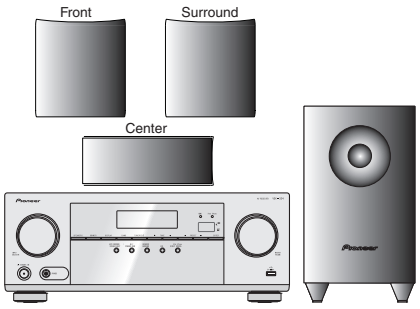
Pioneer

Service Manual



HTP-072

ORDER NO.
RRV4432

Home Theater Package
HTP-072
Home Cinema Package
HTP-073
AV Receiver
VSX-324-K-P
Subwoofer
S-22W-P
Speaker System
S-11A-P

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

Model	Type	Power Requirement	Remarks
HTP-072	CMXESM	AC 120 V	
HTP-072	YXE8	AC 220 V to 230 V	
HTP-072, HTP-073	VYXE8	AC 220 V to 230 V	
HTP-072	DLXE	AC 110 V to 127 V/220 V to 240 V	
HTP-072	PWXE	AC 220 V to 230 V	
HTP-072	AXQ5	AC 220 V	
VSX-324-K-P	CMXESM	AC 120 V	
VSX-324-K-P	YXE8	AC 220 V to 230 V	
VSX-324-K-P	VYXE8	AC 220 V to 230 V	
VSX-324-K-P	DLXE	AC 110 V to 127 V/220 V to 240 V	
VSX-324-K-P	PWXE	AC 220 V to 230 V	
VSX-324-K-P	AXQ5	AC 220 V	
S-22W-P	————	————	
S-11A-P	————	————	

HTP-072 and HTP-073 is a Home Cinema Package and consists of VSX-324-K-P, S-22W-P and S-11A-P.



PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2013**

K-MZV MAY 2013 Printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

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

Health & Safety Code Section 25249.6 - Proposition 65

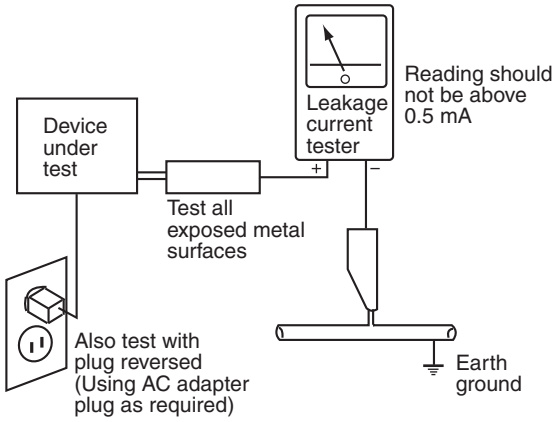
(FOR USA MODEL ONLY)

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

SAFETY INFORMATION 2
1. SERVICE PRECAUTIONS 4
1.1 NOTES ON SOLDERING 4
1.2 NOTES ON REPLACING PARTS 4
1.3 SERVICE NOTICE 4
2. SPECIFICATIONS 5
3. BASIC ITEMS FOR SERVICE 7
3.1 CHECK POINTS AFTER SERVICING 7
3.2 JIGS LIST 7
3.3 PCB LOCATIONS 8
4. BLOCK DIAGRAM 10
4.1 OVERALL WIRING DIAGRAM 10
4.2 OVERALL BLOCK DIAGRAM 12
4.3 VCC BLOCK DIAGRAM 14
4.4 GND BLOCK DIAGRAM 16
5. DIAGNOSIS 18
5.1 TROUBLESHOOTING 18
5.2 PROTECTION CIRCUIT 23
5.3 IC INFORMATION 24
6. SERVICE MODE 27
7. DISASSEMBLY 31
7.1 VSX-324-K-P 31
7.2 S-22W-P 35
7.3 S-11A-P 36
8. EACH SETTING AND ADJUSTMENT 37
8.1 UPDATING OF THE FIRMWARE 37
9. EXPLODED VIEWS AND PARTS LIST 42
9.1 PACKING SECTION 42
9.2 VSX-324-K-P 44
9.3 S-22W-P 47
9.4 S-11A-P 48
10. SCHEMATIC DIAGRAM 50
10.1 MAIN ASSY (1/3) 50
10.2 MAIN ASSY (2/3) 52
10.3 MAIN ASSY (3/3) 54
10.4 OPTCO ASSY 55
10.5 D-MAIN ASSY (1/3) 56
10.6 D-MAIN ASSY (2/3) 58
10.7 D-MAIN ASSY (3/3) 60
10.8 AMP6 ASSY 62
10.9 CPU ASSY 64
10.10 FRONT, INSEL, HP and FUSB ASSYS 66
10.11 CNT ASSY 68
10.12 STBY and V_SEL ASSYS 70
10.13 S-11A-P 72
11. PCB CONNECTION DIAGRAM 74
11.1 MAIN and OPTCO ASSYS 74
11.2 D-MAIN ASSY 78
11.3 AMP6 ASSY 82
11.4 CPU ASSY 84
11.5 FRONT, INSEL, HP and FUSB ASSYS 86
11.6 CNT ASSY 88
11.7 STBY ASSY 89
11.8 V_SEL, G-L, G-T and G-CNT ASSYS 90
12. PCB PARTS LIST 91

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	IC2012	INTERFACE IC	————————	IC with heat-pad
	IC2013	D-MAIN 1.2 V Power Supply IC	————————	IC with heat-pad
	IC2015	D-MAIN 1.8 V Power Supply IC	————————	IC with heat-pad
	IC2016	DSP IC	————————	IC with heat-pad
	IC2017	Low Dropout Power Supply IC	————————	IC with heat-pad
	IC2020	APPLE AUTHENTICATION IC	————————	IC with heat-pad
	IC2211	D-MAIN 5 V Power Supply IC	J126780500450-IL	IC with heat-pad
	IC2213	D-MAIN 3.3 V Power Supply IC	————————	IC with heat-pad
	IC2214	D-MAIN 5 V Power Supply IC	————————	IC with heat-pad
	IC400	ADJUSTABLE LDO REGULATOR	J126238700010-IL	IC with heat-pad

1.3 SERVICE NOTICE

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

2. SPECIFICATIONS

[VSX-324-K-P]

Amplifier section

(CMXESM only)

Continuous average power output of 60 watts* per channel, min., at 8 ohms, from 40 Hz to 20 000 Hz with no more than 0.2 %** total harmonic distortion.

Front (stereo) ..... 60 W + 60 W

Rated power output

Front, Center, Surround .... 100 W per channel (1 kHz, 6 Ω, 0.7 %)

Guaranteed speaker impedance ..... 6 Ω to 16 Ω

Audio section

(CMXESM)

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

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

** Measured by Audio Spectrum Analyzer

(YXE8, VYXE8, PWXE)

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 W, 50 W/ch)

Frequency response (LINE Pure Direct mode) ... 10 Hz to 70 kHz $^{+0}_{-3}$ 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

(DLXE)

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 W, 50 W/ch)

Frequency response (LINE Pure Direct mode) ... 10 Hz to 70 kHz $^{+0}_{-3}$ 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

(AXQ5)

Rated power output (Front, Center, Surround)

..... 90 W per channel (1 kHz, 6 Ω, 0.7 %)

Maximum power output (Front, Center, Surround)

..... 110 W per channel (1 kHz, 6 Ω, 10 %)

Guaranteed speaker impedance ..... 6 Ω to 16 Ω

Video section

Signal level

Composite ..... 1 Vp-p (75 Ω)

Tuner section

(CMXESM)

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

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

Frequency Range (AM) ..... 530 kHz to 1 700 kHz

Antenna (AM) ..... Loop antenna

(YXE8, VYXE8, PWXE)

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

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

Frequency Range (AM) ..... 531 kHz to 1602 kHz

Antenna (AM) ..... Loop antenna

(DLXE, AXQ5)

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

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

Frequency Range (AM)

9 kHz step ..... 531 kHz to 1602 kHz

10 kHz step ..... 530 kHz to 1700 kHz

Antenna (AM) ..... Loop antenna

Digital In/Out section

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

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

USB (iPod) terminal ..... USB2.0 Full Speed (Type A) 5 V, 1 A

Miscellaneous

(CMXESM)

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

Power Consumption ..... 185 W

In standby ..... 0.45 W

Dimensions ..... 435 mm (W) x 168 mm (H) x 362.5 mm (D)

171/8 in. (W) x 65/8 in. (H) x 145/16 in. (D)

Weight (without package) ..... 7.5 kg (16 lb 9 oz)

(YXE8, VYXE8, PWXE)

Power Requirements ..... AC 220 V to 230 V, 50 Hz/60 Hz

Power Consumption ..... 185 W

In standby ..... 0.45 W

Dimensions ..... 435 mm (W) x 168 mm (H) x 362.5 mm (D)

Weight (without package) ..... 7.5 kg

(DLXE)

Power Requirements ... AC 110 V to 127 V/220 V to 240 V, 50 Hz/60 Hz

Power Consumption ..... 195 W

In standby ..... 0.45 W

Dimensions ..... 435 mm (W) x 168 mm (H) x 362.5 mm (D)

Weight (without package) ..... 7.5 kg

(AXQ5)

Power Requirements ..... AC 220 V, 50 Hz/60 Hz

Power Consumption ..... 185 W

In standby ..... 0.45 W

Dimensions ..... 435 mm (W) x 168 mm (H) x 362.5 mm (D)

Weight (without package) ..... 7.5 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)
(9 1/16 in.(W) x 16 7/16 in.(H) x 14 1/8 in.(D))
Weight (without package) ..... 5.1 kg (11 lb 4 oz)

[S-11A-P]

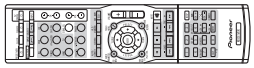
Front speakers / Surround speakers

Enclosure
Front speakers ..... Closed-box bookshelf type
Surround speakers ..... Closed-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)
(4 3/16 in.(W) x 4 9/16 in.(H) x 4 3/16 in.(D))
Weight
Front speakers ..... 0.6 kg (1 lb 5 oz)
Surround speakers ..... 0.6 kg (1 lb 5 oz)

Center speaker

Enclosure ..... Closed-box bookshelf type
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)
(10 5/8 in.(W) x 3 15/16 in.(H) x 4 3/16 in.(D))
Weight ..... 0.8 kg (1 lb 13 oz)

Accessories



Remote control (AXD7690)
(8300769000010-IL)



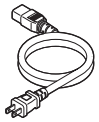
Dry cell batteries
(AAA size IEC R03) x2



FM wire antenna
(E605010140010-IL)



AM loop antenna
(E601019000010-IL)



Power cord (VYXE8, DLXE only)
(VYXE8: L068250100040-IL)
(DLXE: L068250160020-IL)

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

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

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

Operating instructions (CD-ROM) (YXE8, VYXE8, PWXE only)
(HTP-072/YXE8, VYXE8, PWXE: 6517000001380-IL)
(HTP-073/VYXE8: L068250160020-IL)

Quick start guide (YXE8, VYXE8, PWXE only)
(HTP-072/YXE8, VYXE8, PWXE: 5707000008050-IL)
(HTP-073/VYXE8: 5707000008060-IL)

Operating instructions
(HTP-072/CMXESM: 5707000008070-IL, 5707000008080-IL)
(HTP-072/YXE8, VYXE8, PWXE:
ARC8230, ARB7529, ARC8231, ARC8229, ARC8232, ARC8233,
ARC8235, ARB7531, ARC8236, ARC8234, ARC8237, ARC8238)
(HTP-072/DLXE: 5707000008090-IL, 5707000008100-IL)
(HTP-072/AXQ5: 5707000008110-IL, 5707000008120-IL)
(HTP-073/VYXE8:
ARC8245, ARB7530, ARC8246, ARC8244, ARC8247, ARC8248
ARC8240, ARB7532, ARC8241, ARC8239, ARC8242, ARC8243)

Warranty card (YXE8, VYXE8, AXE5 only)

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

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

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 microcomputer firmware update (RS-232C ↔ Rear panel)
RS-232C cable (9-pin to 9-pin, straight cable)	(Marketing product)	
RS-232C update jig	GGF1646	HDMI & CEC (SUB) microcomputer firmware update (USB ↔ Rear panel)
USB cable (USB A-Type ↔ USB B-Type)	(Marketing product)	
10P extension jig cable	GGD1628	Diagnosis (AMP Assy ↔ MAIN Assy)
3P extension jig cable	GGD1773	Diagnosis (AMP Assy ↔ CPU Assy)
Board to board extension jig cable	GGD1849	Diagnosis (D-MAIN Assy ↔ CPU Assy)
Board to board extension jig cable	GGD1850	Diagnosis (D-MAIN Assy ↔ CPU Assy)
Board to board extension jig cable	GGD1851	Diagnosis (D-MAIN Assy ↔ CNT Assy)

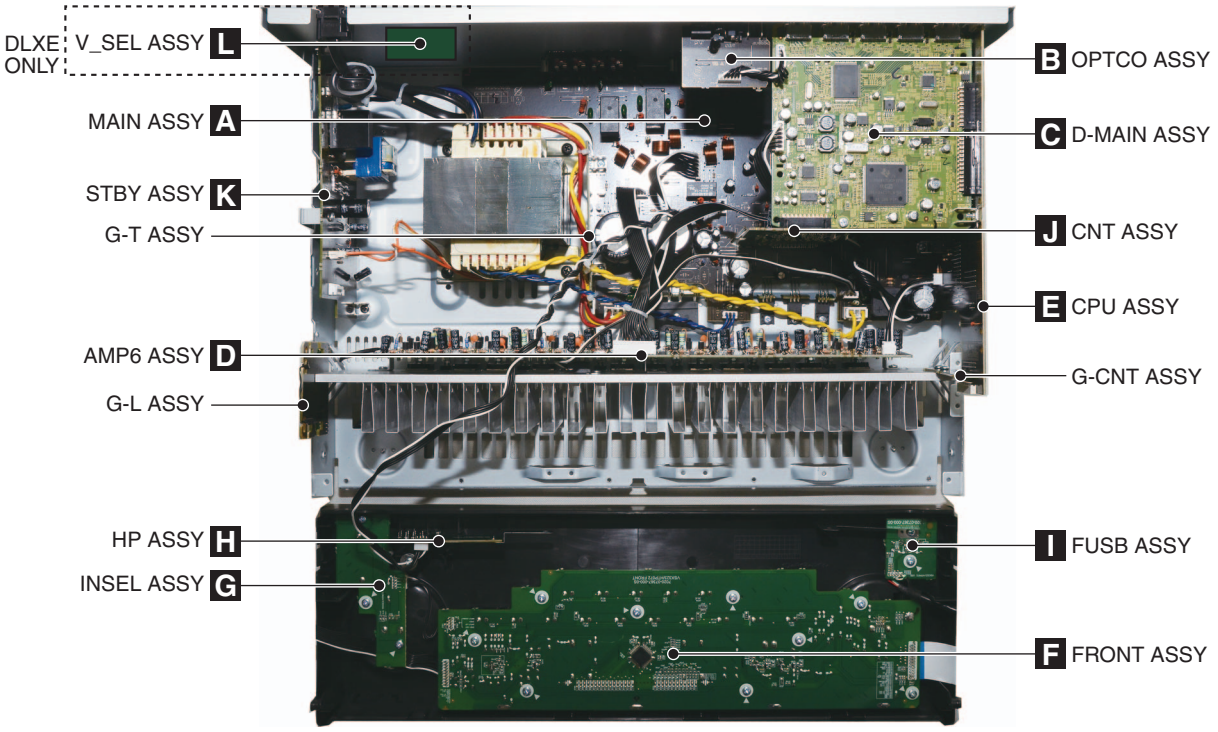
■ Lubricants and Glues List



Name	Part No.	Remarks
Silicon grease	GEM1057	Refer to "9.2 VSX-324-K-P SECTION".
Silicon adhesive	GYA1011 (KE40RTV-W)	Refer to "9.2 VSX-324-K-P SECTION".

3.3 PCB LOCATIONS

■ VSX-324-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	Symbol and Description	VSX-324-K-P /CMXESM	VSX-324-K-P /YXE8	VSX-324-K-P /VYXE8	VSX-324-K-P /DLXE	VSX-324-K-P /PWXE	VSX-324-K-P /AXQ5
NSP	1..PCB TTL ASSY MAIN	7025HK1215070-IL	7025HK1215010-IL	7025HK1215050-IL	7025HK1215040-IL	7025HK1215030-IL	7025HK1215020-IL
	2.. MAIN ASSY (PCB SUB ASSY MAIN)	7028073701040-IL	7028073701010-IL	7028073701010-IL	7028073701030-IL	7028073701020-IL	7028073701020-IL
	2.. OPTCO ASSY (PCB SUB ASSY OPTCO)	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL
	2.. G-L ASSY (PCB SUB ASSY G-L)	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL
	2.. G-T ASSY (PCB SUB ASSY G-T)	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL
	2.. G-CNT ASSY (PCB SUB ASSY G-CNT)	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL
	2.. V_SEL ASSY (PCB SUB ASSY V_SEL)	Not used	Not used	Not used	7028073703020-IL	Not used	Not used
NSP	1..PCB TTL ASSY DMAIN	7025HK1215071-IL	7025HK1215011-IL	7025HK1215051-IL	7025HK1215041-IL	7025HK1215031-IL	7025HK1215021-IL
	2.. D-MAIN ASSY (PCB SUB ASSY DMAIN)	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL
NSP	1..PCB TTL ASSY FRONT	7025HK1215072-IL	7025HK1215012-IL	7025HK1215052-IL	7025HK1215042-IL	7025HK1215032-IL	7025HK1215022-IL
	2.. FRONT ASSY (PCB SUB ASSY FRONT)	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL
	2.. HP ASSY (PCB SUB ASSY HP)	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL
	2.. FUSB ASSY (PCB SUB ASSY FUSB)	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL
	2.. INSEL ASSY (PCB SUB ASSY INSEL)	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL
NSP	1..PCB TTL ASSY CPU	7025HK1215073-IL	7025HK1215013-IL	7025HK1215053-IL	7025HK1215043-IL	7025HK1215033-IL	7025HK1215023-IL
	2.. CPU ASSY (PCB SUB ASSY CPU)	7028073681070-IL	7028073681010-IL	7028073681050-IL	7028073681040-IL	7028073681030-IL	7028073681020-IL
	2.. STBY ASSY (PCB SUB ASSY STBY)	7028073682050-IL	7028073682010-IL	7028073682030-IL	7028073682040-IL	7028073682010-IL	7028073682020-IL
	2.. CNT ASSY (PCB SUB ASSY CNT)	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL
NSP	1..PCB TTL ASSY AMP6	7025HK1215074-IL	7025HK1215014-IL	7025HK1215054-IL	7025HK1215044-IL	7025HK1215034-IL	7025HK1215024-IL
	2.. AMP6 ASSY (PCB SUB ASSY AMP6)	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL

A

B

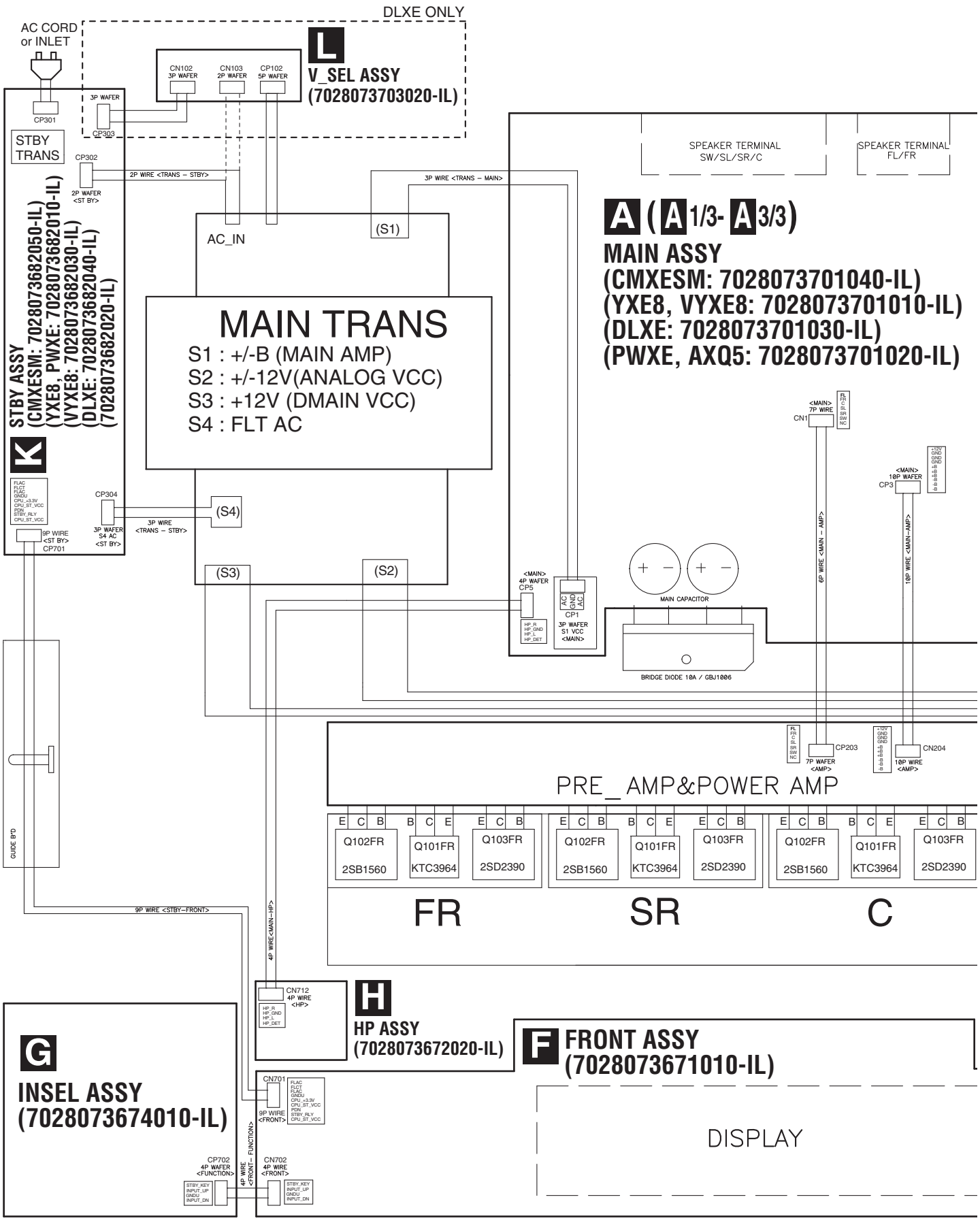
C

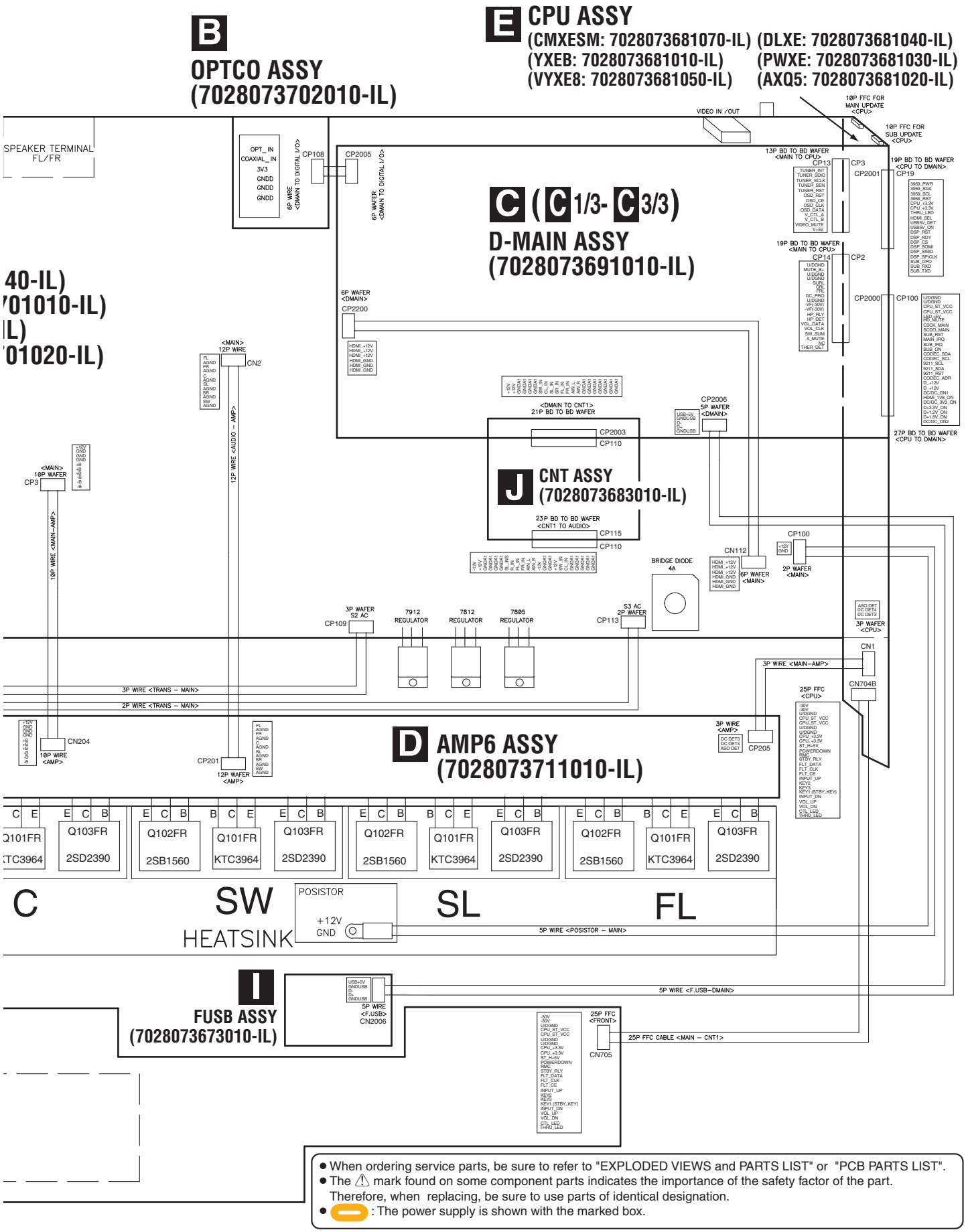
D

E

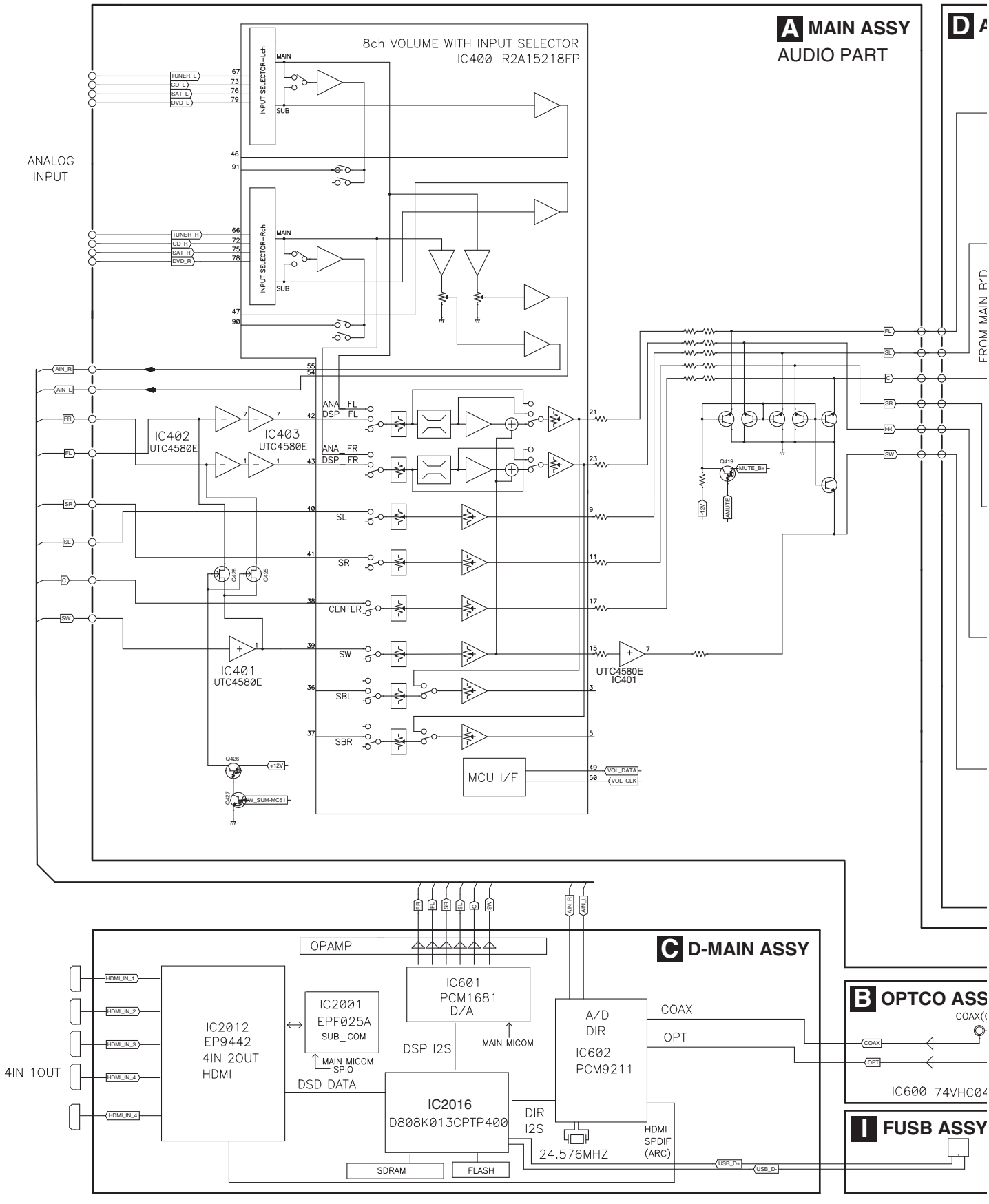
F

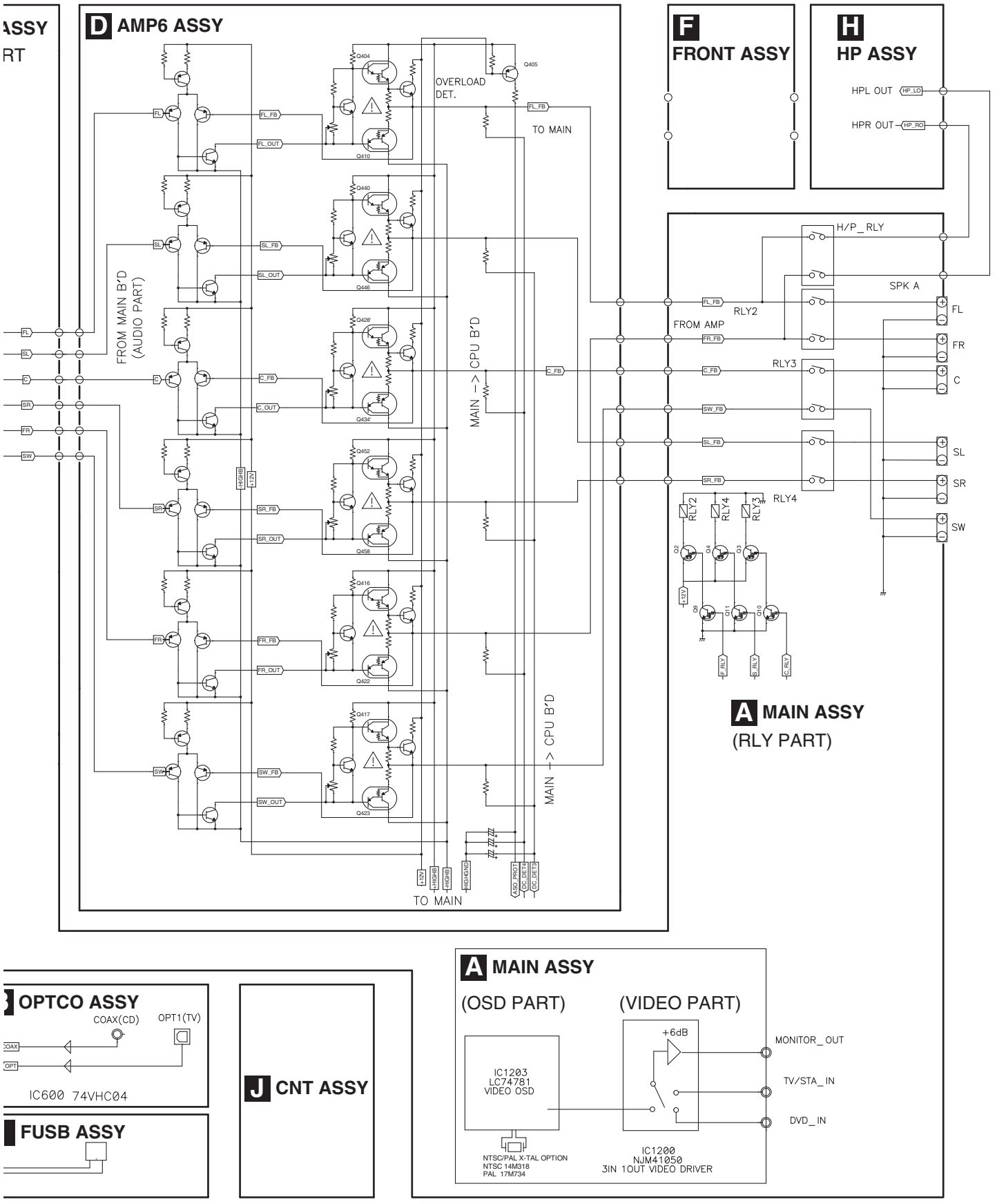
4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM



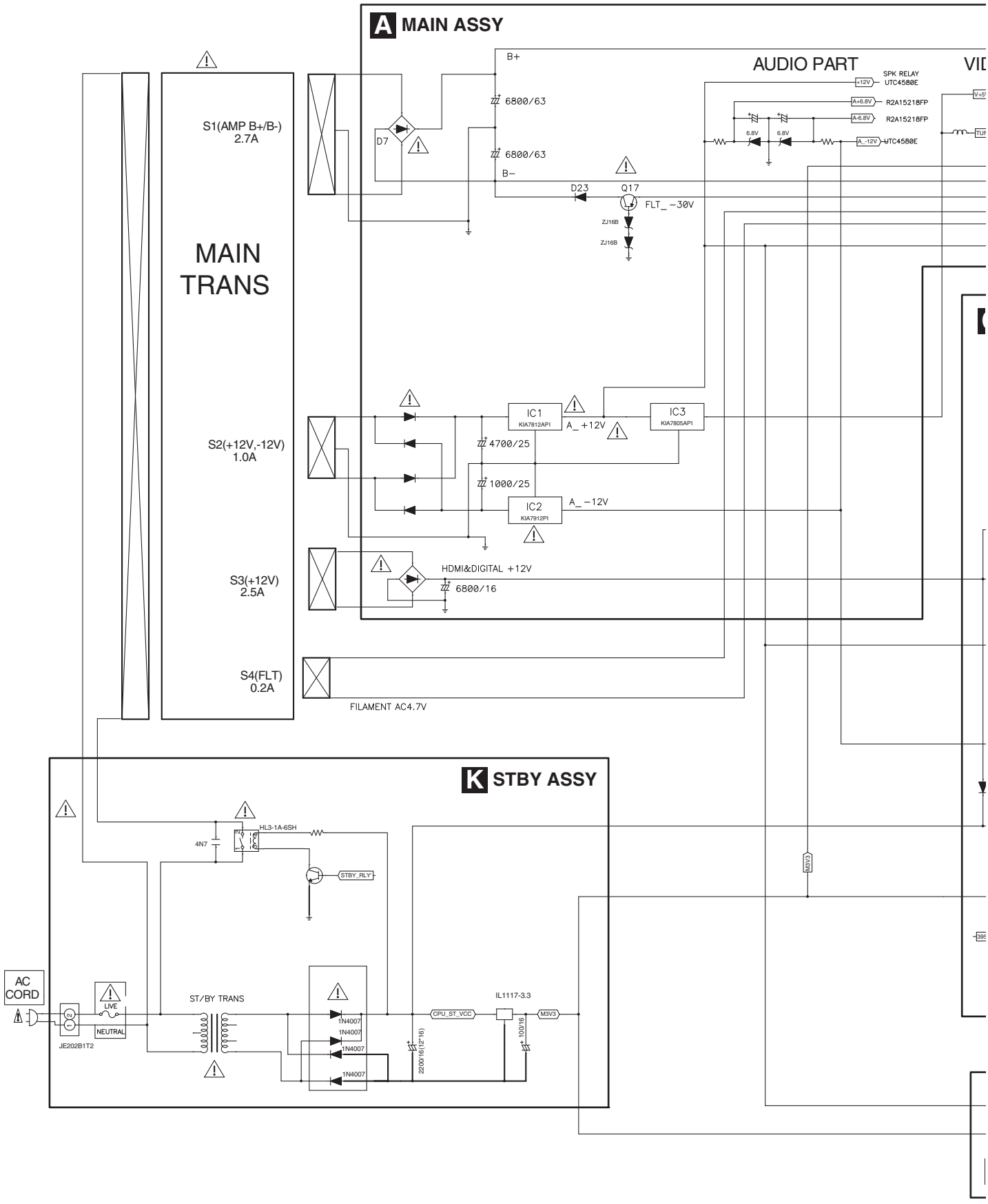

B
OPTCO ASSY
(7028073702010-IL)
E CPU ASSY
(CMXESM: 7028073681070-IL) (DLXE: 7028073681040-IL)
(YXEB: 7028073681010-IL) (PWXE: 7028073681030-IL)
(VYXE8: 7028073681050-IL) (AXQ5: 7028073681020-IL)
C (C 1/3- C 3/3)
D-MAIN ASSY
(7028073691010-IL)
J CNT ASSY
(7028073683010-IL)
D AMP6 ASSY
(7028073711010-IL)
I FUSB ASSY
(7028073673010-IL)
SPEAKER TERMINAL FL/FR
VIDEO IN /OUT
10P FFC FOR MAIN UPDATE <CPU>
10P FFC FOR SUB UPDATE <CPU>
13P BD TO BD WAFER <MAIN TO CPU>
19P BD TO BD WAFER <CPU TO DMAIN>
19P BD TO BD WAFER <MAIN TO CPU>
27P BD TO BD WAFER <CPU TO DMAIN>
6P WIRE <DMAIN TO DIGITAL I/O>
6P WAFER <DMAIN>
<MAIN> 12P WIRE
12P WIRE <AUDIO – AMP>
<DMAIN TO CNT1> 21P BD TO BD WAFER
5P WAFER <DMAIN>
23P BD TO BD WAFER <CNT1 TO AUDIO>
<MAIN> 10P WAFER
10P WIRE <MAIN–AMP>
3P WAFER S2 AC
7912 REGULATOR
7812 REGULATOR
7805 REGULATOR
S3 AC 2P WAFER
BRIDGE DIODE 4A
6P WAFER <MAIN>
2P WAFER <MAIN>
3P WAFER <CPU>
3P WIRE <TRANS – MAIN>
2P WIRE <TRANS – MAIN>
3P WIRE <MAIN–AMP>
25P FFC <CPU>
10P WIRE <AMP>
12P WAFER <AMP>
3P WIRE <AMP>
Q101FR KTC3964
Q103FR 2SD2390
Q102FR 2SB1560
C
SW HEATSINK
POSISTOR
+12V GND
SL
FL
5P WIRE <POSISTOR – MAIN>
5P WIRE <F.USB–DMAIN>
5P WIRE <F.USB> CN2006
25P FFC <FRONT>
25P FFC CABLE <MAIN – CNT1>
CN705
● 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.

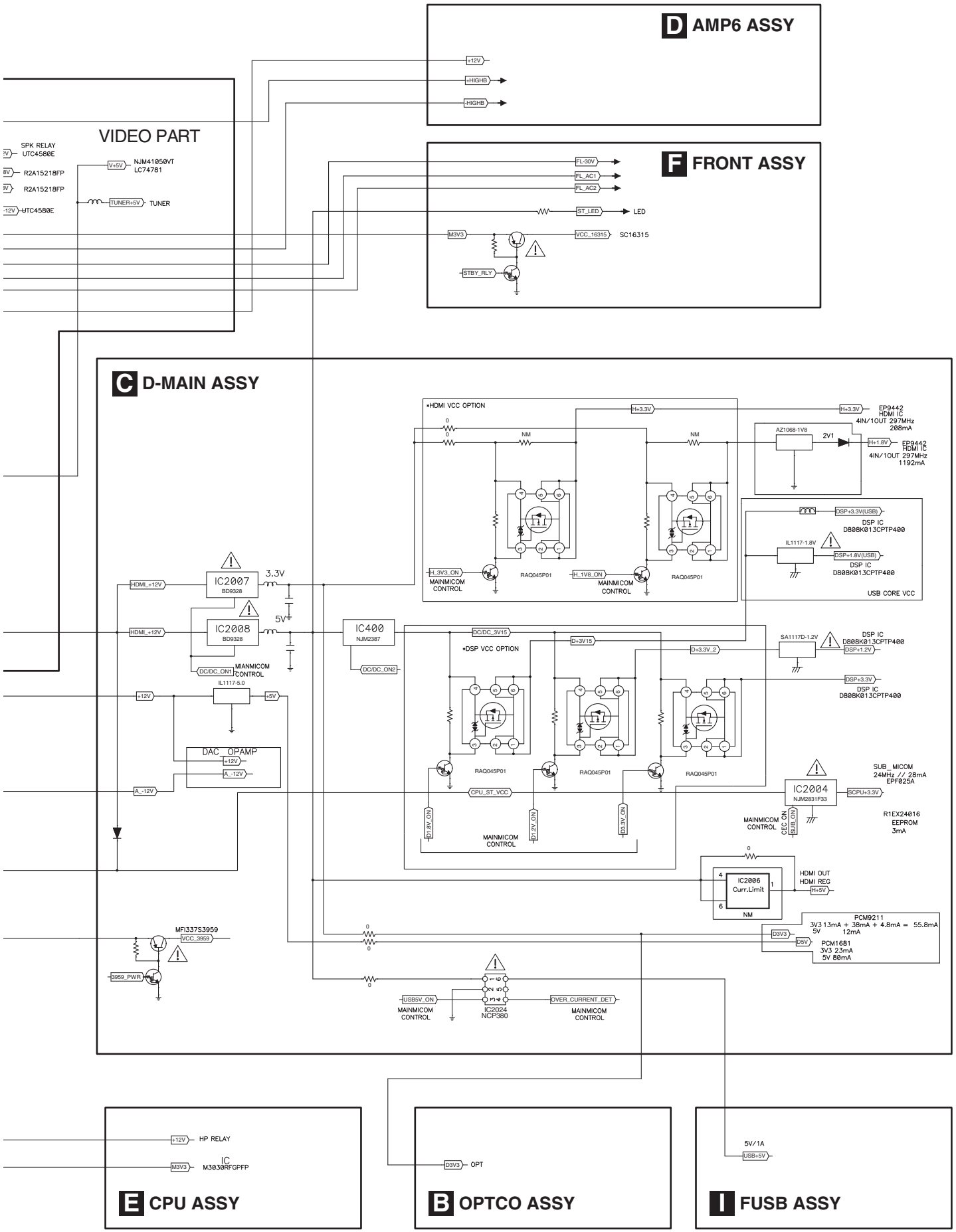
4.2 OVERALL BLOCK DIAGRAM



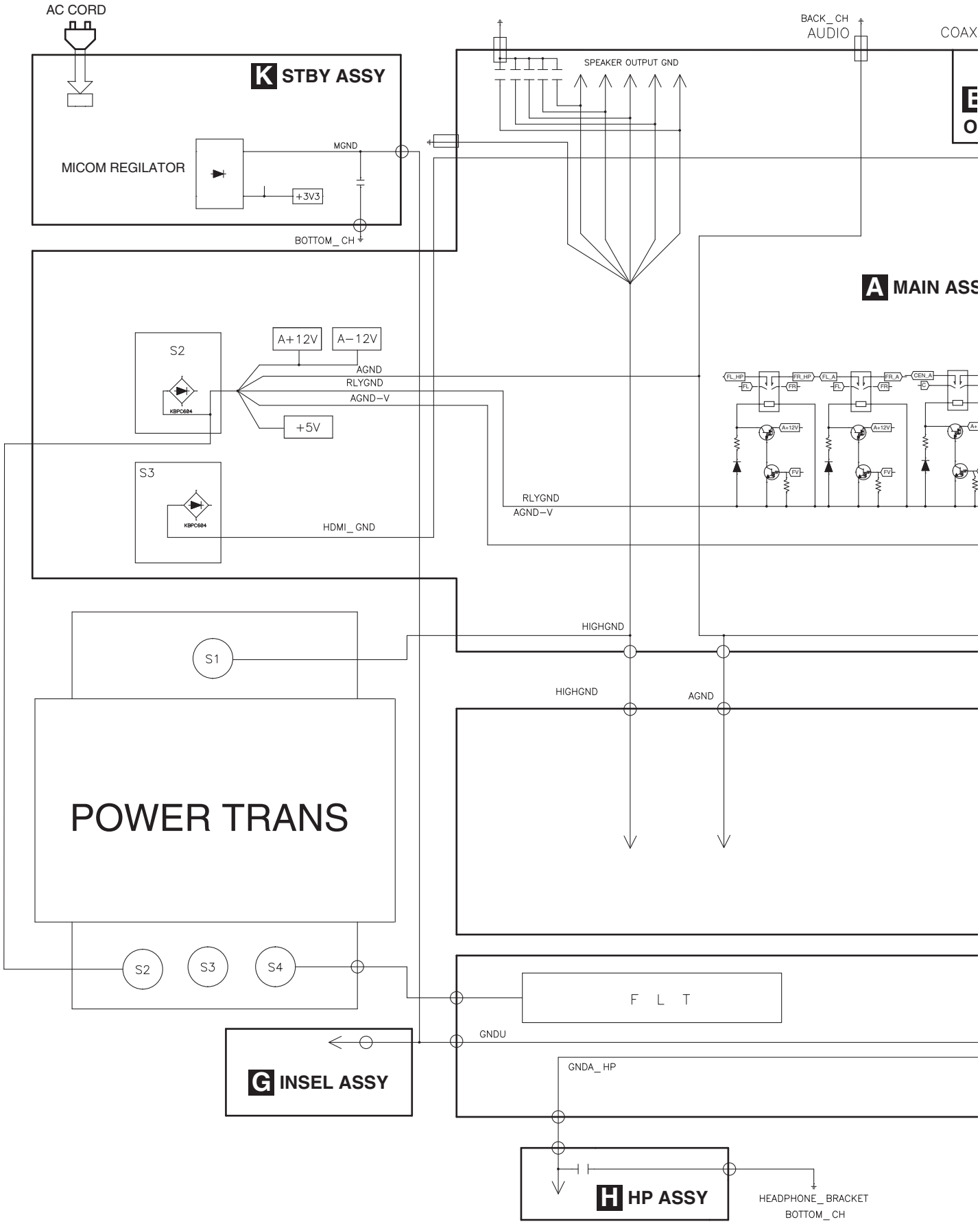

D AMP6 ASSY
F FRONT ASSY
H HP ASSY
HPL OUT
HPR OUT
HP_LO
HP_RO
H/P_RLY
SPK A
FL
FR
C
SL
SR
SW
RLY2
RLY3
RLY4
FROM AMP
FROM MAIN B'D (AUDIO PART)
MAIN --> CPU B'D
OVERLOAD DET.
TO MAIN
A MAIN ASSY
(RLY PART)
OPTCO ASSY
COAX(CD)
OPT1(TV)
IC600 74VHC04
FUSB ASSY
J CNT ASSY
A MAIN ASSY
(OSD PART)
(VIDEO PART)
IC1203
LC74781
VIDEO OSD
NTSC/PAL X-TAL OPTION
NTSC 14M318
PAL 17M734
+6dB
MONITOR_OUT
TV/STA_IN
DVD_IN
IC1200
NJM41050
3IN 1OUT VIDEO DRIVER

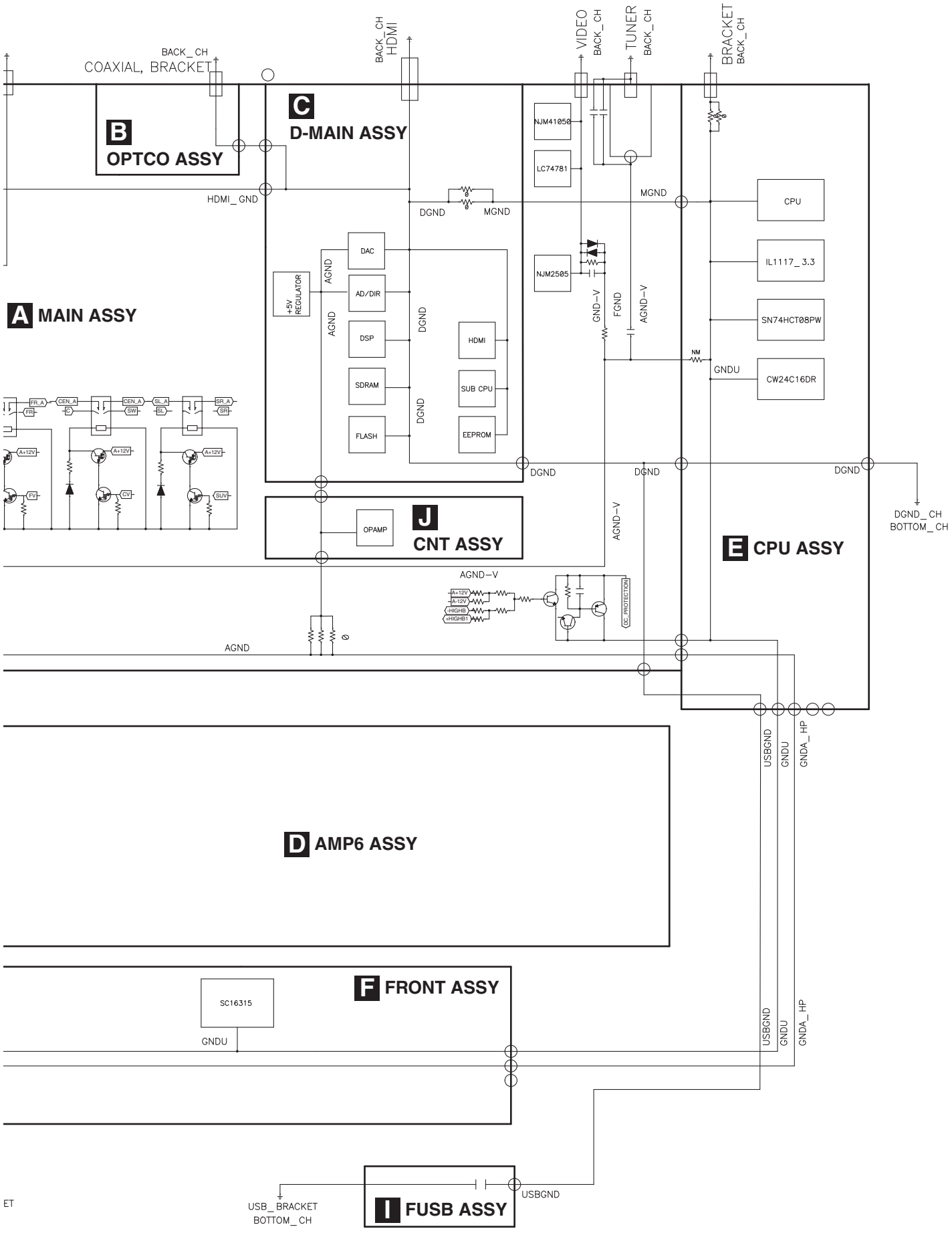
4.3 VCC BLOCK DIAGRAM




D AMP6 ASSY
+12V
+HIGHB
-HIGHB
VIDEO PART
SPK RELAY
UTC4580E
R2A15218FP
R2A15218FP
UTC4580E
V+5V
NJM4185DVT
LC74781
TUNER+5V
TUNER
F FRONT ASSY
FL-30V
FL_AC1
FL_AC2
ST_LED
LED
M3V3
VCC_16315
SC16315
STBY_RLY
C D-MAIN ASSY
*HDMI VCC OPTION
H+3.3V
EP9442
HDMI IC
4IN/1OUT 297MHz
208mA
AZ1068-1V8
2V1
H+1.8V
EP9442
HDMI IC
4IN/1OUT 297MHz
1192mA
NM
H_3V3_ON
MAINMICOM
CONTROL
RAQ045P01
H_1V8_ON
MAINMICOM
CONTROL
RAQ045P01
DSP+3.3V(USB)
DSP IC
D808K013CPTP400
IL1117-1.8V
DSP+1.8V(USB)
DSP IC
D808K013CPTP400
USB CORE VCC
IC2007
BD9328
3.3V
HDMI_+12V
IC2008
BD9328
5V
HDMI_+12V
DC/DC_ON1
MAINMICOM
CONTROL
IL1117-5.0
+12V
+5V
IC400
NJM2387
DC/DC_3V15
DC/DC_ON2
*DSP VCC OPTION
D+3V15
D+3.3V_2
SA1117D-1.2V
DSP IC
D808K013CPTP400
DSP+1.2V
DSP+3.3V
DSP IC
D808K013CPTP400
RAQ045P01
RAQ045P01
RAQ045P01
CPU_ST_VCC
D1.8V_ON
D1.2V_ON
D3.3V_ON
MAINMICOM
CONTROL
DAC_OPAMP
+12V
A_-12V
A_-12V
SUB_MICOM
24MHz // 28mA
EPF025A
IC2004
NJM2831F33
SCPU+3.3V
MAINMICOM
CONTROL
CEC ON
SUB_ON
R1EX24016
EEPROM
3mA
IC2006
Curr.Limit
HDMI OUT
HDMI REG
H+5V
NM
MFI337S3959
VCC_3959
3959_PWR
PCM9211
3V3 13mA + 38mA + 4.8mA = 55.8mA
5V 12mA
D3V3
D5V
PCM1681
3V3 23mA
5V 80mA
USB5V_ON
MAINMICOM
CONTROL
IC2024
NCP380
OVER_CURRENT_DET
MAINMICOM
CONTROL
+12V
HP RELAY
M3V3
IC
M30300FGPFP
E CPU ASSY
D3V3
OPT
B OPTCO ASSY
5V/1A
USB+5V
I FUSB ASSY

4.4 GND BLOCK DIAGRAM

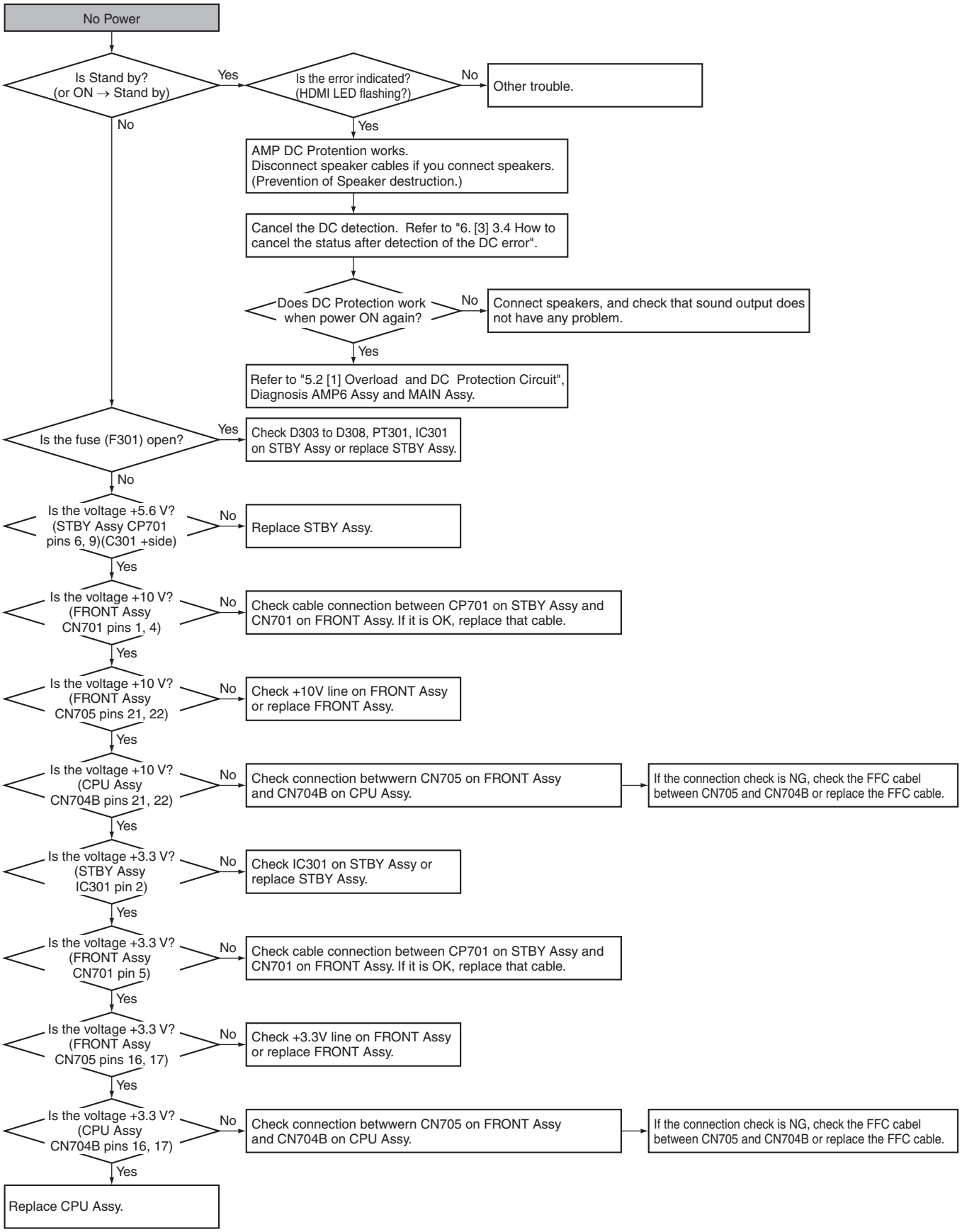



BACK_CH
COAXIAL, BRACKET
B
OPTCO ASSY
BACK_CH
HDMI
VIDEO
BACK_CH
TUNER
BACK_CH
BRACKET
BACK_CH
C
D-MAIN ASSY
NJM41050
LC74781
HDMI_GND
DGND
MGND
MGND
CPU
DAC
AGND
AD/DIR
+5V REGULATOR
AGND
DSP
HDMI
SDRAM
SUB CPU
FLASH
EEPROM
DGND
NJM2505
GND-V
FGND
AGND-V
IL1117_3.3
SN74HCT08PW
NM
GNDU
CW24C16DR
A MAIN ASSY
DGND
DGND
DGND
DGND_CH
BOTTOM_CH
J
CNT ASSY
OPAMP
AGND-V
E CPU ASSY
AGND-V
AGND
OC PROTECTION
USBGND
GNDU
GNDA_HP
D AMP6 ASSY
F FRONT ASSY
SC16315
GNDU
USBGND
GNDU
GNDA_HP
USBGND
USB_BRACKET
BOTTOM_CH
I FUSB ASSY

5. DIAGNOSIS
5.1 TROUBLESHOOTING

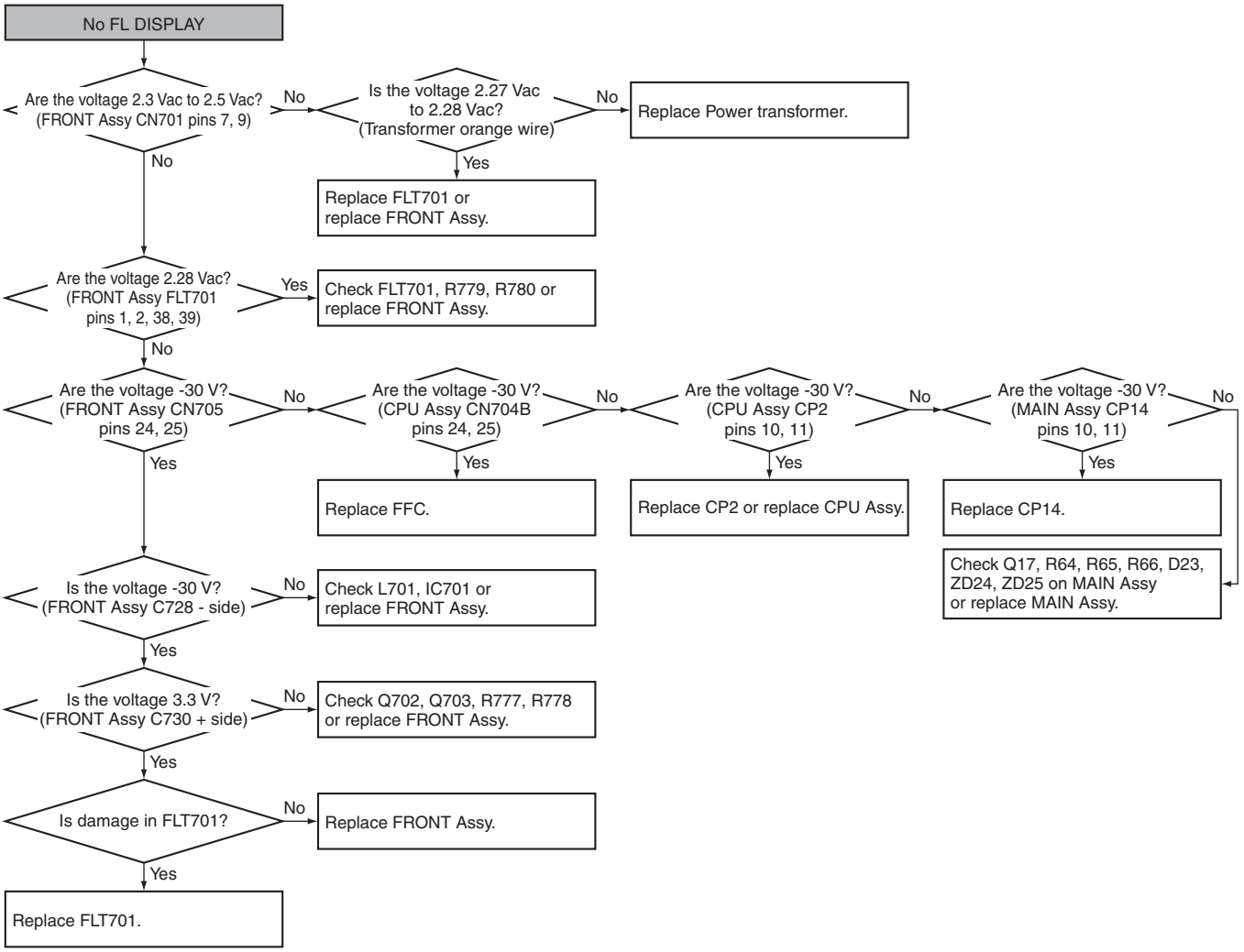
No Power

This is just for general reference and does not including every single case.



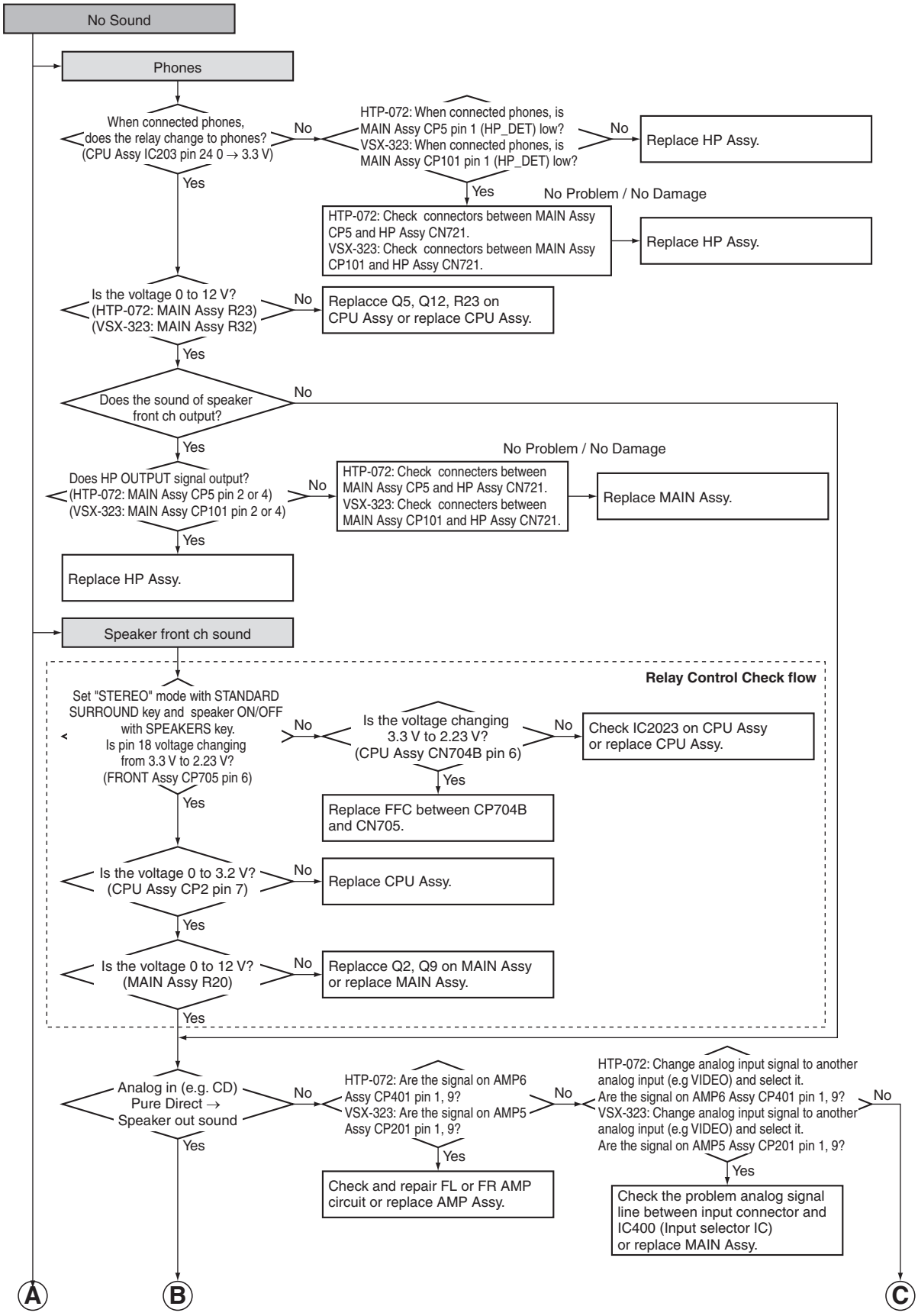
No FL DISPLAY

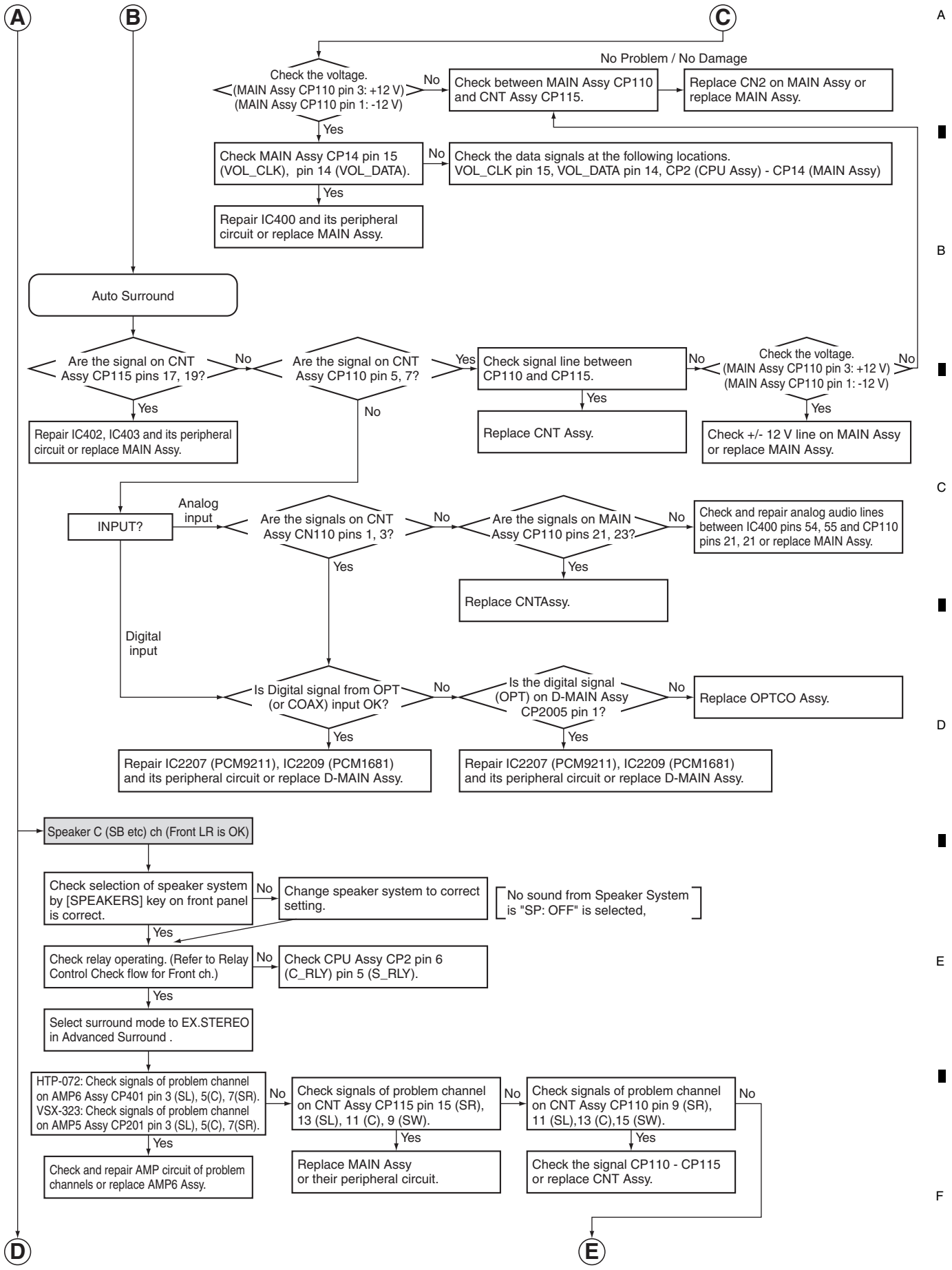
This is just for general reference and does not including every single case.

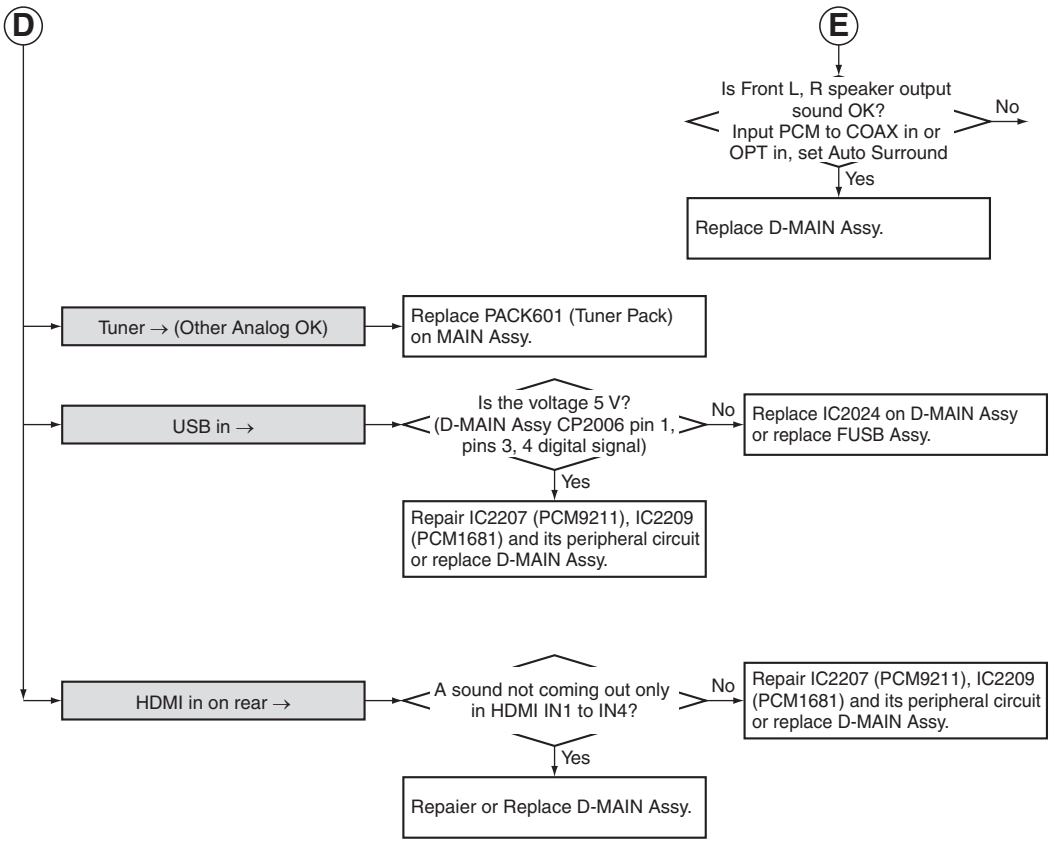


No Sound

This is just for general reference and does not including every single case.

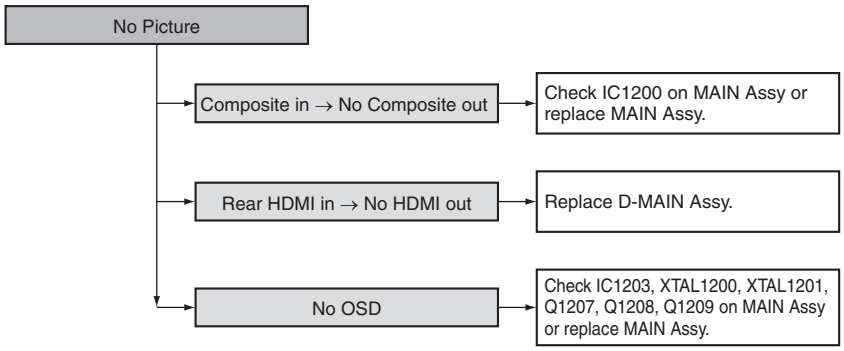



A
B
C
No Problem / No Damage
Check the voltage.
(MAIN Assy CP110 pin 3: +12 V)
(MAIN Assy CP110 pin 1: -12 V)
No
Check between MAIN Assy CP110 and CNT Assy CP115.
Replace CN2 on MAIN Assy or replace MAIN Assy.
Yes
Check MAIN Assy CP14 pin 15 (VOL_CLK), pin 14 (VOL_DATA).
No
Check the data signals at the following locations.
VOL_CLK pin 15, VOL_DATA pin 14, CP2 (CPU Assy) - CP14 (MAIN Assy)
Yes
Repair IC400 and its peripheral circuit or replace MAIN Assy.
Auto Surround
Are the signal on CNT Assy CP115 pins 17, 19?
No
Are the signal on CNT Assy CP110 pin 5, 7?
Yes
Check signal line between CP110 and CP115.
No
Check the voltage.
(MAIN Assy CP110 pin 3: +12 V)
(MAIN Assy CP110 pin 1: -12 V)
No
Yes
Repair IC402, IC403 and its peripheral circuit or replace MAIN Assy.
No
Yes
Replace CNT Assy.
Yes
Check +/- 12 V line on MAIN Assy or replace MAIN Assy.
INPUT?
Analog input
Are the signals on CNT Assy CN110 pins 1, 3?
No
Are the signals on MAIN Assy CP110 pins 21, 23?
No
Check and repair analog audio lines between IC400 pins 54, 55 and CP110 pins 21, 21 or replace MAIN Assy.
Yes
Yes
Replace CNTAssy.
Digital input
Is Digital signal from OPT (or COAX) input OK?
No
Is the digital signal (OPT) on D-MAIN Assy CP2005 pin 1?
No
Replace OPTCO Assy.
Yes
Yes
Repair IC2207 (PCM9211), IC2209 (PCM1681) and its peripheral circuit or replace D-MAIN Assy.
Repair IC2207 (PCM9211), IC2209 (PCM1681) and its peripheral circuit or replace D-MAIN Assy.
Speaker C (SB etc) ch (Front LR is OK)
Check selection of speaker system by [SPEAKERS] key on front panel is correct.
No
Change speaker system to correct setting.
No sound from Speaker System is "SP: OFF" is selected,
Yes
Check relay operating. (Refer to Relay Control Check flow for Front ch.)
No
Check CPU Assy CP2 pin 6 (C_RLY) pin 5 (S_RLY).
Yes
Select surround mode to EX.STEREO in Advanced Surround .
HTP-072: Check signals of problem channel on AMP6 Assy CP401 pin 3 (SL), 5(C), 7(SR).
VSX-323: Check signals of problem channel on AMP5 Assy CP201 pin 3 (SL), 5(C), 7(SR).
No
Check signals of problem channel on CNT Assy CP115 pin 15 (SR), 13 (SL), 11 (C), 9 (SW).
No
Check signals of problem channel on CNT Assy CP110 pin 9 (SR), 11 (SL),13 (C),15 (SW).
No
Yes
Check and repair AMP circuit of problem channels or replace AMP6 Assy.
Yes
Replace MAIN Assy or their peripheral circuit.
Yes
Check the signal CP110 - CP115 or replace CNT Assy.
D
E



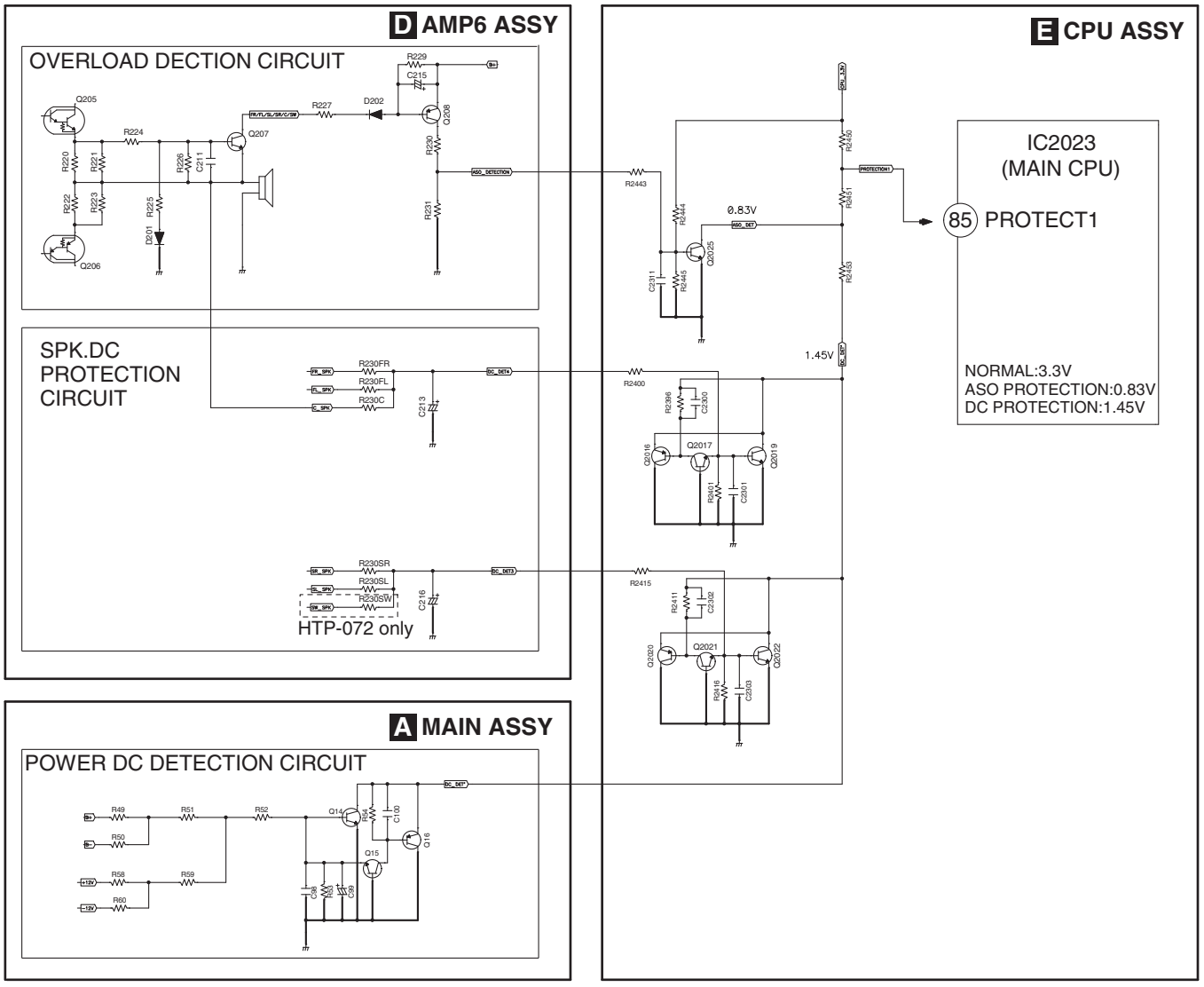
No Picture

This is just for general reference and does not including every single case.

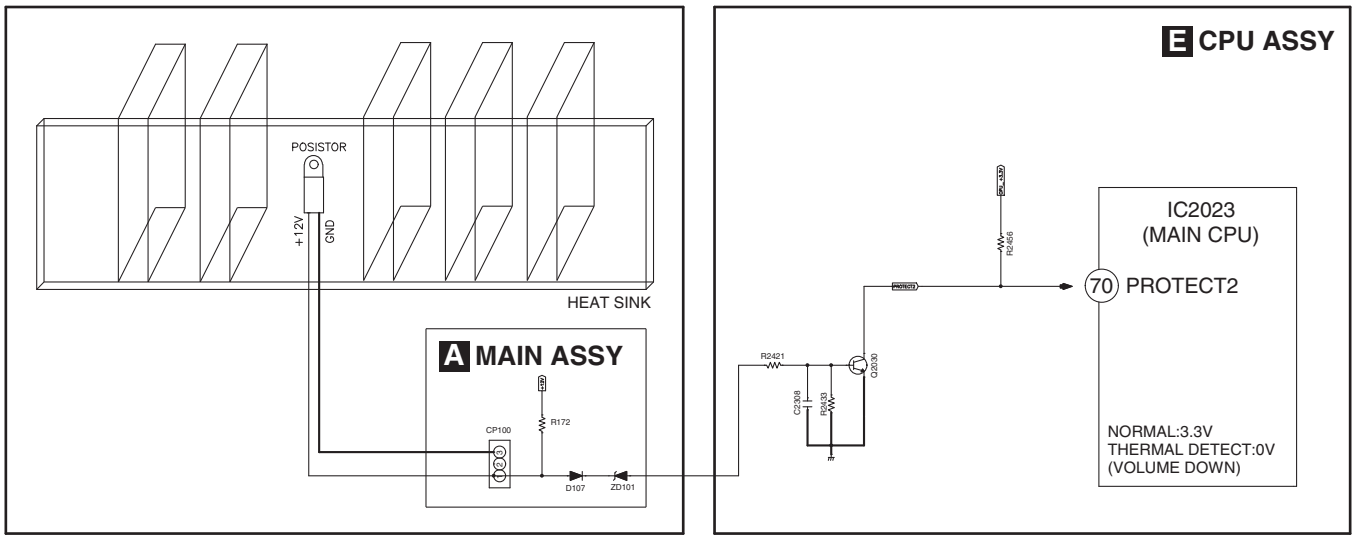


5.2 PROTECTION CIRCUIT

[1] Overload and DC Protection Circuit



[2] TEMP Detection Circuit



5.3 IC INFORMATION

■ (M3030RFGPFP_256k)(CPU Assy: IC2023)

MAIN UCOM

• Pin Function

No.	Symbol	I/O	Description
1	A_MUTE	O	Audio output control pins at Mute Tr (active at L)
2	DC/DC_ON2	O	Control pin DC/DC IC +5V (on: H)
3	F_RLY	O	Tr driven control pins at the Front speaker output relay. (active at H)
4	S_RLY	O	Tr driven control pins at the Surround speaker output relay. (active at H)
5	C_RLY	O	Tr driven control pins at the Center speaker output relay.(active at H)
6	AC_VOLT_DET		Not used
7	RMC	I	Remote control signal input pin
8	GND		Ground
9	CNVSS_UP	I	Switches processor mode
10	24C16_SDA	I/O	Data signal input & output for data backup of MAIN UCOM
11	24C16_SCL	O	Clock signal output for data backup of MAIN UCOM
12	RESET	I	Microcomputer reset signal input pin (active at L)
13	XOUT	O	Output for 16 MHz crystal
14	GND		Ground
15	XIN	I	Input for 16 MHz crystal
16	3V3		+3.3 V power supply
17	NMI		Pull up
18	TUNER_INT	I	Tuner Interrupt signal input pin
19	PDN	O	Output for MAIN UCOM power down
20	OSD/FLT_DATA	O	OSD or FLT Data pin
21	MUTE_B+_CTL	O	Power control pin mute B+
22	VIDEO_MUTE	O	Output for video IC MUTE condition
23	HP_DET	I	Monitoring the input pin headphone connection
24	OSD_CE	O	OSD IC enable signal output and UPGRADE pin
25	V5+V_DET	I	Detection pin V+5V protection (Not used)
26	V_CTL_A	O	IC control signal A output pin for selecting the video input
27	V_CTL_B	O	IC control signal B output pin for selecting the video input
28	OSD/FLT_CLK	O	OSD & FL drive IC output pin of the Clock
29	NC	O	Not used
30	NC	O	Not used
31	232_RX/U_TX	O	Output for Upgrade (UART)
32	232TX/U_RX	I	Input for Upgrade (UART)
33	SCLK_JTAG	I	Serial clock input and Protection pin
34	BUSY_JTAG	O	Output for JTAG BUSY/TRIGER1_ON/OFF SIGNAL
35	3959_SDA	I/O	MFI IC DATA signal
36	3959_SCL	I/O	MFI IC CLK signal
37	PULL_DOWN		PULL_DOWN
38	HDMI_3V3_ON	O	Control pin HDMI IC +3.3V (on: H)
39	OSD_RESET	O	OSD IC reset signal output pin
40	TUNER_SCLK	O	Clock signal output for Tuner Pack
41	EPM_UP	I	UPGRADE
42	TUNER_SDIO	I/O	Data signal input & output for Tuner Pack
43	TUNER_SEN	O	Output for Tuner Pack Serial Enable Input (active at L)
44	TUNER_RST	O	Output to reset Tuner Pack (active at L)
45	D+3.3V_ON	O	Control pin DSP IC +3.3V (on: H)
46	U_CE	O	OSD IC enable signal output and UPGRADE pin
47	3959_PWR	O	MFI IC Power control pin
48	3959_RESET	O	MFI IC reset signal
49	VOL_DATA	O	Data signal output for R2A15219 (I2C)
50	VOL_CLK	O	CLK signal output for R2A15219 (I2C)

No.	Symbol	I/O	Description
51	SW_SUM	I	Output for Sub Woofer SUMMING Control (H: SUMMING)
52	HP_RLY	O	Headphone audio output control pins at Mute Tr (active at L)
53	D+1.2V_ON	O	Control pin DSP IC +1.2V (on: H)
54	HDMI_1V8_ON	O	Control pin HDMI IC +1.8V (on: H)
55	DC/DC_ON1	O	Control pin DC/DC IC +3.3V (on: H)
56	CODEC_ADR	I	Format control input 1 for H/W (SPI OR I2C)
57	9211_RST	O	Output to reset PCM9211
58	9211_SDA	I/O	Data signal output for PCM9211 (I2C)
59	9211_SCL	O	Clock signal output for PCM9211 (I2C)
60	DSP_SIMO	O	Data signal Input for DA808
61	DSP_SPICLK/B7	O	Clock signal output for DA808 (SPI)
62	3V3		+3.3V power supply
63	DSP_RST	O	Output to reset DA808
64	GND		Ground
65	USB5V_DET	I	USB+5 voltage monitor input pin overcurrent protection
66	DSP_SOMI	I	Data signal output for DA808 (SPI)
67	DSP_SPICS	O	Chip select signal output for DA808
68	DSP_SPIEN	I	SPI Enable signal input from DA808
69	HDMI_SEL	O	IC signal of the control pins at select HDMI or analog audio
70	PROTECT2	I	AMP6 Assy input signal of the RADIATOR THERMAL pin (L = VOLUME DOWN)
71	MAIN_IRQ	O	Interrupt signal output pin to SUB UCOM
72	SUB_ON	O	Control pin SUB UCOM IC +3.3V REG. IC (on: H)
73	USB5V_ON	O	Control pin NCP380 FOR USB +5V (on: H)
74	HD_MUTE	I	Input for HDMI_RX_MUTE condition
75	SUB_IRQ	I	Interrupt signal output pin to MAIN UCOM
76	CODEC_SCL	O	Clock signal output for PCM1681 (I2C)
77	SUB_RST	O	Output to reset SUB UCOM
78	CODEC_SDA	I/O	Data signal output for PCM1681 (I2C)
79	SCDO_MAIN	O	Data signal output to SUB UCOM
80	CSCK_MAIN	O	Clock signal output for SUB UCOM
81	SET OPTION	I	Input for Set option
82	STEP OPTION	I	Input for Step (Group) option
83	NC		Not used
84	NC		Not used
85	PROTECT1	I	AMP6 Assy protection detection signal input pin (ASO = 0.82 V, DC = 1.39 V)
86	VOL_DN	I	Data input for VOLUME encoder (VOLUME DOWN is counterclockwise direction)
87	VOL_UP	I	Data input for VOLUME encoder (VOLUME UP is clockwise direction)
88	IN_DN	I	Data input for INPUT selector encoder
89	NC		Not used
90	KEY1	I	Data input for Key1 scan
91	KEY3	I	Data input for Key3 scan
92	KEY2	I	Data input for Key2 scan
93	IN_UP	I	Data input for INPUT selector encoder
94	FLT_CE	O	Output for chip enable of SC16315
95	D+1.8V_ON	O	control pin DSP IC +1.8V (on: H)
96	GND		Ground
97	THRU_LED	O	HDMI LED on/off control pin if Speaker DC protection
98	3V3		+3.3 V Power Supply
99	3V3		+3.3 V Power Supply
100	STBY_RLY	O	Output to ST-BY Relay ON/OFF (active at H)

■ (EPF025A)(D-MAIN Assy: IC2023)

SUB UCOM

• Pin Function

No.	Symbol	I/O	Description
1	PULL DOWN		Pull down
2	CSCK_MAIN	I	Clock signal input from MAIN UCOM
3	SCDO_MAIN	I	Data signal Input from MAIN UCOM
4	HSCL	I/O	IIC clock signal output pin
5	HSDA	I/O	IIC data signal in/output pin
6	PULL UP		Pull up
7	PULL UP		Pull up
8	3V3		+3.3 V power supply
9	GND		Ground
10	PULL DOWN		Pull down
11	NC		Not used
12	3V3		+3.3 V power supply
13	NC		Not used
14	NC		Not used
15	SUB_RST	I	SUB UCOM reset signal input pin
16	SUB_OPO	I	Chip operation mode select signal input pin (0: normal)
17	GND		Ground
18	NC		Not used
19	NC		Not used
20	NC		Not used
21	NC		Not used
22	NC		Not used
23	NC		Not used
24	NC		Not used
25	NC		Not used
26	NC		Not used
27	DDC_SCL	I/O	IIC clock signal output pin
28	DDC_SDA	I/O	IIC data signal in/output pin
29	NC		Not used
30	NC		Not used
31	NC		Not used
32	NC		Not used
33	NC		Not used
34	NC		Not used
35	MAIN_IRQ	O	Interrupt signal output pin to SUB UCOM
36	SUB_IRQ	O	Interrupt signal output pin to MAIN UCOM
37	THRU_LED	O	HDMI LED on/off control pin
38	NC		Not used
39	3V3		+3.3 V power supply
40	GND		Ground
41	XIN	I	Input for 24 MHz crystal
42	XO	O	output for 24 MHz crystal
43	3V3		+3.3 V power supply
44	GND		Ground
45	RSTb	O	Reset signal output pin to HDMI IC
46	NC		Not used
47	NC		Not used
48	PULL UP		Pull up
49	HDMI_CEC	I/O	Data signal input from HDMI_CEC
50	GND		Ground
51	HT0_CTLB	O	Hot plug detect signal output pin (DVD FUNCTION)
52	HT1_CTLB	O	Hot plug detect signal output pin (SAT/CBL FUNCTION)
53	HT2_CTLB	O	Hot plug detect signal output pin (GAME FUNCTION)
54	HT3_CTLB	O	Hot plug detect signal output pin(BD FUNCTION)
55	NC		Not used
56	NC		Not used
57	NC		Not used
58	INTb	I	Interrupt signal input pin from EP9442
59	NC		Not used
60	HPD_IN	I	Intput for HDMIOUT HPD
61	GND		Ground
62	SUB_RXD	I	Soft update UART comunication data input pin (UPDATE JIG B'D)
63	SUB_TXD	O	Soft update UART comunication data output pin (UPDATE JIG B'D)
64	HDMI_CEC	I/O	Data signal input from HDMI_CEC

6. 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)	DC 005 *2 → Counter	5 (-> normal) *1	Number of DC error detections
[ENTER] key	TEMP1 XXX *2 → Counter	5 (-> normal) *1	Number of abnormal-temperature error detections
[ENTER] key	TEMP2 XXX *2 → Counter	5 (-> normal) *1	Number of abnormal-temperature error detections
[ENTER] key	OVER 003 *2 → Counter	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

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

If any protection function is activated while the product is in use, the product cannot be turned ON and enter the above Display mode. In such a case, cancel the protection function, referring to “[3] 3.4 How to cancel the status after detection of the DC error." If a protection function is activated immediately after the previous protection function is canceled, cancel that protection function again then enter STBY mode immediately. You can then see the error logs, following the above procedures, until a next protection function is activated.

[2] Reset mode for numbers of protection detections

[Purpose]

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

[How to enter/exit]

During Standby mode, simultaneously press and hold the [ALC/STANDARD SURR] and [STANDBY/ON] keys for 10 seconds to enter this mode.
The display will return to the normal indication when no key operation is performed for 5 seconds.

[Basic operations]

Key Operation	FL Display	Time (sec.)	Description of Indications
(STANDBY state)			
[ALC/STANDARD SURR] + [STANDBY/ON] keys (press and hold the keys for 10 seconds.)	CLEAR?	5 (-> normal) *1	
[ENTER] key ↓	↓		
(Counter Clear end)	O K	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.

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

[Purpose]

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

[Basic operations]

3.1 DC (AMP is abnormality) error detection

Key Operation	FL Display	Time (sec.)	Description of Indications
(Normal display)	BD	usually	Normal display
(DC detection)	BD		
↓ (Auto)			
(RECEIVER POWER OFF)			

If the AC power cord is plugged in while the AVR is prohibited from being ON because of DC detection, the HDMI LED will flash at intervals of 500 msec.

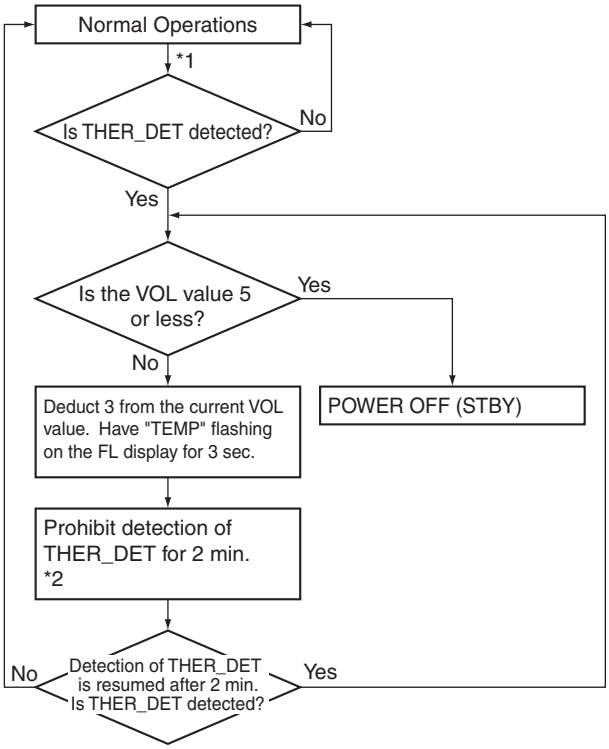
3.2 OVERLOAD (overcurrent) error detection

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

3.3 TEMP (AMP overheat) error detection

For detection of a TEMP error, the unit monitors both the THER_DET and OVERLOAD & DC_DET signals.
If a TEMP error is detected, the processes shown below will be performed. The processes shown below are rough operational specifications and are not the actual commands from the mounted components.
After a TEMP error is detected, the count of protection activation detections will be updated.

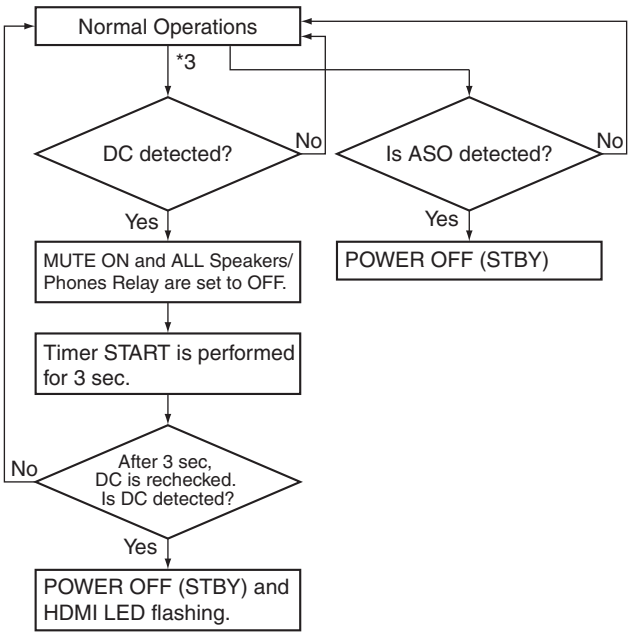
Counter: Temp2 PROTECT2
P2_2 (pin 70)
(THER_DET from MAIN Assy)



*1: The detection interval must be 1 sec or less.
*2: If PROTECT 2 is detected while THER_DET detection is prohibited for 2 min, the PROTECT 2 function will be activated.

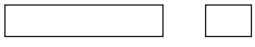
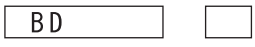
Counter: OVER / DC PROTECT1
P0_3 (pin 85)
(OVERLOAD & DC_DET from AMP6 Assy)

PROTECT1 Function
<PROTECT1: Voltage at Pin 85>
NORMAL: 3.3 V
When ASO destruction (excess current) is detected: 0.83 V
When DC is detected: 1.45 V
<Operation upon detection>
When ASO destruction is detected: POWER OFF (STBY)
When DC is detected:
CASE 1 (Instantaneous detection [for less than 3 sec]): Speaker RELAY OFF
CASE 2 (Continuous detection [for 3 sec or longer]): Shutdown and flashing of the HDMI LED
(To turn the unit back ON again, simultaneous pressing of the two keys is necessary.
-> See "3.4 How to cancel the status after detection of the DC error".)



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

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

Key Operation	FL Display	Time (sec.)	Description of Indications
(STANDBY state) [ADVANCED SURROUND] + [STANDBY/ON] keys (press and hold the keys for 2 seconds.) ↓ (Normal display)	 	usually	Normal display

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

If the AC power cord is plugged in while the AVR is prohibited from being ON because of DC detection, the HDMI LED will flash at intervals of 500 msec.

7. DISASSEMBLY
7.1 VSX-324-K-P

Note:
Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Some connections of the housing wires or connectors may be tight. When disconnecting those wires or connectors, be careful not to damage them.

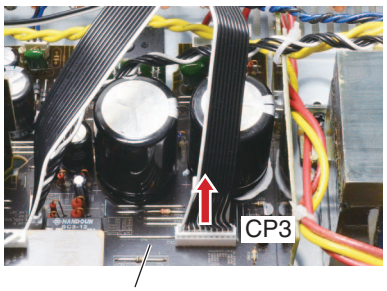
1. Discharging

[1] MAIN Assy Capacitor (C55, C58)

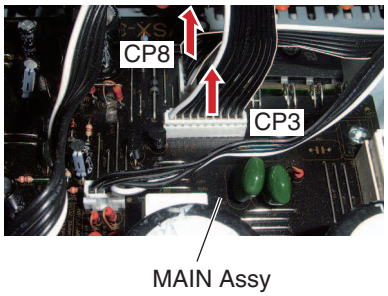
[Procedures]

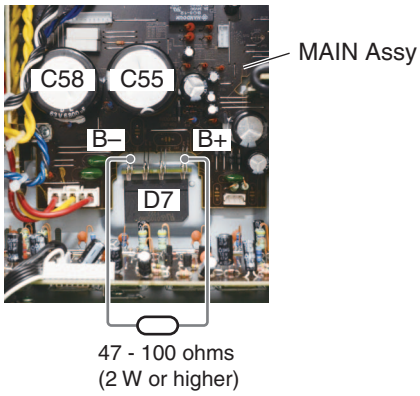
(1) Unplug the power cord.
(2) Disconnect the 10P connector from CP3 of the MAIN Assy between CN204 of the AMP6 Assy.
In case of VSX-323, also disconnect the 6P connector from CP8 of the MAIN Assy.
(3) Connect B+ and B– terminal of the D7, using resistor leads with 47 - 100 ohms (2 W or higher), for discharging.
∗ Discharging time: 30 - 60 seconds, depending on the level of resistance.
(4) Check that the voltage between the B+ and B– terminals is less than 1 V, using a tester.
∗ Be sure to connect the GND terminal of the tester to the chassis.
∗ If the voltage is still 1 V or higher, repeat Step (3).

HTP-072



VSX-323

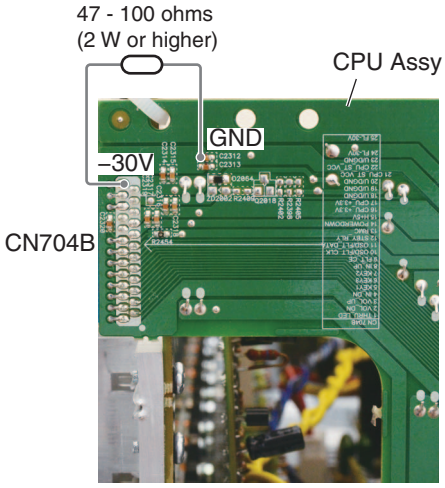




[2] FL-30 V Capacitor (MAIN Assy C101)

[Procedures]

(1) Unplug the power cord.
(2) Connect pins 24, 25 (–30V) of the CN704B and GND on the CPU Assy,
using resistor leads with 47-100 ohms (2 W or higher), for discharging.
∗ Discharging time: 5 - 10 seconds, depending on the level of resistance.
(3) Check that the voltage between the –30V terminal is less than 1 V, using a tester.
∗ Be sure to connect the GND terminal of the tester to the chassis.
∗ If the voltage is still 1 V or higher, repeat Step (2).



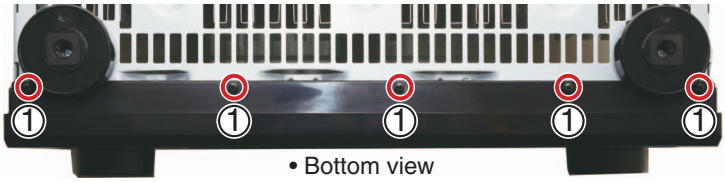
2. Disassembly

Note:
For performing the diagnosis shown below, the following jigs for service is required:
- 10P extension jig cable (GGD1628)
- 3P extension jig cable (GGD1773)
- Board to board extension jig cable (GGD1849)
- Board to board extension jig cable (GGD1850)
- Board to board extension jig cable (GGD1851)

[1] Front Panel Section

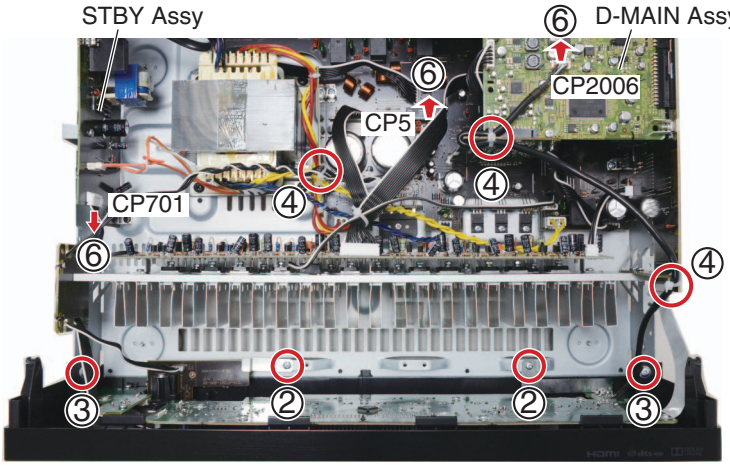
Remove the cabinet by removing the 10 screws.

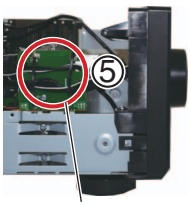
(1) Remove the five screws.
(BBZ30P080FTB)



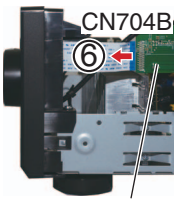
• Bottom view

(2) Remove the two screws.
(BBZ30P080FTC)
(3) Remove the two screws.
(1500001206010-IL)
(4) Cut the three binders.
(5) Release the two jumper wires.
(6) Disconnect the one flexible cable and three connectors.
(CN704B, CP5, CP701, CP2006)



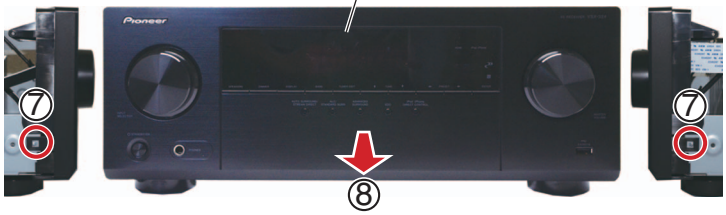


G-L Assy



CPU Assy

(7) Unhook the two hooks.
(8) Remove the front panel section.

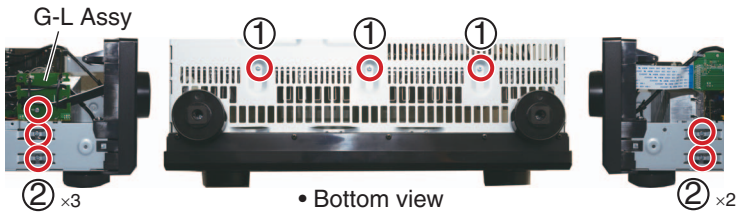


[2] Heatsink Section

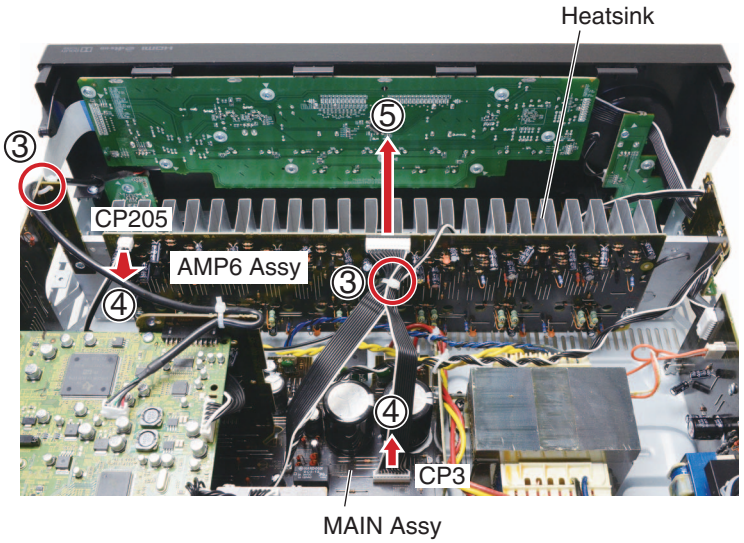
Caution: Heatsink section in work becomes hot, and be careful with it.

Remove the cabinet by removing the 10 screws.

(1) Remove the three screws. (BBZ30P080FTC)
(2) Remove the five screws. (BBZ30P080FTC)

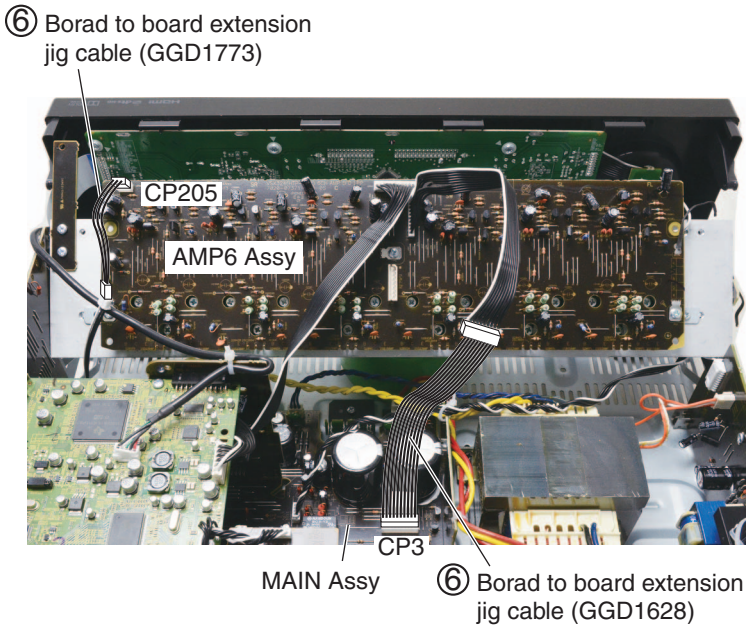


(3) Cut the two binders.
(4) Disconnect the two connectors. (CP3, CP205)
(5) Remove the heatsink section.



(6) Connect the two extension jig cables.

Diagnosis

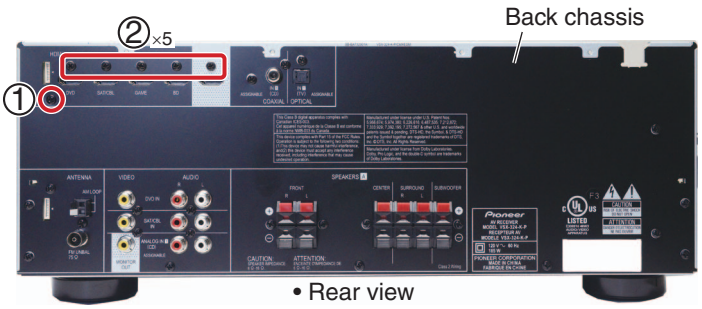


[3] D-MAIN Assy

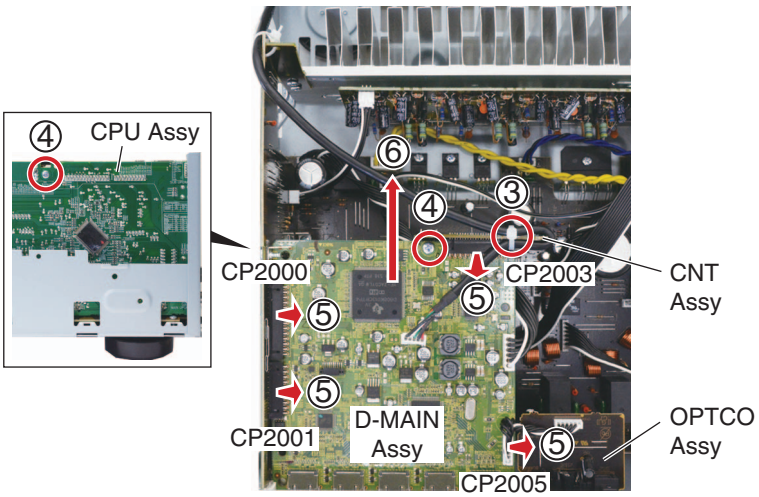
Remove the cabinet by removing the 10 screws.

[3-1] Disassembly

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



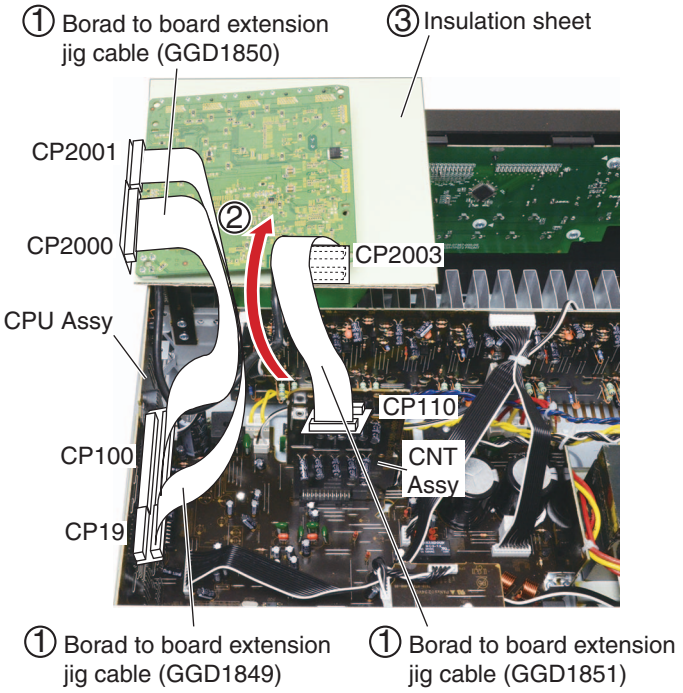
(3) Cut the one binder.
(4) Remove the two screws.
(BBZ30P080FTC)
(5) Disconnect the three B to B connectors and one connector.
(CP2000, CP2001, CP2003, CP2005)
(6) Remove the D-MAIN Assy.



[3-2] Diagnosis of D-MAIN and MAIN Assemblies

(1) Connect the three extension jig cables.
(2) Arrange the D-MAIN Assy in the photo below.
(3) Insert any insulation sheet.

Diagnosis

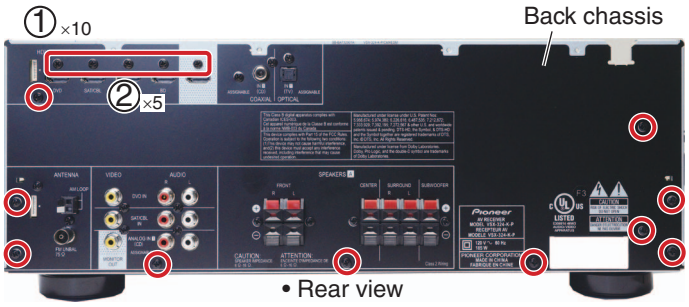


[4] MAIN Assy

Remove the cabinet by removing the 10 screws.

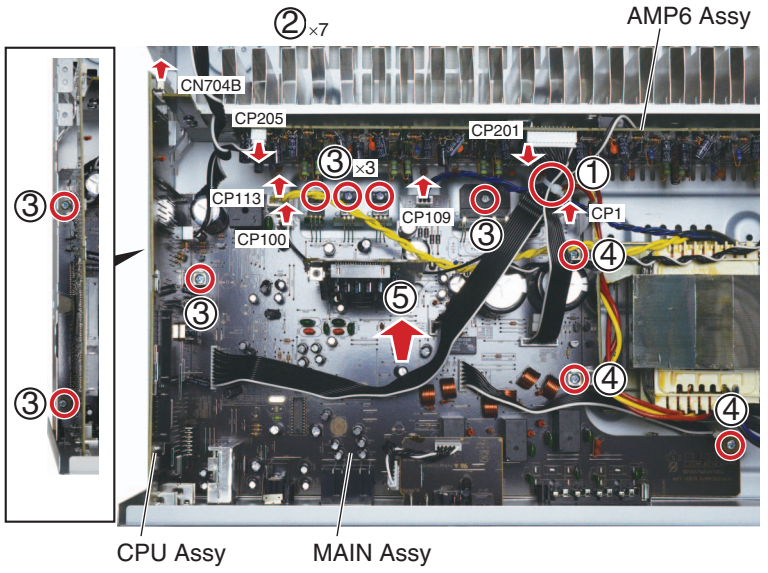
[4-1] Back chassis, D-MAIN Assy

(1) Remove the 10 screws.
(BBT30P100FTB)
(2) Remove the five screws.
(BSZ30P040FTB)
(3) Remove the D-MAIN Assy.
(See procedure [3].)



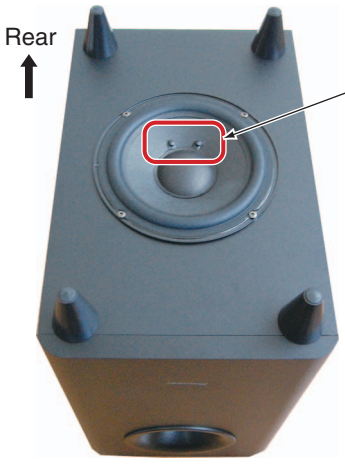
[4-2] MAIN Assy

(1) Cut the one binder.
(2) Disconnect the one flexible cable and seven connectors.
(CN704B, CP1, 100, 109, 113, 201, 205)
(3) Remove the seven screws.
(BBZ30P080FTC)
(4) Remove the three screws.
(BBZ30P180FTC)
(5) Remove the MAIN Assy with CPU Assy and back chassis.



7.2 S-22W-P

Orientation of the Speaker during Attachment



7.3 S-11A-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.

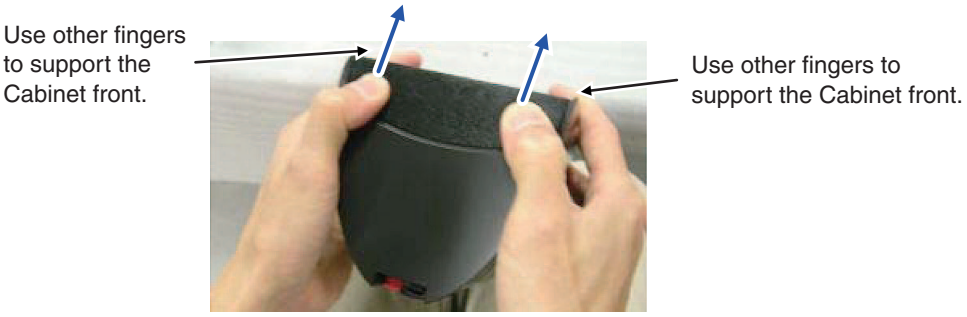


Fig.1



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.

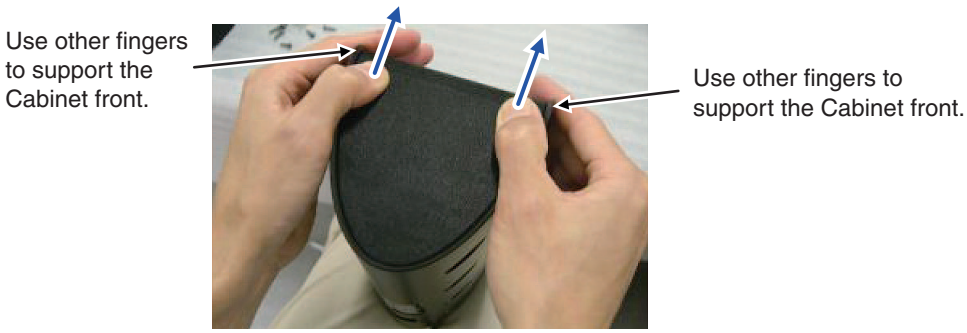


Fig.3

8. EACH SETTING AND ADJUSTMENT
8.1 UPDATING OF THE FIRMWARE

[Purpose]

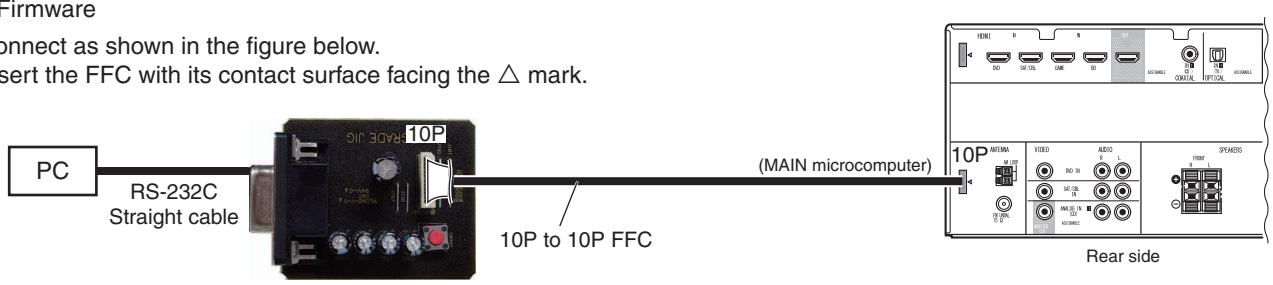
Refer to this section when updating the firmware of each microcomputer is required by the service information, etc.

[Necessary Tools and Connections]

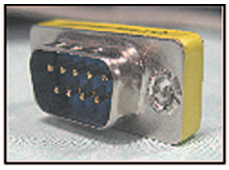
① **MAIN microcomputer**

- 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.




Straight Cable


Adapter


JIG's side

② **HDMI & CEC (SUB) 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 programII.zip.
   Appear the below folderes and files.
   Folder name: CDM20812
   Folder name: EPFlash

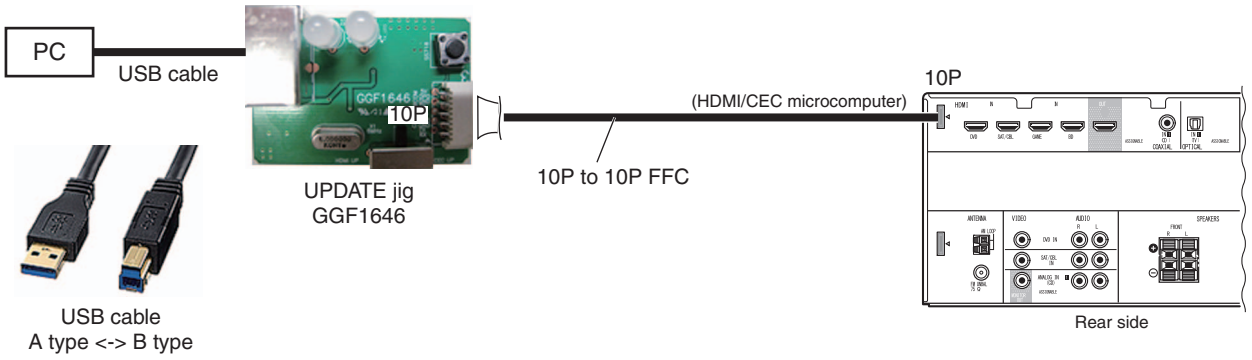
   * Store the EPFlash.exe file in the desktop of the PC.

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.

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

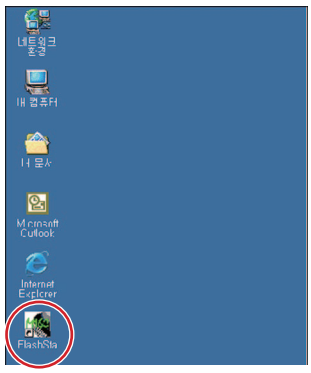


Microcomputers update

[Procedures]

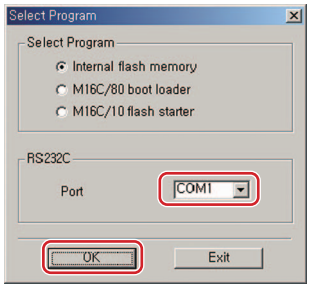
■ for MAIN microcomputer

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.



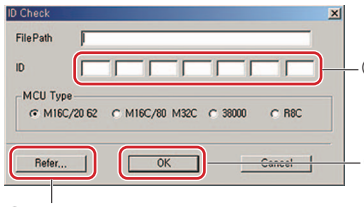
Select for COM port.

[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.

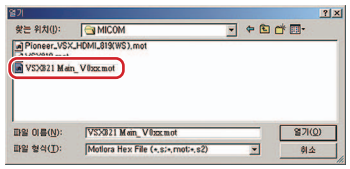


② Enter ID.
Enter "ff" in all field.

③ Press OK button to go to next step.

① Selection of upgrade file

① Select the update file

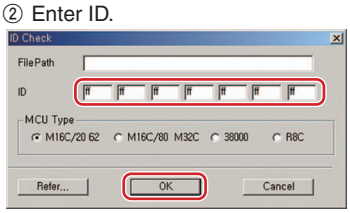


Select "VSX324 Main V1xx.mot" file to update the MCU.



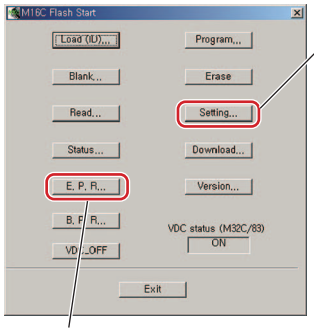
Press the OK button.

② Enter ID.



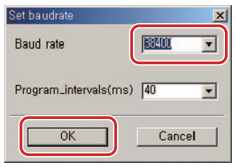
Press the OK button.

5. Set speed update and update the MCU.



① Set speed of update.

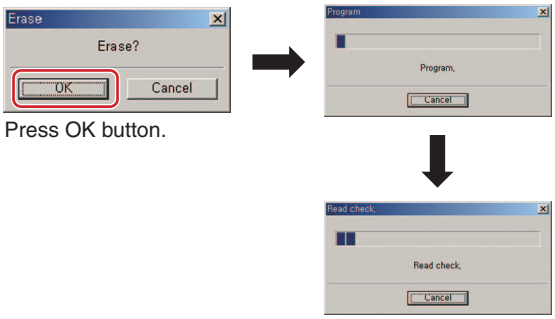
① Set speed of update.
Set Baud rate to 38400.



Press the OK button.

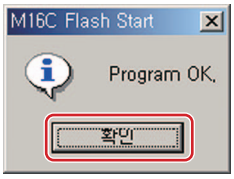
② Update the MCU.
E.P.R=>Erase+Program+Read

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

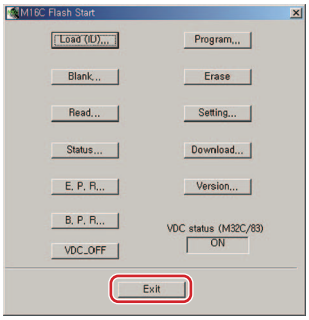


Press OK button.

6. Update Finished MAIN microcomputer.



Press the OK button.

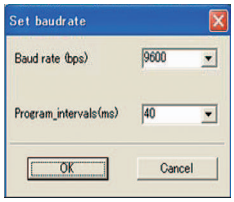


Press the Exit button.
Please wait for until this window disappears.

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

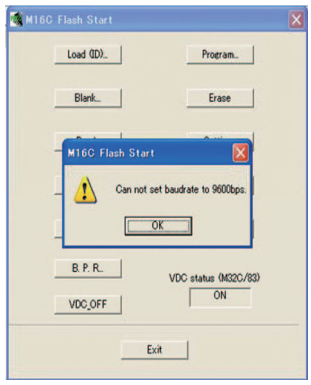


Push the JIG's RESET button during 1 sec.
Press the OK button.



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



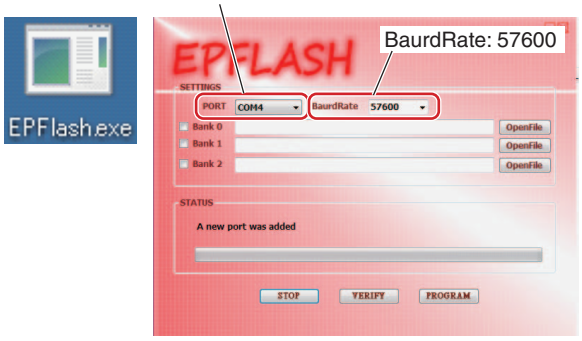


7. Unplug the AC cord.
Disconnect the FFC cable.

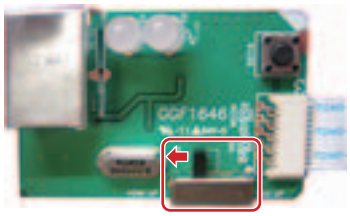
■ for HDMI & CEC (SUB) microcomputer

1. 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.

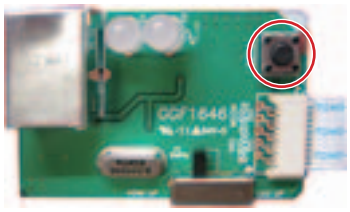


2. Select "HDMI UP" on the Upgrade Jig.

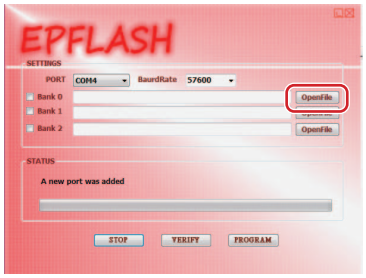


Connect the PC and the Upgrade Jig.
Connect the FFC cable. (HDMI microcomputer)

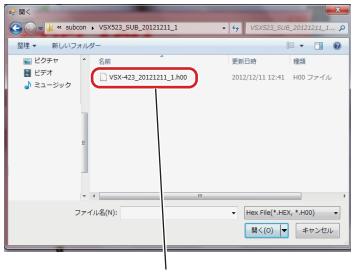
3. Holding down the tact switch (RESET) of the Upgrade Jig in AC OFF state. Release the tact switch after AC ON, power ON (2-3 seconds later).



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

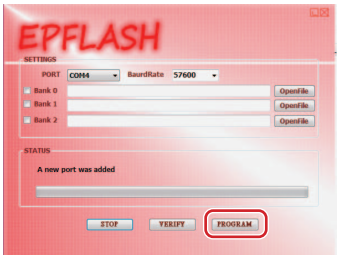


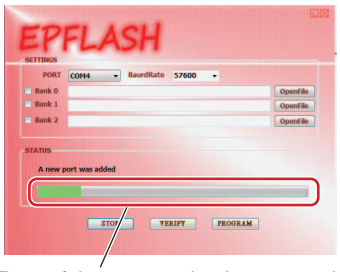
Be chosen automatically to Bank 2 when you choose file of H00 in Bank 0.



Select "VSX-423_********.h00" file to update MCU.

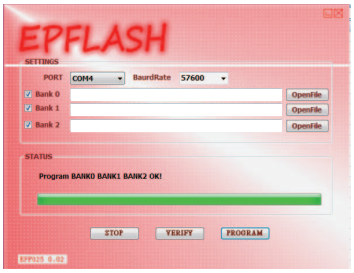
5. Press the "PROGRAM" button to update the firmware.



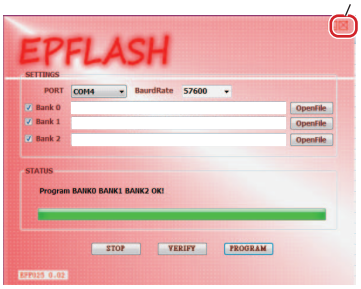


Rate of the progression is appeared.

6. Update Finished HDMI microcomputer.



End the application EPFlash.



If a message of "Program BANK0 BANK1 BANK2 OK!" is indicated, let update is the normalcy end, and EPFLASH down.
If a message except the above is indicated, does AC OFF, and confirm a PC, Upgrade Jig, connection of FFC Cable, and start the update again from step 1.

7. Turn the unit off. (STANDBY mode)
Unplug the AC cord, and be around one minute, and Disconnect the FFC cable.

■ Check to the software virsion of MAIN, HDMI & CEC (SUB) microcomputers

1. 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 firmware
→ "ENTER" →
All segments lit.
→ "ENTER" →
MAIN Ucom

2. Turn the unit off.

■ DSP firmware update

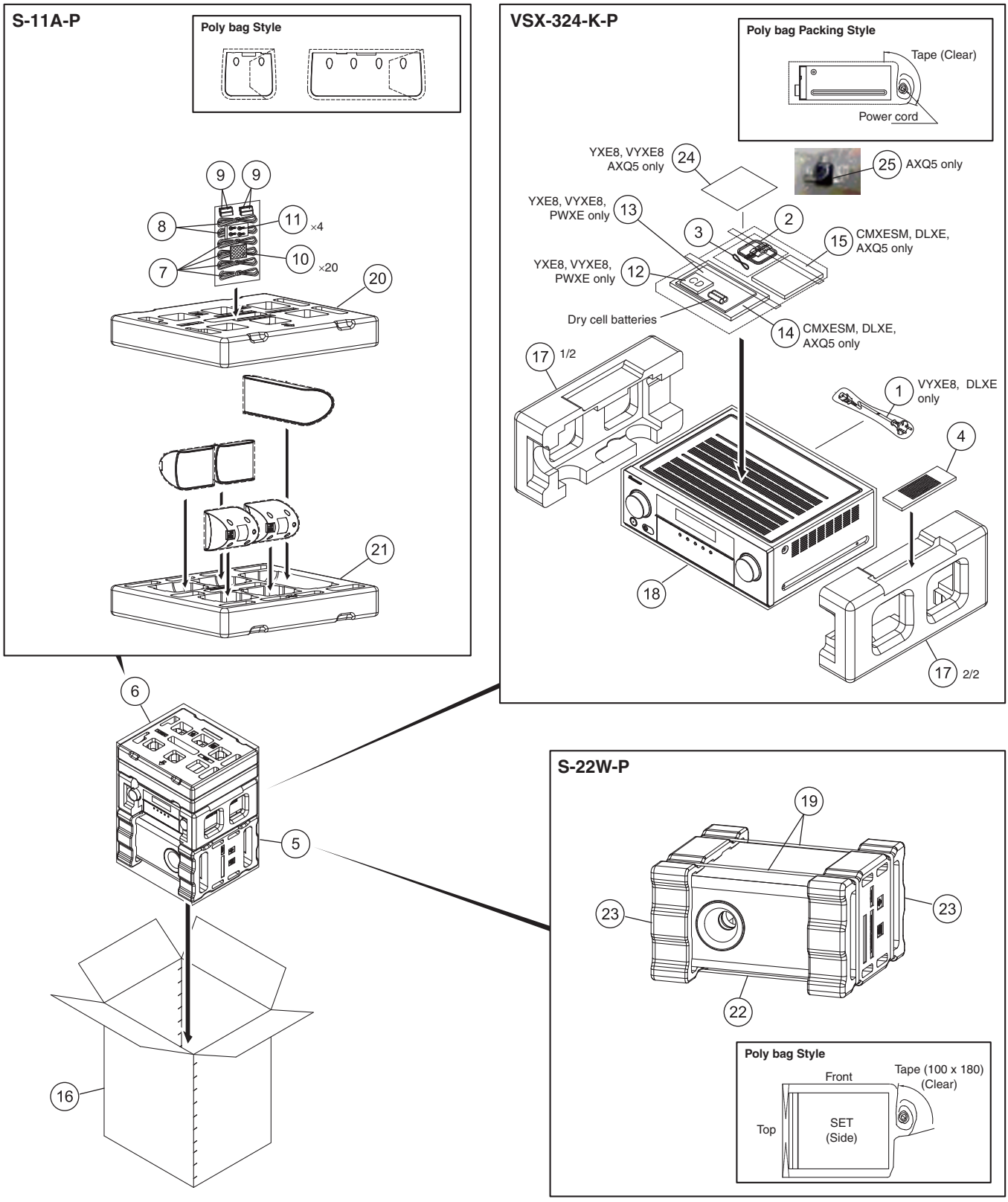
[Procedures]

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

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

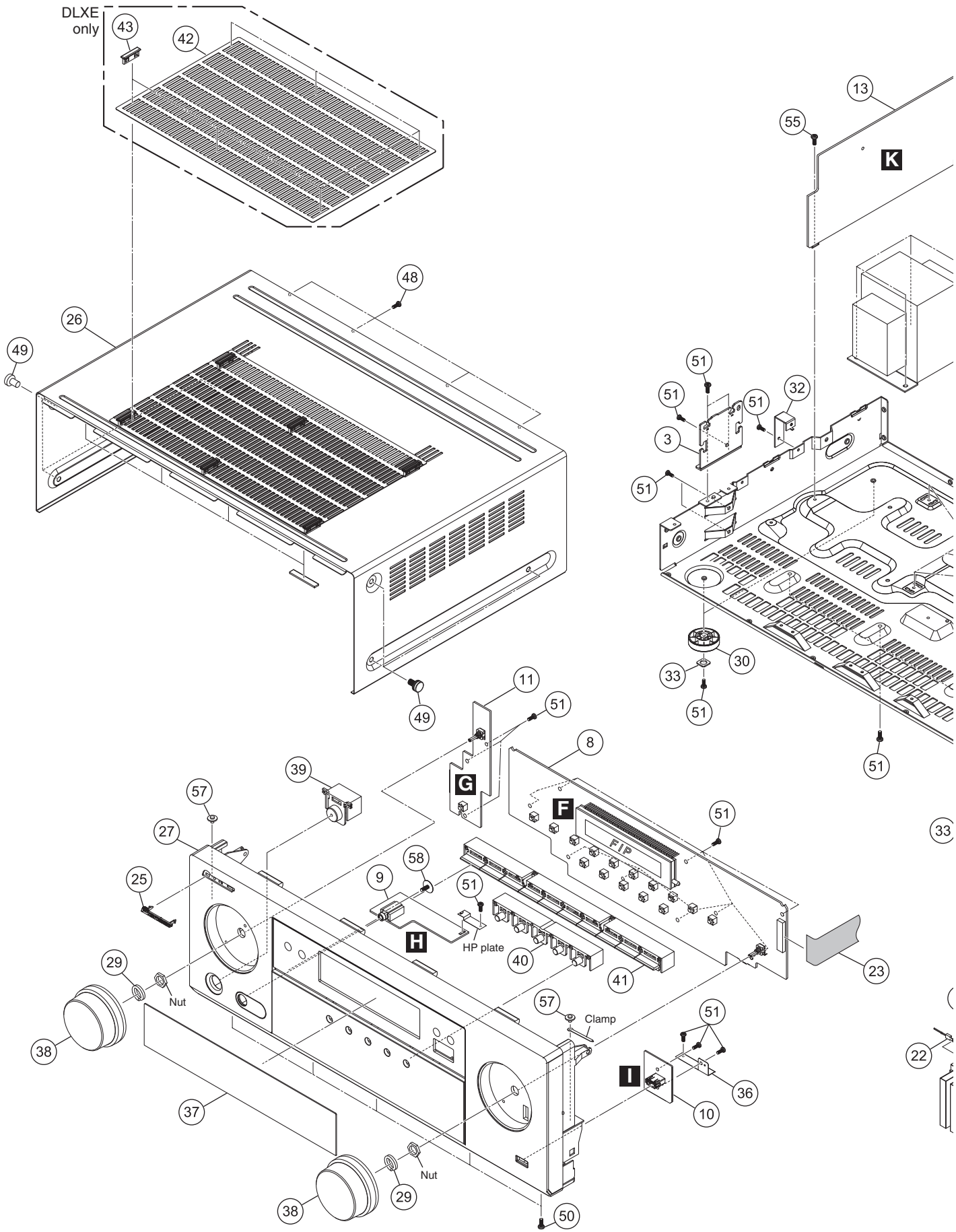
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
	2	AM Loop Antenna	E601019000010-IL
	3	FM Wire Antenna	E605010140010-IL
	4	Remote Control (AXD7690)	8300769000010-IL
	5	S-22W-P SW Assy	8952S22W00002-IL
	6	S-11A-P Total Assy	F008001180720-IL
	7	Speaker Cord (4 m)	8952S11005480-IL
	8	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	Quick Start Guide	See Contrast table (2)
	14	Operating Instructions	See Contrast table (2)
	15	Operating Instructions	See Contrast table (2)
	16	Box, Gift HTP-072	See Contrast table (2)
	17	Cushion, Snow	6230212914000-IL
	18	PE, Sheet	6327040059000-IL
	19	Band Packing	8952SHM700046-IL
	20	Packing Top S-11-P	8952S11005541-IL
	21	Packing Top S-11-P	8952S11005542-IL
	22	Poly-Bag (Set)	8952S21W05180-IL
	23	Packing S-22W-P	8952S22W05191-IL
NSP	24	Warranty Card	See Contrast table (2)
	25	Tuner Isolator	See Contrast table (2)

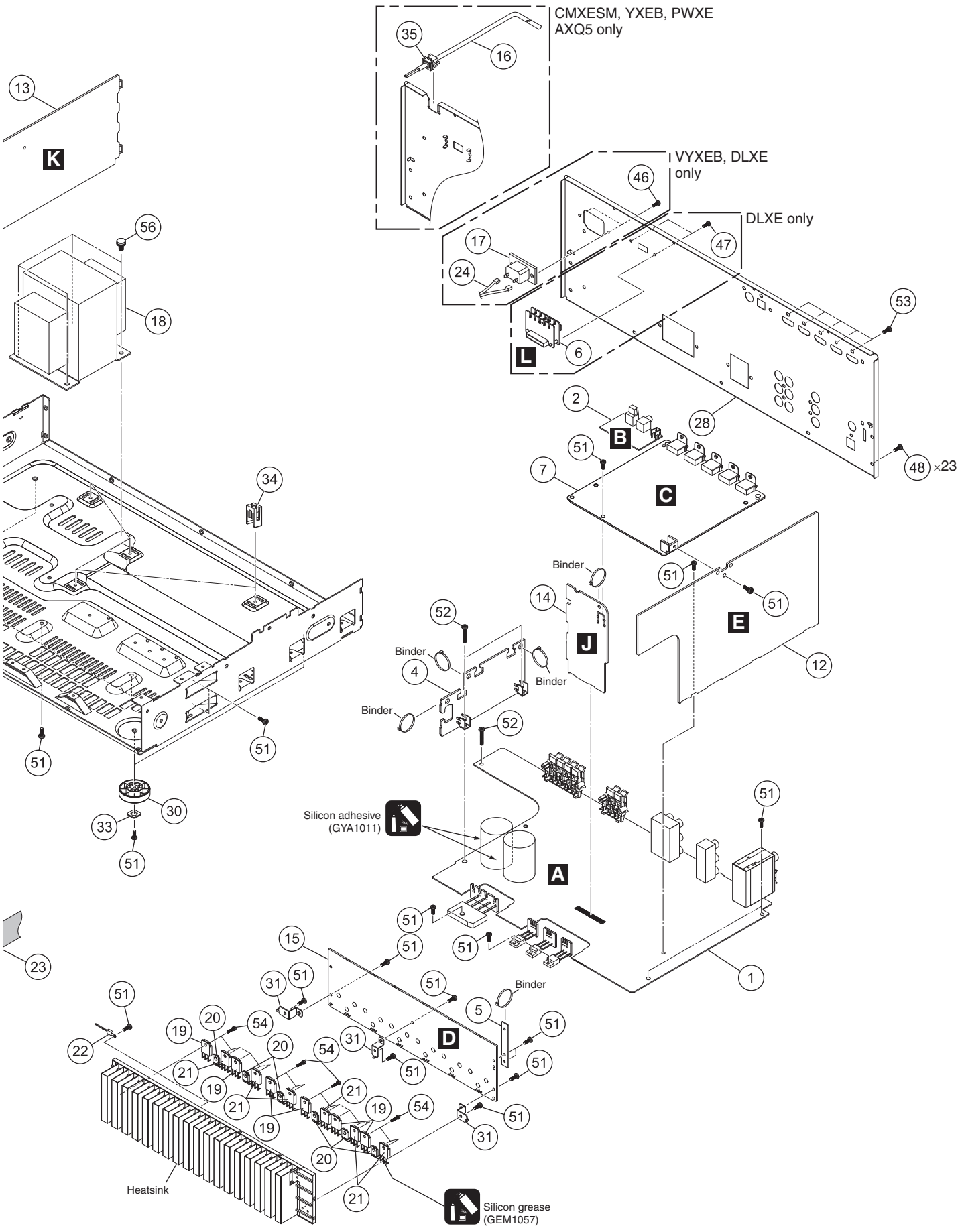
(2) CONTRAST TABLE

HTP-072/CMXESM, YXE8, VYXE8, DLXE, PWXE, AXQ5 and HTP-073/VYXE8 are constructed the same except for the following:

Mark	No.	Symbol and Description	HTP-072 /CMXESM	HTP-072 /YXE8	HTP-072 /VYXE8	HTP-072 /DLXE	HTP-072 /PWXE	HTP-072 /AXQ5	HTP-073 /VYXE8
⚠	1	Power Cord	Not used	Not used	L068250100040-IL	L068250160020-IL	Not used	Not used	L068250160020-IL
	12	Operating Instructions (CD-ROM)	Not used	6517000001380-IL	6517000001380-IL	Not used	6517000001380-IL	Not used	6517000001390-IL
	13	Quick Start Guide	Not used	5707000008050-IL	5707000008050-IL	Not used	5707000008050-IL	Not used	5707000008060-IL
	14	Operating Instructions	5707000008070-IL	Not used	Not used	5707000008090-IL	Not used	5707000008110-IL	Not used
	15	Operating Instructions	5707000008080-IL	Not used	Not used	5707000008100-IL	Not used	5707000008120-IL	Not used
	16	Box, Gift HTP-072	6007211970060-IL	6007211970070-IL	6007211970080-IL	6007211970090-IL	60072119700A0-IL	60072119700B0-IL	60072119700C0-IL
NSP	24	Warranty Card	Not used	ARY7158	ARY7158	Not used	Not used	ARY7137	ARY7158
	25	Tuner Isolator	Not used	Not used	Not used	Not used	Not used	L170200060010-IL	Not used

9.2 VSX-324-K-P


DLXE only
43
42
13
55
K
48
26
49
51
32
3
30
33
11
G
8
F
39
57
27
58
9
H
HP plate
40
41
23
25
29
Nut
38
Clamp
I
36
10
37
22
50
FIP


CMXESM, YXEB, PWXE
AXQ5 only
VYXEB, DLXE
only
DLXE only
Binder
Silicon adhesive
(GYA1011)
Heatsink
Silicon grease
(GEM1057)
×23

(1) VSX-324-K-P SECTION PARTS LIST

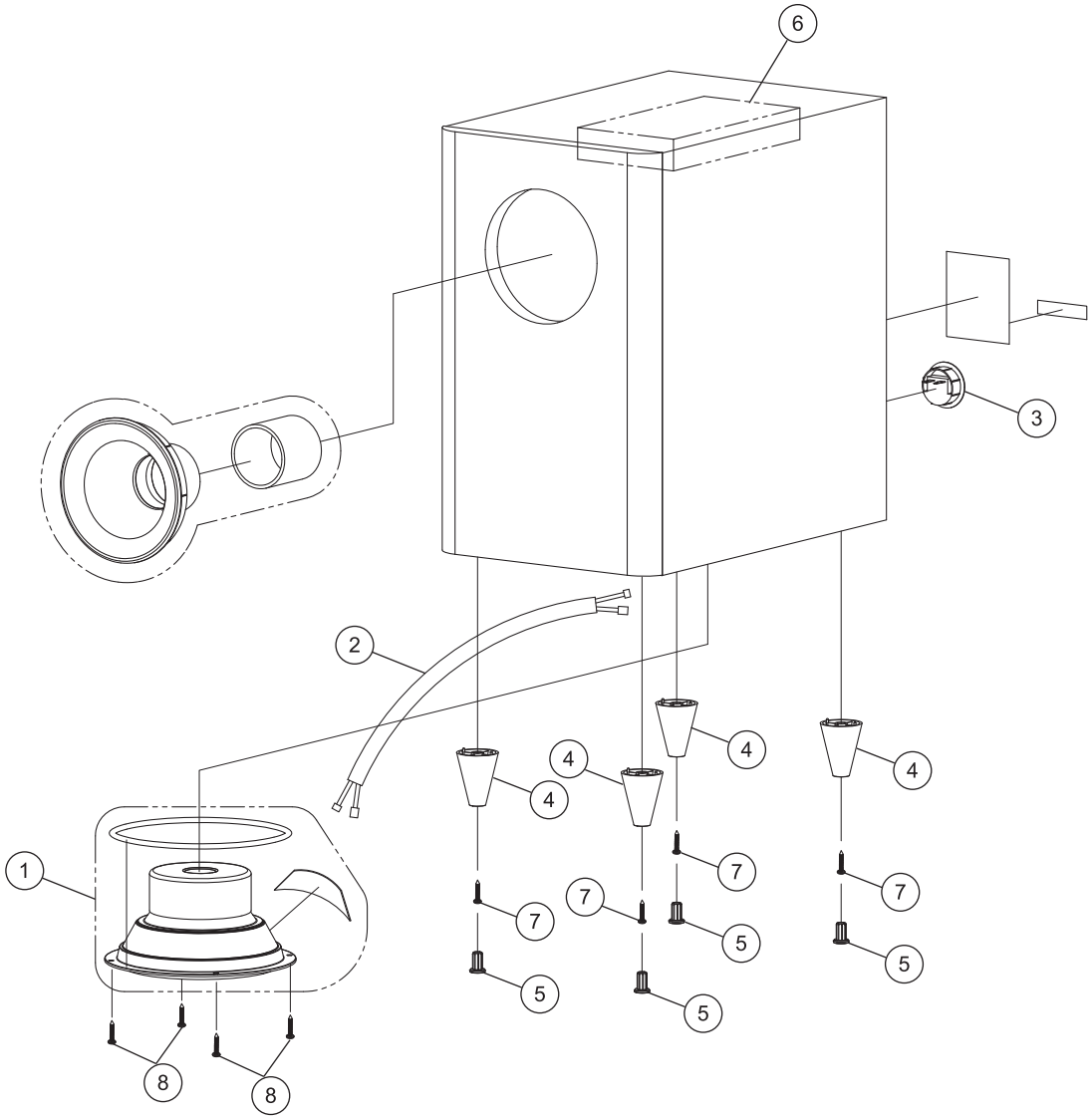
Mark	No.	Description	Part No.
	1	MAIN Assy	See Contrast table (2)
	2	OPTCO Assy	7028073702010-IL
	3	G-L Assy	7028073704010-IL
	4	G-T Assy	7028073705010-IL
	5	G-CNT Assy	7028073706010-IL
	6	V_SEL Assy	See Contrast table (2)
	7	D-MAIN Assy	7028073691010-IL
	8	FRONT Assy	7028073671010-IL
	9	HP Assy	7028073672020-IL
	10	FUSB Assy	7028073673010-IL
	11	INSEL Assy	7028073674010-IL
	12	CPU Assy	See Contrast table (2)
	13	STBY Assy	See Contrast table (2)
	14	CNT Assy	7028073683010-IL
	15	AMP6 Assy	7028073711010-IL
⚠	16	Cord Assy	See Contrast table (2)
⚠	17	Socket, power AC	See Contrast table (2)
⚠	18	Power Trans	See Contrast table (2)
⚠	19	Transistor	J5011560P0000-IL
⚠	20	Semi, TR/GE NPN 2SC	J502396400010-IL
⚠	21	Transistor	J5032390P0000-IL
	22	Posistor	F320301022240-IL
	23	Cable, Flat Card 1.0	N711251022480-IL
	24	CN, Wire	See Contrast table (2)
	25	Pioneer Badge B (PLS)	XAM3006
	26	Cabinet Assy	3008211846020-IL
	27	Front Panel 324	See Contrast table (2)
	28	Chassis Back 324	See Contrast table (2)
	29	Spring	3720210276000-IL
	30	Foot (PLS)	4000210391000-IL
	31	Bracket	4010056906010-IL
	32	Bracket SMPS	401021488600D-IL
	33	Cushion	4050211605000-IL
	34	Support	4070001601010-IL
	35	Stopper	See Contrast table (2)
	36	Plate F/USB	4470212736000-IL
	37	Window Display 323SY	50772131130C0-IL
	38	Knob	5080212431000-IL
	39	Button	5090213741100-IL
	40	5 Key Button	5090214561000-IL
	41	10 Key Button	5090214571000-IL
	42	Safety Cover	See Contrast table (2)
	43	Holder	See Contrast table (2)
	44	•••••	
	45	•••••	
	46	Screw, tap Tite	See Contrast table (2)
	47	Screw	See Contrast table (2)
	48	Screw	BBT30P100FTB
	49	Screw	BBT40P080FTB
	50	Screw	BBZ30P080FTB
	51	Screw	BBZ30P080FTC
	52	Screw	BBZ30P180FTC
	53	Screw	BSZ30P040FTB
	54	Screw Tapping Assy	B018230141H11-IL
	55	Screw, Tap Tite	B020230063B10-IL
	56	Screw	B028940101B11-IL
	57	Screw	1500001206010-IL
	58	Screw	1500001456010-IL

(2) CONTRAST TABLE

VSX-324-K-P/CMXESM, YXEB, VYXEB, DLXE, PWXE and AXQ5 are constructed the same except for the following:

Mark	No.	Symbol and Description	VSX-324-K-P /CMXESM	VSX-324-K-P /YXEB	VSX-324-K-P /VYXEB	VSX-324-K-P /DLXE	VSX-324-K-P /PWXE	VSX-324-K-P /AXQ5
	1	MAIN Assy	7028073701040-IL	7028073701010-IL	7028073701010-IL	7028073701030-IL	7028073701020-IL	7028073701020-IL
	6	V_SEL Assy	Not used	Not used	Not used	7028073703020-IL	Not used	Not used
	12	CPU Assy	7028073681070-IL	7028073681010-IL	7028073681050-IL	7028073681040-IL	7028073681030-IL	7028073681020-IL
	13	STBY Assy	7028073682050-IL	7028073682010-IL	7028073682030-IL	7028073682040-IL	7028073682010-IL	7028073682020-IL
⚠	16	Cord Assy	L068125101710-IL	L068250161710-IL	Not used	Not used	L068250751710-IL	L068250101710-IL
⚠	17	Socket, power AC	Not used	Not used	G430040560021-IL	G430040560021-IL	Not used	Not used
⚠	18	Power Trans	8200858500340-IL	8200858500320-IL	8200858500320-IL	8200858500350-IL	8200858500320-IL	8200858500330-IL
	24	CN, Wire	Not used	Not used	L000800020220-IL	L000800020220-IL	Not used	Not used
	27	Front Panel 324	3067215861000-IL	3067215861100-IL	3067215861100-IL	3067215861100-IL	3067215861100-IL	3067215861100-IL
	28	Chassis Back 324	3207214696000-IL	3207214696030-IL	3207214696100-IL	3207214696200-IL	3207214696010-IL	3207214696020-IL
	35	Stopper	4380040162010-IL	4380040162010-IL	Not used	Not used	4380040162010-IL	4380040162010-IL
	42	Safety Cover	Not used	Not used	Not used	4310212122020-IL	Not used	Not used
	43	Holder	Not used	Not used	Not used	4310213701000-IL	Not used	Not used
	46	Screw, tap Tite	Not used	Not used	B020030083F10-IL	B020030083F10-IL	Not used	Not used
	47	Screw	Not used	Not used	Not used	B028030043B10-IL	Not used	Not used

9.3 S-22W-P

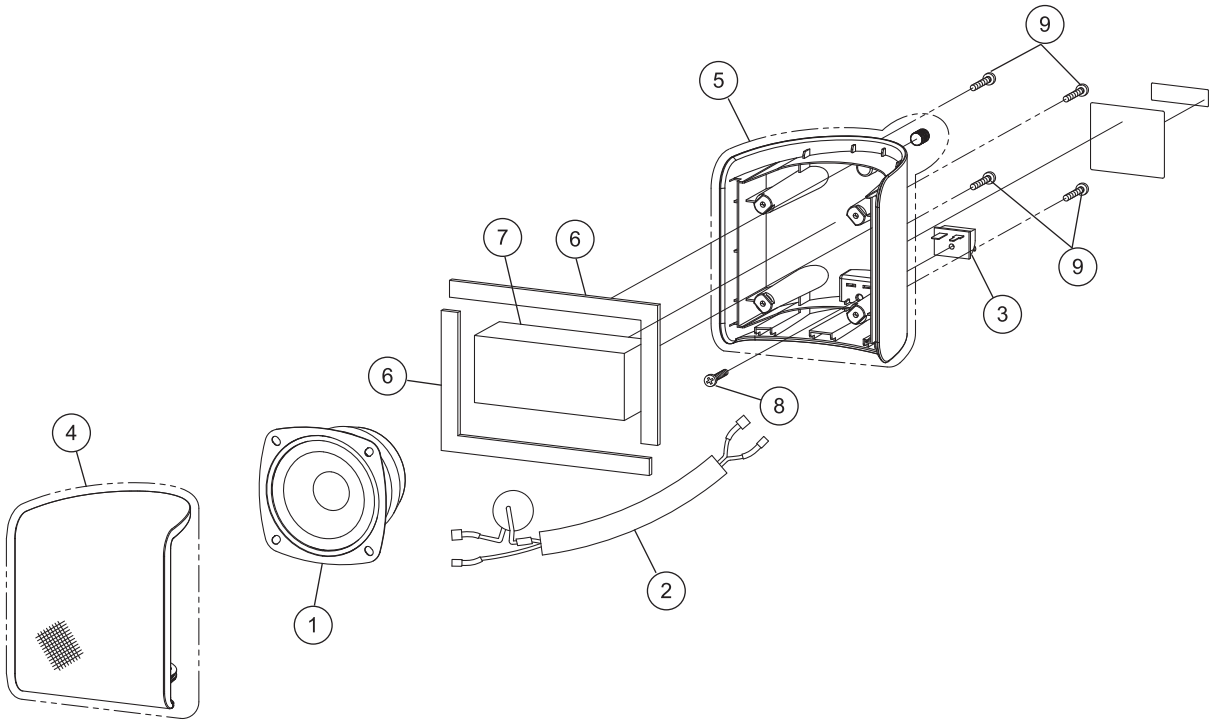


S-22W-P SECTION PARTS LIST

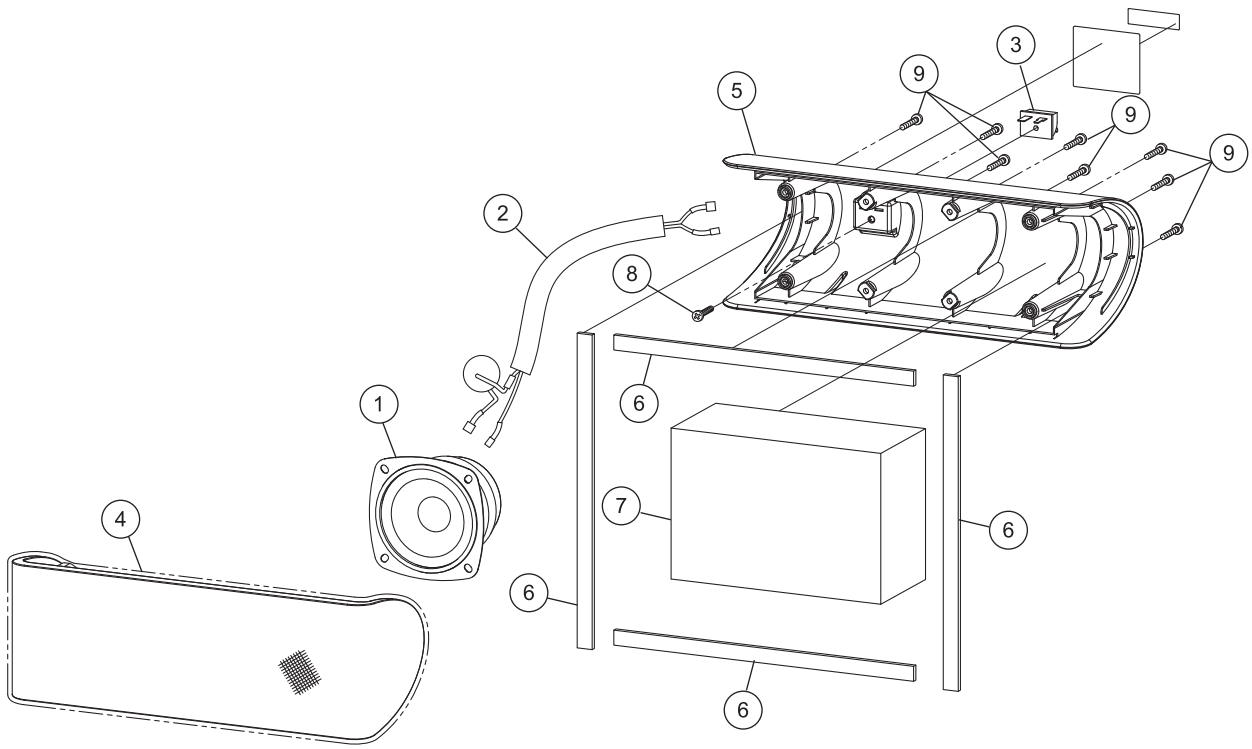
Mark	No.	Description	Part No.
	1	Unit Assy	8952S22W00009-IL
	2	Network Assy	8952S22W00011-IL
	3	Speaker Terminal	8952S22W00004-IL
	4	Foot Mold	8952S22W00007-IL
	5	Foot Cushoin	8952S22W00200-IL
	6	Cashmere	8952S22W00210-IL
	7	Screw (Bind Head)	8952SHM700039-IL
	8	Screw (Bind Head)	8952S21W05381-IL

9.4 S-11A-P

Front L, R, Surround L, R speaker



Center speaker

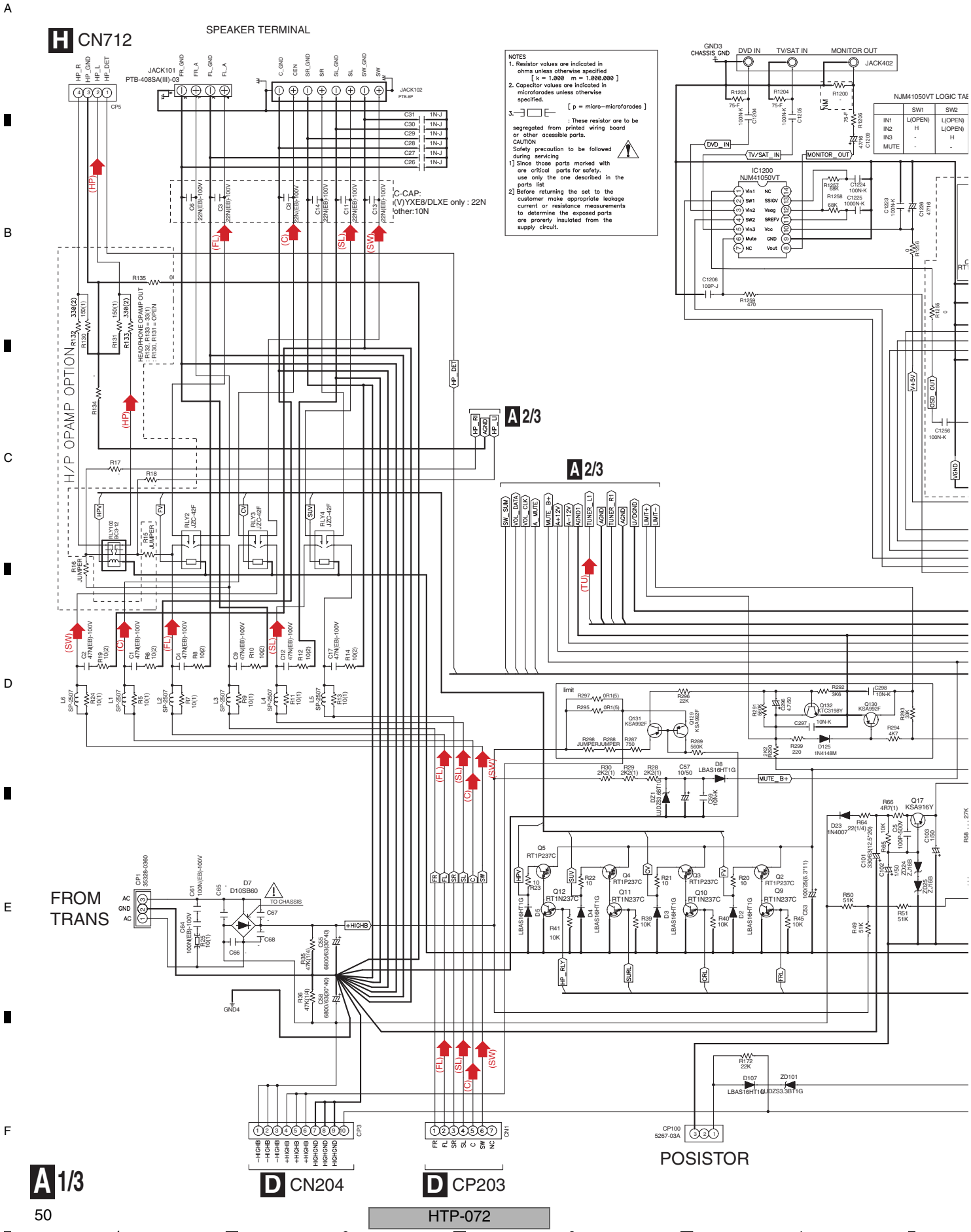


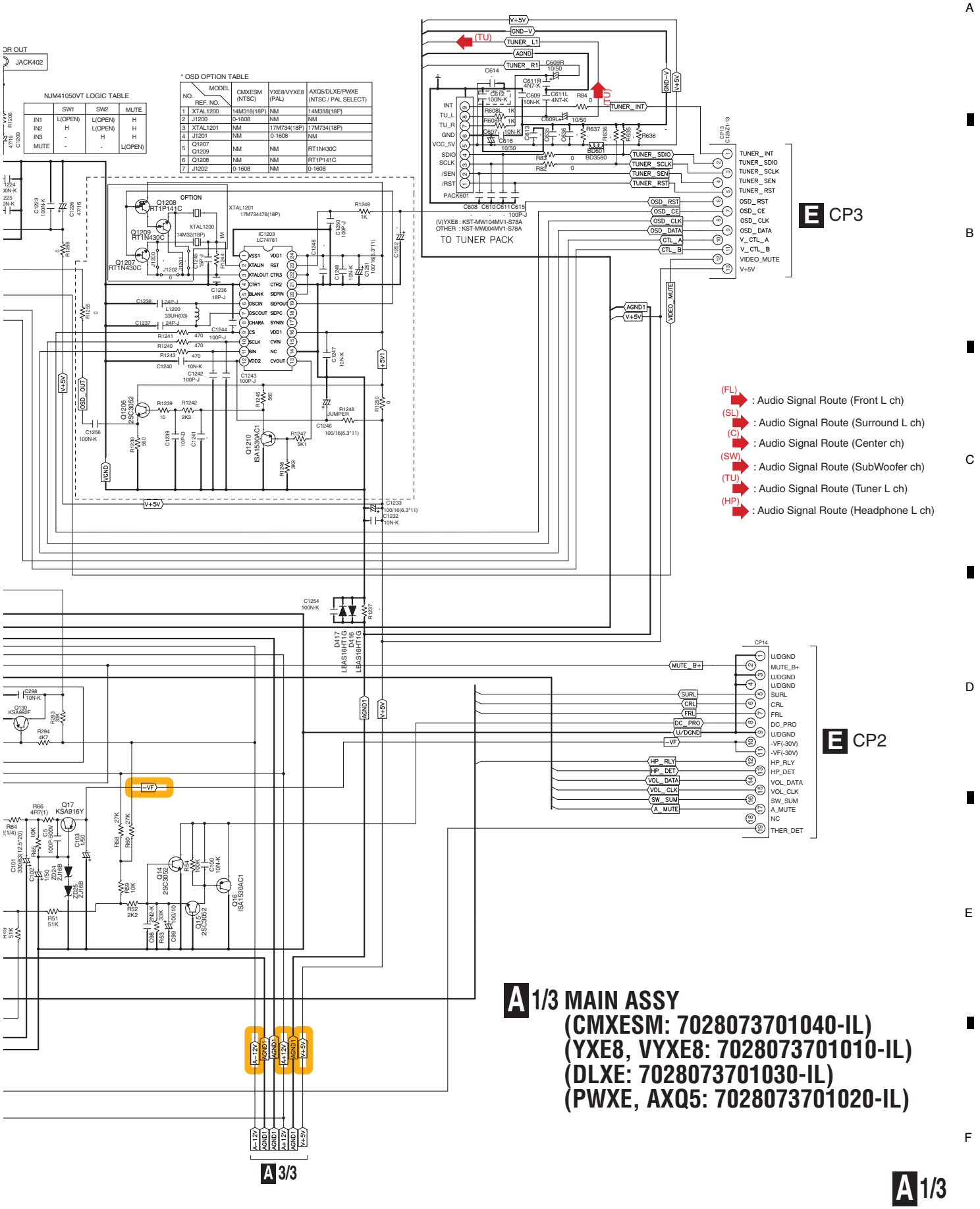
S-11A-P SECTION PARTS LIST

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 MAIN ASSY (1/3)

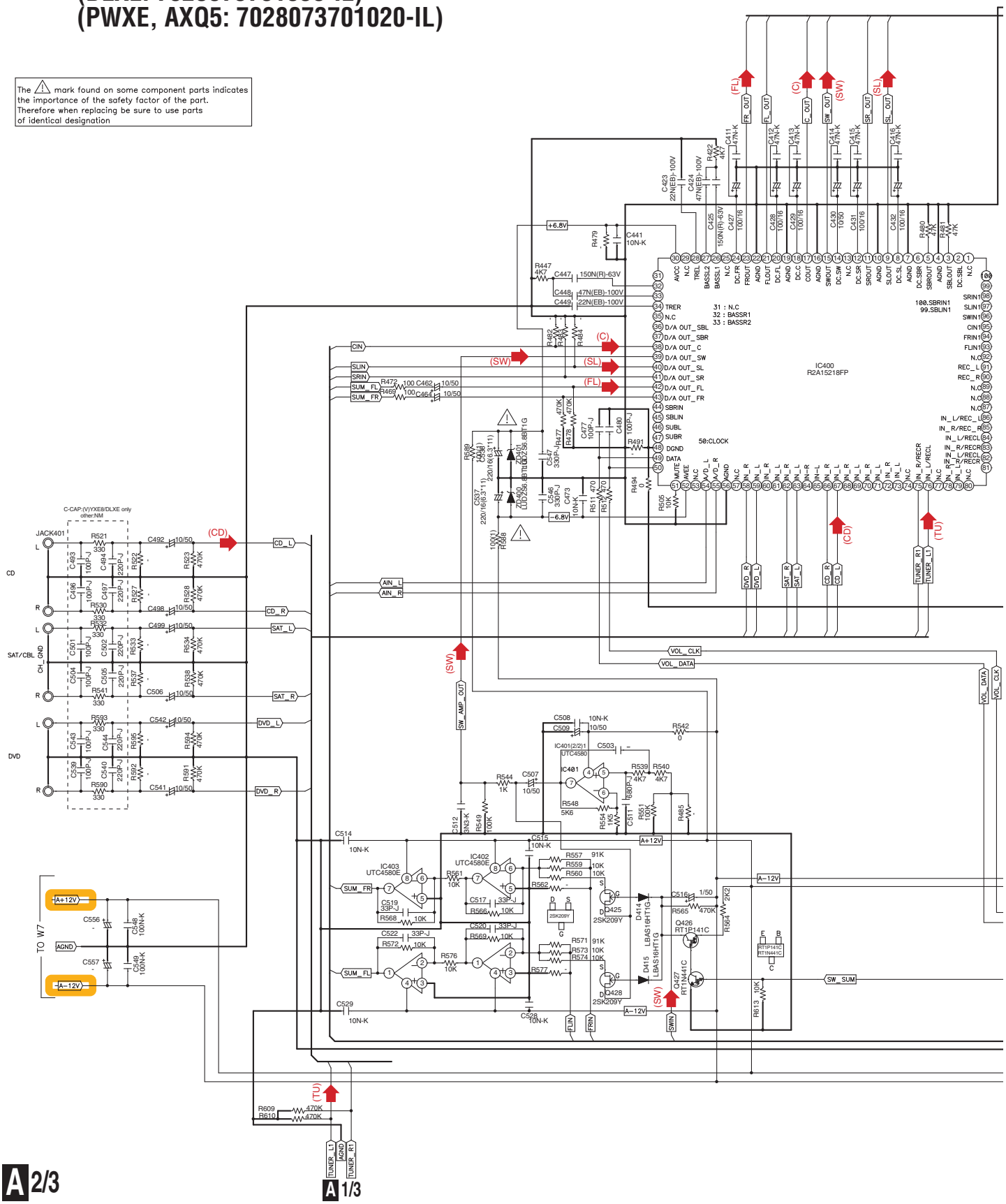


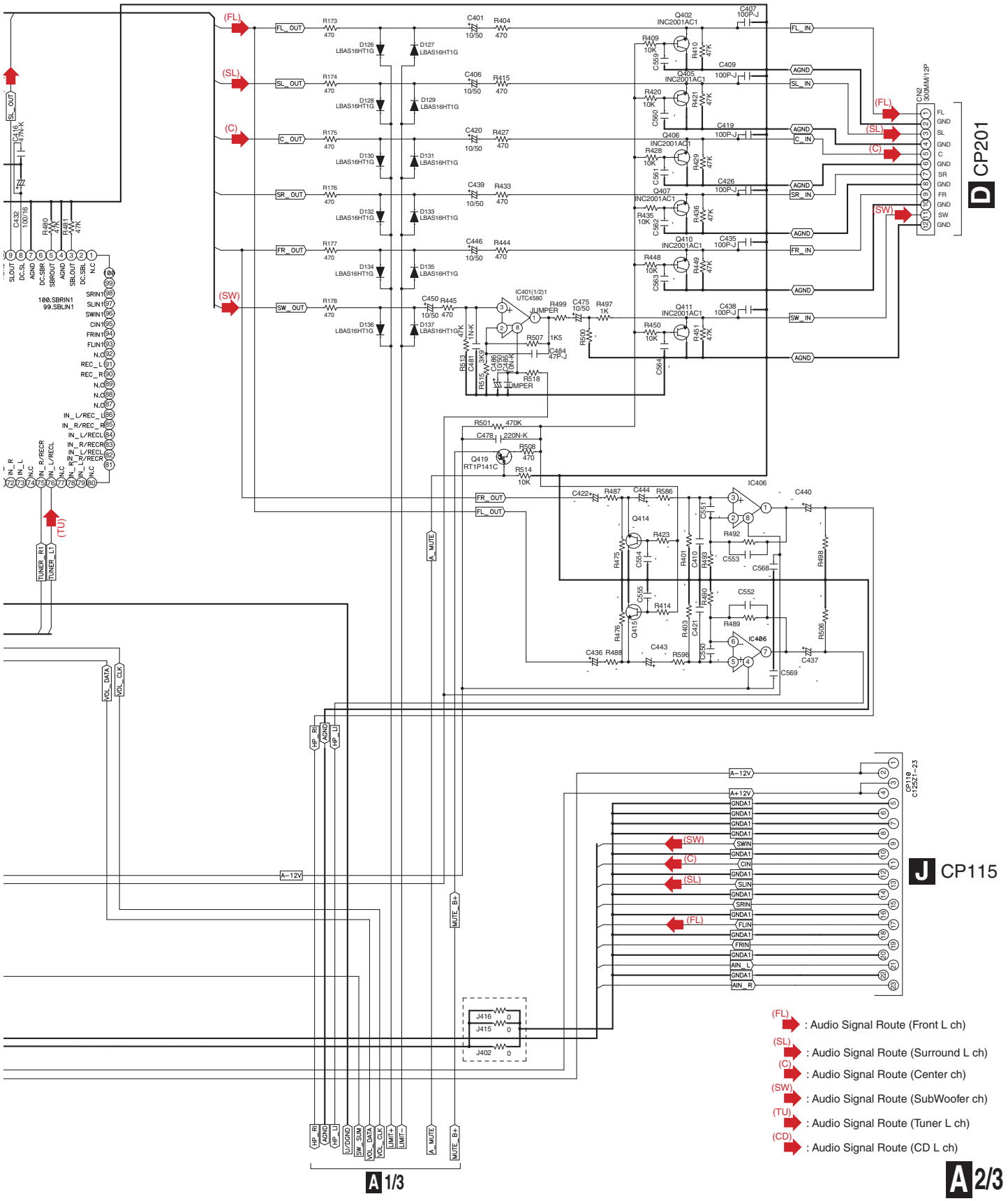

JACK402
NJM41050VT LOGIC TABLE
SW1
SW2
MUTE
IN1
IN2
IN3
MUTE
L(OPEN)
H
-
L(OPEN)
L(OPEN)
H
-
H
H
L(OPEN)
* OSD OPTION TABLE
NO.
MODEL
REF. NO.
CMXESM (NTSC)
YXE8/VYXE8 (PAL)
AXQ5/DLXE/PWXE (NTSC / PAL SELECT)
1 XTAL1200 14M318(18P) NM 14M318(18P)
2 J1200 0-1608 NM NM
3 XTAL1201 NM 17M734(18P) 17M734(18P)
4 J1201 NM 0-1608 NM
5 Q1207 Q1209 NM NM RT1N430C
6 Q1208 NM NM RT1P141C
7 J1202 0-1608 NM 0-1608
OPTION
XTAL1201 17M734476(18P)
XTAL1200 14M32(18P)
IC1203 LC74781
Q1208 RT1P141C
Q1209 RT1N430C
Q1207 RT1N430C
TO TUNER PACK
(V)YXE8 : KST-MW104MV1-S78A
OTHER : KST-MW004MV1-S78A
CP3
CP2
CP13
CP14
TUNER_INT
TUNER_SDIO
TUNER_SCLK
TUNER_SEN
TUNER_RST
OSD_RST
OSD_CE
OSD_CLK
OSD_DATA
V_CTL_A
V_CTL_B
VIDEO_MUTE
V+5V
MUTE_B+
U/DGND
SURL
CRL
FRL
DC_PRO
-VF(-30V)
HP_RLY
HP_DET
VOL_DATA
VOL_CLK
SW_SUM
A_MUTE
NC
THER_DET
(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)
A 1/3 MAIN ASSY
(CMXESM: 7028073701040-IL)
(YXE8, VYXE8: 7028073701010-IL)
(DLXE: 7028073701030-IL)
(PWXE, AXQ5: 7028073701020-IL)
A 3/3
A 1/3

10.2 MAIN ASSY (2/3)

A 2/3 MAIN ASSY
(CMXESM: 7028073701040-IL)
(YXE8, VYXE8: 7028073701010-IL)
(DLXE: 7028073701030-IL)
(PWXE, AXQ5: 7028073701020-IL)

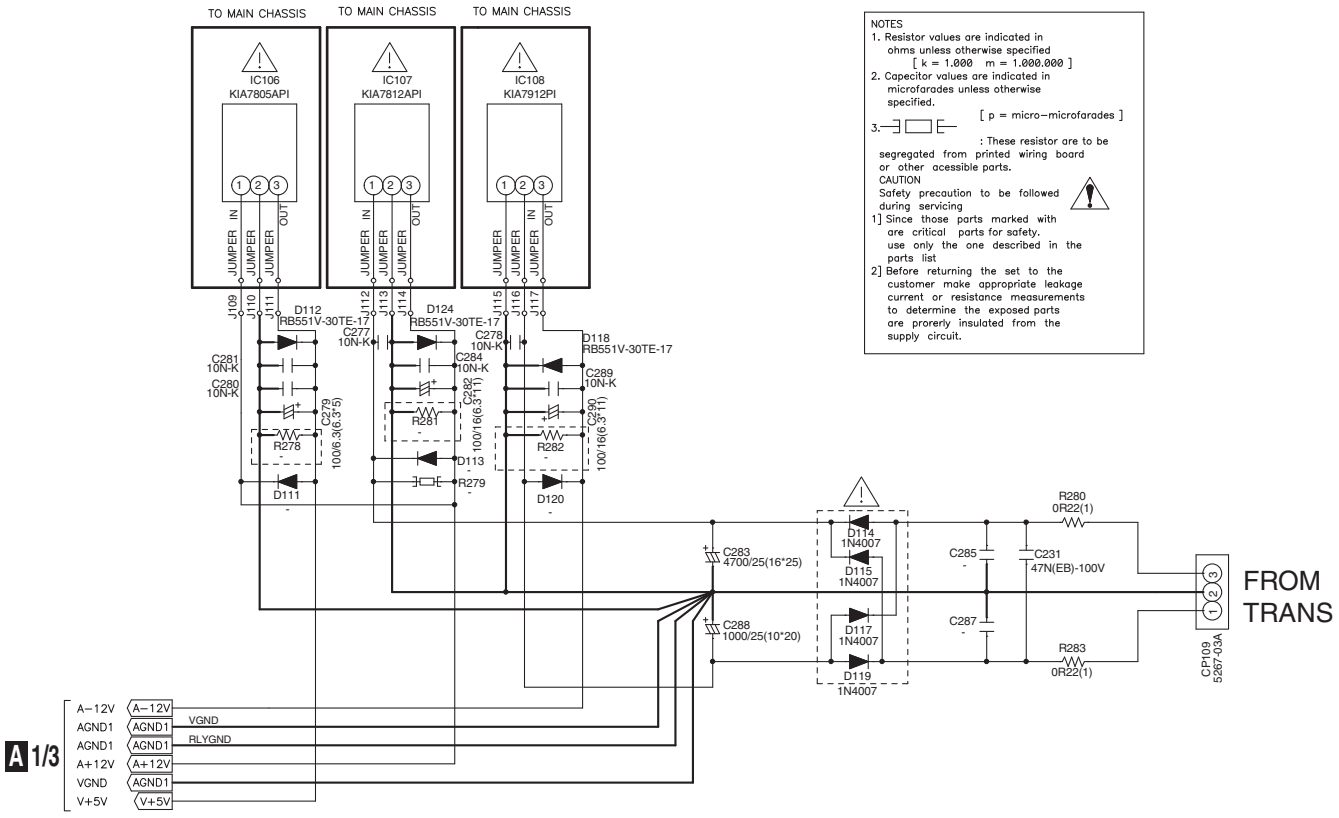
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation



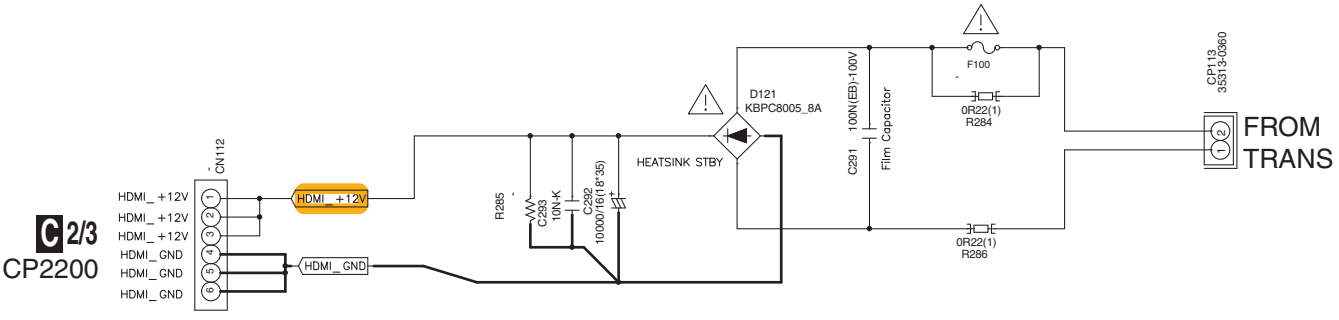

(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)
(TU) : Audio Signal Route (Tuner L ch)
(CD) : Audio Signal Route (CD L ch)
D CP201
J CP115
A 1/3
A 2/3

10.3 MAIN ASSY (3/3)

A 3/3 MAIN ASSY
(CMXESM: 7028073701040-IL)
(YXE8, VYXE8: 7028073701010-IL)
(DLXE: 7028073701030-IL)
(PWXE, AXQ5: 7028073701020-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 acessible parts.
CAUTION
Safety precaution to be followed during servicing
1] Since those parts marked with are critical parts for safety. use only the one described in the parts list
2] Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are prorerly insulated from the supply circuit.



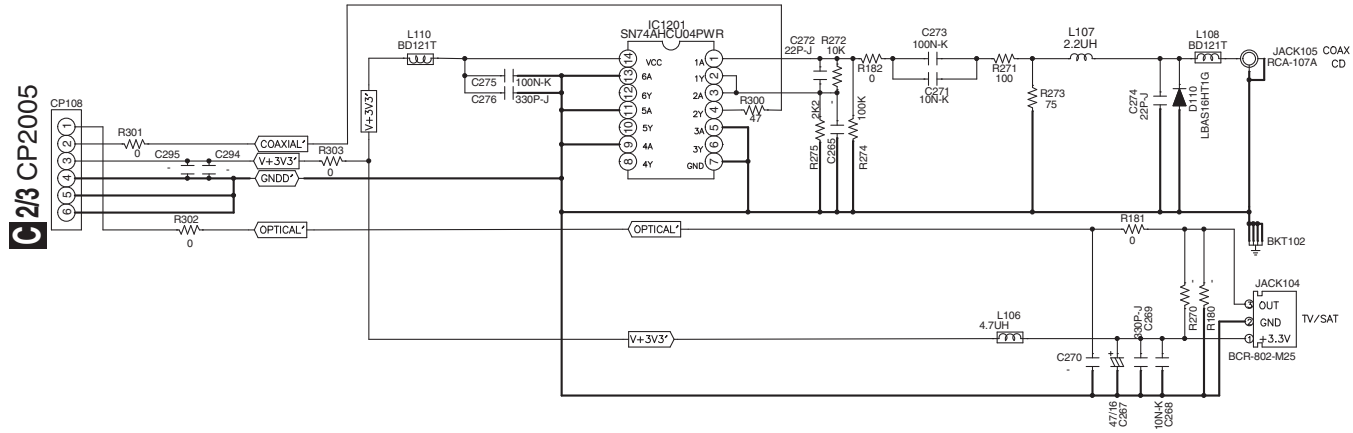
• NOTE FOR FUSE REPLACEMENT

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

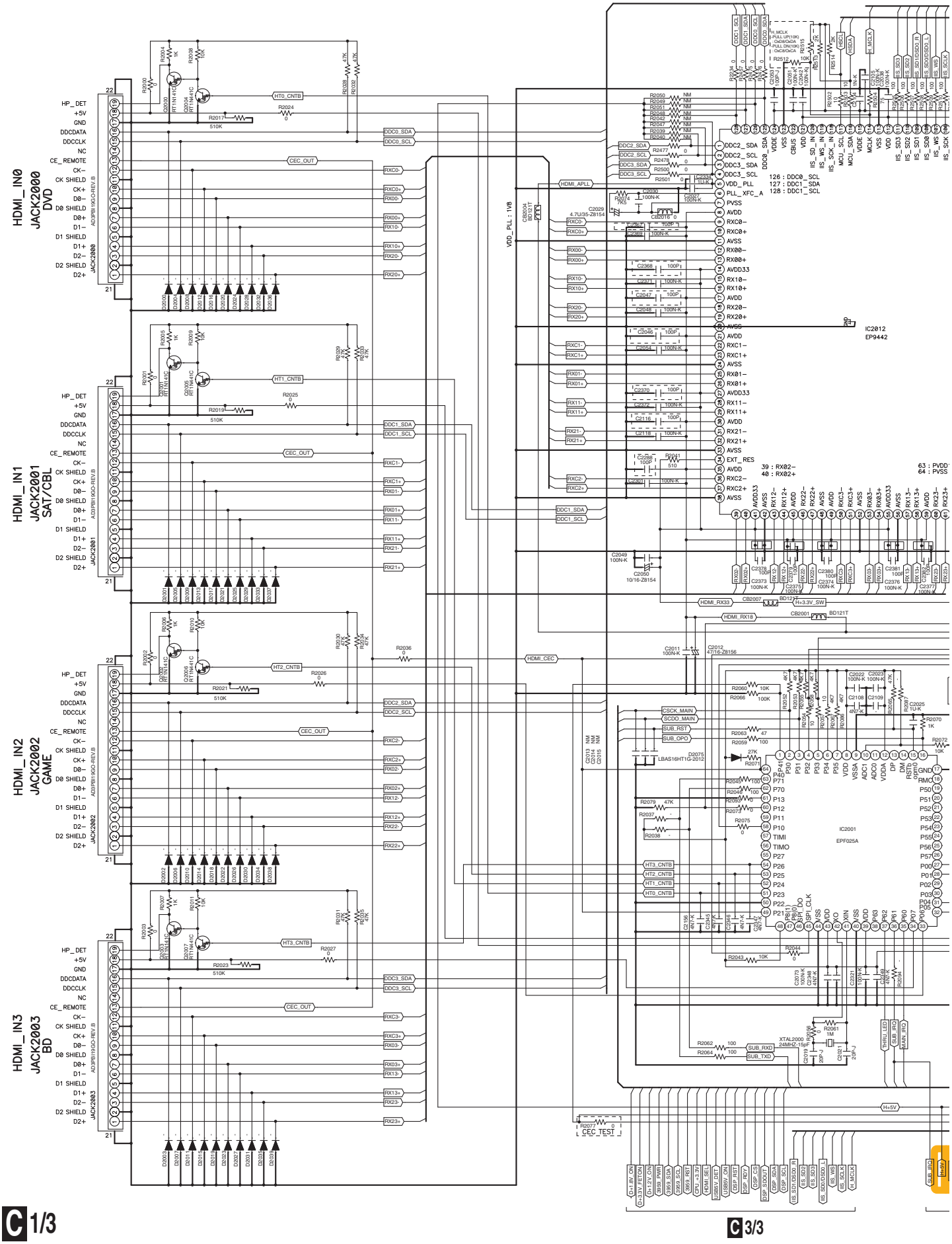
A 3/3

10.4 OPTCO ASSY

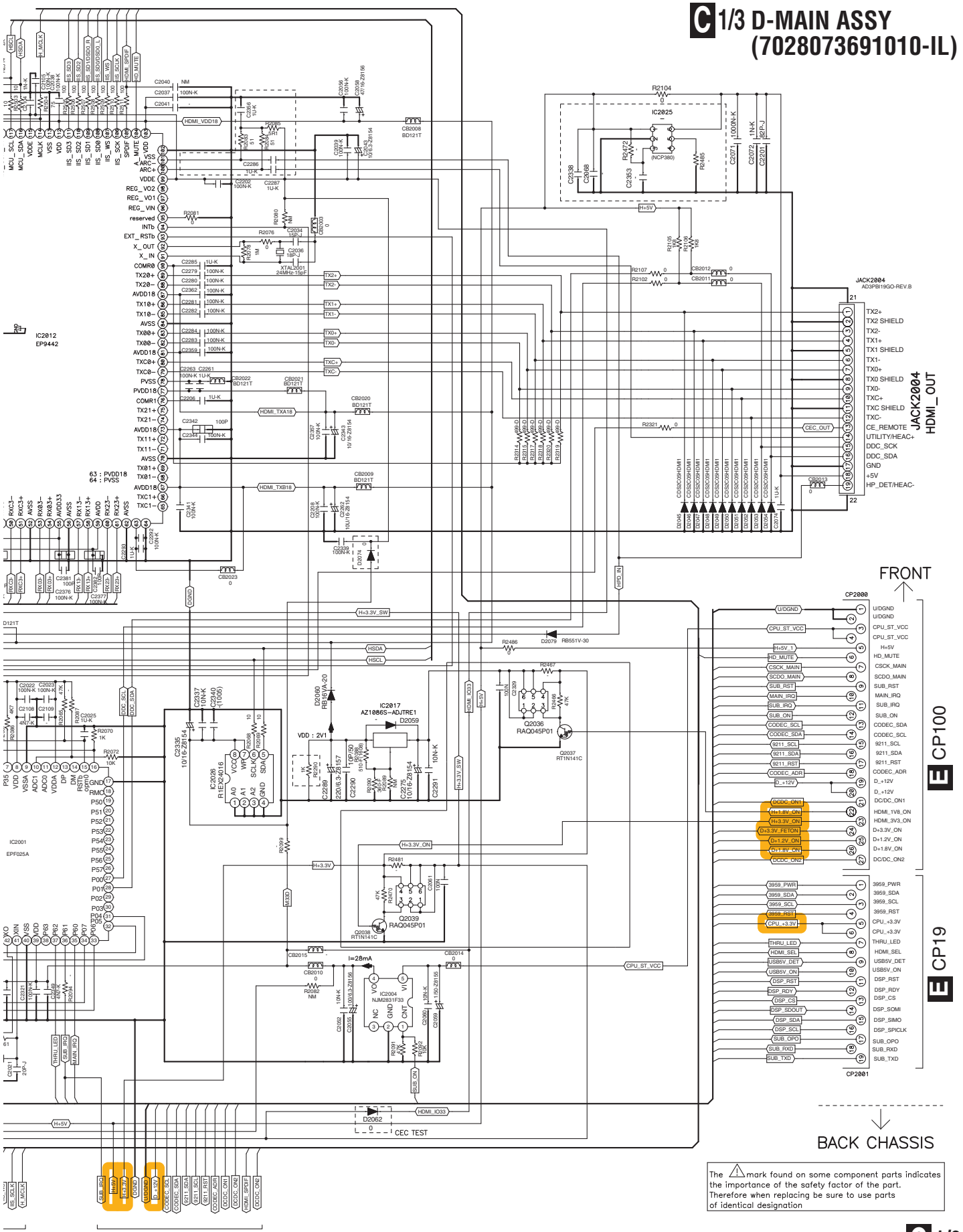
B OPTCO ASSY (7028073702010-IL)



10.5 D-MAIN ASSY (1/3)

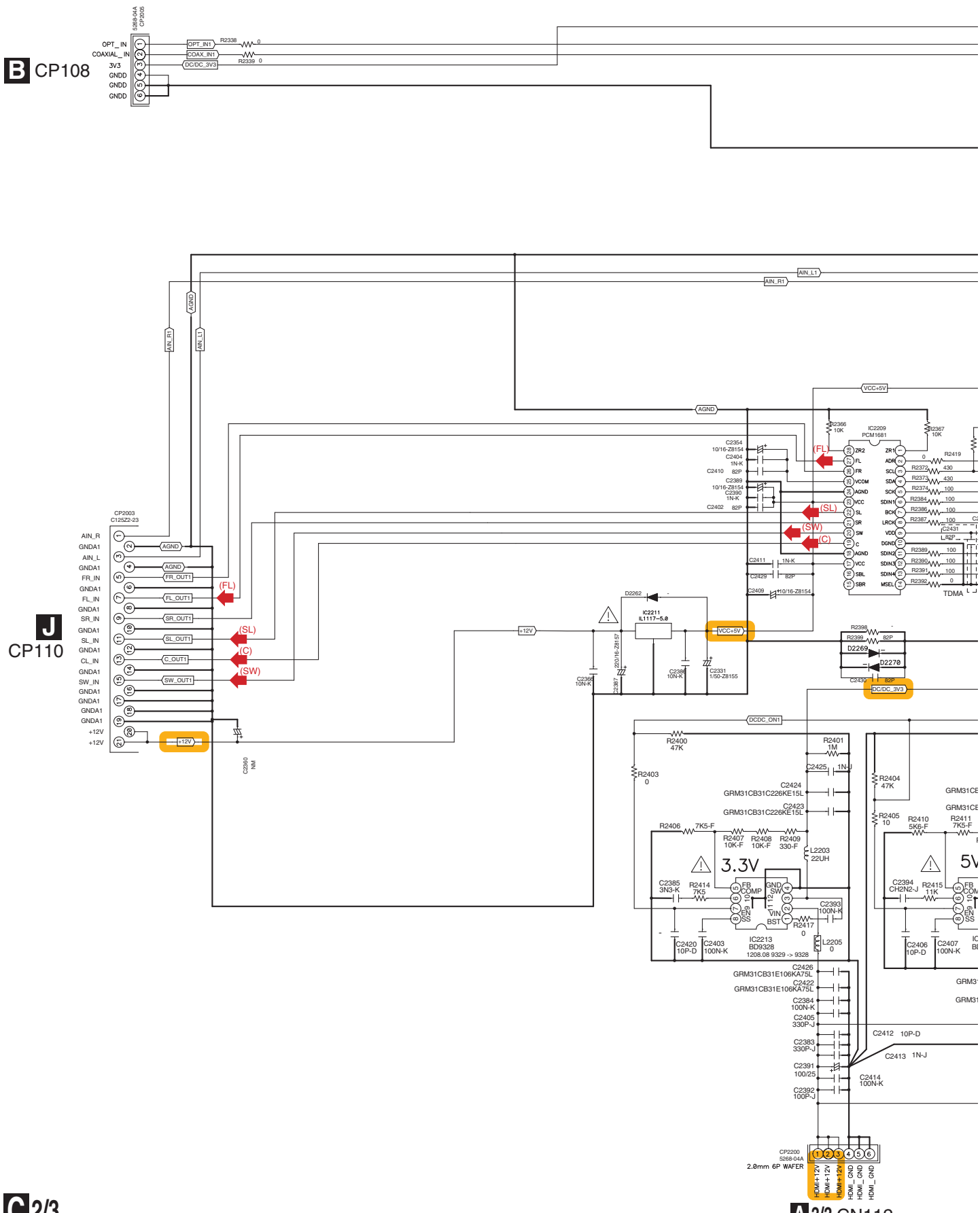


C 1/3 D-MAIN ASSY (7028073691010-IL)



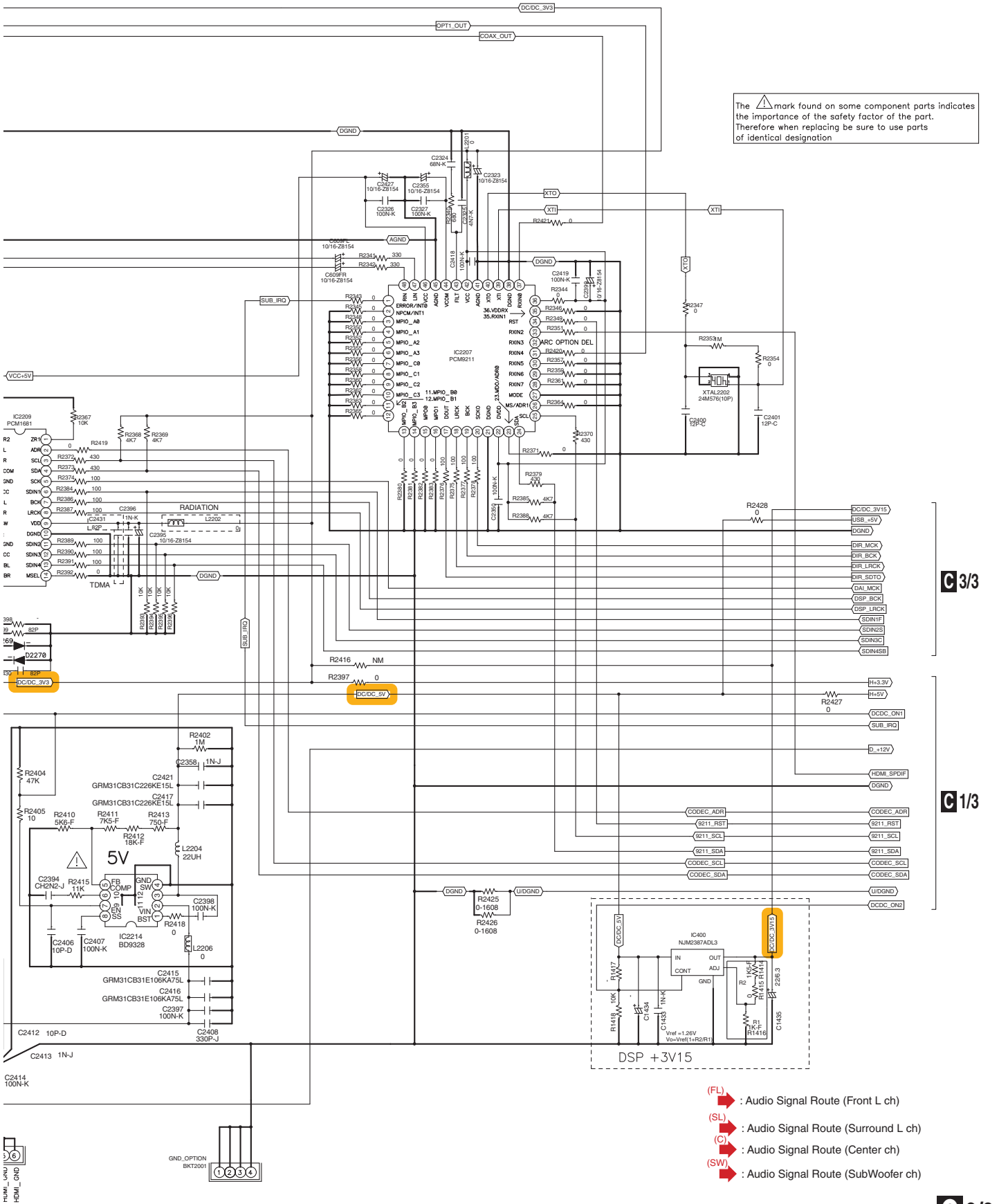
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

10.6 D-MAIN ASSY (2/3)



C 2/3 D-MAIN ASSY (7028073691010-IL)

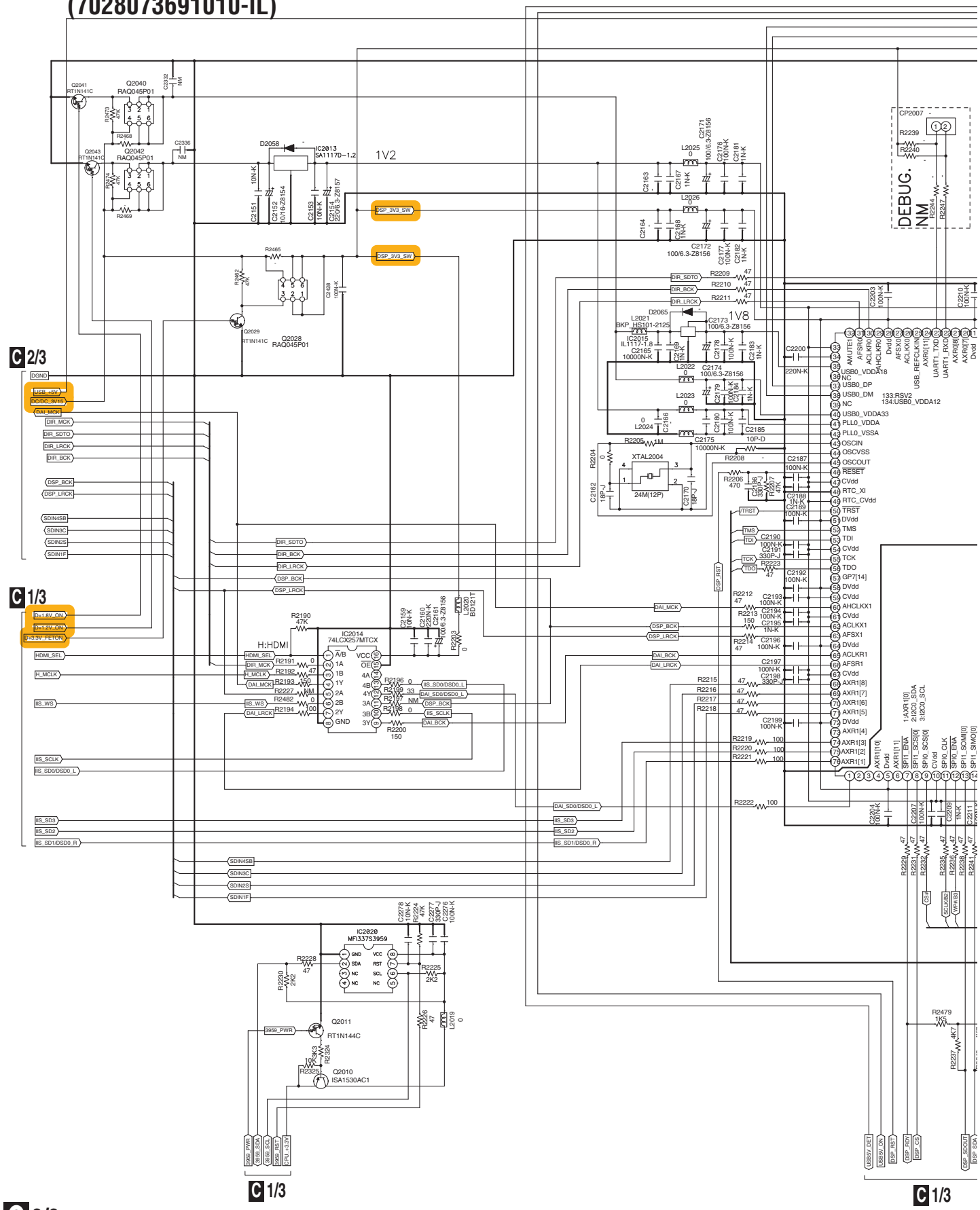
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

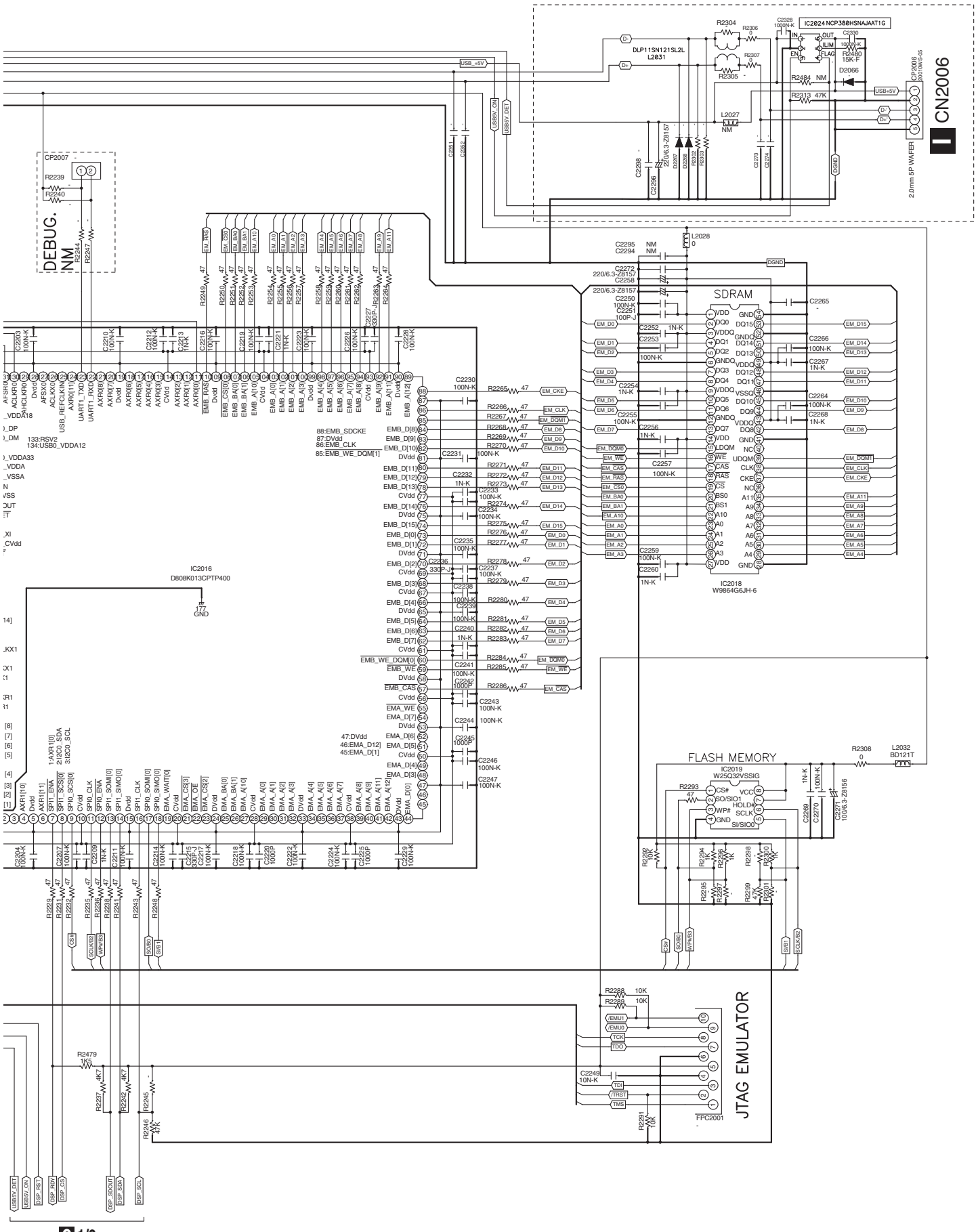


(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)

10.7 D-MAIN ASSY (3/3)

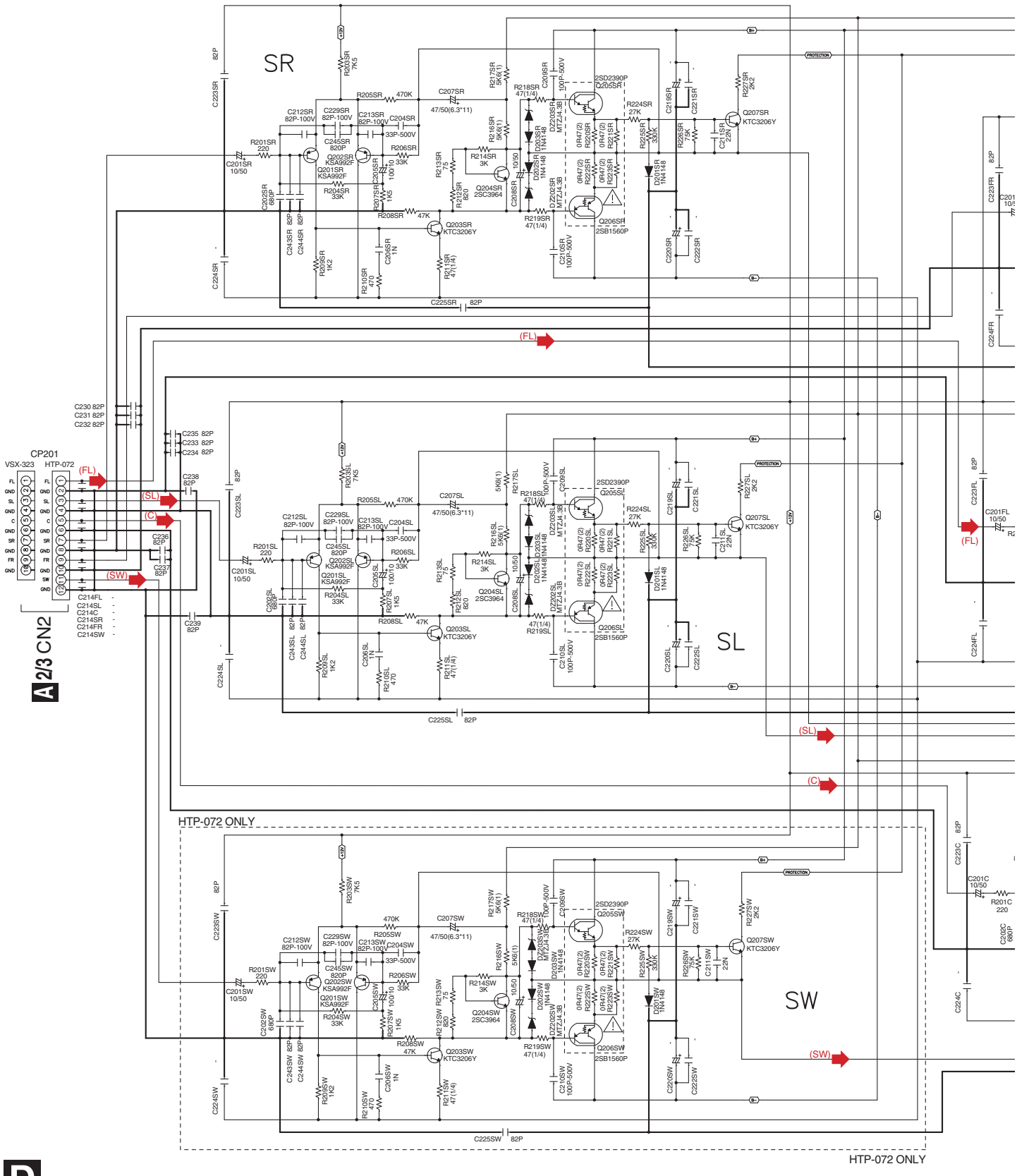
C 3/3 D-MAIN ASSY (7028073691010-IL)



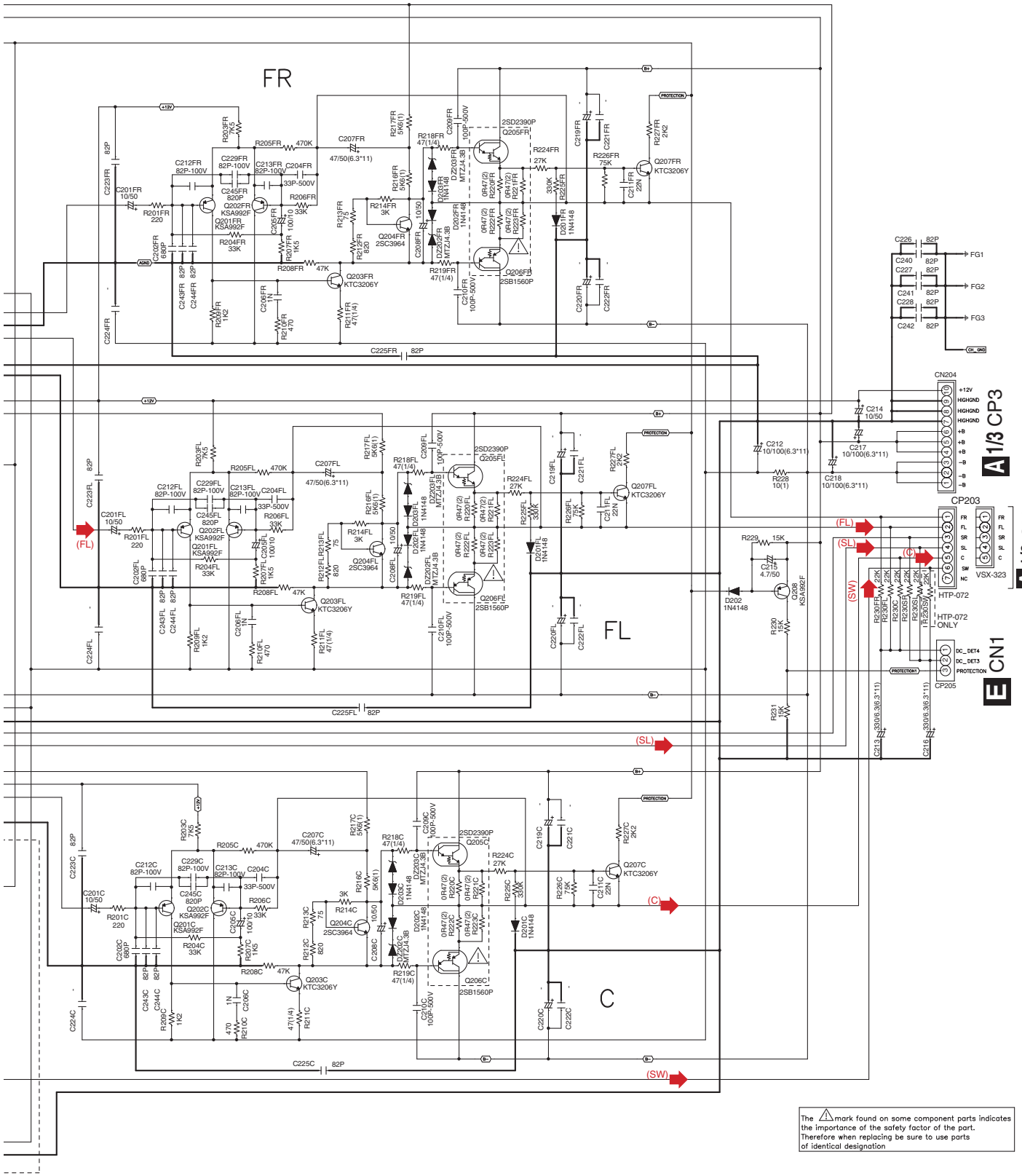

CN2006
DEBUG. NM
SDRAM
FLASH MEMORY
JTAG EMULATOR
IC2016
D808K013CPTP400
IC2018
W9864G6JH-6
IC2019
W25Q32VSSIG
IC2024-NCP380HSNAJAAT1G
DLP11SN121SL2L
L2031
C1/3
C3/3

10.8 AMP6 ASSY

D AMP6 ASSY (7028073711010-IL)



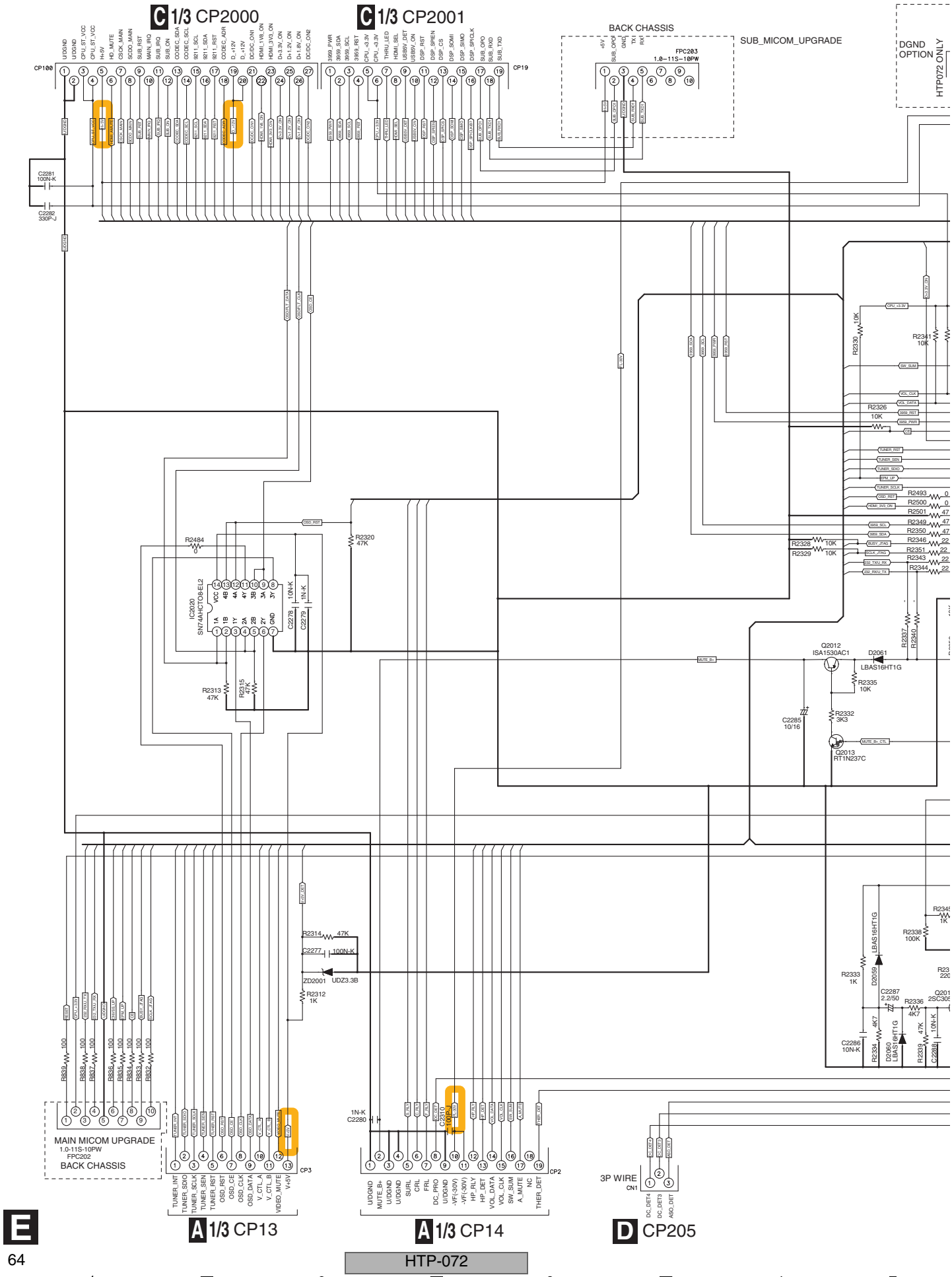
(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(SW) : Audio Signal Route (SubWoofer ch)

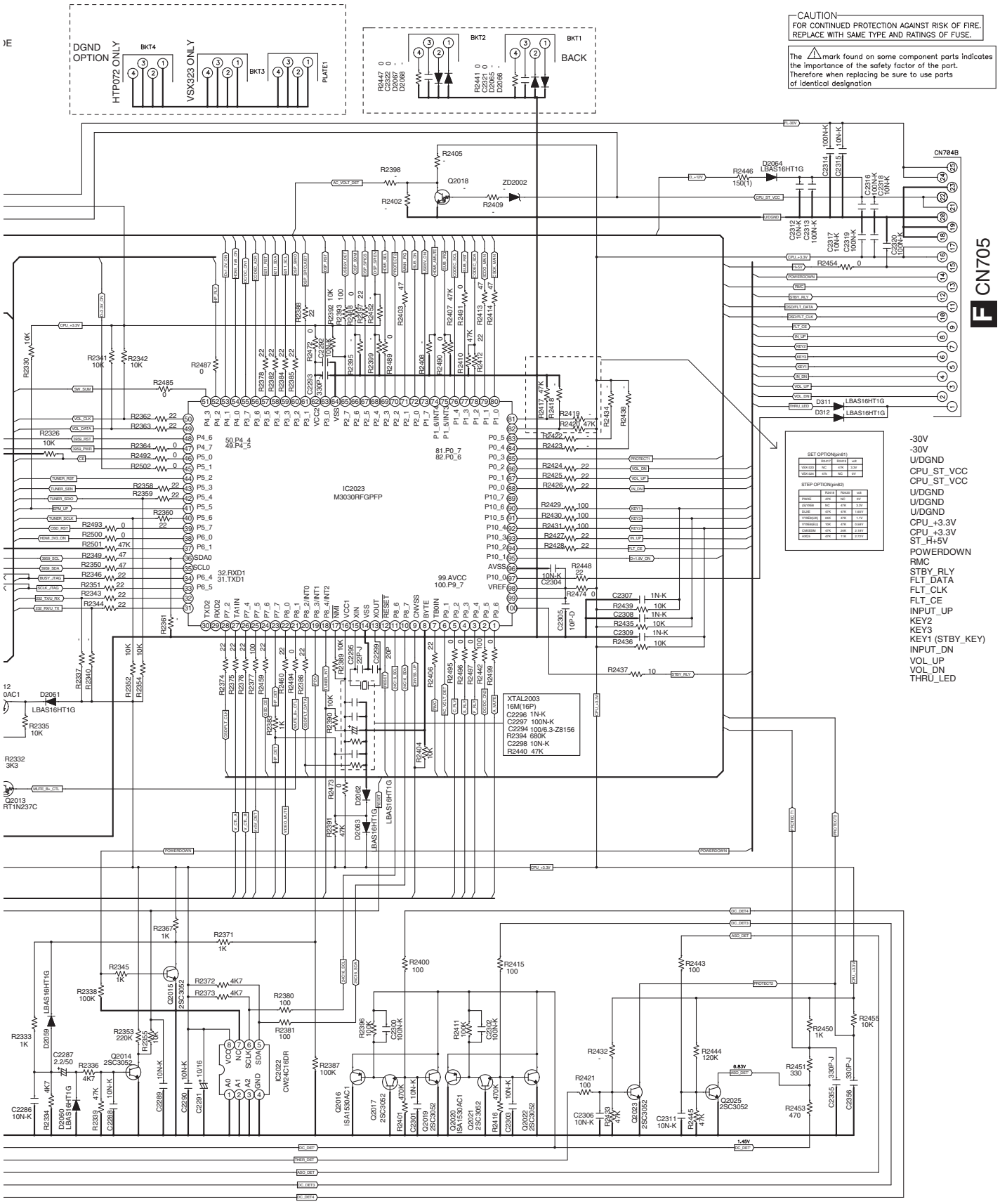


The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

D

10.9 CPU ASSY

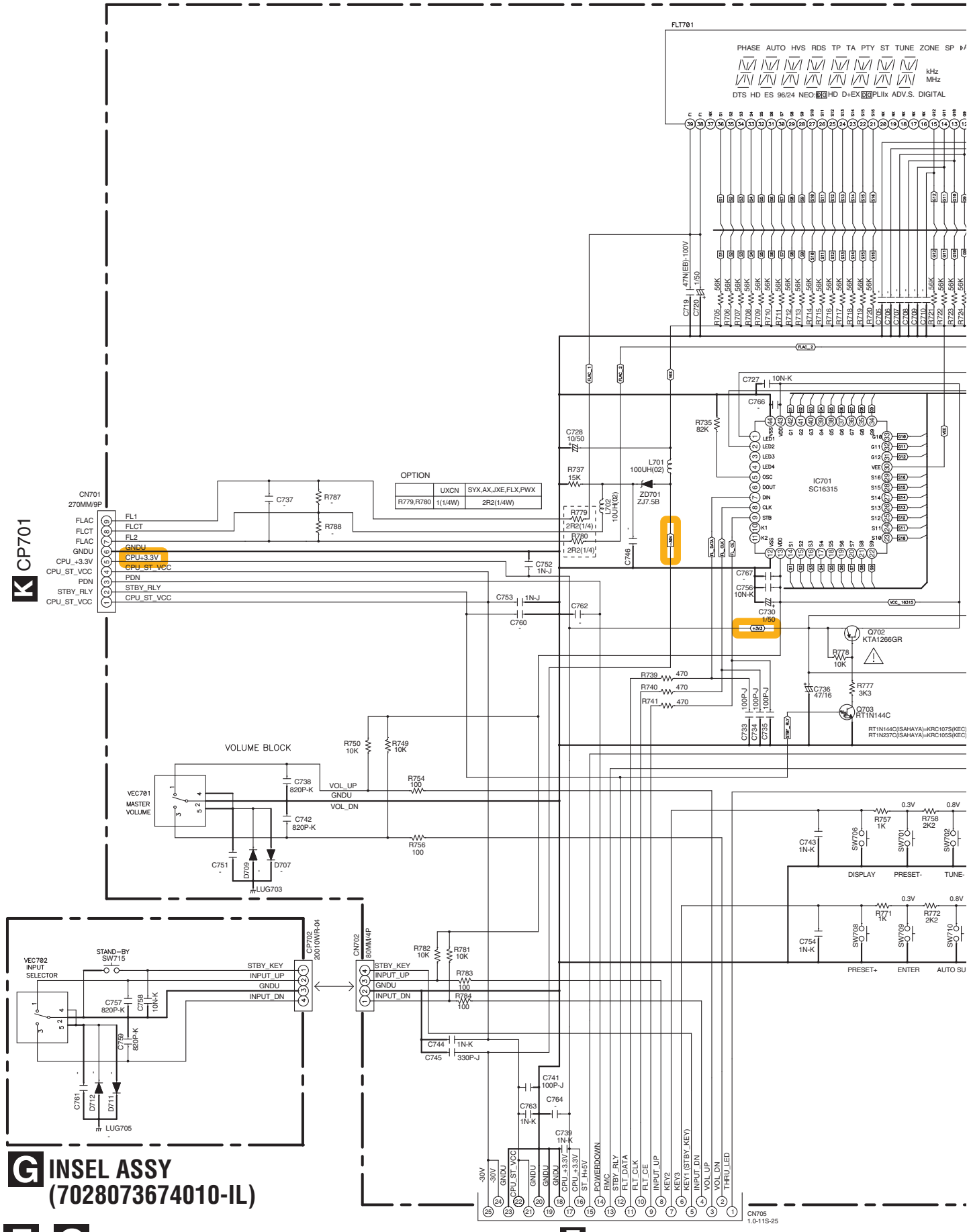

C 1/3 CP2000
C 1/3 CP2001
BACK CHASSIS
SUB_MICOM_UPGRADE
DGND OPTION
HTP072 ONLY
CP100
CP19
FPC203
1.0-11S-10PW
C2281 100N-K
C2282 330P-J
IC2020 SN74HCT08-EL2
R2484 0
R2320 47K
R2313 47K
R2315 47K
R2314 47K
C2277 100N-K
ZD2001 UDZ3.3B
R2312 1K
C2278 10N-K
C2279 1N-K
R2328 10K
R2329 10K
R2330 10K
R2341 10K
R2326 10K
Q2012 ISA1530AC1
D2061 LBAS16HT1G
R2335 10K
R2332 3K3
C2285 10/16
Q2013 RT1N237C
R2333 1K
D2059 LBAS16HT1G
R2338 100K
C2287 2.2/50
R2336 4K7
R2334 4K7
D2060 LBAS16HT1G
R2339 47K
C2288 10N-K
C2286 10N-K
C2280 1N-K
MAIN MICOM UPGRADE
1.0-11S-10PW
FPC202
BACK CHASSIS
3P WIRE
CN1
A 1/3 CP13
A 1/3 CP14
D CP205
TUNER_INT
TUNER_SDIO
TUNER_SCLK
TUNER_SEN
TUNER_RST
OSD_RST
OSD_CE
OSD_CLK
OSD_DATA
V_CTL_A
V_CTL_B
VIDEO_MUTE
V+5V
U/DGND
MUTE_B+
U/DGND
U/DGND
SURL
CRL
FRL
DC_PRO
U/DGND
-VF(-30V)
-VF(-30V)
HP_RLY
HP_DET
VOL_DATA
VOL_CLK
SW_SUM
A_MUTE
NC
THER_DET
DC_DET4
DC_DET3
ASO_DET



E CPU ASSY

(CMXESM: 7028073681070-IL) (DLXE: 7028073681040-IL)
(YXEB: 7028073681010-IL) (PWXE: 7028073681030-IL)
(VYXE8: 7028073681050-IL) (AXQ5: 7028073681020-IL)

10.10 FRONT, INSEL, HP and FUSB ASSYS

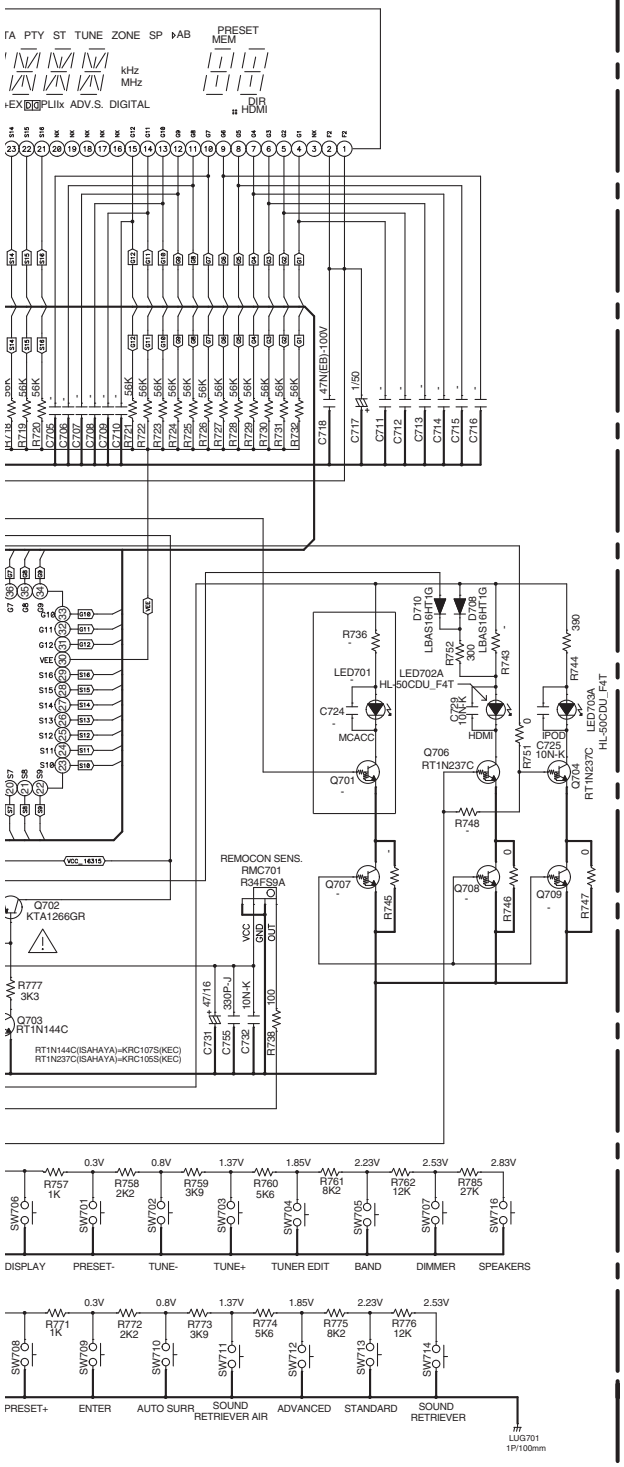


G INSEL ASSY (7028073674010-IL)

F G

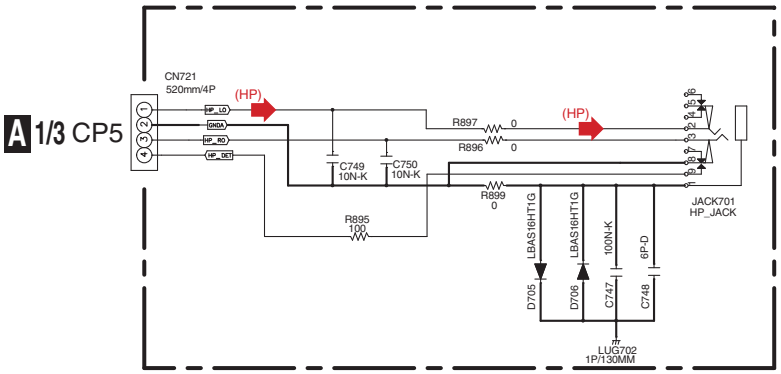
E CN704B

F FRONT ASSY (7028073671010-IL)



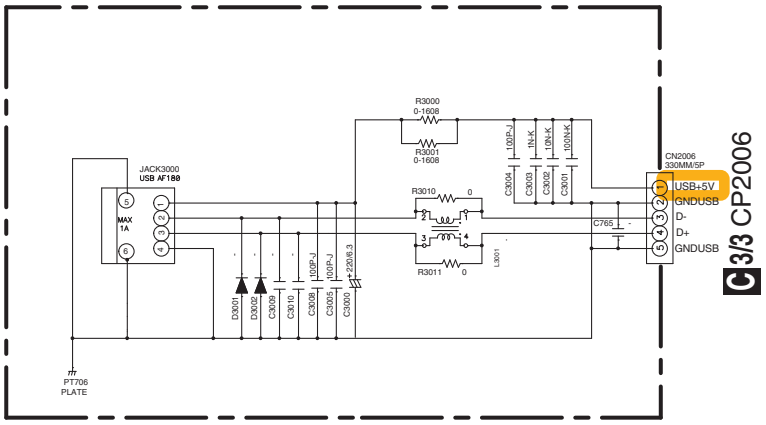
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore when replacing be sure to use parts of identical designation

H HP ASSY (7028073672020-IL)

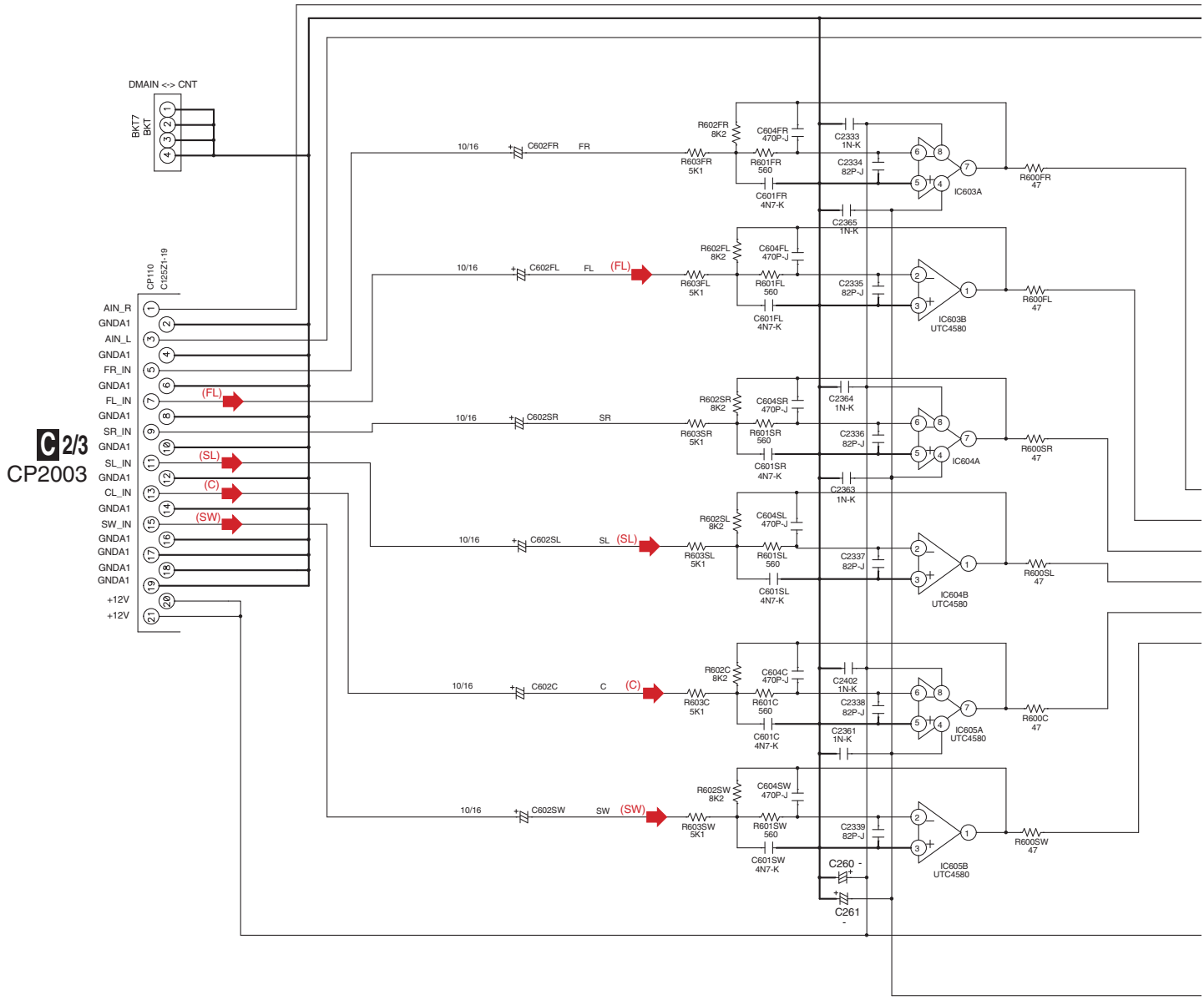


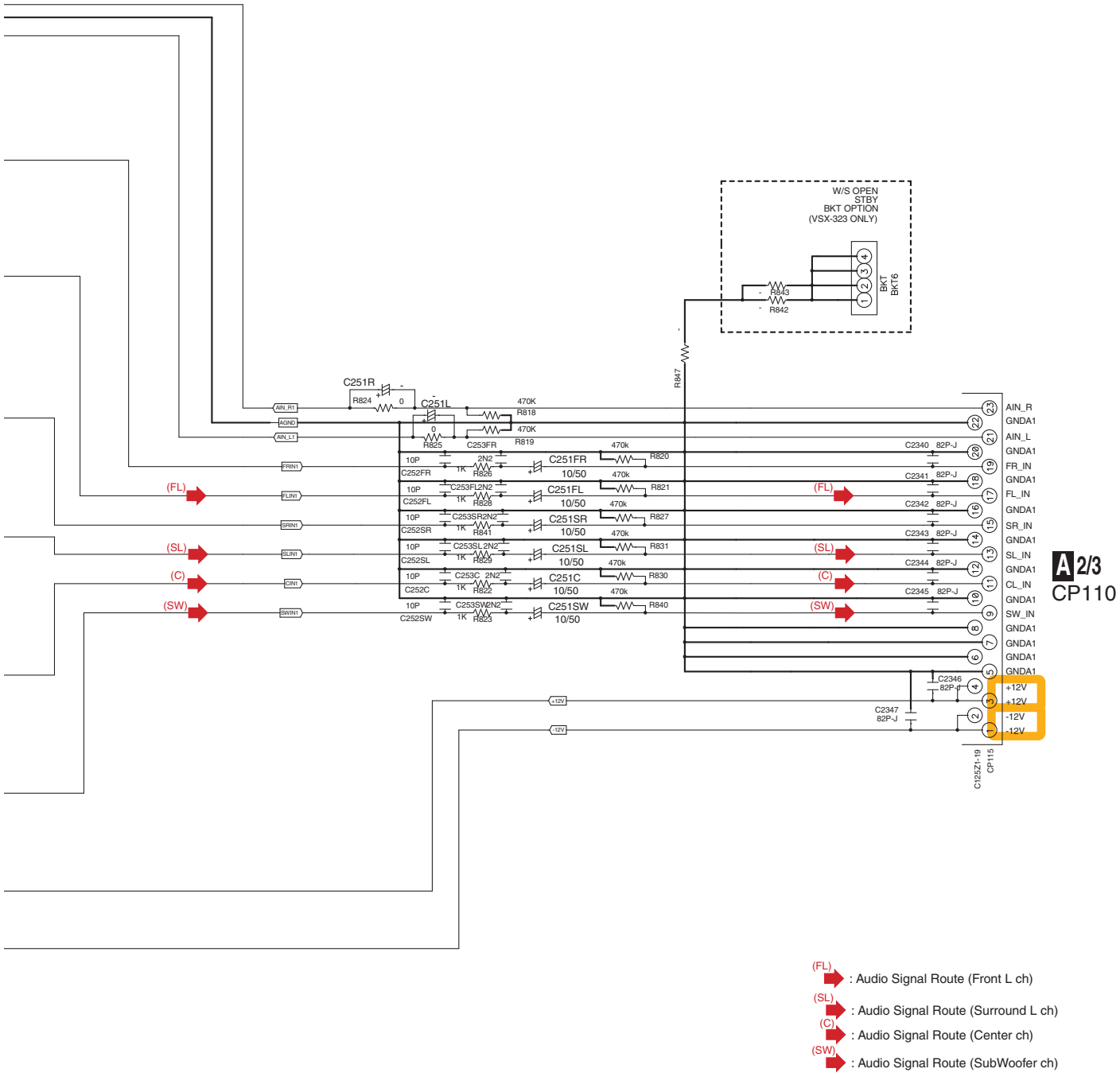
(HP) : Audio Signal Route (Headphone L ch)

I FUSB ASSY (7028073673010-IL)



J CNT ASSY (7028073683010-IL)

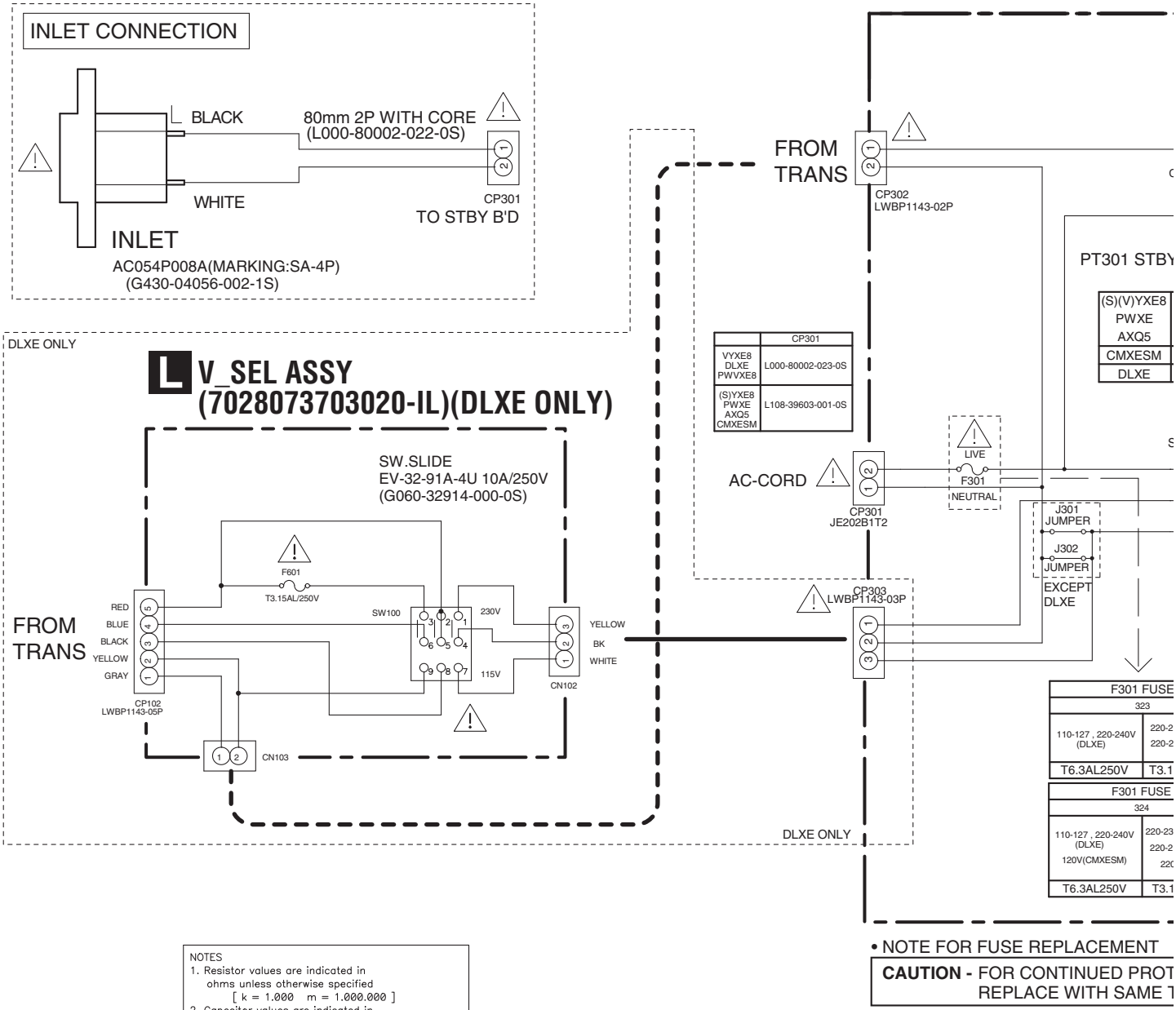




A 2/3
CP110

(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)

10.12 STBY and V_SEL ASSYS

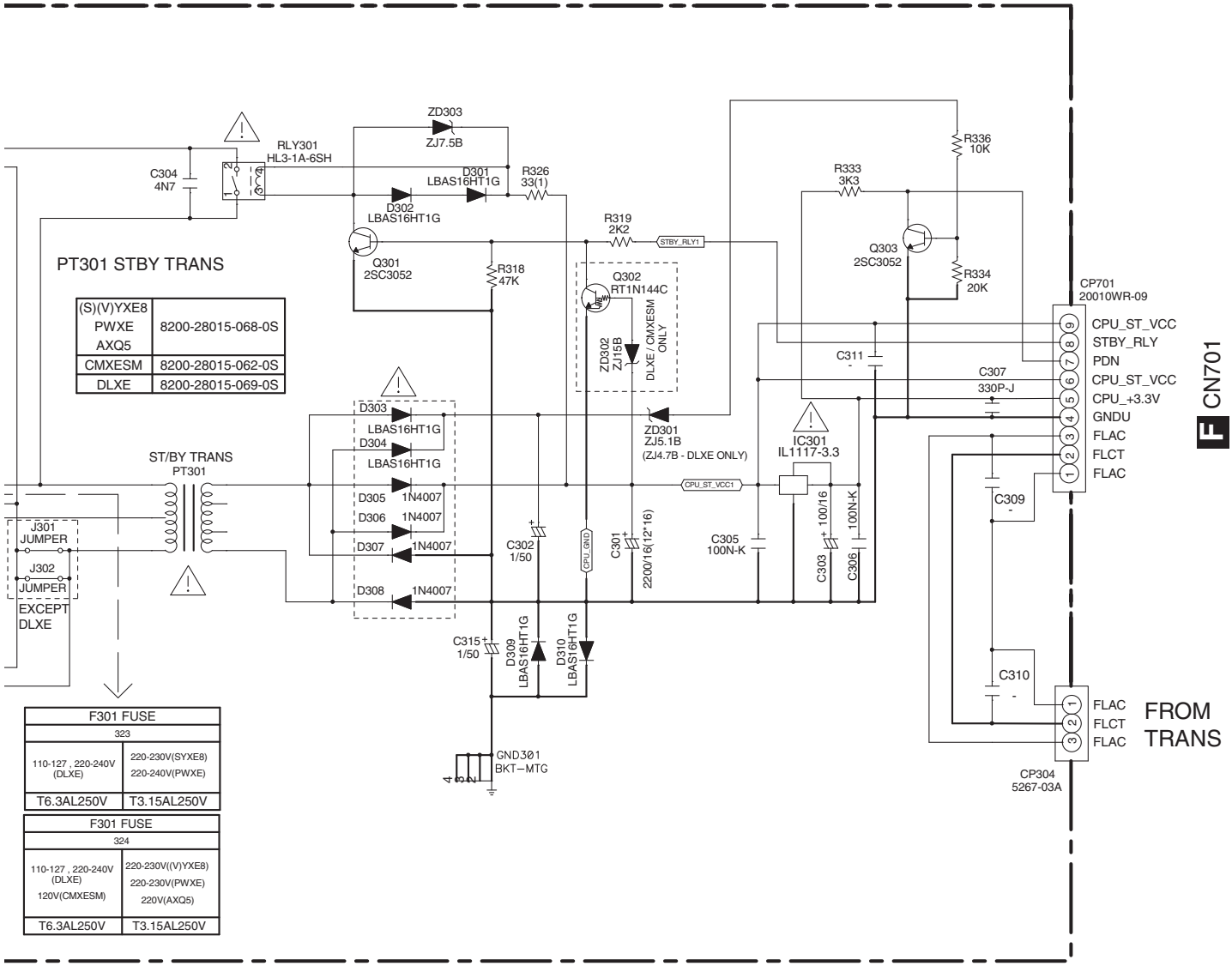


NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[k = 1.000 m = 1.000.000]
2. Capacitor values are indicated in microfarades unless otherwise specified.
[p = micro-microfarades]
3. : These resistor are to be segregated from printed wiring board or other acessible parts.
CAUTION
Safety precaution to be followed during servicing
1] Since those parts marked with are critical parts for safety. use only the one described in the parts list
2] Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are prorerly insulated from the supply circuit.

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

K STBY ASSY
(CMXESM: 7028073682050-IL)
(YXE8, PWXE: 7028073682010-IL)
(VYXE8: 7028073682030-IL)
(DLXE: 7028073682040-IL)
(7028073682020-IL)

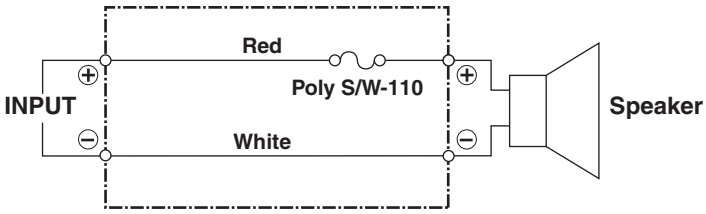


REPLACEMENT

CONTINUED PROTECTION AGAINST RISK OF FIRE,
ACE WITH SAME TYPE AND RATINGS OF FUSE.

10.13 S-11A-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.

A

B

C

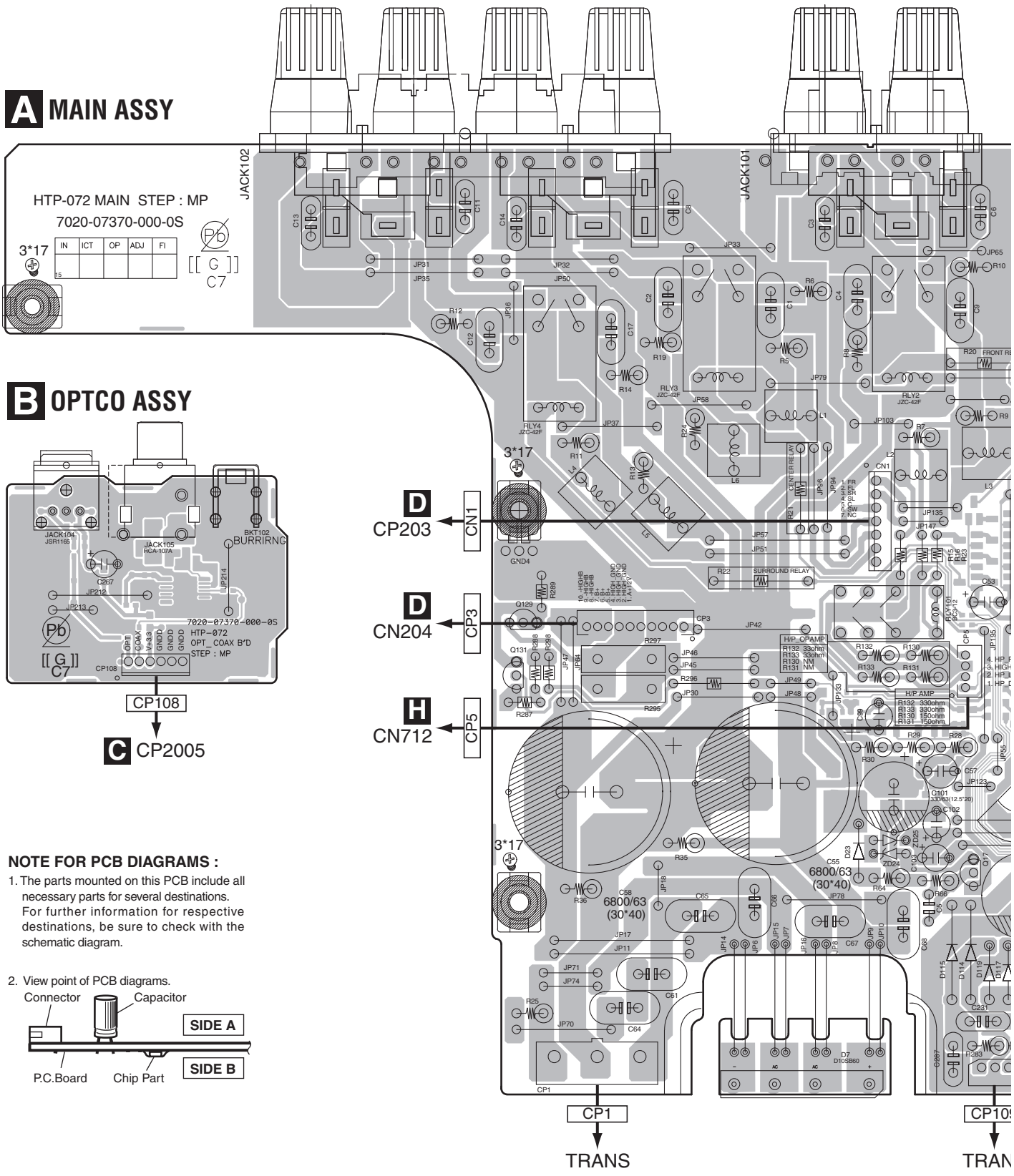
D

E

F

11. PCB CONNECTION DIAGRAM
11.1 MAIN and OPTCO ASSYS

SIDE A



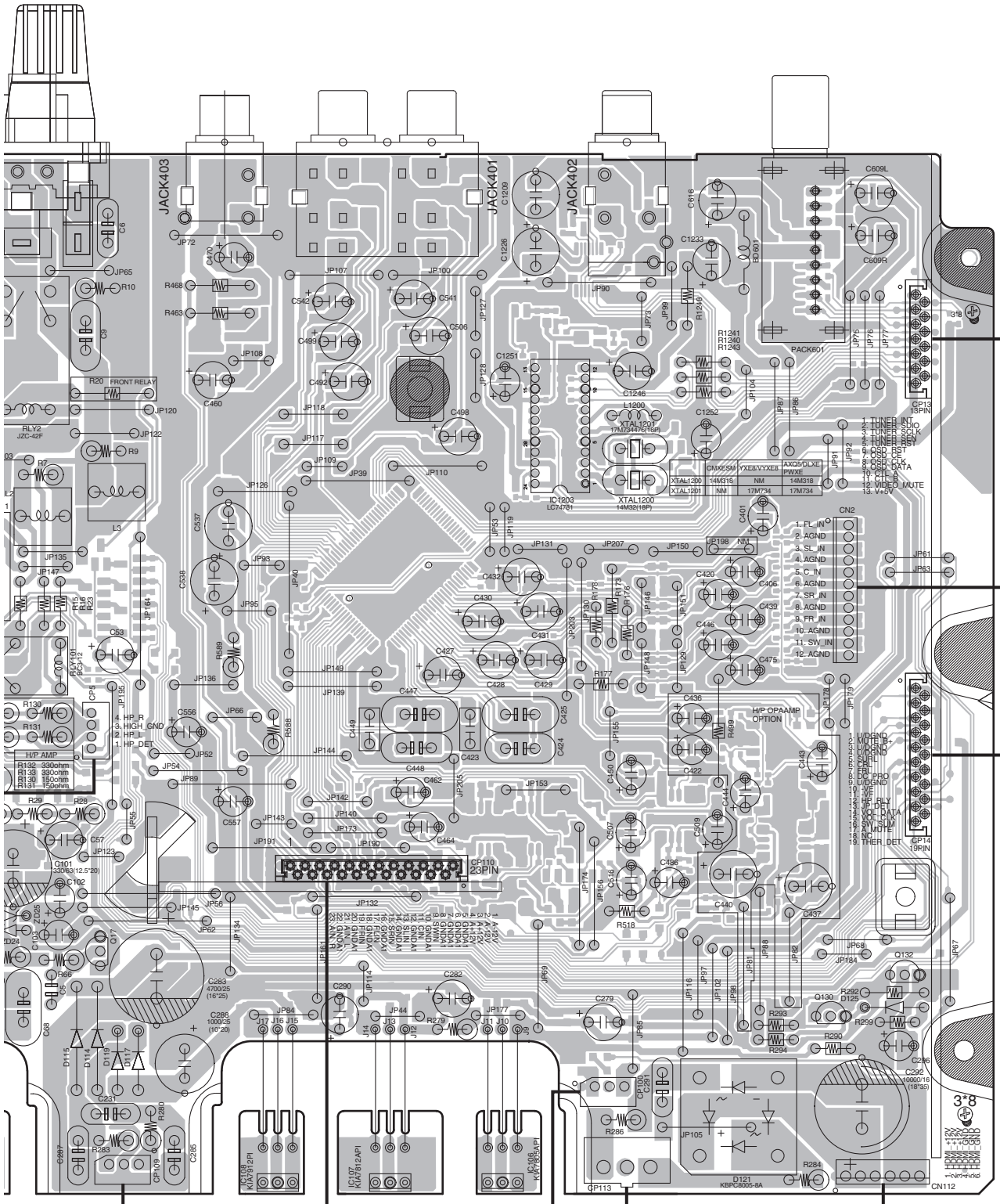
NOTE FOR PCB DIAGRAMS :

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 B

SIDE A

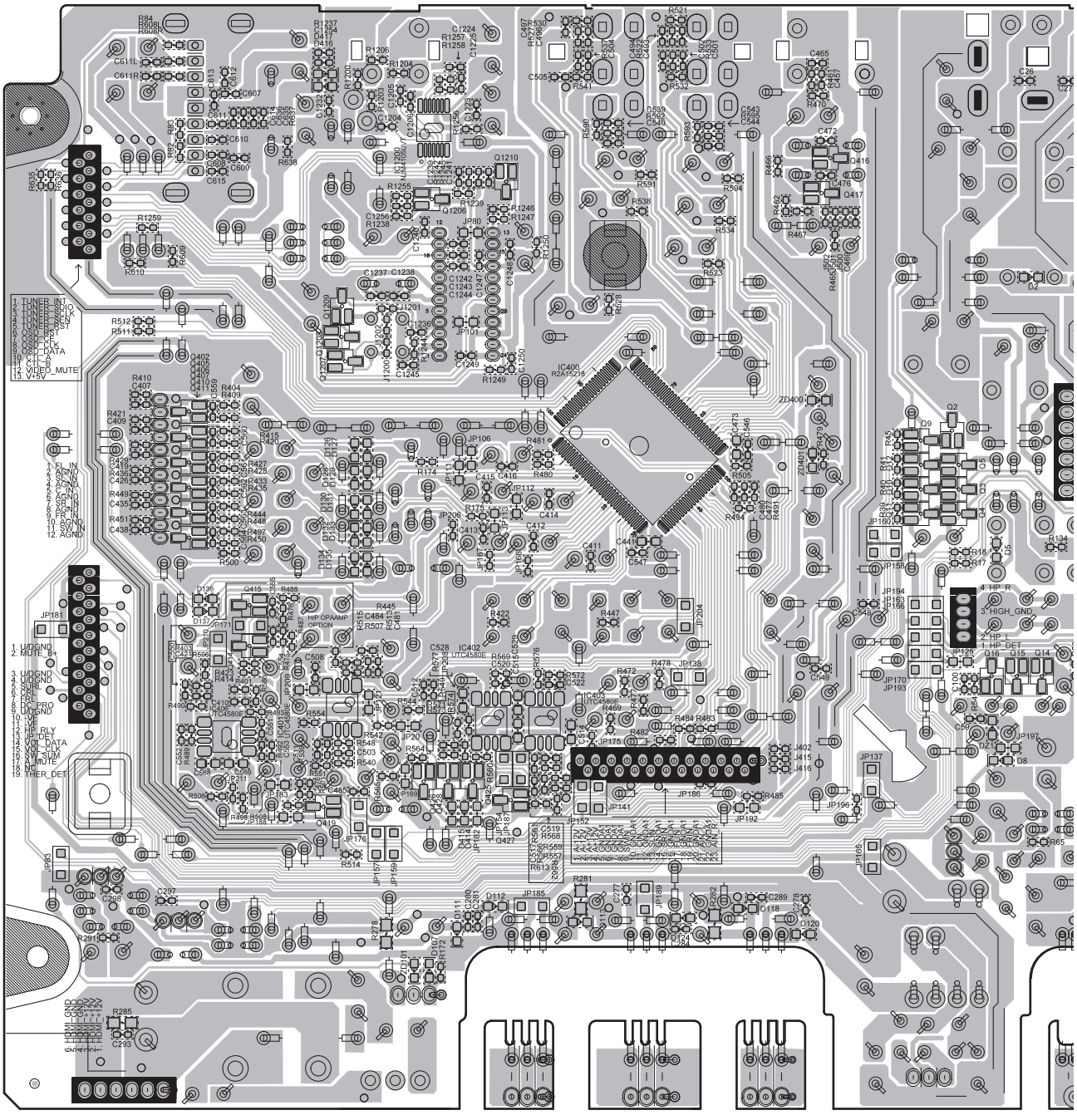


IC1203

HTP-072

SIDE B

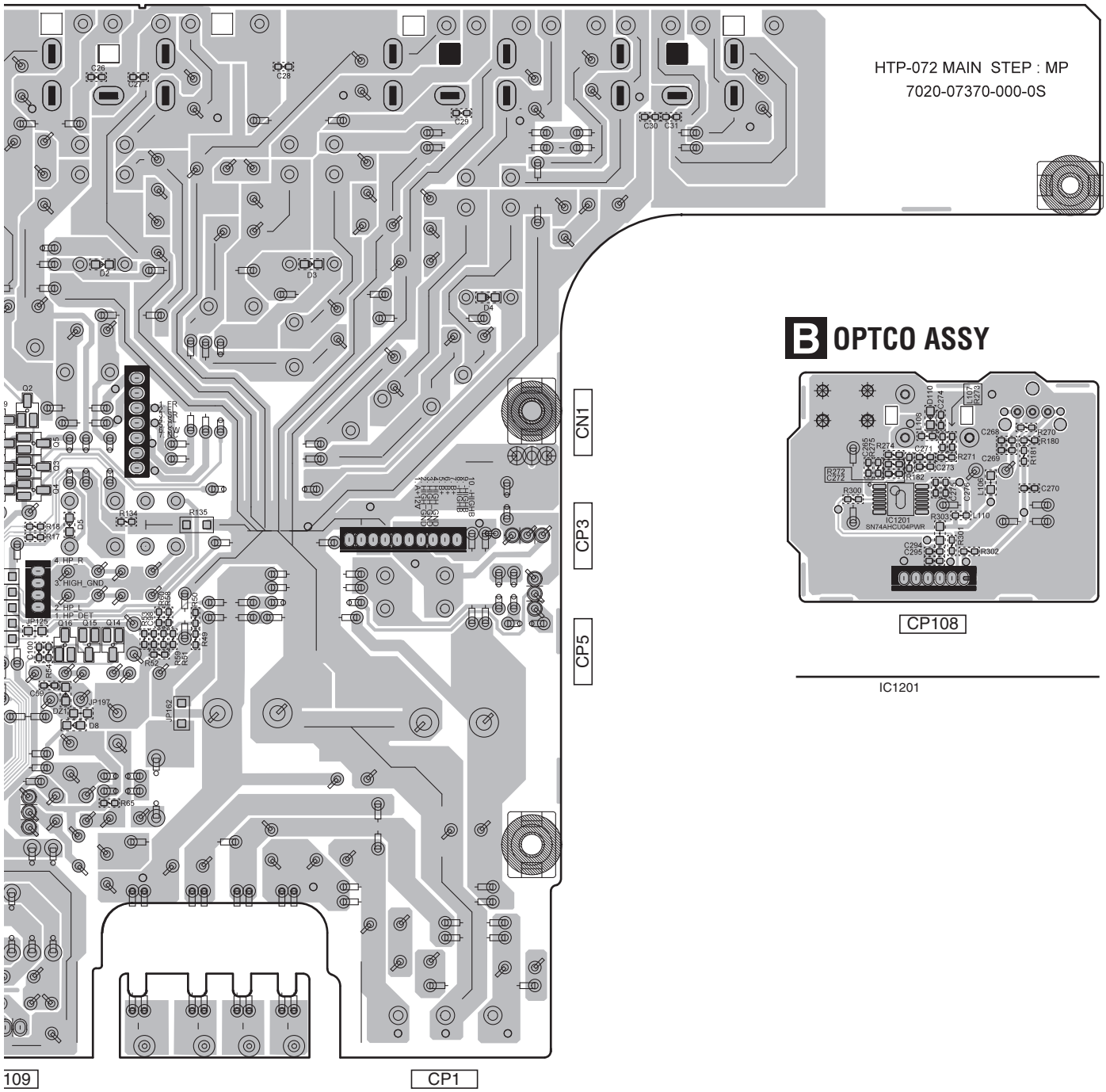
A MAIN ASSY



Q415 Q1207-Q1209 IC1200 Q1210 IC400 Q416 Q9-Q12 Q2-Q5
Q414 IC401 Q1216 IC402 IC403 Q417 Q14-Q16
IC408 Q419 Q425-Q428

HTP-072

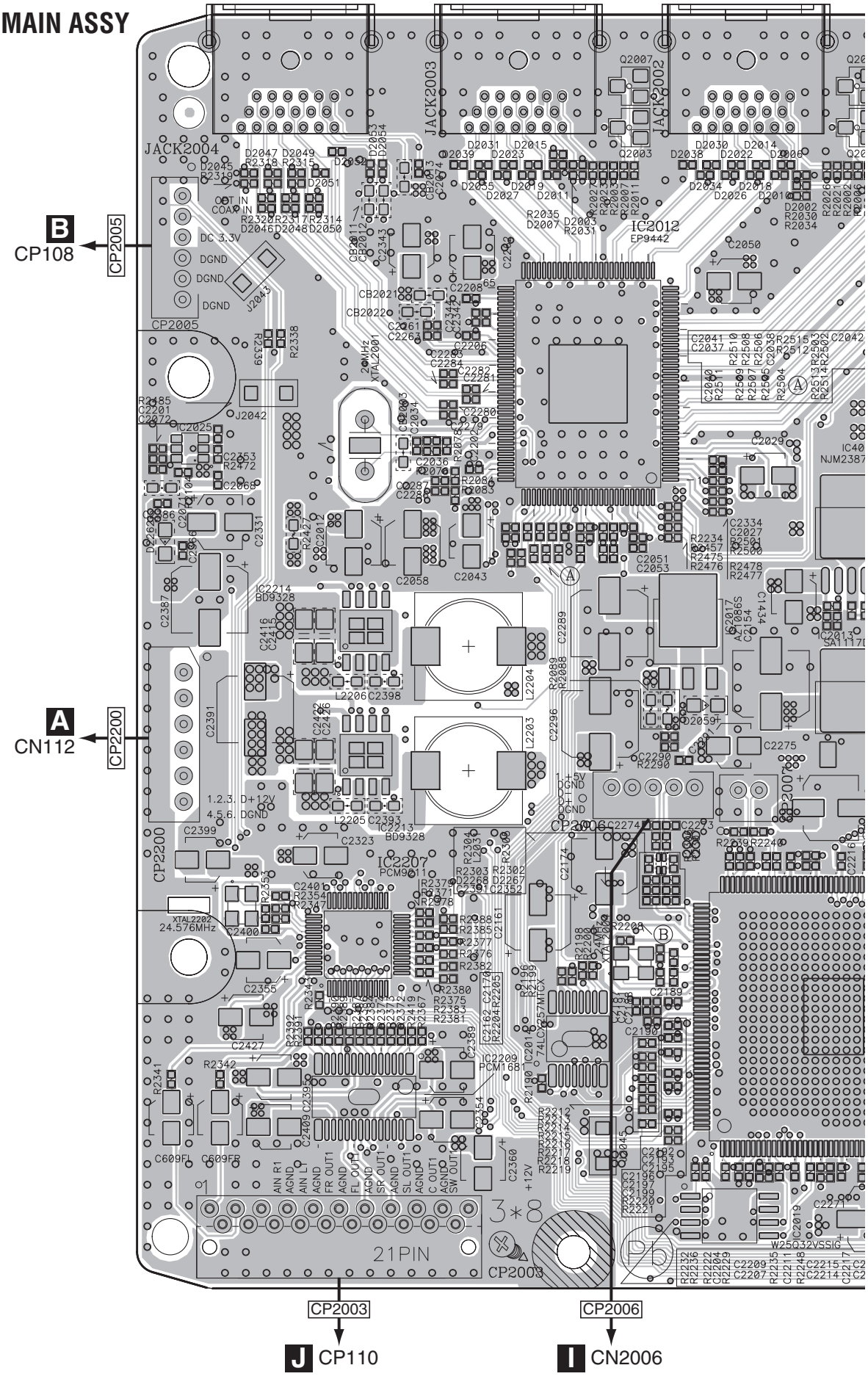
SIDE B

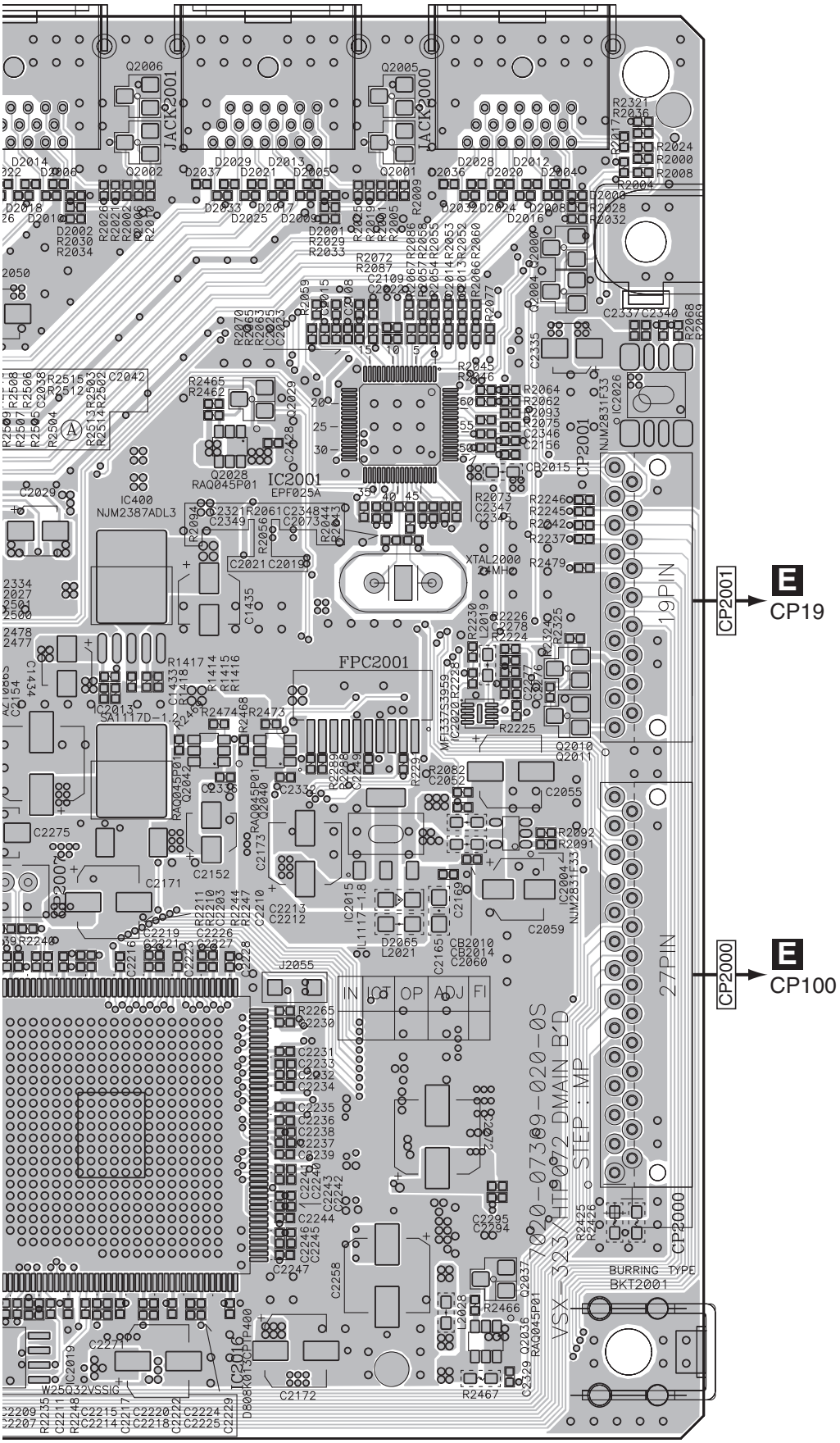

HTP-072 MAIN STEP : MP
7020-07370-000-0S
CN1
CP3
CP5
CP1
109
B OPTCO ASSY
CP108
IC1201
SN74AHCU04PWR
Q2-Q5
Q14-Q16

11.2 D-MAIN ASSY

SIDE A

C D-MAIN ASSY





E CP19

E CP100

SIDE A

A

Q2007 Q2006 Q2005

Q2003 Q2002 Q2001

B

Q2029 IC2026

IC2012 IC2001

Q2028

C

IC400

IC2214 Q2010

IC2017

Q2011

IC2013

IC2004

IC2015

D

IC2207

IC2019

IC2014

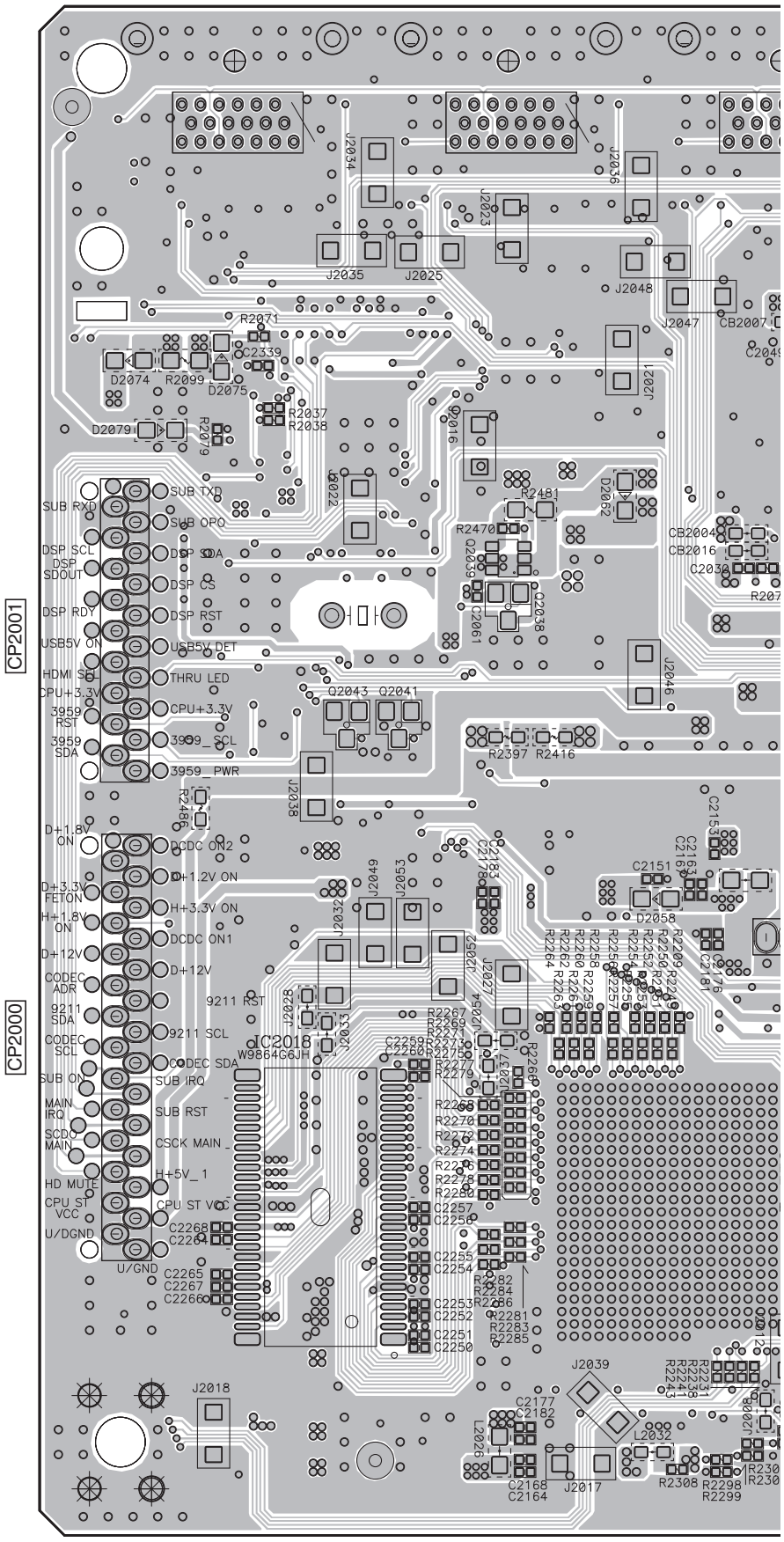
E

IC2209

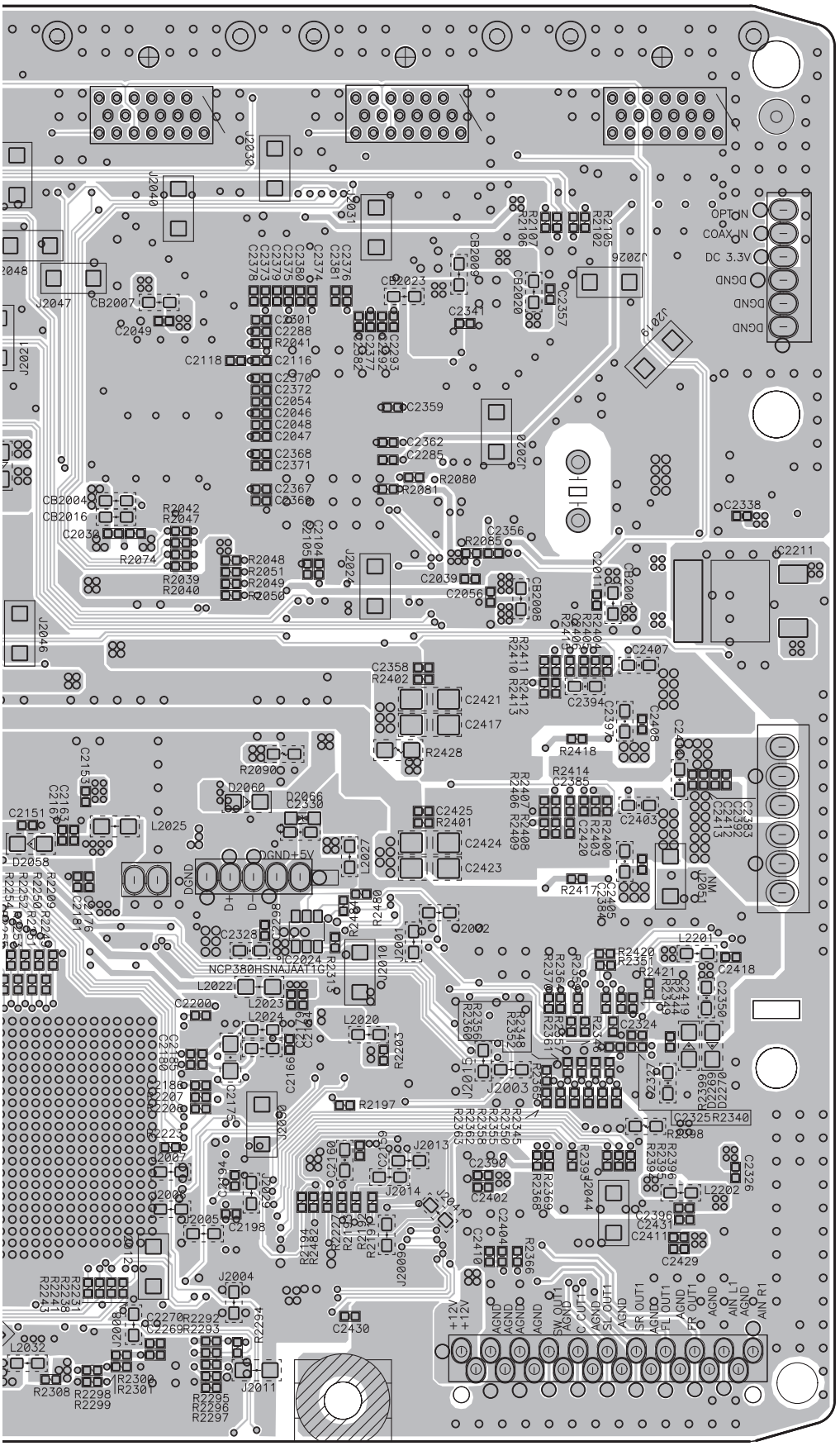
Q2037

F

SIDE B

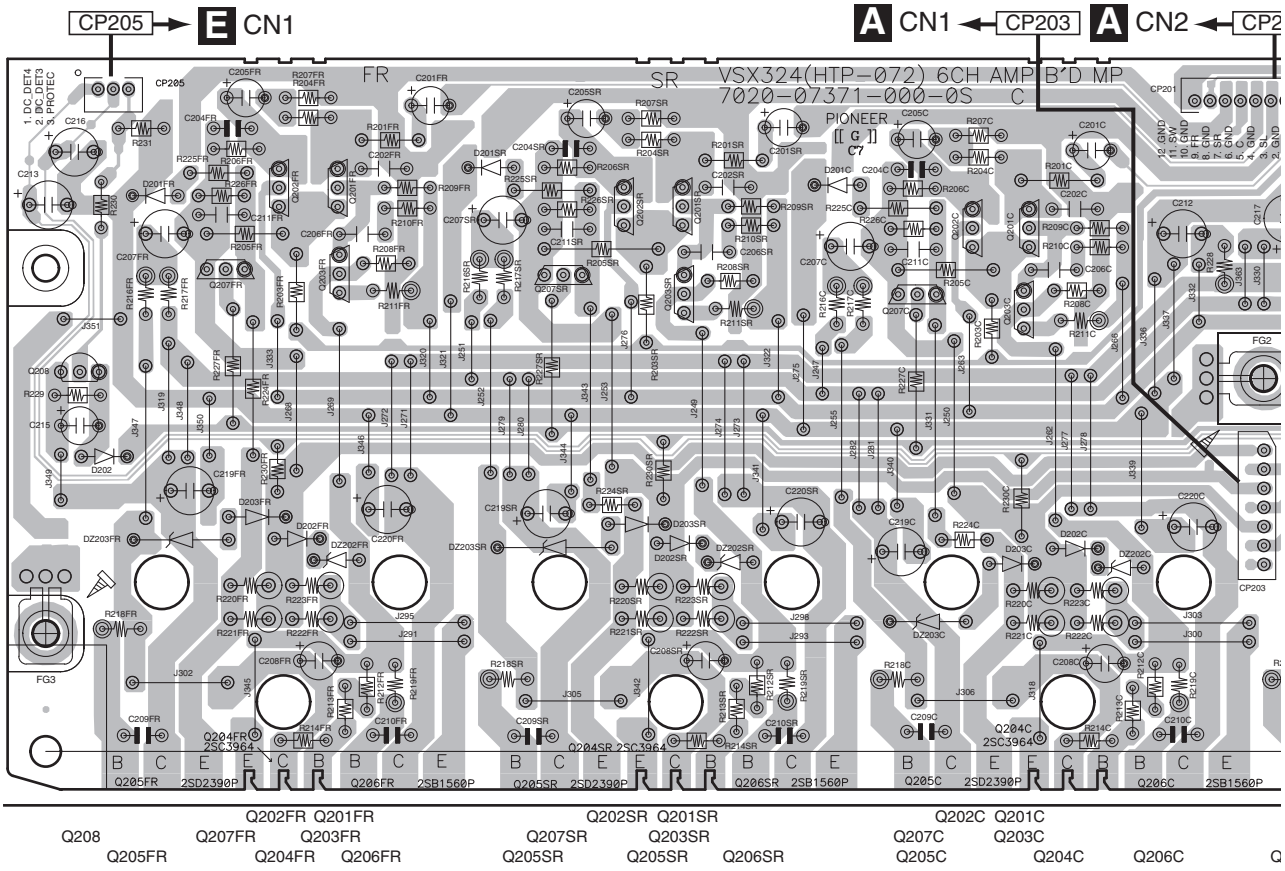

CP2001
CP2000
IC2018
W9864G6JH
SUB TXD
SUB RXD
SUB OPO
DSP SCL
DSP SDA
DSP SDOUT
DSP CS
DSP RDY
DSP RST
USB5V ON
USB5V DET
HDMI SDA
THRU LED
CPU+3.3V
3959 RST
3959_SCL
3959 SDA
3959_PWR
D+1.8V ON
DCDC ON2
D+1.2V ON
D+3.3V FETON
H+3.3V ON
H+1.8V ON
DCDC ON1
D+12V
CODEC ADR
9211 RST
9211 SDA
9211 SCL
CODEC SCL
CODEC SDA
SUB ON
SUB IRQ
MAIN IRQ
SUB RST
SCDO MAIN
CSCK MAIN
H+5V_1
HD MUTE
CPU ST VCC
U/DGND
U/GND
Q2038
Q2043
Q2041
IC2018

C D-MAIN ASSY SIDE B

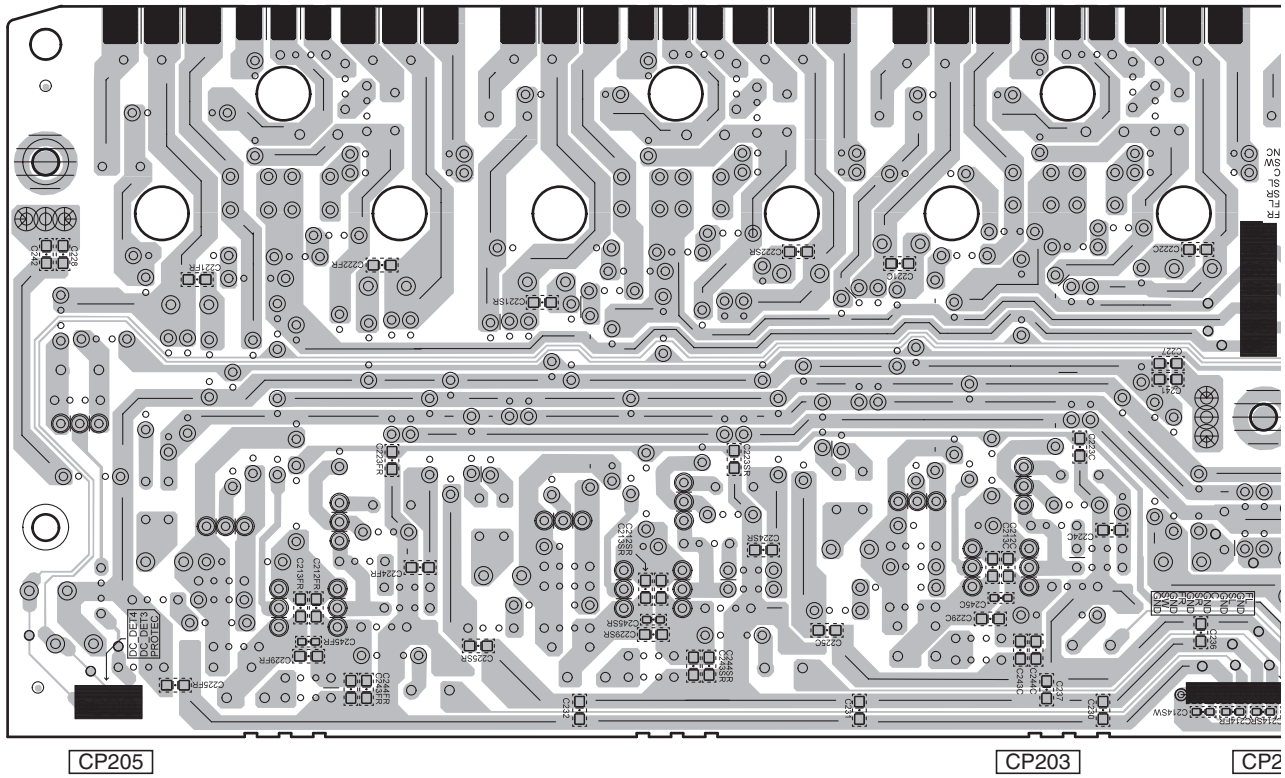

CP2005
CP2200
CP2006
CP2003
OPT IN
COAX IN
DC 3.3V
DGND
DGND
DGND
NCP380HSNAJAAT1G
+12V
+12V
AGND
AGND
AGND

11.3 AMP6 ASSY

SIDE A



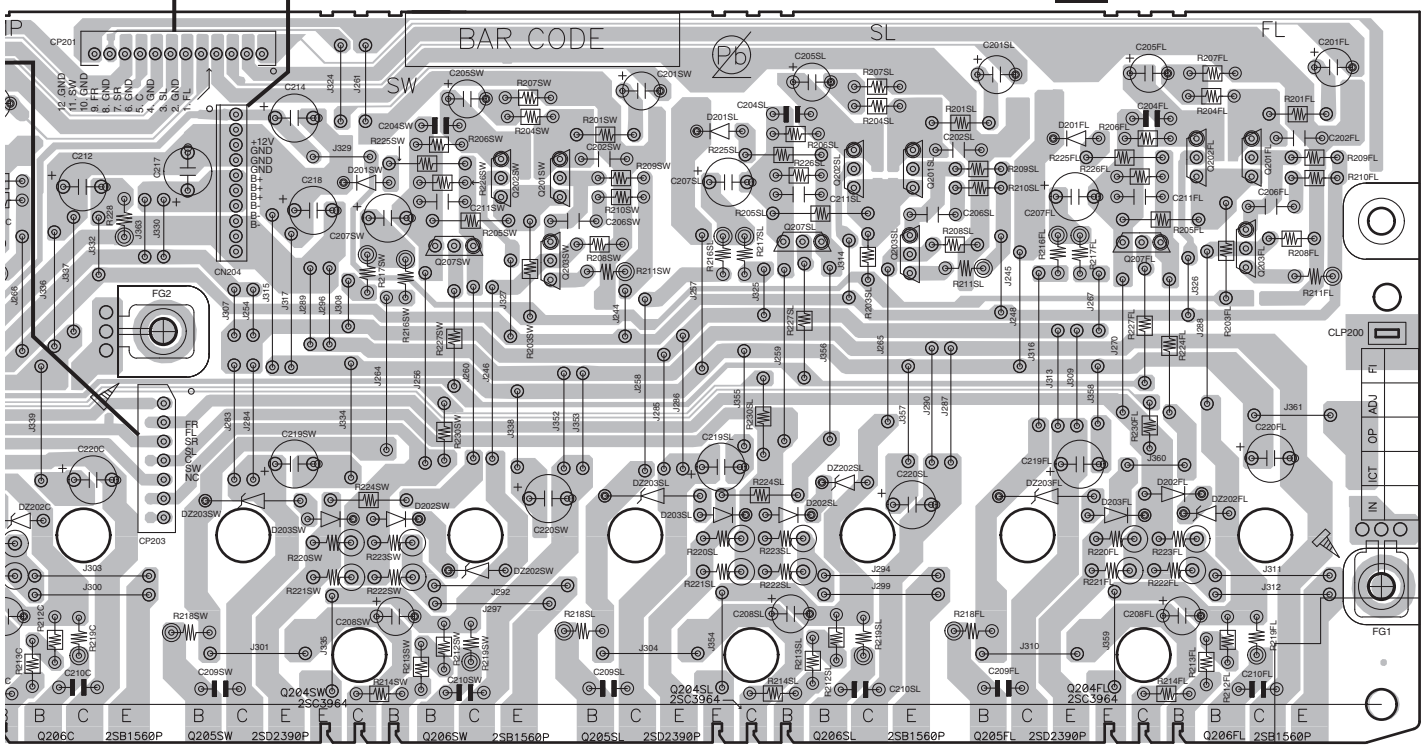
SIDE B



D

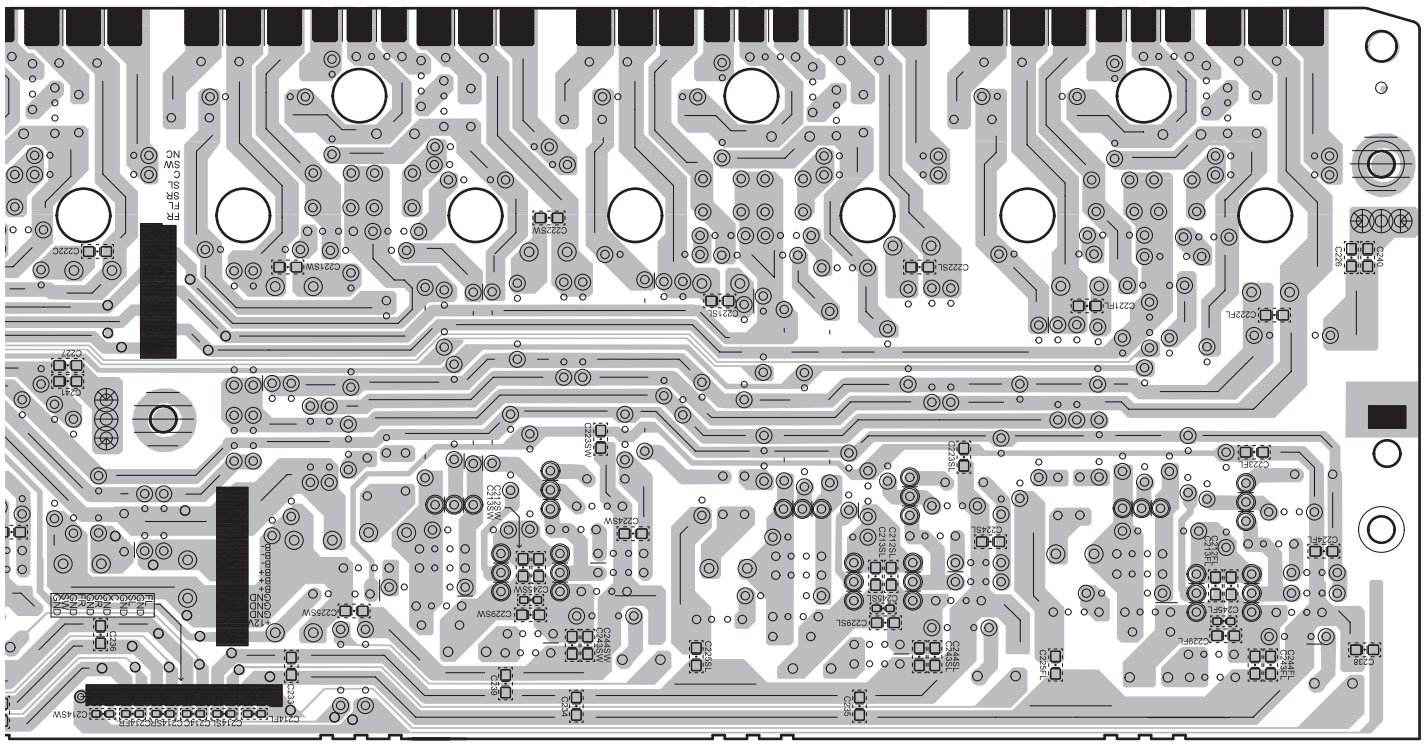
A CN2 ← CP201 CN204 → A CP3

D AMP6 ASSY SIDE A



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

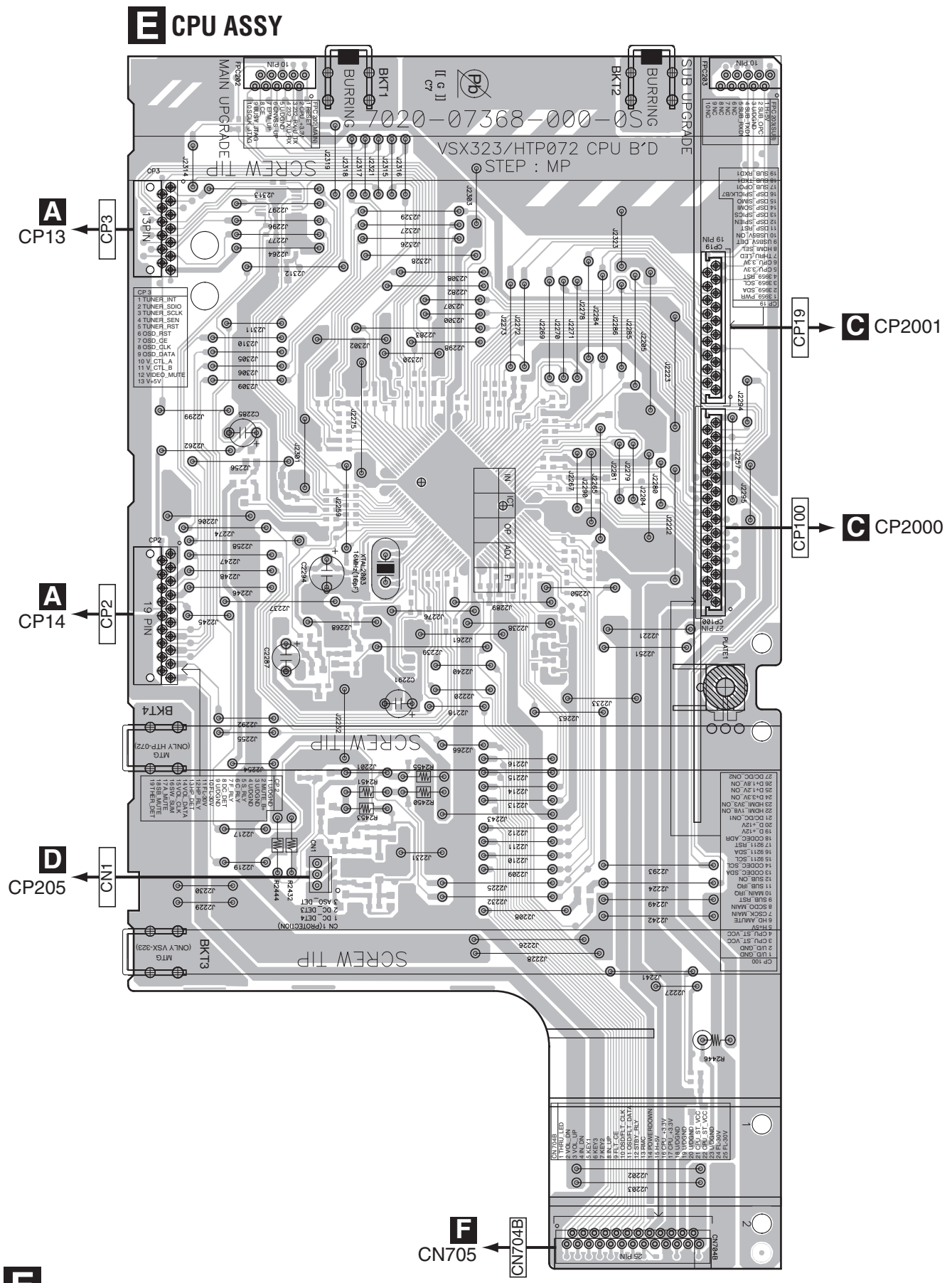
D AMP6 ASSY SIDE B



11.4 CPU ASSY

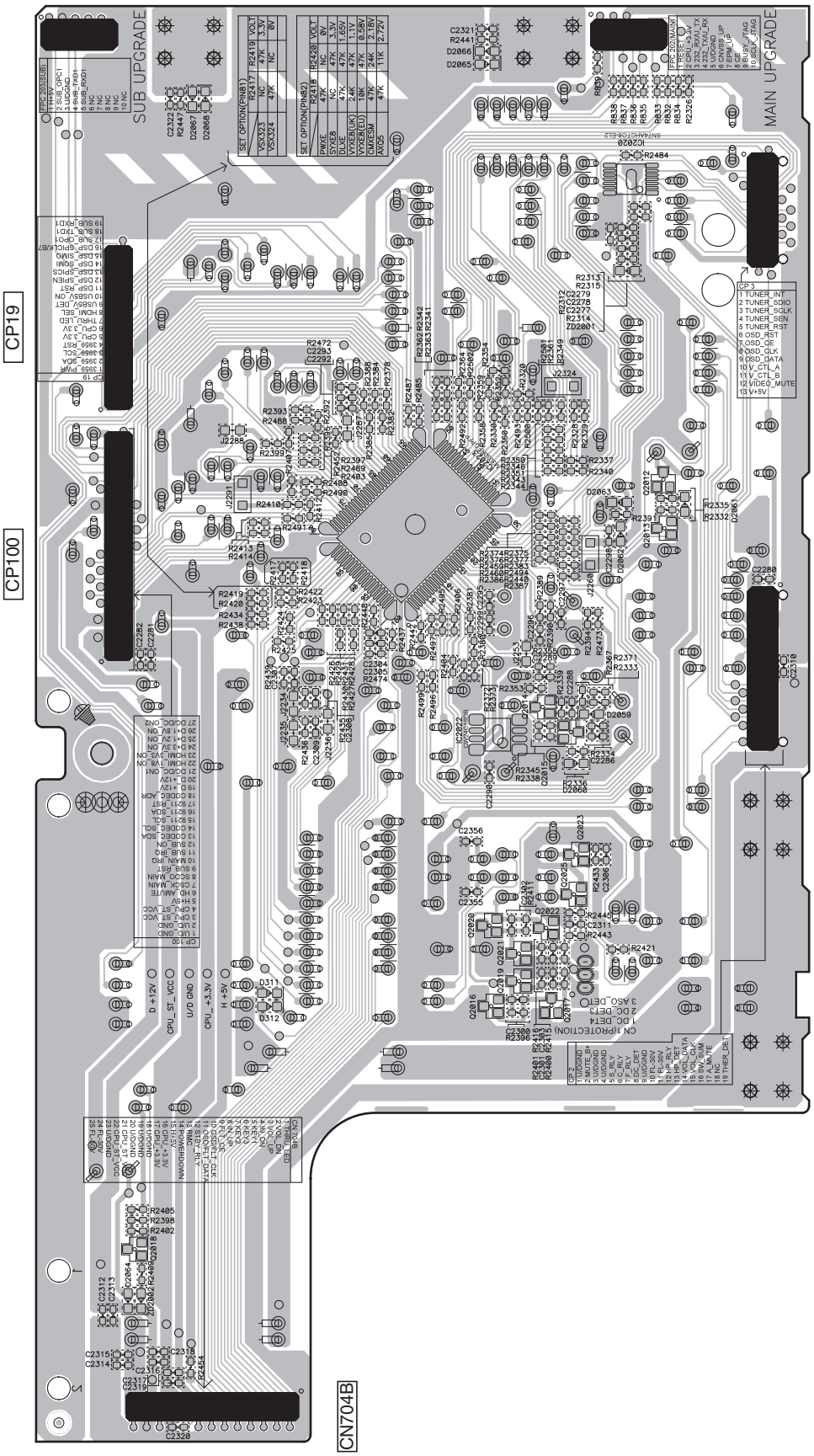
SIDE A

SIDE A



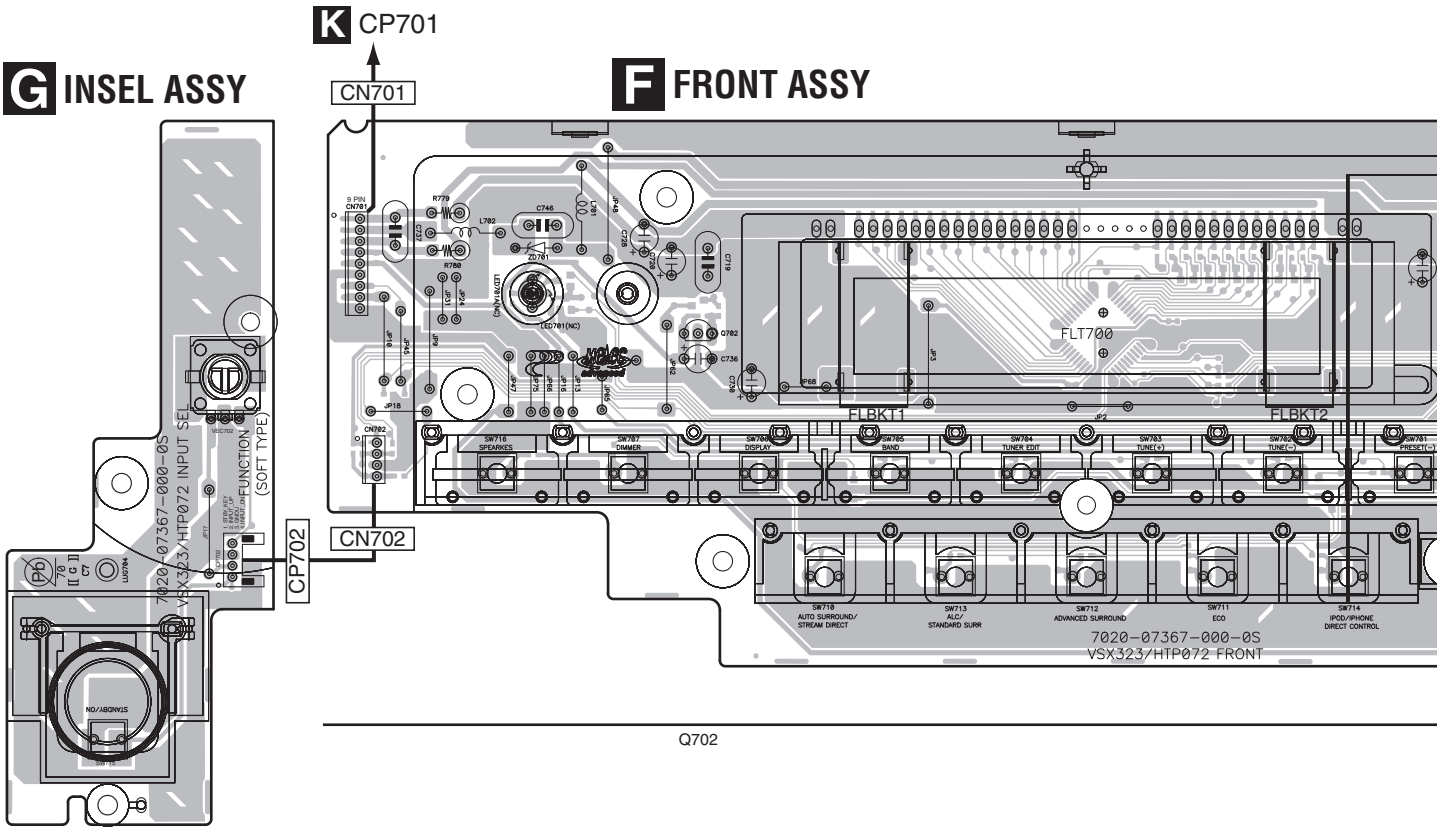
SIDE B

E CPU ASSY

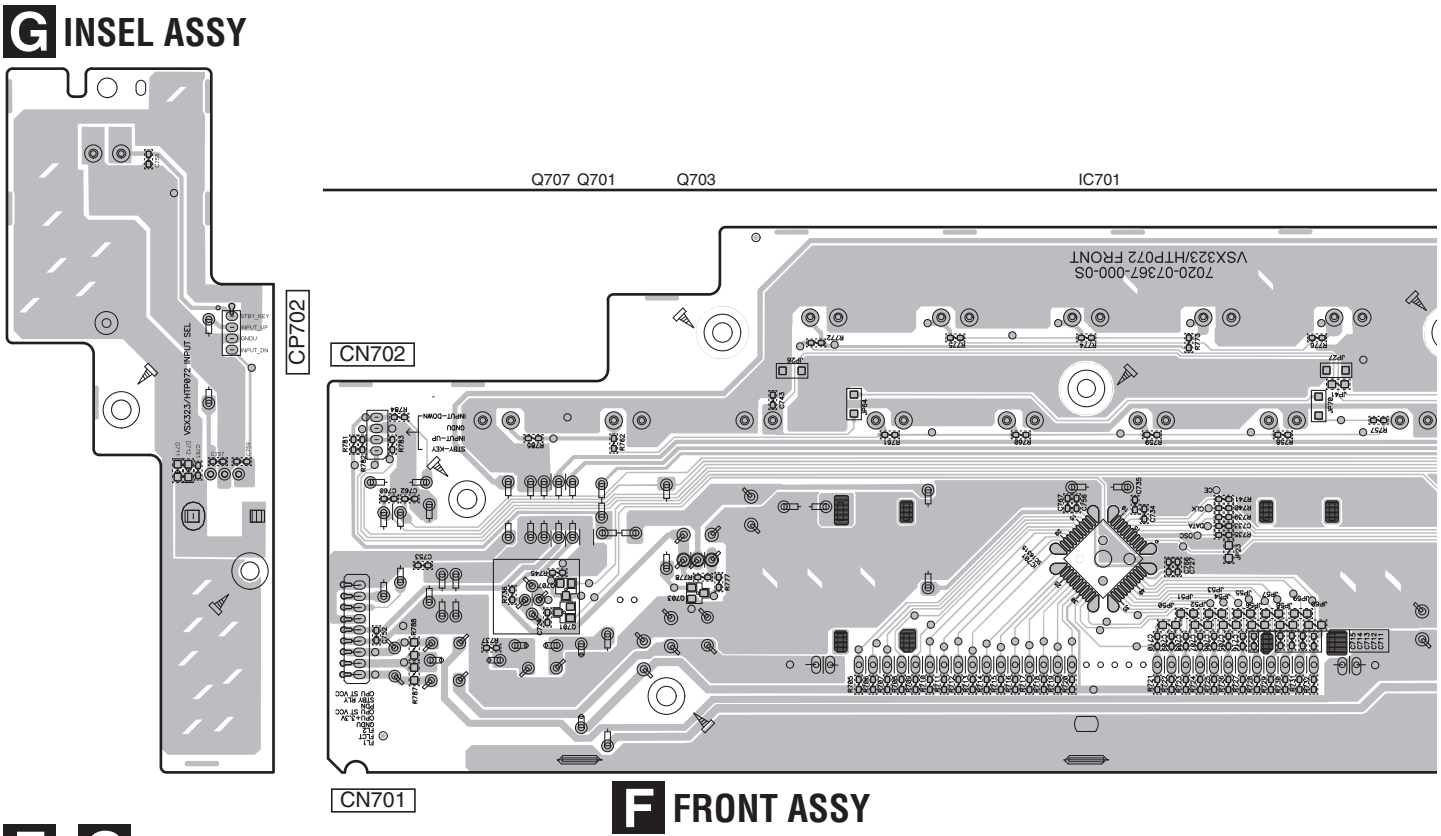


11.5 FRONT, INSEL, HP and FUSB ASSYS

SIDE A



SIDE B

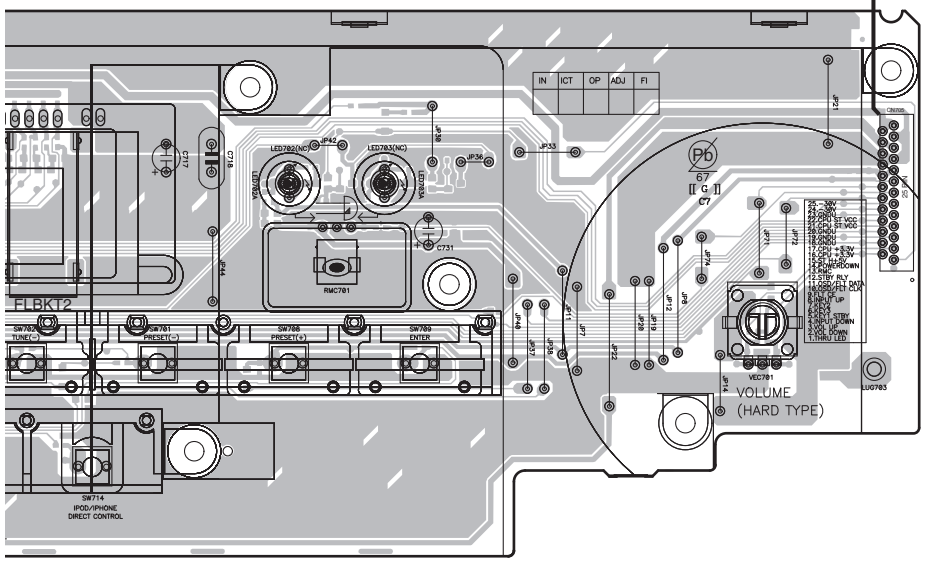


F G

SIDE A

E CN704B

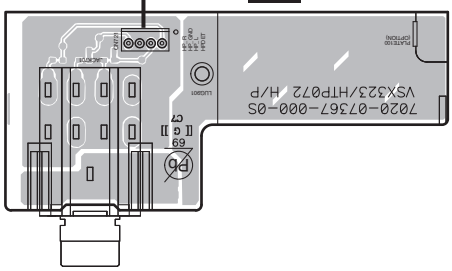
CN705



A CP5

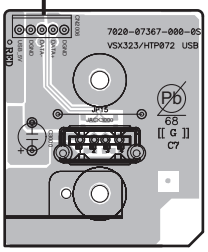
CN721

H HP ASSY



C CP2006

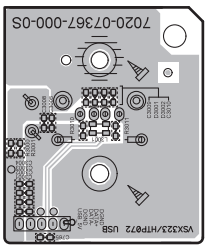
CN2006



I FUSB ASSY

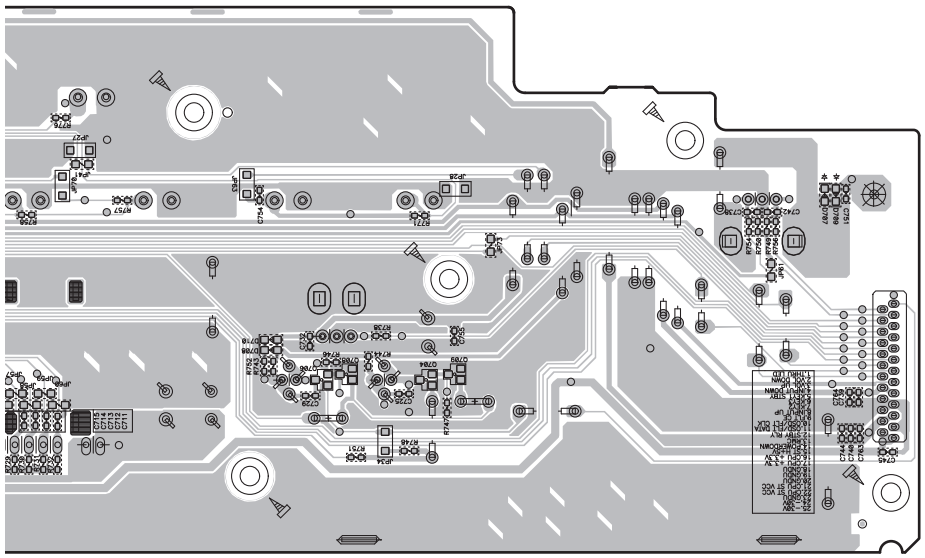
SIDE B

I FUSB ASSY



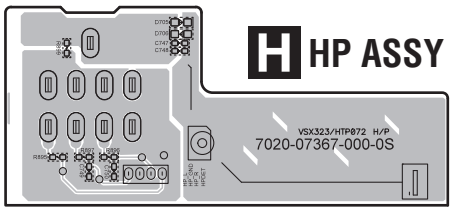
CN2006

Q706 Q708 Q704 Q709



CN705

H HP ASSY



CN721

F H I

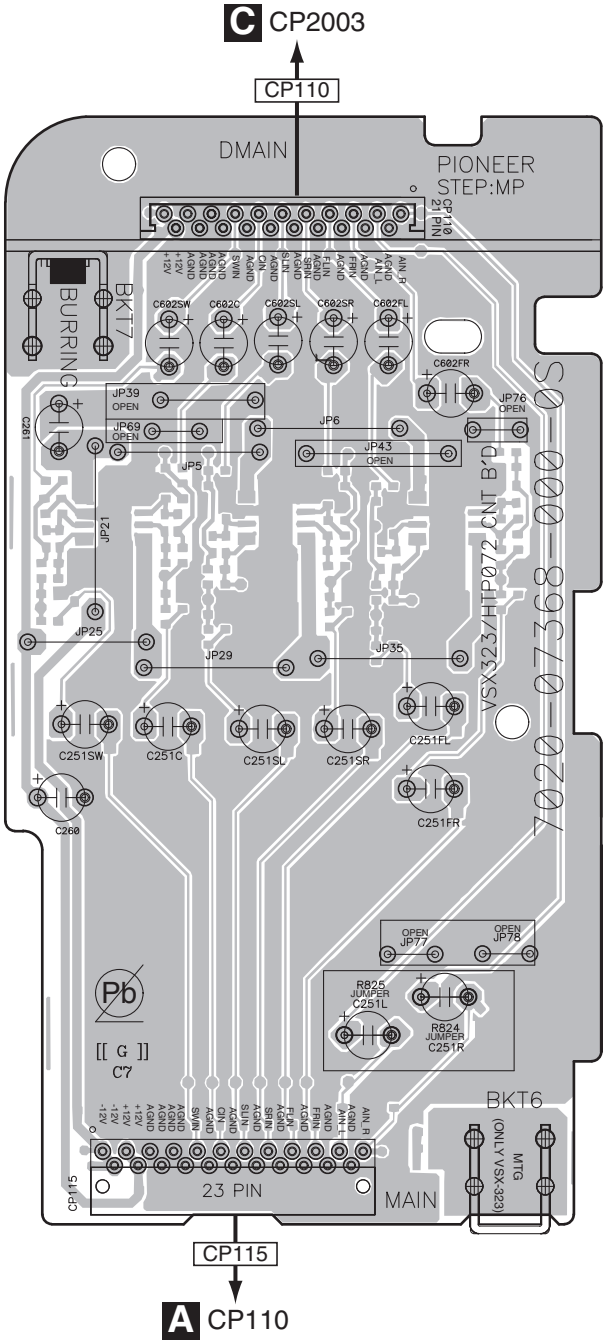
11.6 CNT ASSY

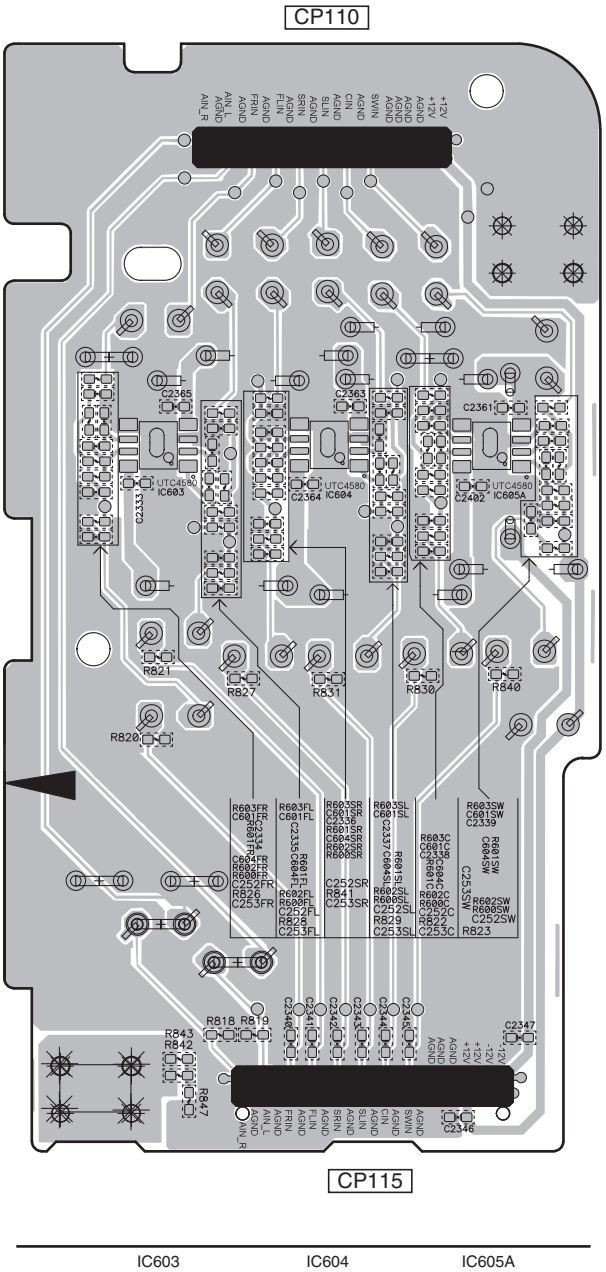
SIDE A

SIDE B

J CNT ASSY

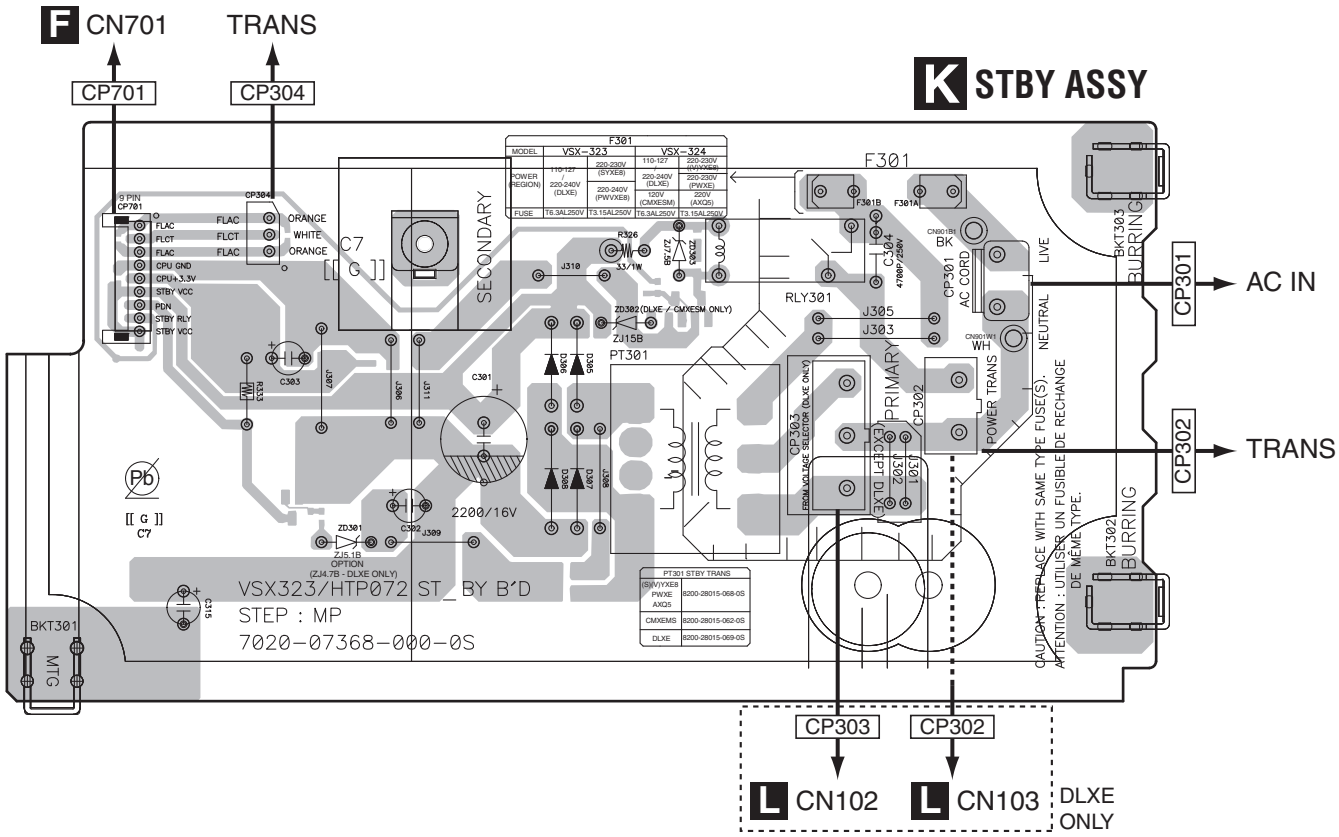
J CNT ASSY



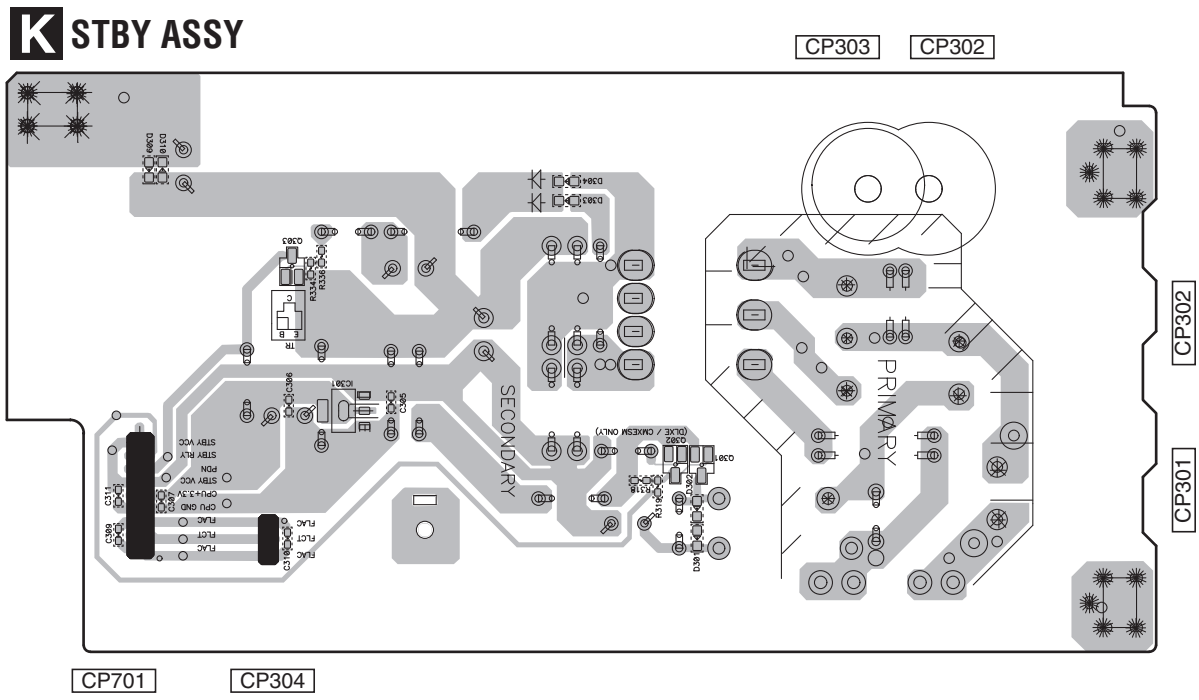


11.7 STBY ASSY

SIDE A



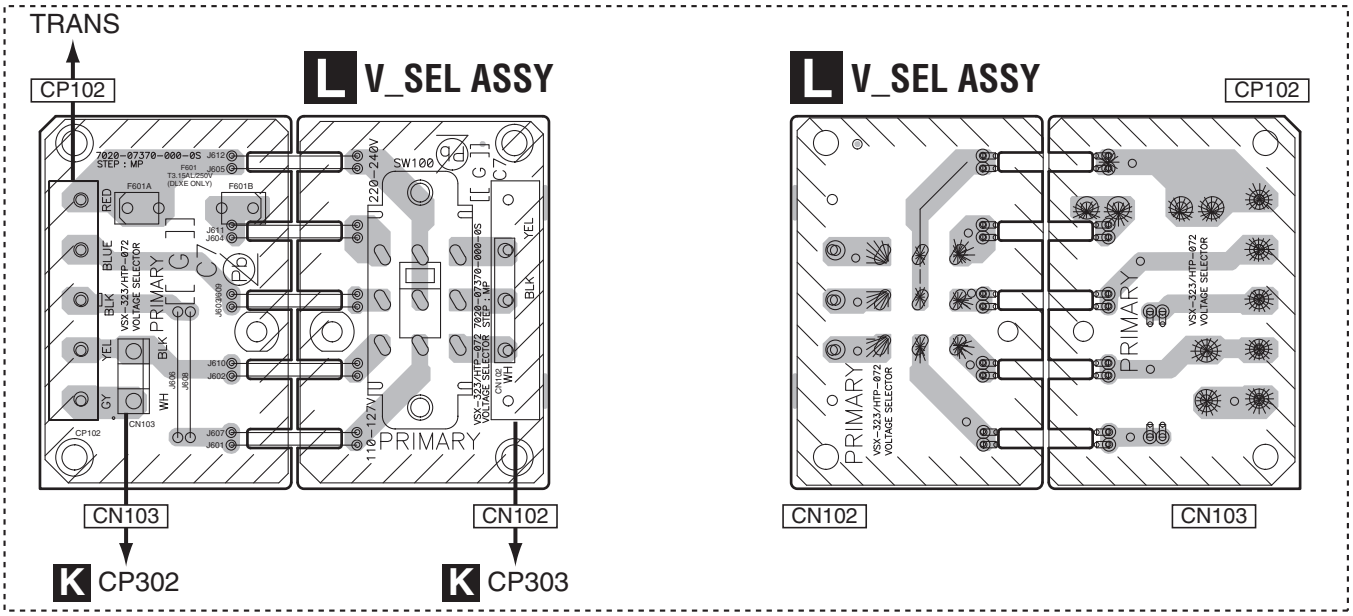
SIDE B



Q303 IC301 Q302 Q301

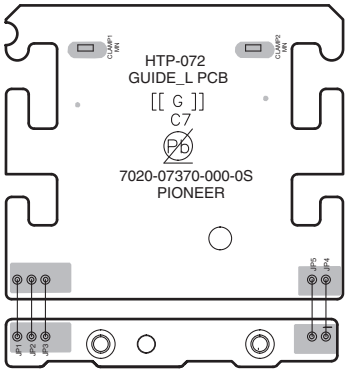
11.8 V_SEL, G-L, G-T and G-CNT ASSYS

SIDE A **SIDE B**

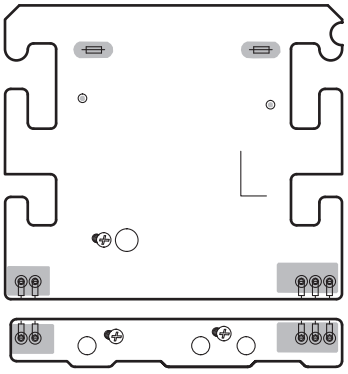


DLXE ONLY

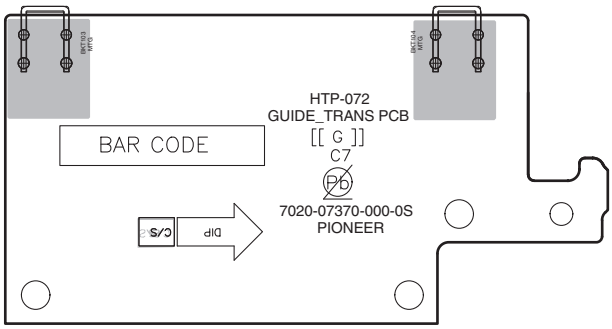
G-L ASSY



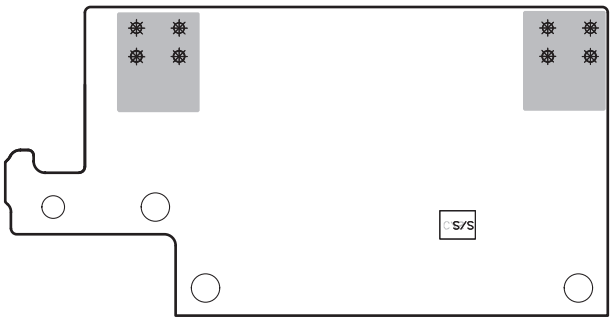
G-L ASSY



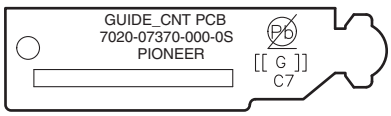
G-T ASSY



G-T ASSY



G-CNT ASSY



G-CNT ASSY



L

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 × 10¹* →	*561*	*RD1/4PU 5 6 1 J*
47 kΩ	→ *47 × 10³* →	*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 × 10¹* →	*5621*	*RN1/4PC 5 6 2 1 F*

● *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****		
CX	→ *CN9****	*REG*	→ *IC9****	*DZ*	→ *D9****		
FPC	→ *CN9****						

LIST OF ASSEMBLIES

Mark	Symbol and Description	VSX-324-K-P /CMXESM	VSX-324-K-P /YXE8	VSX-324-K-P /VYXE8	VSX-324-K-P /DLXE	VSX-324-K-P /PWXE	VSX-324-K-P /AXQ5
NSP	1..PCB TTL ASSY MAIN	7025HK1215070-IL	7025HK1215010-IL	7025HK1215050-IL	7025HK1215040-IL	7025HK1215030-IL	7025HK1215020-IL
	2.. MAIN ASSY (PCB SUB ASSY MAIN)	7028073701040-IL	7028073701010-IL	7028073701010-IL	7028073701030-IL	7028073701020-IL	7028073701020-IL
	2.. OPTCO ASSY (PCB SUB ASSY OPTCO)	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL	7028073702010-IL
	2.. G-L ASSY (PCB SUB ASSY G-L)	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL	7028073704010-IL
	2.. G-T ASSY (PCB SUB ASSY G-T)	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL	7028073705010-IL
	2.. G-CNT ASSY (PCB SUB ASSY G-CNT)	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL	7028073706010-IL
	2.. V_SEL ASSY (PCB SUB ASSY V_SEL)	Not used	Not used	Not used	7028073703020-IL	Not used	Not used
NSP	1..PCB TTL ASSY DMAIN	7025HK1215071-IL	7025HK1215011-IL	7025HK1215051-IL	7025HK1215041-IL	7025HK1215031-IL	7025HK1215021-IL
	2.. D-MAIN ASSY (PCB SUB ASSY DMAIN)	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL	7028073691010-IL
NSP	1..PCB TTL ASSY FRONT	7025HK1215072-IL	7025HK1215012-IL	7025HK1215052-IL	7025HK1215042-IL	7025HK1215032-IL	7025HK1215022-IL
	2.. FRONT ASSY (PCB SUB ASSY FRONT)	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL	7028073671010-IL
	2.. HP ASSY (PCB SUB ASSY HP)	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL	7028073672020-IL
	2.. FUSB ASSY (PCB SUB ASSY FUSB)	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL	7028073673010-IL
	2.. INSEL ASSY (PCB SUB ASSY INSEL)	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL	7028073674010-IL
NSP	1..PCB TTL ASSY CPU	7025HK1215073-IL	7025HK1215013-IL	7025HK1215053-IL	7025HK1215043-IL	7025HK1215033-IL	7025HK1215023-IL
	2.. CPU ASSY (PCB SUB ASSY CPU)	7028073681070-IL	7028073681010-IL	7028073681050-IL	7028073681040-IL	7028073681030-IL	7028073681020-IL
	2.. STBY ASSY (PCB SUB ASSY STBY)	7028073682050-IL	7028073682010-IL	7028073682030-IL	7028073682040-IL	7028073682010-IL	7028073682020-IL
	2.. CNT ASSY (PCB SUB ASSY CNT)	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL	7028073683010-IL
NSP	1..PCB TTL ASSY AMP6	7025HK1215074-IL	7025HK1215014-IL	7025HK1215054-IL	7025HK1215044-IL	7025HK1215034-IL	7025HK1215024-IL
	2.. AMP6 ASSY (PCB SUB ASSY AMP6)	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL	7028073711010-IL

CONTRAST OF PCB ASSEMBLIES

A MAIN ASSY

7028073701040-IL, 7028073701010-IL, 7028073701030-IL and 7028073701020-IL are constructed the same with the exception of some components, including the following:

Mark	Symbol and Description	7028073701040-IL	7028073701010-IL	7028073701030-IL	7028073701020-IL
	X1200 Crystal (14M32)	E80014R318080-IL	Not used	E80014R318080-IL	E80014R318080-IL
	X1201 Crystal (17M734)	Not used	E80017R734410-IL	E80017R734410-IL	E80017R734410-IL
	601 Tuner, FM/AM	E903004100780-IL	E903104100780-IL	E903004100780-IL	E903004100780-IL

Note: This list is not complete. Only components that are available as service part are listed!

E CPU ASSY

7028073681070-IL, 7028073681010-IL, 7028073681050-IL, 7028073681040-IL, 7028073681030-IL and 7028073681020-IL are different and are NOT COMPATIBLE! Some components on these assy's are different.
Since these different components are not available as service part, they are not listed.

K STBY ASSY

7028073682050-IL, 7028073682010-IL, 7028073682030-IL, 7028073682040-IL and 7028073682020-IL are constructed the same with the exception of some components, including the following:

Mark	Symbol and Description	7028073682050-IL	7028073682010-IL	7028073682030-IL	7028073682040-IL	7028073682020-IL
	Q301, Q303 Semi,chip TR/NPN 2SC	J522305200050-IL	Not used	Not used	Not used	Not used
	Q302 Semi,chip TR/NPN 2SC	J522101441210-IL	Not used	Not used	Not used	Not used
	D9301 D,zener	K06005R144522-IL	K06005R144522-IL	K06005R144522-IL	K06004R744522-IL	K06005R144522-IL
	D9302 D,zener	K06015R044522-IL	Not used	Not used	K06015R044522-IL	Not used
⚠	T301 Power Trans	8200280150620-IL	8200280150680-IL	8200280150680-IL	8200280150690-IL	8200280150680-IL
⚠	FU301 Fuse Glass Tube 20mm	N751506301160-IL	N751503151160-IL	N751503151160-IL	N751506301160-IL	N751503151160-IL
⚠	CN9301 CN.wafer 7.92mm	L108396030010-IL	L108396030010-IL	Not used	Not used	L108396030010-IL
⚠	CN9303 CN.wafer 7.92mm	Not used	Not used	Not used	L108011430310-IL	Not used
	303 Bracket	Not used	4010215796000-IL	4010215796000-IL	4010215796000-IL	4010215796000-IL

Note: This list is not complete. Only components that are available as service part are listed!

PARTS LIST for VSX-324-K-P/CMXESM

Mark	No.	Description	Part No.
		A MAIN ASSY	
		SEMICONDUCTORS	
⚠	IC	106	J126780500110-IL
⚠	IC	107	J126781200040-IL
⚠	IC	108	J126791200060-IL
	IC	400	J084152180010-IL
	IC	401-403	J121458001010-IL
	IC	1200	J127410500010-IL
	IC	1203	J170747810010-IL
	Q	17	J5000916Y0050-IL
	Q	129-131	J5000992F0050-IL
	Q	132	J5023198Y0000-IL
⚠	D	7	K047100600220-IL
	D	23	K000400700010-IL
⚠	D	114,115,117,119	K000400700220-IL
⚠	D	121	K047800500010-IL
	D	125	K000414802520-IL
	D	9024,9025	K06016R044522-IL
		MISCELLANEOUS	
	JA 101	TER,BOARD PUSH 4P	G594408SA030Y-IL
	JA 102	TER,BOARD PUSH 8P	G598801SA050Y-IL
	JA 401	TER,RCA 6PIN	G603610A0001Y-IL
	JA 402	TER,RCA 3PIN	G606305AW140Y-IL
	RY 2-4	RELAY	G680060103010-IL
	RY 101	RELAY	G680240202030-IL
	X 1200	CRYSTAL (14M32)	E80014R318080-IL
	CN 9001	CONNECTOR	L108353280360-IL
	CN 9013	CN,WAFER	L109012511320-IL
	CN 9014	CN,WAFER	L109012511920-IL
	CN 9110	CN,WAFER	L109012512320-IL
	601	TUNER,FM/AM	E903004100780-IL

Mark	No.	Description	Part No.
		RESISTORS	
	R	5,7,9,11	C060010065050-IL
	R	6,8,10,12	C060010066050-IL
	R	13,25	C060010065050-IL
	R	14,19	C060010066050-IL
	R	28-30	C060022265050-IL
	R	64	C060022063050-IL
	R	66	C0604R7065050-IL
	R	295,297	C141R10069010-IL
	R	588,589	C060010165060-IL
		CAPACITORS	
	C	55,58	D040682088010-IL
	C	283	D040472084240-IL
	C	288	D040102084060-IL
	C	292	D040103083020-IL
		B OPTCO ASSY	
		SEMICONDUCTORS	
	IC	1201	J040740400290-IL
		MISCELLANEOUS	
	JA 104	MODULE	E100802000250-IL
	JA 105	TER,RCA 1PIN	G600107A0000Y-IL
		C D-MAIN ASSY	
		SEMICONDUCTORS	
⚠	IC	400	J126238700010-IL
	IC	2001	8952523000020-IL
⚠	IC	2004	J126283133010-IL
	IC	2014	J040742570040-IL
	IC	2018	J001986466010-IL
	IC	2019	8952523000030-IL

Mark	No.	Description	Part No.
	IC	2024	J127380010060-IL
	IC	2026	J000240160080-IL
	IC	2207	J046921100010-IL
⚠	IC	2211	J126780500450-IL
		MISCELLANEOUS	
	JA	2000-2004 CN.WAFER	L109100190160-IL
	X	2000,2001 CRYSTAL (24 MHz)	E80024R000030-IL

D AMP6 ASSY

		SEMICONDUCTORS	
	Q	201,202,208	J5000992F0050-IL
	Q	203,207	J5023206Y0050-IL
	D	201-203	K000414800050-IL
	D	9202,9203	K06004R344522-IL
		RESISTORS	
	R	211,218,219	C060047063050-IL
⚠	R	220-223	N113136647820-IL
	R	228	C060010065050-IL

E CPU ASSY

		SEMICONDUCTORS	
	IC	2020	J040740800240-IL
	IC	2022	J000241600170-IL
	IC	2023	8952323000020-IL
		MISCELLANEOUS	
	X	2003 CRYSTAL (16 MHz)	E80016R000030-IL
	CN	9019 CN,WAFER	L109012511920-IL
	CN	9100 CN.WAFER	L109012512720-IL

F FRONT ASSY

		SEMICONDUCTORS	
	IC	701	J127163150020-IL
	Q	702	J5001266G0050-IL
	D	9701	K06007R544522-IL
	D	9702,9703	K500052009011-IL
		MISCELLANEOUS	
	V	700 DISPLAY,FLT	K530126600011-IL
	S	9701 SW,ENCODER	G121122400230-IL
		1 HOLDER	4320211306000-IL
	U	701 MODULE,REMOCON	E940349003810-IL
		RESISTORS	
	R	779,780	C0602R2063050-IL

G INSEL ASSY

		MISCELLANEOUS	
	S	9702 SW,ENCODER	G121121200230-IL

H HP ASSY

		MISCELLANEOUS	
	JA	701 JACK,D6.5	G402PJ612A09Y-IL

Mark	No.	Description	Part No.

I FUSB ASSY

		MISCELLANEOUS	
	JA	3000 CN,PLUG CONTACT	G480040000180-IL

J CNT ASSY

		SEMICONDUCTORS	
	IC	603-605	J121458001010-IL
		MISCELLANEOUS	
	CN	9110 CN,WAFER	L109012512120-IL

K STBY ASSY

		SEMICONDUCTORS	
⚠	IC	301	J126111700041-IL
	Q	301,303	J522305200050-IL
	Q	302	J522101441210-IL
⚠	D	305-308	K000400700010-IL
	D	9301	K06005R144522-IL
	D	9302	K06015R044522-IL
	D	9303	K06007R544522-IL
		MISCELLANEOUS	
⚠	RY	301 RELAY	G680060103030-IL
⚠	T	301 POWER TRANS	8200280150620-IL
⚠	CN	9301 CN.WAFER 7.92MM	L108396030010-IL
⚠	CN	9302 CN.WAFER 7.92MM	L108011430210-IL
		301 BRACKET	4010210196000-IL
		302 BRACKET	4010215796000-IL
⚠	FU	301 FUSE GLASS TUBE 20MM (T6.3AL250V)	N751506301160-IL
		RESISTORS	
	R	326	C060033065050-IL
		CAPACITORS	
	C	301	D040222083010-IL
	C	304	D00847208H010-IL

L V_SEL ASSY (DLXE ONLY)

		MISCELLANEOUS	
⚠	S	100 SW,SLIDE	G060329140000-IL
⚠	CN	9102 CN.WAFER 7.92MM	L108011430510-IL
		1 SUPPORTER	4070210192000-IL
		2 SPACER(PLS)	4300210062000-IL
⚠	FU	601 FUSE GLASS TUBE 20MM (T3.15AL/250V)	N751503151160-IL

G-L ASSY

There is no service parts.

G-T ASSY

There is no service parts.

G-CNT ASSY

There is no service parts.