	32	P.C.B SUB ASSY (HDMI_DSP)	7028069011010-IL
NSP	33	PCB Upgrade MAIN	•••••
NSP	34	PCB Upgrade SUB	•••••
NSP	35	Chassis Top	3200213366000-IL
	36	Screw	1500030103P41-IL
	37	Screw	BBZ30P080FTC
	38	Screw	1500030143B10-IL
	39	Screw	1500001206020-IL
	40	Screw	BBZ30P060FTB
	41	Screw, Tap Tite	B020930083B10-IL
	42	Screw	BBT30P100FTB
	43	Screw	1500330081B10-IL
	44	Holder Assy	4328210981000-IL
	45	Cabinet Assy	3008211609000-IL
	46	Sheet Bracket SMPS	1210211182000-IL
	47	Gasket Top	4400210559000-IL
	48	Felt Tact	2690210259000-IL
	49	Cushion FLT	4050212865000-IL
	50	Bracket Chassis	4010214776000-IL
	51	Sheet Heat	1210211179000-IL
	52	Cable,Flat Card Shield 1.25MM	N714173043810-IL
	53	Cable,Flat Card 1.25MM	N712190843810-IL
	54	•••••	
	55	Wire Speaker	1140210017000-IL
	56	Insulation	1240210162000-IL
⚠	57	CN,Wire	L000451020080-IL

(2) CONTRAST TABLE

SX-SWR1/VYXCN5 and SX-SWR1/LXCN are constructed the same except for the following:

Mark	No.	Symbol and Description	SX-SWR1/VYXCN5	SX-SWR1/LXCN
	18	Chassis Back	3207213376100-IL	3207213376110-IL
	28	P.C.B SUB ASSY (INPUT)	7028069001020-IL	7028069001030-IL
	30	P.C.B SUB ASSY (CPU)	7028069002020-IL	7028069002030-IL

A

B

C

D

E

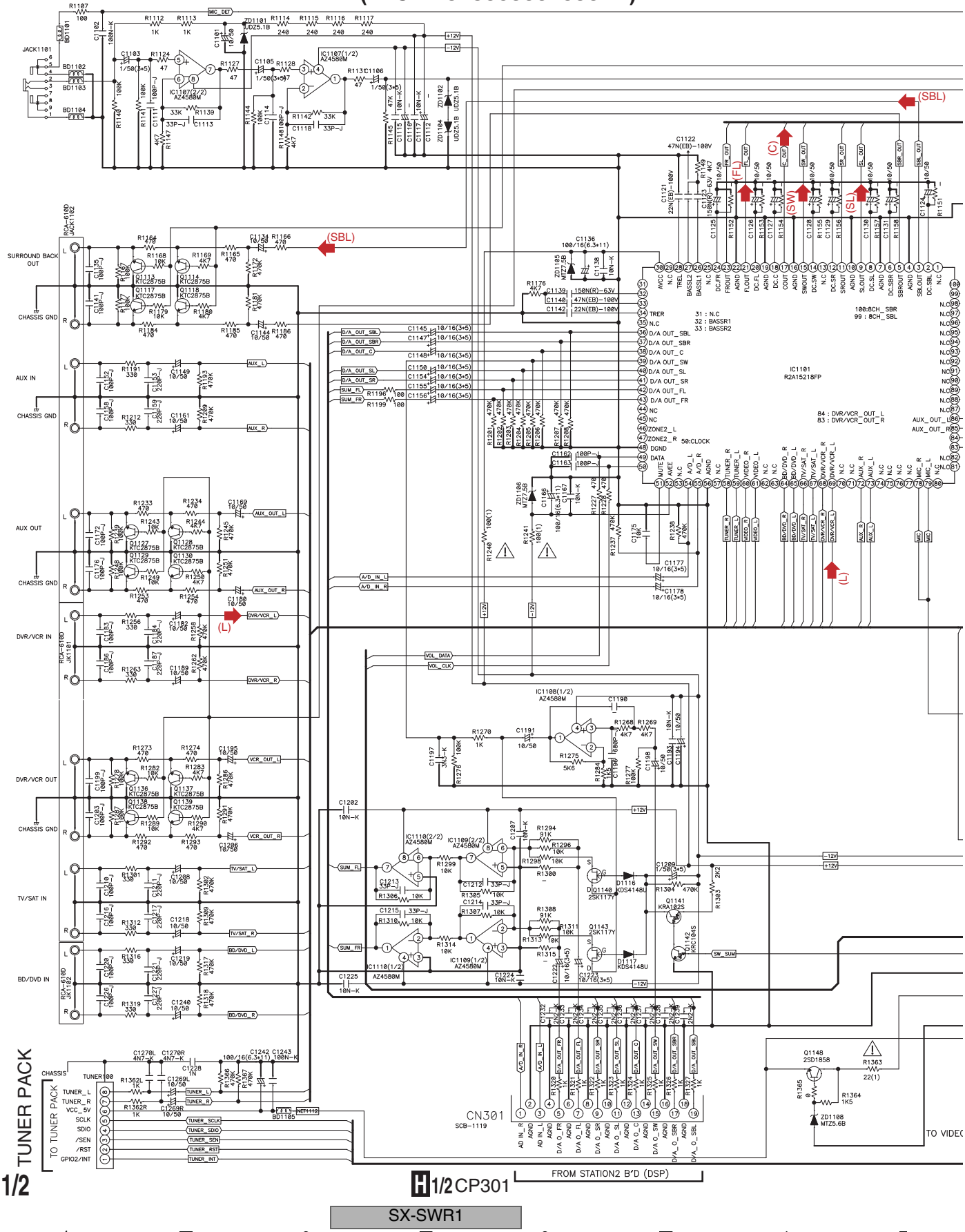
F

10. SCHEMATIC DIAGRAM

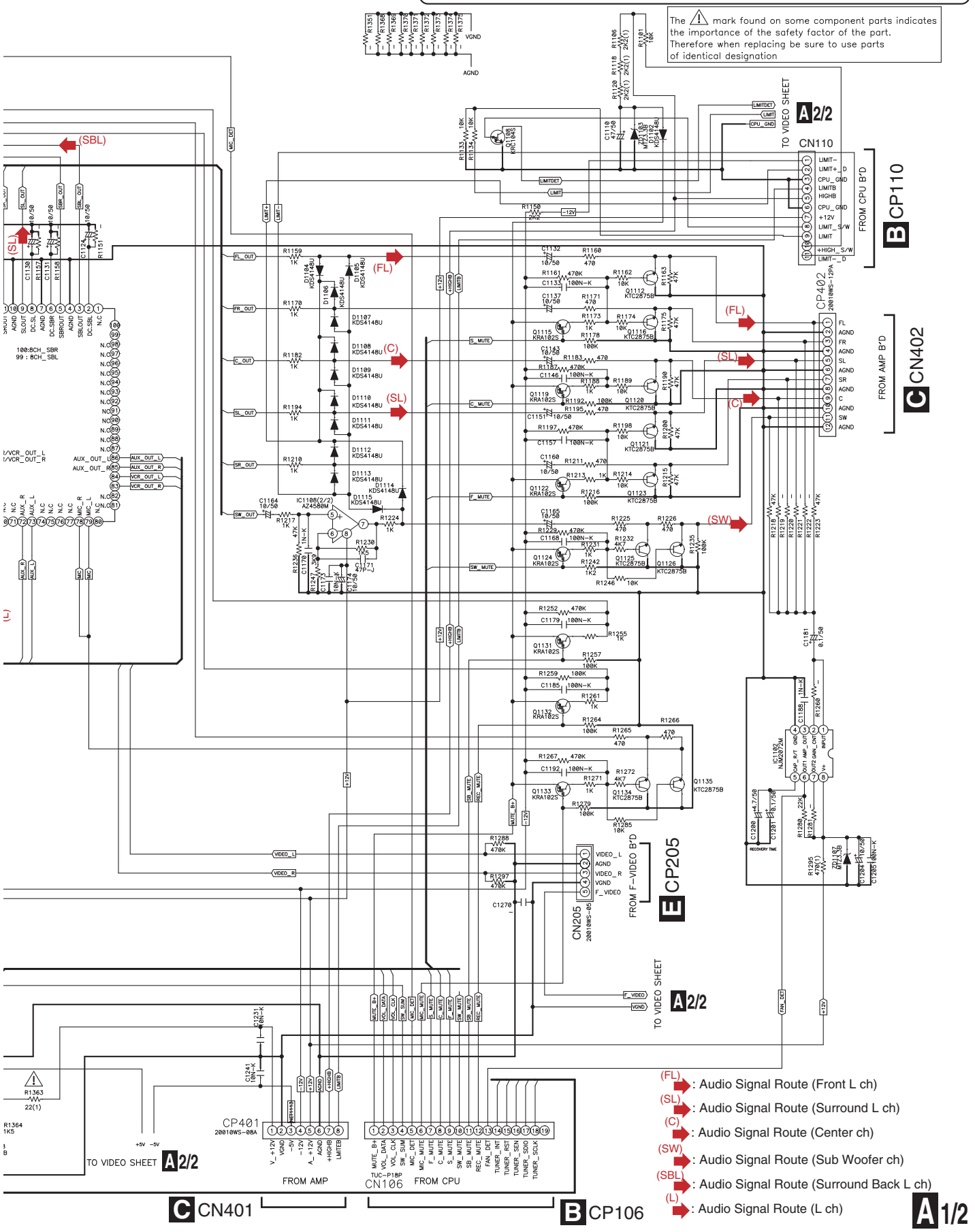
10.1 P.C.B SUB ASSY (INPUT)(1/2)

A 1/2 P.C.B SUB ASSY (INPUT) (VYXCN5:7028069001020-IL)

MIC B'D (LXCN:7028069001030-IL)

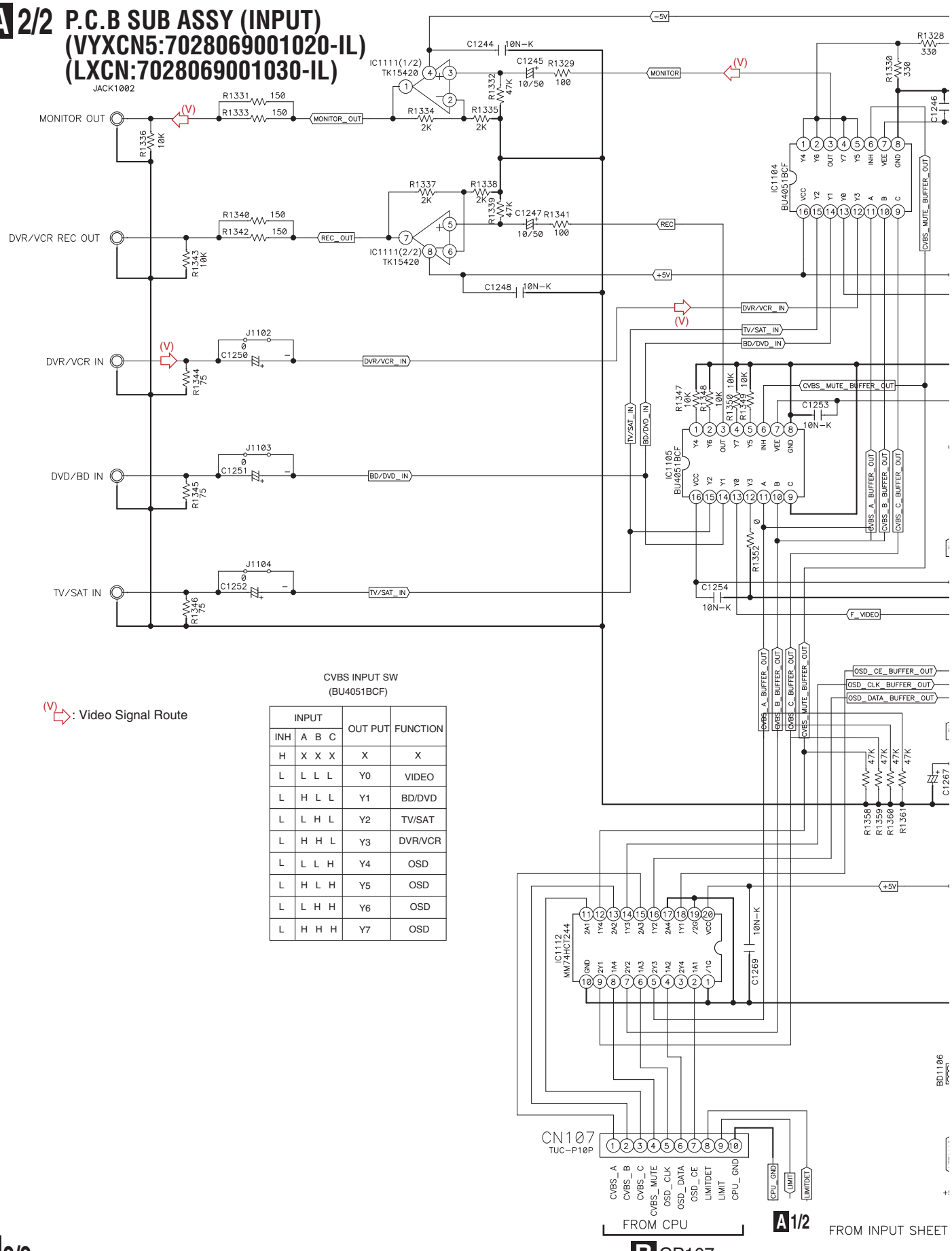


- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ⬭ : The power supply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



10.2 P.C.B SUB ASSY (INPUT)(2/2)

A 2/2 P.C.B SUB ASSY (INPUT) (VYXCN5:7028069001020-IL) (LXCN:7028069001030-IL)



(V): Video Signal Route

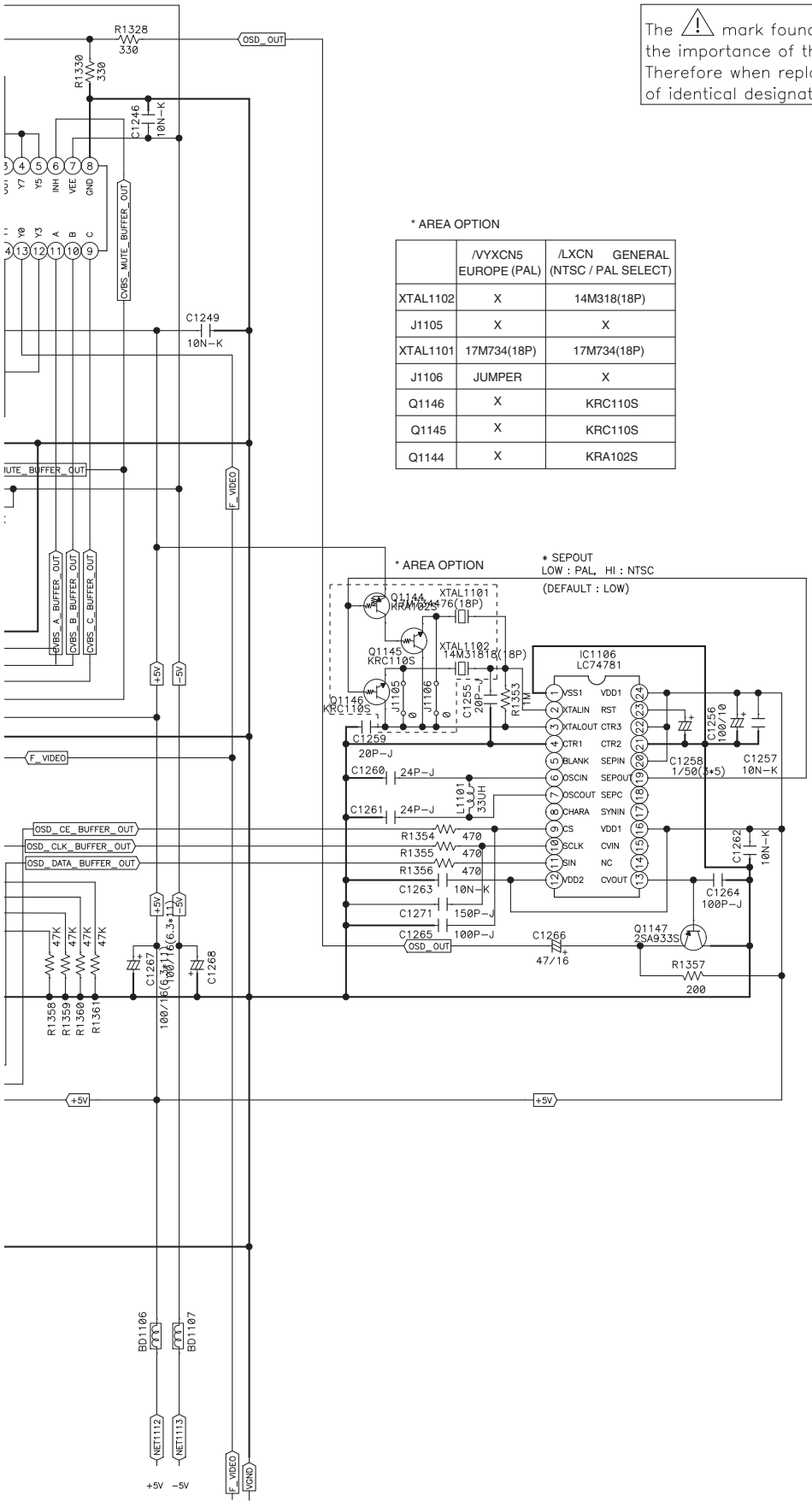
CVBS INPUT SW (BU4051BCF)

INPUT				OUT PUT	FUNCTION
INH	A	B	C		
H	X	X	X	X	X
L	L	L	L	Y0	VIDEO
L	H	L	L	Y1	BD/DVD
L	L	H	L	Y2	TV/SAT
L	H	H	L	Y3	DVR/VCR
L	L	L	H	Y4	OSD
L	H	L	H	Y5	OSD
L	L	H	H	Y6	OSD
L	H	H	H	Y7	OSD

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

* AREA OPTION

	/VYXCN5 EUROPE (PAL)	/LXCN GENERAL (NTSC / PAL SELECT)
XTAL1102	X	14M318(18P)
J1105	X	X
XTAL1101	17M734(18P)	17M734(18P)
J1106	JUMPER	X
Q1146	X	KRC110S
Q1145	X	KRC110S
Q1144	X	KRA102S

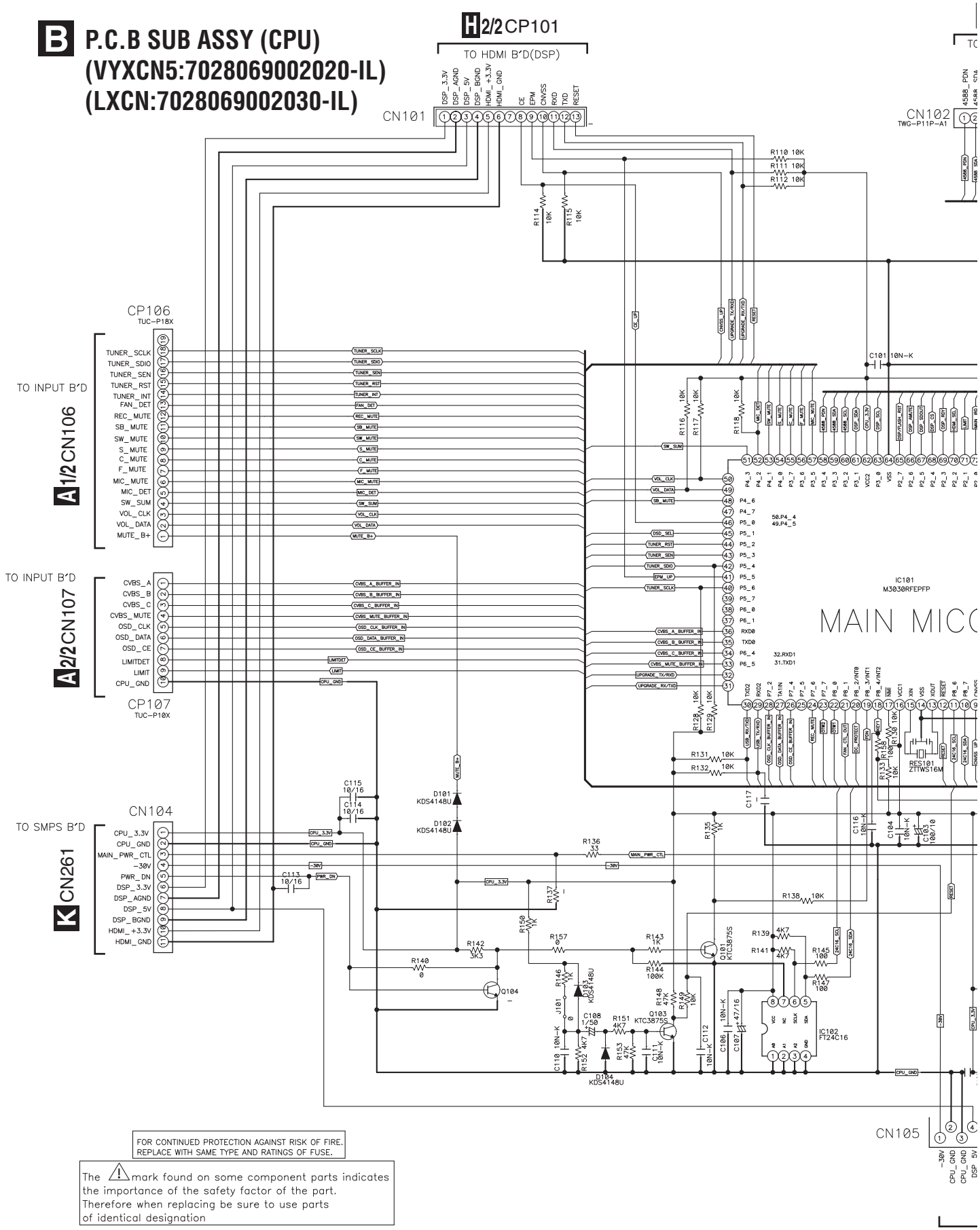


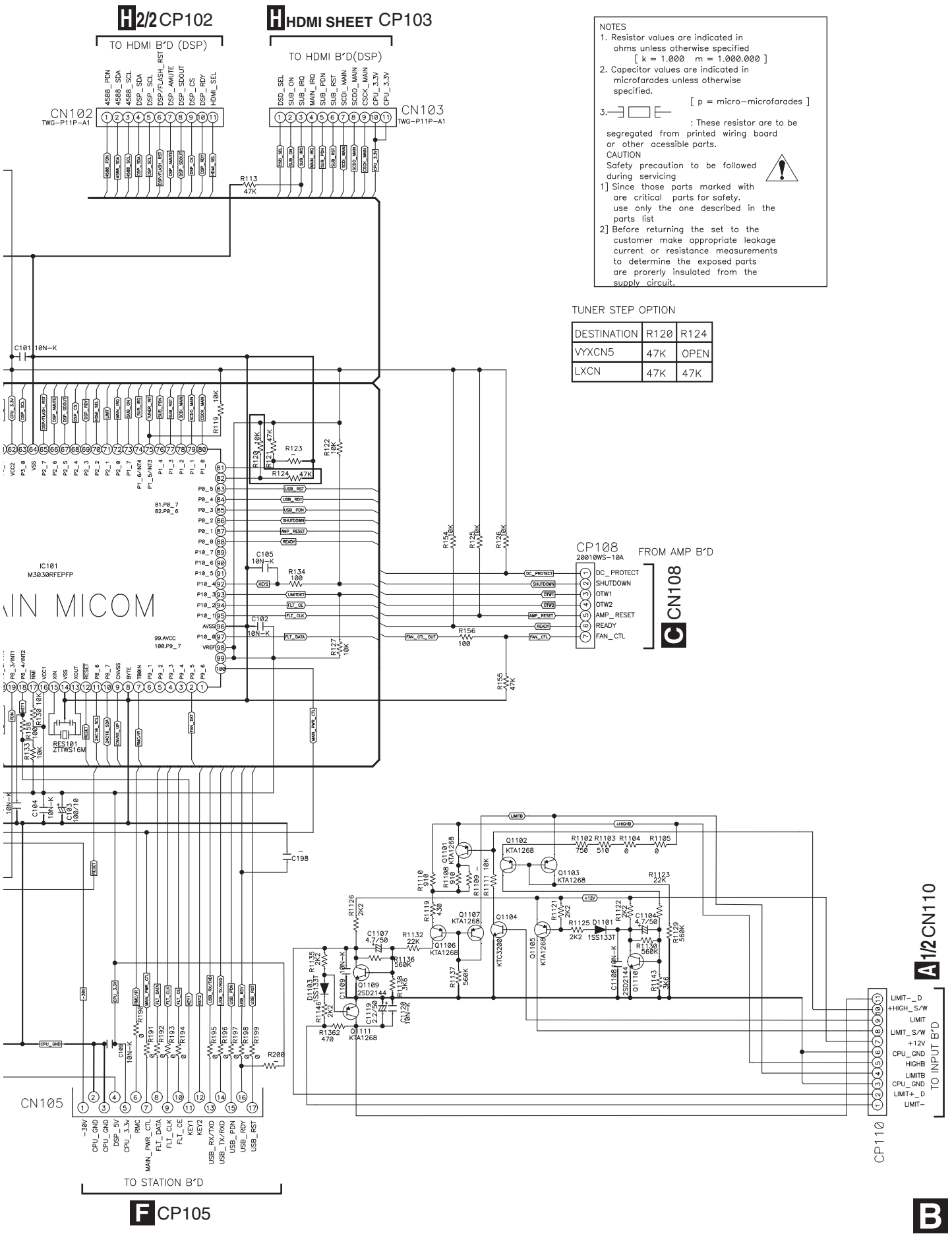
FROM INPUT SHEET A1/2

A2/2

10.3 P.C.B SUB ASSY (CPU)

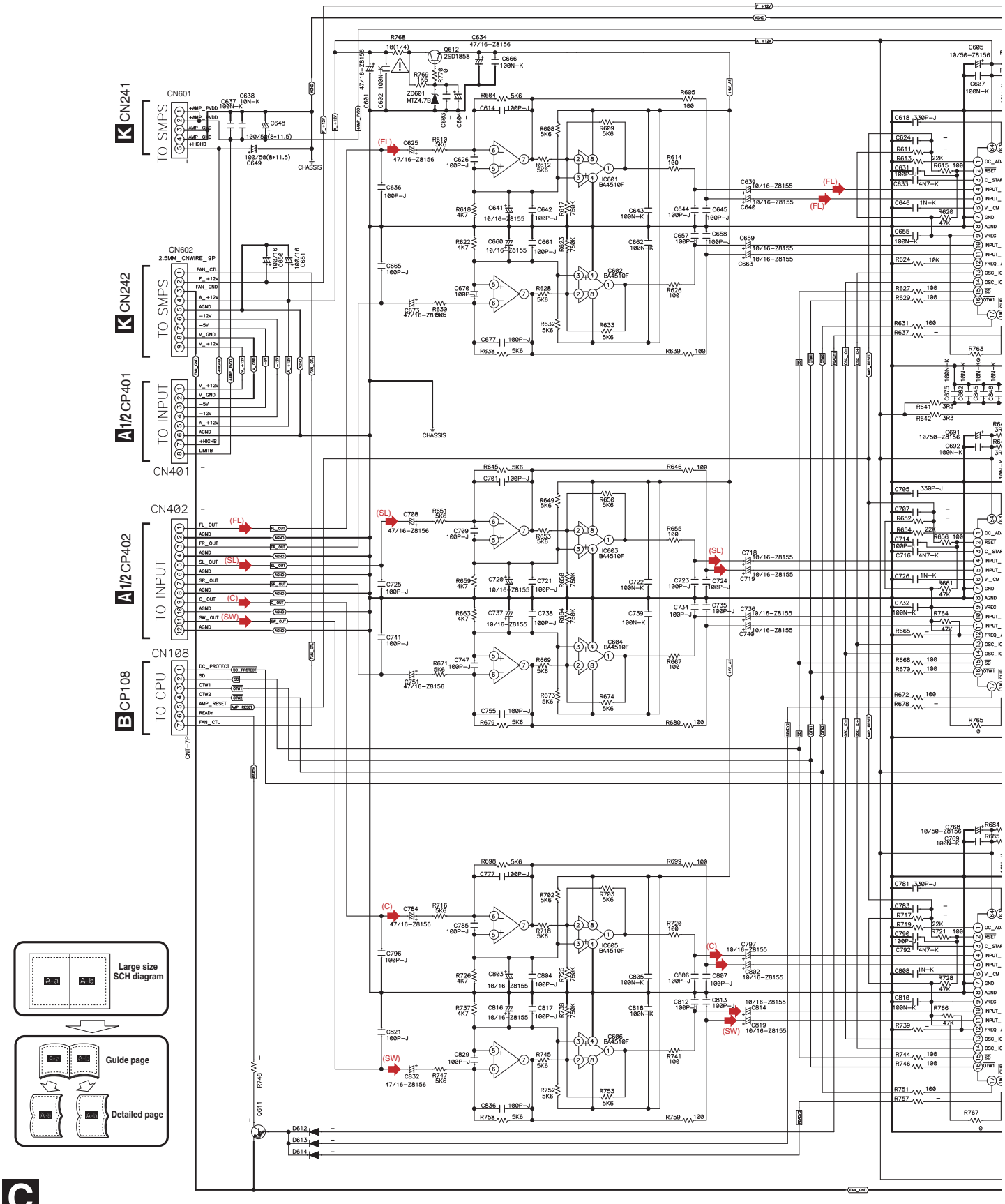
B P.C.B SUB ASSY (CPU) (VYXCN5:7028069002020-IL) (LXCN:7028069002030-IL)



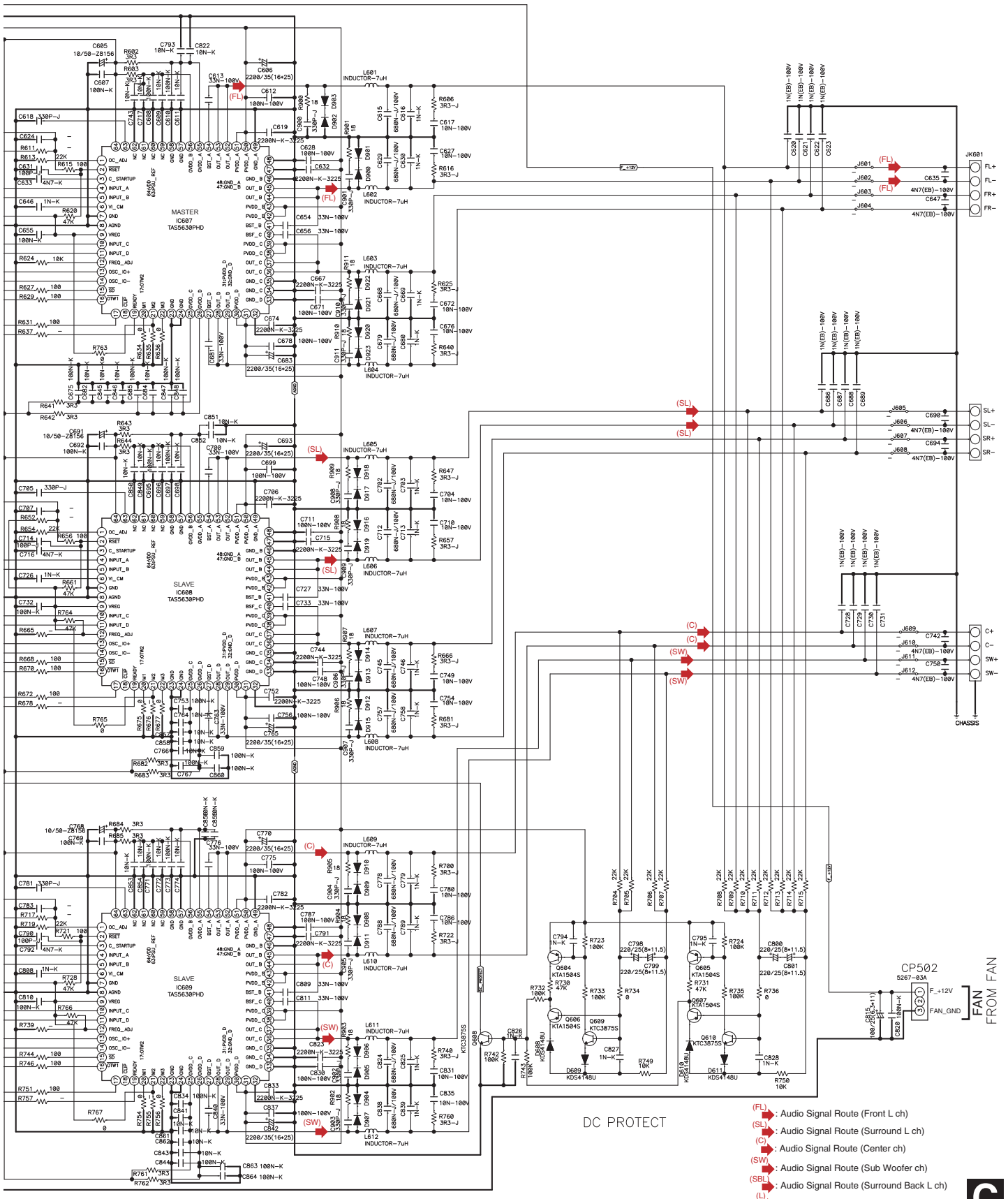

H 2/2 CP102
TO HDMI B'D (DSP)
CN102
TWG-P11P-A1
4588_PDN
4588_SDA
4588_SCL
DSP_SDA
DSP_SCL
DSP/FLASH_RST
DSP_AMUTE
DSP_SDOUT
DSP_CS
DSP_RDY
HDMI_SEL
H HDMI SHEET CP103
TO HDMI B'D(DSP)
CN103
TWG-P11P-A1
DSD_SEL
SUB_ON
SUB_IRQ
MAIN_IRQ
SUB_PDN
SUB_RST
SCDI_MAIN
SCDO_MAIN
CSCK_MAIN
CPU_3.3V
NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[k = 1.000 m = 1.000.000]
2. Capacitor values are indicated in microfarades unless otherwise specified.
[p = micro-microfarades]
3. : These resistor are to be segregated from printed wiring board or other acessible 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 prorerly insulated from the supply circuit.
TUNER STEP OPTION
DESTINATION | R120 | R124
VYXCN5 | 47K | OPEN
LXCN | 47K | 47K
IC101
M3030RFEPFP
MAIN MICOM
RES101
ZTTWS16M
CP108
20010WS-10A
FROM AMP B'D
C CN108
DC_PROTECT
SHUTDOWN
OTW1
OTW2
AMP_RESET
READY
FAN_CTL
A 1/2 CN110
TO INPUT B'D
LIMIT-_D
+HIGH_S/W
LIMIT
LIMIT_S/W
+12V
CPU_GND
HIGHB
LIMITB
CPU_GND
LIMIT+_D
LIMIT-
CN105
-30V
CPU_GND
CPU_GND
DSP_5V
CPU_3.3V
RMC
MAIN_PWR_CTL
FLT_DATA
FLT_CLK
FLT_CE
KEY1
KEY2
USB_RX/TXD
USB_TX/RXD
USB_PDN
USB_RDY
USB_RST
TO STATION B'D
F CP105

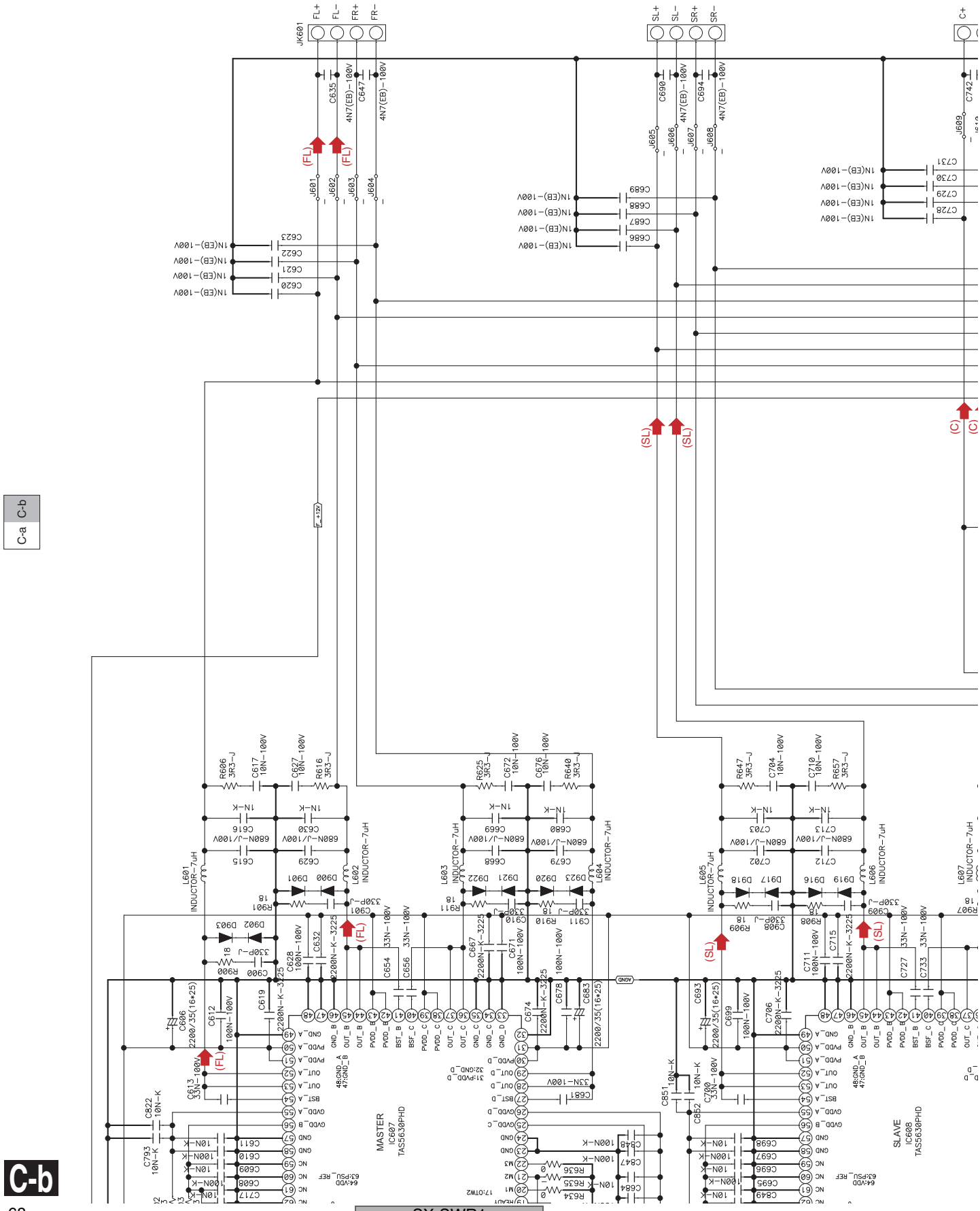
10.4 P.C.B SUB ASSY (MAIN_AMP)

C P.C.B SUB ASSY (MAIN_AMP) (7028068991020-IL) C-a

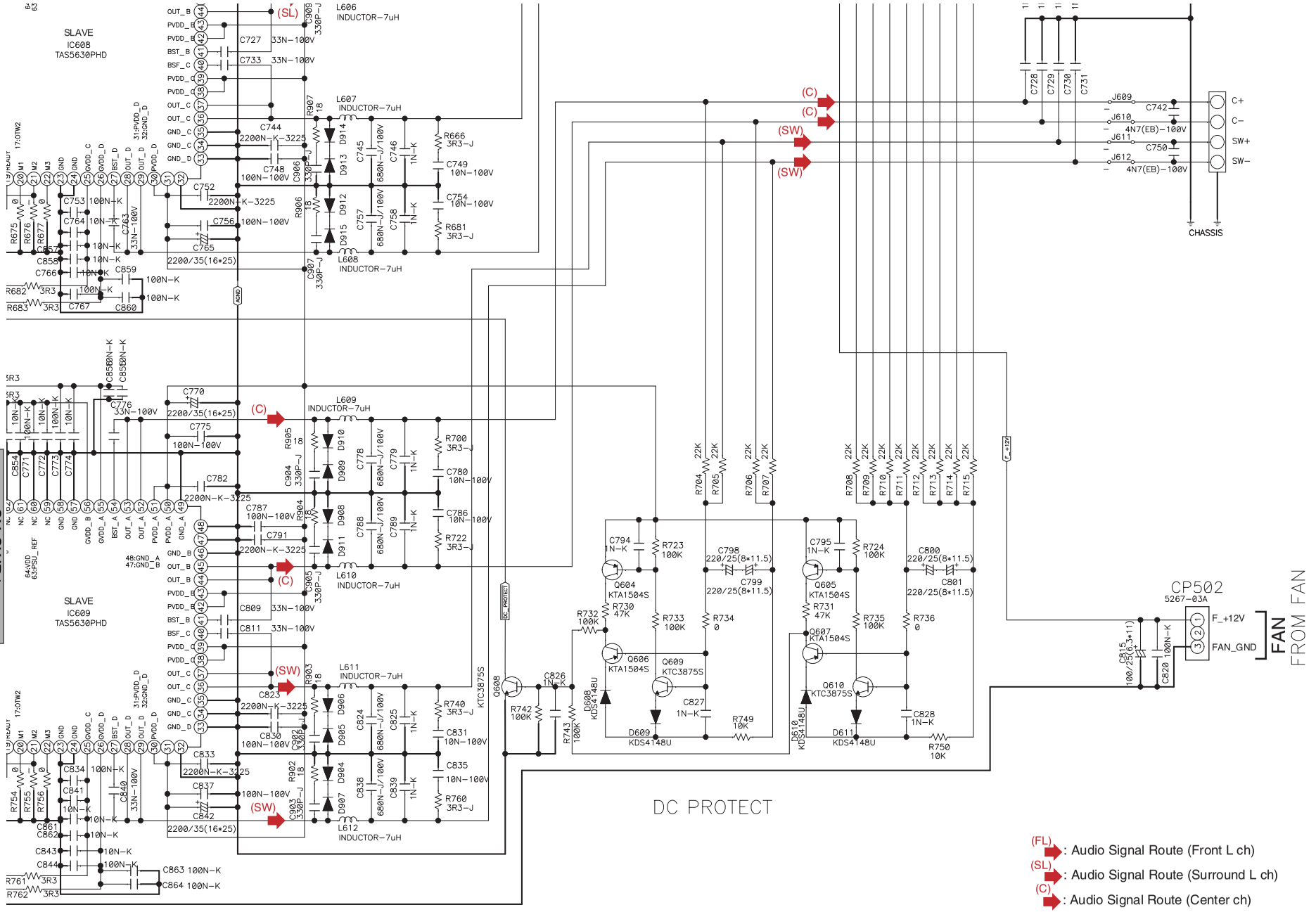


C-b


MASTER
IC607
TAS5630PHD
SLAVE
IC608
TAS5630PHD
SLAVE
IC609
TAS5630PHD
JK601
FL+
FL-
FR+
FR-
SL+
SL-
SR+
SR-
C+
C-
SW+
SW-
CHASSIS
CP502
5267-03A
F_+12V
FAN_GND
FAN
FROM FAN
DC PROTECT
(FL): Audio Signal Route (Front L ch)
(SL): Audio Signal Route (Surround L ch)
(C): Audio Signal Route (Center ch)
(SW): Audio Signal Route (Sub Woofer ch)
(SBL): Audio Signal Route (Surround Back L ch)
(L): Audio Signal Route (L ch)


JK601
FL+
FL−
FR+
FR−
SL+
SL−
SR+
SR−
C+
MASTER
IC607
TAS5630PHD
SLAVE
IC608
TAS5630PHD

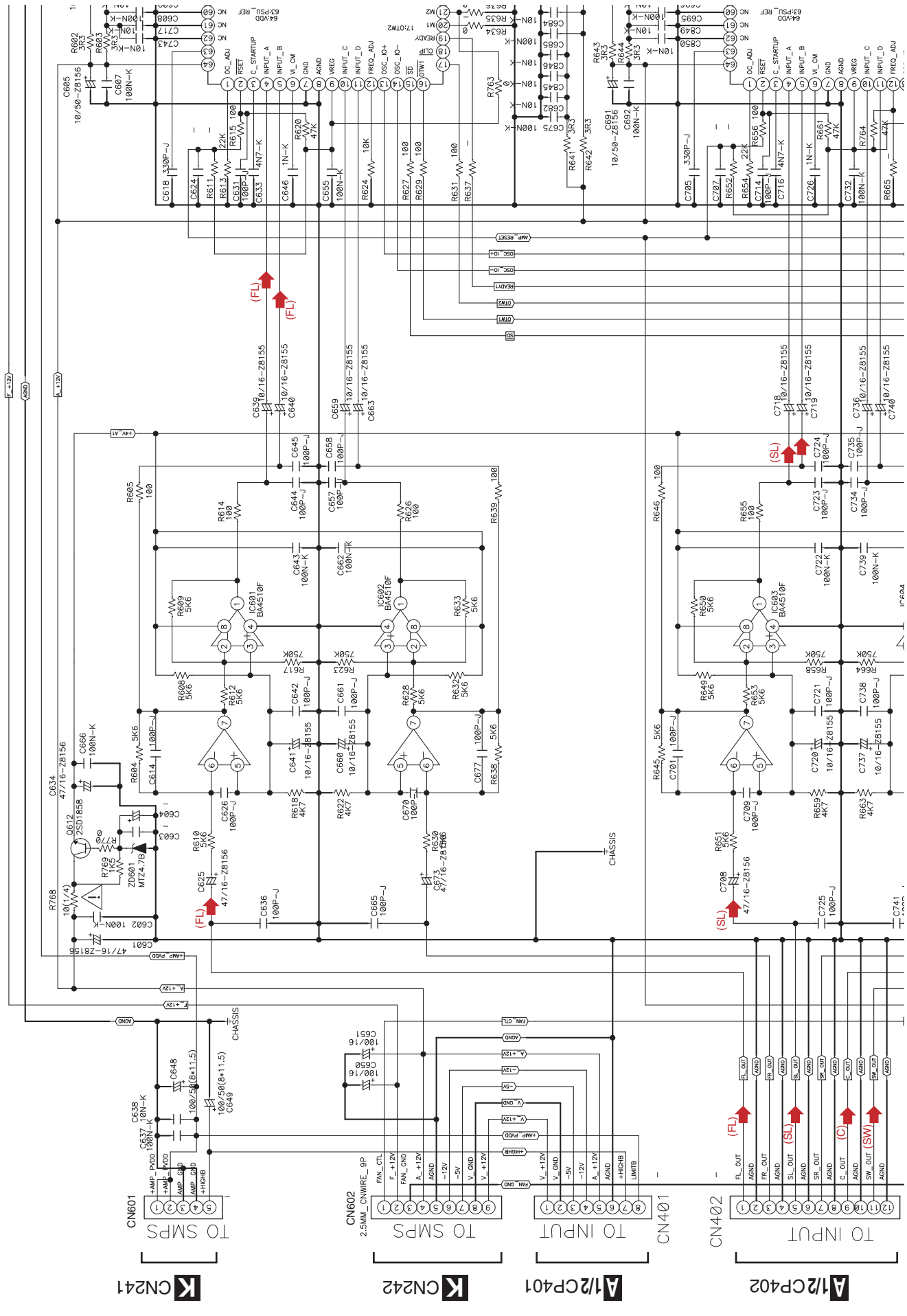
C-a C-b


SLAVE
IC608
TAS5630PHD
SLAVE
IC609
TAS5630PHD
SX-SWR1
FAN
FROM FAN
CP502
5267-03A
F_+12V
FAN_GND
CHASSIS
DC PROTECT
(FL): Audio Signal Route (Front L ch)
(SL): Audio Signal Route (Surround L ch)
(C): Audio Signal Route (Center ch)
(SW): Audio Signal Route (Sub Woofer ch)
(SBL): Audio Signal Route (Surround Back L ch)
(L): Audio Signal Route (L ch)

C-a C-b

C-b

P.C.B SUB ASSY (MAIN_AMP) (702806891020-IL)



5 6 7 8

C-b

A

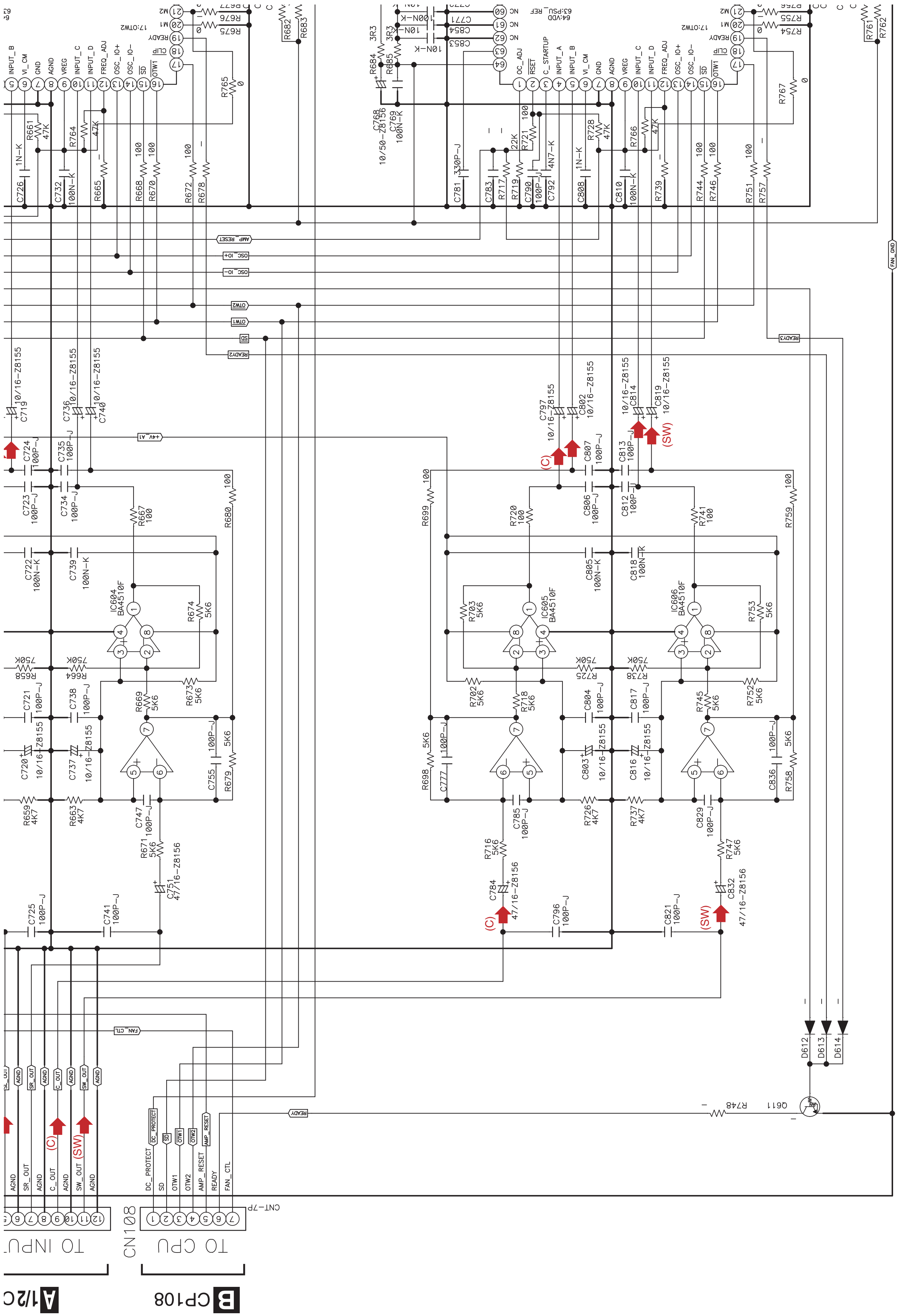
B

C

D

E

F

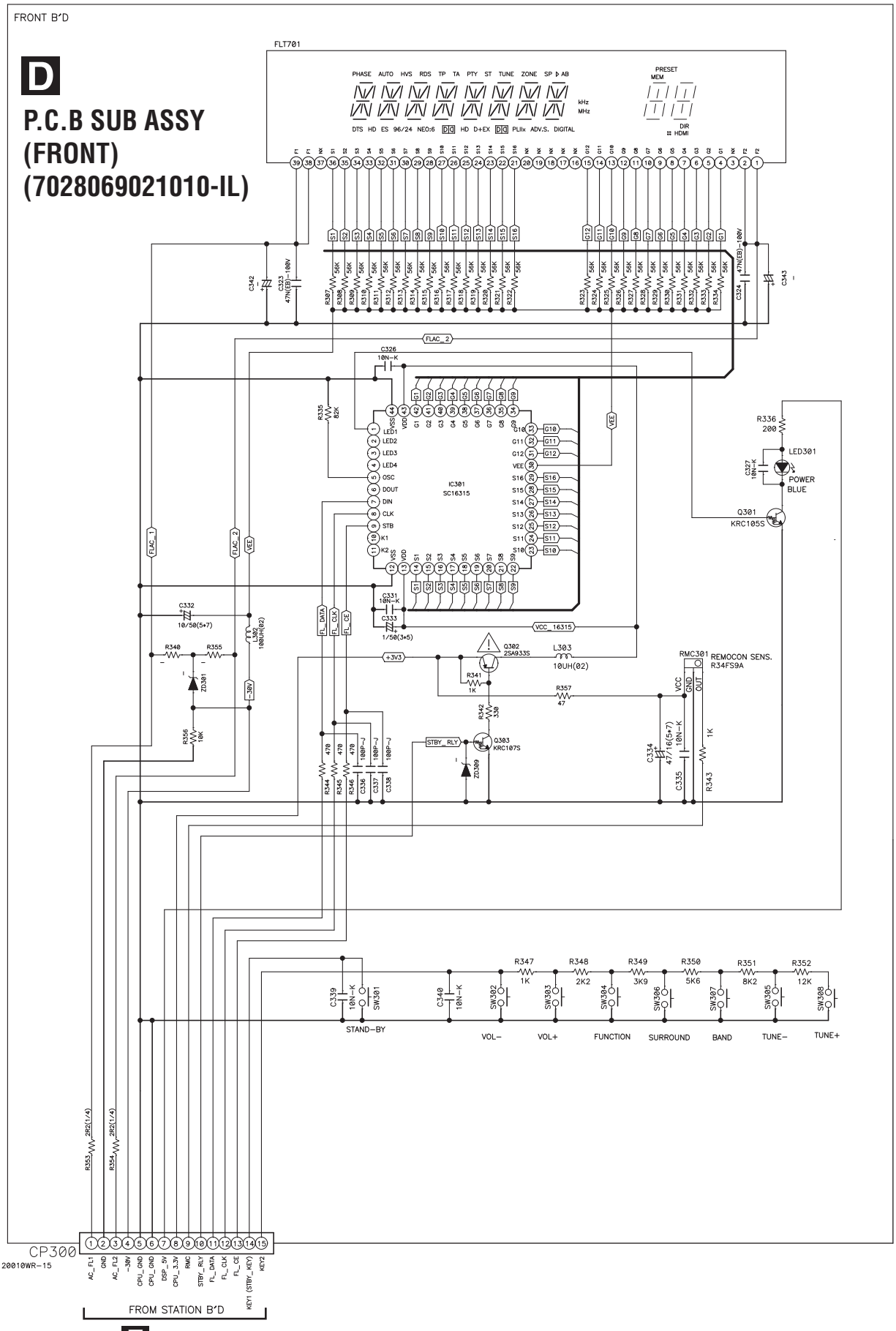


C-b
C-a

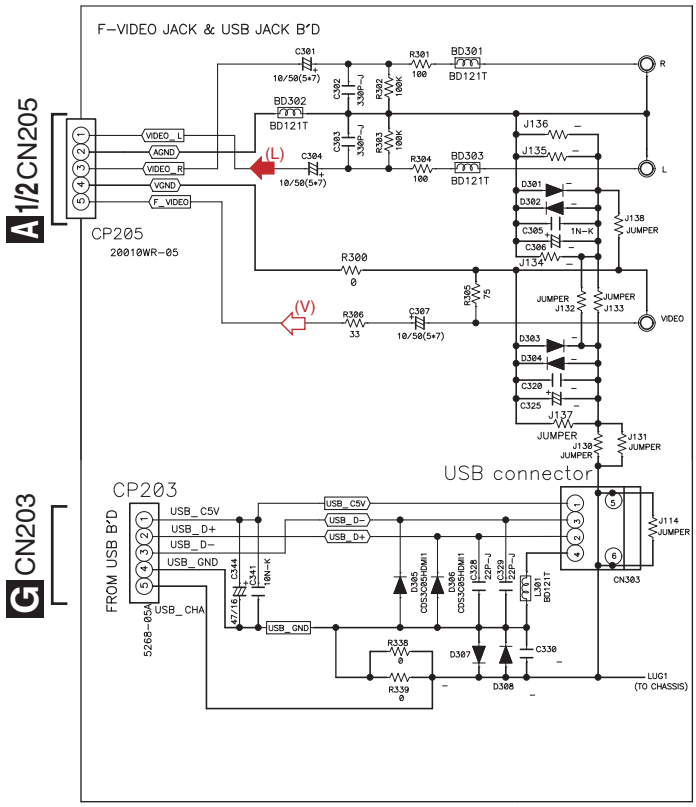
C-a

5 6 7 8

10.5 P.C.B SUB ASSYS (FRONT), (F-VIDEO) and (STATION1)



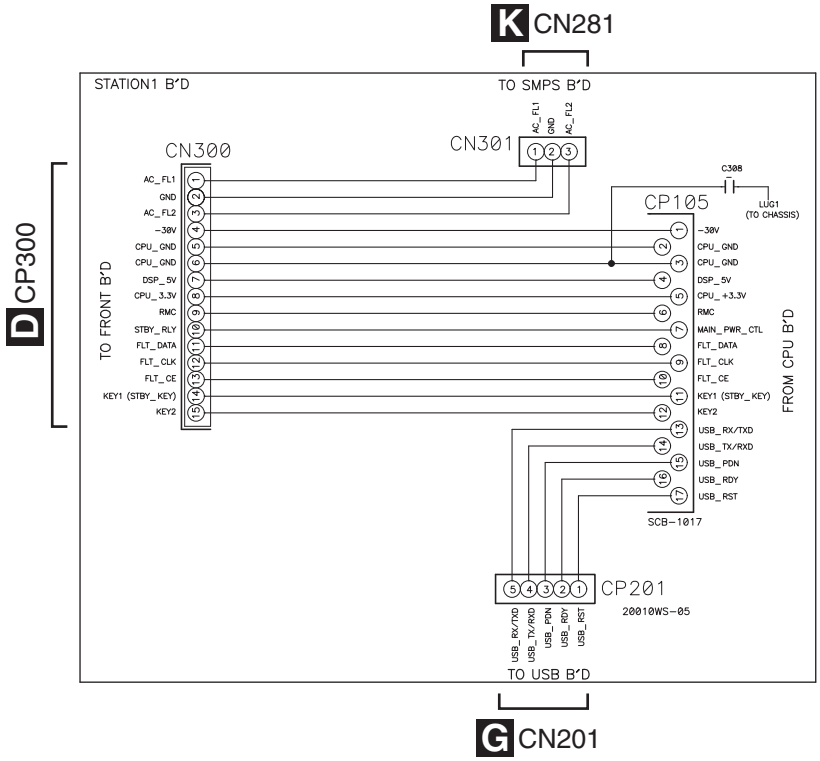
E P.C.B SUB ASSY (F-VIDEO) (7028069022010-IL)



(V): Video Signal Route

(L): Audio Signal Route (L ch)

F P.C.B SUB ASSY (STATION1) (7028069023010-IL)

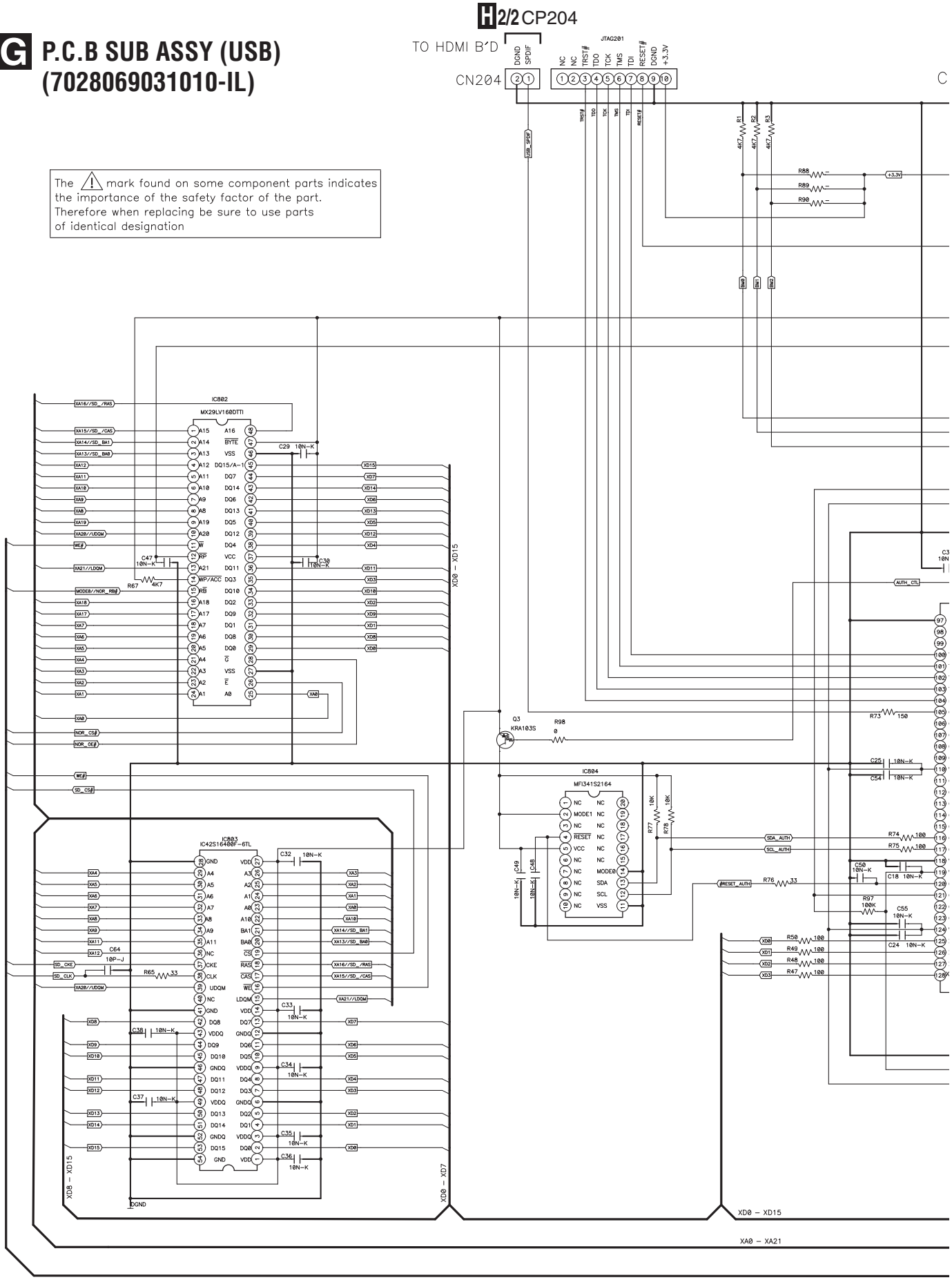


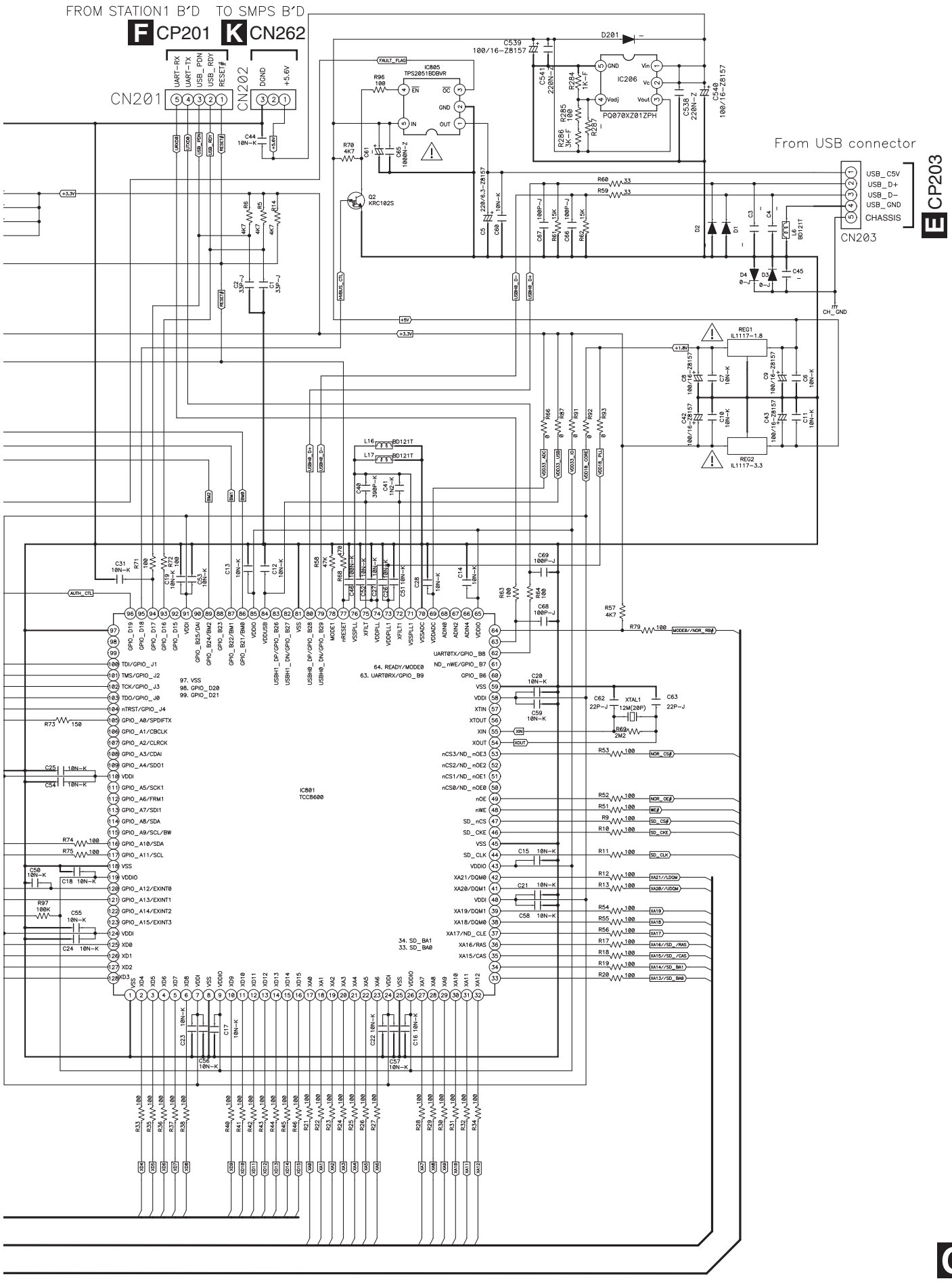
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

10.6 P.C.B SUB ASSY (USB)

G P.C.B SUB ASSY (USB) (7028069031010-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

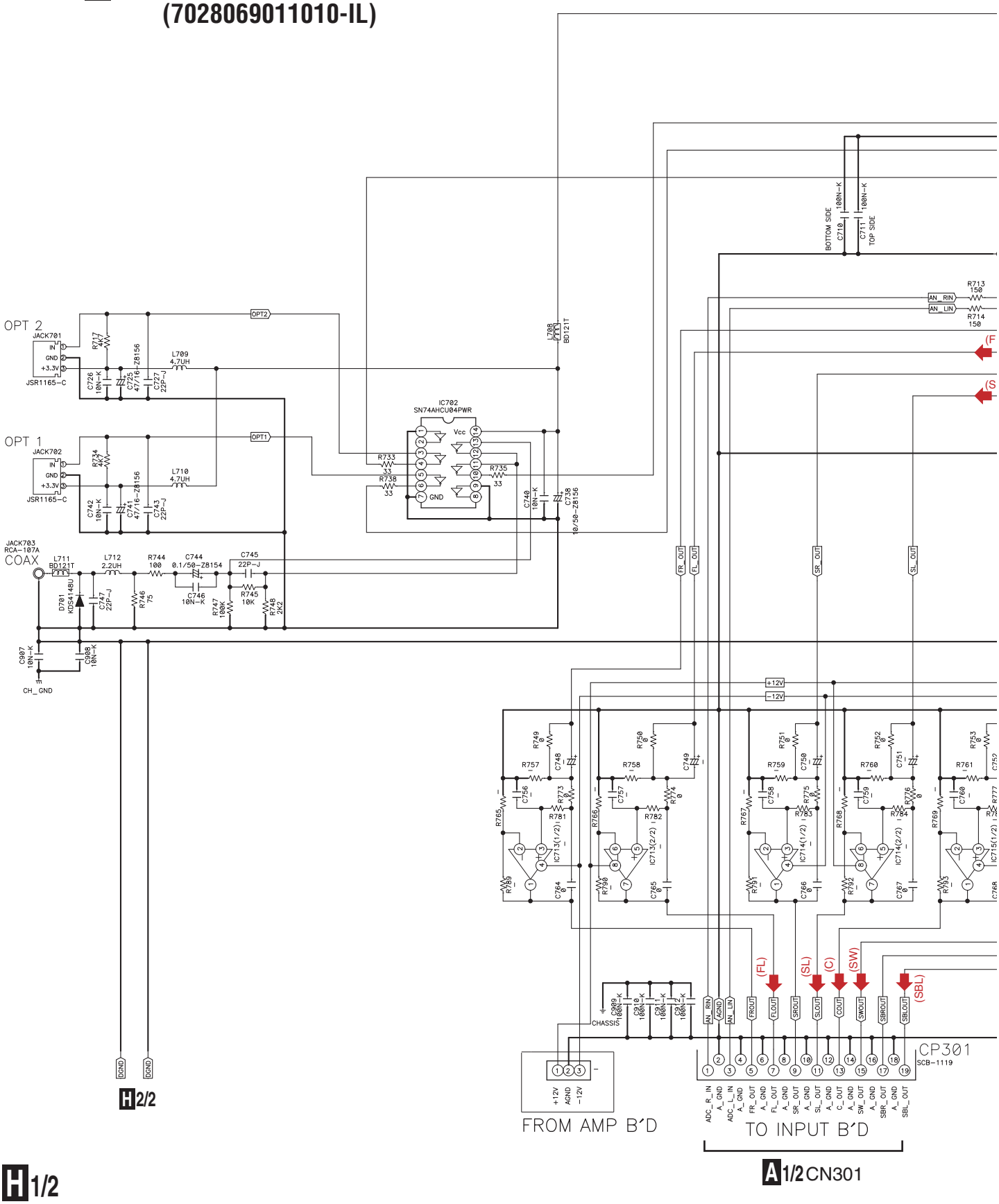



FROM STATION1 B'D TO SMPS B'D
F CP201 K CN262
CN201
CN202
UART-RX
UART-TX
USB_PDN
USB_RDY
RESET#
DGND
+5.6V
From USB connector
E CP203
CN203
USB_C5V
USB_D+
USB_D-
USB_GND
CHASSIS
IC805
TPS2051BDBVR
IC206
PQ070XZ01ZPH
Q2
KRC102S
REG1
IL1117-1.8
REG2
IL1117-3.3
D201
D1
D2
D3
D4
BD121T
L16
L17
IC801
TCC8600
XTAL1
12M(20P)
64. READY/MODE0
63. UART0RX/GPIO_B9
97. VSS
98. GPIO_D20
99. GPIO_D21
34. SD_BA1
33. SD_BA0

SX-SWR1

10.7 P.C.B SUB ASSY (HDMI_DSP) (1/2)

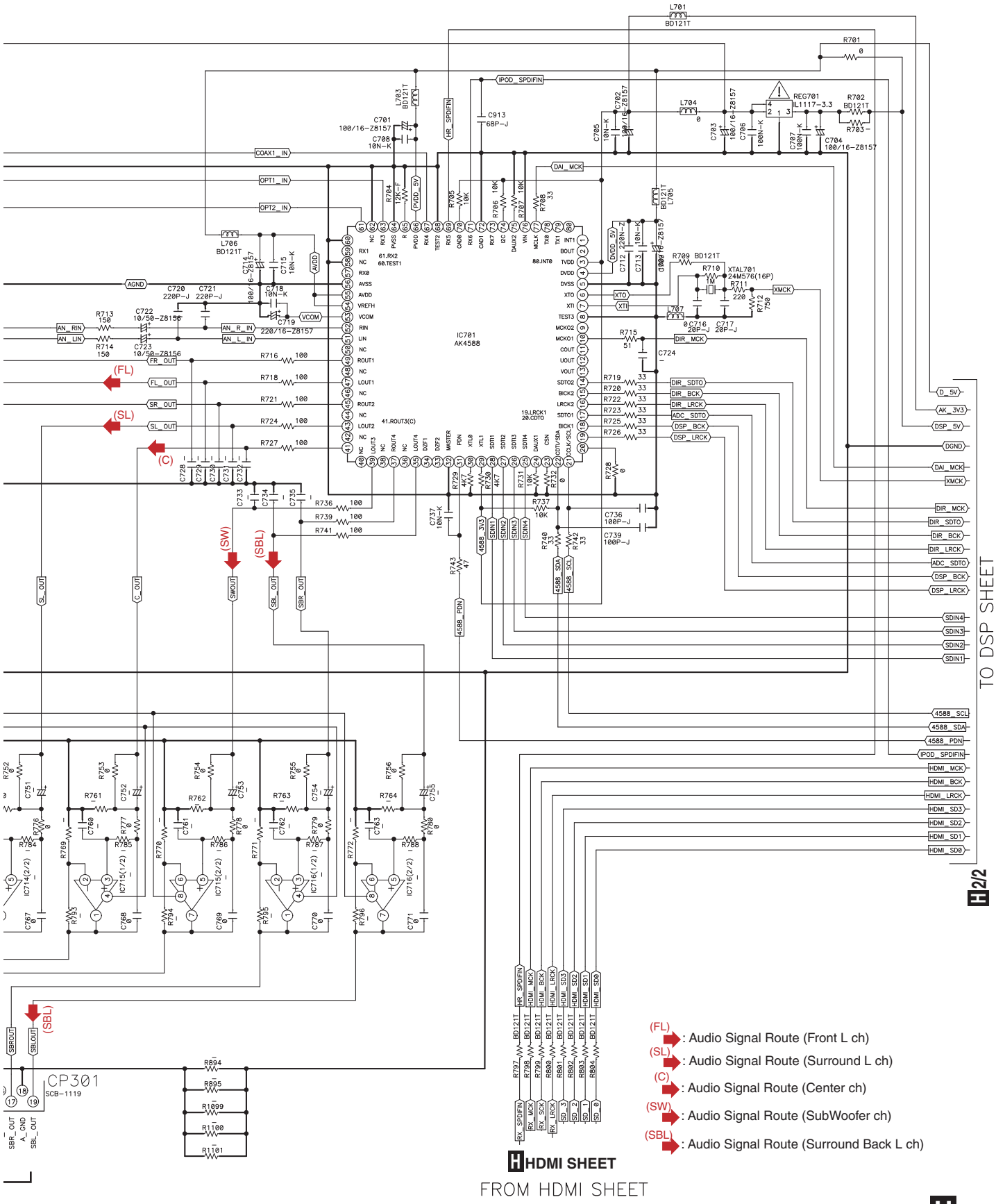
H 1/2 P.C.B SUB ASSY (HDMI_DSP) (7028069011010-IL)



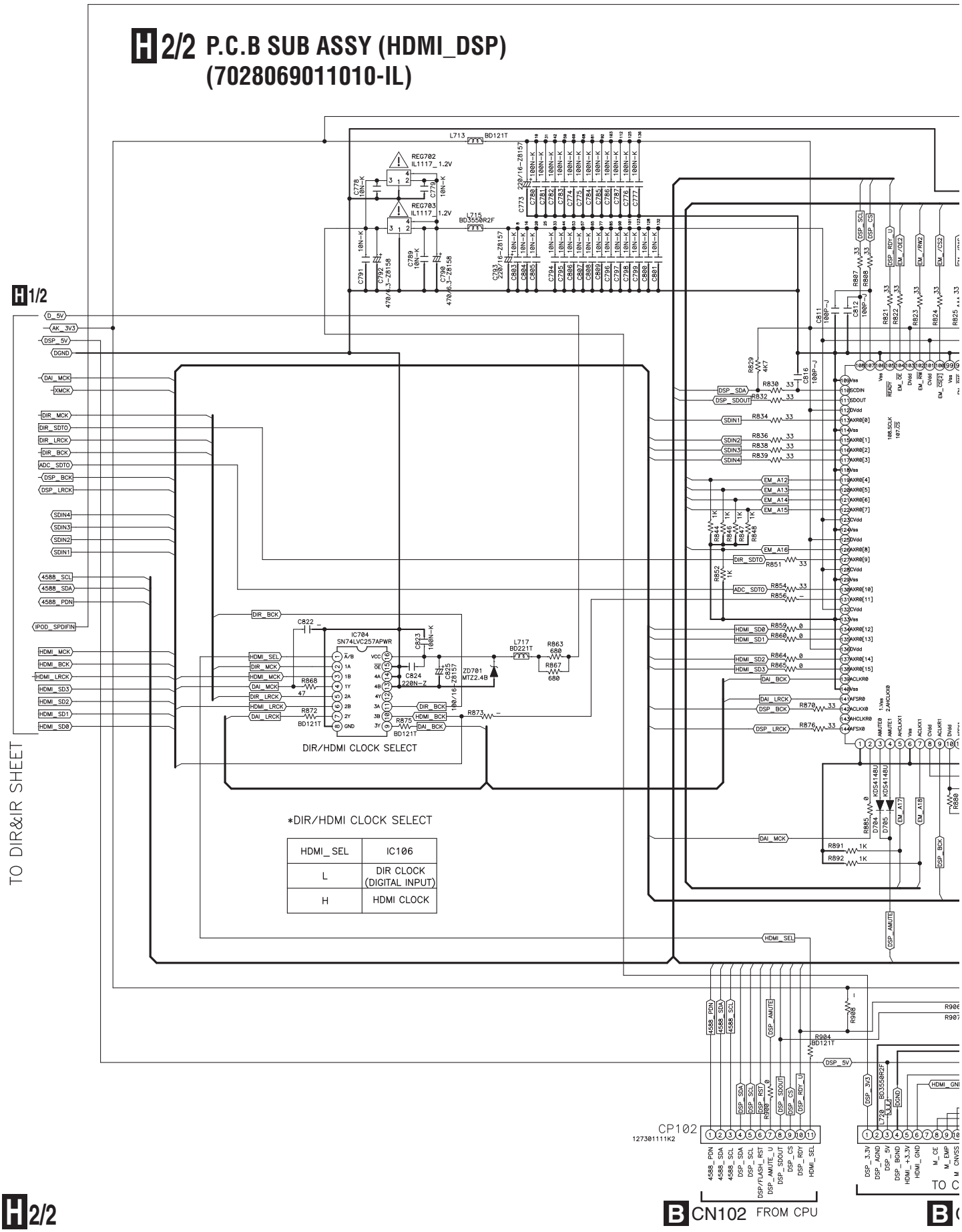
H 1/2

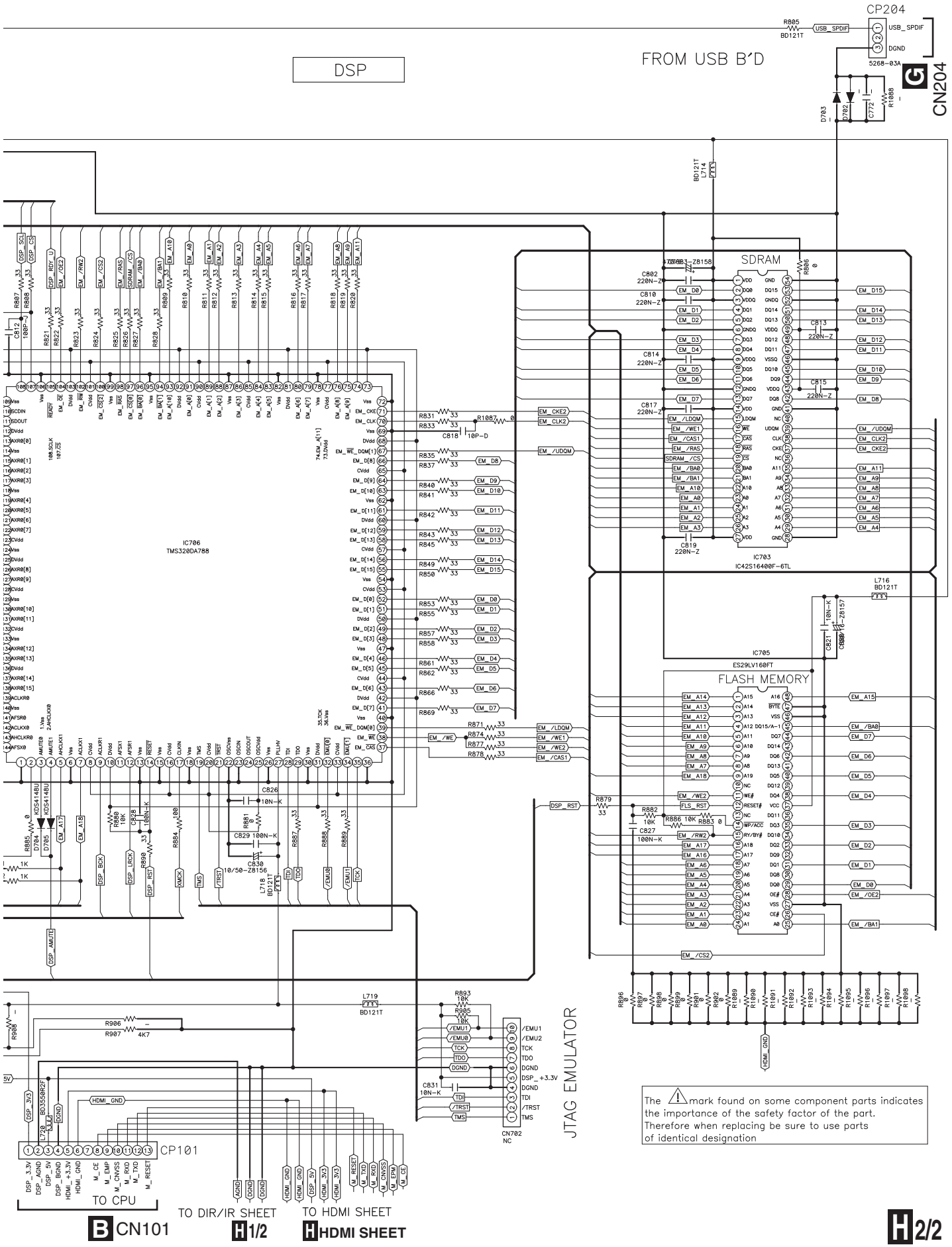
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

DIR/IR



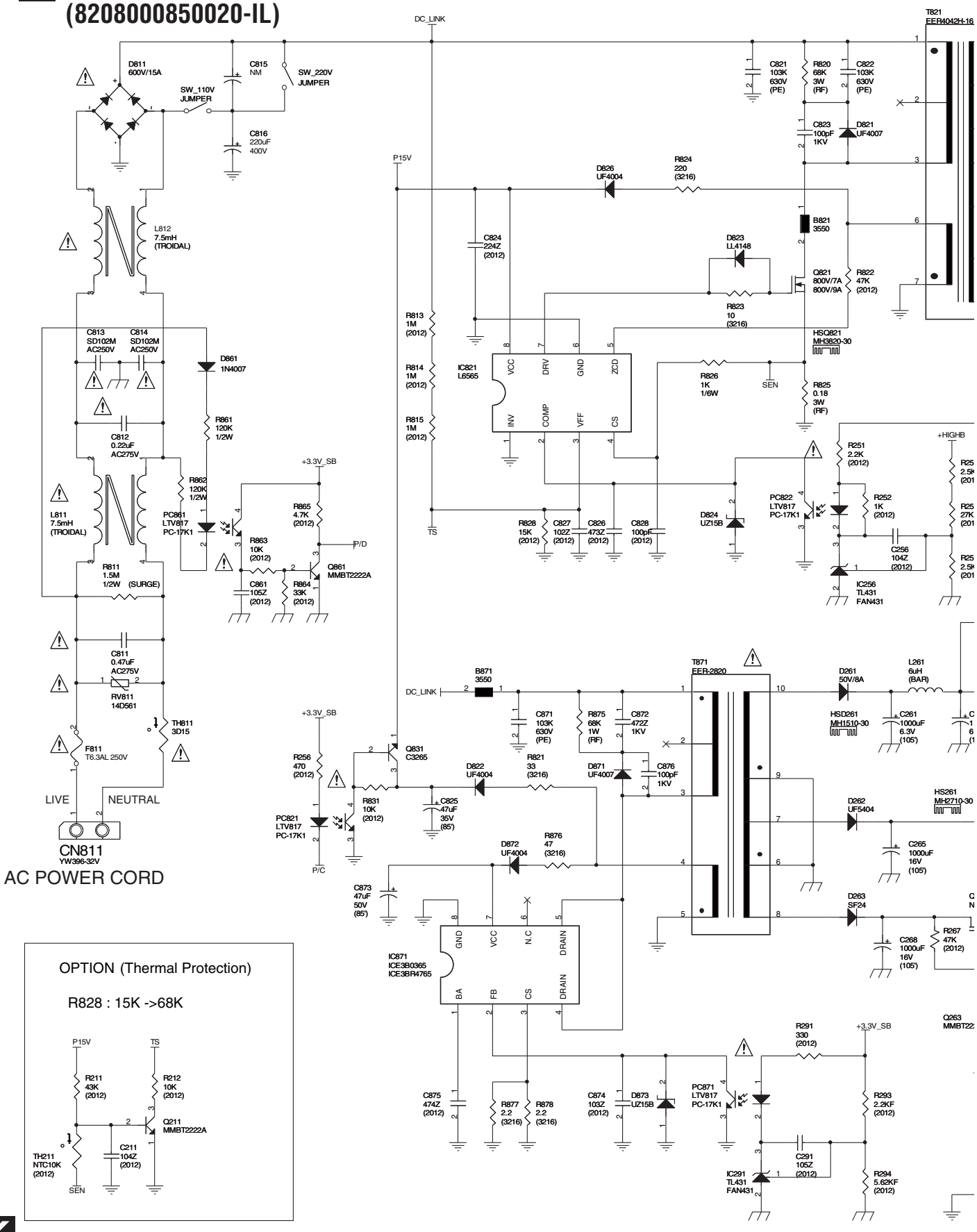
H 2/2 P.C.B SUB ASSY (HDMI_DSP) (7028069011010-IL)




DSP
FROM USB B'D
CP204
CN204
SDRAM
IC703
IC42S16400F-6TL
IC706
TMS320DA788
IC705
ES29LV160FT
FLASH MEMORY
JTAG EMULATOR
CP101
TO CPU
TO DIR/IR SHEET
TO HDMI SHEET
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

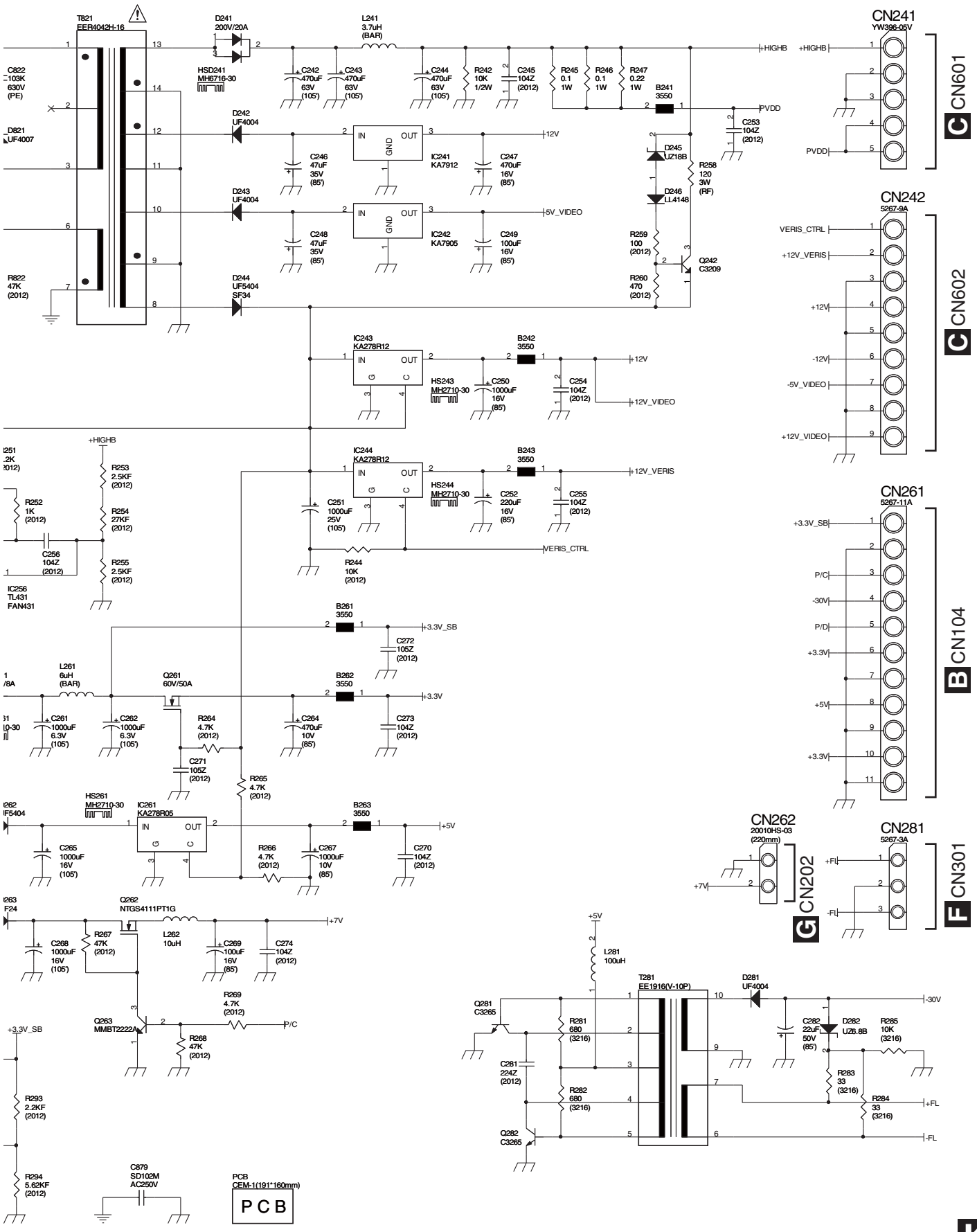
10.9 SMPS ASSY

K SMPS ASSY (8208000850020-IL)



OPTION (Thermal Protection)

R828 : 15K ->68K


T821
EER4042H-16
D241
200V/20A
L241
3.7uH
(BAR)
+HIGHB
PVDD
HSD241
MH6716-30
C242
470uF
63V
(105')
C243
470uF
63V
(105')
C244
470uF
63V
(105')
R242
10K
1/2W
C245
104Z
(2012)
R245
0.1
1W
R246
0.1
1W
R247
0.22
1W
B241
3550
C253
104Z
(2012)
C822
103K
630V
(PE)
D821
UF4007
D242
UF4004
D243
UF4004
D244
UF5404
SF34
R822
47K
(2012)
IC241
KA7912
IC242
KA7905
C246
47uF
35V
(85')
C247
470uF
16V
(85')
C248
47uF
35V
(85')
C249
100uF
16V
(85')
12V
5V_VIDEO
D245
UZ18B
D246
LL4148
R258
120
3W
(RF)
R259
100
(2012)
R260
470
(2012)
Q242
C3209
IC243
KA278R12
IC244
KA278R12
B242
3550
B243
3550
HS243
MH2710-30
HS244
MH2710-30
C250
1000uF
16V
(85')
C251
1000uF
25V
(105')
C252
220uF
16V
(85')
C254
104Z
(2012)
C255
104Z
(2012)
12V_VERIS
12V_VIDEO
VERIS_CTRL
R244
10K
(2012)
+HIGHB
R251
2K
(2012)
R252
1K
(2012)
R253
2.5KF
(2012)
R254
27KF
(2012)
R255
2.5KF
(2012)
C256
104Z
(2012)
IC256
TL431
FAN431
B261
3550
+3.3V_SB
C272
105Z
(2012)
L261
6uH
(BAR)
Q261
60V/50A
B262
3550
+3.3V
C261
1000uF
6.3V
(105')
C262
1000uF
6.3V
(105')
R264
4.7K
(2012)
C264
470uF
10V
(85')
C273
104Z
(2012)
C271
105Z
(2012)
R265
4.7K
(2012)
HS261
MH2710-30
IC261
KA278R05
B263
3550
+5V
C265
1000uF
16V
(105')
R266
4.7K
(2012)
C267
1000uF
10V
(85')
C270
104Z
(2012)
Q262
NTGS4111PT1G
+7V
L262
10uH
C268
1000uF
16V
(105')
R267
47K
(2012)
C269
100uF
16V
(85')
C274
104Z
(2012)
R269
4.7K
(2012)
Q263
MMBT2222A
R268
47K
(2012)
P/C
+3.3V_SB
R293
2.2KF
(2012)
R294
5.62KF
(2012)
C879
SD102M
AC250V
PCB
CEM-1(191*160mm)
P C B
CN241
YW396-05V
+HIGHB
PVDD
C CN601
CN242
5267-9A
VERIS_CTRL
+12V_VERIS
+12V
-12V
-5V_VIDEO
+12V_VIDEO
C CN602
CN261
5267-11A
+3.3V_SB
P/C
-30V
P/D
+3.3V
+5V
+3.3V
B CN104
CN262
20010HS-03
(220mm)
+7V
G CN202
CN281
5267-3A
+FL
-FL
F CN301
+5V
L281
100uH
T281
EE1916(V-10P)
D281
UF4004
-30V
Q281
C3265
R281
680
(3216)
C281
224Z
(2012)
R282
680
(3216)
Q282
C3265
C282
22uF
50V
(85')
D282
UZ6.8B
R285
10K
(3216)
R283
33
(3216)
R284
33
(3216)
+FL
-FL

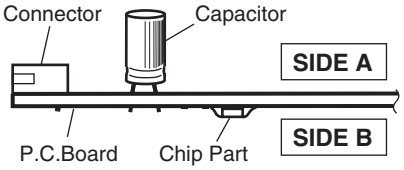
11. PCB CONNECTION DIAGRAM
11.1 P.C.B SUB ASSY (INPUT)

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.

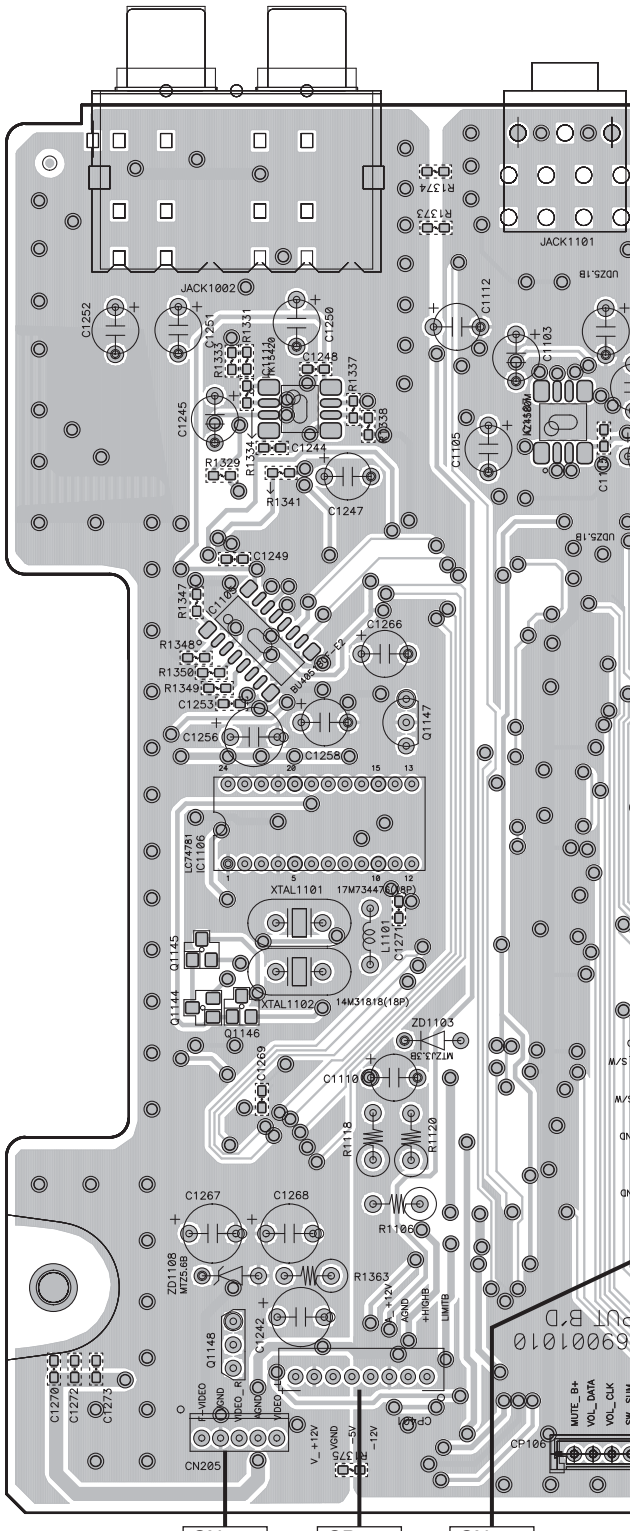
2. View point of PCB diagrams.



IC Q

IC1111
IC1107
IC1105 Q1140 Q1141 Q1142
IC1101 Q1143 Q1147
IC1109 IC1106
Q1145
IC1110 Q1144 Q1146
IC1108
Q1148
IC1102 Q1108

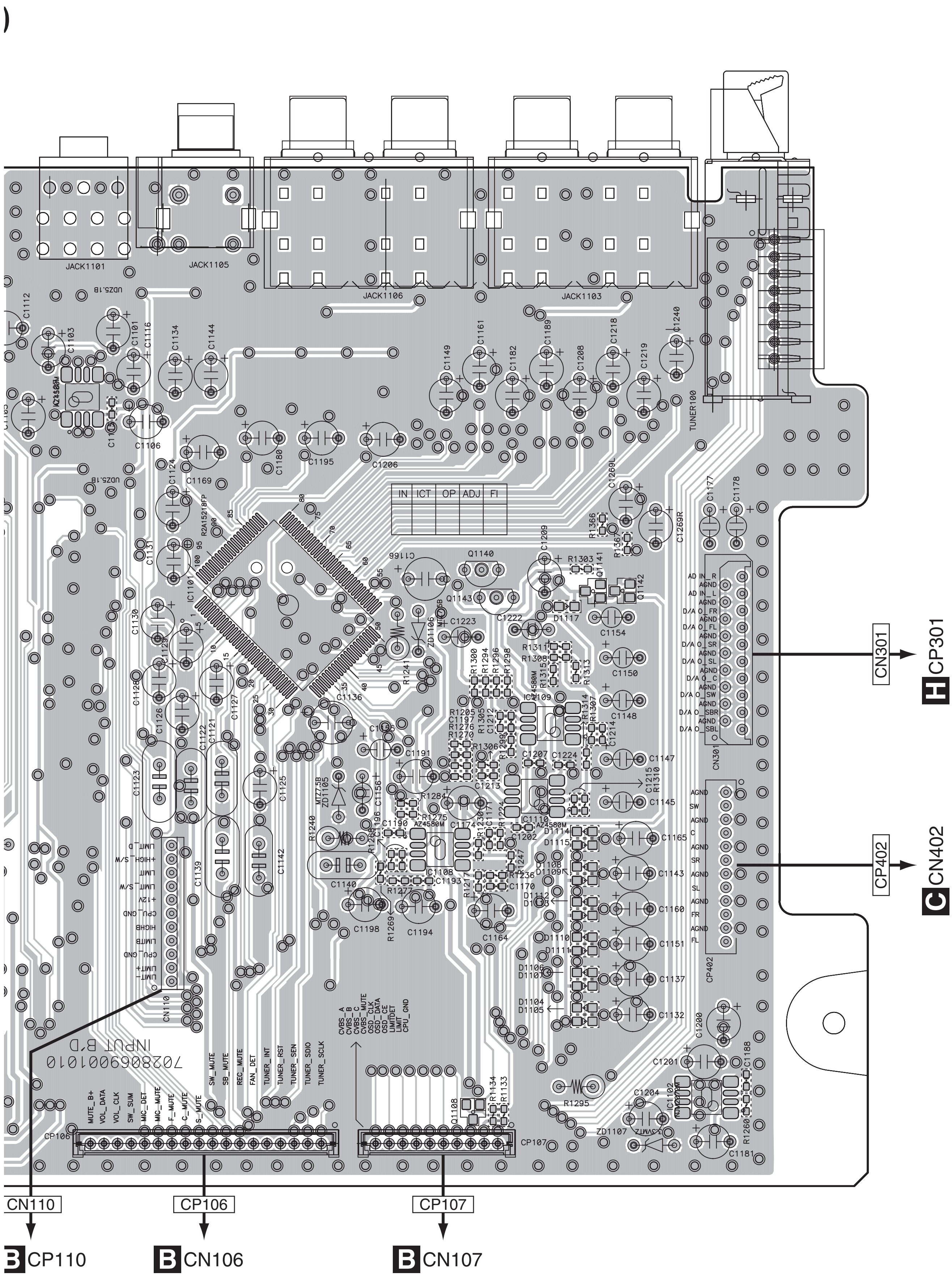
A P.C.B SUB ASSY (INPUT)



E CP205 C CN401 B CP110

A

SIDE A

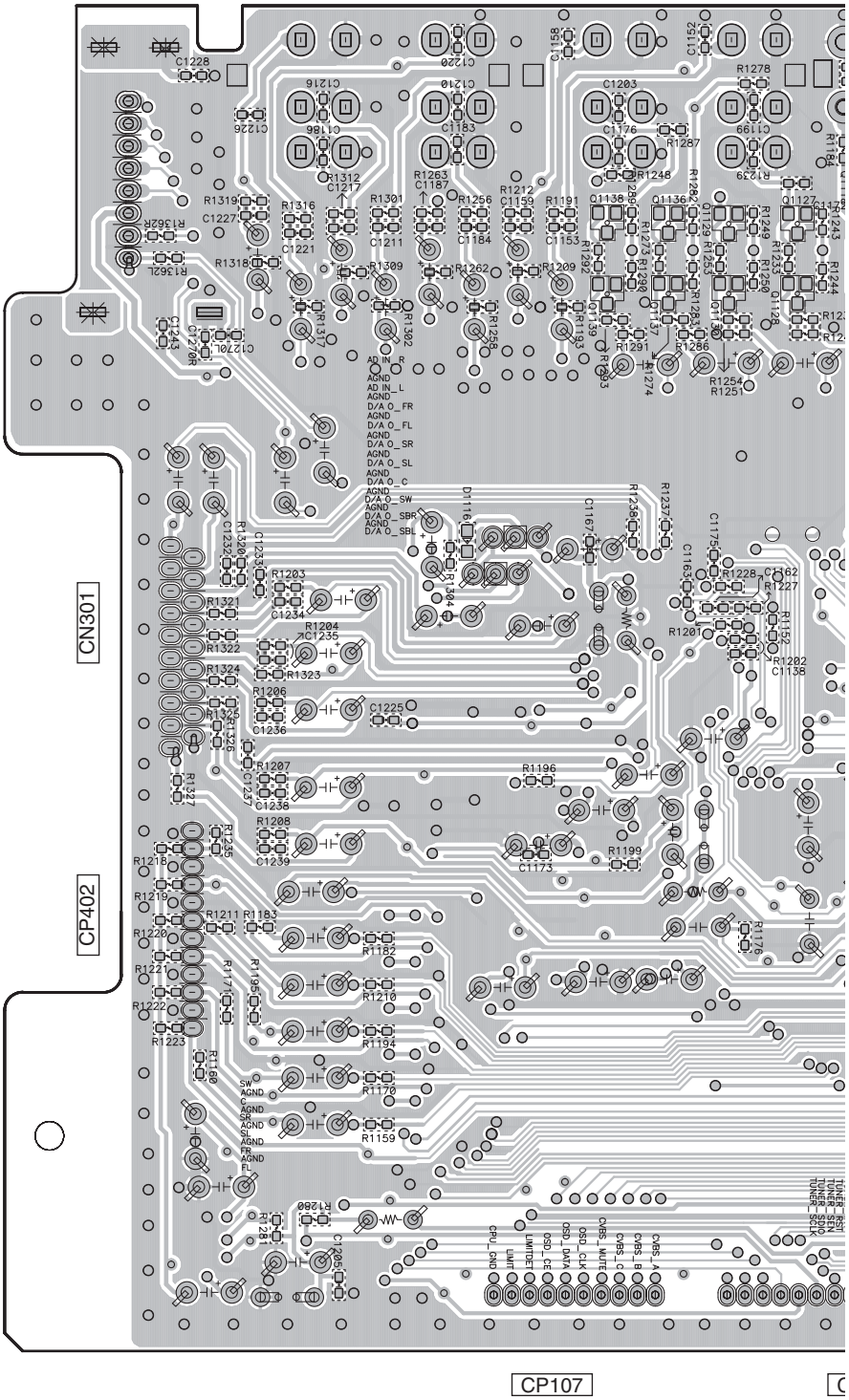


B C D E F

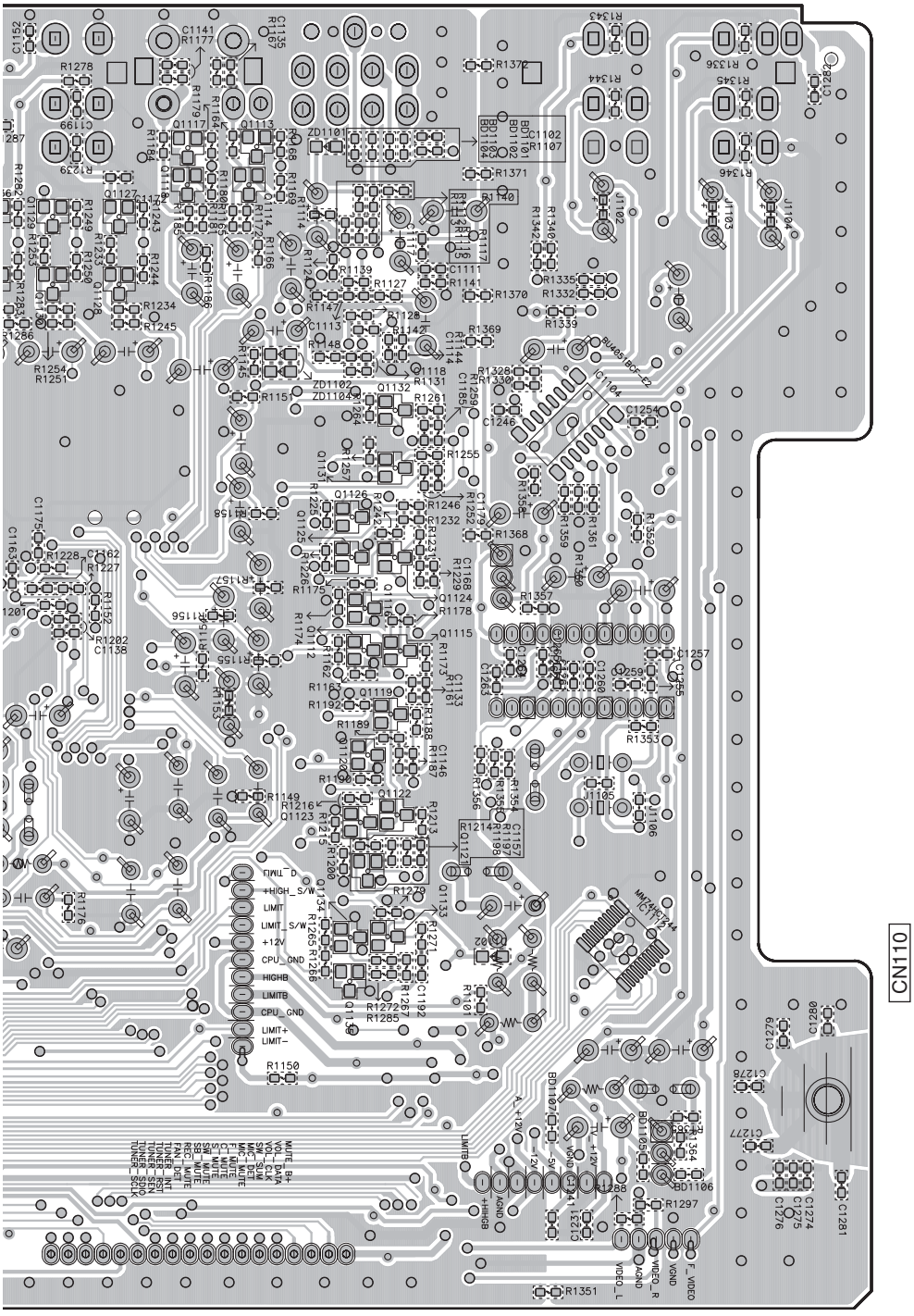
A

SIDE B

A P.C.B SUB ASSY (INPUT)



SIDE B

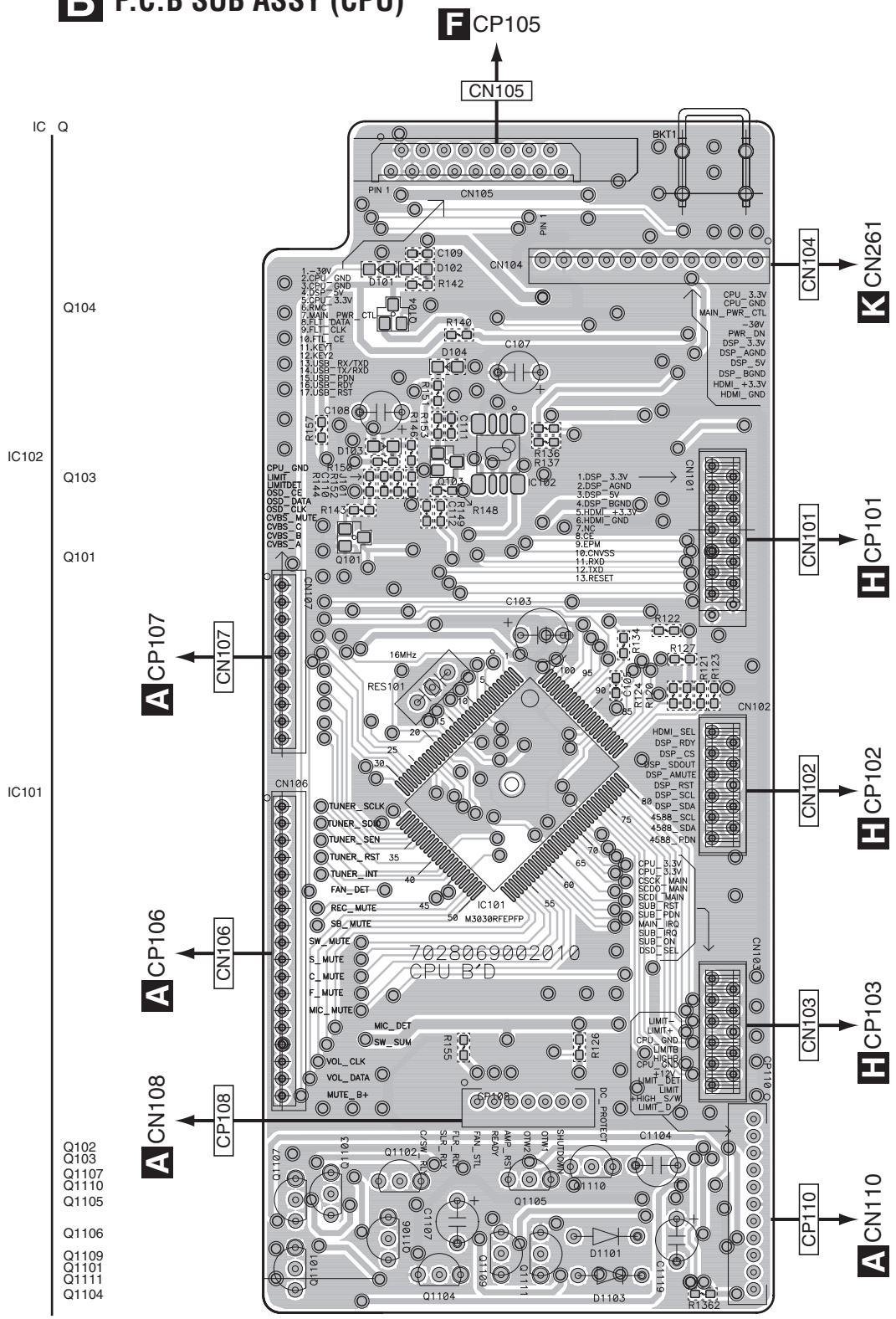

CP106
CP401
CN205
CN110
IC1104
IC1112
IC Q
Q1117
Q1113
Q1136
Q1127
Q1118
Q1138
Q1129
Q1114
Q1139
Q1137
Q1128
Q1130
Q1132
Q1131
Q1126
Q1125
Q1116
Q1124
Q1115
Q1112
Q1119
Q1120
Q1122
Q1123
Q1121
Q1134
Q1133
Q1135

11.2 P.C.B SUB ASSY (CPU)

SIDE A

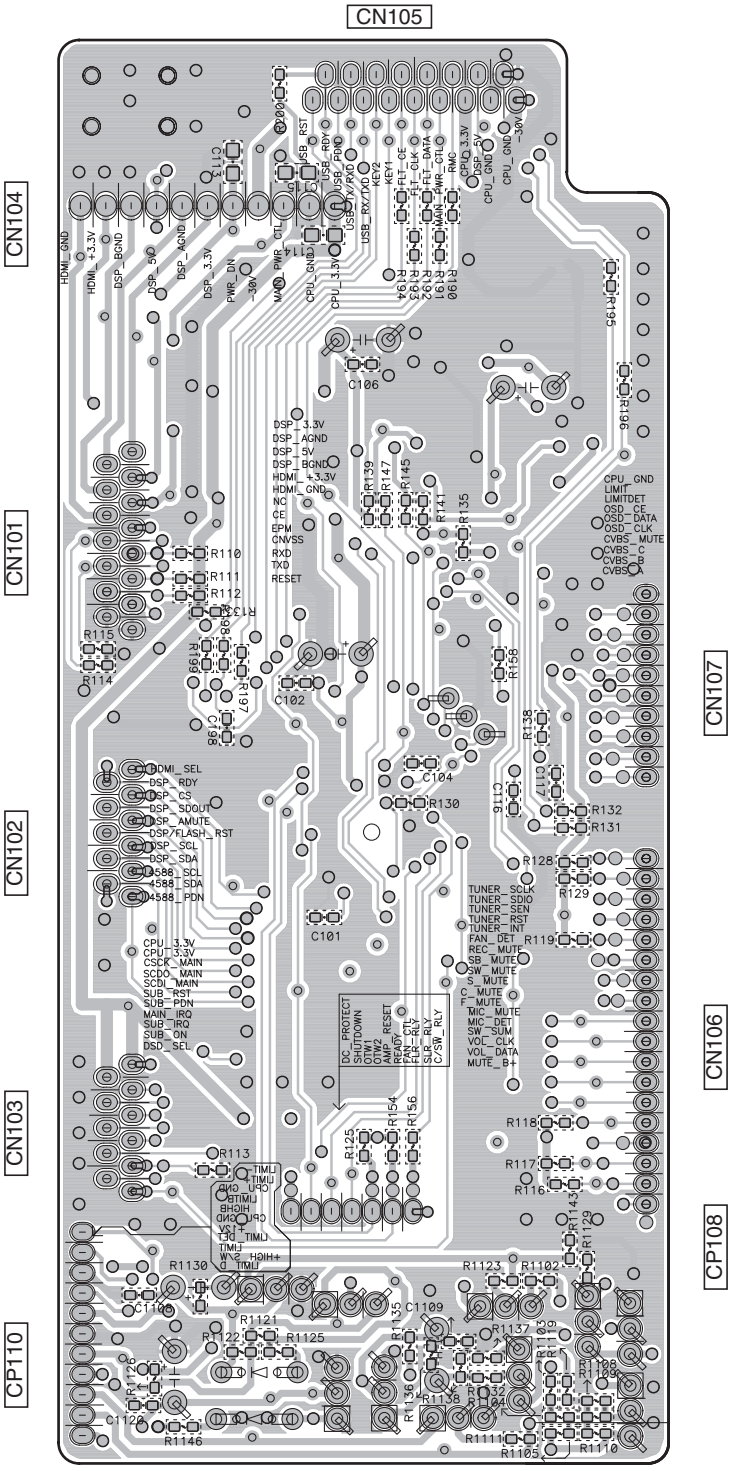
SIDE A

B P.C.B SUB ASSY (CPU)



SIDE B

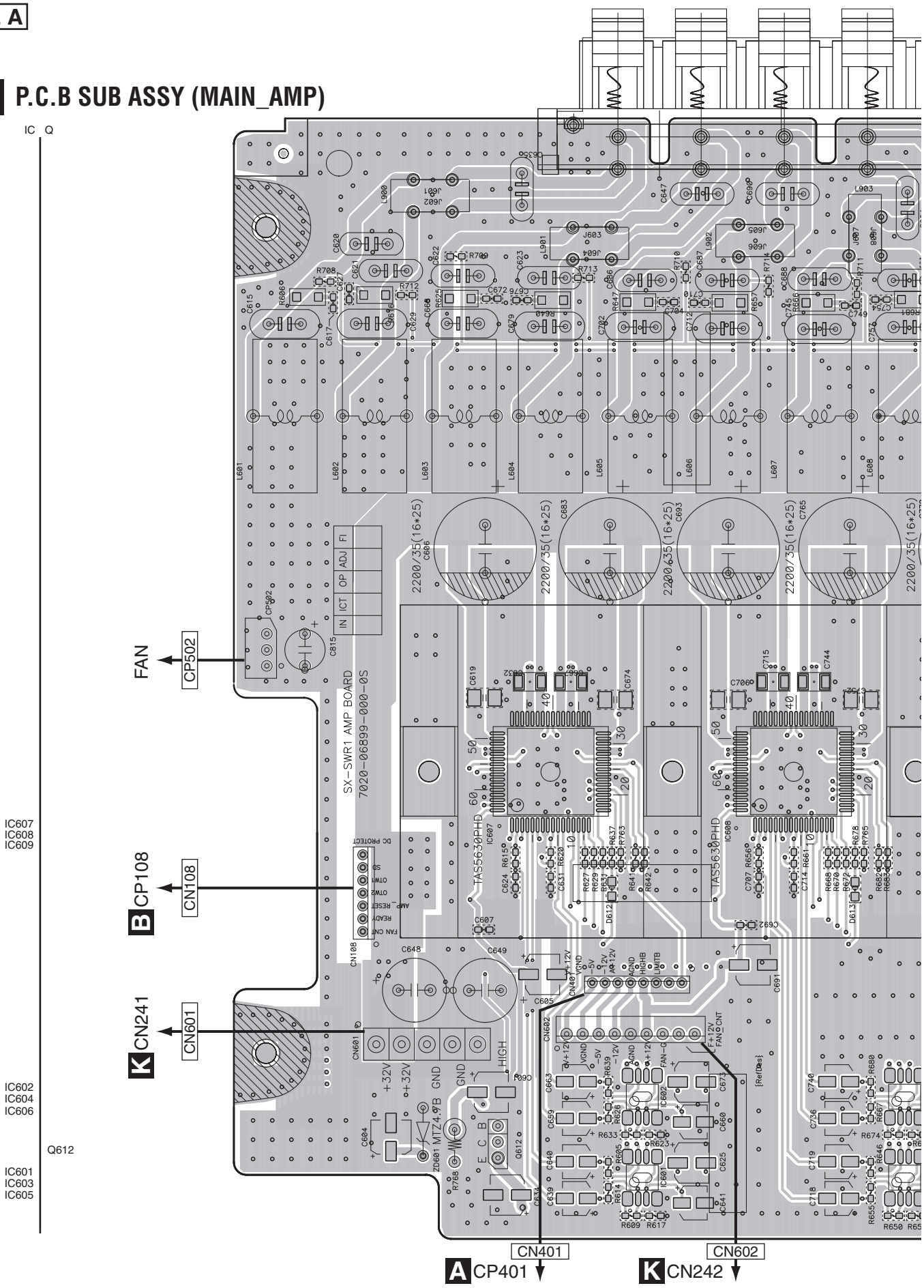
B P.C.B SUB ASSY (CPU)



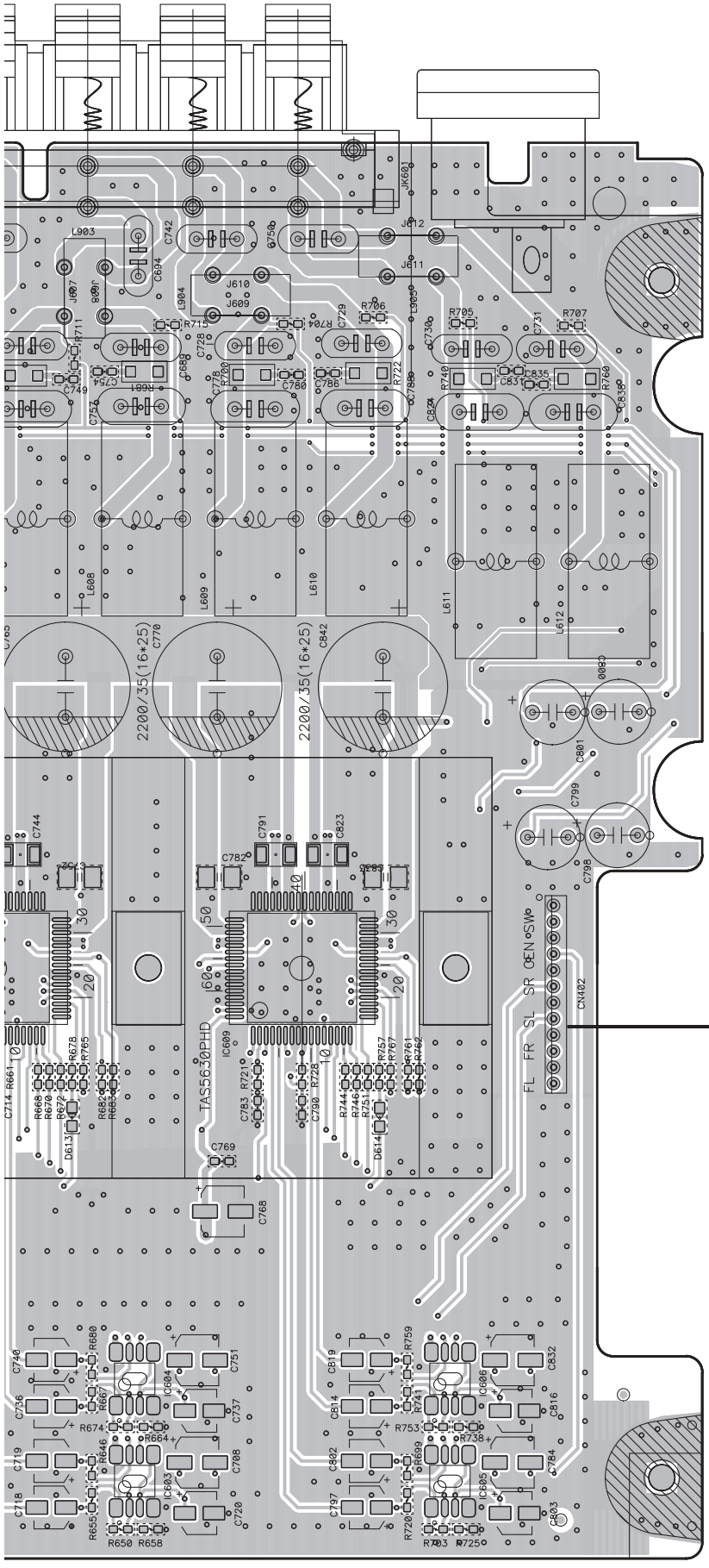
11.3 P.C.B SUB ASSY (MAIN_AMP)

SIDE A

C P.C.B SUB ASSY (MAIN_AMP)

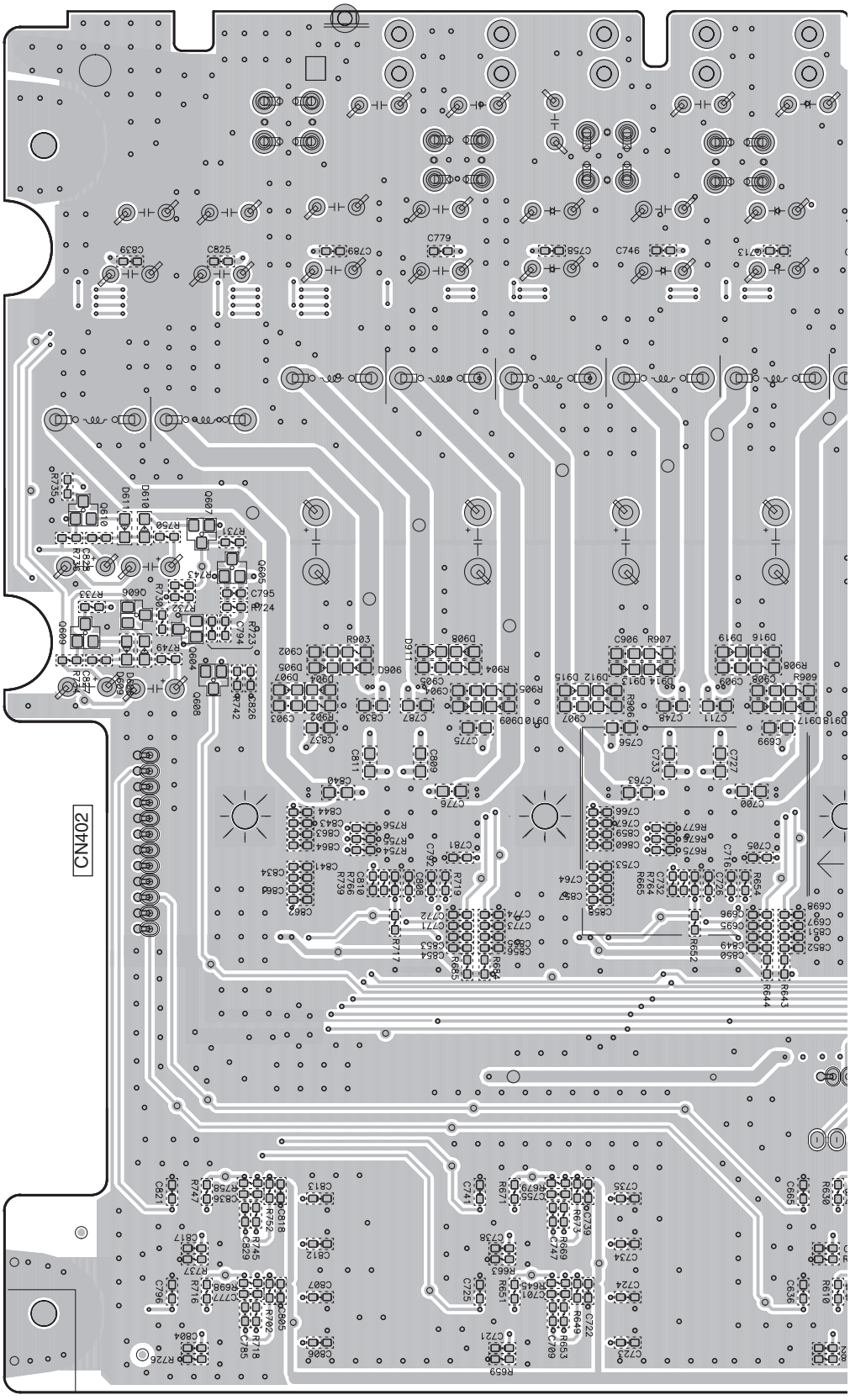


SIDE A

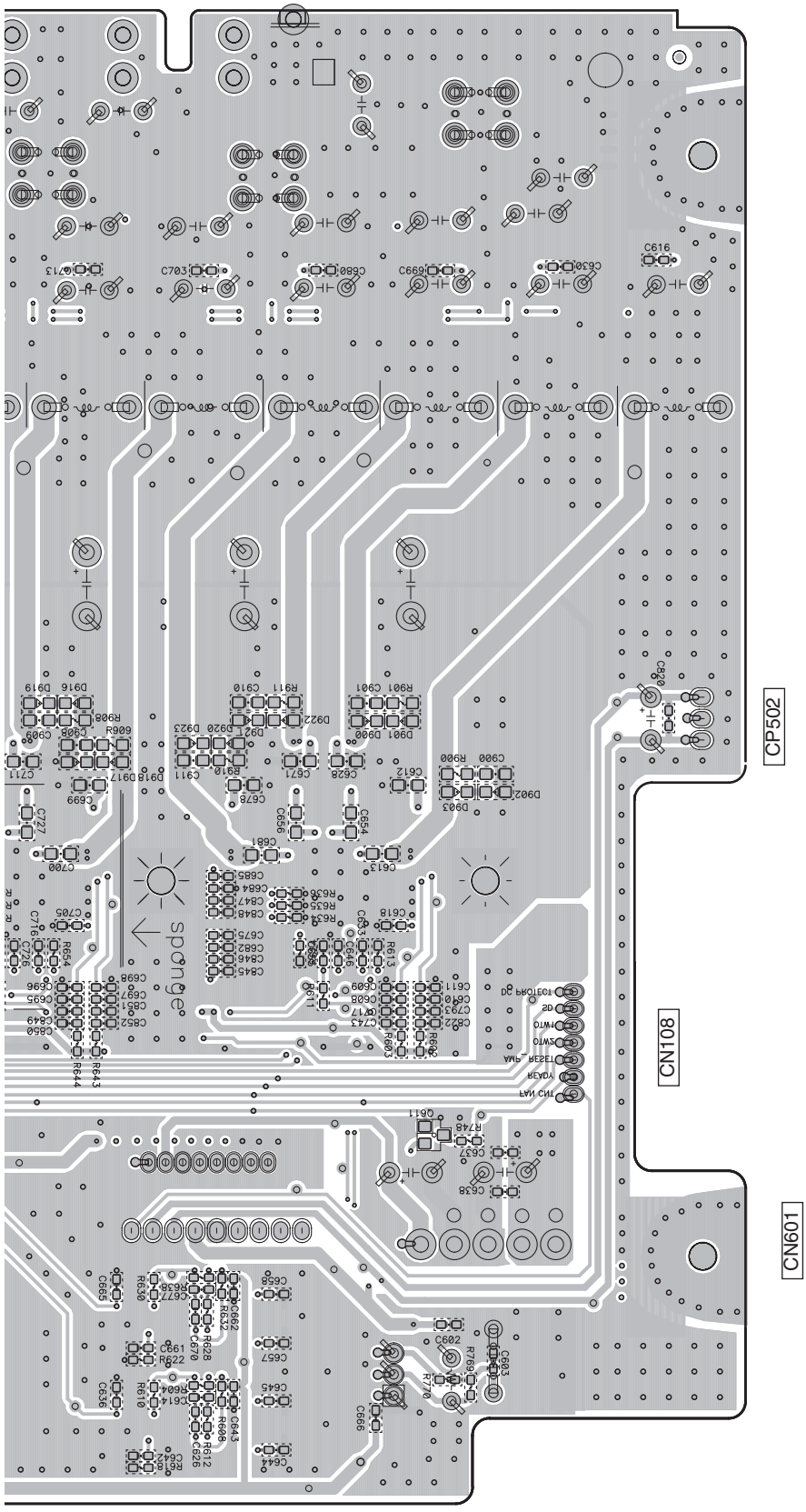

2200/35(16*25)
2200/35(16*25)
TAS5630PHD
CN402
FL FR SL SR OEN SWP
A CP402

SIDE B

C P.C.B SUB ASSY (MAIN_AMP)



SIDE B



IC Q

Q602
Q601
Q603
Q607
Q610
Q605
Q606
Q609
Q604
Q608
Q611

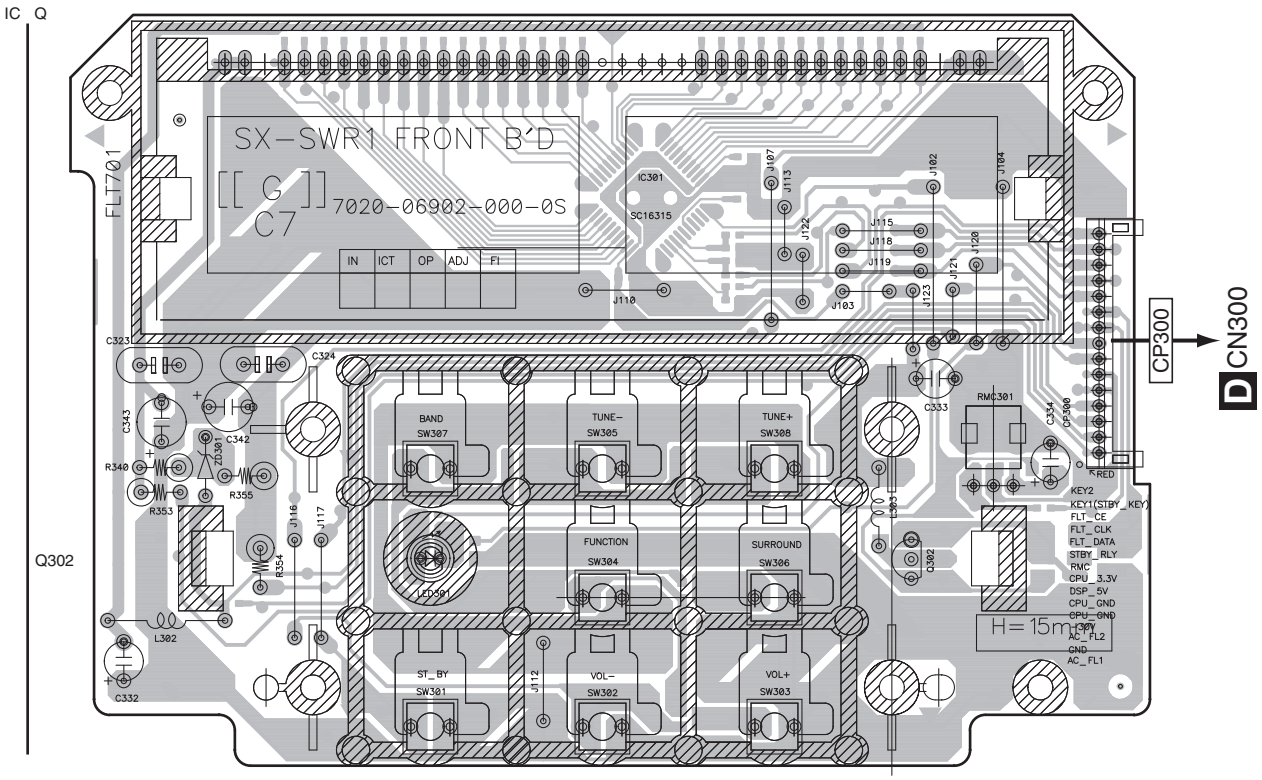
A B C D E F

11.4 P.C.B SUB ASSYS (FRONT), (F-VIDEO) and (STATION1)

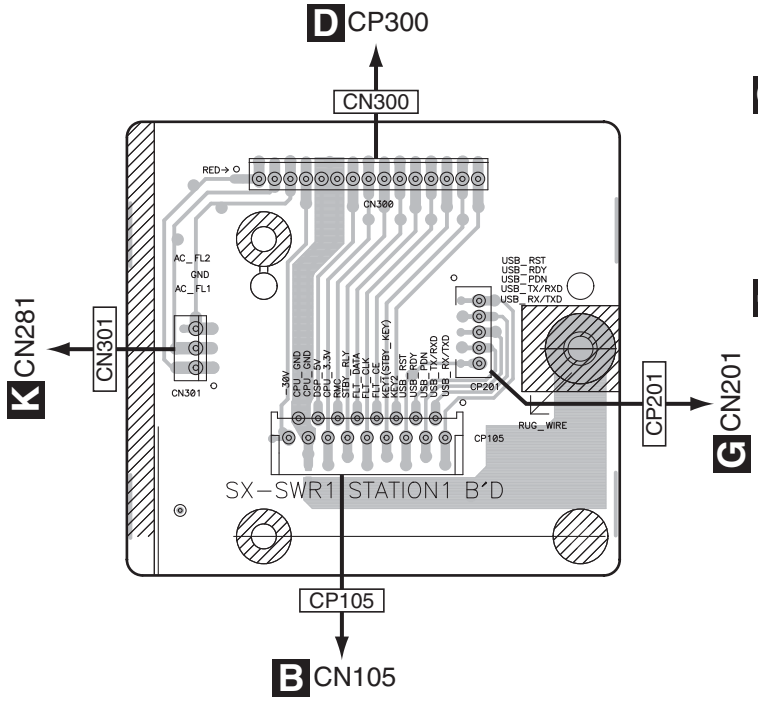
SIDE A

SIDE A

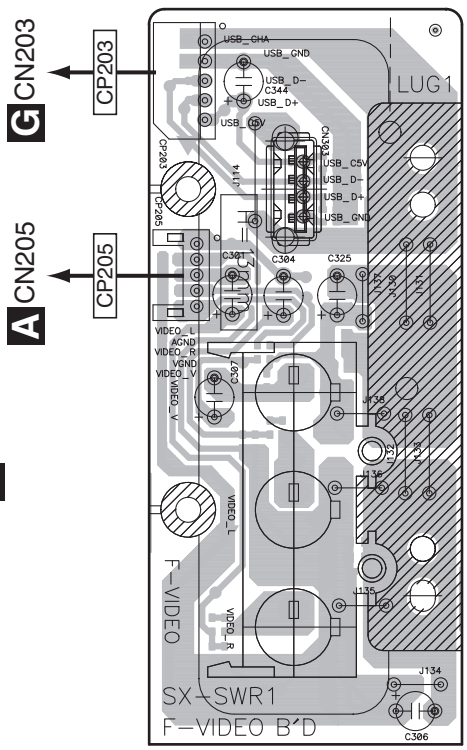
D P.C.B SUB ASSY (FRONT)



F P.C.B SUB ASSY (STATION1)



E P.C.B SUB ASSY (F-VIDEO)



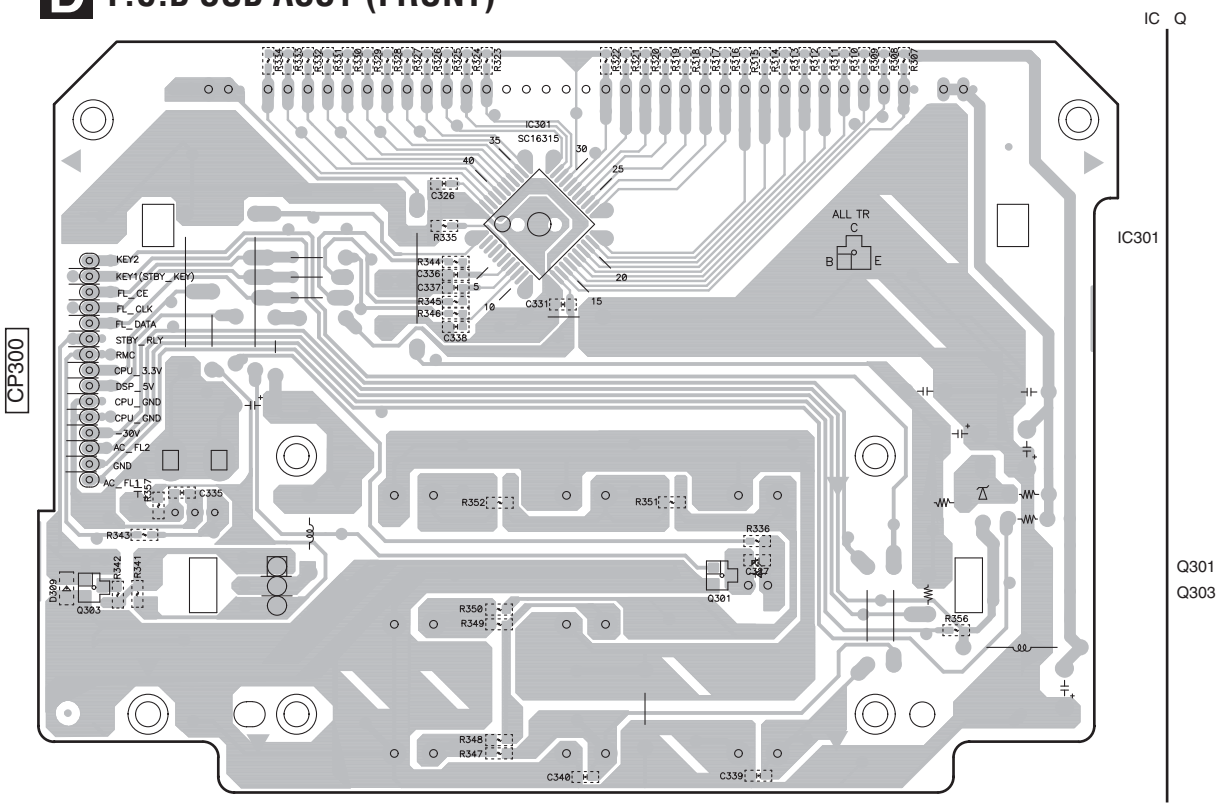
D E F

D E F

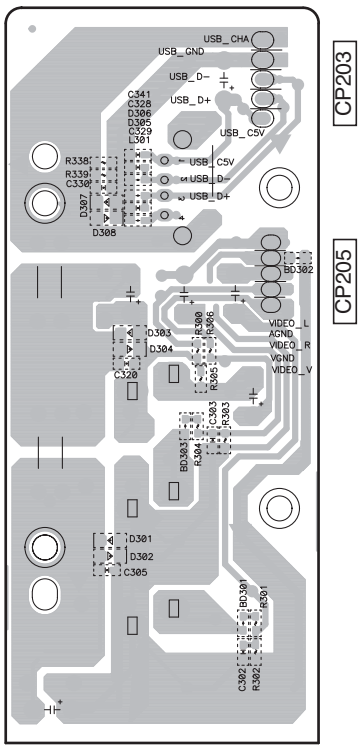
SIDE B

SIDE B

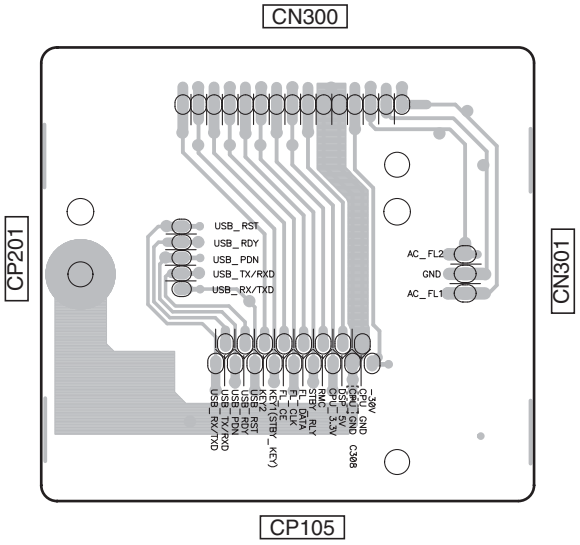
D P.C.B SUB ASSY (FRONT)



E P.C.B SUB ASSY (F-VIDEO)



F P.C.B SUB ASSY (STATION1)



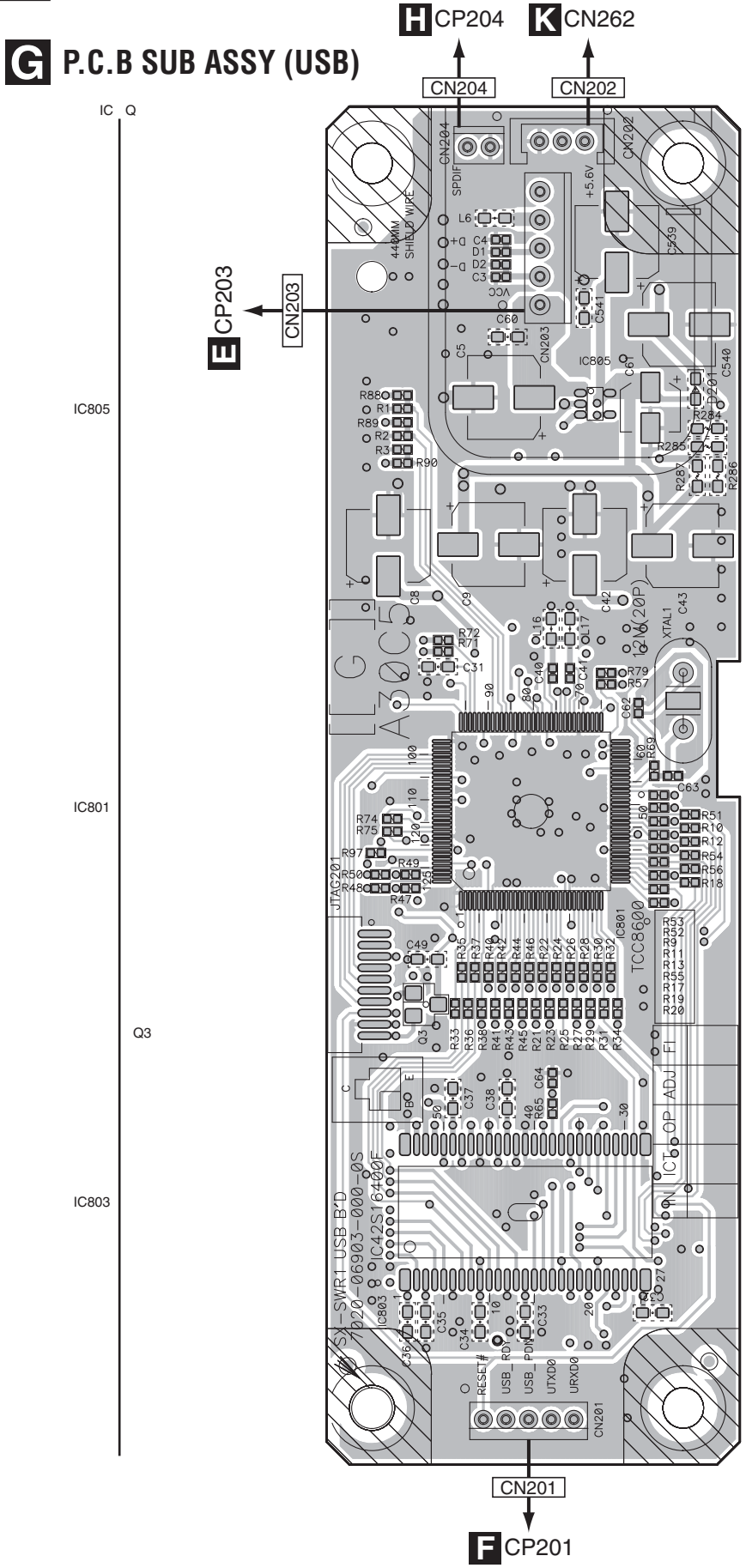
D E F

D E F

11.5 P.C.B SUB ASSY (USB)

SIDE A

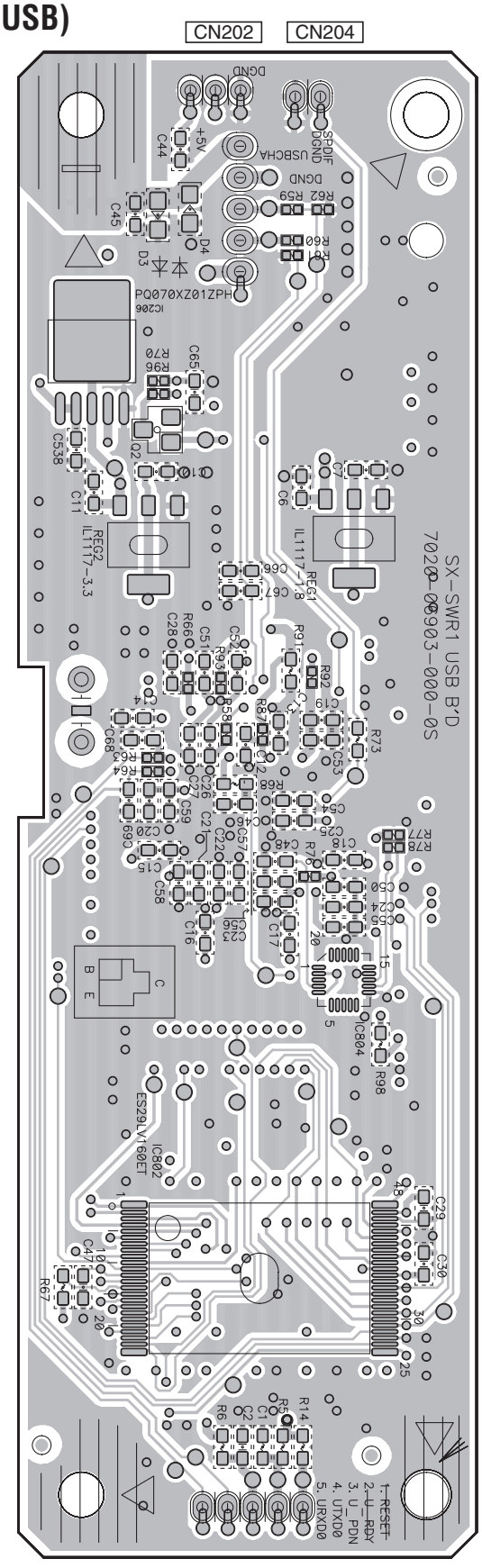
SIDE A



SIDE B

SIDE B

G P.C.B SUB ASSY (USB)



G

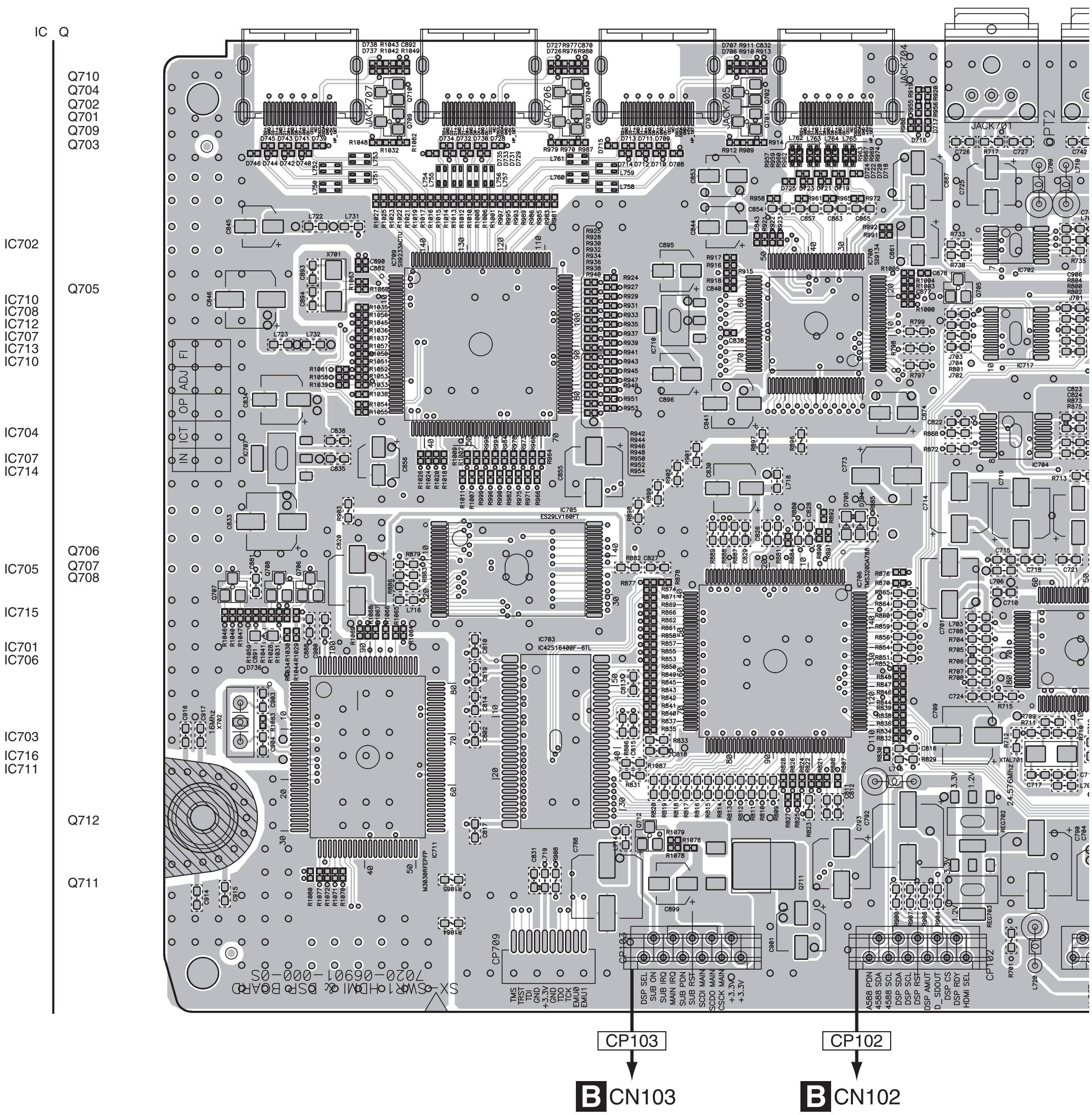
G

5 6 7 8

11.6 P.C.B SUB ASSY (HDMI_DSP) and PCB UPGRADE MAIN, SUB

SIDE A

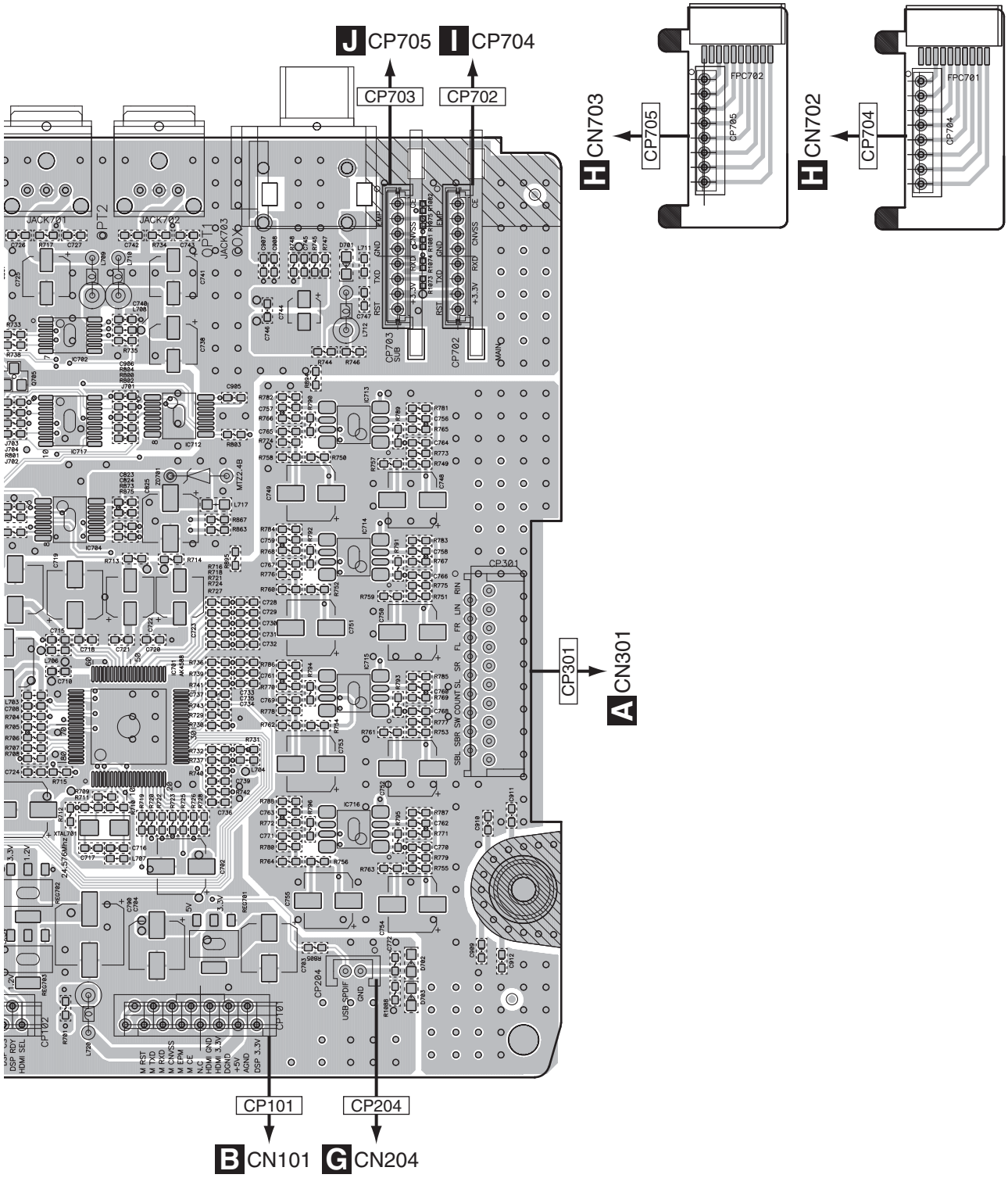
H P.C.B SUB ASSY (HDMI_DSP)



SIDE A

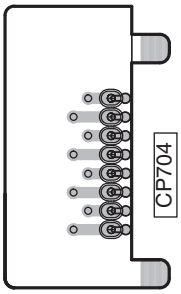
J PCB UPGRADE SUB

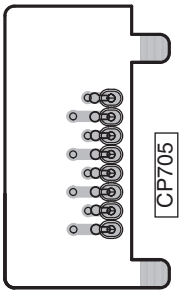
I PCB UPGRADE MAIN

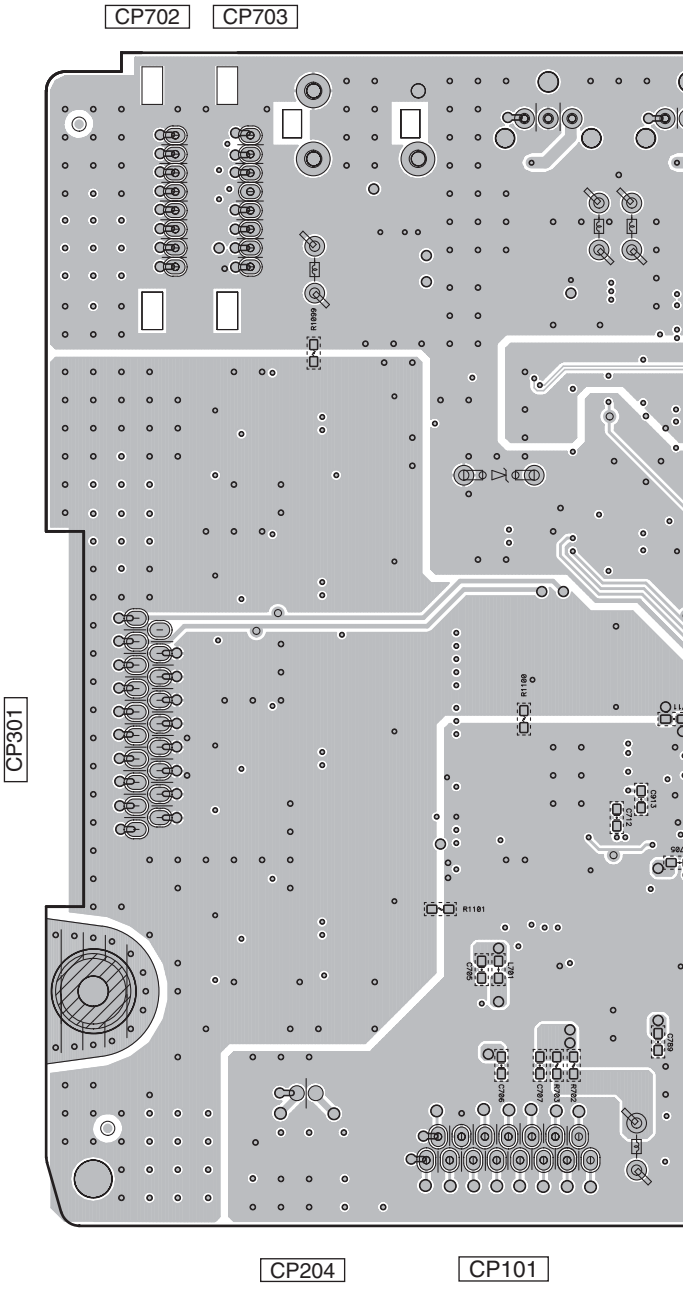


SIDE B

I PCB UPGRADE MAIN J PCB UPGRADE SUB

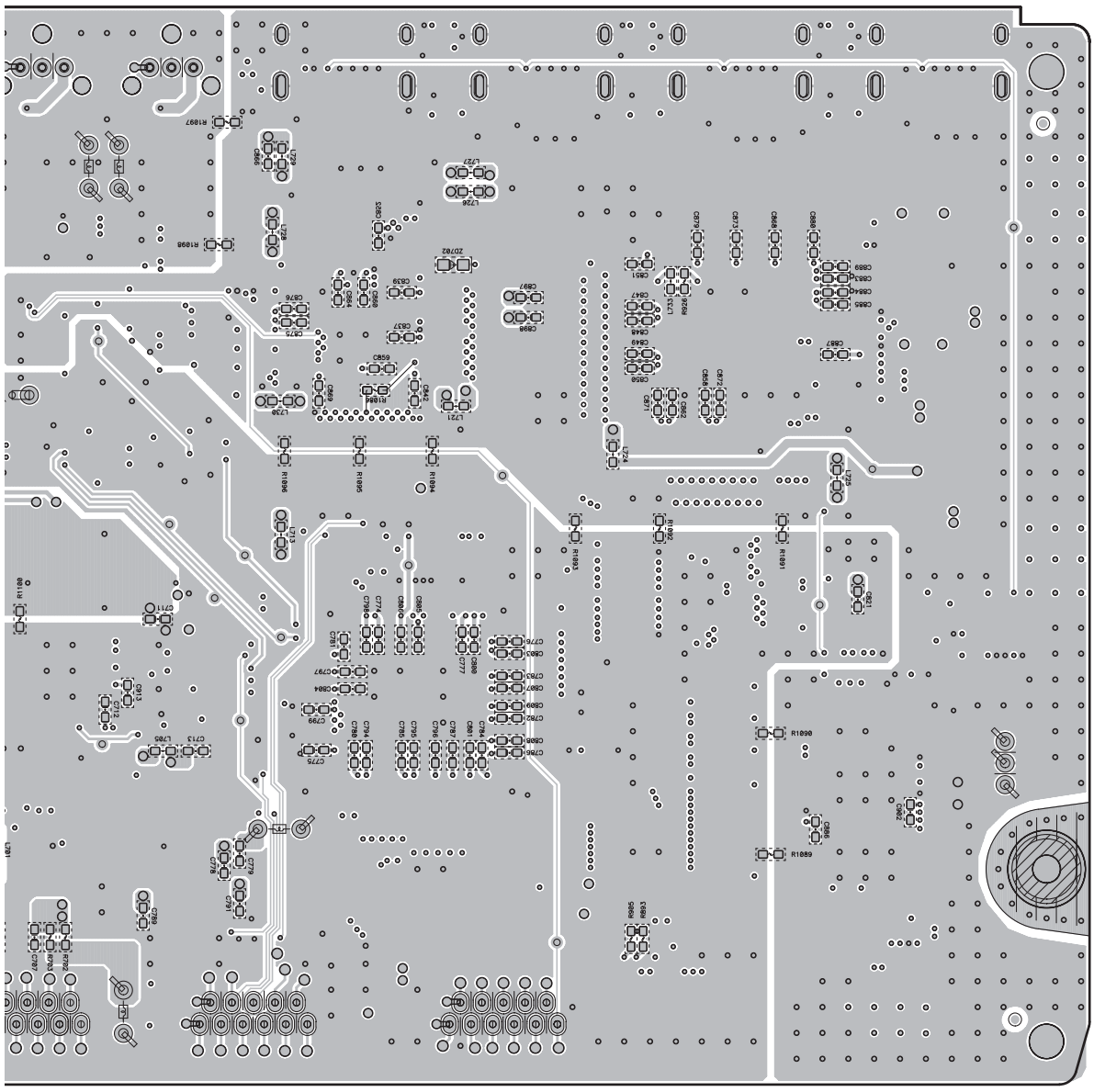






SIDE B

H P.C.B SUB ASSY (HDMI_DSP)



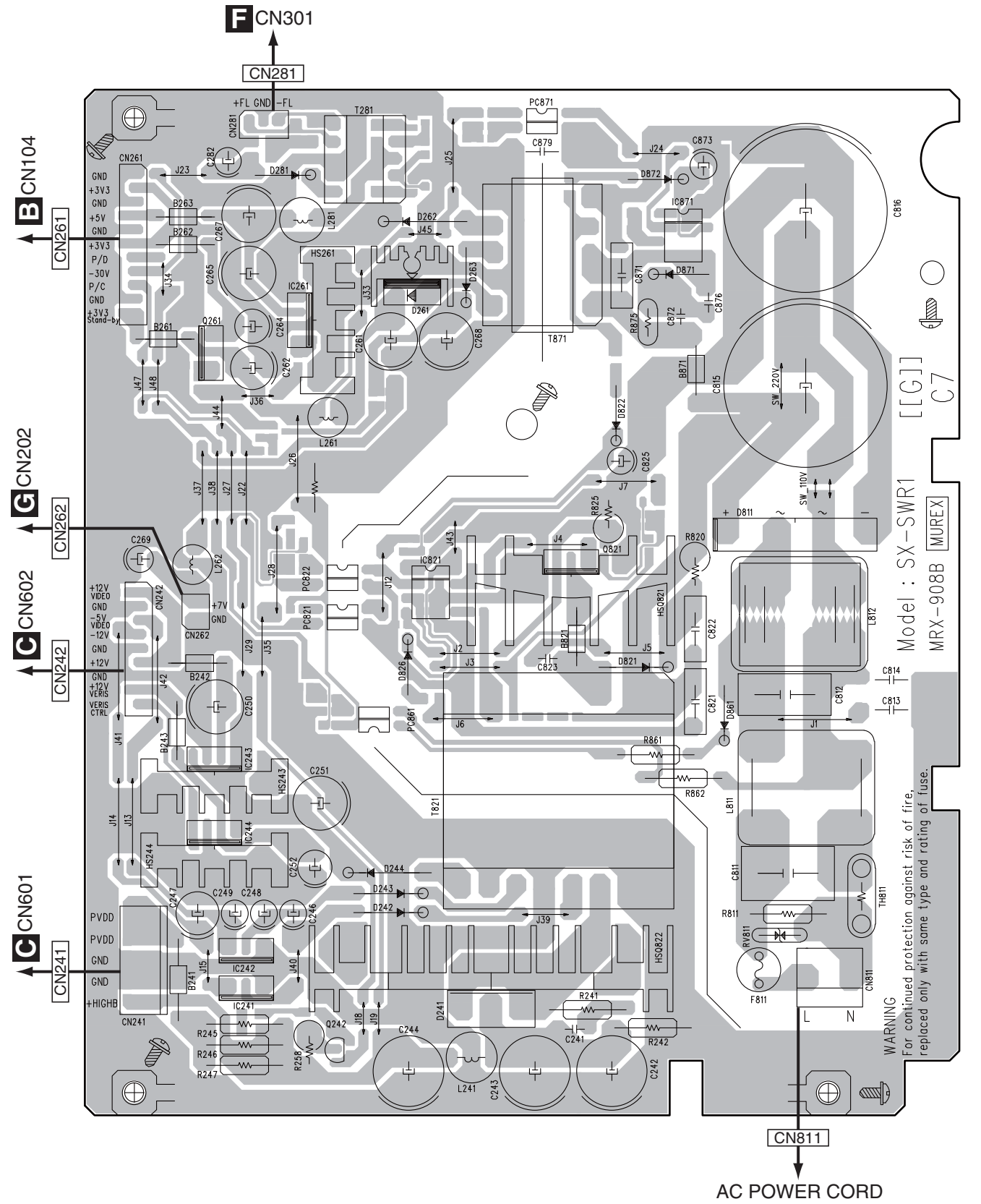
01 CP102 CP103

11.7 SMPS ASSY

SIDE A

SIDE A

K SMPS ASSY



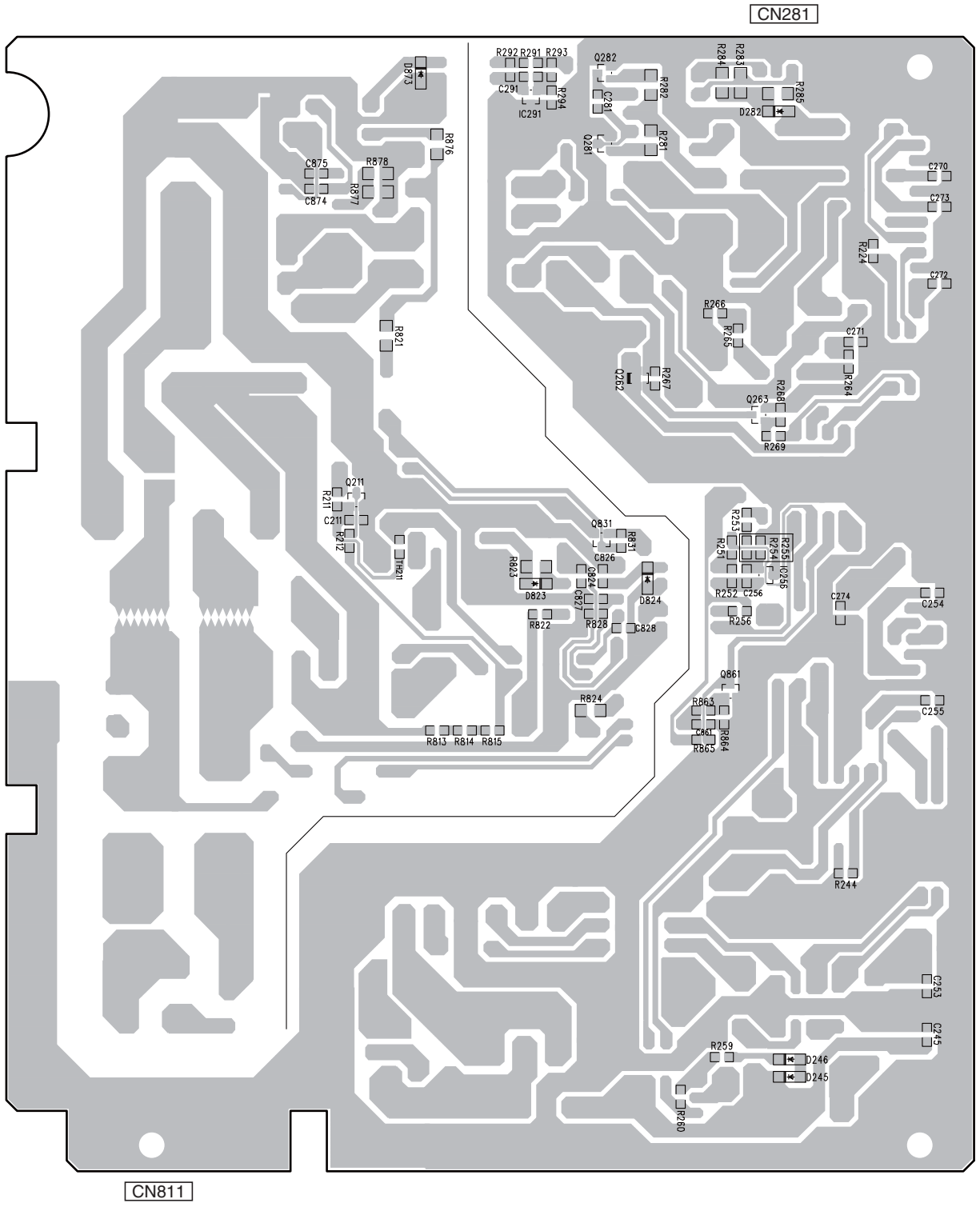
K

K

SIDE B

SIDE B

K SMPS ASSY



12. PCB PARTS LIST

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.*

● *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 Ω	→	*56 × 10^1*	→	*561* ····· *RD1/4PU 5 6 1 J*
47 kΩ	→	*47 × 10^3*	→	*473* ····· *RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*		····· *RN2H R 5 0 K*
1 Ω	→	*1R0*		····· *RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 kΩ	→	*562 × 10^1*	→	*5621* ····· *RN1/4PC 5 6 2 1 F*

● *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

● *PCB PARTS LIST*	● *SCHEMATIC DIAGRAM and PCB CONNECTION DIAGRAM*
*JA****	*JACK***, JK****
*RY****	*RLY****
*T****	*PT****
*X****	*XTAL***, RES*** (CERAMIC)*
*FU****	*F****
*V****	*FLT****
*S****	*SW***, VEC*** (ENCODER)*
*CN****	*CP****
*U****	*TUNER****

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	P.C.B TOTAL ASSY (MAIN_AMP)	7025HK0914020-IL
	2	P.C.B SUB ASSY (MAIN_AMP)	7028068991020-IL
NSP	2	PCB UPGRADE MAIN	
NSP	2	PCB UPGRADE SUB	
NSP	1	P.C.B TOTAL ASSY (INPUT) (VYXCN5)	7025HK0914021-IL
	2	P.C.B SUB ASSY (INPUT) (VYXCN5)	7028069001020-IL
	2	P.C.B SUB ASSY (CPU) (VYXCN5)	7028069002020-IL
NSP	1	P.C.B TOTAL ASSY (INPUT) (LXCN)	7025HK0914031-IL
	2	P.C.B SUB ASSY (INPUT) (LXCN)	7028069001030-IL
	2	P.C.B SUB ASSY (CPU) (LXCN)	7028069002030-IL
NSP	1	P.C.B TOTAL ASSY (HDMI_DSP)	7025HK0914012-IL
	2	P.C.B SUB ASSY (HDMI_DSP)	7028069011010-IL
NSP	1	P.C.B TOTAL ASSY (FRONT)	7025HK0914013-IL
	2	P.C.B SUB ASSY (FRONT)	7028069021010-IL
	2	P.C.B SUB ASSY (F-VIDEO)	7028069022010-IL
	2	P.C.B SUB ASSY (STATION1)	7028069023010-IL
NSP	1	P.C.B TOTAL ASSY (USB)	7025HK0914014-IL
	2	P.C.B SUB ASSY (USB)	7028069031010-IL
⚠	1	SMPS ASSY	8208000850020-IL

A P.C.B SUB ASSY (INPUT)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC	1101	J084152180010-IL
	IC	1102	J121207200010-IL
	IC	1104,1105	J040405100050-IL
	IC	1106	J170747810010-IL
	IC	1107-1110	J121458000020-IL
	IC	1111	J127154200020-IL
	IC	1112	J040742440190-IL
	Q	1108,1142	J522104S00210-IL
	Q	1112-1114,1116-1118	J5222875B0010-IL
	Q	1115,1119,1122,1124	J520010200210-IL
	Q	1120,1121,1123	J5222875B0010-IL
	Q	1125-1130,1134-1139	J5222875B0010-IL
	Q	1131-1133,1141,1144	J520010200210-IL
	Q	1140,1143	J5441170Y0050-IL
	Q	1145,1146	J522011000210-IL
	Q	1147	J5000933S0050-IL
	Q	1148	J5031858R0050-IL
	D	1102,1104-1117	K005041480030-IL
	D	1103,9107 (ZD1103,ZD1107)	K06003R344520-IL
	D	9101,9102,9104 (ZD1101,ZD1102,ZD1104)	K06605R14P400-IL
	D	9105,9106(ZD1105)(ZD1106)	K06007R544520-IL
	D	9108 (ZD1108)	K06005R644520-IL

MISCELLANEOUS

Mark	No.	Description	Part No.
	L	1101 COIL,FILTER-INDUCTOR	D330330700520-IL
	JA	1002 TER,RCA	G608610D0209Y-IL
	JA	1101 JACK,D3.5	G401PJ3230000-IL
	JA	1103,1106 TER,RCA 6PIN	G603610A0001Y-IL
	JA	1105 RCA JACK	G601207AE020Y-IL
	X	1101 CRYSTAL (17.734476 MHz)	E80017R734410-IL
	X	1102 CRYSTAL (14.318180 MHz) (LXCN)	E80014R318080-IL

Mark	No.	Description	Part No.
	CN 301	CN.FPC 1.25MM	L131111900010-IL
	CN 402	CN.WAFER 2.0MM	L101200101210-IL
	U 100	TUNER,FM (VYXCN5)	E900104010630-IL
	U 100	TUNER,FM (LXCN)	E900004010630-IL
RESISTORS			
⚠	R 1240,1241		C060010165060-IL
⚠	R 1363		C060022065050-IL

B P.C.B SUB ASSY (CPU)

SEMICONDUCTORS

IC 101		J020303020030-IL
IC 102		J000241600020-IL
Q 101,103		J522038750210-IL
Q 1101-1103,1105-1107		J5001268B0050-IL
Q 1104		J5023200B0050-IL
Q 1109,1110		J5032144S0010-IL
Q 1111		J5001268B0050-IL
D 101-104		K005041480030-IL
D 1101,1103		K000013300520-IL

MISCELLANEOUS

X 101	RESONATOR,CERAMIC (16 MHz)	E830160000060-IL
CN 106	CN.WAFER 2.0MM	L101100031810-IL
CN 107	CN.WAFER 2.0MM	L101100031010-IL
CN 108,110	CONNECTOR(10P)	L101200101010-IL

C P.C.B SUB ASSY (MAIN AMP)

SEMICONDUCTORS

IC 601-606		J121451000010-IL
IC 607-609		J080563000010-IL
Q 601-603,611		J522010200210-IL
Q 604-607		J520015040150-IL
Q 608-610		J522038750210-IL
Q 612		J5031858R0050-IL
D 601 (ZD601)		K06004R744520-IL
D 608,609,610,611		K005041480030-IL

MISCELLANEOUS

L 601-612	COIL,TOROIDAL(RING)	D305010300010-IL
JA 601	SP TERMINAL	G5901201C006Y-IL
CN 502	CONNECTOR(3P)	L102526700300-IL
CN 701,702 (FPC701, 702)	CN.FPC 1.0MM	L130100151040-IL
CN 704,705	CONNECTOR(8P)	L101100030810-IL

RESISTORS

⚠	R 768	C060022067520-IL

CAPACITORS

C 606,683,693,765		D040222085020-IL
C 615,629,668,679		D02068406C050-IL
C 620-623,686-689		D02010206C060-IL
C 635,647,690,694,742,750		D02047206C060-IL
C 702,712,745,757		D02068406C050-IL
C 728-731		D02010206C060-IL
C 770,842		D040222085020-IL
C 778,788,824,838		D02068406C050-IL

D P.C.B SUB ASSY (FRONT)

SEMICONDUCTORS

IC 301		J127163150010-IL
IC 9301 (RMC301)		E940349003810-IL
Q 301 (ZD301)		J522010500210-IL
⚠ Q 302		J5000933S0050-IL
Q 303		J522107S00210-IL
D 301	K06007R544520-IL	
D 9301 (LED301)		K500036001110-IL

MISCELLANEOUS

V 701	DISPLAY,FLT	K530126300010-IL
S 301-308	SWITCH	G180501000010-IL

E P.C.B SUB ASSY (F-VIDEO)

SEMICONDUCTORS

D 301-304,307,308		K005041480030-IL
D 305,306		K067030500010-IL

MISCELLANEOUS

JA 301 (F-VIDEO)	TER,RCA 3PIN	G60603W0192GD-IL
CN 203	CN.WAFER 2.5MM	L102526800500-IL
CN 205	CN.WAFER 2.0MM	L101200100520-IL
CN 303	CN,PLUG CONTACT	G480040101410-IL

F P.C.B SUB ASSY (STATION1)

MISCELLANEOUS

CN 105	CN.FPC 1.25MM	L131101700010-IL
CN 201	CN.WAFER 2.0MM	L101200100510-IL
CN 300	CN.WAFER 2.0MM	L101200101520-IL

G P.C.B SUB ASSY (USB)

SEMICONDUCTORS

IC 206		J126070010010-IL
IC 801		J085860000010-IL
IC 802		J005291607010-IL
IC 803		J001421640060-IL
IC 804		341S2164
⚠ IC 805		J046205100010-IL
⚠ IC 9801 (REG1)		J126111710011-IL
⚠ IC 9802 (REG2)		J126111700041-IL
Q 2		J522010200210-IL
Q 3		J520103S00210-IL

MISCELLANEOUS

X 1	CRYSTAL (12 MHz)	E80012R000010-IL
CN 202	CN.WAFER 2.0MM	L101200100310-IL

H P.C.B SUB ASSY (HDMI DSP)

SEMICONDUCTORS

IC 701		J080458800010-IL
IC 702		J040740400290-IL
IC 703		J001421640060-IL
IC 704,712		J040742570030-IL
IC 705		J005291607010-IL
IC 706		J080320788010-IL
⚠ IC 707,9702,9703	(REG702,REG703)	J126111712040-IL
IC 708		J040913400030-IL
IC 709		J040923300030-IL
⚠ IC 710		J126111710011-IL
IC 711		J020303020030-IL
⚠ IC 9701 (REG701)		J126111700041-IL

Mark	No.	Description	Part No.
	Q	705	J522104S00210-IL
	Q	706,708	J522038750210-IL
	Q	707	J5232114K0010-IL
⚠	Q	711	J500124200010-IL
	Q	712	J522010200210-IL
	D	701,704,705	K005041480030-IL
	D	702 (ZD702)	K06605R14P400-IL
	D	706-735,737-746	K067020500010-IL
	D	9701 (ZD701)	K06002R444520-IL

MISCELLANEOUS

	JA	701,702 OPTICAL RECEIVER	E100116500040-IL
	JA	703 TER,RCA 1PIN	G600107A0000Y-IL
	JA	704-707 CN.WAFER	L109100190050-IL
	X	701 CRYSTAL CHIP (27.000 MHz)	E80527R000010-IL
	X	702 RESONATOR,CERAMIC (16 MHz)	E830160000060-IL
	X	9701 (XTAL701) CRYSTAL CHIP (24.576 MHz)	E80524R576020-IL
	CN	102,103 CN.FPC 1.25MM	L131011100010-IL
	CN	204 CN.WAFER 2.0MM	L101200100210-IL
	CN	301 CN.FPC 1.25MM	L131111900010-IL
	CN	702,703 CN.WAFER 2.0MM	L101100040810-IL

I PCB UPGRADE MAIN

PCB UPGRADE MAIN has no service part.

J PCB UPGRADE SUB

PCB UPGRADE SUB has no service part.

K SMPS ASSY

SMPS ASSY has no service part.