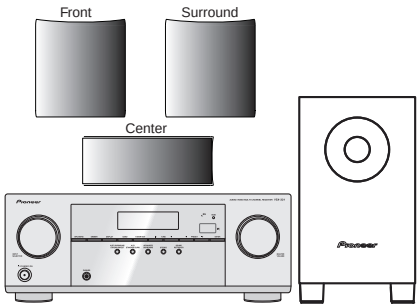
Pioneer

Service Manual



HTP-071

ORDER NO.
RRV4273

HOME CINEMA PACKAGE

HTP-071

AUDIO/VIDEO MULTI-CHANNEL RECEIVER

VSX-321-K-P

SUBWOOFER

S-22W-P

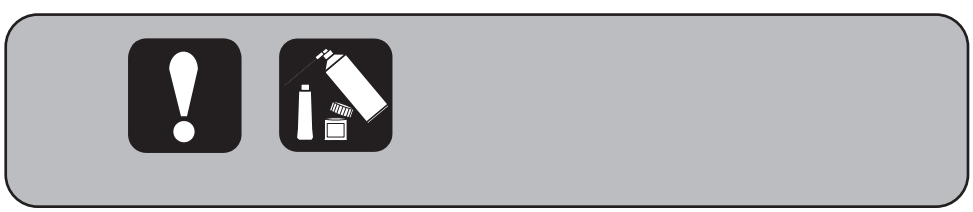
SPEAKER SYSTEM

S-11-P

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

Model	Type	Power Requirement	Remarks
HTP-071	SYXE8	AC 220 V to 230 V	
HTP-071	CXE	AC 120 V	
HTP-071	DLPWXE	AC 220 V to 240 V	
HTP-071	AXE5	AC 220 V	
VSX-321-K-P	SYXE8	AC 220 V to 230 V	
VSX-321-K-P	CXE	AC 120 V	
VSX-321-K-P	DLPWXE	AC 220 V to 240 V	
VSX-321-K-P	AXE5	AC 220 V	
S-22W-P	————	————	
S-11-P	————	————	

HTP-071 is a Home Cinema Package and consists of VSX-321-K-P, S-22W-P and S-11-P.



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

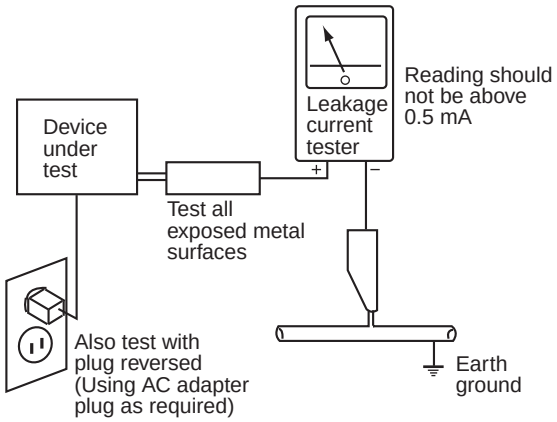
(FOR USA MODEL ONLY)

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.

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 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	IC102	Audio DSP System IC	————	IC with heat-pad
D-MAIN Assy	IC601	IC, LOGIC-D/A Converter	————	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 Disassembly and Assembly - Confirmation of GND Wire".

2. SPECIFICATIONS

[VSX-321-K-P]

Audio section

(SYXE8)

Rated power output
Front, Center, Surround..100 W per channel (1 kHz, 6 Ω, 0.7 %)
Total Harmonic Distortion
..... 0.06 % (20 Hz to 20 kHz, 8 Ω, 50 W/ch)
Frequency response (LINE Pure Direct mode)
..... 10 Hz to 70 kHz dB
Guaranteed speaker impedance .....6 Ω to 16 Ω
Input (Sensitivity/Impedance)
LINE..... 200 mV/47 kΩ
Output (Level/Impedance)
REC..... 200 mV/2.2 kΩ
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE.....98 dB
• The specifications are applicable when the power supply is 230 V.

(CXE)

Front (stereo).....60 W + 60 W
Rated power output
Front, Center, Surround..100 W per channel (1 kHz, 6 Ω, 0.7 %)
Total Harmonic Distortion
..... 0.06 % (20 Hz to 20 kHz, 8 Ω, 50 W/ch)
Guaranteed speaker impedance .....6 Ω to 16 Ω
Input (Sensitivity/Impedance)
LINE..... 200 mV/47 kΩ
Output (Level/Impedance)
REC..... 200 mV/2.2 kΩ
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE.....98 dB

(DLPWXE)

Rated power output
Front, Center, Surround..100 W per channel (1 kHz, 6 Ω, 0.7 %)
Maximum power output (Front, Center, Surround)
.....120 W per channel (1 kHz, 6 Ω, 10 %)
Total Harmonic Distortion
..... 0.06 % (20 Hz to 20 kHz, 8 Ω, 50 W/ch)
Guaranteed speaker impedance .....6 Ω to 16 Ω
Input (Sensitivity/Impedance)
LINE..... 200 mV/47 kΩ
Output (Level/Impedance)
REC..... 200 mV/2.2 kΩ
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE.....98 dB
• The specifications are applicable when the power supply is 230 V.

(AXE5)

Rated power output
Front, Center, Surround....90 W per channel (1 kHz, 6 Ω, 0.7 %)
Maximum power output (Front, Center, Surround)
.....120 W per channel (1 kHz, 6 Ω, 10 %)
Guaranteed speaker impedance .....6 Ω to 16 Ω

Video section (SYXE8, CXE, LPWXE)

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) .....531 kHz to 1602 kHz (SYXE8)
530 kHz to 1700 kHz (CXE)
9 kHz step .....531 kHz to 1602 kHz (LPWXE, AXE5)
10 kHz step.....530 kHz to 1700 kHz (LPWXE, AXE5)
Antenna (AM) ..... Loop antenna

Digital In/Out section

HDMI terminal .....Type A (19-pin)
HDMI output type..... 5 V, 100 mA

Miscellaneous

Power Requirements .....AC 220 V to 230 V, 50 Hz/60 Hz (SYXE8)
AC 120 V, 60 Hz (CXE)
AC 220 V to 240 V, 50 Hz/60 Hz (DLPWXE)
AC 220V, 50 Hz/60 Hz (AXE5)
Power Consumption ..... 165 W (SYXE8, CXE, AXE5)
170 W (DLPWXE)
In standby.....0.45 W
(ARC function: OFF) (SYXE8, DLPWXE)
Dimensions.....435 mm (W) x 168 mm (H) x 362.5 mm (D)
Weight (without package) .....7.6 kg

[S-22W-P]

Cabinet .....Bass-reflex, floor type
Speaker .....16 cm cone type
Nominal impedance.....6 Ω
Outline Dimension .....230 mm (W) x 418 mm (H) x 358 mm (D)
Weight (without package) .....5.3 kg

[S-11-P]

Front speakers / Surround speakers

Enclosure
Front speakers
..... Closed-box bookshelf type (magnetically shielded)
Surround speakers .....losed-box bookshelf type
System.....7.7 cm 1-way system
Speaker .....7.7 cm cone type
Nominal impedance.....6 Ω
Dimensions.....106 mm (W) x 116 mm (H) x 106 mm (D)
Weight
Front speakers.....0.8 kg
Surround speakers .....0.6 kg

Center speaker

Enclosure..... Closed-box bookshelf type (magnetically shielded)
System.....7.7 cm 1-way system
Speaker .....7.7 cm cone type
Nominal impedance.....6 Ω
Dimensions.....270 mm (W) x 100 mm (H) x 106 mm (D)
Weight .....1.0 kg

Note

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

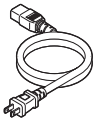
Accessories

Remote control (AXD7618)
(8300761800010-IL)

Dry cell batteries
(AAA size IEC R03) x2

FM wire antenna
(E605010140010-IL)

AM loop antenna
(E601019000010-IL)



Power cord (SYXE8, DLPWXE only)
(SYXE8: L068250160020-IL)
(DLPWXE: L068250100080-IL)

Speaker cord (4 m) x 4
(8952S11005480-IL)

Speaker cord (10 m) x 2
(8952S11005490-IL)

Non-skid pads x 20
(8952S11005510-IL)

Brackets for wall mounting x 4
(8952S11005500-IL)

Screw (M5) x 4
(8952S11005520-IL)

Operating instructions (CD-ROM) (SYXE8 only)
(6517000000440-IL)

Operating instructions
(CXE: 5707000006100-IL, 5707000006210-IL)
(DLPWXE: 5707000006090-IL, 5707000006220-IL)
(AXE5: 5707000006080-IL, 5707000006230-IL)

Quick start guide (SYXE8 only)
(5707000006110-IL)

Warranty card (SYXE8, AXE5 only)

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 (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

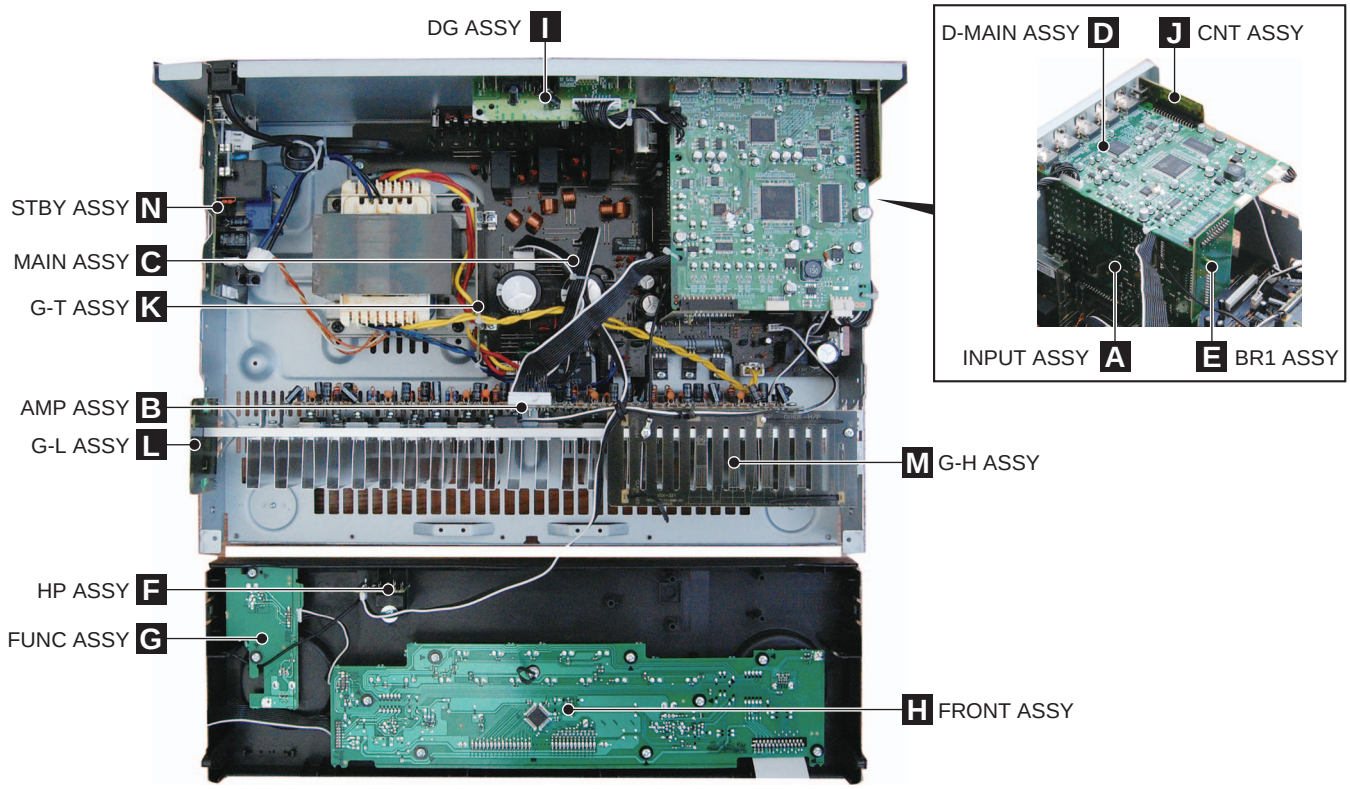
Jig Name	Part No.	Remarks
RS-232C update jig (Jig + 10P FFC)	GGF1642	MAIN UCOM Firmware update (RS-232C ↔ Rear panel)
RS-232C cable (9-pin to 9-pin, straight cable)	————	
HDMI & CEC UCOM update Jig	GGF1646	HDMI & CEC UCOM firmware update (USB ↔ Rear panel)
USB cable (USB A-Type ↔ USB B-Type)	————	
Board to board extension jig cable	GGD1736	Diagnosis (D-MAIN Assy ↔ BR1 Assy)
Board to board extension jig cable	GGD1772	Diagnosis (D-MAIN Assy ↔ MAIN Assy)
3P extension jig cable	GGD1773	Diagnosis (AMP Assy ↔ MAIN Assy)

■ Lubricants and Glues List

Name	Part No.	Remarks
Silicon grease	GEM1057	Refer to "9.2 VSX-321-K-P SECTION".
Silicon adhesive	GYA1011 (KE40RTV-W)	Refer to "9.2 VSX-321-K-P SECTION".

3.3 PCB LOCATIONS

■ **VSX-321-K-P**



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.*

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	..PCB TTL ASSY FRONT	7025HK1103011-IL
	2	..FRONT ASSY	7028071131010-IL
	2	..FUNCT ASSY	7028071132010-IL
	2	..BR1 ASSY	7028071133010-IL
	2	..HP ASSY	7028071134010-IL
NSP	1	..PCB TTL ASSY D-MAIN	7025HK1103012-IL
	2	..D-MAIN ASSY	7028071161010-IL
NSP	1	..PCB TTL ASSY INPUT	7025HK1103013-IL
	2	..DG ASSY	7028071111010-IL
	2	..INPUT ASSY	7028071112010-IL
NSP	1	..PCB TTL ASSY AMP	7025HK1103014-IL
	2	..AMP ASSY	7028071141010-IL
NSP	1	..PCB TTL ASSY CNT	7025HK1103015-IL
	2	..CNT ASSY	7028071151010-IL
NSP	1	..PCB TTL ASSY MAIN	7025HK1103040-IL
	2	..MAIN ASSY (SYXE8)	7028071121040-IL
	2	..MAIN ASSY (CXE)	7028071121030-IL
	2	..MAIN ASSY (DLPWXE)	7028071121020-IL
	2	..MAIN ASSY (AXE5)	7028071121010-IL
	2	..STBY ASSY (SYXE8)	7028071122040-IL
	2	..STBY ASSY (CXE)	7028071122030-IL
	2	..STBY ASSY (DLPWXE)	7028071122020-IL
	2	..STBY ASSY (AXE5)	7028071122010-IL
	2	..G-T ASSY	7028071123010-IL
	2	..G-H ASSY	7028071124010-IL
	2	..G-L ASSY	7028071125010-IL

A

B

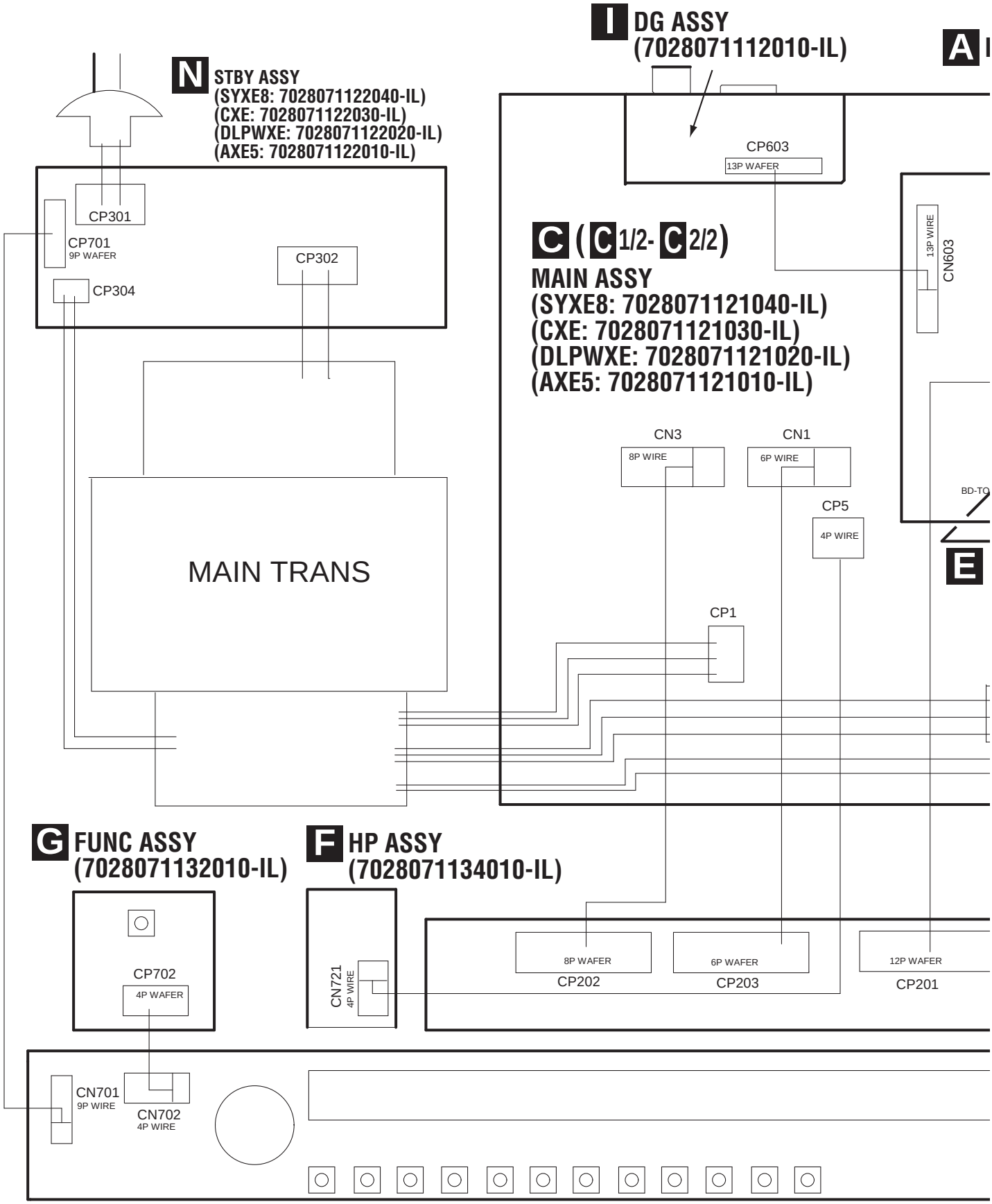
C

D

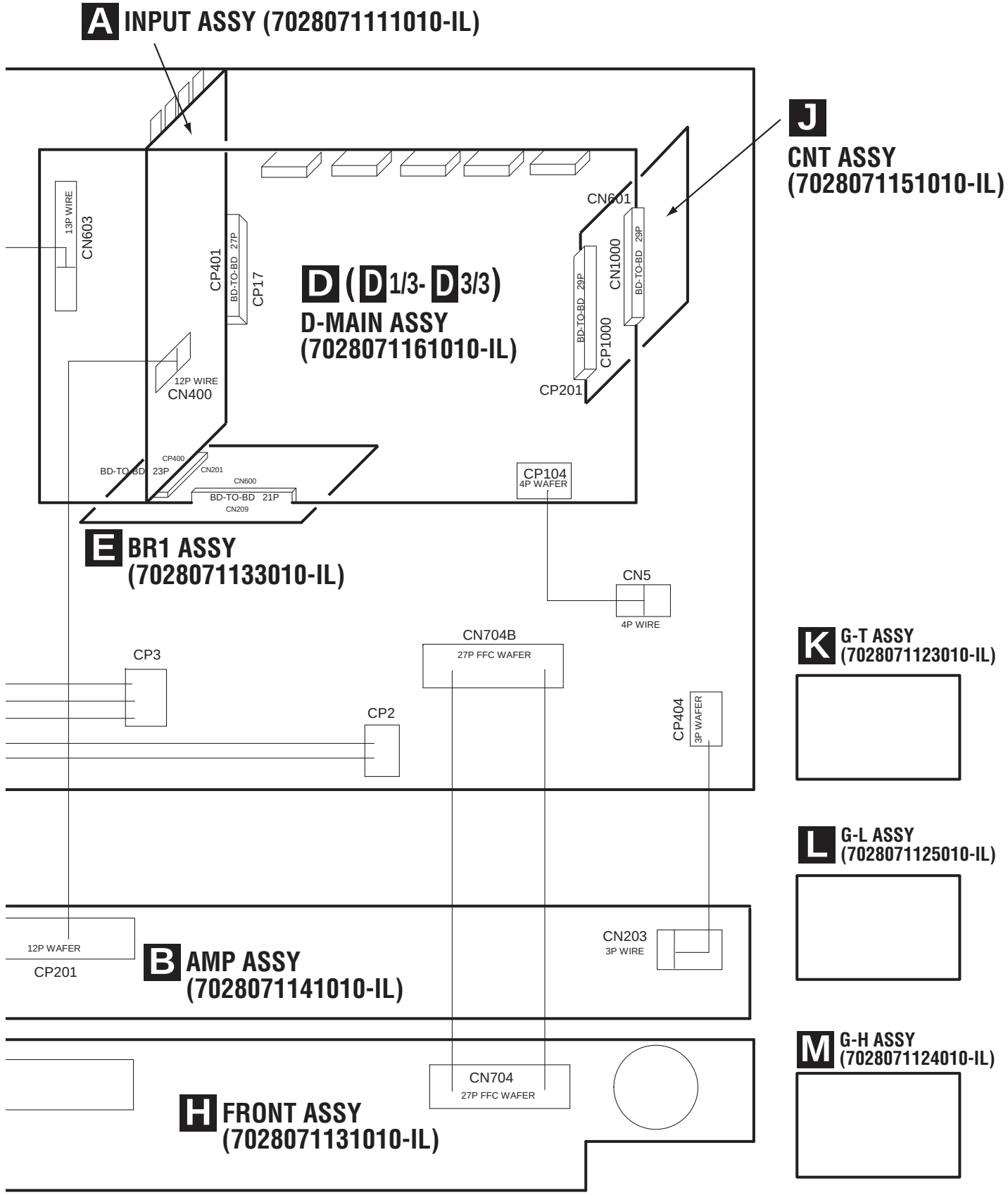
E

F

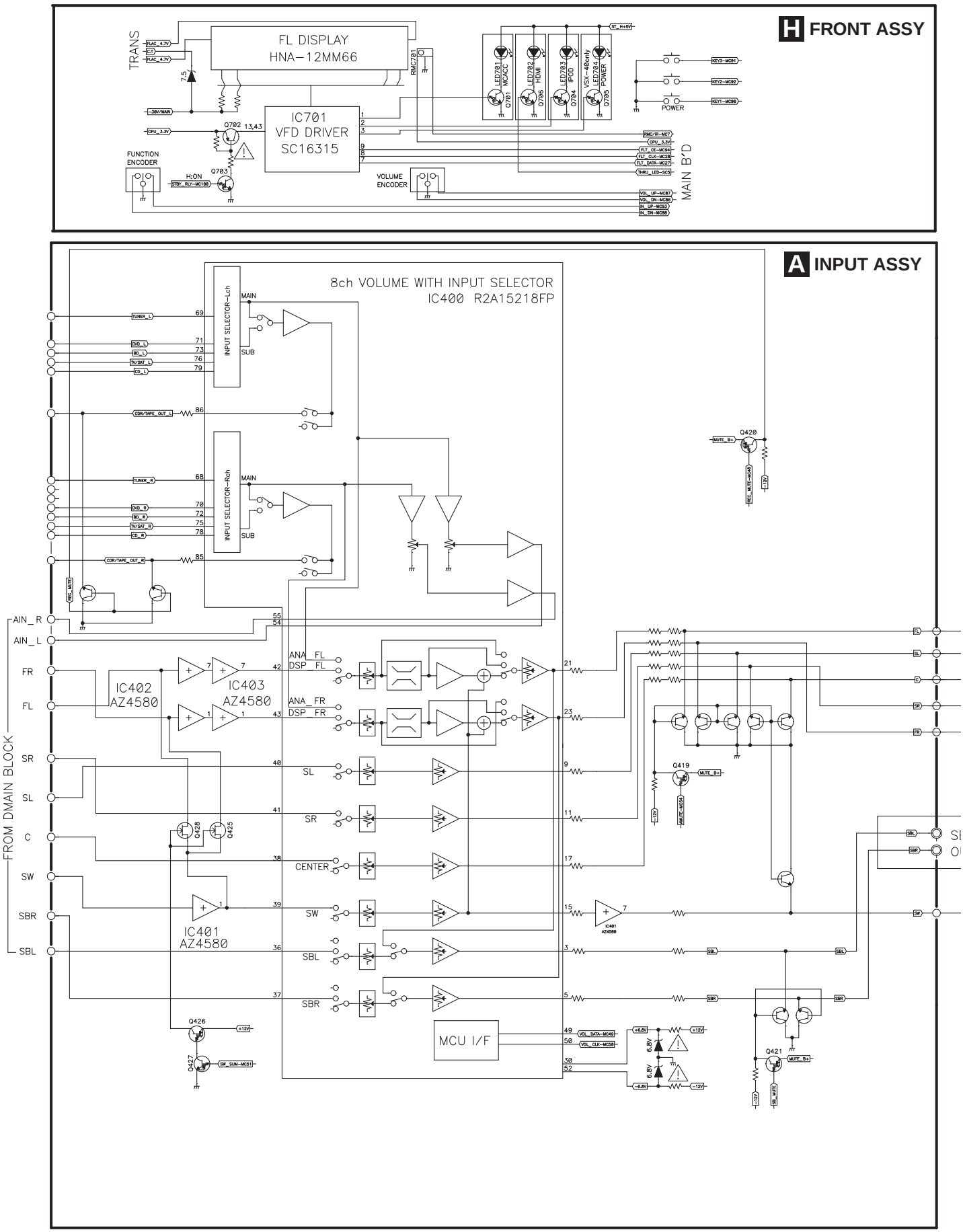
4. BLOCK DIAGRAM
4.1 OVERALL CONNECTION DIAGRAM



- 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.
- : The power supply is shown with the marked box.



4.2 OVERALL BLOCK DIAGRAM



ONT ASSY

UT ASSY

C MAIN ASSY

VIDEO SWITICHING PART

BH76330FVM

CD/SAT IN

DVD IN

MONITOR OUT

B AMP ASSY

OVERLOAD DET.

Q404 Q410 Q440 Q446 Q428 Q434 Q452 Q458 Q416 Q422 Q464 Q470

SB OUT

TO CPU B'D

F HP ASSY

MAIN B'D

JACK701

HP_R AGND HP_L HP_DET

RLY1 RLY2 RLY4 RLY5

FR FL C SR SL SW

SPK A

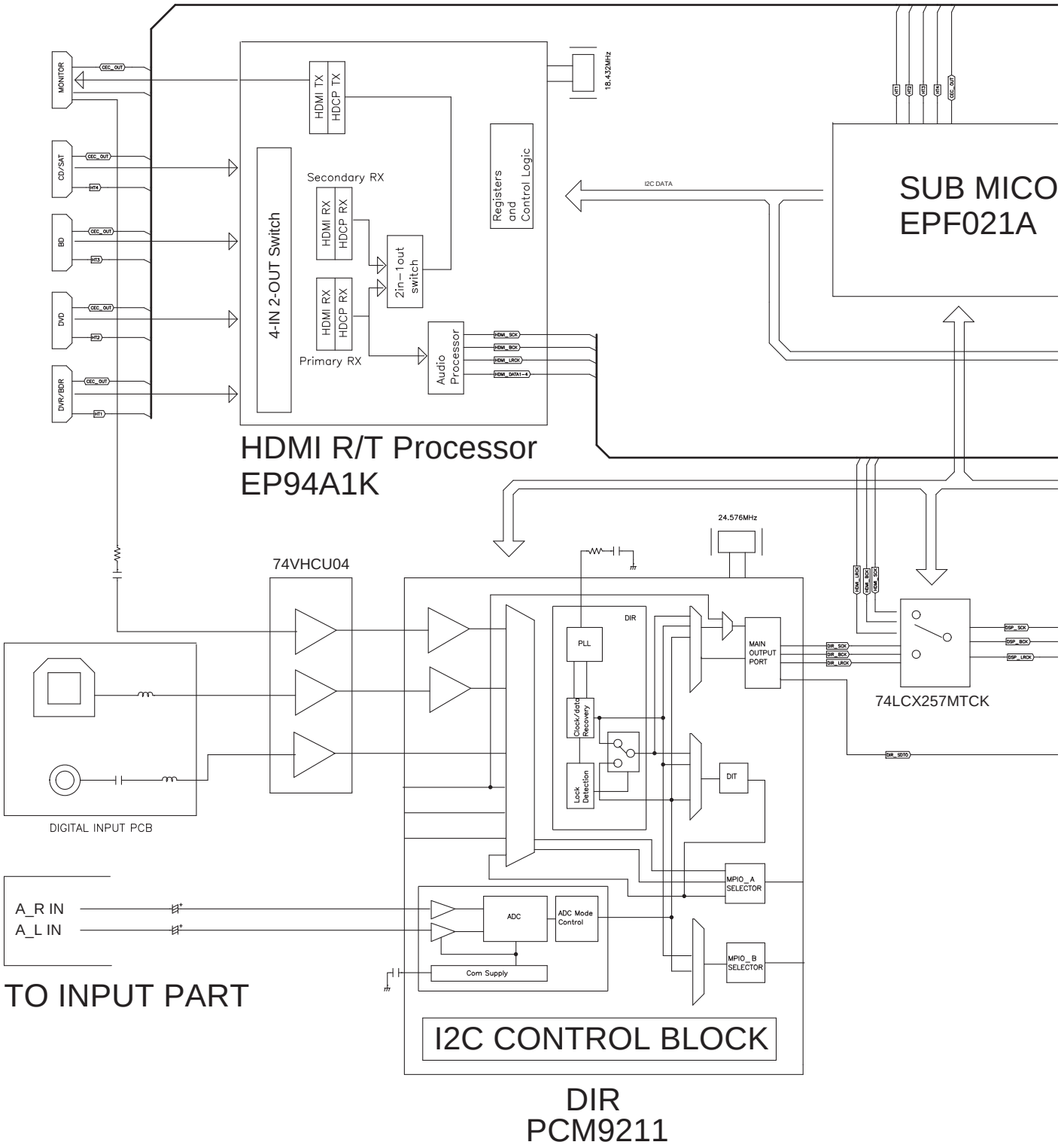
Q1 Q2 Q4 Q3 Q8 Q9 Q11 Q10

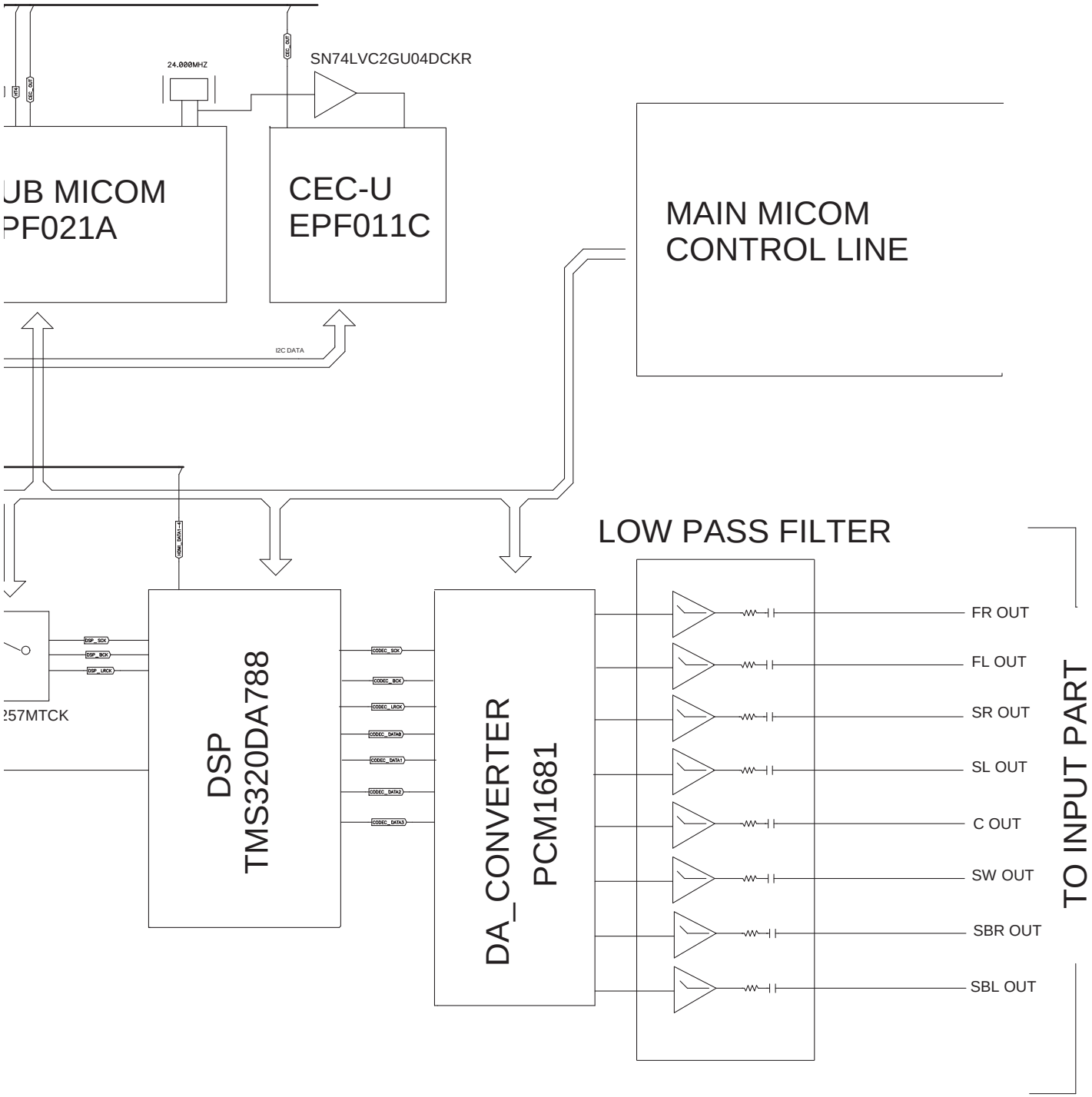
+12V

C MAIN ASSY

4.3 D-MAIN BLOCK DIAGRAM

D D-MAIN ASSY



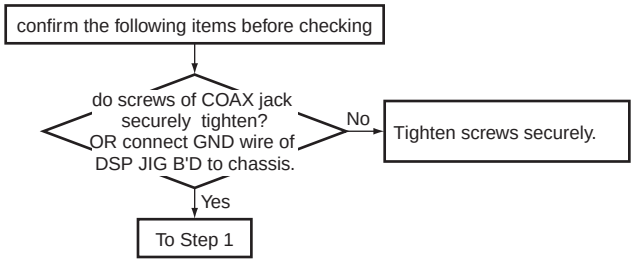

24.000MHZ
SN74LVC2GU04DCKR
UB MICOM
PF021A
CEC-U
EPF011C
MAIN MICOM
CONTROL LINE
I2C DATA
LOW PASS FILTER
257MTCK
DSP
TMS320DA788
DA_CONVERTER
PCM1681
FR OUT
FL OUT
SR OUT
SL OUT
C OUT
SW OUT
SBR OUT
SBL OUT
TO INPUT PART

5. DIAGNOSIS
5.1 TROUBLESHOOTING

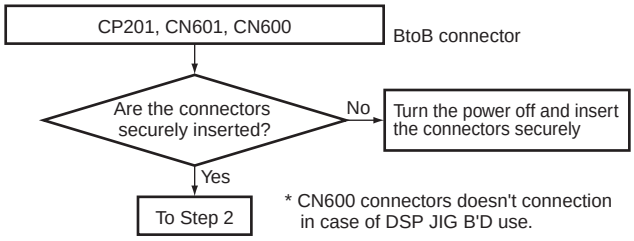
[1] DSP TROUBLESHOOTING

■ TROUBLESHOOTING FOR ALL DESTINATION

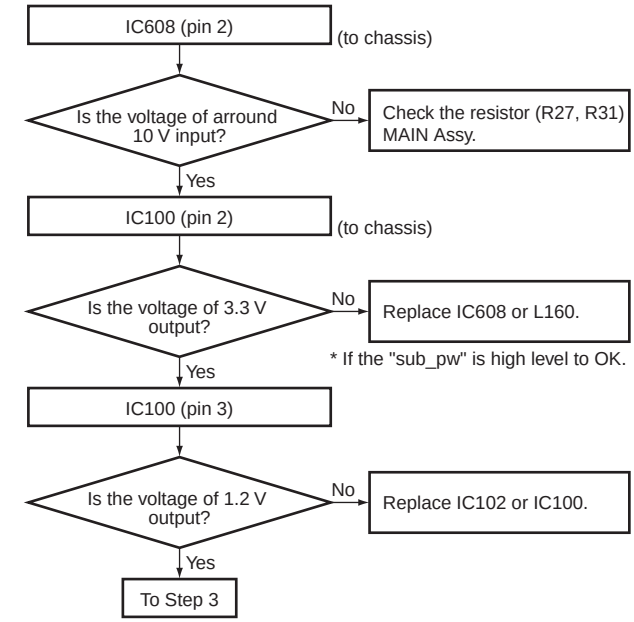
Step 0: Preliminary confirmation



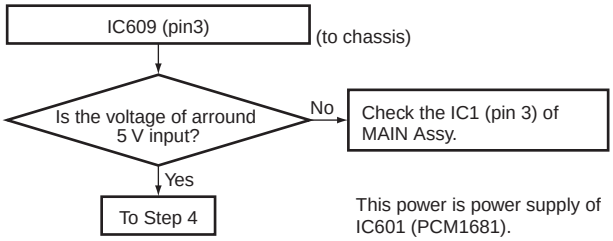
step 1: B to B connector



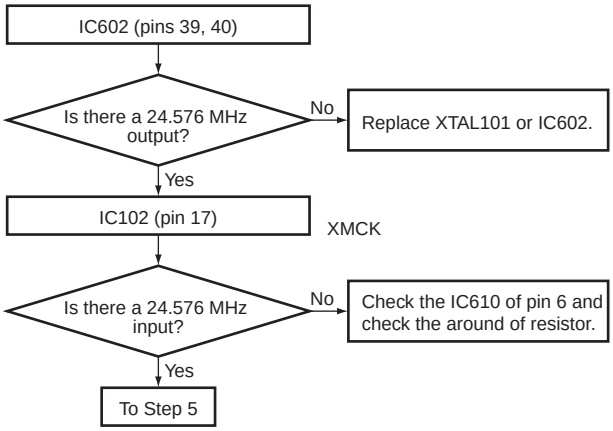
Step 2: Regulator IC



Step 3: Regulator IC

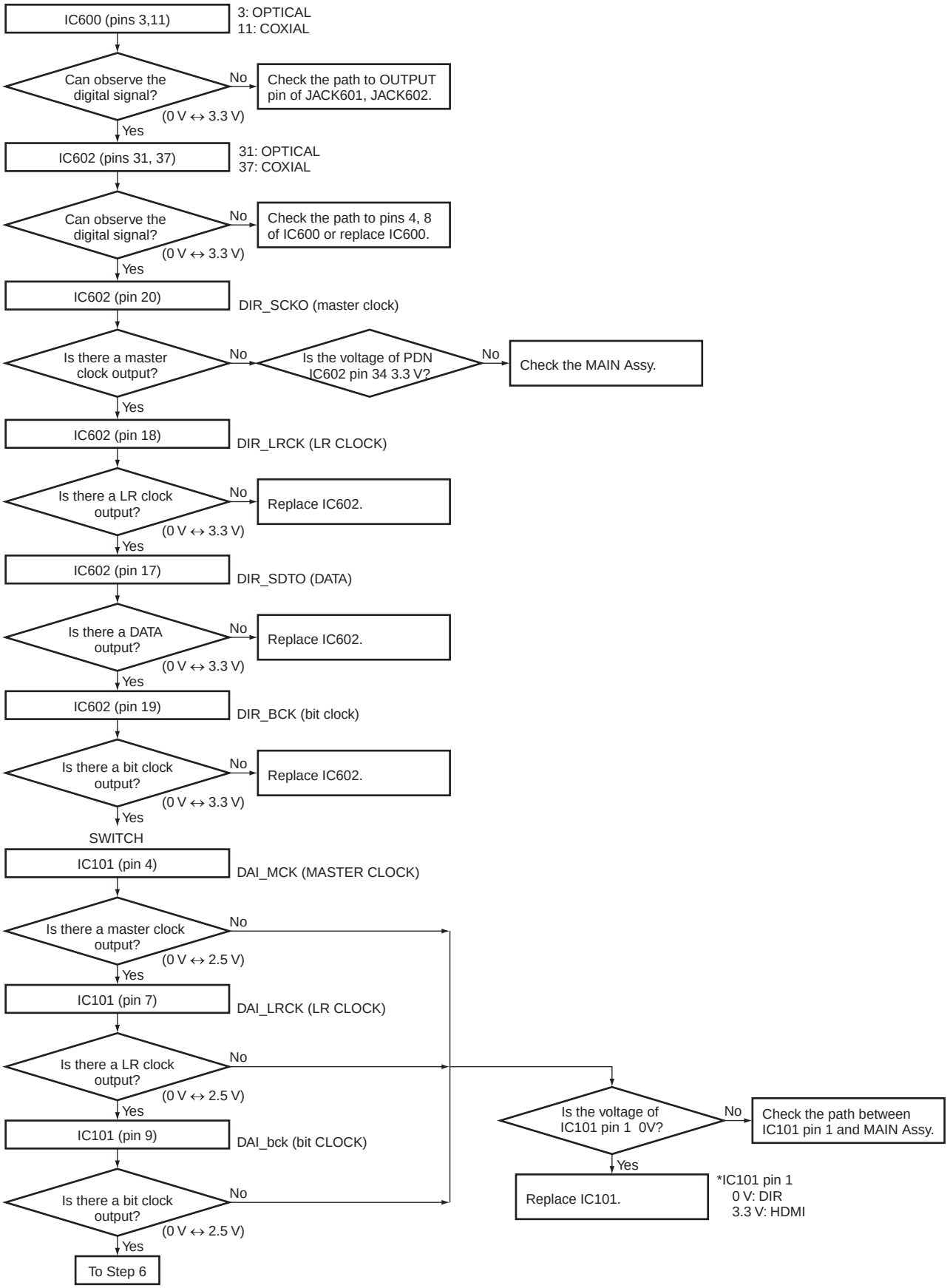


Step 4: X'tal



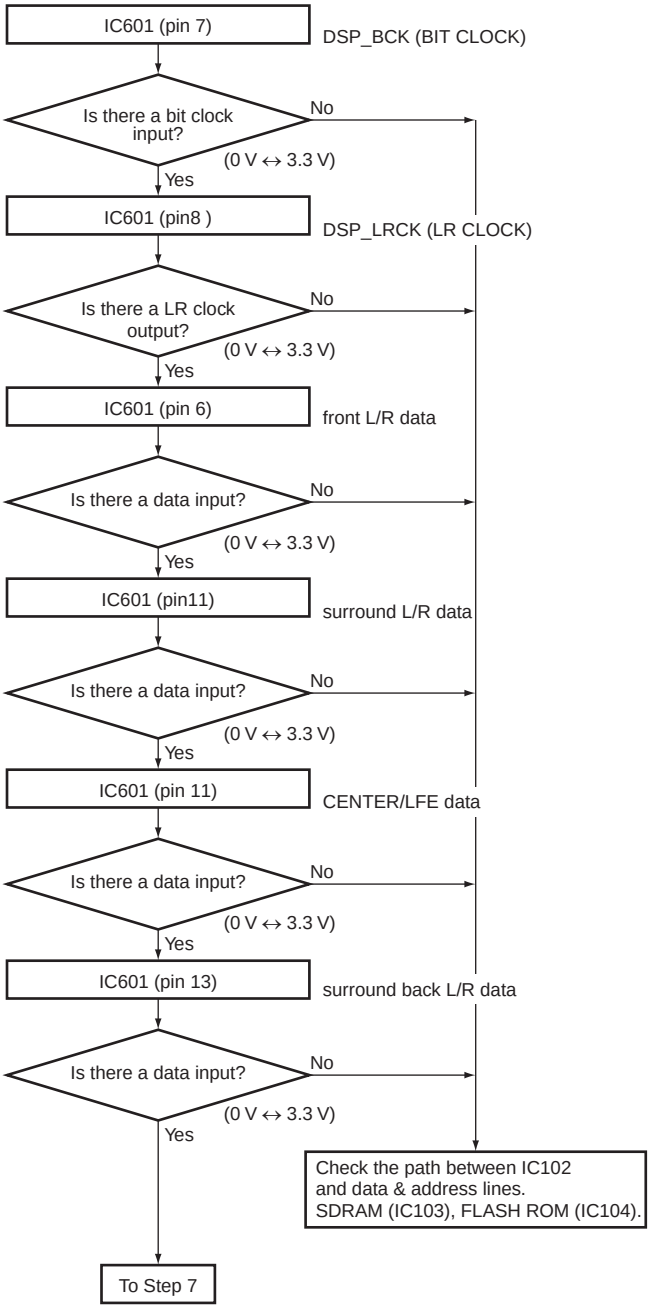
Step 5: DIR

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



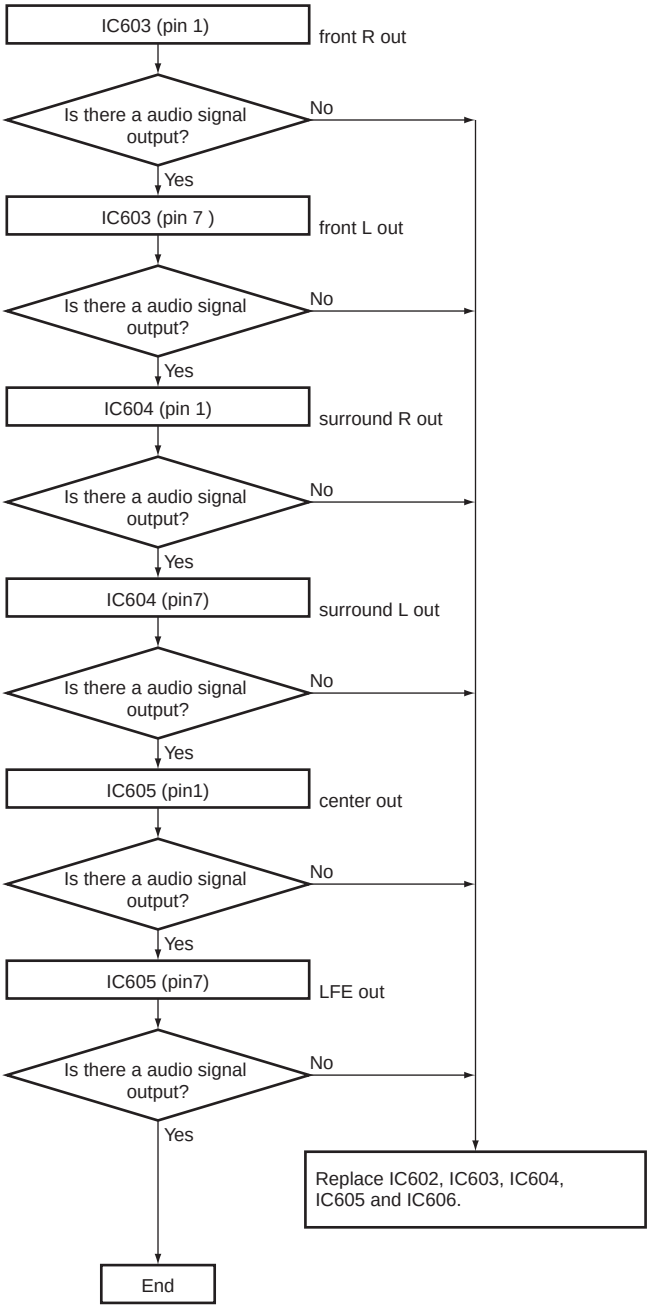
Step 6: DSP output (digital) to CODEC input

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.



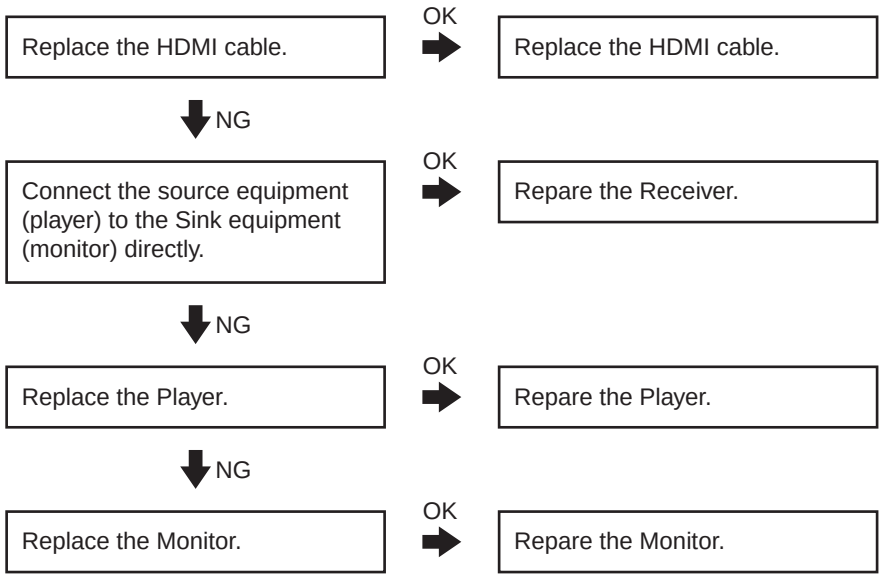
[2] HDMI TROUBLESHOOTING

HDMI Troubleshooting

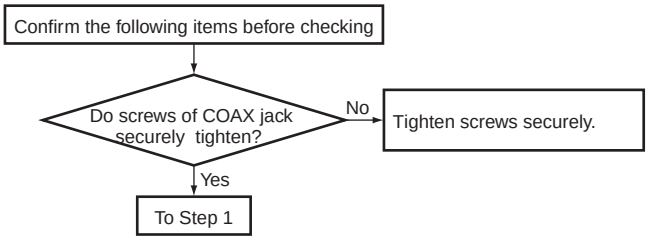
Cause for noncomplection of HDMI authentication between the source equipment and this unit.
(the HDMI indicator is unlit or flasher)

HDMI Simple Diagnosis

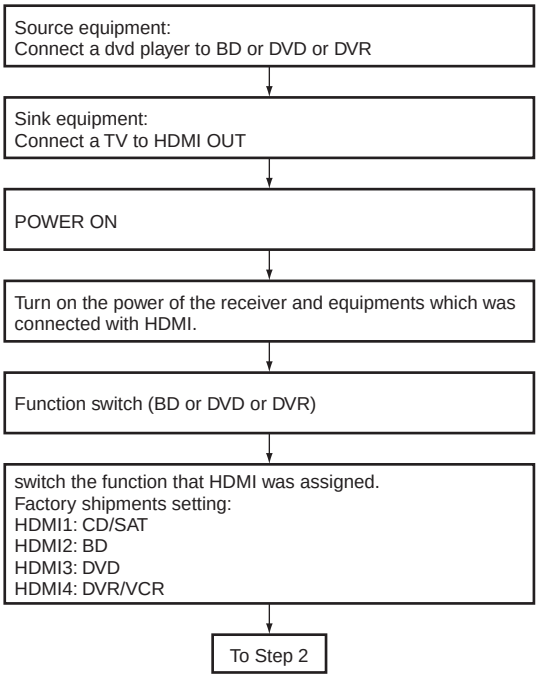
Causes for no display or sound from the monitor



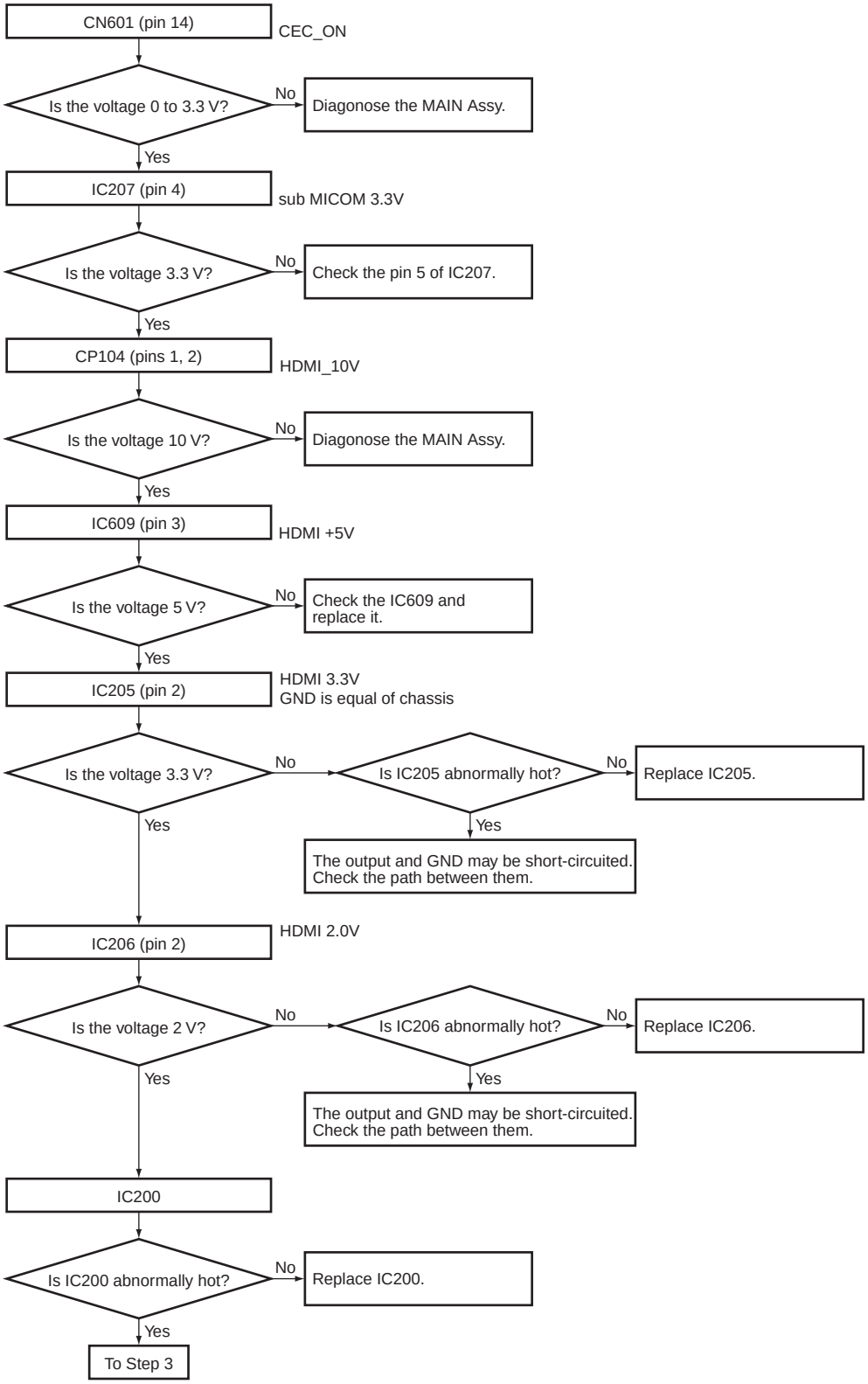
Step 0: Preliminary confirmation



Step 1: Connect the HDMI equipment

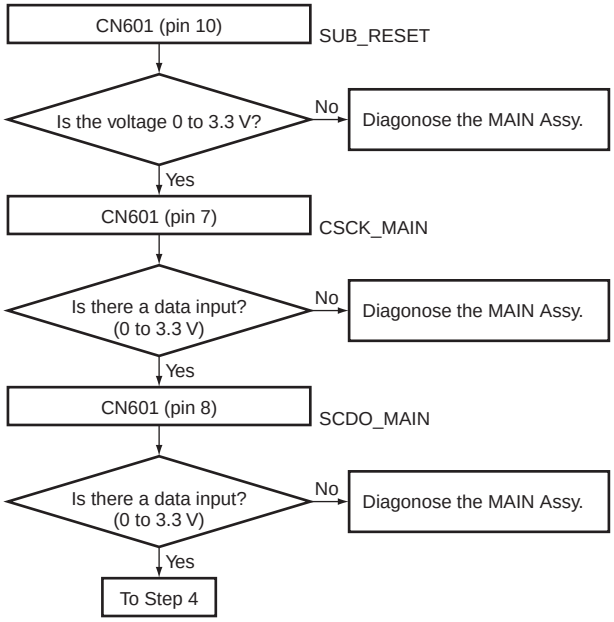


Step 2: Power supply

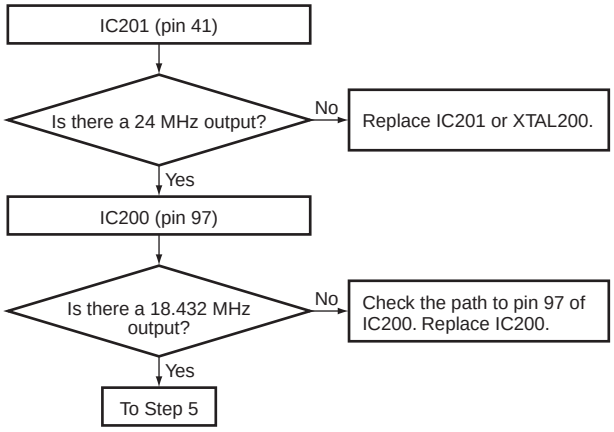


Step 3: Diagnosis

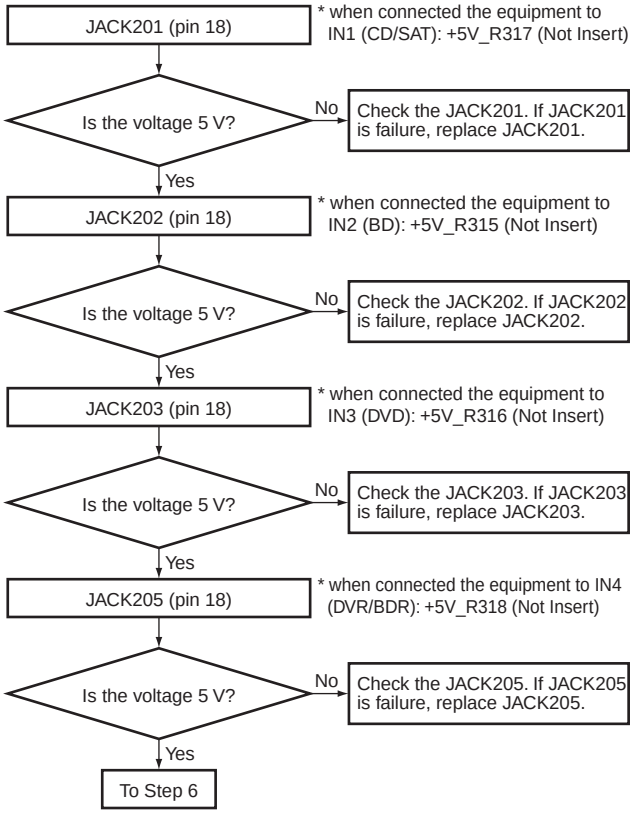
Each data lines confirmation checks it after standby off/on.



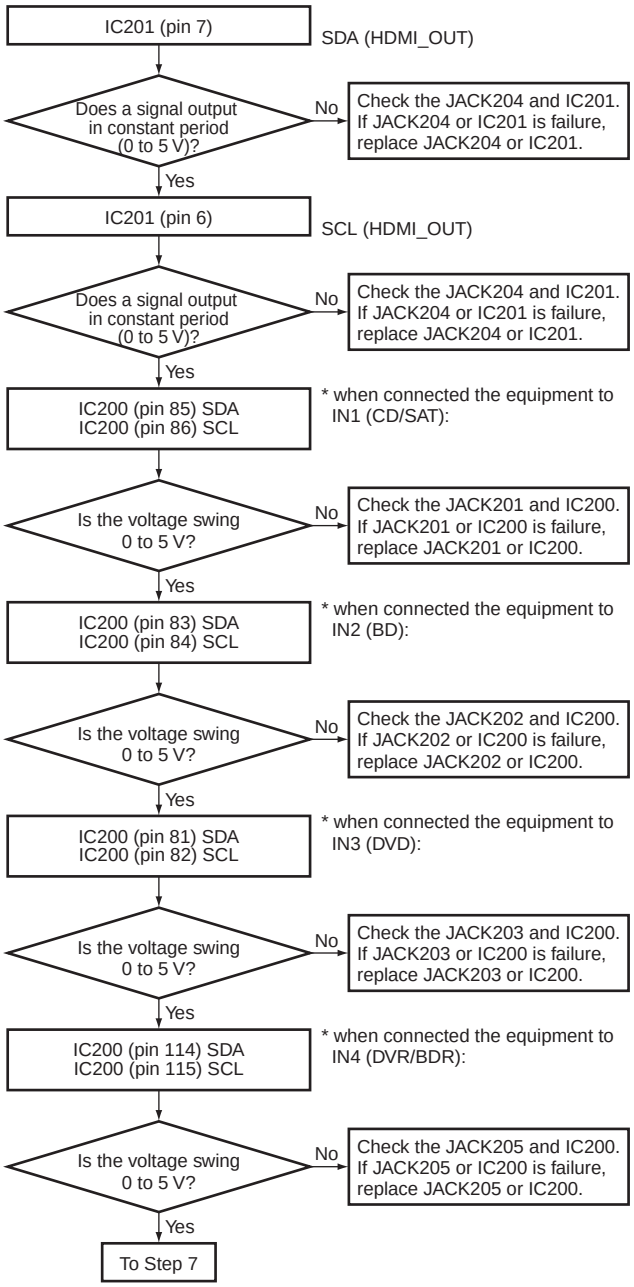
Step 4: X'TAL



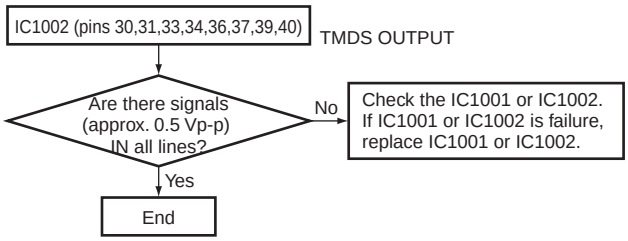
Step 5: INPUT/OUTPUT Diagnosis



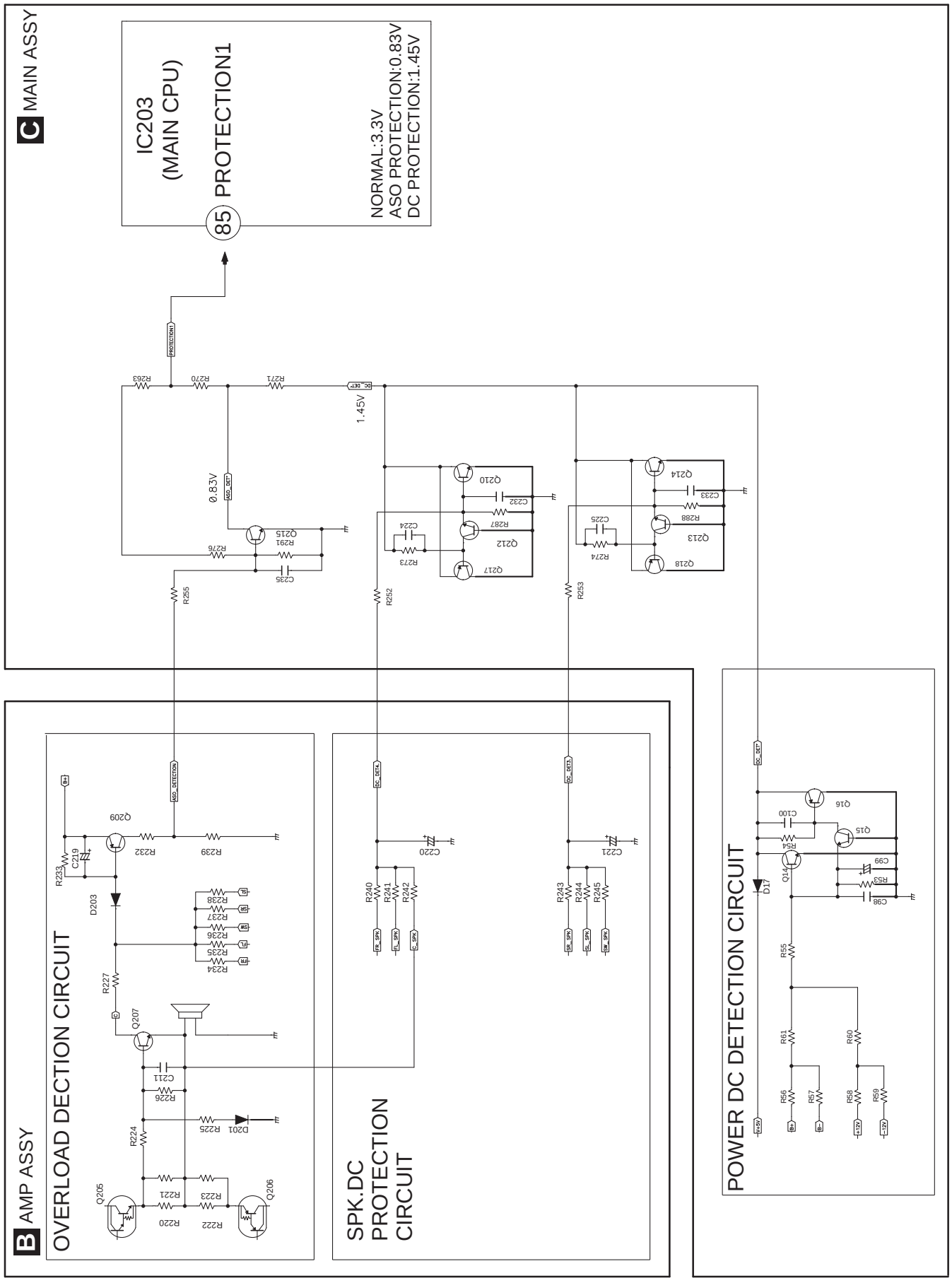
Step 6: SDA /SCL



Step 7: TMDS



5.2 PROTECTION CIRCUIT

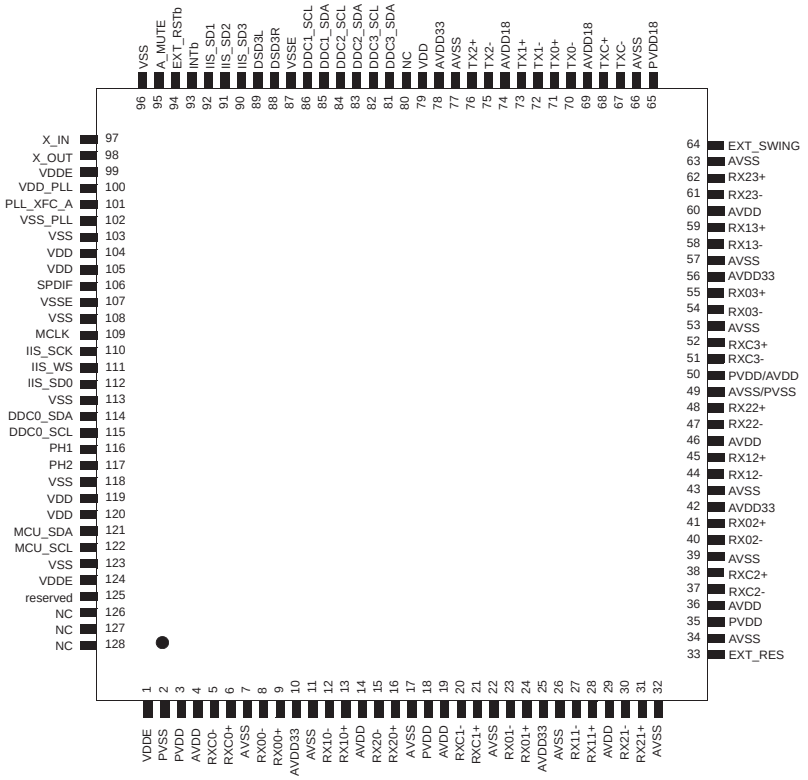


5.3 IC INFORMATION

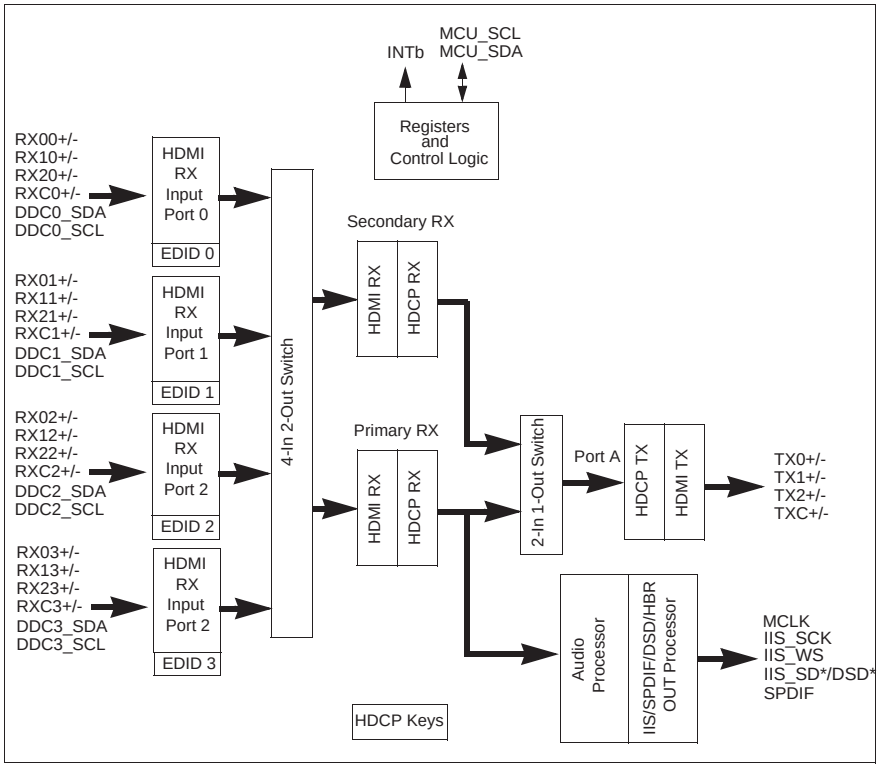
■ J046941000010-IL (EP94A1K)(D-MAIN ASSY: IC200)

HDMI 1.3 4-In 1-Out Repeater with Audio Output

• Pin Arrangement (Top View)



• Block Diagram



• Pin Function

HDMI Input Ports

Name	In/Out	Description
RXC0-	IN	Differential Clock Input Pair for HDMI Input Port 0
RXC0+	IN	Differential Clock Input Pair for HDMI Input Port 0
RX00-	IN	Differential Data Input Pair0 for HDMI Input Port 0
RX00+	IN	Differential Data Input Pair0 for HDMI Input Port 0
RX10-	IN	Differential Data Input Pair1 for HDMI Input Port 0
RX10+	IN	Differential Data Input Pair1 for HDMI Input Port 0
RX20-	IN	Differential Data Input Pair2 for HDMI Input Port 0
RX20+	IN	Differential Data Input Pair2 for HDMI Input Port 0
RXC1-	IN	Differential Clock Input Pair for HDMI Input Port 1
RXC1+	IN	Differential Clock Input Pair for HDMI Input Port 1
RX01-	IN	Differential Data Input Pair0 for HDMI Input Port 1
RX01+	IN	Differential Data Input Pair0 for HDMI Input Port 1
RX11-	IN	Differential Data Input Pair1 for HDMI Input Port 1
RX11+	IN	Differential Data Input Pair1 for HDMI Input Port 1
RX21-	IN	Differential Data Input Pair2 for HDMI Input Port 1
RX21+	IN	Differential Data Input Pair2 for HDMI Input Port 1
RXC2-	IN	Differential Clock Input Pair for HDMI Input Port 2
RXC2+	IN	Differential Clock Input Pair for HDMI Input Port 2
RX02-	IN	Differential Data Input Pair0 for HDMI Input Port 2
RX02+	IN	Differential Data Input Pair0 for HDMI Input Port 2
RX12-	IN	Differential Data Input Pair1 for HDMI Input Port 2
RX12+	IN	Differential Data Input Pair1 for HDMI Input Port 2
RX22-	IN	Differential Data Input Pair2 for HDMI Input Port 2
RX22+	IN	Differential Data Input Pair2 for HDMI Input Port 2
RXC3-	IN	Differential Clock Input Pair for HDMI Input Port 3
RXC3+	IN	Differential Clock Input Pair for HDMI Input Port 3
RX03-	IN	Differential Data Input Pair0 for HDMI Input Port 3
RX03+	IN	Differential Data Input Pair0 for HDMI Input Port 3
RX13-	IN	Differential Data Input Pair1 for HDMI Input Port 3
RX13+	IN	Differential Data Input Pair1 for HDMI Input Port 3
RX23-	IN	Differential Data Input Pair2 for HDMI Input Port 3
RX23+	IN	Differential Data Input Pair2 for HDMI Input Port 3
EXT_RES	IN	External Termination Resistor for all HDMI Input Ports. A resistor should tie this pin to AVDD33. 470 Ω is recommended.

HDMI Output Ports

Name	In/Out	Description
TXC-	OUT	Differential Clock Output Pair for HDMI Output
TXC+	OUT	Differential Clock Output Pair for HDMI Output
TX0-	OUT	Differential Data Output Pair0 for HDMI Output
TX0+	OUT	Differential Data Output Pair0 for HDMI Output
TX1-	OUT	Differential Data Output Pair1 for HDMI Output
TX1+	OUT	Differential Data Output Pair1 for HDMI Output
TX2-	OUT	Differential Data Output Pair2 for HDMI Output
TX2+	OUT	Differential Data Output Pair2 for HDMI Output
EXT_SWING	Analog	Voltage Swing Adjust for HDMI Output. A resistor should tie this pin to AVDD18. This resistance determines the amplitude of the voltage swing. 270 Ω is recommended.

• Pin Function

Audio Outputs

Name	In/Out	Description
MCLK	OUT	System Clock output for audio DAC (128/256/384/512 * FSampling_Clock. Connecting a pull-up (logic 1) or pull-down (logic 0) resistor at this pin defines bit 4 of the slave IIC Address
IIS_SCK	OUT	IIS SCK output for IIS audio port. Sampling clock output for DSD.
IIS_WS	OUT	IIS WS output for all IIS audio ports. DSD audio output port 0 (Right Channel).
IIS_SD0	OUT	IIS SD output for audio port 0 or HBR audio output. DSD audio output port 0 (Left Channel).
IIS_SD1	OUT	IIS SD output for audio port 1 or HBR audio output. DSD audio output port 1 (Right Channel).
IIS_SD2	OUT	IIS SD output for audio port 2 or HBR audio output. DSD audio output port 1 (Left Channel).
IIS_SD3	OUT	IIS SD output for audio port 3 or HBR audio output. DSD audio output port 2 (Right Channel).
SPDIF	OUT	SPDIF output. DSD audio output port 2 (Left Channel).
DSD3R	OUT	DSD audio output port 3 (Right Channel).
DSD3L	OUT	DSD audio output port 3 (Left Channel).
A_MUTE	OUT	Audio Mute Output

DDC/IIC/MCU/EEPROM

Name	In/Out	Description
INTb	OUT	Interrupt signal. Asserted when interrupt requests occur. This pin is open drain output when programmed as active low and external pull-up resistor is needed. This pin is push-pull when programmed as active high.
MCU_SCL	IN	SCL signal for slave IIC port
MCU_SDA	IO	SDA signal for slave IIC port
DDC0_SCL	IN	IIC SCL signal for HDMI Receiver DDC Port 0
DDC0_SDA	IO	IIC SDA signal for HDMI Receiver DDC Port 0
DDC1_SCL	IN	IIC SCL signal for HDMI Receiver DDC Port 1
DDC1_SDA	IO	IIC SDA signal for HDMI Receiver DDC Port 1
DDC2_SCL	IN	IIC SCL signal for HDMI Receiver DDC Port 2
DDC2_SDA	IO	IIC SDA signal for HDMI Receiver DDC Port 2
DDC3_SCL	IN	IIC SCL signal for HDMI Receiver DDC Port 3
DDC3_SDA	IO	IIC SDA signal for HDMI Receiver DDC Port 3

Misc. Pins

Name	In/Out	Description
X_IN	Analog	External Crystal Input, 18.432 MHz
X_OUT	Analog	External Crystal Output, 18.432 MHz
PLL_XFC_A	Analog	For connecting a capacitor to ground for on-chip PLL
EXT_RSTb	IN	External Reset input (Active Low) with internal weak pull-up.
PH1	Analog	Connect with 2 kΩ pull-up resistor to 3V3.
PH2	Analog	Connect with 2 kΩ pull-up resistor to 3V3.
reserved	IN	Must be tied LOW for normal operation.

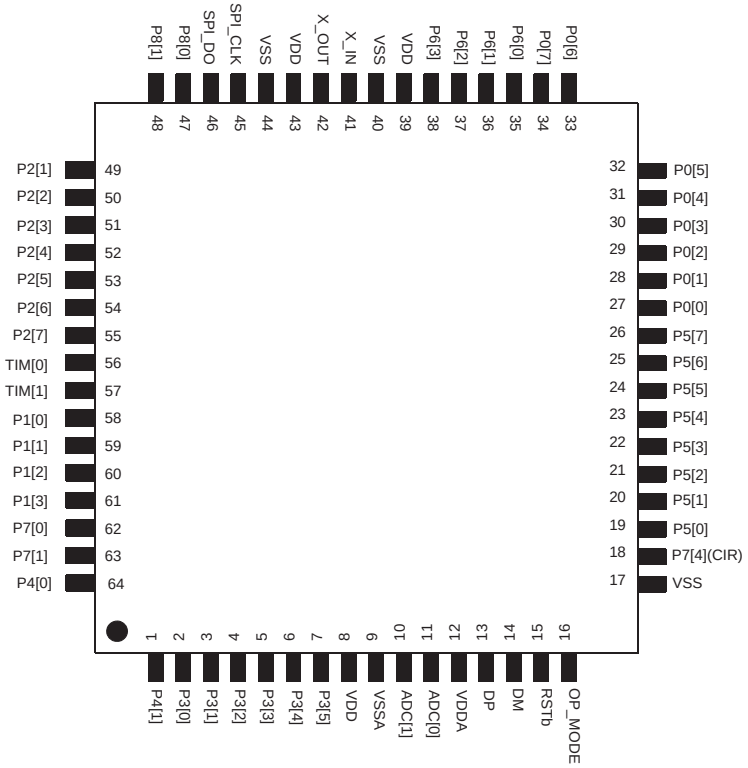
Power Pins

Name	In/Out	Description
AVDD	PWR	HDMI Receiver Analog Power (1.8 V)
PVDD	PWR	HDMI Receiver PLL Analog Power (1.8 V)
AVDD33	PWR	HDMI Termination Power (3.3 V)
AVDD18	PWR	HDMI Transmitter Analog Power (1.8 V)
PVDD18	PWR	HDMI Transmitter PLL Analog Power (1.8 V)
AVSS, PVSS	GND	Analog Ground
VDDE	PWR	I/O Power (3.3 V)
VSSE	GND	I/O Ground
VDD	PWR	Internal Logic Power (1.8 V)
VSS	GND	Logic Ground
VDD_PLL	GND	Audio PLL Power (3.3 V)
VSS_PLL	GND	Audio PLL Ground

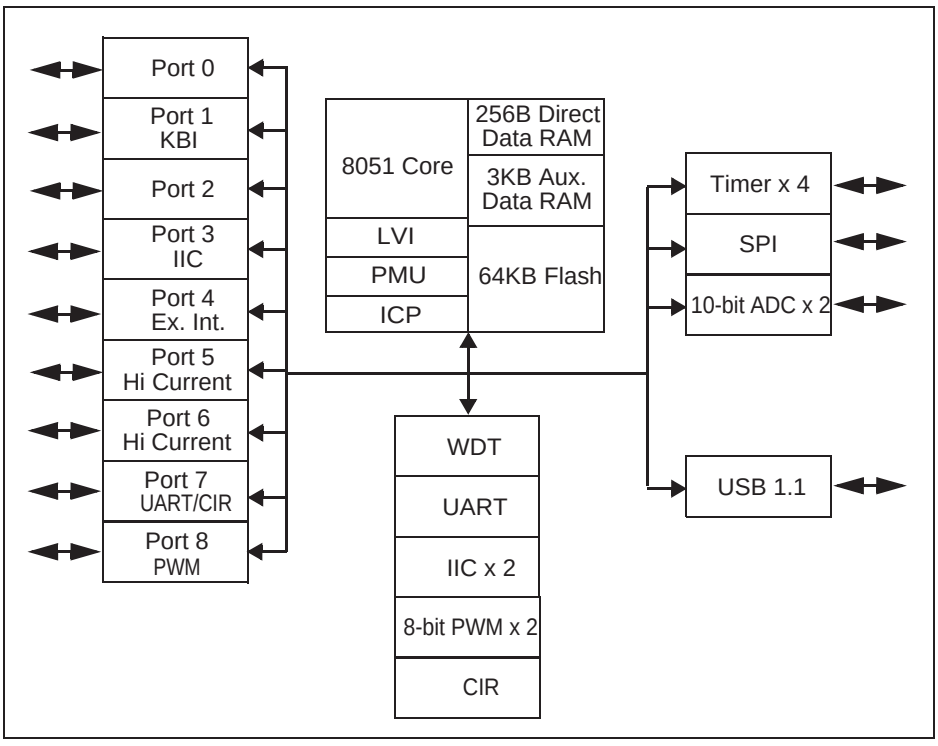
8952VS3210020-IL (EPF021A) (D-MAIN ASSY: IC201)

Generic Microcontroller Unit

• Pin Arrangement (Top View)



• Block Diagram



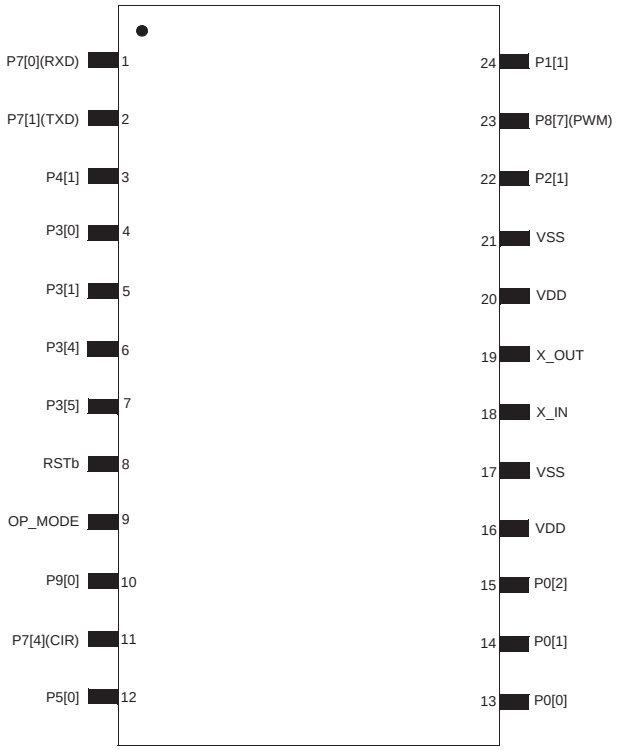
• Pin Function

Name	In/Out	Buffer Type	Description
OP_MODE	IN	IXDXXP	Chip operation mode. 0: Normal mode 1: ICP (In Circuit Flash Programming) mode
RSTb	IN	BDUX8P	External Reset (active low) with on-chip pull-up. When this pin is asserted low, the chip is totally reset.
X_IN	IN	XTL24P	24 MHz crystal input
X_OUT	OUT	XTL24P	24 MHz crystal output
P0[7:0]	IN/OUT	BRXX12P	GPIO port 0 with programmable Open Drain capability.
P1[3:0]	IN/OUT	BRUX8P	GPIO port 1 or Keyboard Interrupt inputs with internal 20 kΩ pull-up to VDD
P2[7:1]	IN/OUT	BRXX8P	GPIO port 2 with programmable Open Drain capability.
P3[5:0]	OD IN/OUT	BRXX8P	Open Drain I/O port 3. P3[5:0] shared with IIC.
P4[1:0]	IN/OUT	BRXX8P	GPIO port 4 or External Interrupt inputs
P5[7:0]	IN/OUT	BRXX24P	GPIO port 5 with programmable Open Drain capability; 20 mA drive
P6[3:0]	IN/OUT	BRXX24P	GPIO port 6 with 20 mA drive
P7[4,1:0]	IN/OUT	BRXX8P	Open Drain I/O port 7. P7[1:0] shared with Serial Port. P7[4] share with CIR.
P8[1:0]	IN/OUT	BRXX8P	GPIO port 8 with programmable Open Drain capability. P8[7] and P8[3:0] share with PWM
TIM[1:0]	IN/OUT	BRXX8P	Timer In/Out or GPIO
SPI_CLK	IN/OUT	BRXX8P	SPI Clock Out or General Purpose Output
SPI_DO	IN/OUT	BRXX8P	SPI Data In/Out or General Purpose Output
DP	IN/OUT	USB	USB D+ In/Out or GPO
DM	IN/OUT	USB	USB D- In/Out or GPO
ADC[1:0]	IN/OUT	ADC	ADC Inputs or GPIO
VDDA	PWR	—	Analogue VDD (3.3 V)
VSSA	PWR	—	Analogue Ground
VDD	PWR	—	Digital VDD (3.3 V)
VSS	PWR	—	Digital Ground

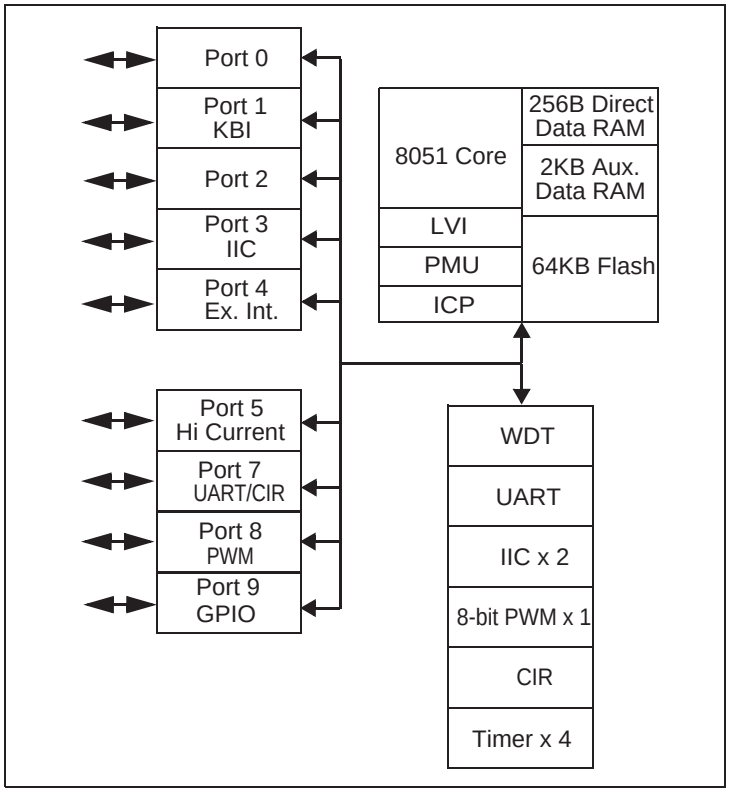
8952VS3210030-IL (EPF011C) (D-MAIN ASSY: IC203)

Generic MCU with 64K Embedded Flash

• Pin Arrangement (Top View)



• Block Diagram



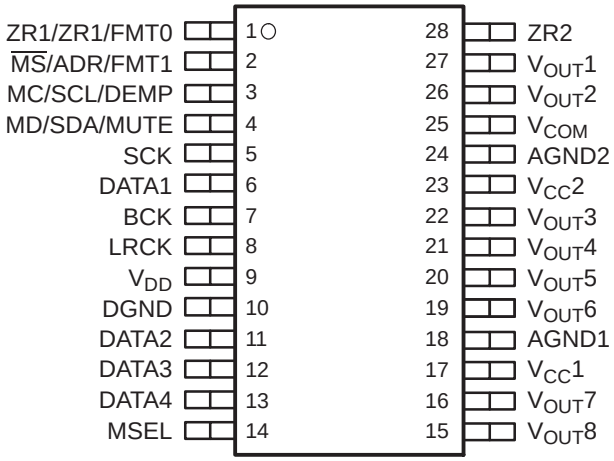
• Pin Function

Name	In/Out	Buffer Type	Description
OP_MODE	IN	IXDXXP	Chip operation mode. 0: Normal mode 1: ICP (In Circuit Flash Programming) mode NOTE: The input crystal rate will be 24 MHz if this ICP mode is used.
RSTb	IN	BDUX8P	External Reset (active low) with on-chip pull-up. When this pin is asserted low, the chip is totally reset.
X_IN	IN	XTL24P	Crystal input
X_OUT	OUT	XTL24P	Crystal output
P0[2:0]	IN/OUT	BRXX12P	GPIO port 0 with programmable Open Drain capability.
P11	IN/OUT	BRUX8P	GPIO port 1 or Keyboard Interrupt inputs with internal 20 kΩ pull-up to VDD
P21	IN/OUT	BRXX8P	GPIO port 2 with programmable Open Drain capability.
P3[5:4, 1:0]	OD IN/OUT	BRXX8P	Open Drain I/O port 3. Shared with IIC.
P41	IN/OUT	BRXX8P	GPIO port 4 or External Interrupt inputs
P50	IN/OUT	BRXX24P	GPIO port 5 with programmable Open Drain capability. 20 mA drive
P7[4,1:0]	IN/OUT	BRXX8P	Open Drain I/O port 7. P7[1:0] shared with Serial Port. P7[4] share with CIR.
P87	IN/OUT	BRXX8P	GPIO port 8 with programmable Open Drain capability. Share with PWM
P90	IN/OUT	BRXX8P	GPIO port 9 with programmable Open Drain capability.
VDD	PWR	—	Digital VDD (3.3 V)
VSS	PWR	—	Digital Ground

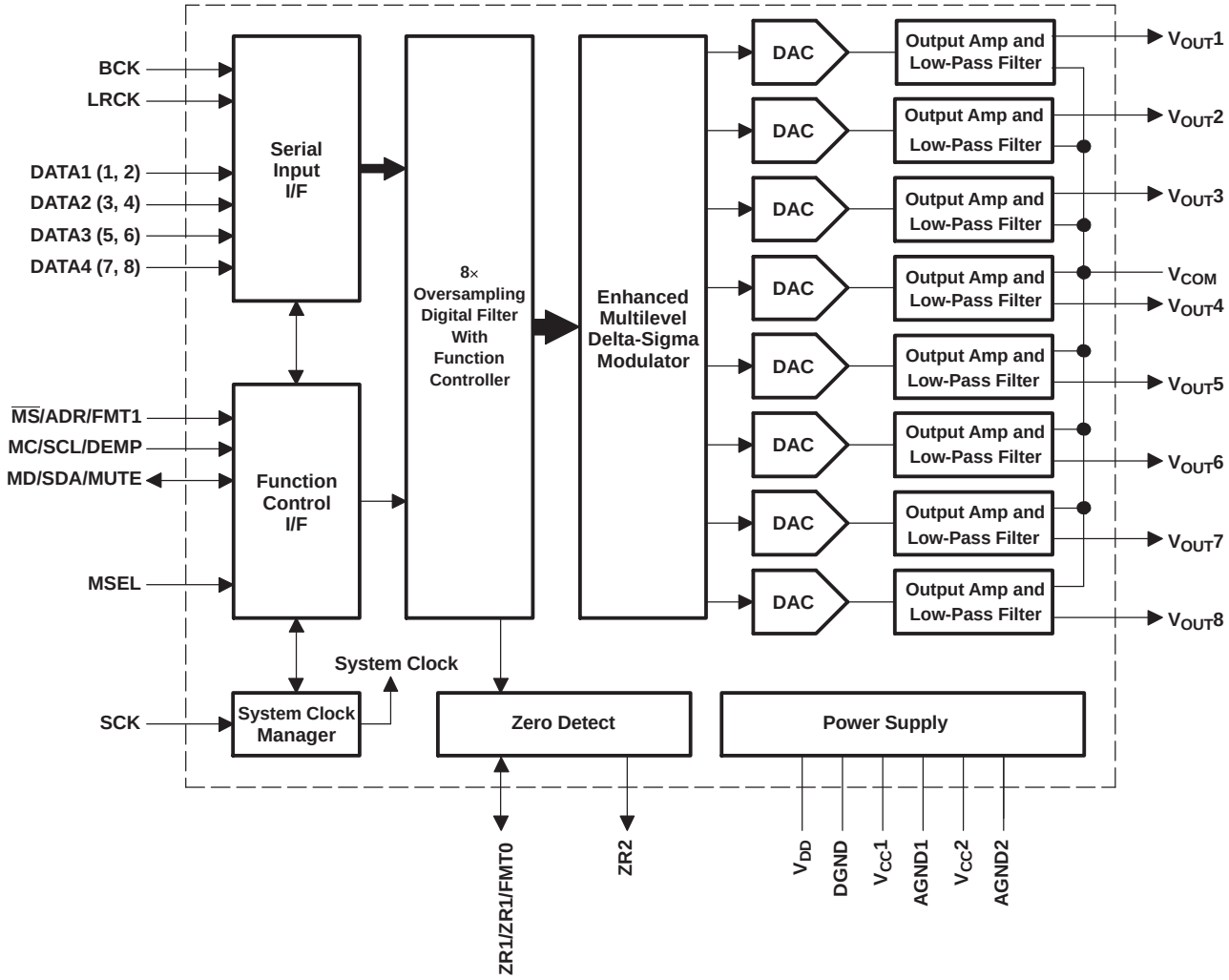
■ PCM1681 (D-MAIN ASSY: IC601)

24-Bit, 192-kHz Sampling, Enhanced Multilevel Delta-Sigma, Eight-Channel Audio Digital-to-Analog Converter

• Pin Arrangement (Top View)



• Block Diagram



• Pin Function

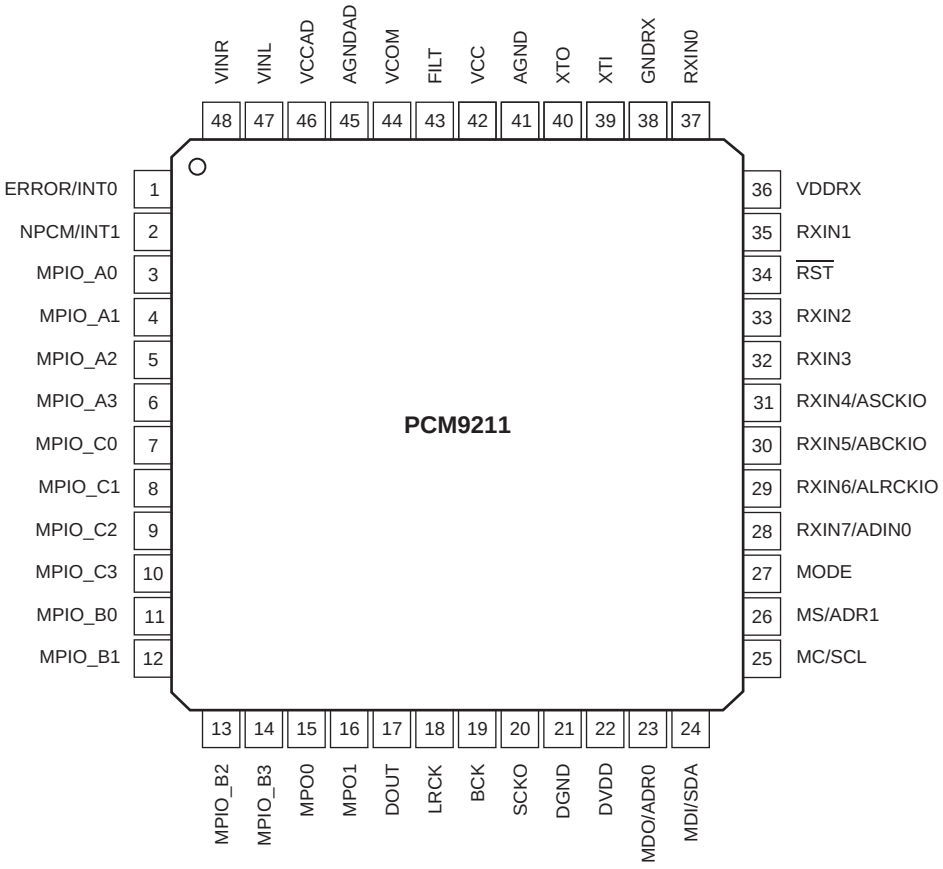
No.	Name	In/Out	Description
1	ZR1/ZR1/FMT0	I/O	Zero-flag output 1 for SPI, zero-flag output 1 for I2C, format control input 0 for H/W(1)
2	$\overline{MS}$/ADR/FMT1	I	Select input for SPI, address input for I2C, format control input 1 for H/W (1) (2)
3	MC/SCL/DEMP	I	Shift clock input for SPI, serial clock input for I2C, de-emphasis control for H/W (1) (2)
4	MD/SDA/MUTE	I/O	Serial data input for SPI, serial data input/output for I2C, mute control for H/W (1) (2) (3)
5	SCK	I	System clock input. Input frequency is 128, 192, 256, 384, 512, 768, or 1152 fS. (1) (2)
6	DATA1	I	Serial audio data input for V_{OUT1} and V_{OUT2} (1) (2)
7	BCK	I	Shift clock input for serial audio data (1) (2)
8	LRCK	I	Left and right clock input. The frequency of this clock is equal to the sampling rate, fS. (1) (2)
9	V_{DD}	—	Digital power supply, 3.3-V
10	DGND	—	Digital ground
11	DATA2	I	Serial audio data input for V_{OUT3} and V_{OUT4} (1) (2)
12	DATA3	I	Serial audio data input for V_{OUT5} and V_{OUT6} (1) (2)
13	DATA4	I	Serial audio data input for V_{OUT7} and V_{OUT8} (1) (2)
14	MSEL	I	Mode control select, I2C, H/W with narrow mode O/S, H/W with wide mode O/S, SPI select(1) (4)
15	V_{OUT8}	O	Voltage output for audio signal corresponding to R-ch on DATA4
16	V_{OUT7}	O	Voltage output for audio signal corresponding to L-ch on DATA4
17	V_{CC1}	—	Analog power supply, 5-V
18	AGND1	—	Analog ground
19	V_{OUT6}	O	Voltage output for audio signal corresponding to R-ch on DATA3
20	V_{OUT5}	O	Voltage output for audio signal corresponding to L-ch on DATA3
21	V_{OUT4}	O	Voltage output for audio signal corresponding to R-ch on DATA2
22	V_{OUT3}	O	Voltage output for audio signal corresponding to L-ch on DATA2
23	V_{CC2}	—	Analog power supply, 5-
24	AGND2	—	Analog ground
25	V_{COM}	—	Common voltage output. This pin should be bypassed with a 10-mF capacitor to AGND.
26	V_{OUT2}	O	Voltage output for audio signal corresponding to R-ch on DATA1
27	V_{OUT1}	O	Voltage output for audio signal corresponding to L-ch on DATA1
28	ZR2	O	Zero-flag output 2

(1) Schmitt-trigger input.
(2) 5-V tolerant.
(3) Open-drain output in I2C mode.
(4) V_{DD}/2 biased, quad state input.

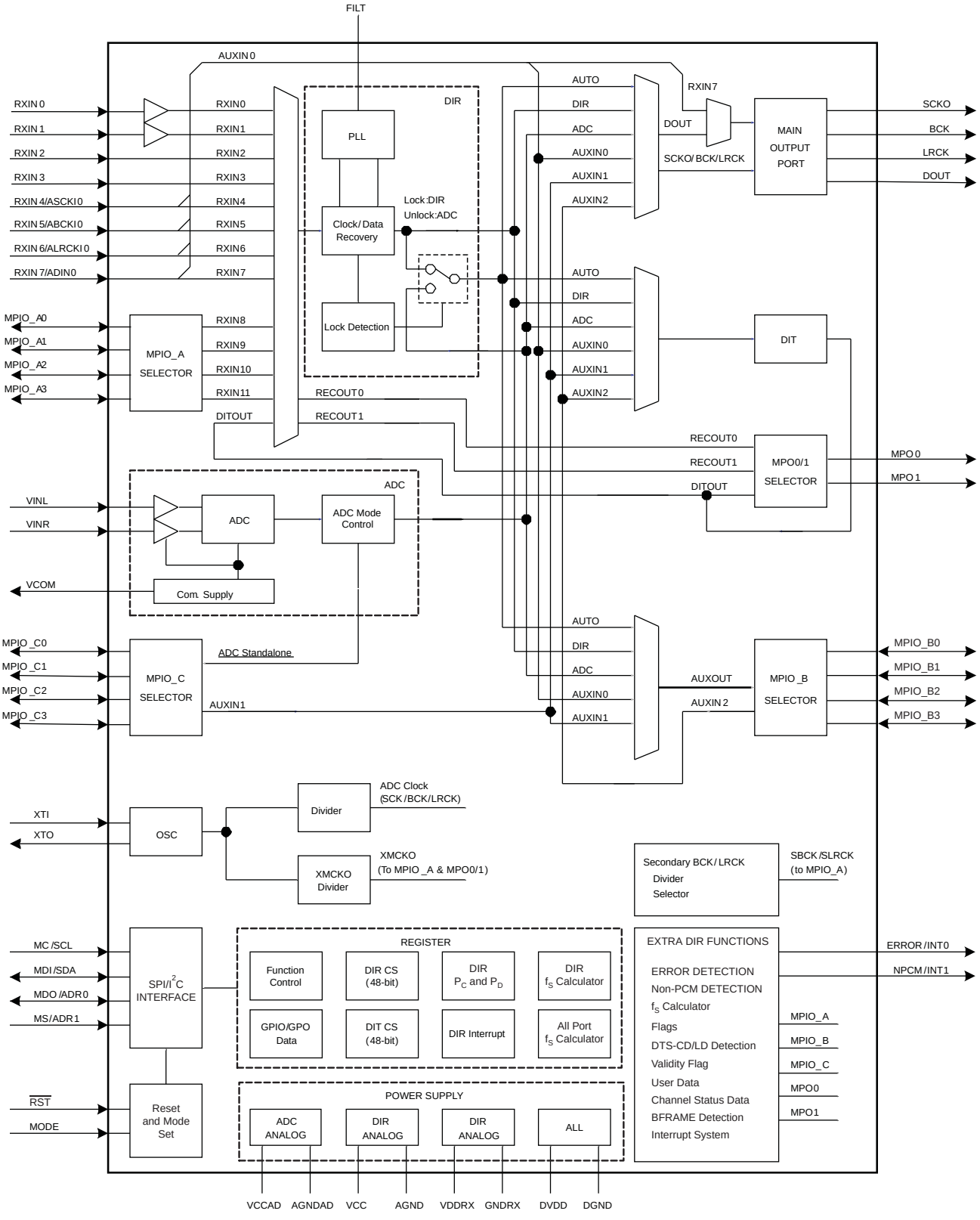
■ J046921100710-IL (PCM9211) (D-MAIN ASSY: IC602)

216-kHz Digital Audio Interface Transceiver (DIX) with Stereo ADC and Routing

• Pin Arrangement (Top View)



• Block Diagram



• Pin Function

No.	Name	In/Out	Description
1	ERROR/INT0	O	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Multipurpose I/O, Group A(1)
6	MPIO_A3	I/O	Multipurpose I/O, Group A(1)
7	MPIO_C0	I/O	Multipurpose I/O, Group C(1)
8	MPIO_C1	I/O	Multipurpose I/O, Group C(1)
9	MPIO_C2	I/O	Multipurpose I/O, Group C(1)
10	MPIO_C3	I/O	Multipurpose I/O, Group C(1)
11	MPIO_B0	I/O	Multipurpose I/O, Group B(1)
12	MPIO_B1	I/O	Multipurpose I/O, Group B(1)
13	MPIO_B2	I/O	Multipurpose I/O, Group B(1)
14	MPIO_B3	I/O	Multipurpose I/O, Group B(1)
15	MPO0	O	Multipurpose output 0
16	MPO1	O	Multipurpose output 1
17	DOUT	O	Main output port, serial digital audio data output
18	LRCK	O	Main output port, LR clock output
19	BCK	O	Main output port, Bit clock output
20	SCKO	O	Main output port, System clock output
21	DGND	—	Ground, for digital
22	DVDD	—	Power supply, 3.3 V (typ.), for digital
23	MDO/ADR0	I/O	Software control I/F, SPI data output / I2C slave address setting0(2)
24	MDI/SDA	I/O	Software control I/F, SPI data input / I2C data input/output(2) (3)
25	MC/SCL	I	Software control I/F, SPI clock input / I2C clock input(2)
26	MS/ADR1	I	Software control I/F, SPI chip select / I2C slave address setting1(2)
27	MODE	I	Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADIN0	I	Biphase signal, input 7 / AUXIN0, serial audio data input(2)
29	RXIN6/ALRCKI0	I	Biphase signal, input 6 / AUXIN0, LR clock input(2)
30	RXIN5/ABCKI0	I	Biphase signal, input 5 / AUXIN0, bit clock input(2)
31	RXIN4/ASCKI0	I	Biphase signal, input 4 / AUXIN0, system clock input(2)
32	RXIN3	I	Biphase signal, input 3(2)
33	RXIN2	I	Biphase signal, input 2(2)
34	$\overline{\text{RST}}$	I	Reset Input, active low(2) (4)
35	RXIN1	I	Biphase signal, input 1, built-in coaxial amplifier
36	VDDRX	—	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	—	Ground, for RXIN
39	XTI	I	Oscillation circuit input for crystal resonator or external XTI clock source input(5)
40	XTO	O	Oscillation circuit output for crystal resonator
41	AGND	—	Ground, for PLL analog
42	VCC	—	Power supply, 3.3 V (typ.), for PLL analog
43	FILT	O	External PLL loop filter connection terminal; must connect recommended filter
44	VCOM	O	ADC common voltage output; must connect external decoupling capacitor
45	AGNDAD	—	Ground, for ADC analog
46	VCCAD	—	Power supply, 5.0 V (typ.), for ADC analog
47	VINL	I	ADC analog voltage input, left channel
48	VINR	I	ADC analog voltage input, right channel

(1) Schmitt trigger input
(2) Schmitt trigger input
(3) Open-drain configuration in I2C mode
(4) Onboard pull-down resistor (50 kΩ, typical)
(5) CMOS Schmitt trigger input

6. SERVICE MODE
6.1 SERVICE MODE

[1] Display mode for numbers of protection detections

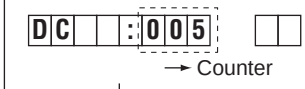
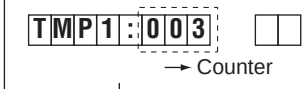
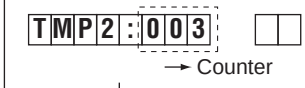
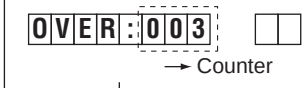
[Purpose]

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 –] + [STANDBY/ON] keys (Initial display)(press the keys for 2 seconds.)		5 (-> normal) *1	Number of DC error detections
[ENTER] key		5 (-> normal) *1	Number of abnormal-temperature error detections Note:TEMP1 is displayed, but do not use this model.
[ENTER] key		5 (-> normal) *1	Number of abnormal-temperature error detections
[ENTER] key		5 (-> normal) *1	Number of OVERLOAD 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

[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] + [STANDBY/ON] keys (press and hold the keys for 10 seconds.)	CLEAR?	5 (-> normal) *1	
[ENTER] key			
(Counter Clear end)	OK	5 (-> normal) *1	
(Normal display)	BD *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

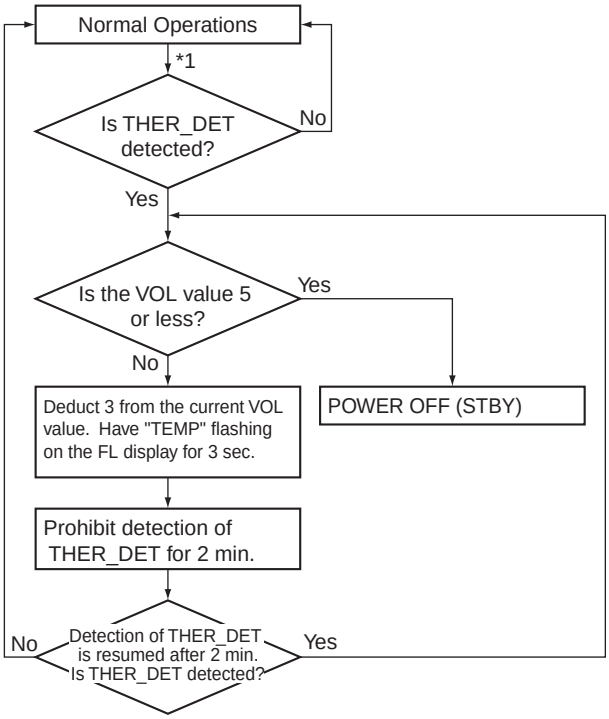
[Detailed explanations]

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.

TEMP (AMP overheat) error detection

For detection of a TEMP error, the unit monitor THER_DET (PROTECT2) signal. 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 THER_DET (PROTECT2)
PL2_1 (71 pin)
(THER_DET from AMP Assy)



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

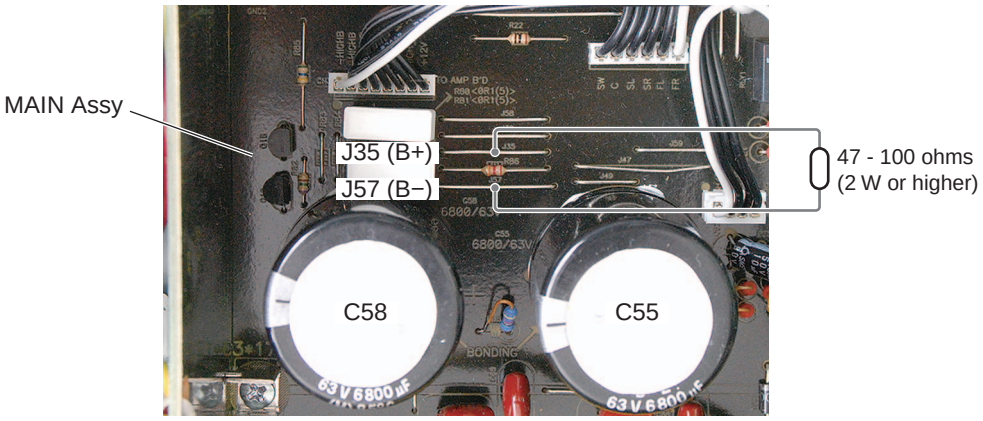
7. DISASSEMBLY
7.1 VSX-321-K-P

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:
- Board to board extension jig cable (GGD1736)
- Board to board extension jig cable (GGD1772)
- 3P extension jig cable (GGD1773)

1. Discharging

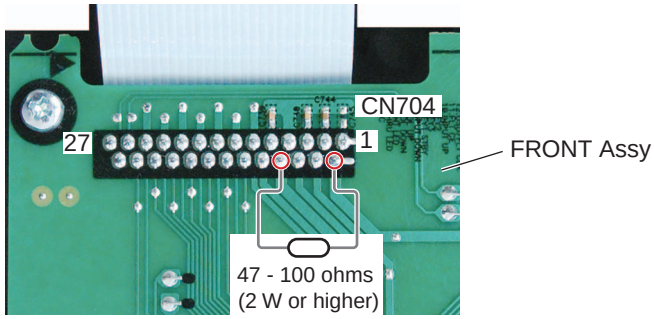
[1] MAIN Assy Capacitor (C55, C58)

[Procedures]
(1) Unplug the power cord.
(2) Connect J35 (B+) and J57 (B–), using resistor leads with 47 - 100 ohms (2 W or higher), for discharging.
∗ Discharging time: 30 - 60 seconds, depending on the level of resistance.
(3) 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 (2).



[2] FL-30 V Capacitor

[Procedures]
(1) Unplug the power cord.
(2) Connect CN704 pins 1 or 2 (–30V) and pins 7 or 8 (GND), 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).

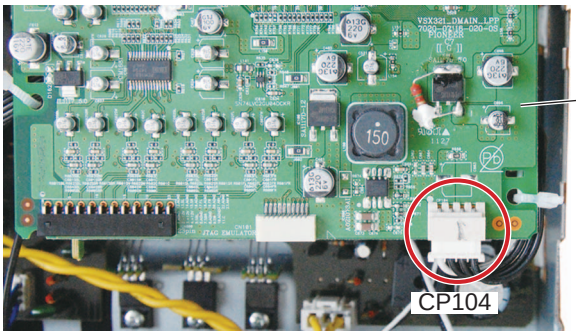


2. Notes on Disassembly and Reassembly

Confirmation of Connection

After completion of reassembly, before plugging the power cord into an outlet, make sure that the 4P wires from CN5 of the MAIN Assy are connected to CP104 of the D-MAIN Assy.

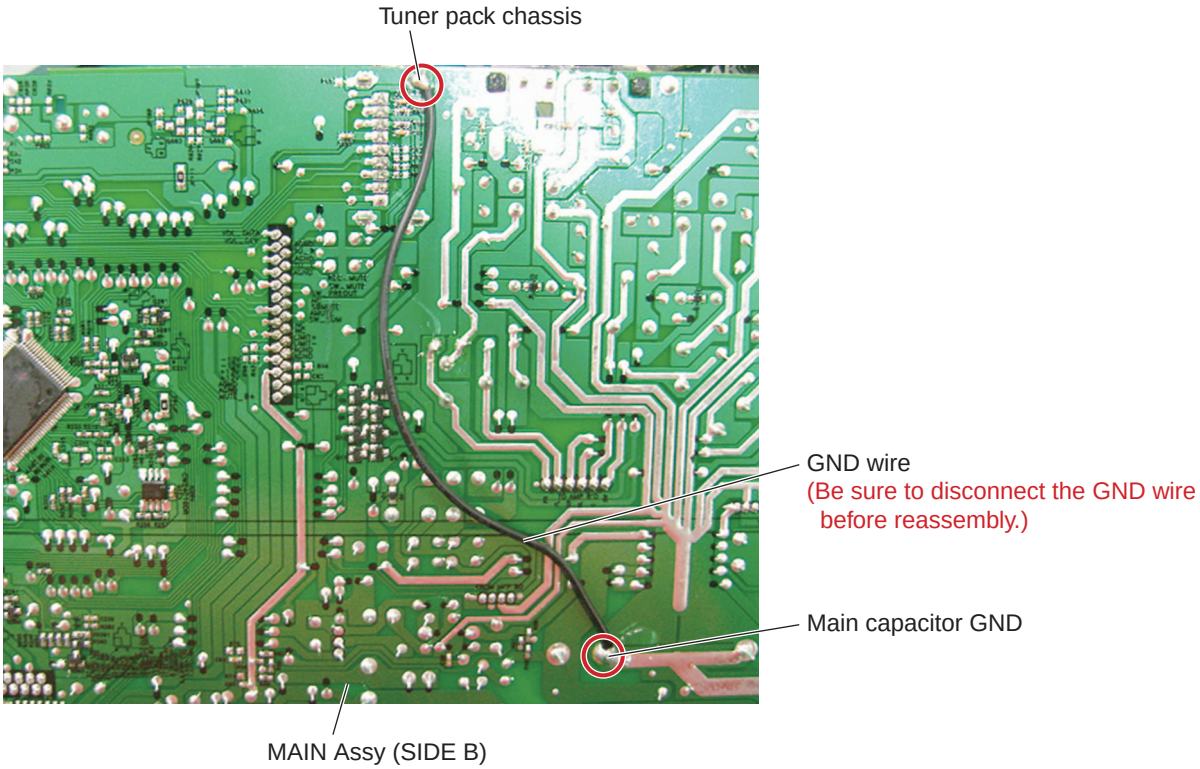
If the unit is turned ON without these wires connected, the CODEC IC (IC602) on the D-MAIN Assy may be damaged.



Confirmation of GND Wire

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 chassis back (Tuner pack 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.

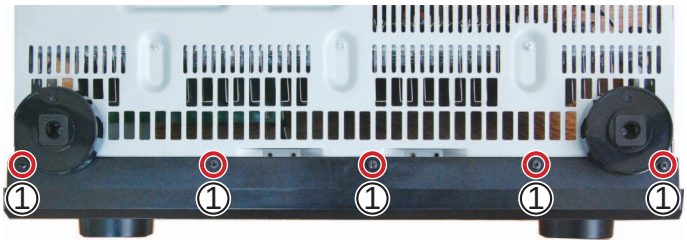


3. Disassembly

[1] Front Panel Section

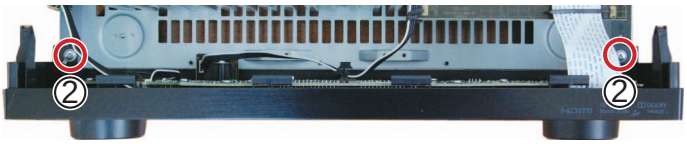
Remove the cabinet by removing the 10 screws.

(1) Remove the five screws.
(BBZ30P080FTB)

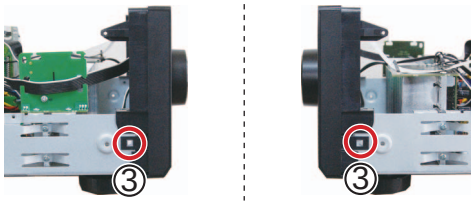


• Bottom view

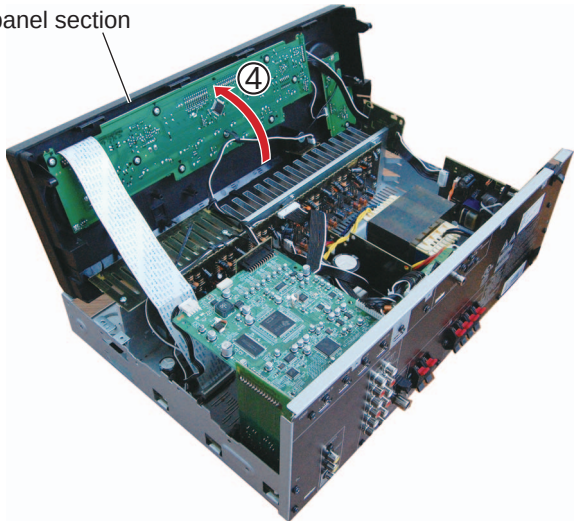
(2) Remove the two screws.
(1500001206010-IL)



(3) Unhook the two hooks.



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

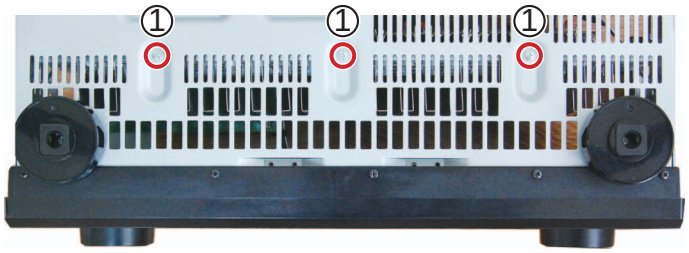


[2] Heatsink Section

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

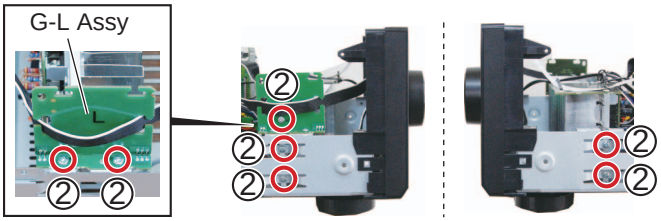
Remove the cabinet by removing the 10 screws.

(1) Remove the three screws.
(BBZ30P080FTC)

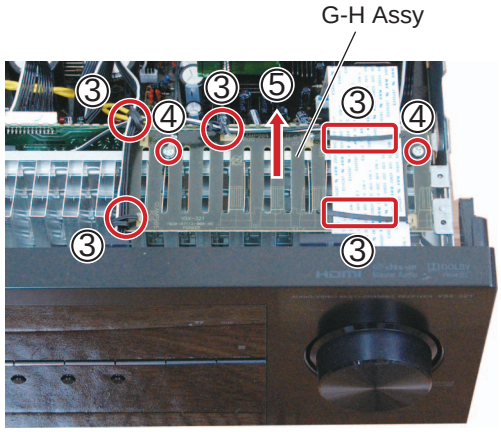


• Bottom view

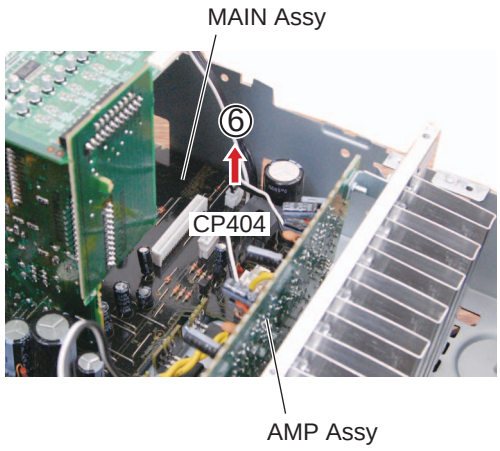
(2) Remove the seven screws.
(BBZ30P080FTC)



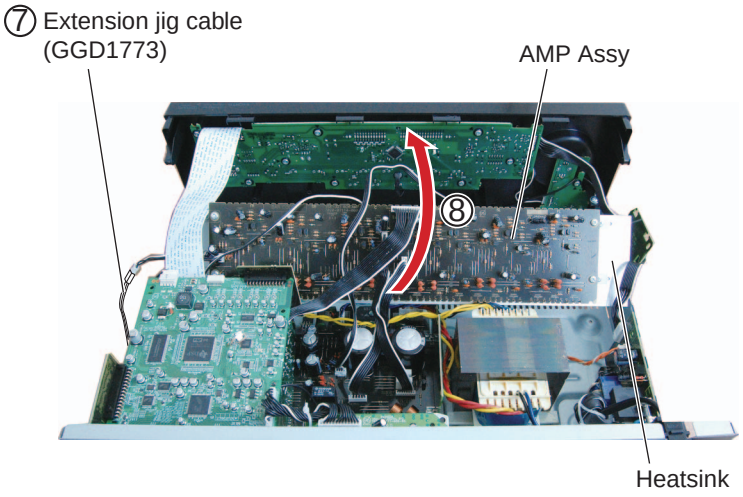
(3) Release the five binders.
(4) Remove the two screws.
(BBZ30P080FTC)
(5) Remove the G-H Assy.



(6) Disconnect the one connector.
(CP404)



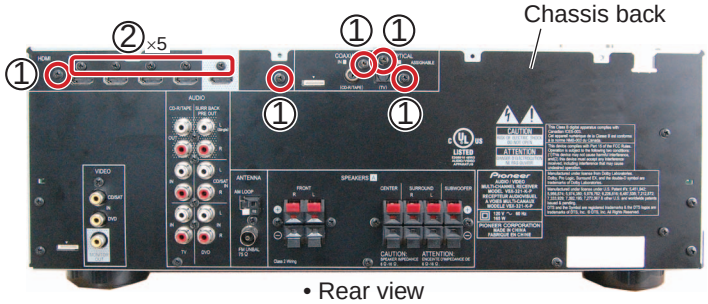
(7) Connect the extension jig cable.
(AMP CN203 ↔ MAIN CP404)
(8) Rotate the heatsink section in the direction of the arrow.



[3] D-MAIN Assy

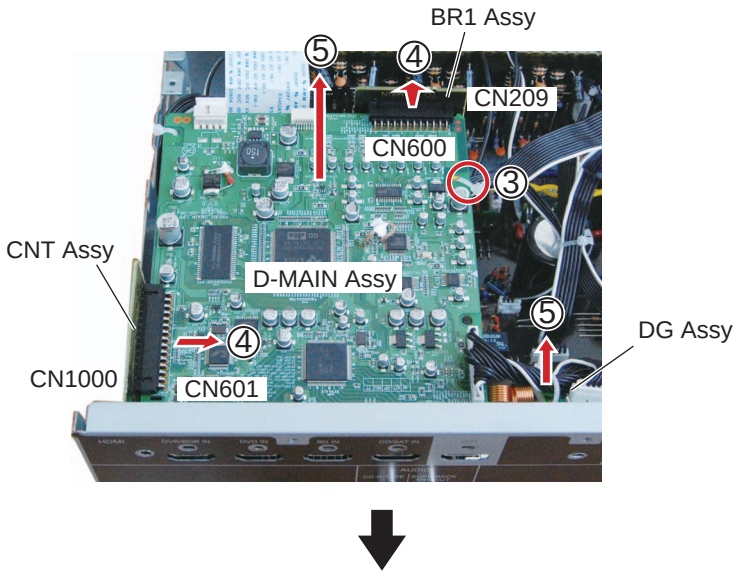
Remove the cabinet by removing the 10 screws.

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

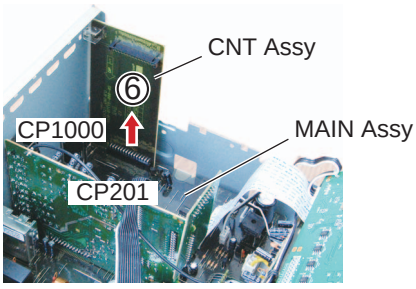


• Rear view

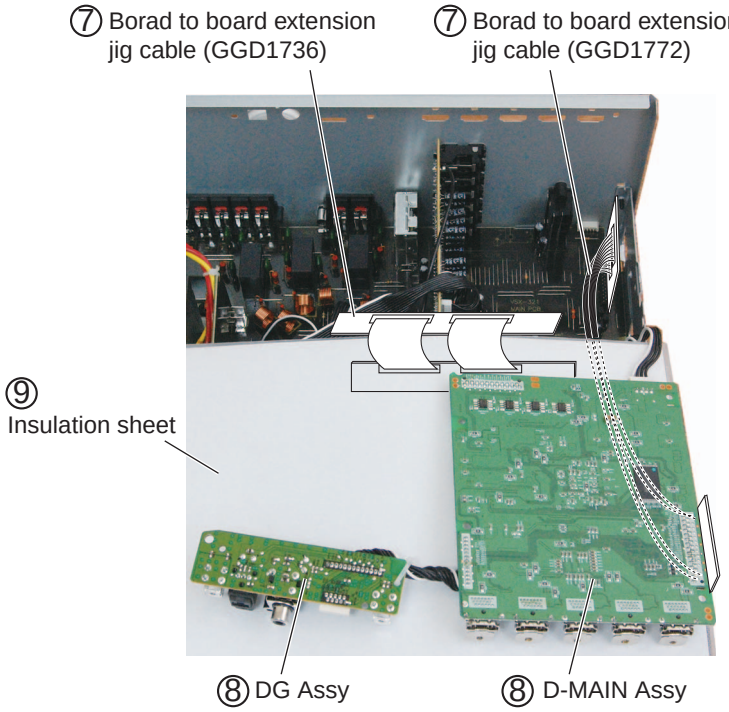
(3) Cut the binder.
(4) Disconnect the two B to B connectors.
(CN600, CN601)
(5) Remove the D-MAIN and DG Assemblies.



(6) Disconnect the one B to B connector and remove the CNT Assy.
(CP1000)



(7) Connect the two extension jig cables.
(D-MAIN CN600 ↔ BR1 CN209)
(D-MAIN CN601 ↔ MAIN CP201)
(8) Arrange the D-MAIN and DG Assemblies in the photo below.
(9) Insert any insulation sheet.

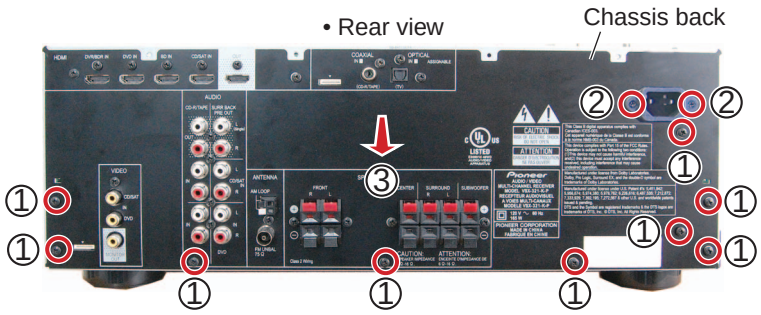


[4] MAIN Assy

Remove the cabinet by removing the 10 screws.

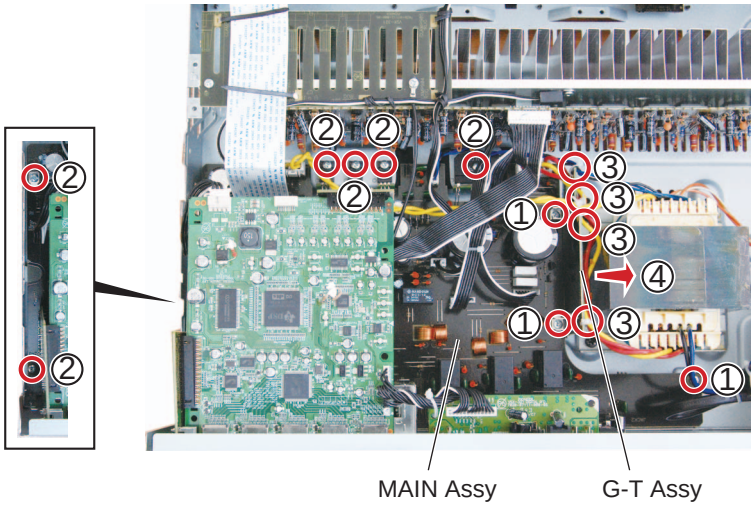
[4-1] Chassis back

(1) Remove the nine screws.
(BBT30P100FTB)
(2) Remove the two screws.
(SYXE8, DLPWXE only)(CBZ30P080FTB)
(3) Remove the chassis back.

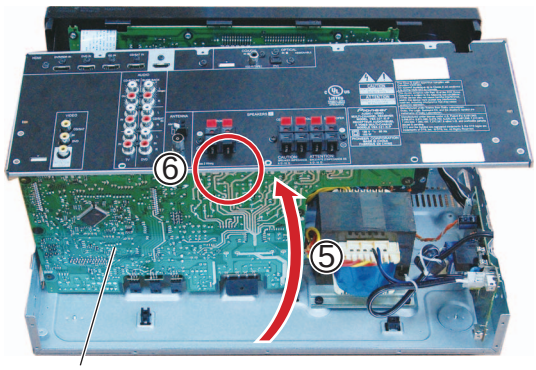


[4-2] MAIN Assy

(1) Remove the three screws.
(BBZ30P180FTC)
(2) Remove the six screws.
(BBZ30P080FTC)
(3) Cut the four binders.
(4) Remove the G-T Assy.

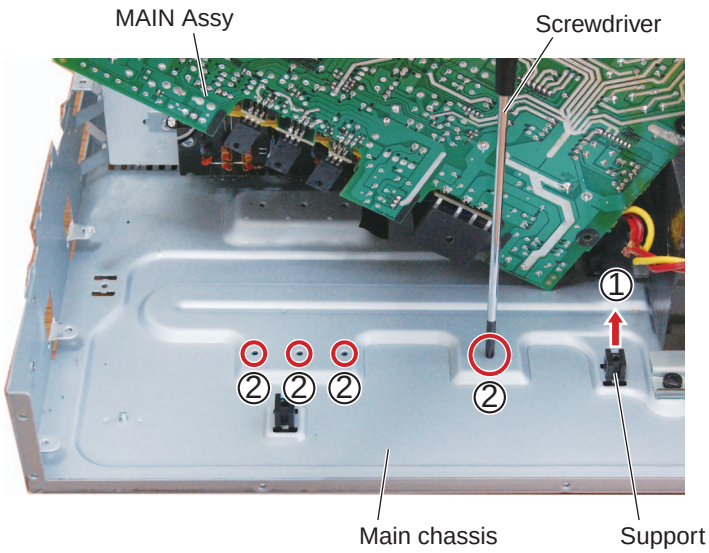


(5) Arrange the unit as shown in the photo below.
(6) Connect the chassis ground.
See “2. Notes on Disassembly and Reassembly - Confirmation of GND Wire”.

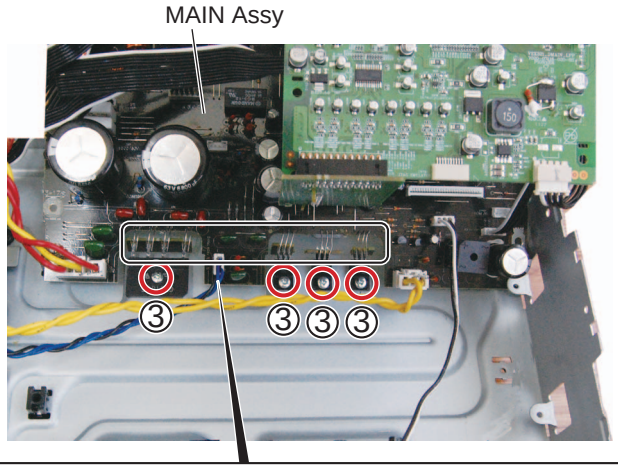


[4-3] Regulator ICs and Recifier diode

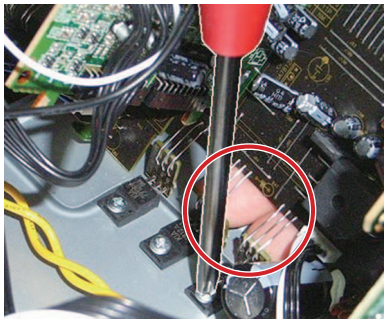
(1) Remove the support.
(2) Tighten then loosen the screw in each of the four holes for temporary joining that are located on the rear side of the main chassis. (This is for shaving the thread grooves to facilitate attachment in the next step.)



(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.

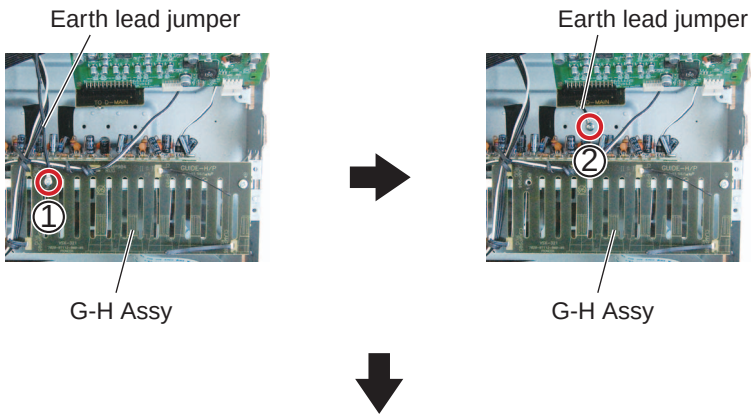


Note:
While securing the regulator ICs and rectifier diode to the holes for temporary joining, tighten the screws while holding the regulator ICs and rectifier diode with your fingers so that the jumper wires will not become distorted.

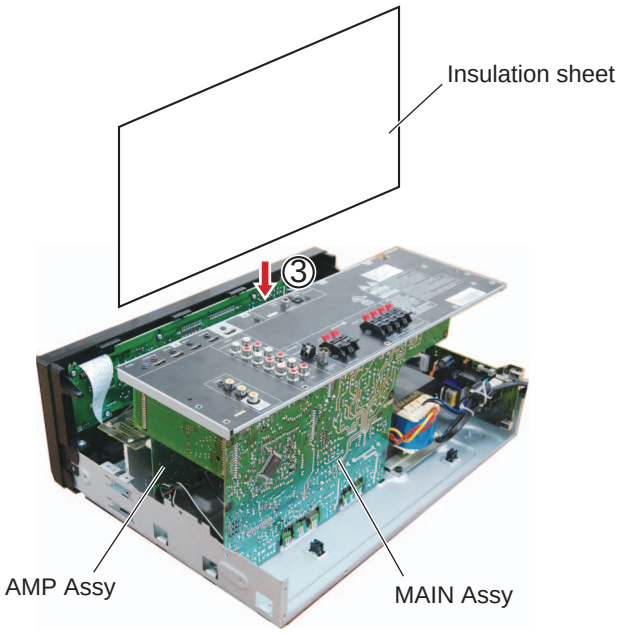


[4-4] Diagnosis

(1) Remove the one screw and remove the earth lead jumper. (BBZ30P080FTC)
(2) Reassemble the earth lead jumper.

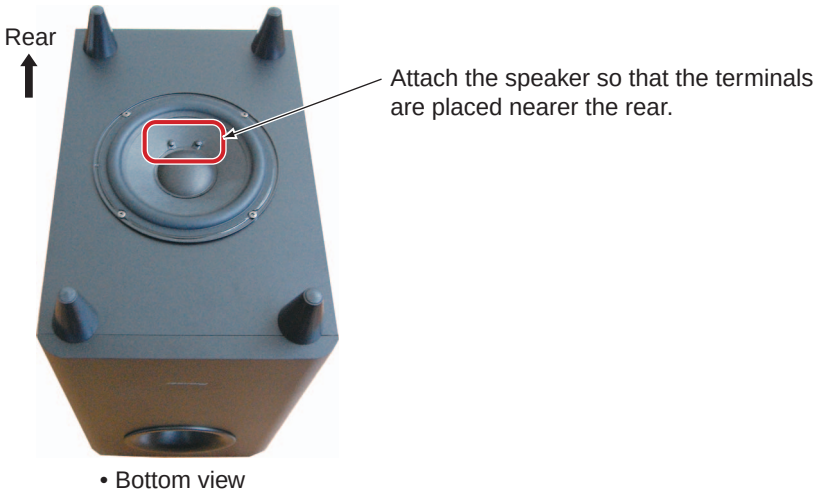


(3) Insert any insulation sheet between AMP Assy and MAIN Assy.



7.2 S-22W-P

Orientation of the Speaker during Attachment



• Bottom view

7.3 S-11-P

Removing the FRONT / SURROUND SPEAKER

1. Remove the four screws.
2. Press on the grille bottom with both thumbs and slide it in frontward direction of the speaker while pressing with sufficient force. (Fig.1)
3. Press on the grille bottom with both thumbs and slide it in frontward direction of the speaker while pressing with sufficient force. (Fig.2)
4. Disconnect the cable, and then remove the speaker unit.

Note: When attaching speaker unit, face its terminal leftward.

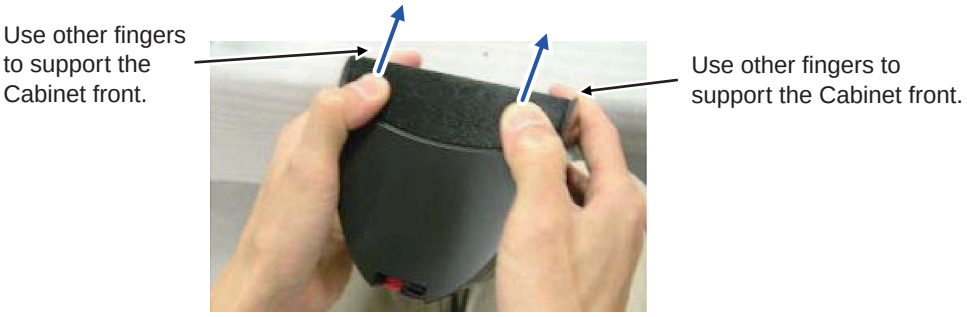


Fig.1

Fig.2

Removing the CENTER SPEAKER

1. Remove the eight screws.
2. Press on the side of the grille with both thumbs and slide it in frontward direction of the speaker while pressing with sufficient force. (Fig.3)
3. Similar procedures for the sides of the opposite end.
4. Disconnect the cable, and then remove the speaker unit.

Note: When attaching speaker unit, face its terminal leftward.

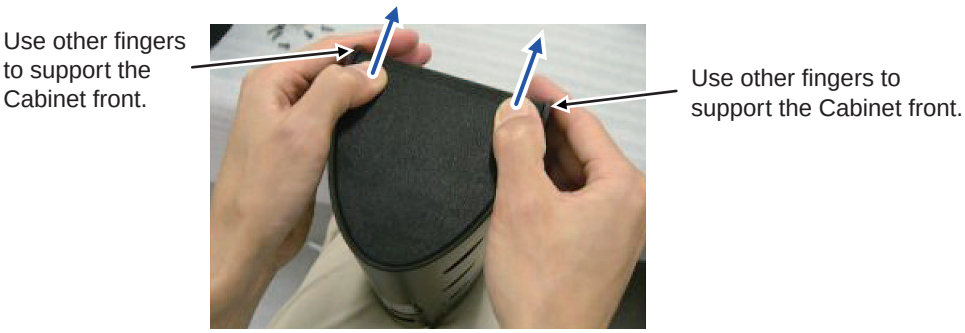


Fig.3

8. EACH SETTING AND ADJUSTMENT
8.1 UPDATING OF THE FIRMWARE

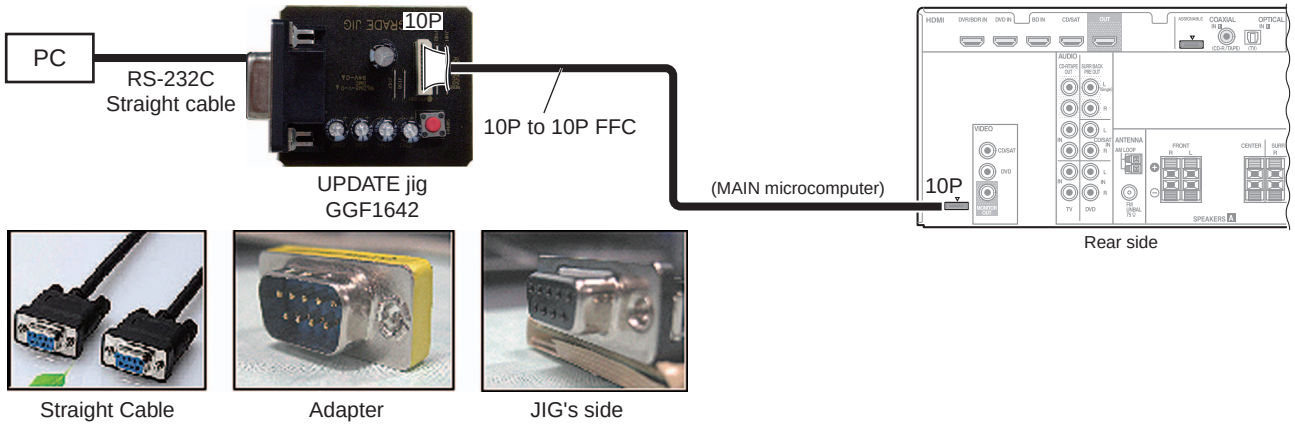
[Purpose]

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

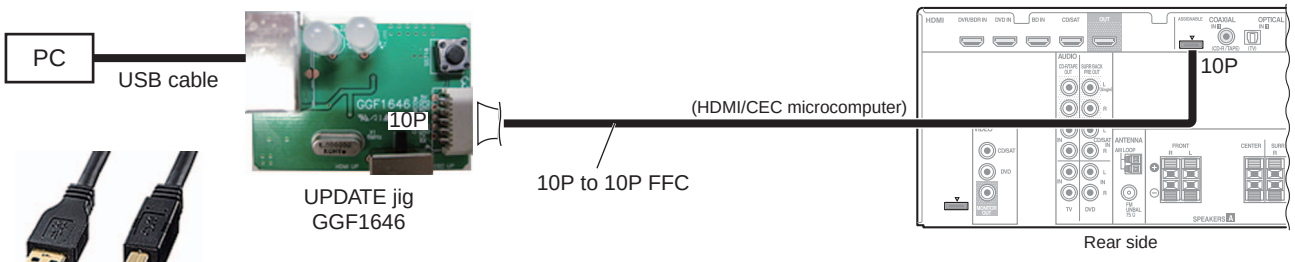
2. Install the driver.
   Request the driver at the time of the conectting the Upgrade Jig and the PC with the USB cable.
   Install the Driver (CDM20812).

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.

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



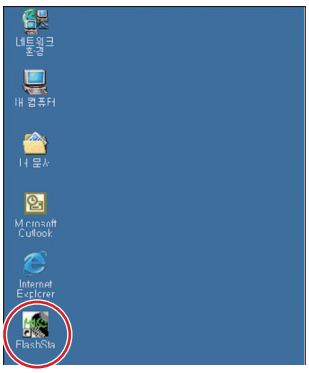
USB cable
A type <-> B type

Microcomputers update

[Procedures]

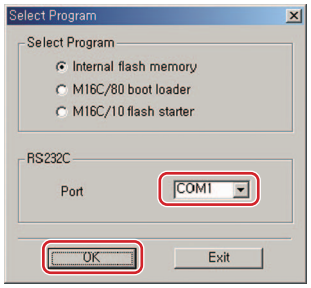
■ for MAIN microcomputer

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.

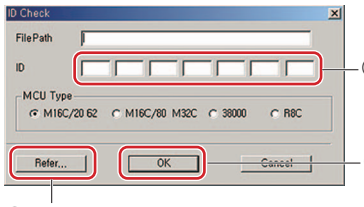


Select for COM port.

[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.

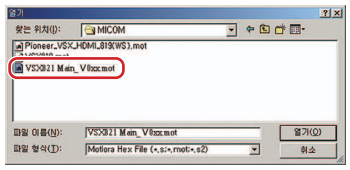


② Enter ID.
Enter "ff" in all field.

③ Press OK button to go to next step.

① Selection of upgrade file

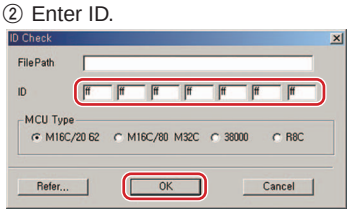
① Select the update file



Select "VSX321 Main V1xx.mot" file to update the MCU.

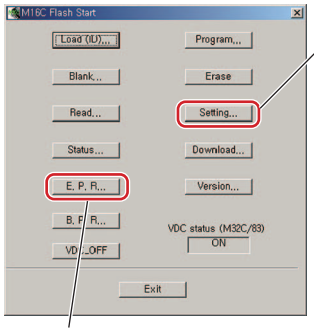
Press the OK button.

② Enter ID.



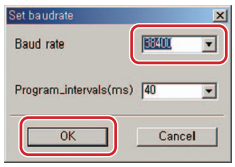
Press the OK button.

5. Set speed update and update the MCU.



① Set speed of update.

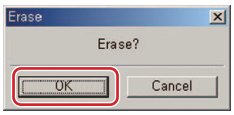
① Set speed of update.
Set Baud rate to 38400.



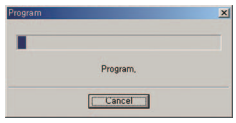
Press the OK button.

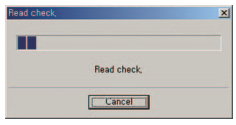
② Update the MCU.
E.P.R=>Erase+Program+Read

② Update the MCU
Press the E.P.R … button

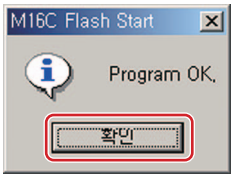


Press OK button.

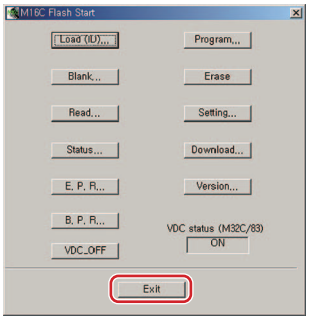




6. Update Finished MAIN microcomputer.



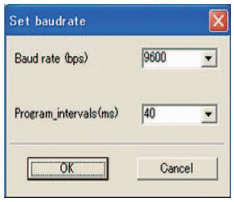
Press the OK button.



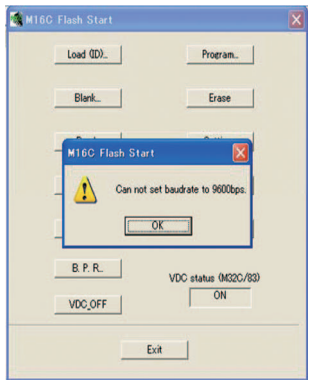
Press the Exit button.
Please wait for until this window disappears.

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

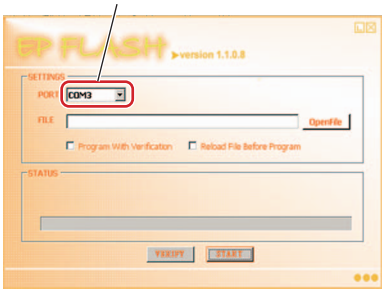


7. Unplug the AC cord.
Disconnect the FFC cable.

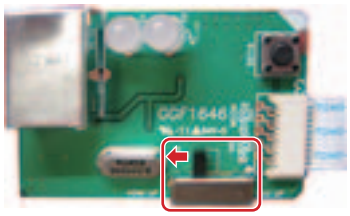
■ for HDMI (SUB) microcomputer

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.

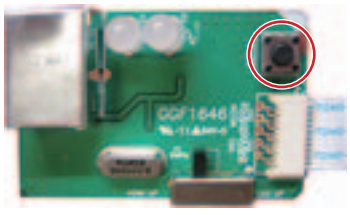


9. Select "HDMI UP" on the Upgrade Jig.

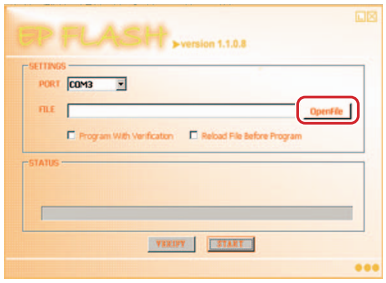


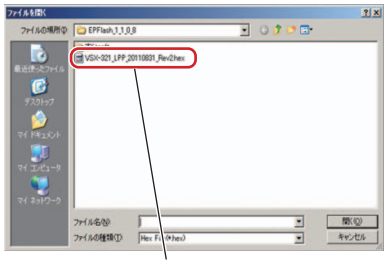
Connect the PC and the Upgrade Jig.
Connect the FFC cable. (HDMI microcomputer)
Plug the AC cord. (STANDBY mode)

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



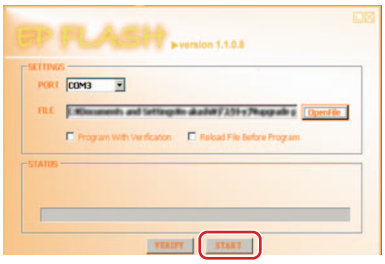
11. Select the update file. Press the "OpenFile" button.

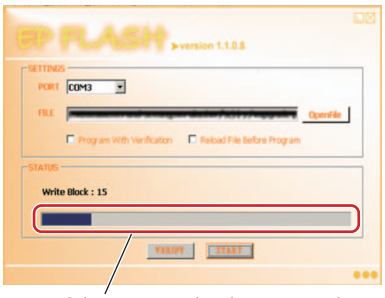




Select "VSX-321_LPP_********.hex" file to update MCU.

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

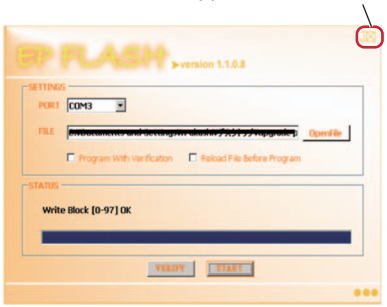




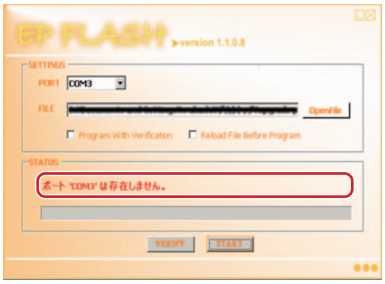
Rate of the progression is appeared.

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.



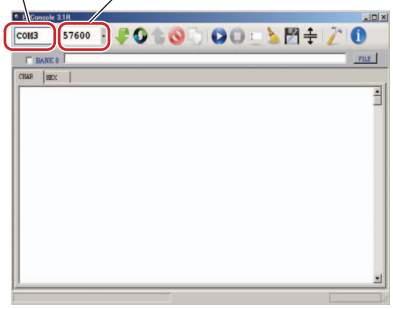
14. Turn the unit off (STANDBY mode) and unplug the AC cord.
Disconnect the FFC cable.

■ for CEC microcomputer

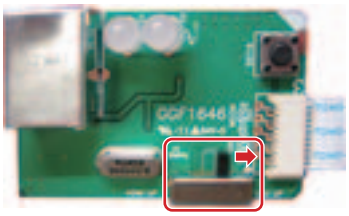
15. Unplug the AC cord.
Start up the application EPConsole on the PC.

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

Set Baud rate to 57600.

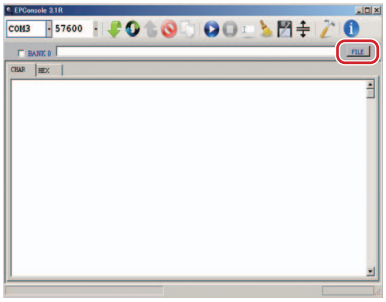


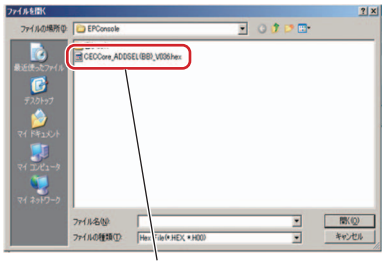
16. Select "CEC UP" on the Upgrade Jig.



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

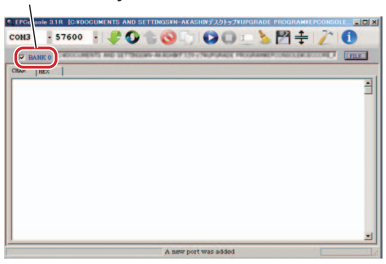
17. Select the update file. Press the "FILE" button.



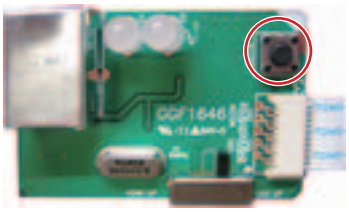


Select "CECCore_ADDSEL(BB)_V***.hex" file to update MCU.

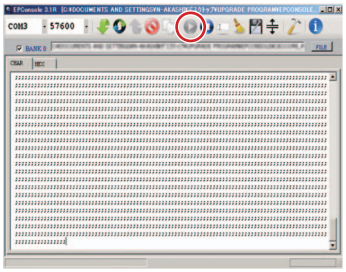
When the update file is selecting, the check box is automatically on.



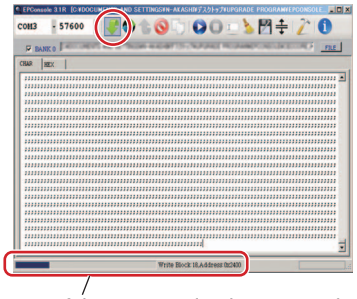
18. While holding down the tact switch of the Upgrade Jig, press STANDBY/ON button.
After 2 or 3seconds, release the tact switch button.



19. Press the button.

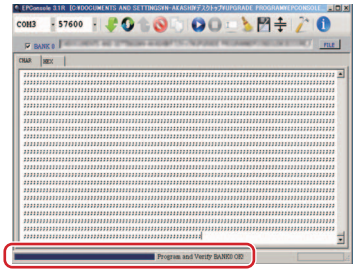


20. Press the button to update the firmware.

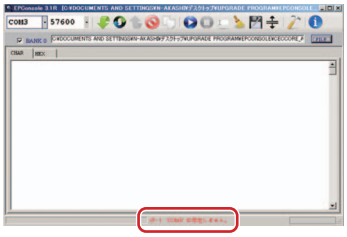


Rate of the progression is appeared.

21. Update Finished CEC microcomputer.



If the following messages are displayed, shut the update program down, and start the update again from step 19.



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

■ Check to the software virsion 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:

MAIN Ucom / MAIN Xx.xx → "ENTER" → SUB Ucom / SUB zzz.zz → "ENTER" → CEC / CEC Vy,yy → "ENTER" → DSP Ucom → "ENTER" → All segments lit.

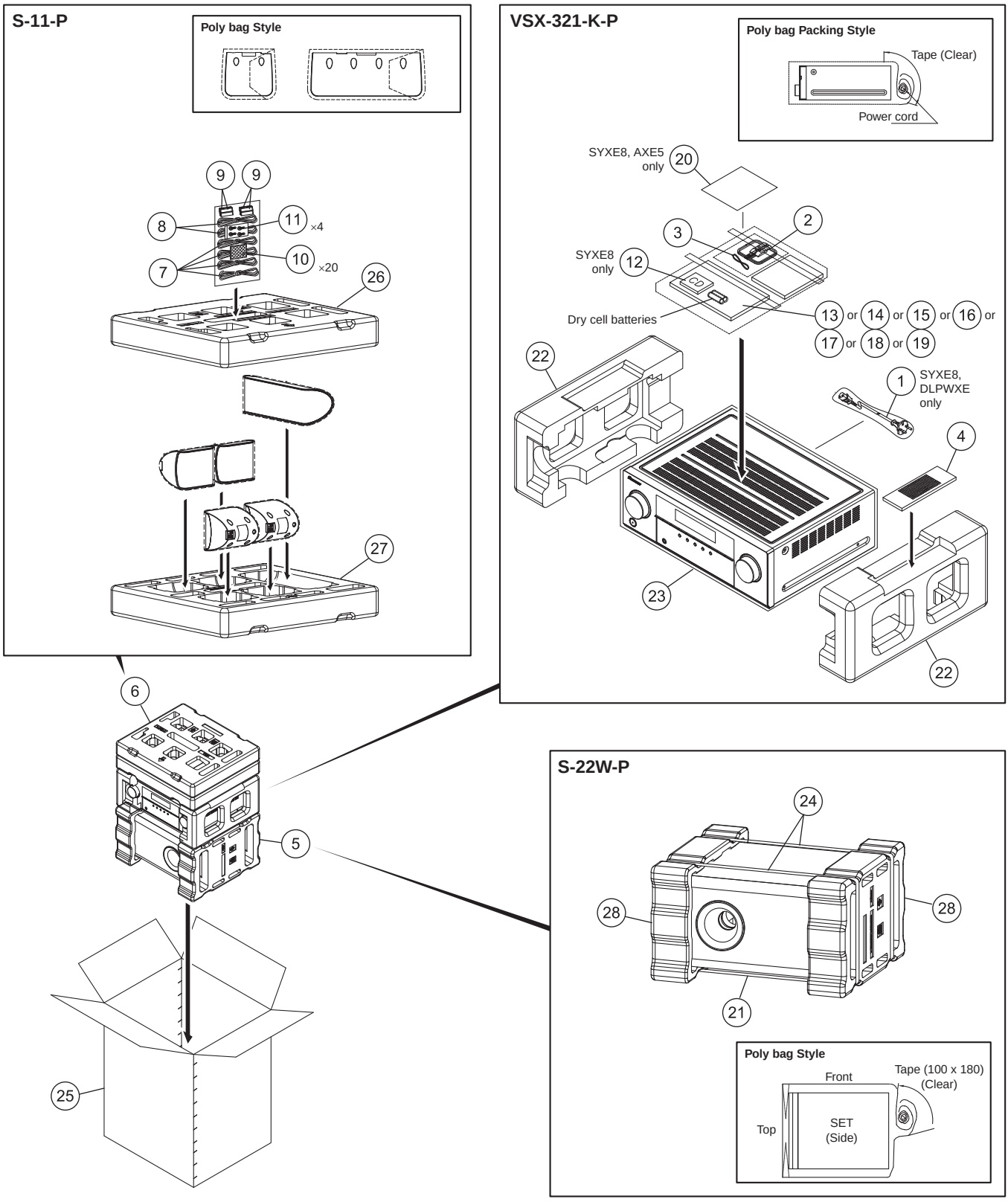
"ENTER"

24. Turn the unit off.

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



(1) PACKING SECTION PARTS LIST

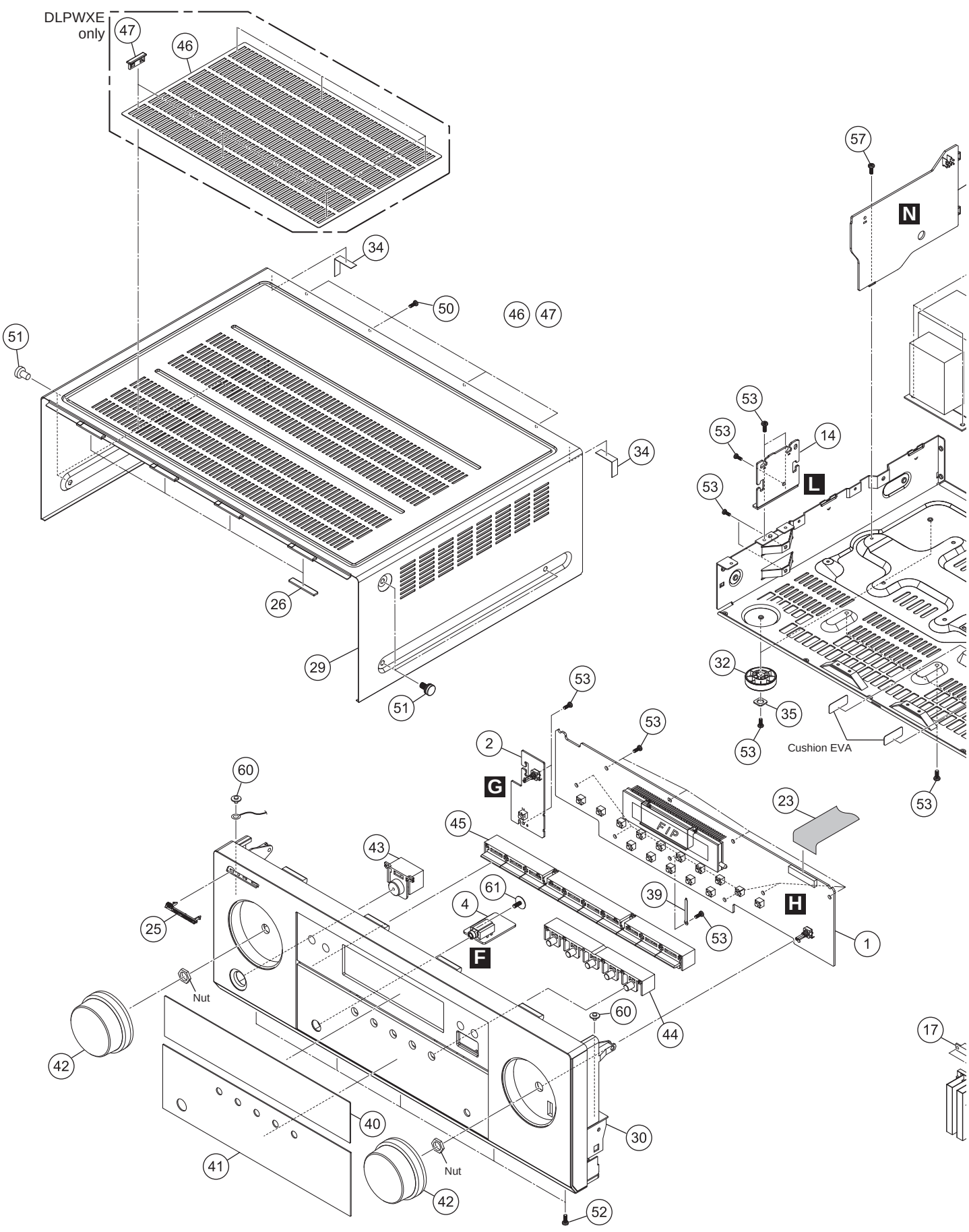
Mark	No.	Description	Part No.
	1	Power Cord	See Contrast table (2)
	2	AM Loop Antenna	E601019000010-IL
	3	FM Wire Antenna	E605010140010-IL
	4	Remote Control (AXD7618)	8300761800010-IL
	5	S-22W Total Assy	See Contrast table (2)
	6	S-11-P Total Assy	See Contrast table (2)
	7	Speaker Cord (4 m)	8952S11005480-IL
	8	Speaker Cord (10 m)	8952S11005490-IL
	9	Brackets for Wall Mounting	8952S11005500-IL
	10	Non-Skid Pads	8952S11005510-IL
	11	Screw (M5)	8952S11005520-IL
	12	Operating Instructions (CD-ROM)	See Contrast table (2)
	13	Operating Instructions	See Contrast table (2)
	14	Operating Instructions	See Contrast table (2)
	15	Operating Instructions	See Contrast table (2)
	16	Operating Instructions	See Contrast table (2)
	17	Operating Instructions	See Contrast table (2)
	18	Operating Instructions	See Contrast table (2)
	19	Operating Instructions	See Contrast table (2)
NSP	20	Warranty Card EU	See Contrast table (2)
	21	Poly-Bag (Set)	8952S21W05180-IL
	22	Cushion, Snow	6230212914000-IL
	23	PE, Sheet	6327040059000-IL
	24	Band Packing	8952SHM700046-IL
	25	Box, Gift	See Contrast table (2)
	26	Packing Top S-11-P	8952S11005541-IL
	27	Packing Top S-11-P	8952S11005542-IL
	28	Packing S-22W-P	8952S22W05191-IL

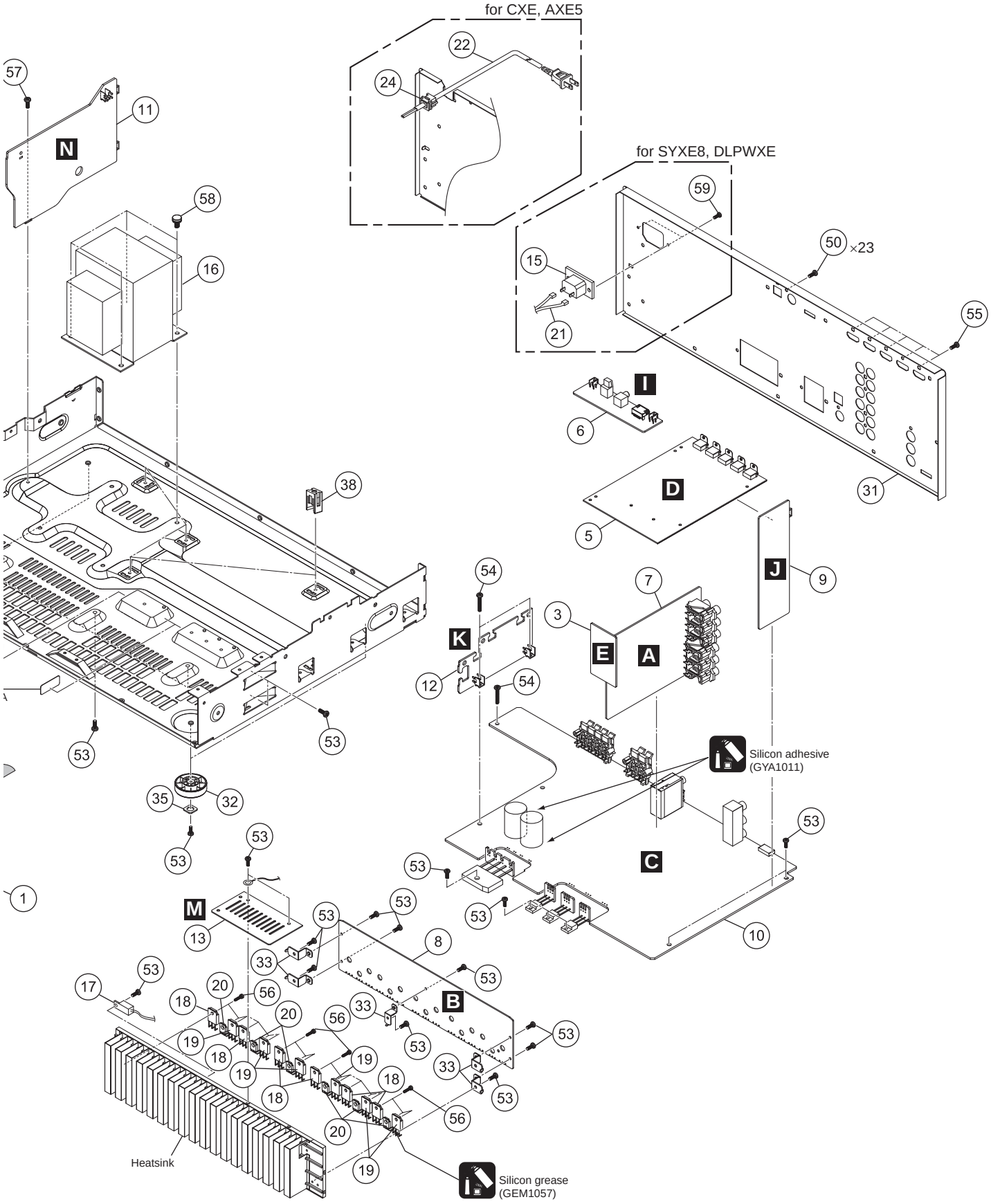
(2) CONTRAST TABLE

HTP-071/SYXE8, CXE, DLPWXE and AXE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	HTP-071 /SYXE8	HTP-071 /CXE	HTP-071 /DLPWXE	HTP-071 /AXE5
	1	Power Cord	L068250160020-IL	Not used	L068250100080-IL	Not used
	5	S-22W Total Assy	8952S22W00001-IL	8952S22W00001-IL	8952S22W00001-IL	8952S22W00101-IL
	6	S-11-P Total Assy	8952S11005011-IL	8952S11005011-IL	8952S11005011-IL	8952S11005012-IL
	12	Operating Instructions (CD-ROM)	6517000000440-IL	Not used	Not used	Not used
	13	Operating Instructions (En/Fr/De/It/Du/Es/Ru)	5707000006110-IL	Not used	Not used	Not used
	14	Operating Instructions (En/Fr)	Not used	5707000006100-IL	Not used	Not used
	15	Operating Instructions (En/Zhtw)	Not used	Not used	5707000006090-IL	Not used
	16	Operating Instructions (Zhcn)	Not used	Not used	Not used	5707000006080-IL
	17	Operating Instructions (En/Fr)	Not used	5707000006210-IL	Not used	Not used
	18	Operating Instructions (En/Zhtw)	Not used	Not used	5707000006220-IL	Not used
	19	Operating Instructions (Zhcn)	Not used	Not used	Not used	5707000006230-IL
NSP	20	Warranty Card EU	ARY7127	Not used	Not used	ARY7137
	25	Box, Gift	6007211970030-IL	6007211970020-IL	6007211970010-IL	6007211970000-IL

9.2 VSX-321-K-P SECTION




for CXE, AXE5
for SYXE8, DLPWXE
×23
Silicon adhesive
(GYA1011)
Silicon grease
(GEM1057)
Heatsink

(1) VSX-321-K-P SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FRONT Assy	7028071131010-IL
	2	FUNCT Assy	7028071132010-IL
	3	BR1 Assy	7028071133010-IL
	4	HP Assy	7028071134010-IL
	5	D-MAIN Assy	7028071161010-IL
	6	DG Assy	7028071111010-IL
	7	INPUT Assy	7028071112010-IL
	8	AMP Assy	7028071141010-IL
	9	CNT Assy	7028071151010-IL
	10	MAIN Assy	See Contrast table (2)
	11	STBY Assy	See Contrast table (2)
	12	G-T Assy	7028071123010-IL
	13	G-H Assy	7028071124010-IL
	14	G-L Assy	7028071125010-IL
	15	Socket, Power AC	See Contrast table (2)
⚠	16	Power Trans.	See Contrast table (2)
	17	Posistor	F320301022240-IL
⚠	18	Transistor	J5011560P0000-IL
⚠	19	Transistor	J5032390P0000-IL
⚠	20	Transistor	J5032390Y0000-IL
⚠	21	CN, Wire	See Contrast table (2)
	22	Cord Assy	See Contrast table (2)
	23	Cable, Flat Card 1.25	N712272713480-IL
	24	Stopper	See Contrast table (2)
	25	Pioneer Badge B (PLS)	XAM3006
	26	Sheet	1210210235000-IL
	27	• • • • •	
	28	• • • • •	
	29	Cabinet	See Contrast table (2)
	30	Front Panel	See Contrast table (2)

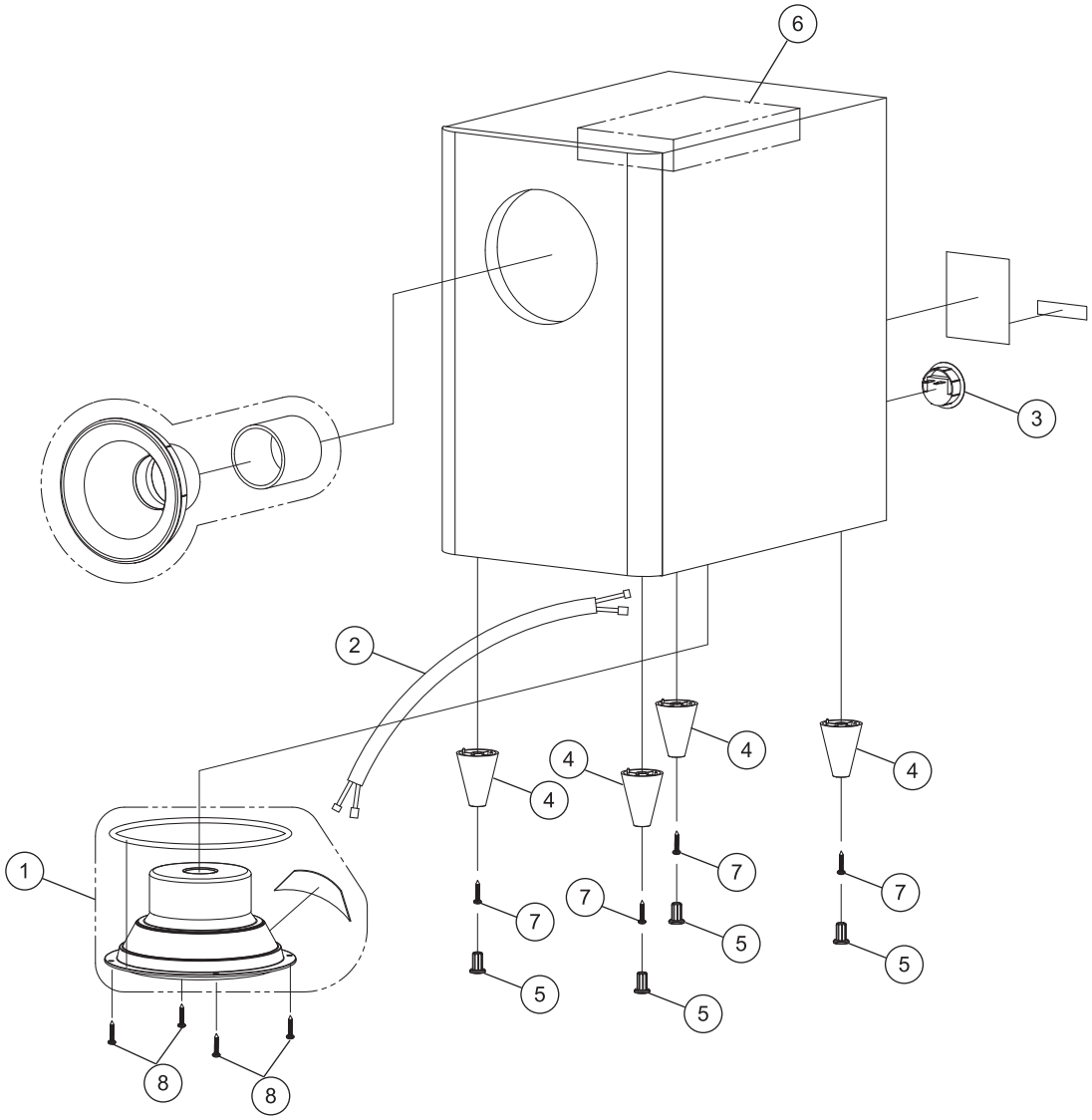
Mark	No.	Description	Part No.
	31	Chassis Back	See Contrast table (2)
	32	Foot (PLS)	4000210391000-IL
	33	Bracket	4010056906010-IL
	34	Cushion	4050211385000-IL
	35	Cushion	4050211605000-IL
	36	• • • • •	
	37	• • • • •	
	38	Support	4070001601010-IL
	39	Clamp MTG	4330000310000-IL
	40	Window Display 421U	5077213113000-IL
	41	Window Display 321L	5077213123200-IL
	42	Knob	5080212431000-IL
	43	Button	5090213741100-IL
	44	5 Key Button	5090214561000-IL
	45	10 Key Button	5090214571000-IL
	46	Cover	See Contrast table (2)
	47	Cover	See Contrast table (2)
	48	• • • • •	
	49	• • • • •	
	50	Screw	BBT30P100FTB
	51	Screw	BBT40P080FTB
	52	Screw	BBZ30P080FTB
	53	Screw	BBZ30P080FTC
	54	Screw	BBZ30P180FTC
	55	Screw	BSZ30P040FTB
	56	Screw Tapping Assy	B018230141H11-IL
	57	Screw, Tap Tite	B020230063B10-IL
	58	Screw	B028940101B11-IL
	59	Screw	See Contrast table (2)
	60	Screw	1500001206010-IL
	61	Screw	1500001456010-IL

(2) CONTRAST TABLE

VSX-321-K-P/SYXE8, CXE, DLPWXE and AXE5 are constructed the same except for the following:

Mark	No.	Symbol and Description	VSX-321-K-P /SYXE8	VSX-321-K-P /CXE	VSX-321-K-P /DLPWXE	VSX-321-K-P /AXE5
	10	MAIN Assy	7028071121040-IL	7028071121030-IL	7028071121020-IL	7028071121010-IL
	11	STBY Assy	7028071122040-IL	7028071122030-IL	7028071122020-IL	7028071122010-IL
	15	Socket, Power AC	G430040560021-IL	Not used	G430040560021-IL	Not used
⚠	16	Power Trans.	8200858500320-IL	8200858500340-IL	8200858500320-IL	8200858500330-IL
⚠	21	CN, Wire	L000800020220-IL	Not used	L000800020220-IL	Not used
	22	Cord Assy	Not used	L068125101710-IL	Not used	L068250101710-IL
	24	Stopper	Not used	4380040162010-IL	Not used	4380040162010-IL
	29	Cabinet	3007211846000-IL	3007211846000-IL	3007211846100-IL	3007211846000-IL
	30	Front Panel	3067215081140-IL	3067215081010-IL	3067215081140-IL	3067215081140-IL
	31	Chassis Back	3207214056110-IL	3207214056010-IL	3207214056100-IL	3207214056000-IL
	46	Cover	Not used	Not used	4310212122020-IL	Not used
	47	Cover	Not used	Not used	4310213701000-IL	Not used
	59	Screw	CBZ30P080FTB	Not used	CBZ30P080FTB	Not used

9.3 S-22W-P SECTION

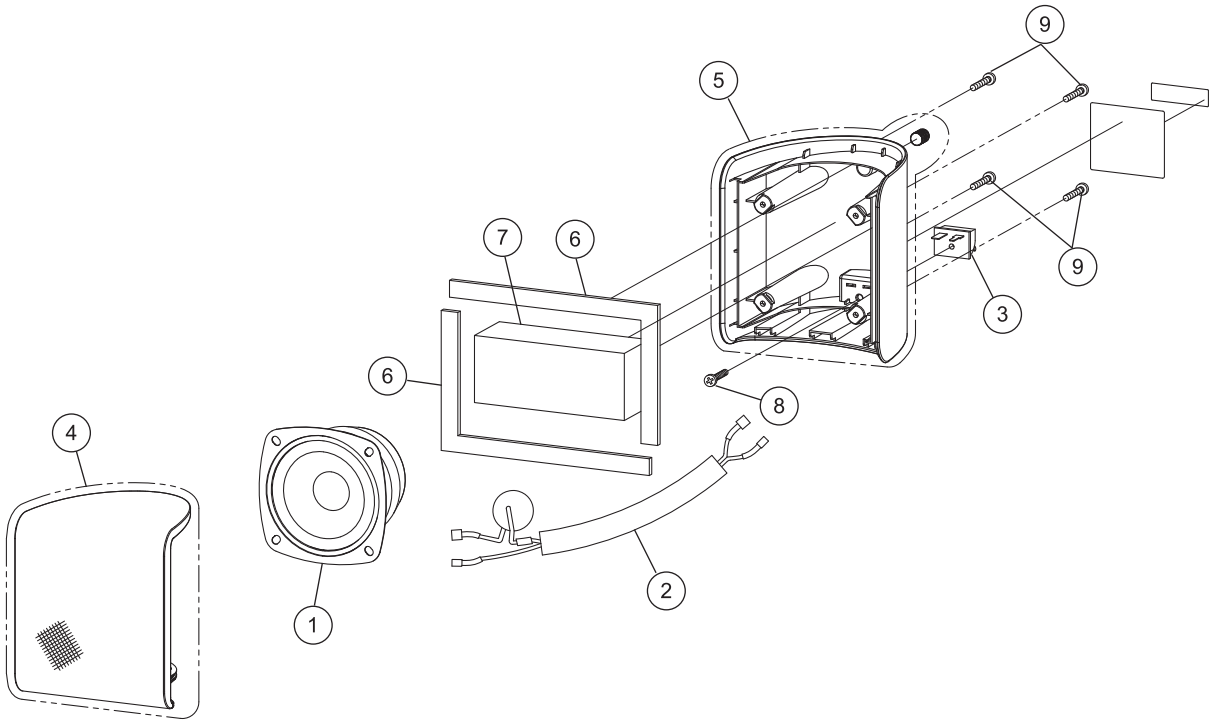


S-22W-P SECTION PARTS LIST

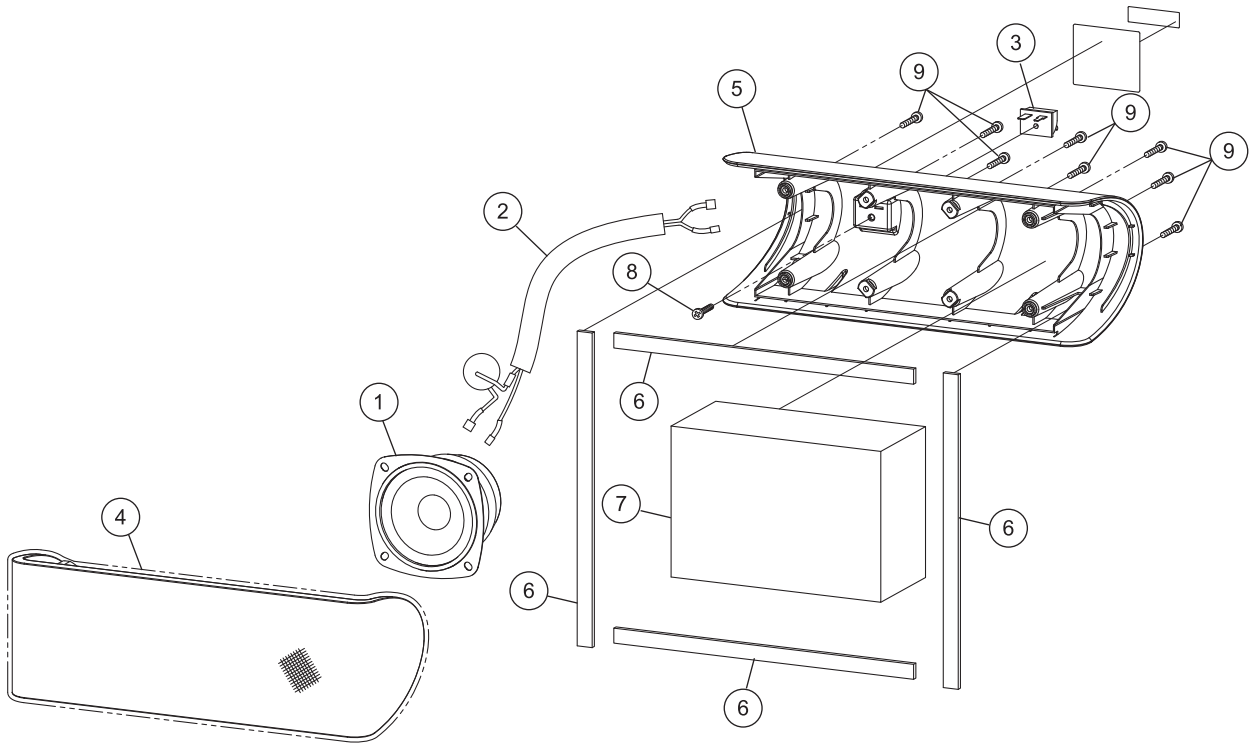
Mark	No.	Description	Part No.
	1	Unit Assy	8952S22W00009-IL
	2	Network Assy	8952S22W00011-IL
	3	Speaker Terminal	8952S22W00004-IL
	4	Foot Mold	8952S22W00007-IL
	5	Foot Cushoin	8952S22W00200-IL
	6	Cashmere	8952S22W00210-IL
	7	Screw (Bind Head)	8952SHM700039-IL
	8	Screw (Bind Head)	8952S21W05381-IL

9.4 S-11-P SECTION

Front L, R, Surround L, R speaker



Center speaker

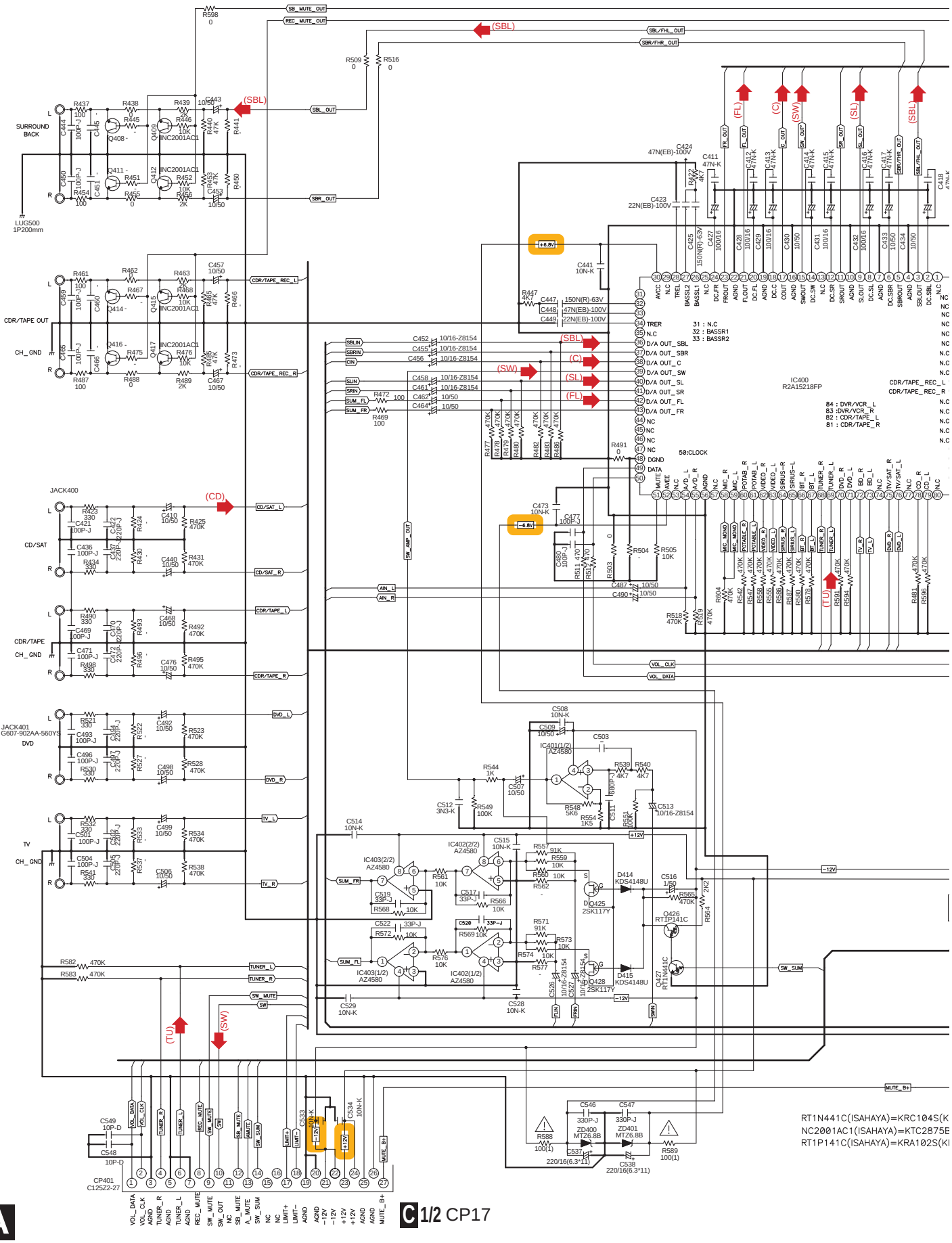


S-11-P SECTION PARTS LIST

Mark	No.	Description	Part No.
Front L, R, Surround L, R speaker			
	1	Unit Speaker (Surround)	8952S11005250-IL
	2	Speaker Wire	8952S11005140-IL
	3	Speaker Terminal	8952S11005100-IL
	4	Frame Net Assy	8952S11005350-IL
	5	Case Rear	8952S11005380-IL
	6	Felt	8952S11005411-IL
	7	Cassimere	8952S11005430-IL
	8	Screw	8952SB3001110-IL
	9	Screw (Bind Head)	8952S11005150-IL
Center speaker			
	1	Unit Speaker (Front)	8952S11005090-IL
	2	Speaker Wire	8952S11005140-IL
	3	Speaker Terminal	8952S11005100-IL
	4	Frame Net Assy	8952S11005030-IL
	5	Case Rear Assy	8952S11005060-IL
	6	Felt	8952S11005411-IL
	7	Cassimere	8952S11005130-IL
	8	Screw	8952SB3001110-IL
	9	Screw (Bind Head)	8952S11005150-IL

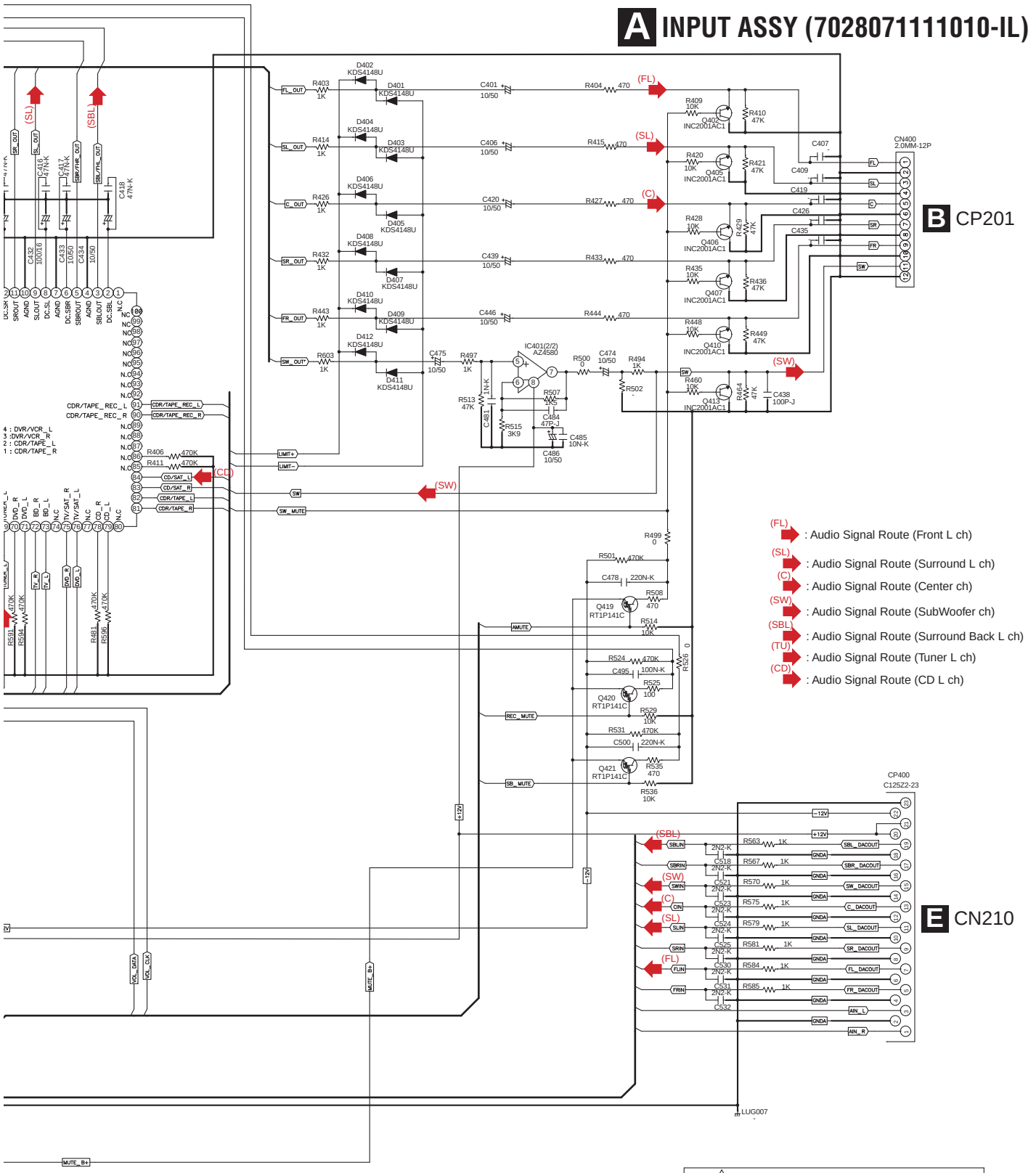
10. SCHEMATIC DIAGRAM

10.1 INPUT ASSY



A C 1/2 CP17

A INPUT ASSY (7028071111010-IL)



41C(ISAHAYA)=KRC104S(KEC)
1AC1(ISAHAYA)=KTC2875B(KEC)
41C(ISAHAYA)=KRA102S(KEC)

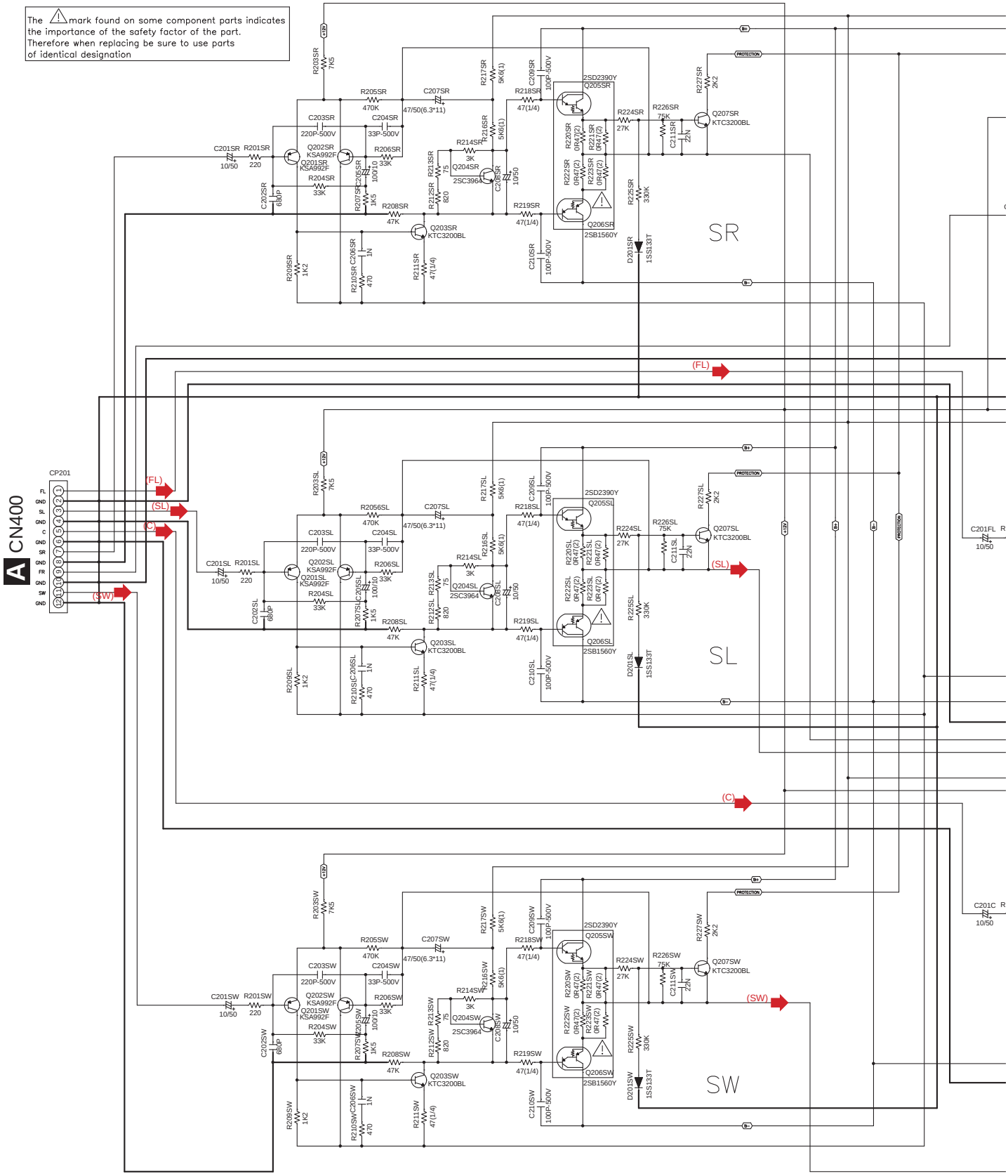
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

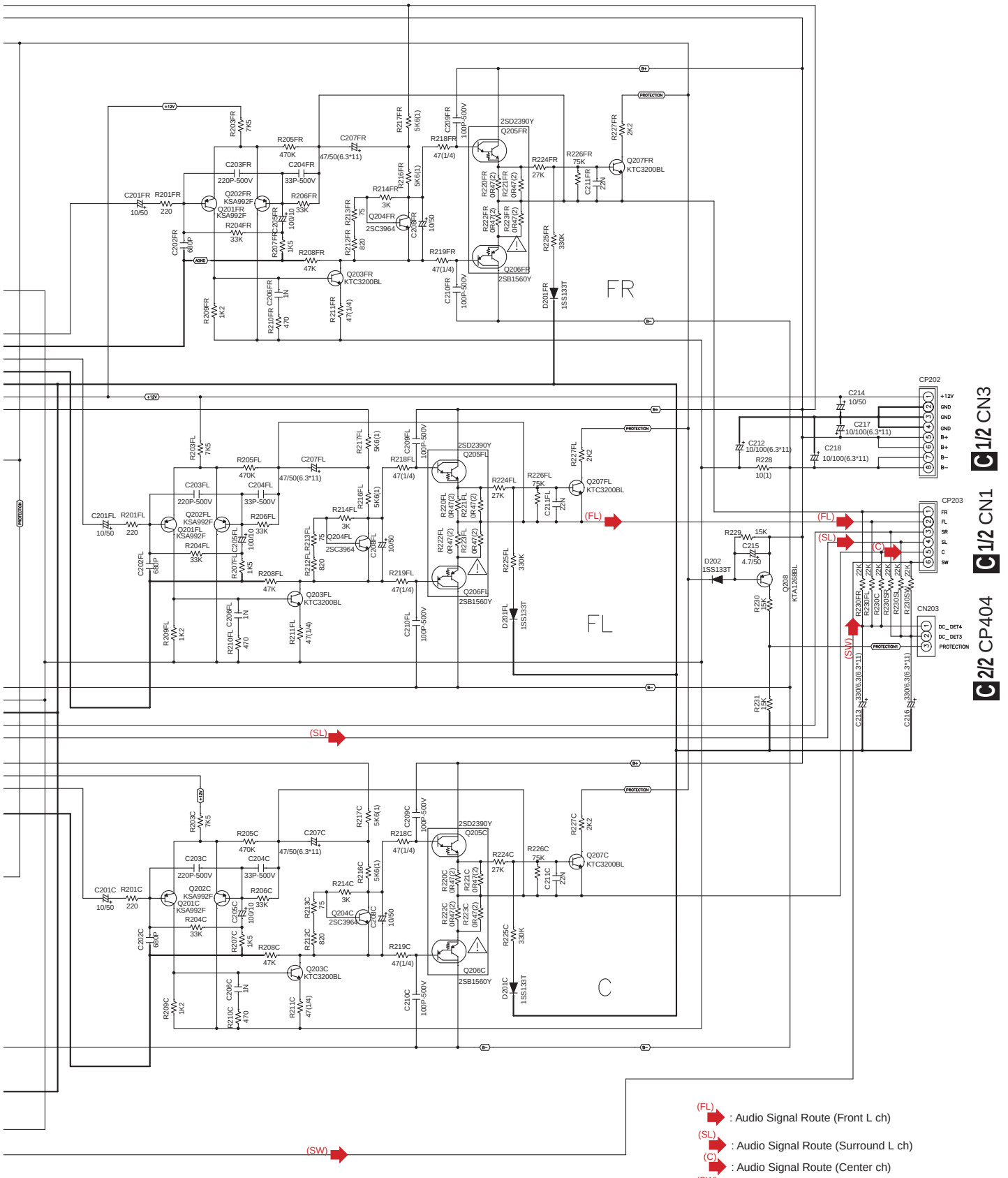
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply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

10.2 AMP ASSY

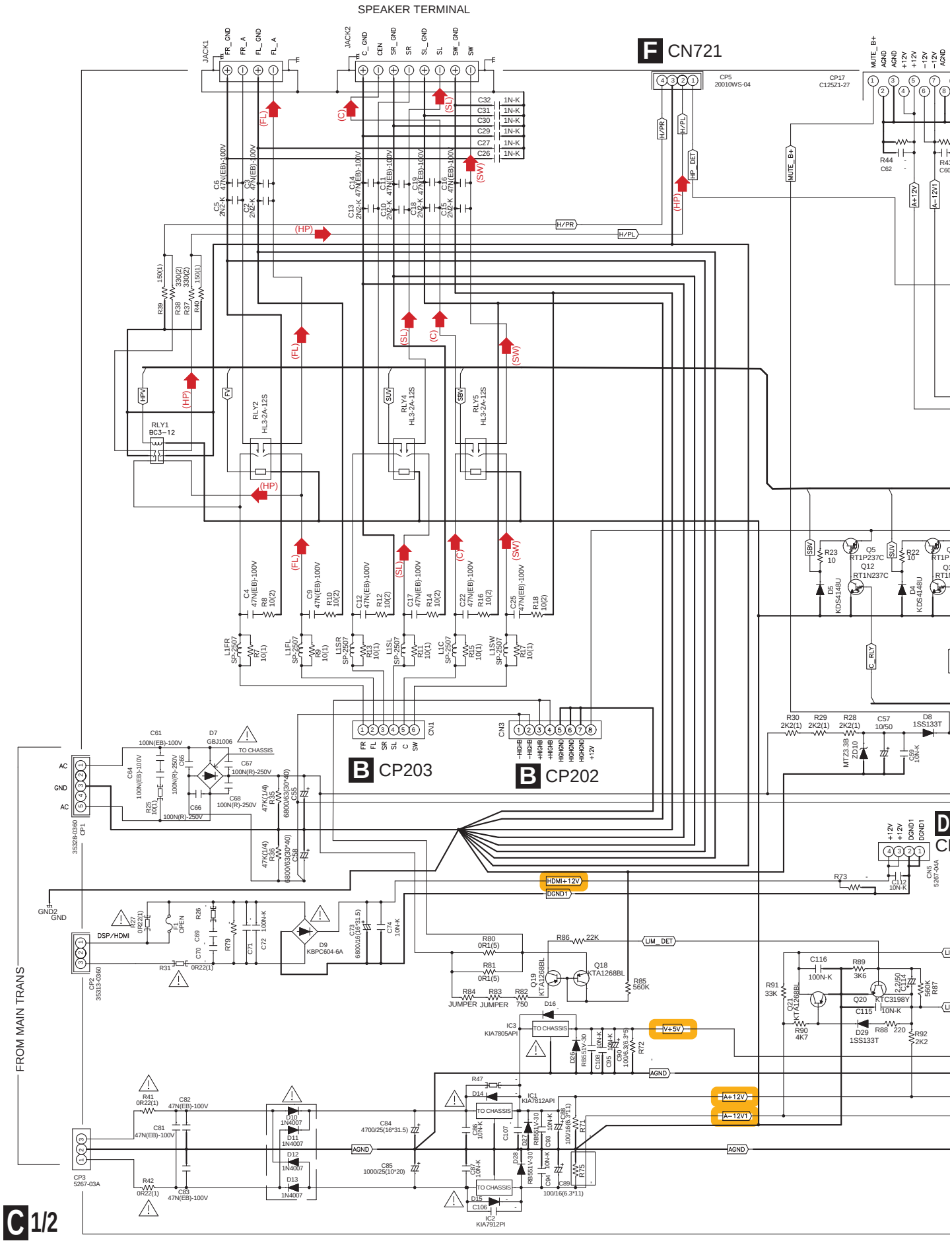
B AMP ASSY (7028071141010-IL)

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



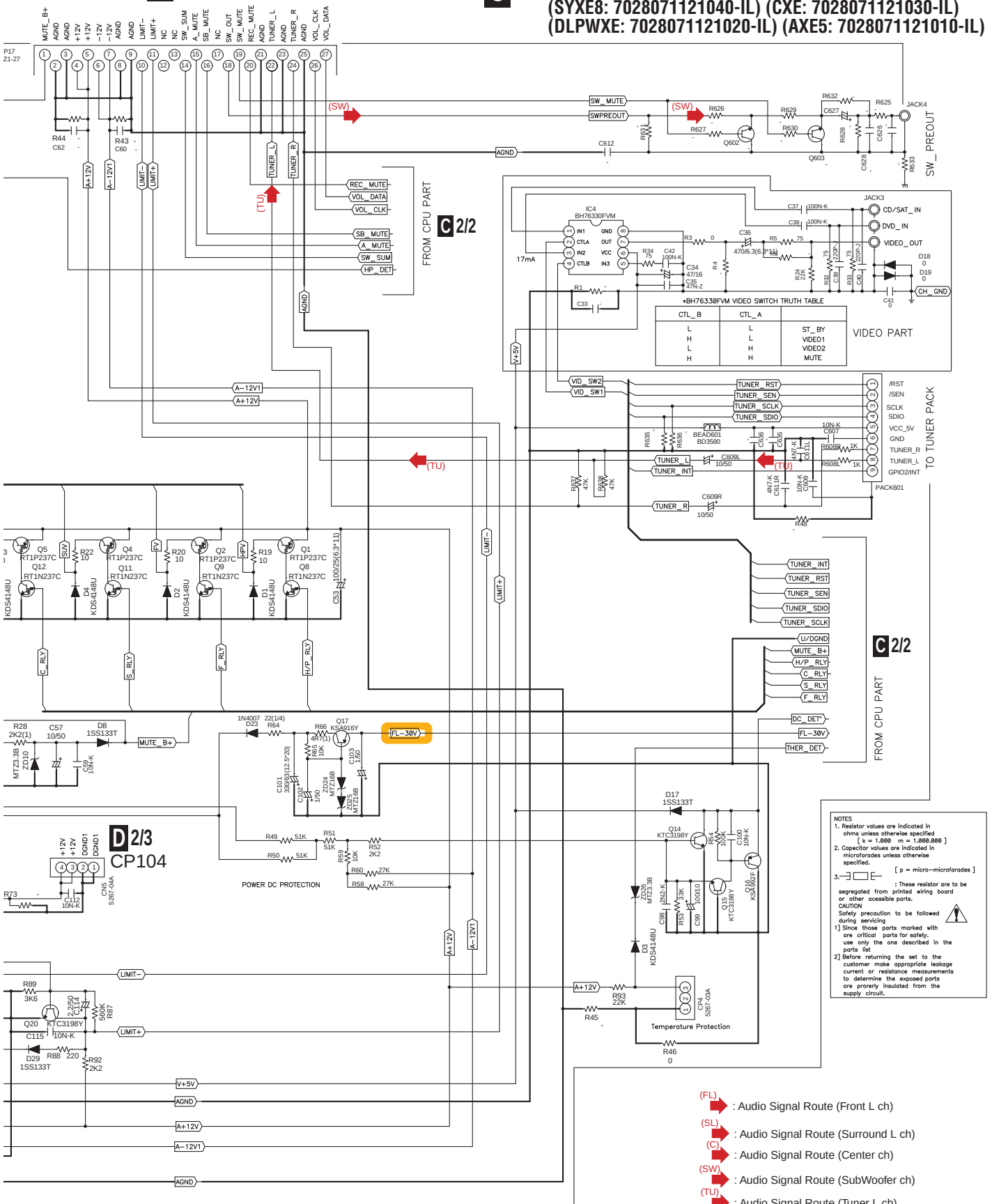

FR
FL
C
CP202
CP203
CN203
C1/2 CN3
C1/2 CN1
C2/2 CP404
(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)

10.3 MAIN ASSY (1/2)



A CP401

C 1/2 MAIN ASSY (MAIN BLOCK)
(SYXE8: 7028071121040-IL) (CXE: 7028071121030-IL)
(DLPWXE: 7028071121020-IL) (AXE5: 7028071121010-IL)

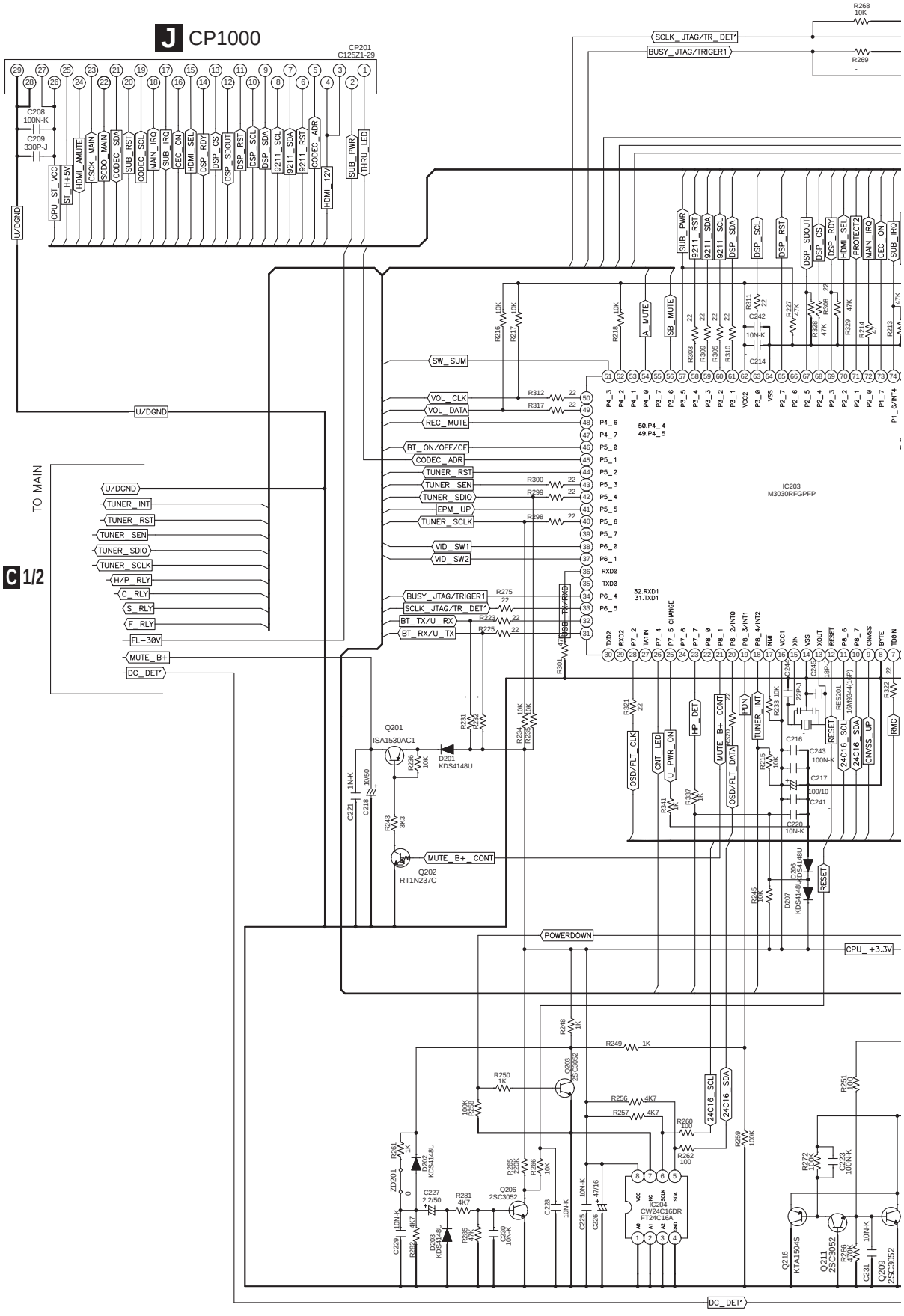


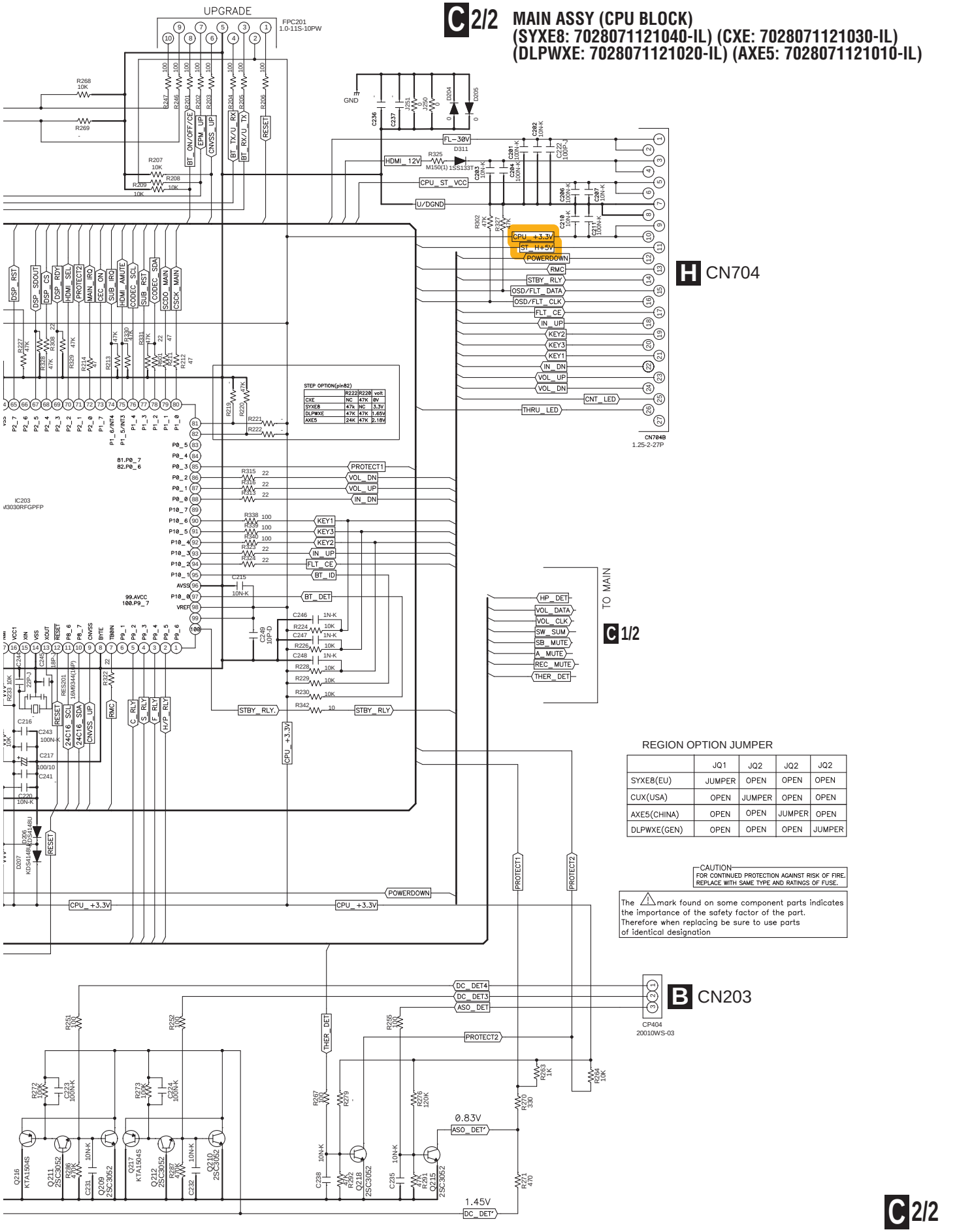
NOTES
1. Resistor values are indicated in ohms unless otherwise specified [k = 1.000 m = 1.000.000]
2. Capacitor values are indicated in microfarades unless otherwise specified. [p = micro−microfarades]
3. : These resistor are to be segregated from printed wiring board or other accessible parts.
CAUTION
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.

(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)
(TU) : Audio Signal Route (Tuner L ch)
(HP) : Audio Signal Route (Headphone L ch)

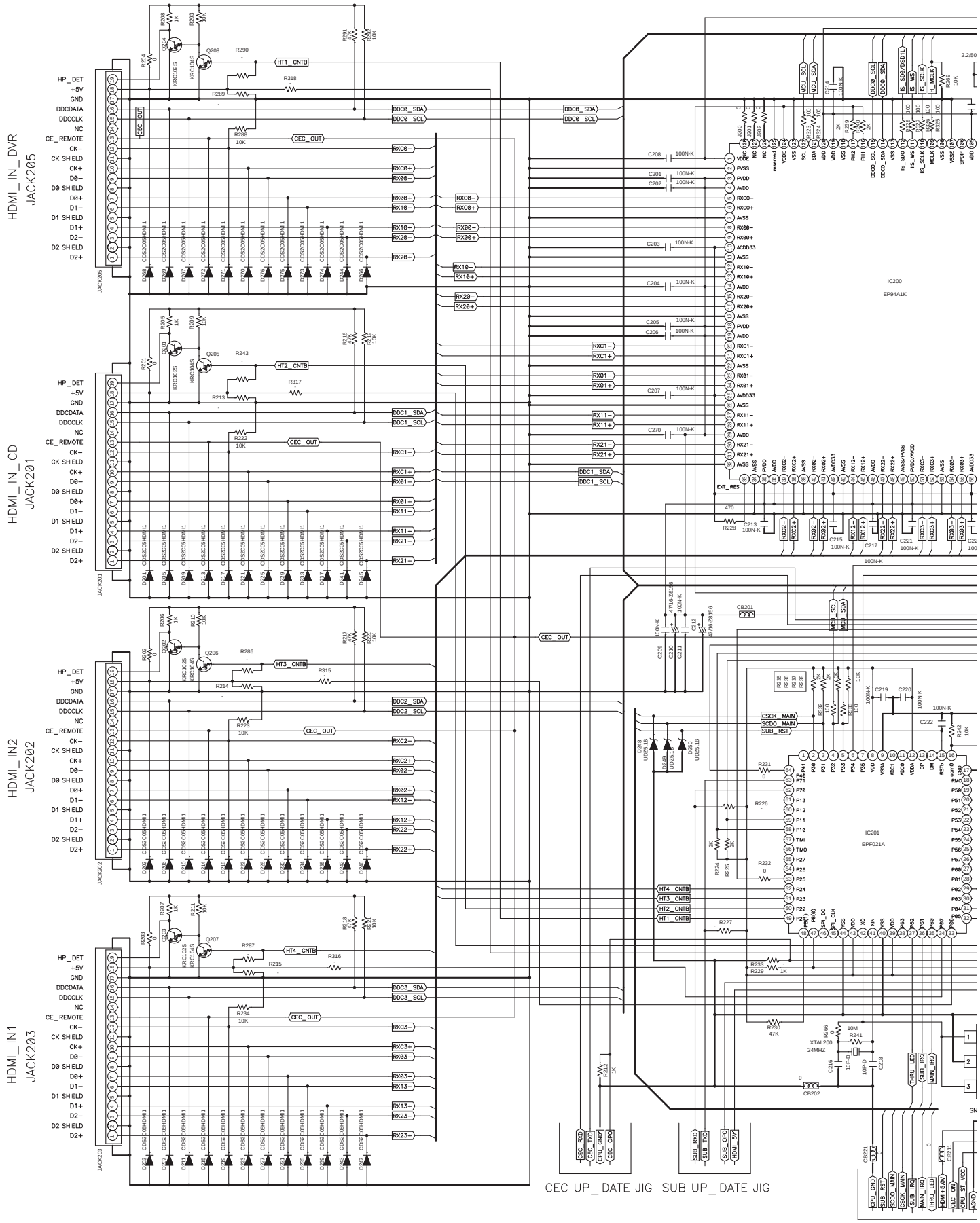
C 1/2

10.4 MAIN ASSY (2/2)




UPGRADE
FPC201
1.0-11S-10PW
H CN704
CN704B
1.25-2-27P
B CN203
CP404
20010WS-03
TO MAIN
C 1/2
IC203
STEP OPTION(pin82)
REGION OPTION JUMPER
JQ1 JQ2 JQ2 JQ2
SYXE8(EU) JUMPER OPEN OPEN OPEN
CUX(USA) OPEN JUMPER OPEN OPEN
AXE5(CHINA) OPEN OPEN JUMPER OPEN
DLPWXE(GEN) OPEN OPEN OPEN JUMPER
CAUTION
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE AND RATINGS OF FUSE.
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
0.83V
1.45V

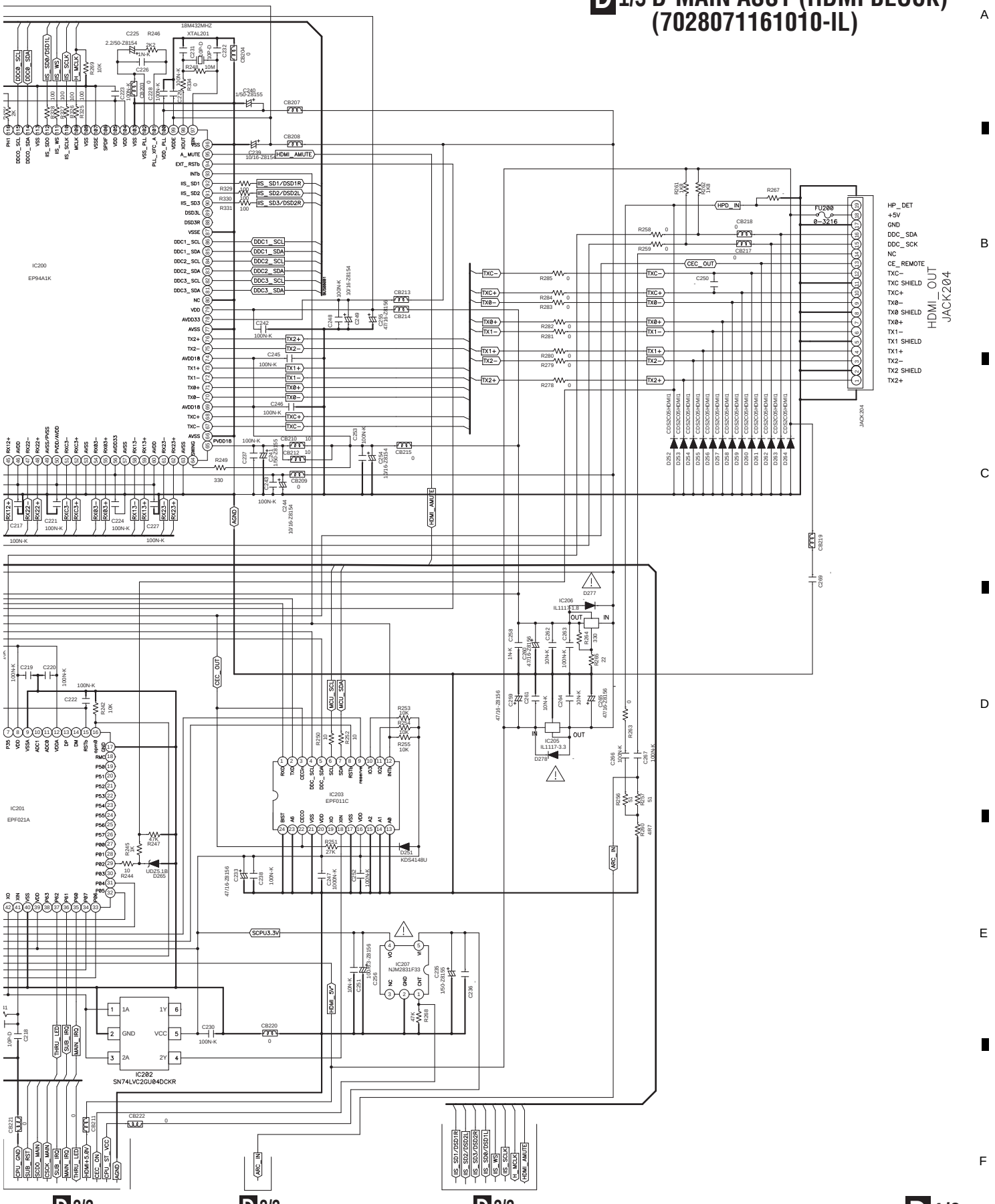
10.5 D-MAIN ASSY (1/3)



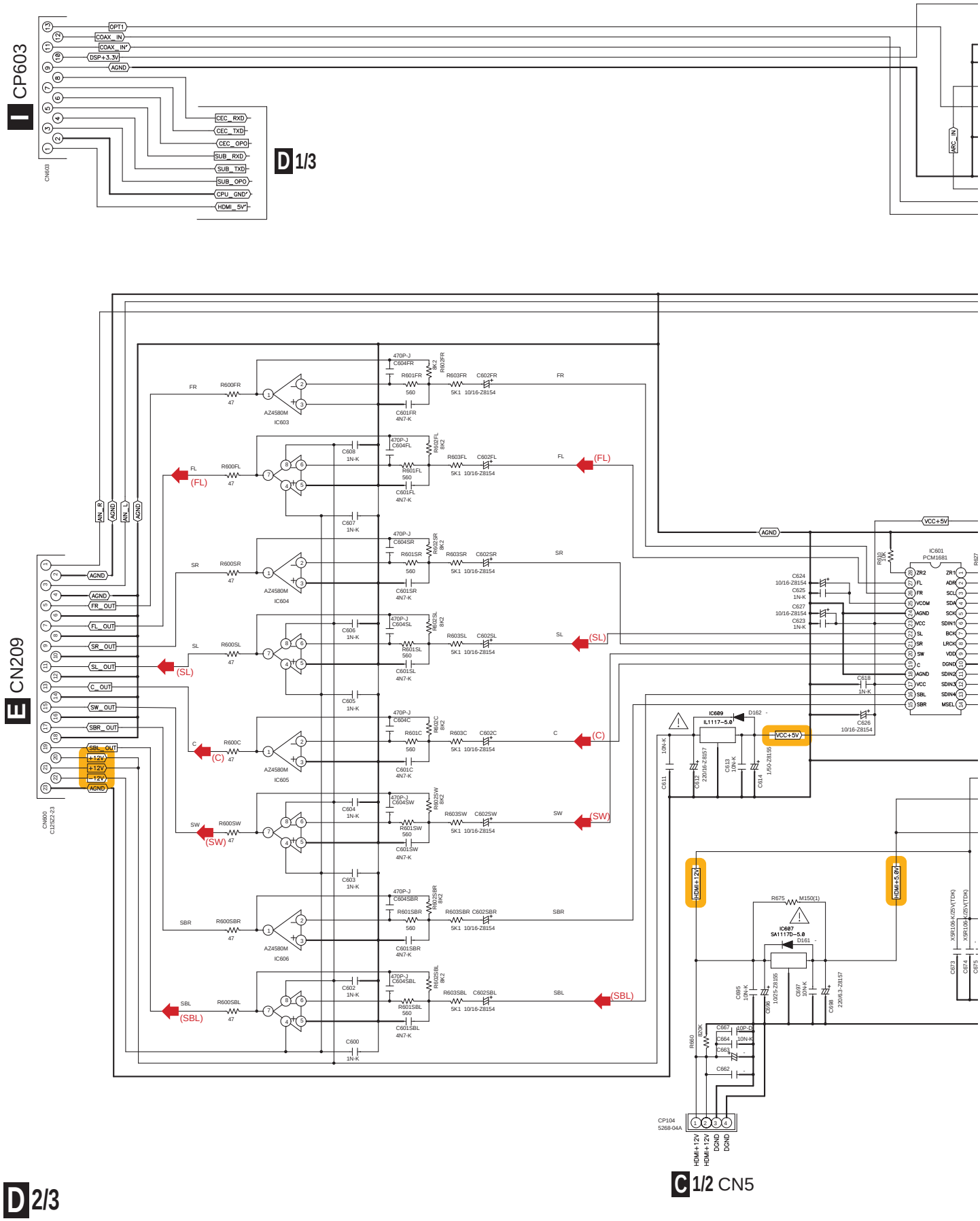
D 1/3

D 2/3

D 1/3 D-MAIN ASSY (HDMI BLOCK) (7028071161010-IL)

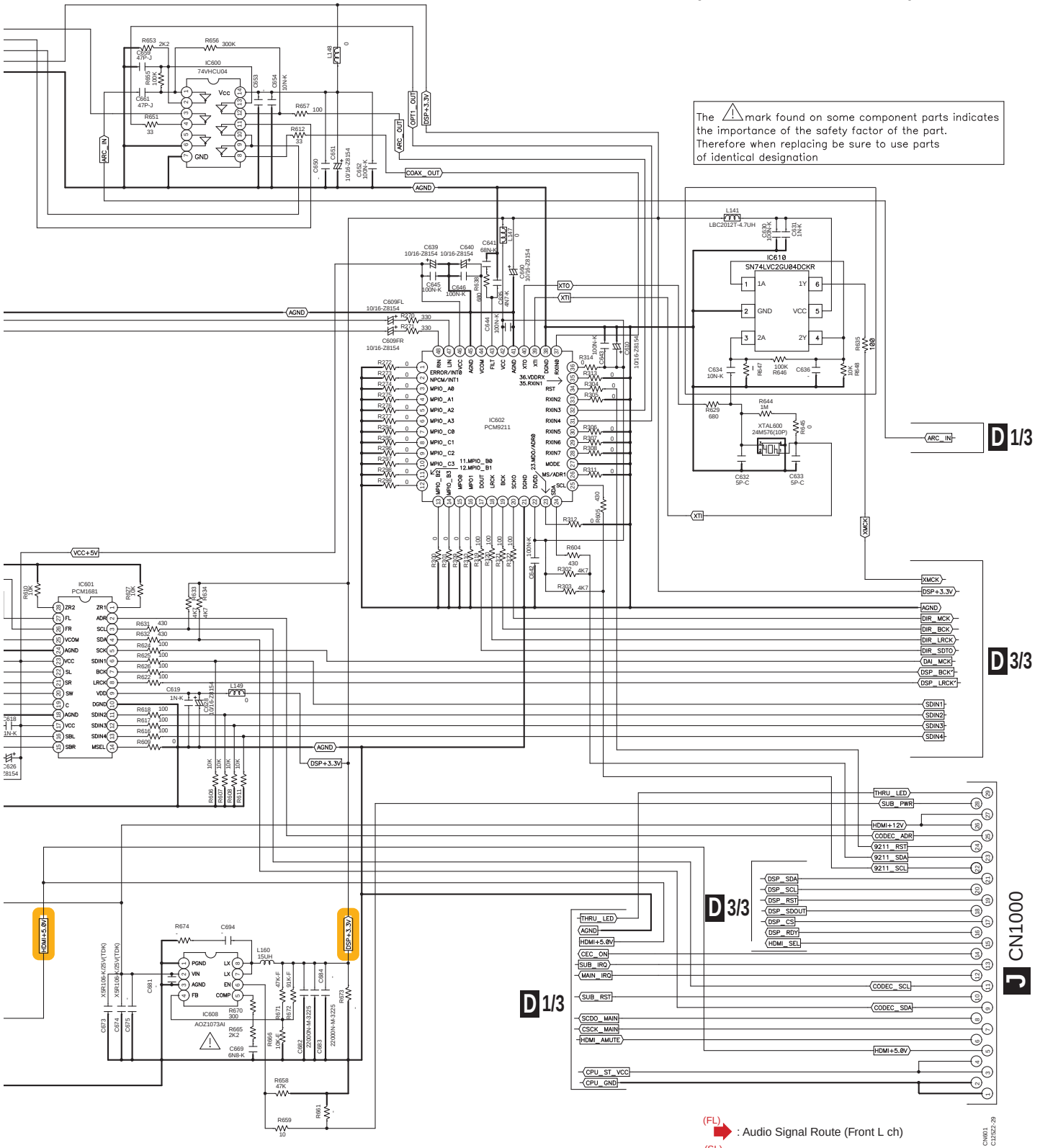


10.6 D-MAIN ASSY (2/3)

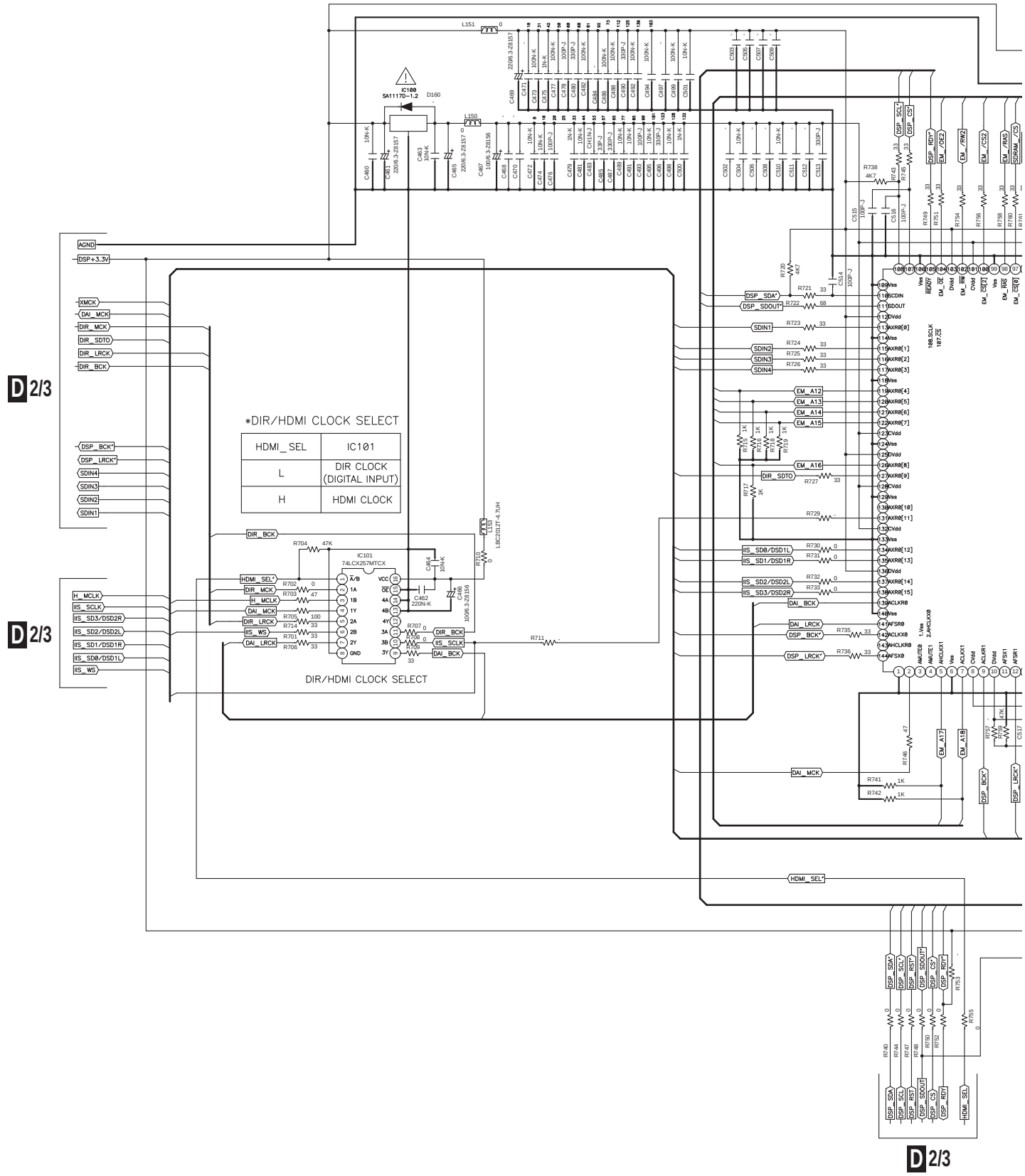


D 2/3

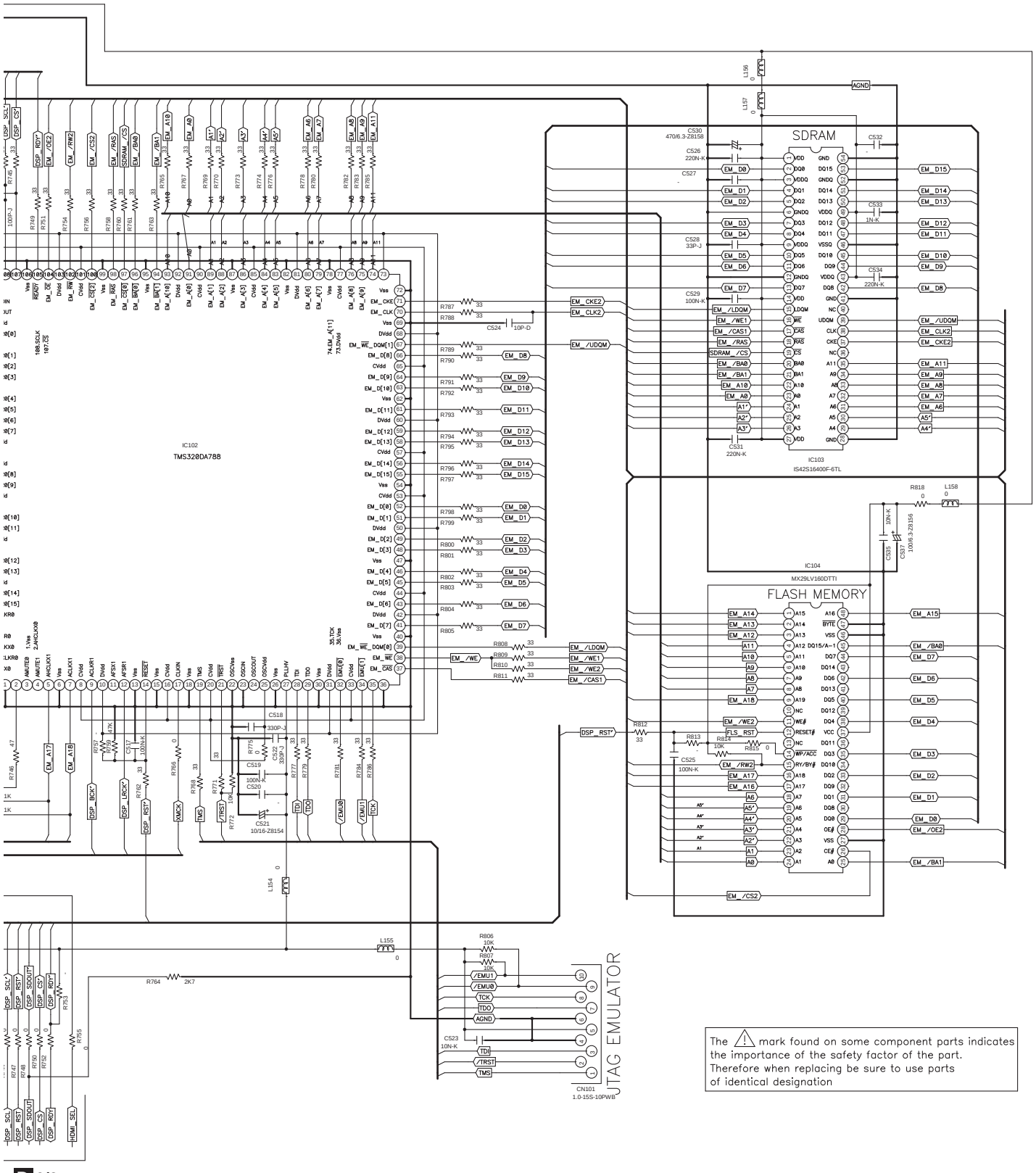
D 2/3 D-MAIN ASSY (CODEC BLOCK) (7028071161010-IL)



10.7 D-MAIN ASSY (3/3)



D 3/3 D-MAIN ASSY (DSP BLOCK) (7028071161010-IL)

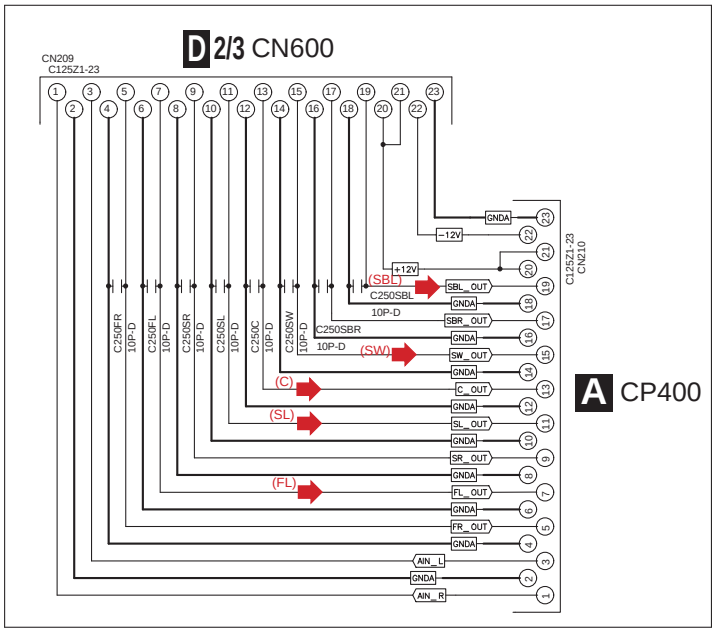


D 2/3

D 3/3

10.8 BR1, HP, FUNC and FRONT ASSYS

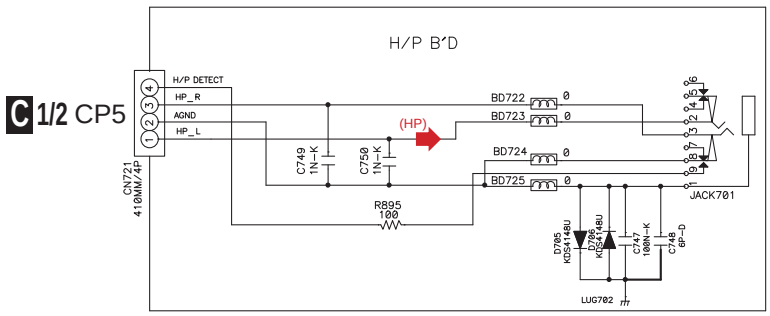
E BR1 ASSY (7028071133010-IL)



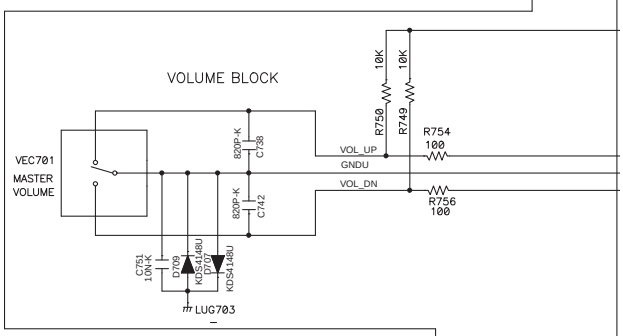
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)
(SBL) : Audio Signal Route (Surround Back L ch)

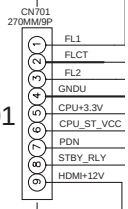
F HP ASSY (7028071134010-IL)



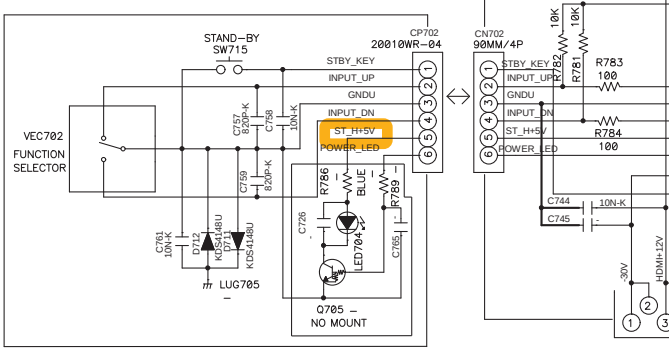
(HP) : Audio Signal Route (Headphone L ch)



N CP701

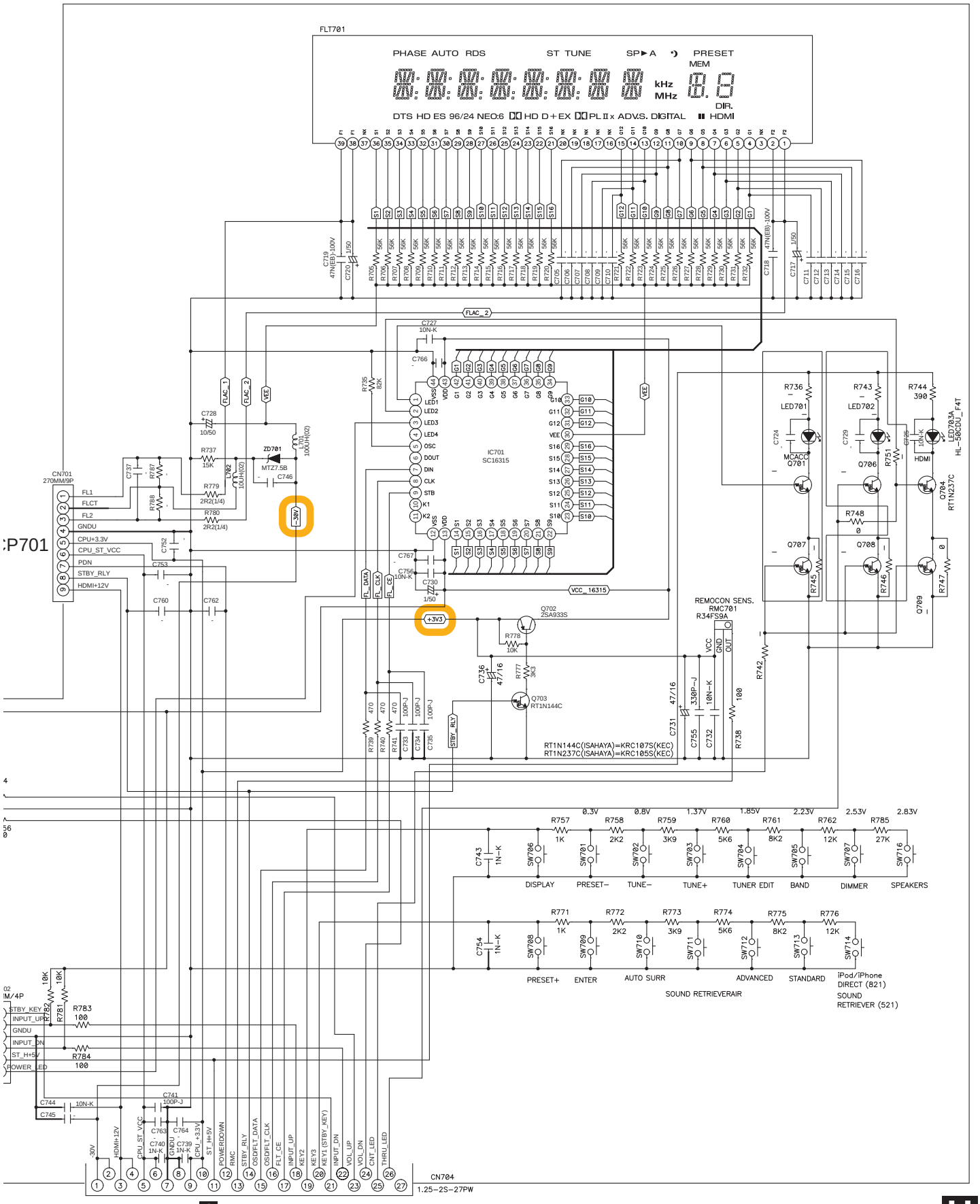


G FUNC ASSY (7028071132010-IL)



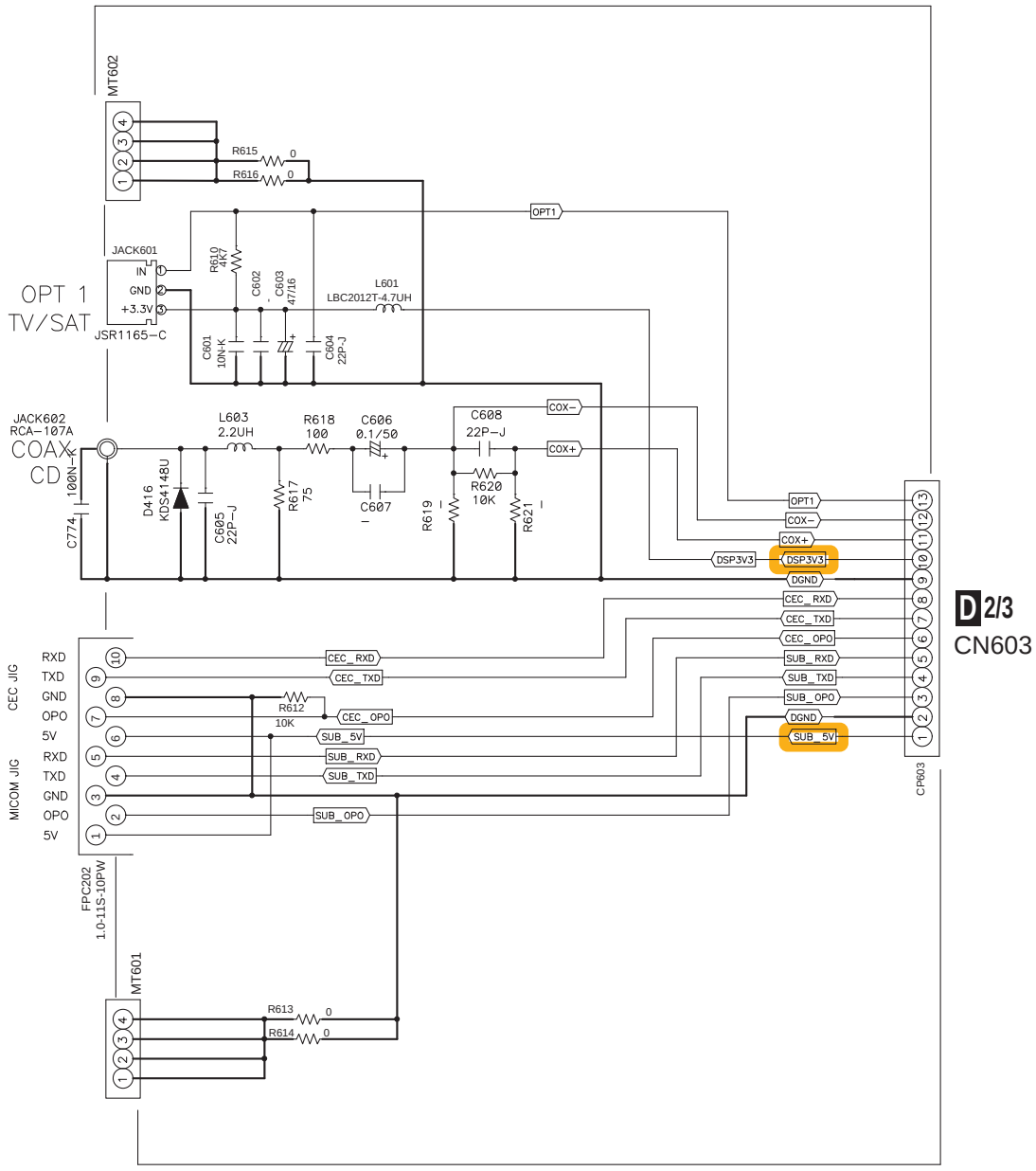
E F G H

H FRONT ASSY (7028071131010-IL)



10.9 DG ASSY

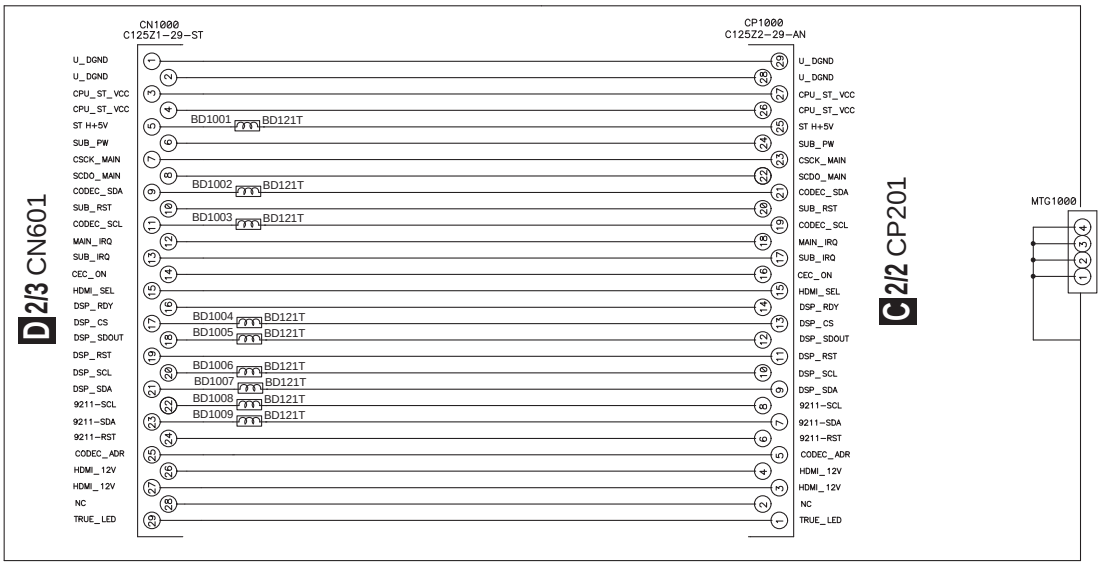
I DG ASSY (7028071112010-IL)



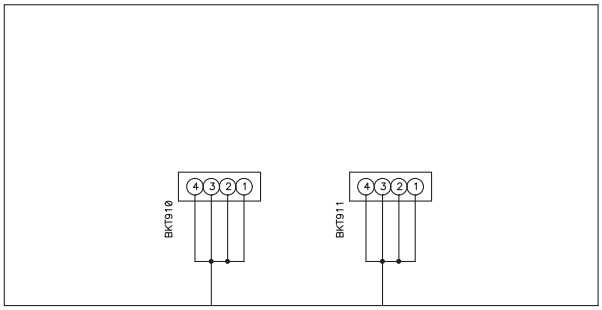
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

10.10 CNT, G-T, G-L and G-H ASSYS

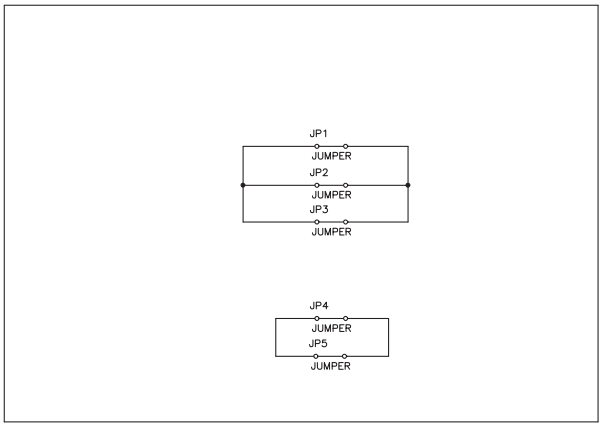
J CNT ASSY (7028071151010-IL)



K G-T ASSY (7028071123010-IL)

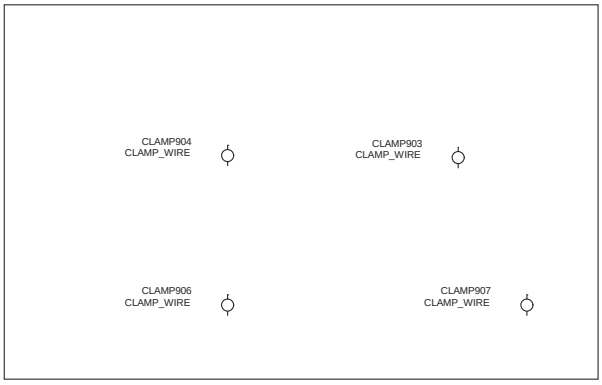


L G-L ASSY (7028071125010-IL)

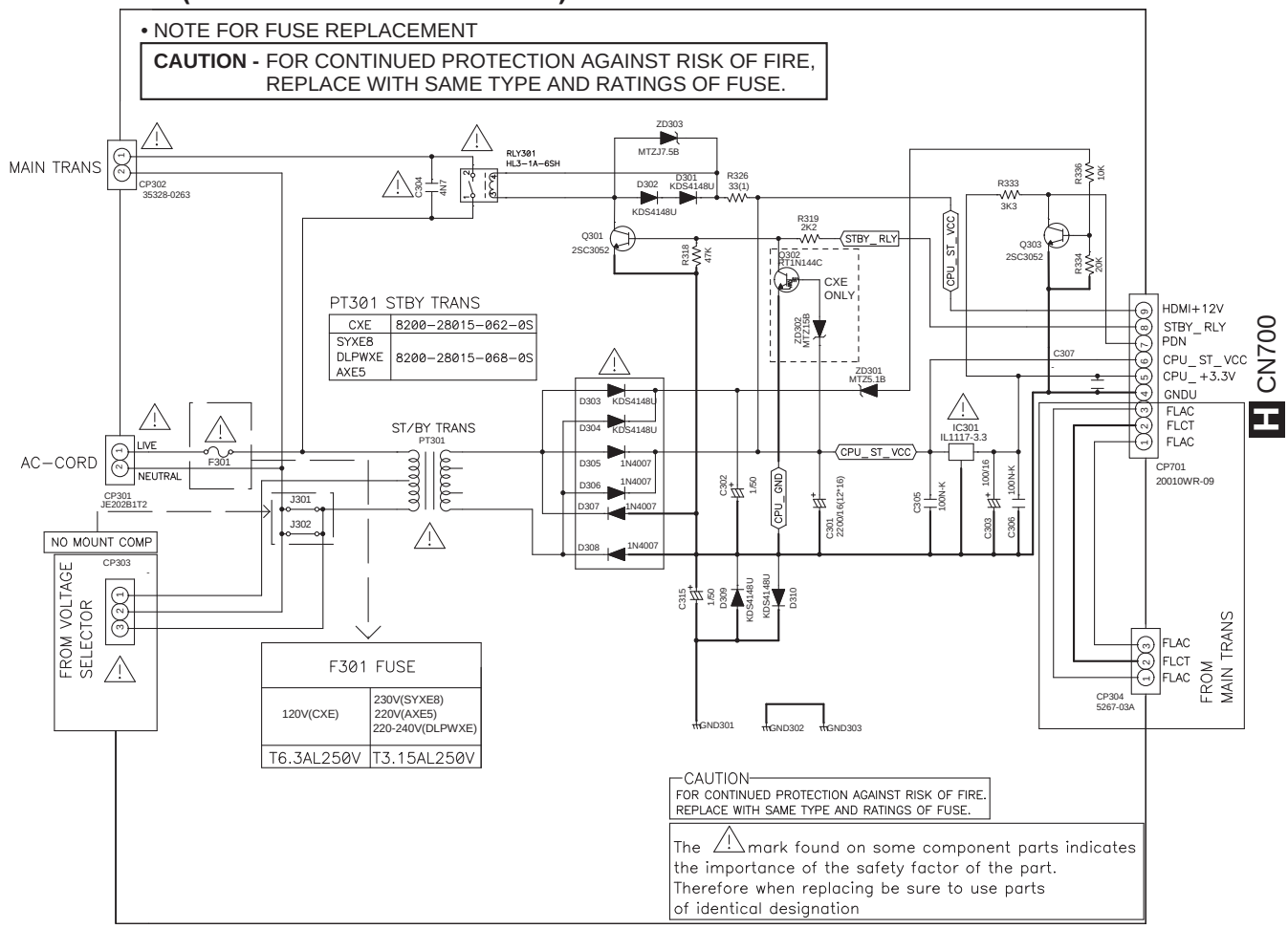


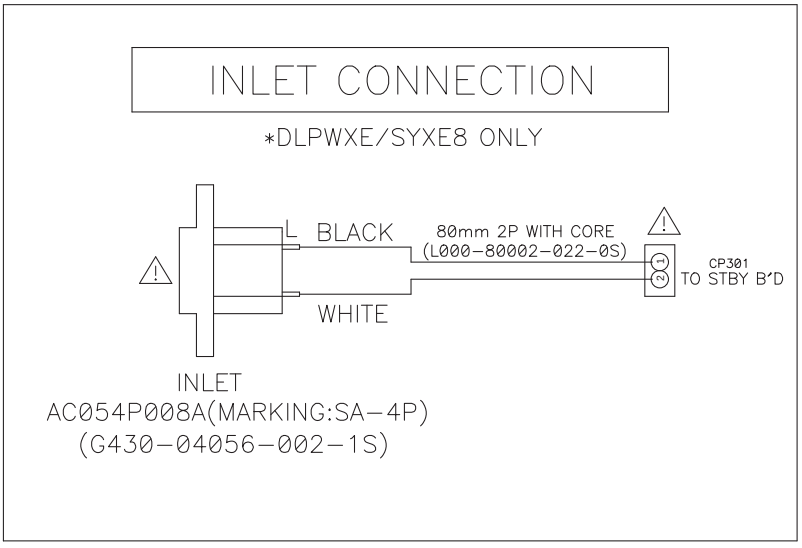
MAIN B'D

M G-H ASSY (7028071124010-IL)



N STBY ASSY
(SYXE8: 7028071122040-IL)
(CXE: 7028071122030-IL)
(DLPWXE: 7028071122020-IL)
(AXE5: 7028071122010-IL)





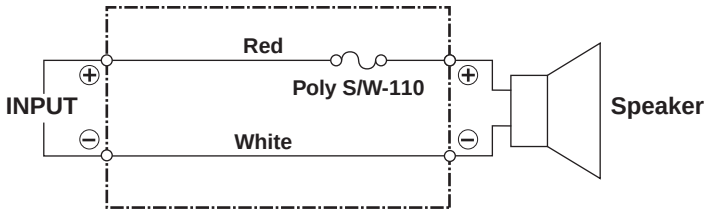
NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[k = 1.000 m = 1.000.000]
2. Capacitor values are indicated in microfarades unless otherwise specified.
[p = micro-microfarades]
3. : These resistor are to be segregated from printed wiring board or other accessible parts.
CAUTION
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 prorerly insulated from the supply circuit.

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

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

10.12 S-11-P

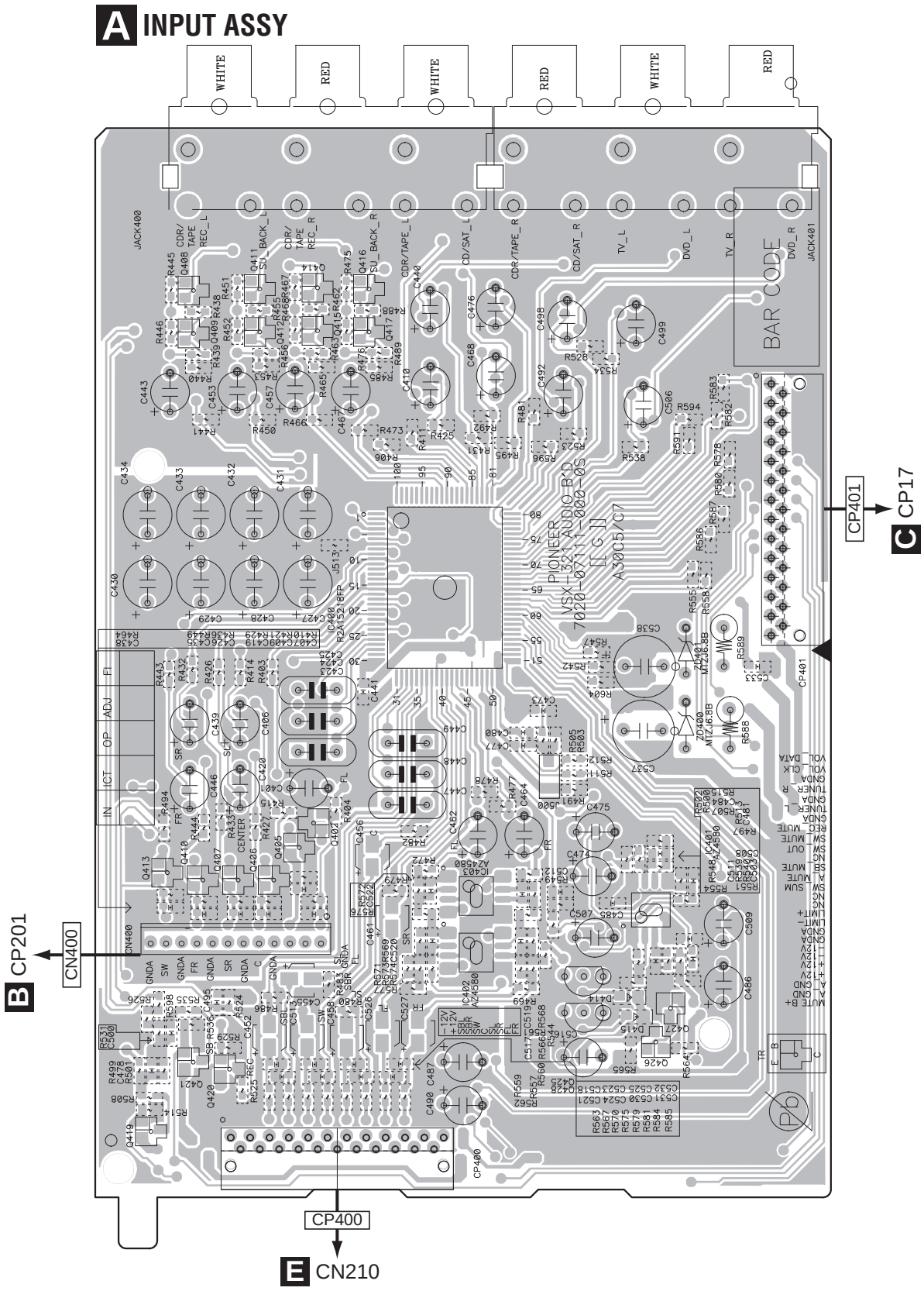
Speaker Wire (8952S11005140-IL)



P.SW:
P.SW has extreme positive resistance-temperature characteristics. If an abnormal current flows to P.SW due to an excessive input or unusual signal, P.SW heats up and the resistance rapidly increases. With this function, the speakers are protected from excessive input or unusual signal. The resistance value increases even when using a soldering iron for repairing, so allow it to cool before using.

11. PCB CONNECTION DIAGRAM
11.1 INPUT ASSY

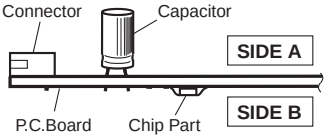
SIDE A



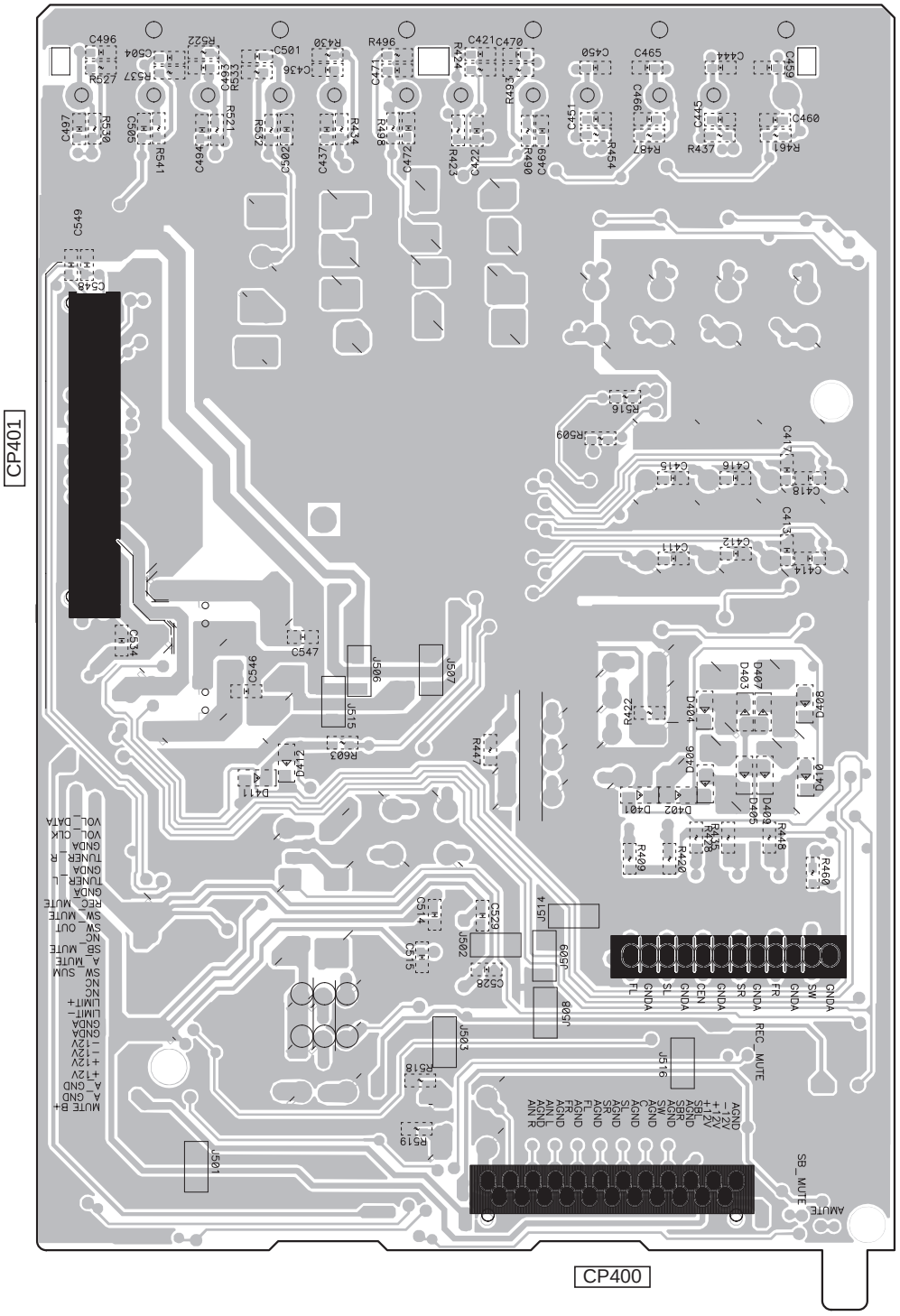
NOTE FOR PCB DIAGRAMS :

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.



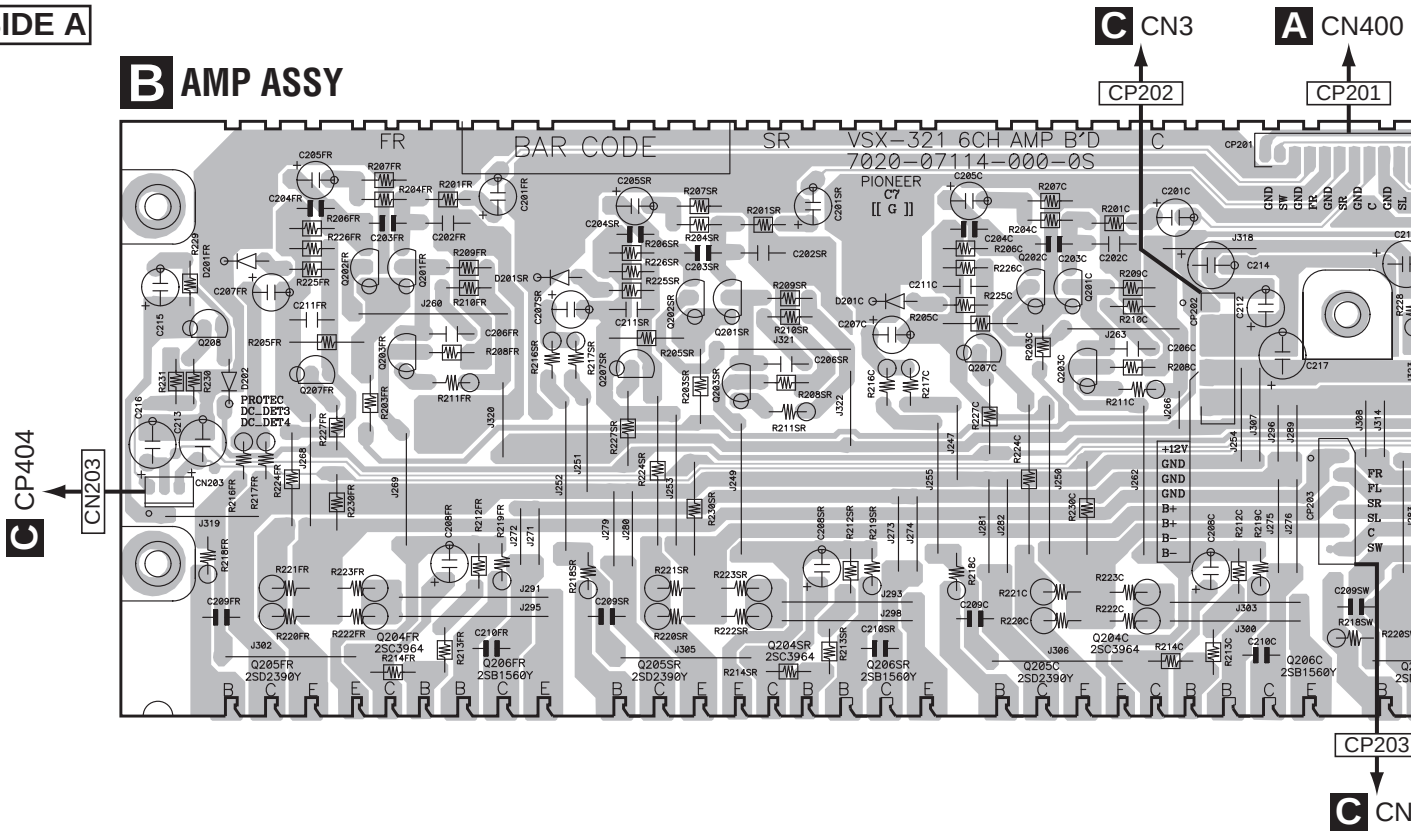
A INPUT ASSY



11.2 AMP ASSY

SIDE A

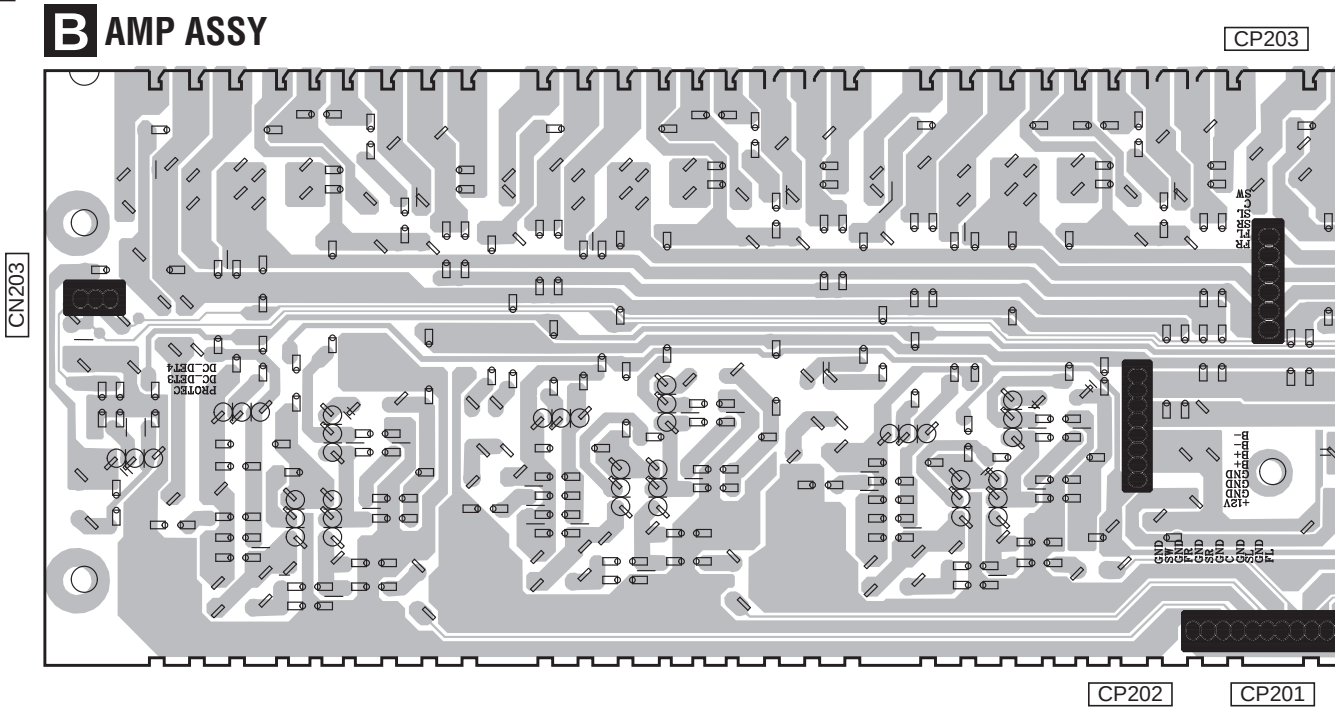
B AMP ASSY



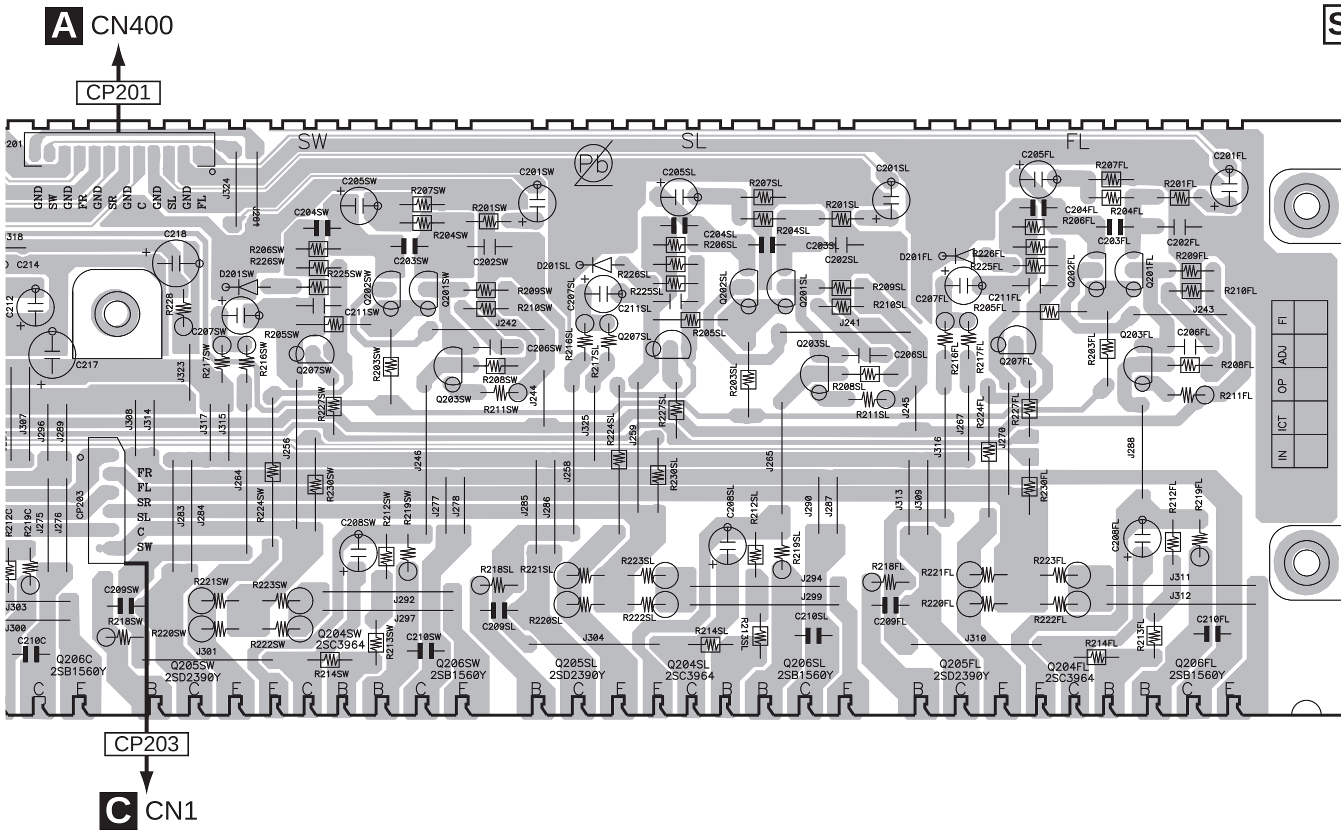
Q208 Q202FR Q201FR Q202SR Q201SR Q202C Q201C
Q207FR Q203FR Q207SR Q203SR Q207C Q203C
Q205FR Q204FR Q206FR Q205SR Q204SR Q206SR Q205C Q204C Q206C Q2

SIDE B

B AMP ASSY

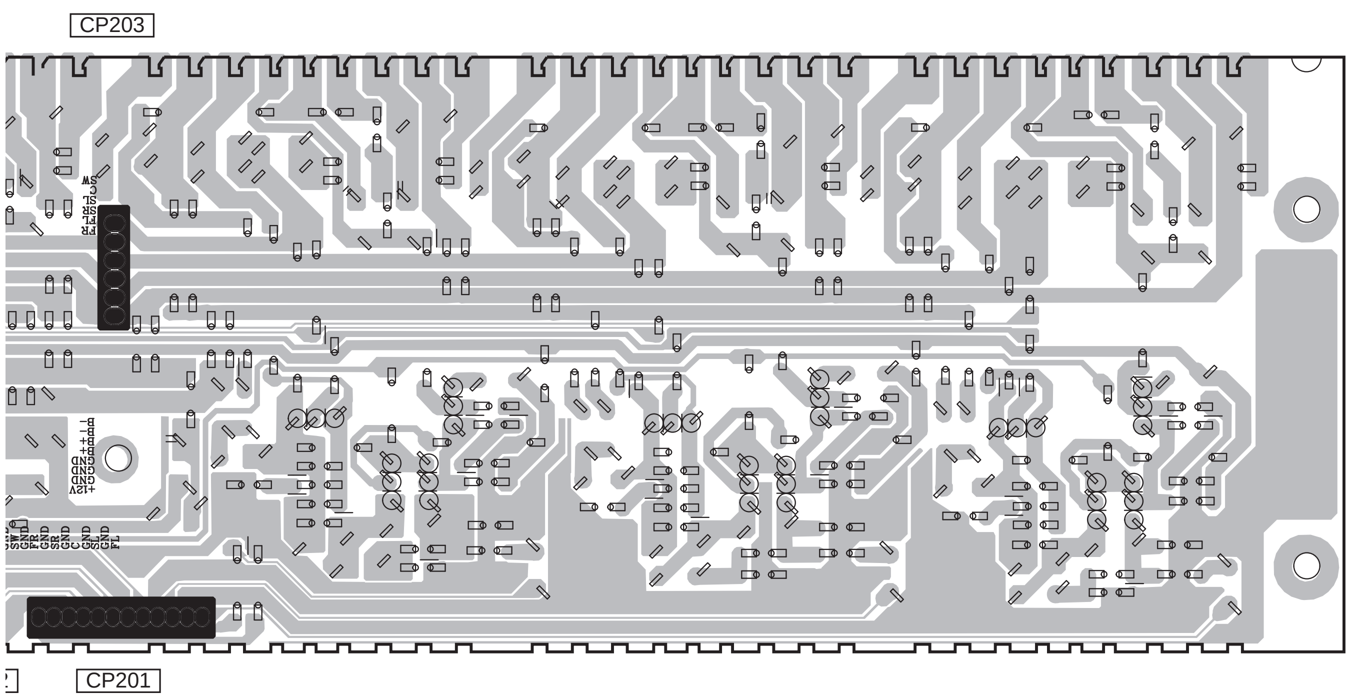


SIDE A



Q202SW Q201SW
Q207SW Q203SW
Q206C Q205SW Q204SW Q206SW Q205SL
Q202SL Q201SL
Q207SL Q203SL
Q204SL Q206SL
Q202FL Q201FL
Q207FL Q203FL
Q205FL Q204FL Q206FL

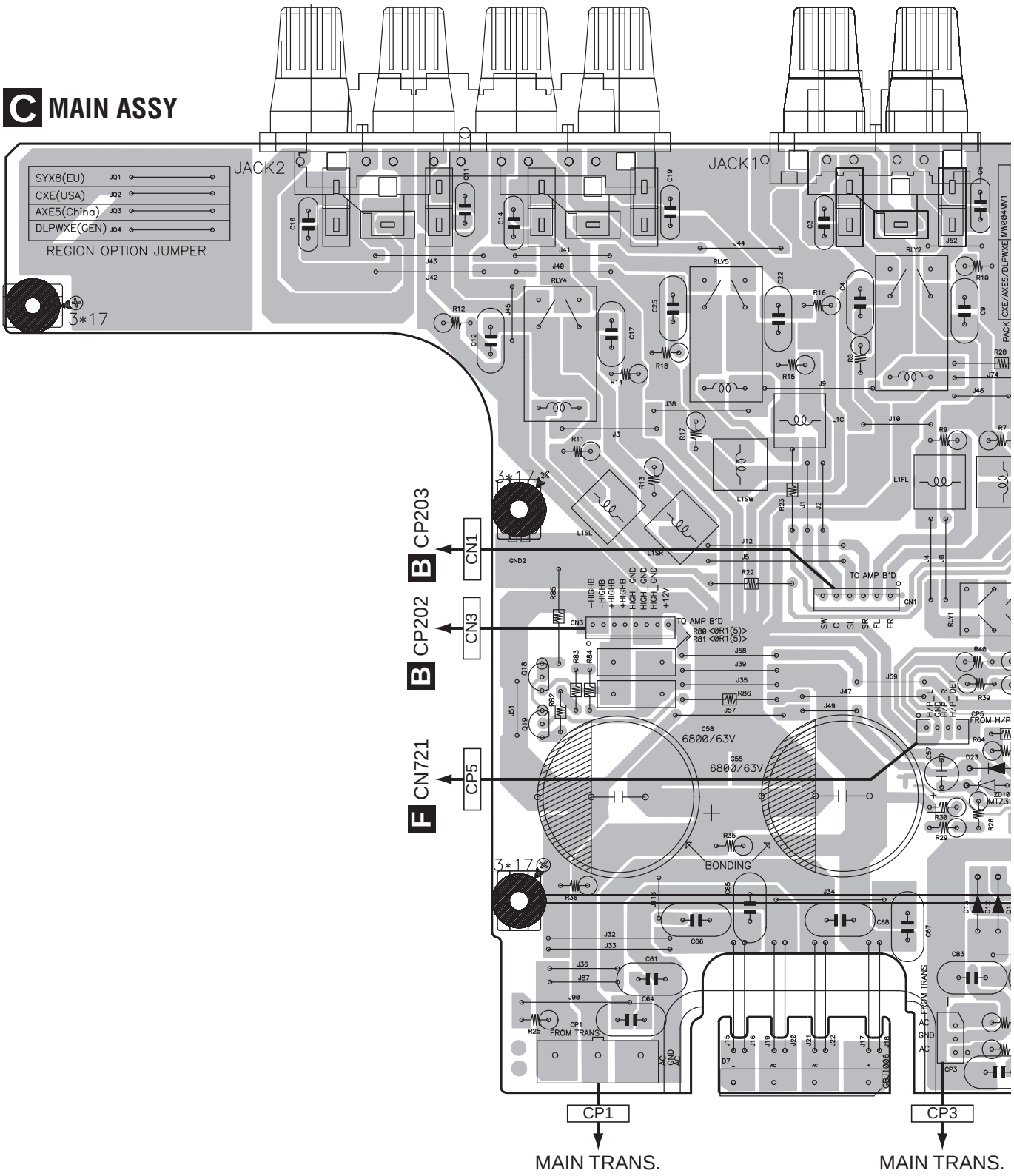
SIDE B



B

11.3 MAIN ASSY

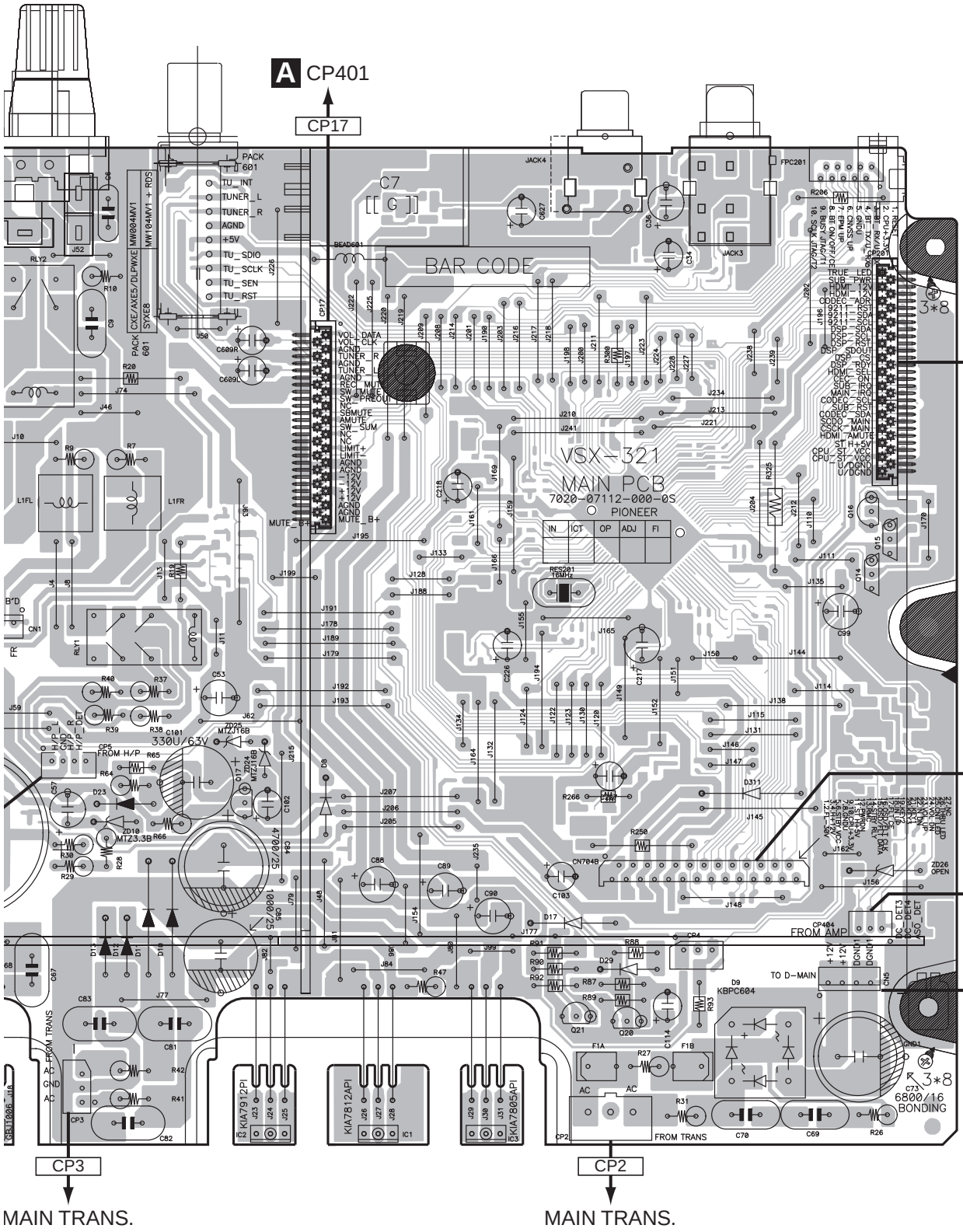
SIDE A



Q18

Q19

SIDE A

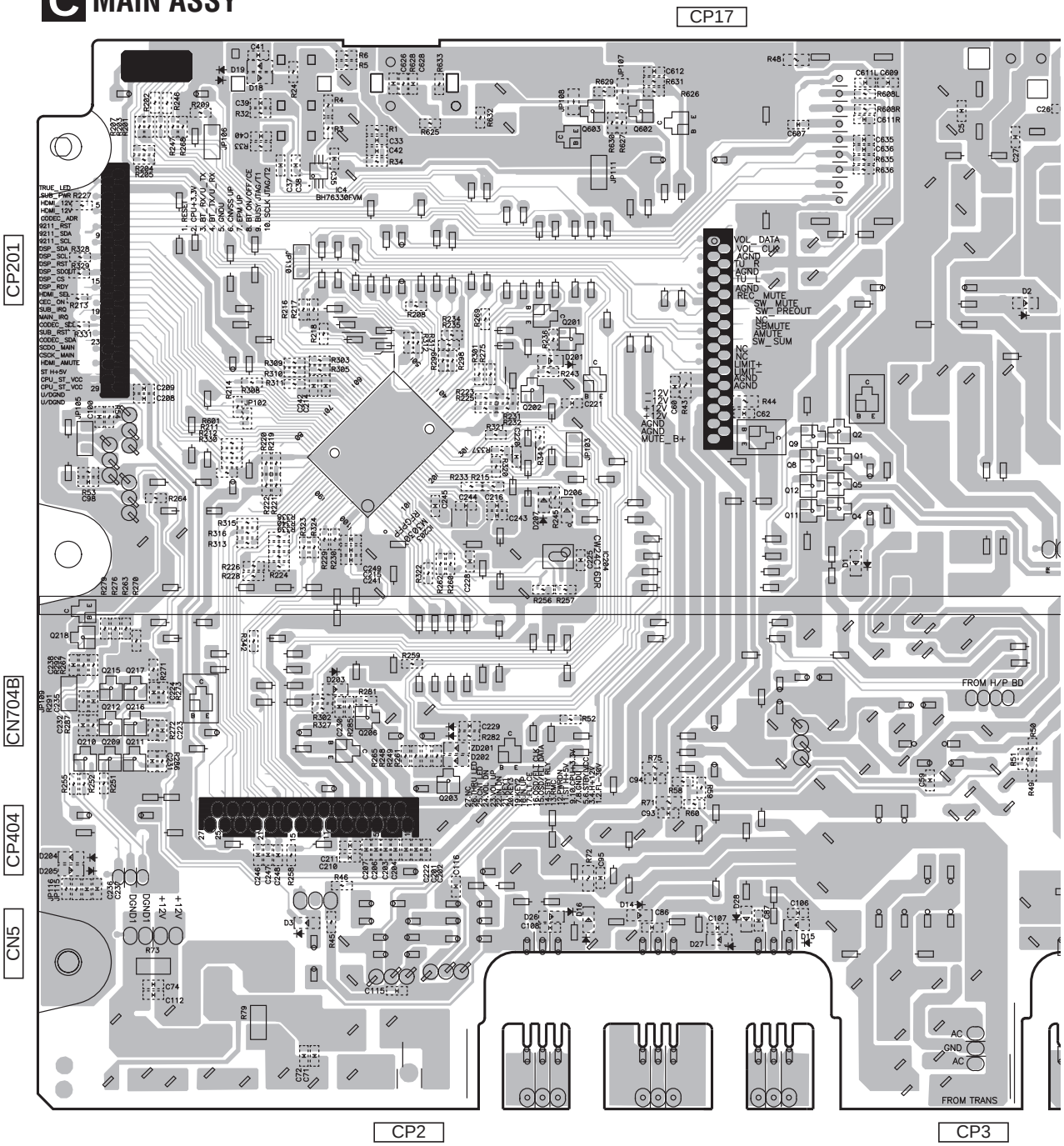


Q17 Q21 Q20 Q16
IC2 IC1 IC3 Q15
Q14

C

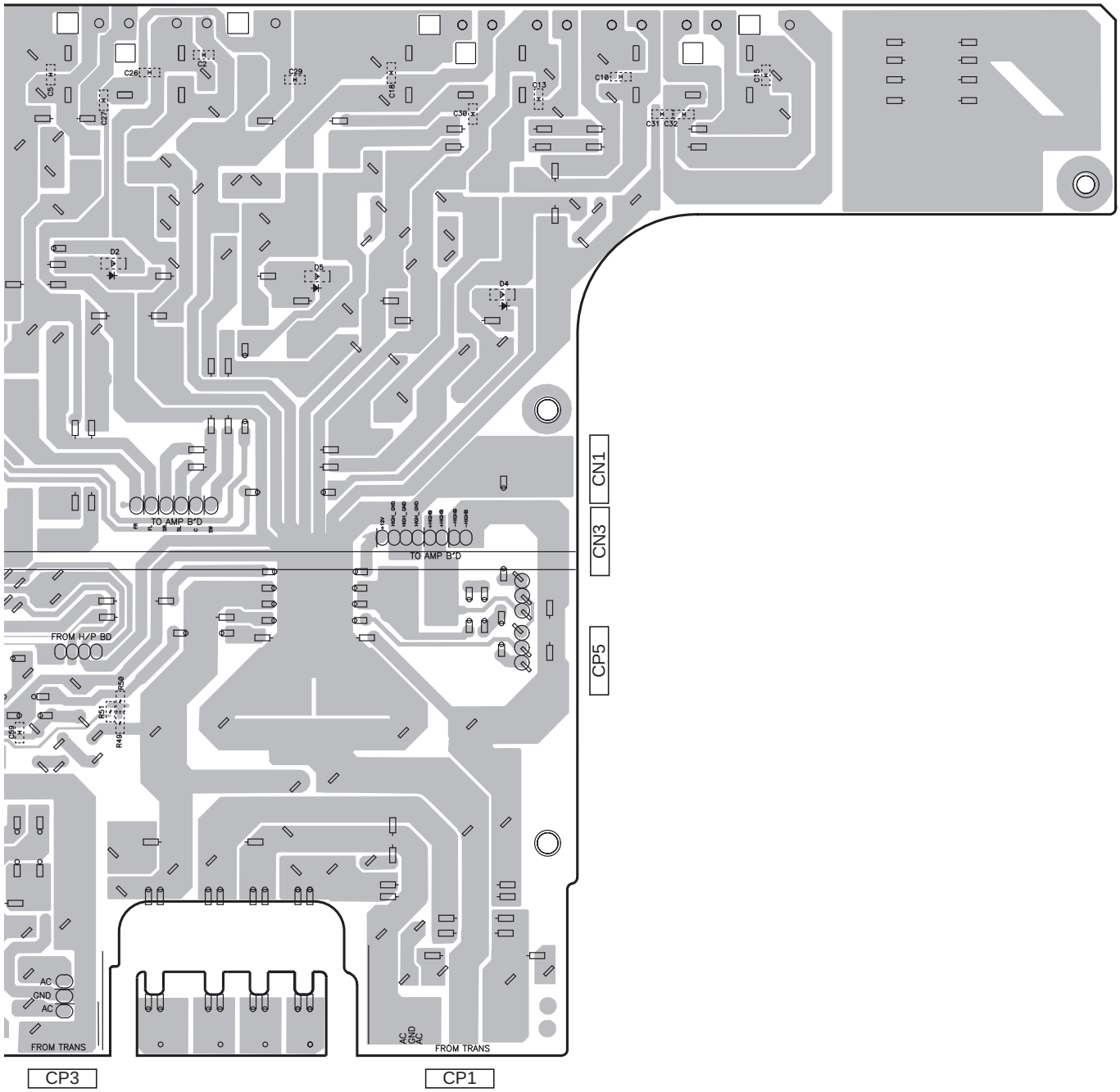
SIDE B

C MAIN ASSY



Q215 Q217 IC4 Q603 Q602 Q9 Q2
Q212 Q216 IC203 Q202 Q201 Q8 Q1
Q210 Q209 Q211 IC204 Q12 Q5
Q206 Q203 Q11 Q4

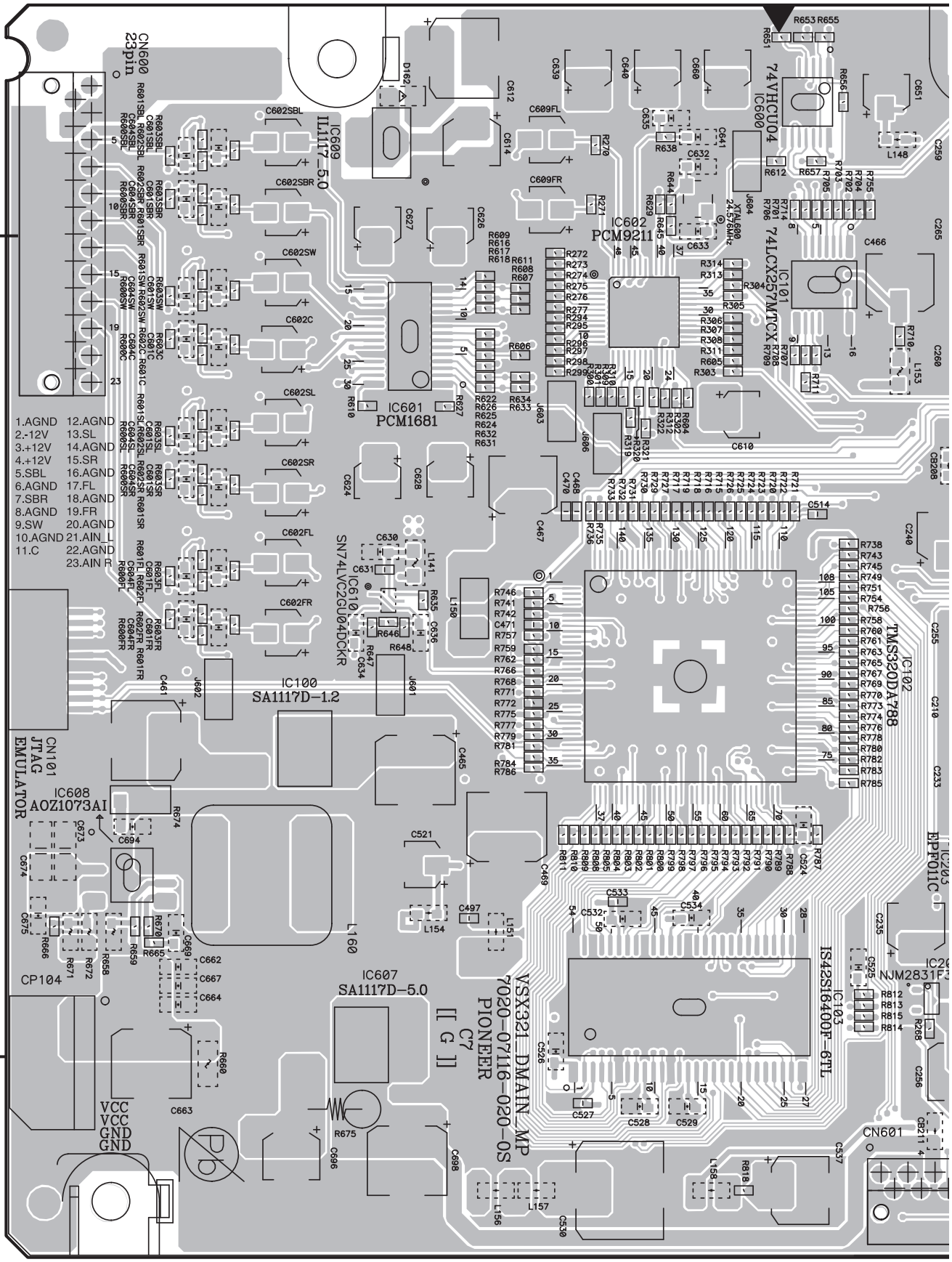
SIDE B


C26
C2
C29
C18
C30
C13
C16
C15
C31
C32
C27
C5
D2
D5
D4
TO AMP B'D
TO AMP B'D
CN1
CN3
CP5
FROM H/P BD
R50
R51
R49
C59
AC
GND
AC
FROM TRANS
AC
GND
AC
FROM TRANS
CP3
CP1

11.4 D-MAIN ASSY

SIDE A

D D-MAIN ASSY

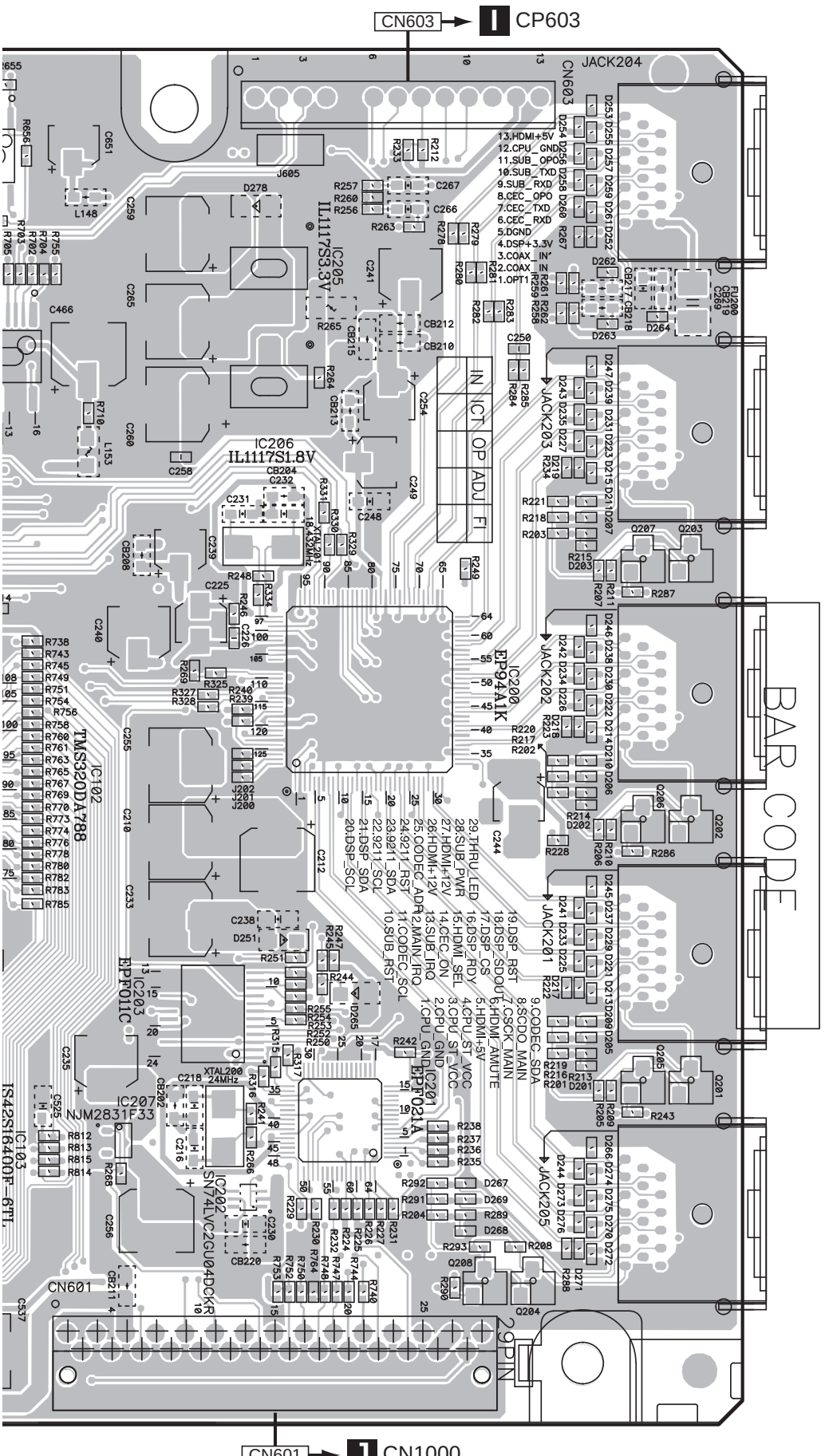


E CN209 — CN600

C CN5 — CP104

D

SIDE A



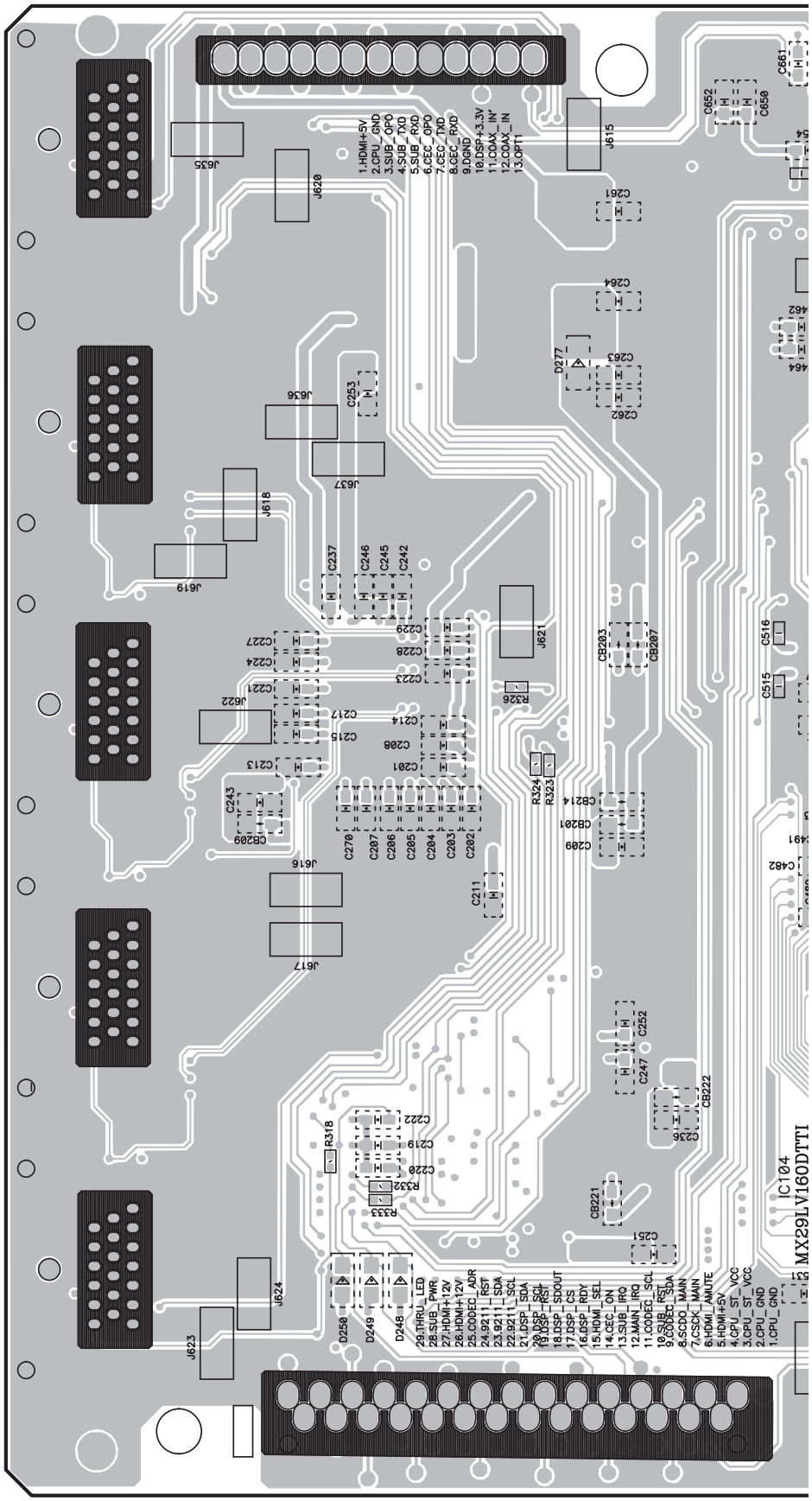
IC600
IC609
IC205
IC101
IC602
IC206
IC601
IC200
IC102
IC100
IC608
IC203
IC202
IC201
IC207
IC103
IC607
Q208
Q204

HTP-071

SIDE B

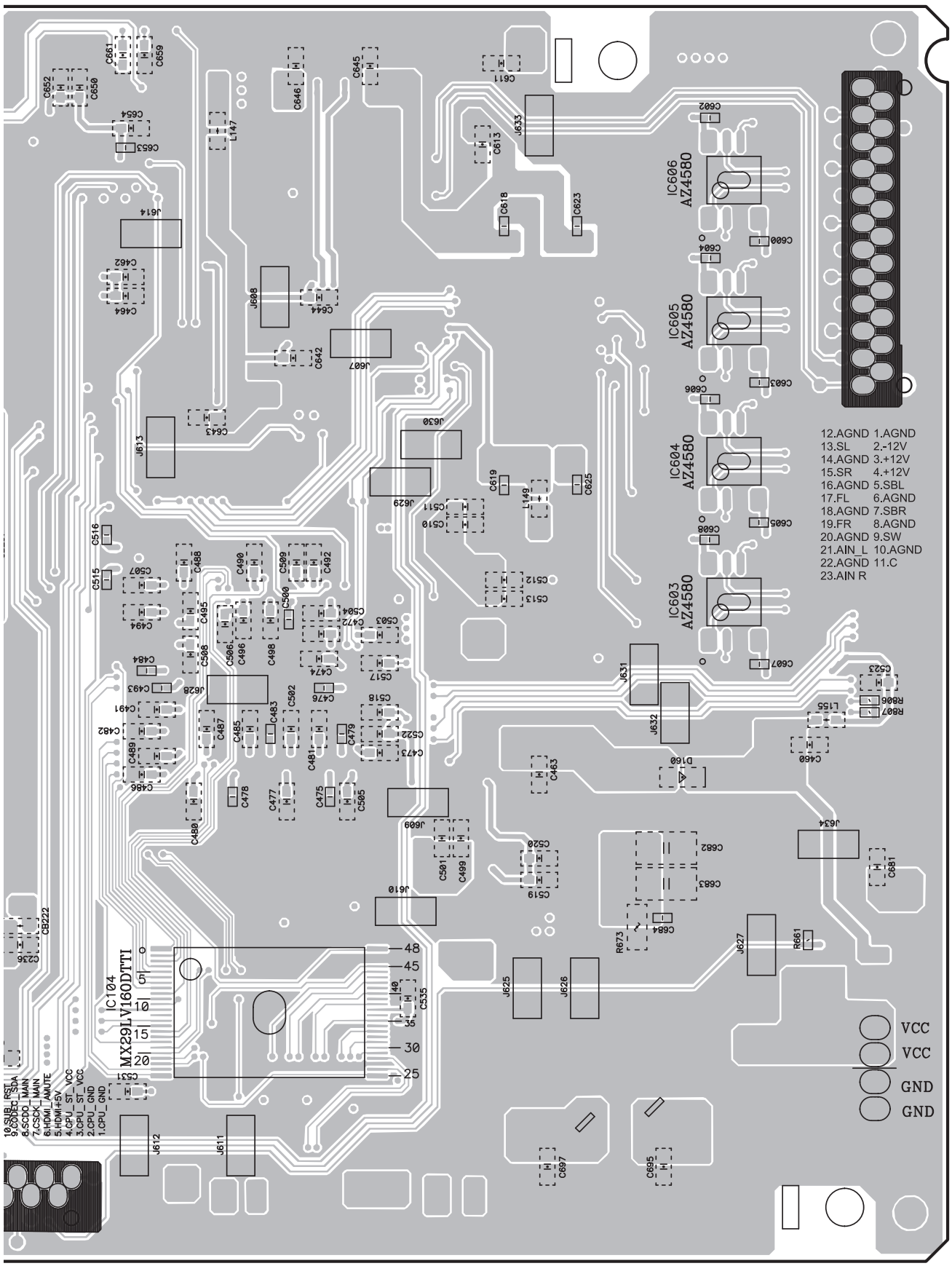
D D-MAIN ASSY

CN603

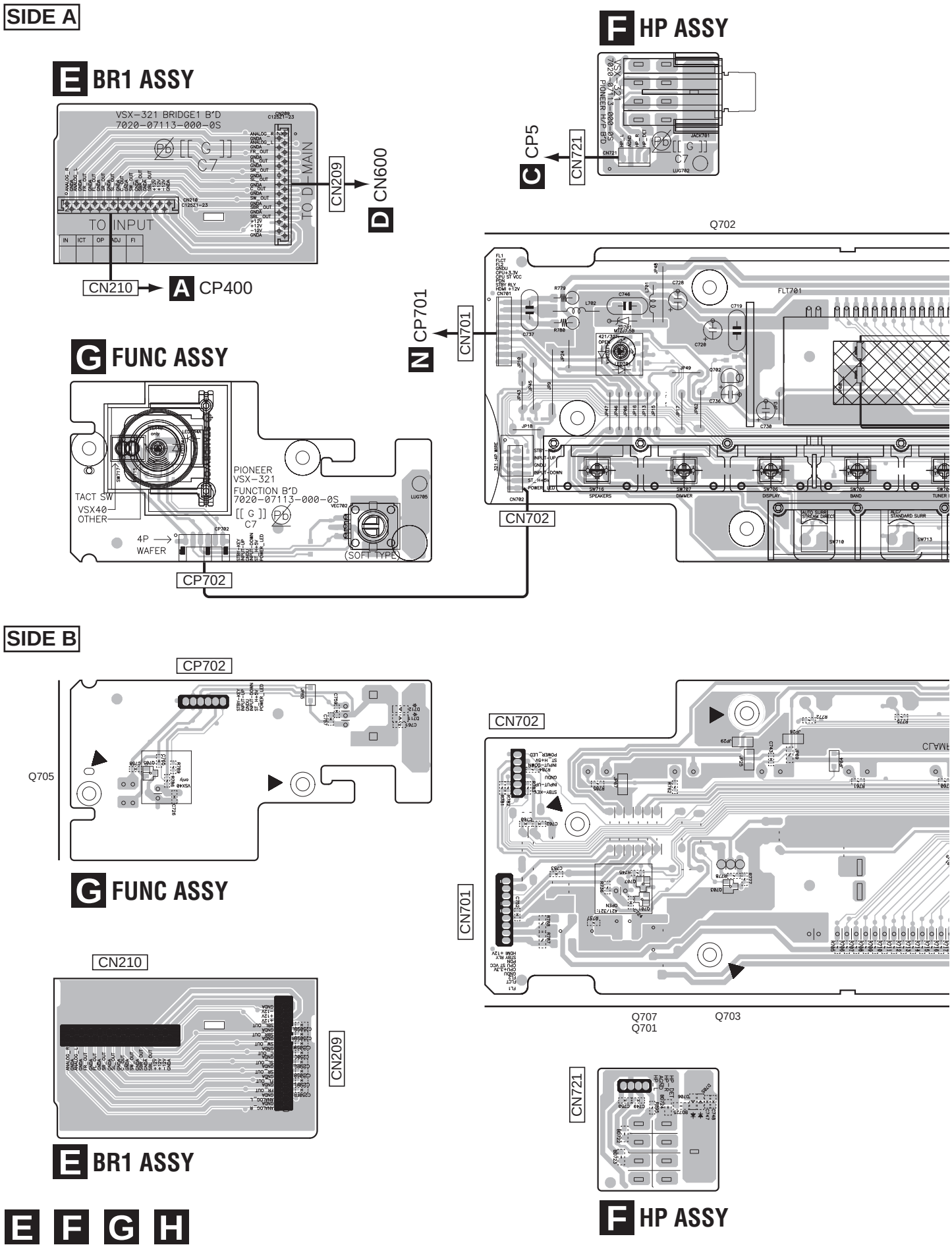


CN601

SIDE B

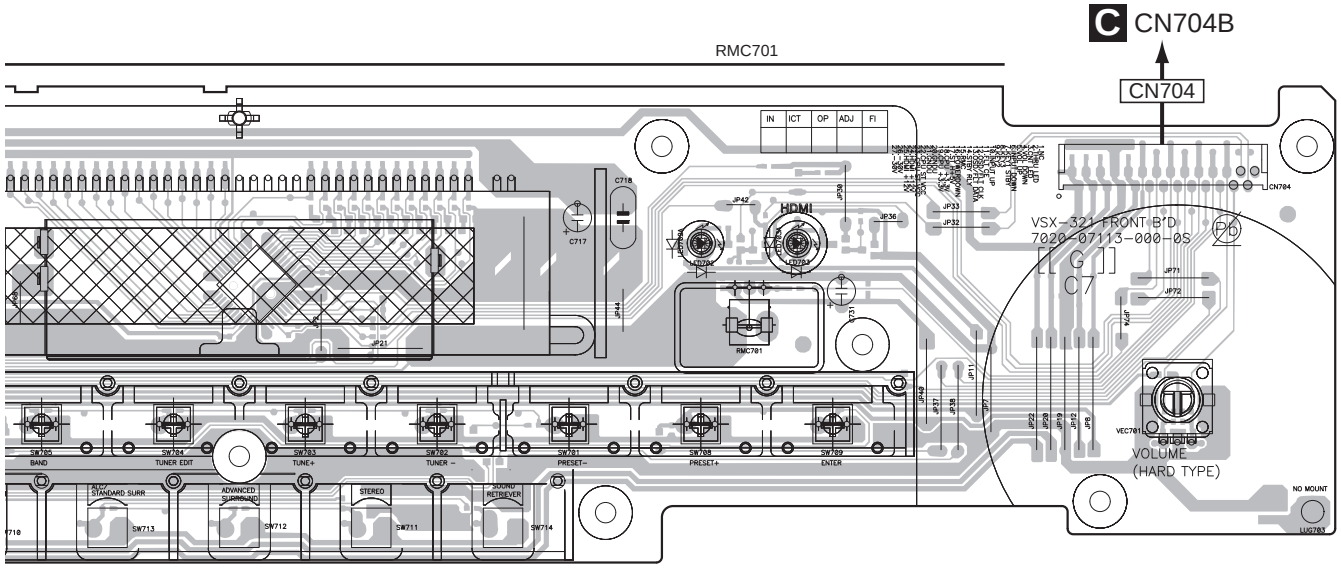

CN600
CP104
IC606 AZ4580
IC605 AZ4580
IC604 AZ4580
IC603 AZ4580
IC104 MX29LV160DTTI
12.AGND 1.AGND
13.SL 2.-12V
14.AGND 3.+12V
15.SR 4.+12V
16.AGND 5.SBL
17.FL 6.AGND
18.AGND 7.SBR
19.FR 8.AGND
20.AGND 9.SW
21.AIN_L 10.AGND
22.AGND 11.C
23.AIN R
10.SUB_RST
9.CODEC_SDA
8.SCDO_MAIN
7.CSCK_MAIN
6.HDMI_MUTE
5.HDMI+5V_VCC
4.CPU_ST_VCC
3.CPU_ST_VCC
2.CPU_GND
1.CPU_GND
VCC
VCC
GND
GND

11.5 BR1, HP, FUNC and FRONT ASSYS

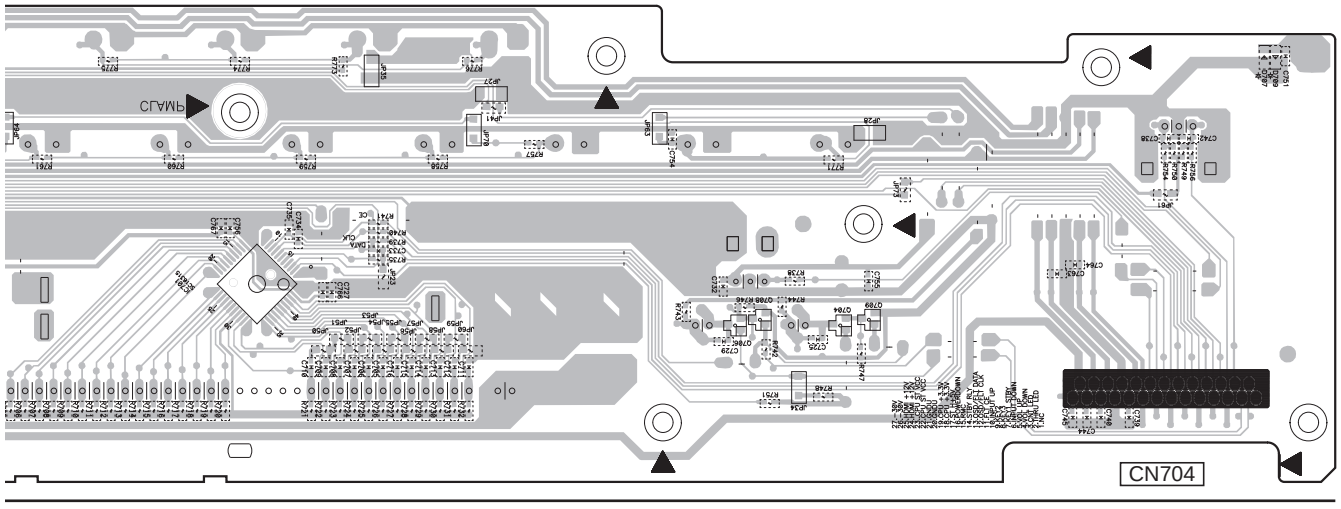


SIDE A

H FRONT ASSY



SIDE B



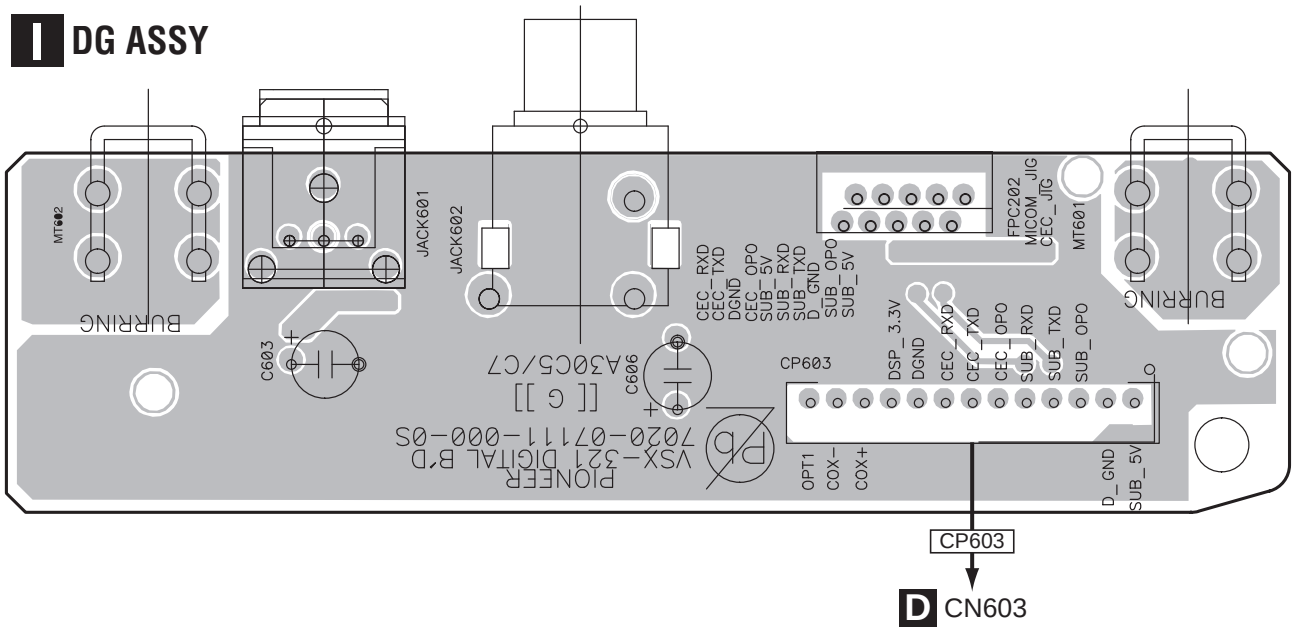
IC701 Q706 Q708 Q704 Q709

H FRONT ASSY

11.6 DG ASSY

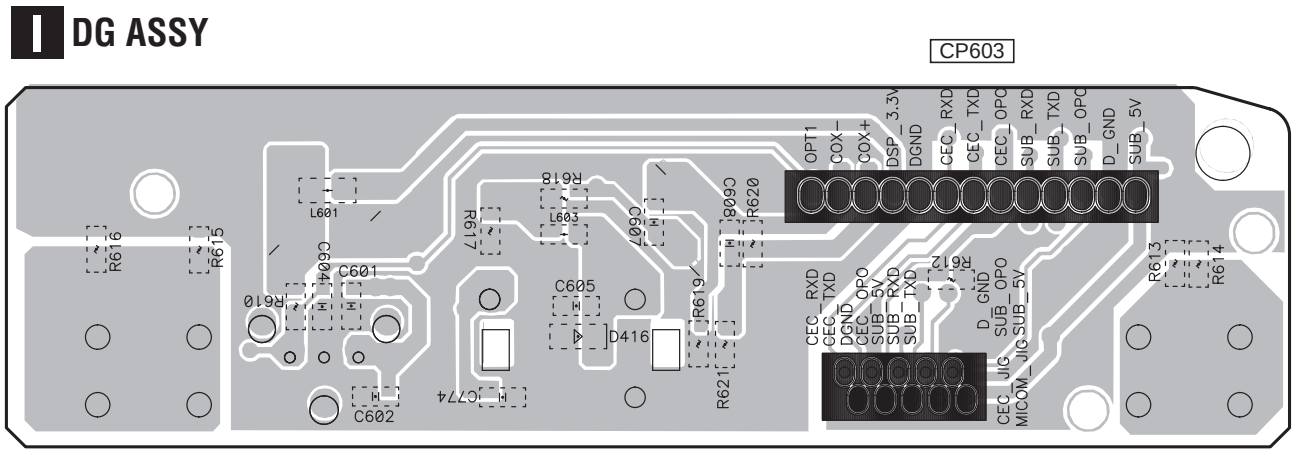
SIDE A

SIDE A



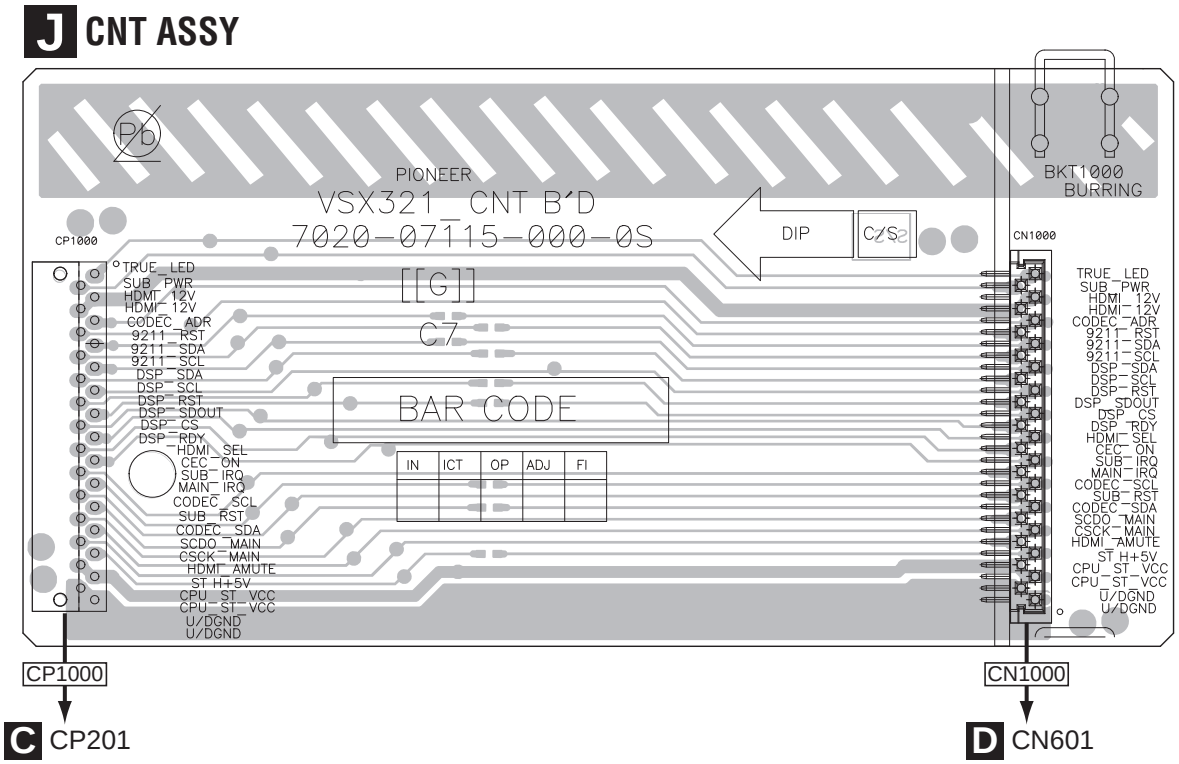
SIDE B

SIDE B

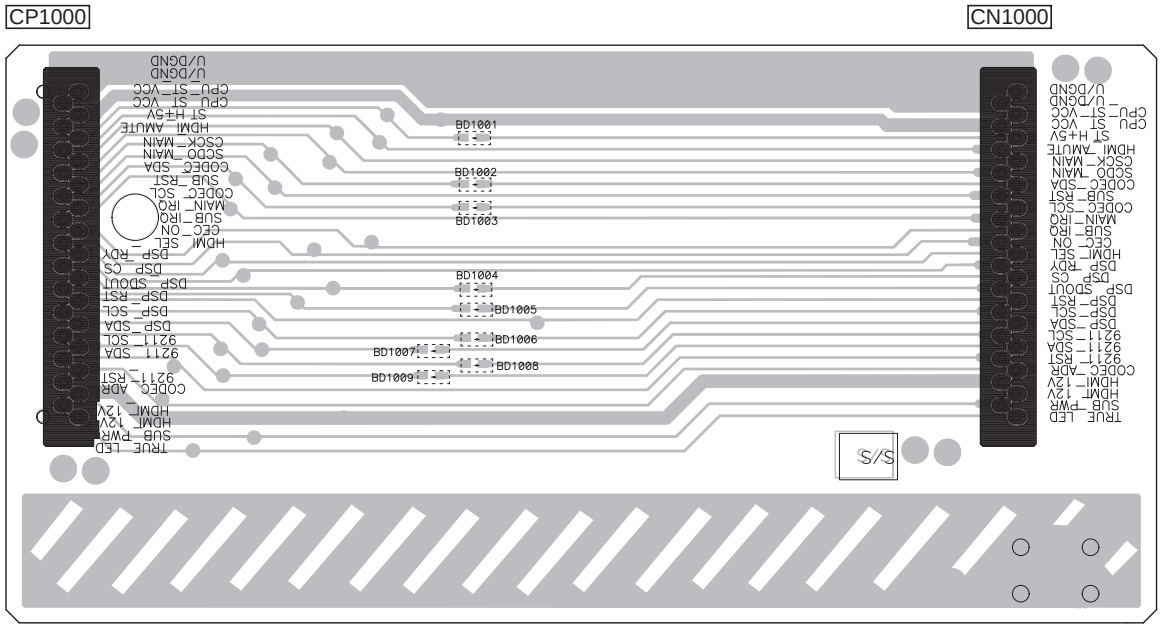


11.7 CNT ASSY

SIDE A



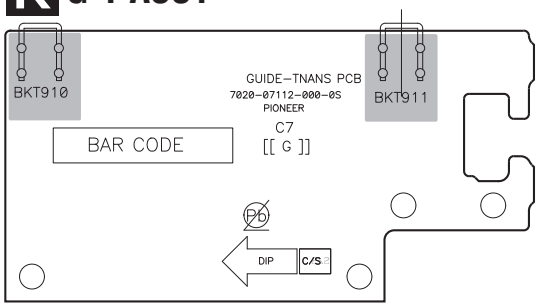
SIDE B



11.8 G-T, G-L and G-H ASSYS

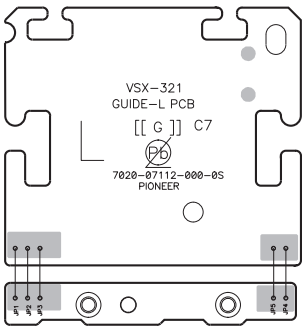
SIDE A

K G-T ASSY

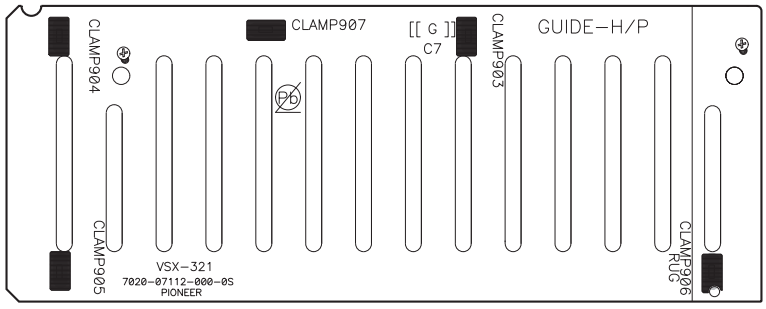


SIDE A

L G-L ASSY

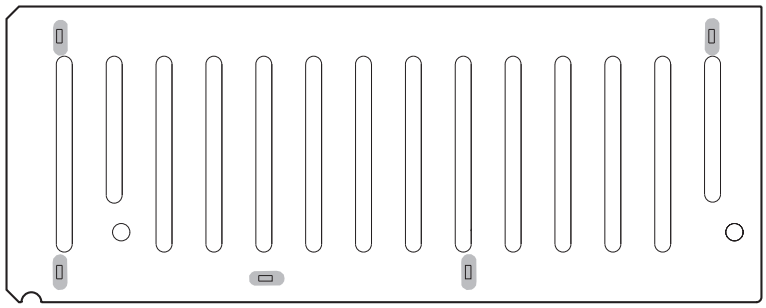


M G-H ASSY

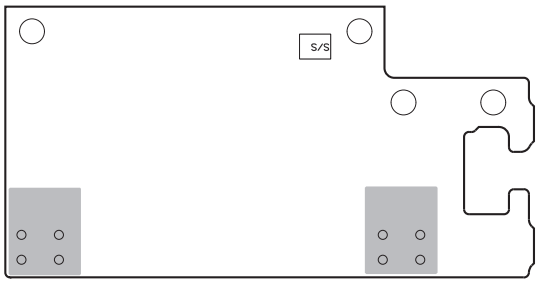


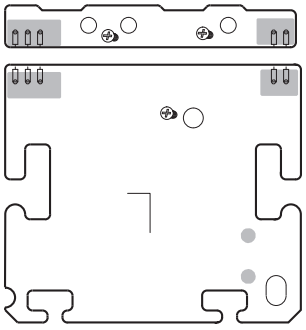
SIDE B

SIDE B



M G-H ASSY





K G-T ASSY

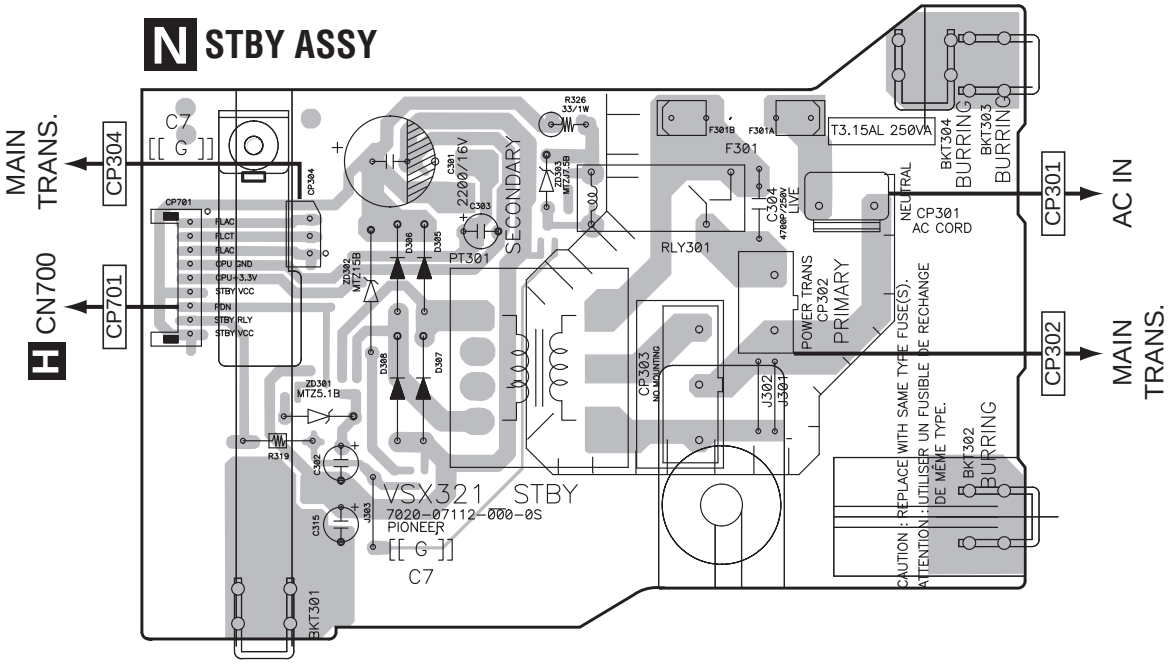
L G-L ASSY

K L M

11.9 STBY ASSY

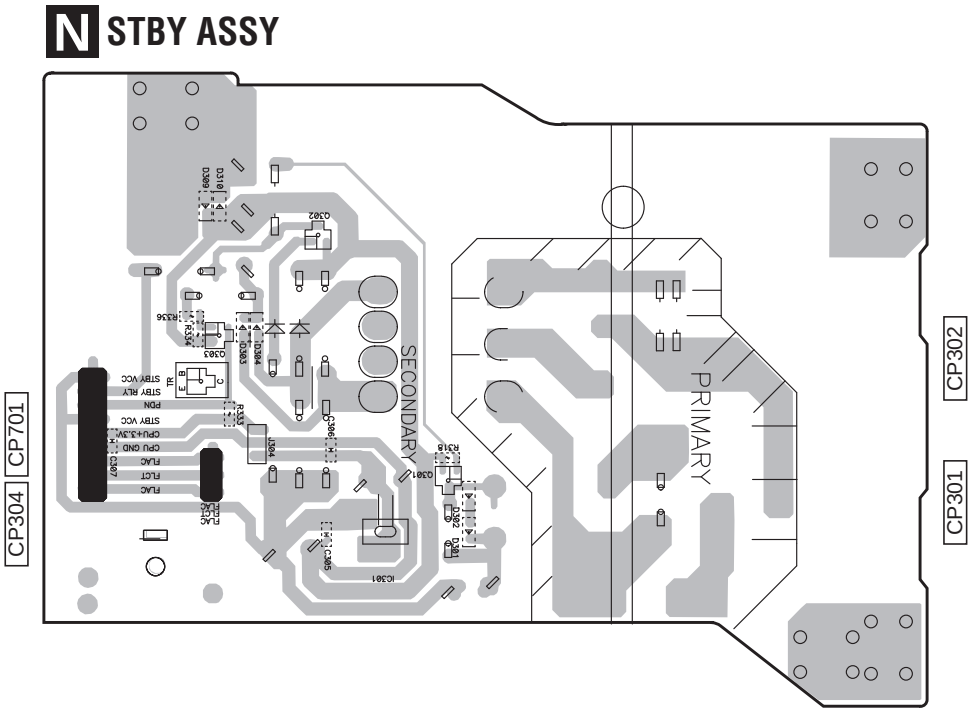
SIDE A

SIDE A



SIDE B

SIDE B



Q303 Q302 IC301 Q301

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

● *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*** or CN*	*REG*	→ *IC9****	*DZ*	→ *D9****		

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	..PCB TTL ASSY FRONT	7025HK1103011-IL
	2	..FRONT ASSY	7028071131010-IL
	2	..FUNCT ASSY	7028071132010-IL
	2	..BR1 ASSY	7028071133010-IL
	2	..HP ASSY	7028071134010-IL
NSP	1	..PCB TTL ASSY D-MAIN	7025HK1103012-IL
	2	..D-MAIN ASSY	7028071161010-IL
NSP	1	..PCB TTL ASSY INPUT	7025HK1103013-IL
	2	..DG ASSY	7028071111010-IL
	2	..INPUT ASSY	7028071112010-IL
NSP	1	..PCB TTL ASSY AMP	7025HK1103014-IL
	2	..AMP ASSY	7028071141010-IL
NSP	1	..PCB TTL ASSY CNT	7025HK1103015-IL
	2	..CNT ASSY	7028071151010-IL
NSP	1	..PCB TTL ASSY MAIN	7025HK1103040-IL
	2	..MAIN ASSY (SYXE8)	7028071121040-IL
	2	..MAIN ASSY (CXE)	7028071121030-IL
	2	..MAIN ASSY (DLPWXE)	7028071121020-IL
	2	..MAIN ASSY (AXE5)	7028071121010-IL
	2	..STBY ASSY (SYXE8)	7028071122040-IL
	2	..STBY ASSY (CXE)	7028071122030-IL
	2	..STBY ASSY (DLPWXE)	7028071122020-IL
	2	..STBY ASSY (AXE5)	7028071122010-IL
	2	..G-T ASSY	7028071123010-IL
	2	..G-H ASSY	7028071124010-IL
	2	..G-L ASSY	7028071125010-IL

CONTRAST OF PCB ASSEMBLIES

C MAIN ASSY

7028071121040-IL, 7028071121030-IL, 7028071121020-IL and 7028071121010-IL are constructed the same except for the following:

Mark	Symbol and Description	7028071121040-IL	7028071121030-IL	7028071121020-IL	7028071121010-IL
	L1 COIL, FILTER-INDUCTOR	Not used	D330900001330-IL	D330900001330-IL	D330900001330-IL
	601 TUNER, FM/AM	E903104100780-IL	E903004100780-IL	E903004100780-IL	E903004100780-IL

N STBY ASSY

7028071122040-IL, 7028071122030-IL, 7028071122020-IL and 7028071122010-IL are constructed the same except for the following:

Mark	Symbol and Description	7028071122040-IL	7028071122030-IL	7028071122020-IL	7028071122010-IL
	Q302	Not used	J522101441210-IL	Not used	Not used
	D9302	Not used	MTZJ15(B)	Not used	Not used
⚠	T301 POWER TRANS	8200280150680-IL	8200280150620-IL	8200280150680-IL	8200280150680-IL
⚠	FU301 FUSE GLASS TUBE 20 mm	N751503151160-IL	N751506301160-IL	N751503151160-IL	N751503151160-IL
⚠	CN9302 CN, WAFER 7.92 mm	L108353280290-IL	L108011430210-IL	L108011430210-IL	L108011430210-IL
	304 BRACKET	4010210196100-IL	4010210196000-IL	4010210196000-IL	4010210196000-IL

PARTS LIST for VSX-321-K-P/SYXE8

Mark	No.	Description	Part No.

A INPUT ASSY

SEMICONDUCTORS

	IC	400	J084152180010-IL
	IC	401-403	J121458000020-IL
	Q	402,405-407,409	J522020011210-IL
	Q	410,412,413,415	J522020011210-IL
	Q	417	J522020011210-IL
	Q	419-421,426	J520101411210-IL
	Q	425,428	J544117Y01150-IL
	Q	427	J522104411210-IL
	D	401-412,414,415	K005041480030-IL
	D	9400,9401	MTZJ6R8(B)

MISCELLANEOUS

	J 400	CN,WIRE 2MM	L002201122620-IL
	JA 400	TER,RCA 6PIN	G603603A0920Y-IL
	JA 401	TER,RCA 6PIN	G603603A0930Y-IL
	CN 400	CN,WIRE 2MM	L002201122620-IL
	CN 9400	CN,WAFER	L109012522310-IL
	CN 9401	CN,WAFER	L109012522710-IL
	500	RING,TER WIRE	8410201010070-IL

RESISTORS

⚠	R	588,589	C060010165060-IL

B AMP ASSY

SEMICONDUCTORS

	Q	201,202	J5000992F0050-IL
	Q	203,207	J5023200B0050-IL
	Q	208	J5001268B0050-IL
	D	201,202	K000013300520-IL
	D	208	J5001268B0050-IL

MISCELLANEOUS

	CN 203	CN,WIRE	L002800030110-IL
	CN 9201	CN.WAFER 2.0MM	L101200101210-IL
	CN 9202	CN.WAFER 2.0MM	L101200100810-IL
	CN 9203	CONNECTOR(6P)	L102526700600-IL

RESISTORS

	R	211,218,219	C060047063050-IL
	R	216,217	C060056265050-IL
⚠	R	220-223	C060R47066050-IL
	R	228	C060010065050-IL

CAPACITORS

	C	203	D009092212500-IL
	C	204	D00033006D051-IL
	C	209,210	D00410107D051-IL

C MAIN ASSY

SEMICONDUCTORS

⚠	IC	1	J126781200040-IL
⚠	IC	2	J126791200060-IL
⚠	IC	3	J126780500110-IL
	IC	4	J127763300010-IL
	IC	203	8952VS3210010-IL
	IC	204	J000241600170-IL
	Q	1,2,4,5	J520102371210-IL
	Q	8,9,11,12	J522102371210-IL
	Q	14,15,20	J5023198Y0000-IL
	Q	16	J5000992F0050-IL
	Q	17	J5000916Y0050-IL
	Q	18,19,21	J5001268B0050-IL
	Q	201	J520015301210-IL
	Q	202	J522102371210-IL
	Q	203,206,209-212	J522305200050-IL
	Q	215,218	J522305200050-IL
	Q	216,217	J520015040150-IL
	D	1-5,201-203	K005041480030-IL
⚠	D	7	K047100600010-IL
	D	8,17,29,311	K000013300520-IL
⚠	D	9	K047604000020-IL
⚠	D	10-13	K000400700010-IL
	D	23	K000400700010-IL
	D	26-28	K125551300010-IL
	D	206,207	K005041480030-IL
	D	9010,9026	MTZJ3R3(B)
	D	9024,9025	K06016R044520-IL

MISCELLANEOUS

	JA 1	TER,BOARD PUSH 4P	G594408SA030Y-IL
	JA 2	TER,BOARD PUSH 8P	G598801SA050Y-IL
	JA 3	TER,RCA 3PIN	G6060319D1B5Y-IL
	RY 1	RELAY	G680240202030-IL
	RY 2,4,5	RELAY	G680120503020-IL
	CN 1	CN,WIRE	L000161062250-IL
	CN 3	CN,WIRE	L002161082620-IL
	CN 5	CN,WIRE	L000151042250-IL
	CN 704	CN.FPC 1.25MM	L131125022710-IL
	CN 8201	CN.FPC 1.0MM	L130100111050-IL

Mark	No.	Description	Part No.
	CN 9001	CONNECTOR	L108353280360-IL
	CN 9002	CN.WAFER 3.96MM	L104353130360-IL
	CN 9003,9004	CONNECTOR(3P)	L102526700300-IL
	CN 9005	CN.WAFER 2.0MM	L101200100410-IL
	CN 9017	CN.WAFER	L109012512710-IL
	CN 9201	CN,WAFER	L109012512910-IL
	CN 9404	CN.WAFER 2.0MM	L101200100310-IL
	601	TUNER,FM/AM	E903104100780-IL

RESISTORS

	R	7,9,11,13	C060010065050-IL
	R	8,10,12,14	C060010066050-IL
	R	15,17,25	C060010065050-IL
	R	16,18	C060010066050-IL
⚠	R	27,31,41,42	C060R22065050-IL
	R	28-30	C060022265050-IL
	R	35,36	C060047363050-IL
	R	37,38	C060033166050-IL
	R	39,40	C060015165050-IL
	R	64	C060022063050-IL
	R	66	C0604R7065050-IL
	R	80,81	C141R10069010-IL
	R	325	C060015165520-IL

CAPACITORS

	C	55,58	D040682088010-IL
	C	61,64	D02010406C060-IL
	C	65-68	D02010407H070-IL
	C	73	D040682083000-IL
	C	84	D040472084020-IL
	C	85	D040102084060-IL
	C	101	D040331088230-IL

D D-MAIN ASSY

SEMICONDUCTORS

⚠	IC	100	J126111712070-IL
	IC	101	J040742570040-IL
	IC	103	J001421640060-IL
	IC	104	8952521000020-IL
	IC	200	J046941000010-IL
	IC	201	8952VS3210020-IL
	IC	202,610	J040740400310-IL
	IC	203	8952VS3210030-IL
⚠	IC	205	J126111700041-IL
⚠	IC	206	J126111710011-IL
⚠	IC	207	NJM2831F33
	IC	600	J040740400270-IL
	IC	602	J046921100710-IL
	IC	603-606	J121458000020-IL
⚠	IC	607	J126111750090-IL
⚠	IC	608	J048107300010-IL
⚠	IC	609	J126111750010-IL
	Q	201-204	J522010200210-IL
	Q	205-208	J522104S00210-IL
	D	201-203,205-207	K067020500010-IL
	D	209-211,213-215	K067020500010-IL
	D	217-219,221-223	K067020500010-IL
	D	225-227,229-231	K067020500010-IL
	D	233-235,237-239	K067020500010-IL
	D	241-247,252-264	K067020500010-IL
	D	248-250,265	UDZS5R1(B)
	D	251	K005041480030-IL
	D	266-276	K067020500010-IL

MISCELLANEOUS

	L	141,153	COIL,INDUCTOR	D3104R7010200-IL
	L	160	COIL,CHIP	D311126000030-IL
	JA	201-204	CN.WAFER	L109100190160-IL
	X	200	CRYSTAL CHIP (24 MHz)	E80524R000040-IL
	X	201	CRYSTAL CHIP (18.432 MHz)	E80518R432010-IL
	X	600	CRYSTAL CHIP (24.576 MHz)	E80524R576050-IL
	CN	101	CN.FPC 1.0MM	L130100151040-IL
	CN	600	CN,WAFER	L109012522310-IL
	CN	601	CN.WAFER	L109012522910-IL
	CN	603	CN,WIRE 2MM	L002800132620-IL
	CN	9104	CN.WAFER 2.5MM	L102526800400-IL

RESISTORS

	R	675	C060015165520-IL

E BR1 ASSY

MISCELLANEOUS

	CN	209,210	CN,WAFER	L109012512310-IL

F HP ASSY

SEMICONDUCTORS

	D	705,706	K005041480030-IL

MISCELLANEOUS

	JA	701	JACK,D6.5	G402PJ612AG1Y-IL
	CN	721	CN,WIRE 2MM	L002411042420-IL
		702	RING,TER WIRE	8410131010060-IL

G FUNC ASSY

SEMICONDUCTORS

	D	711,712	K005041480030-IL

MISCELLANEOUS

	S	715	SWITCH	G180501000010-IL
	S	9702	SW,ENCODER	G121123050021-IL
	CN	9702	CN.WAFER 2.0MM	L101200100420-IL

H FRONT ASSY

SEMICONDUCTORS

	IC	701	J127163150010-IL
	IC	701	E940349003810-IL
	Q	702	2SA933S
	Q	703	J522101441210-IL
	Q	704	J522102371210-IL
	D	707,709	K005041480030-IL
	D	9701	MTZJ7R5(B)
	D	9703	K500052009011-IL

MISCELLANEOUS

	V	701	DISPLAY,FLT	K530126600010-IL
	S	701-714,716	SWITCH	G180501000010-IL
	S	9701	SW,ENCODER	G121123040011-IL
	CN	701	CN,WIRE 2MM	L002281092620-IL
	CN	702	CN.WAFER 2MM	L002900042621-IL

Mark	No.	Description	Part No.
	CN 704	CN.FPC 1.25MM	L131125022720-IL
RESISTORS			
	R 779,780		C0602R2063050-IL

I DG ASSY

SEMICONDUCTORS			
	D 416		K005041480030-IL
MISCELLANEOUS			
	JA 601	OPTICAL RECEIVER	E100116500040-IL
	JA 602	TER,RCA 1PIN	G600107A0000Y-IL
	CN 202	CN.FPC 1.0MM	L130100111050-IL
	CN 9603	CN.WAFER 2.0MM	L101200101310-IL
	601,602	BRACKET	4010210196100-IL

J CNT ASSY

MISCELLANEOUS			
	L 1001-1009	CHIP BEAD	D340160811210-IL
	CN 1000	CN,WAFER	L109012512910-IL
	CN 9000	CN.WAFER	L109012522910-IL
	1000	BRACKET	4010210196100-IL

K G-T ASSY

MISCELLANEOUS			
	910,911	BRACKET	4010210196000-IL

L G-L ASSY

There is no service parts.

M G-H ASSY

MISCELLANEOUS			
	903-907	JHMX9800(ON)HAITI)	4330000120000-IL

N STBY ASSY

SEMICONDUCTORS			
⚠	IC 301		J126111700041-IL
	Q 301,303		J522305200050-IL
	D 301,302,309,310		K005041480030-IL
⚠	D 303,304		K005041480030-IL
⚠	D 305-308		K000400700010-IL
	D 9301		UDZS5R1(B)
	D 9303		UDZS7R5(B)
MISCELLANEOUS			
	H 301,9301	HOLDER,FUSE CLIP	G645000050010-IL
⚠	RY 301	RELAY	G680060102020-IL
⚠	T 301	POWER TRANS	8200280150680-IL
⚠	CN 9301	CONNECTOR	L108202000220-IL
⚠	CN 9302	CN.WAFER 7.92MM	L108353280290-IL
	CN 9304	CONNECTOR(3P)	L102526700300-IL
	CN 9701	CN.WAFER 2.0MM	L101200100920-IL
	301	BRACKET	4010210196000-IL
	302-304	BRACKET	4010210196100-IL
⚠	FU 301	FUSE GLASS TUBE 20MM	N751503151160-IL

Mark	No.	Description	Part No.
RESISTORS			
	R 326		C060033065050-IL
CAPACITORS			
	C 301		D040222083010-IL
⚠	C 304		D00847208H010-IL