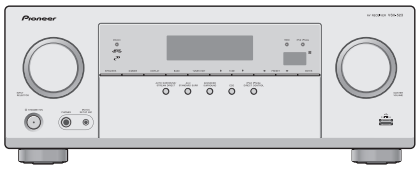
Pioneer

Service Manual



VSX-523-K

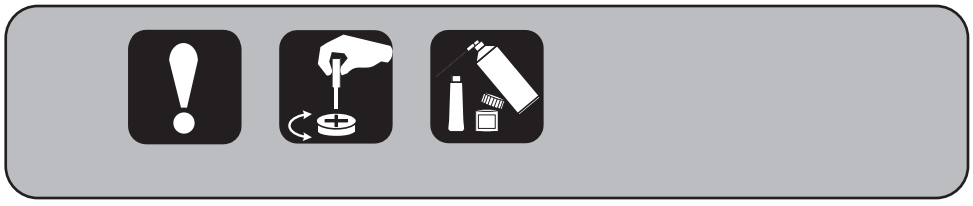
ORDER NO.
RRV4418

AV Receiver

VSX-523-K

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

Model	Type	Power Requirement	Remarks
VSX-523-K	CUXESM	AC 120 V	



PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
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PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

K-MZV MAR. 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

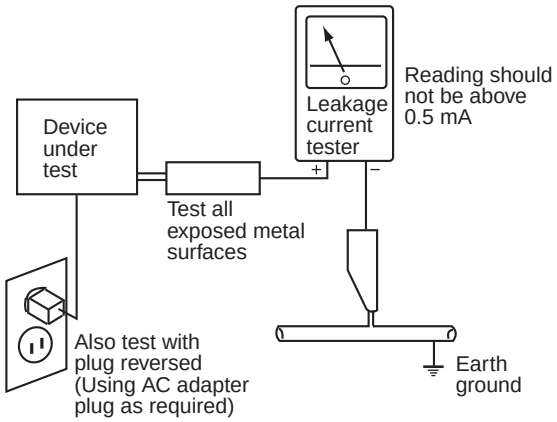
(FOR USA MODEL ONLY)

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

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	IC2007	5V SW Power Supply IC	————	IC with heat-pad
	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
	IC2021	USB 5 V Power Supply IC	————	IC with heat-pad

1.3 SERVICE NOTICE

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

2. SPECIFICATIONS

Amplifier section

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

Front (stereo) ..... 80 W + 80 W
Power output (1 kHz, 6 Ω, 1 %) ..... 140 W per channel
Guaranteed speaker impedance .....6 Ω to 16 Ω
* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers
** Measured by Audio Spectrum Analyzer

Audio Section

Input (Sensitivity/Impedance)
LINE..... 200 mV/47 kΩ
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE.....98 dB
Signal-to-Noise Ratio [EIA, at 1 W (1 kHz)]
LINE.....79 dB

Video Section

Signal level
Composite .....1 Vp-p (75 Ω)

Tuner Section

Frequency Range (FM) ..... 87.5 MHz to 108 MHz
Antenna Input (FM).....75 Ω unbalanced
Frequency Range (AM) .....530 kHz to 1700 kHz
Antenna (AM) ..... Loop antenna

Digital In/Out Section

HDMI terminal .....Type A (19-pin)
HDMI output type.....5 V, 100 mA
USB (iPod) terminal..... USB2.0 Full Speed (Type A) 5 V, 1 A

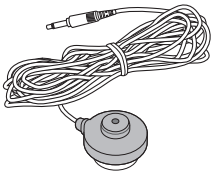
Miscellaneous

Power Requirements ..... AC 120 V, 60 Hz
Power Consumption .....415 W
In standby.....0.1 W
Dimensions.....435 mm (W) x 168 mm (H) x 331.5 mm (D)
17 3/16 in. (W), 6 5/8 in. (H), 13 1/16 in. (D)
Weight (without package) ..... 8.3 kg (18 lb 5 oz)

Note

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

Accessories



Microphone (for Auto MCACC setup)
(APM7011)

Remote control (AXD7690)
(8300769000010-IL)

Dry cell batteries
(AAA size IEC R03) x2

AM loop antenna
(E601019000010-IL)

FM wire antenna
(E605010140010-IL)

Warranty card
Quick start guide (5707000007800-IL)
Safety Brochure
SPEAKER CAUTION Sheet (English only)
Operating instructions (CD-ROM)(6517000001280-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

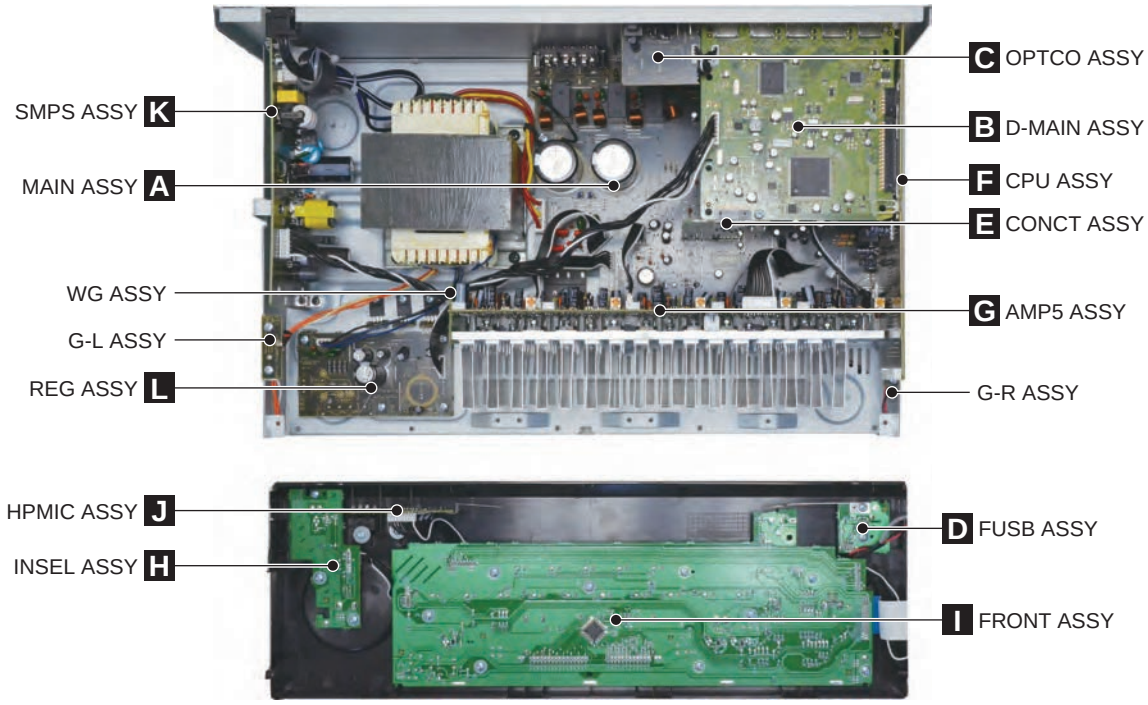
■ Jigs List

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)	
Board to board extension jig cable	GGD1846	Diagnosis (D-MAIN Assy ↔ CPU Assy)
Board to board extension jig cable	GGD1847	Diagnosis (D-MAIN Assy ↔ CPU Assy)
Board to board extension jig cable	GGD1848	Diagnosis (D-MAIN Assy ↔ CONCT Assy)

■ Lubricants and Glues List

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

3.3 PCB LOCATIONS

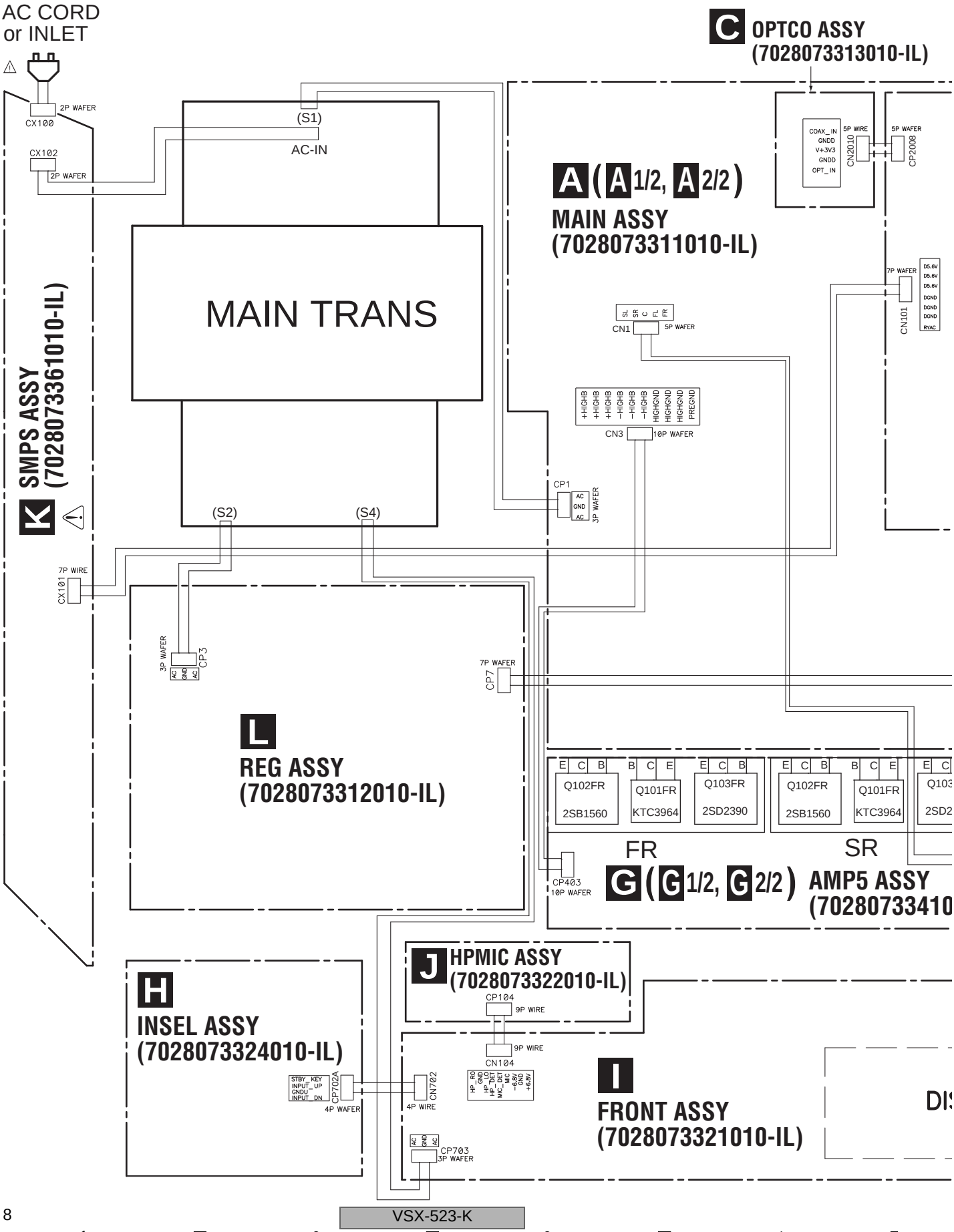


NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LIST OF ASSEMBLIES

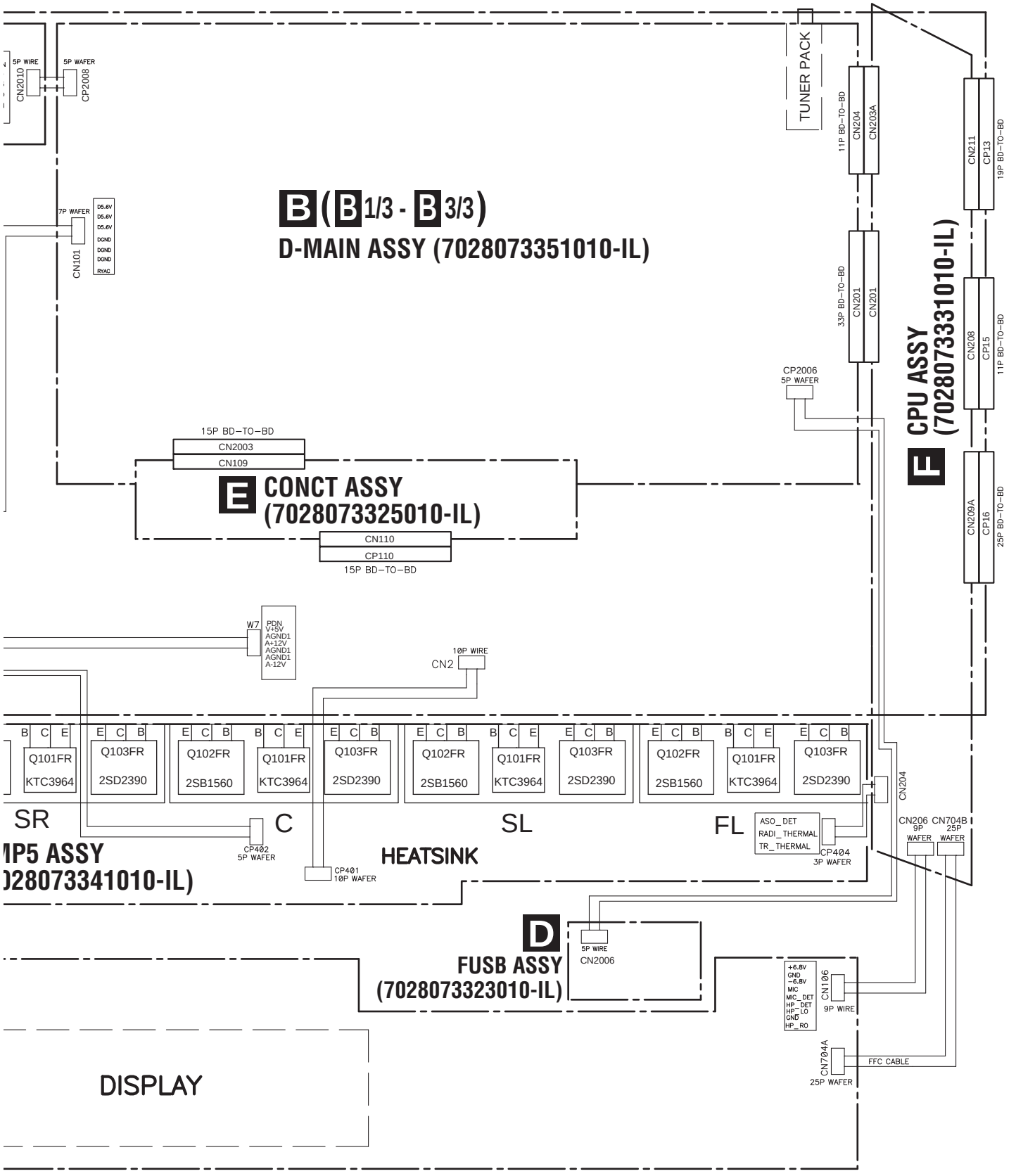
Mark	No.	Description	Part No.
NSP	1	..PCB TTL ASSY MAIN	7025HK1211010-IL
	2	..MAIN ASSY (PCB SUB ASSY MAIN)	7028073311010-IL
	2	..REG ASSY (PCB SUB ASSY REG)	7028073312010-IL
	2	..OPTCO ASSY (PCB SUB ASSY OPTCO)	7028073313010-IL
	2	..WG ASSY (PCB SUB ASSY WG)	7028073315010-IL
	2	..G-L ASSY (PCB SUB ASSY G-L)	7028073316010-IL
	2	..G-R ASSY (PCB SUB ASSY G-R)	7028073317010-IL
NSP	1	..PCB TTL ASSY DMAIN	7025HK1211012-IL
	2	..D-MAIN ASSY (PCB SUB ASSY DMAIN)	7028073351010-IL
NSP	1	..PCB TTL ASSY CPU	7025HK1211013-IL
	2	..CPU ASSY (PCB SUB ASSY CPU)	7028073331010-IL
NSP	1	..PCB TTL ASSY AMP5	7025HK1211014-IL
	2	..AMP5 ASSY (PCB SUB ASSY AMP5)	7028073341010-IL
NSP	1	..PCB TTL ASSY FRONT	7025HK1211011-IL
	2	..FRONT ASSY (PCB SUB ASSY FRONT)	7028073321010-IL
	2	..HPMIC ASSY (PCB SUB ASSY HPMIC)	7028073322010-IL
	2	..FUSB ASSY (PCB SUB ASSY FUSB)	7028073323010-IL
	2	..INSEL ASSY (PCB SUB ASSY INSEL)	7028073324010-IL
	2	..CONCT ASSY (PCB SUB ASSY CONCT)	7028073325010-IL
NSP	1	..PCB TTL ASSY SMPS	7025HK1211015-IL
⚠	2	..SMPS ASSY (PCB SUB ASSY SMPS)	7028073361010-IL

4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM

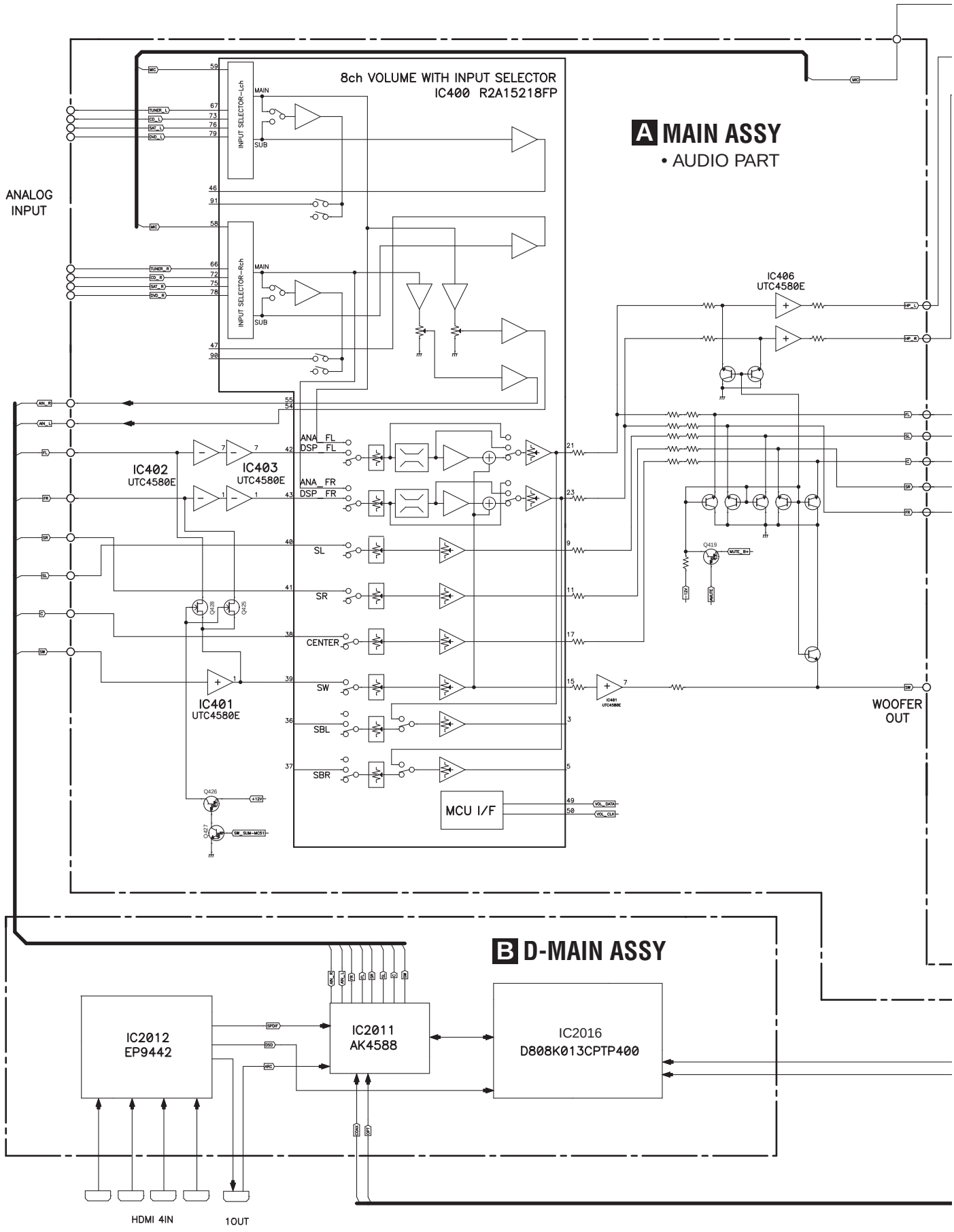


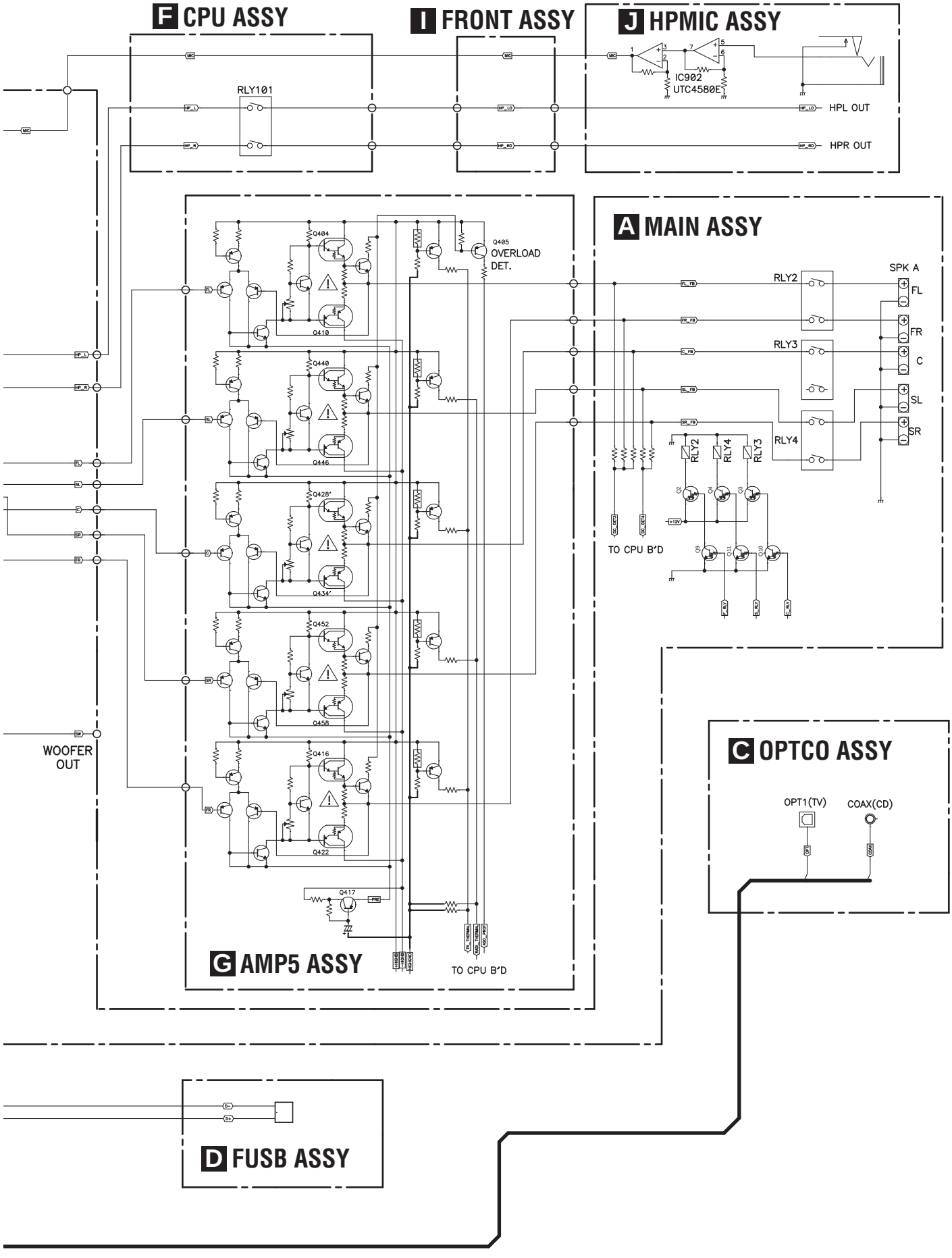
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply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

SSY
313010-IL)

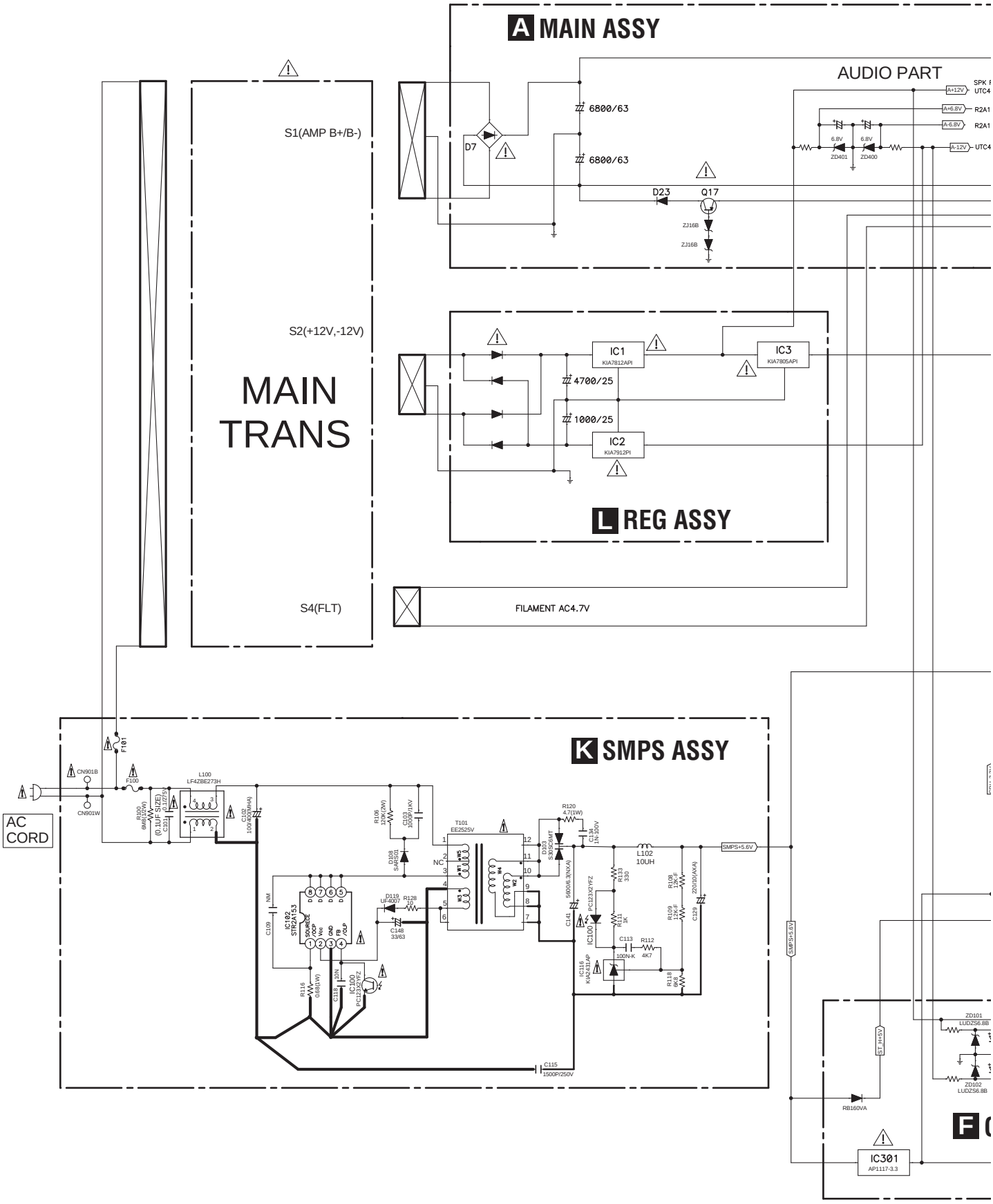


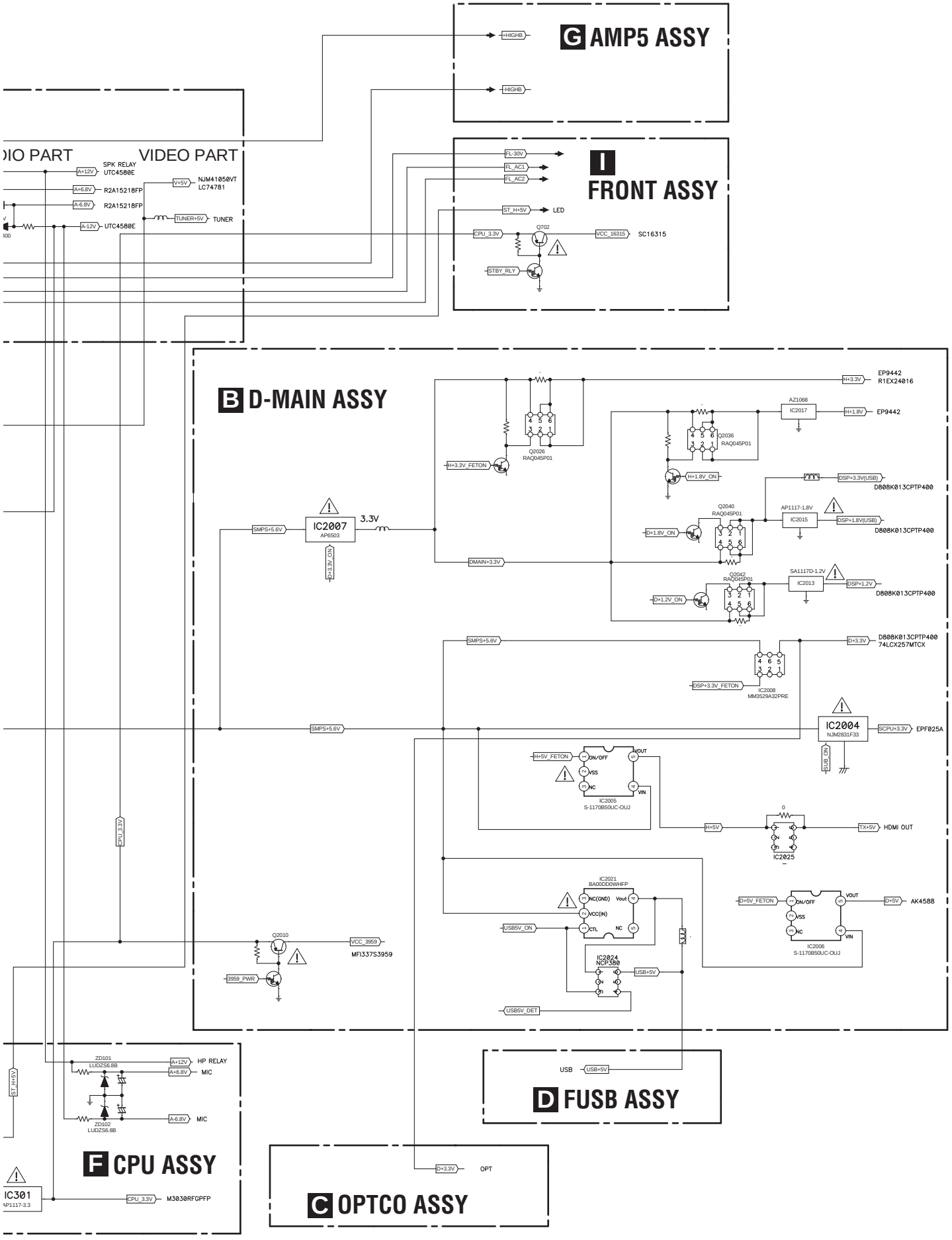
4.2 AUDIO BLOCK DIAGRAM



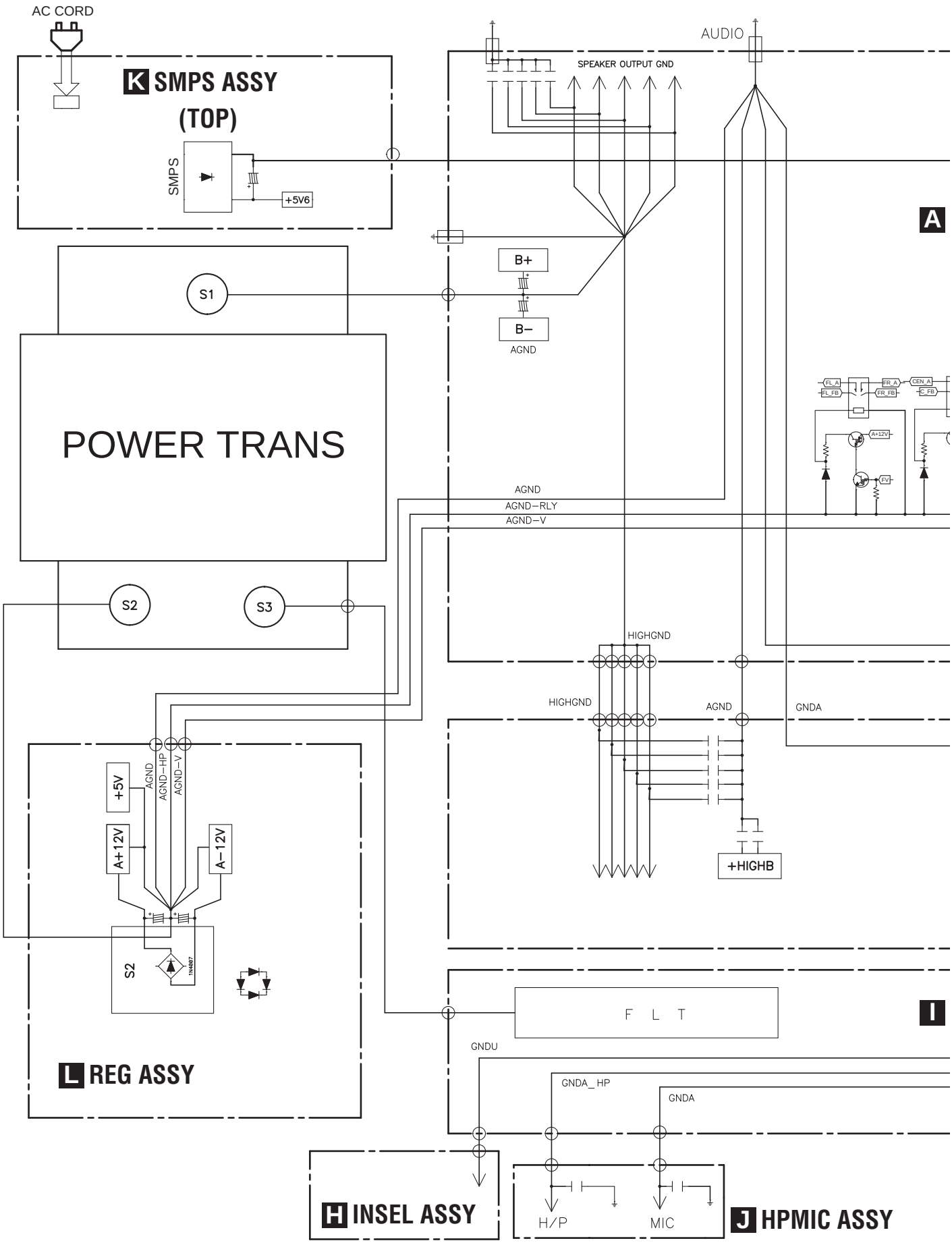

F CPU ASSY
I FRONT ASSY
J HPMIC ASSY
RLY101
IC902
UTC4580E
HPL OUT
HPR OUT
A MAIN ASSY
Q404
Q405
OVERLOAD
DET.
Q410
Q440
Q446
Q428'
Q434'
Q452
Q458
Q416
Q422
Q417
RLY2
RLY3
RLY4
SPK A
FL
FR
C
SL
SR
TO CPU B'D
WOOFER
OUT
G AMP5 ASSY
TO CPU B'D
C OPTCO ASSY
OPT1(TV)
COAX(CD)
D FUSB ASSY

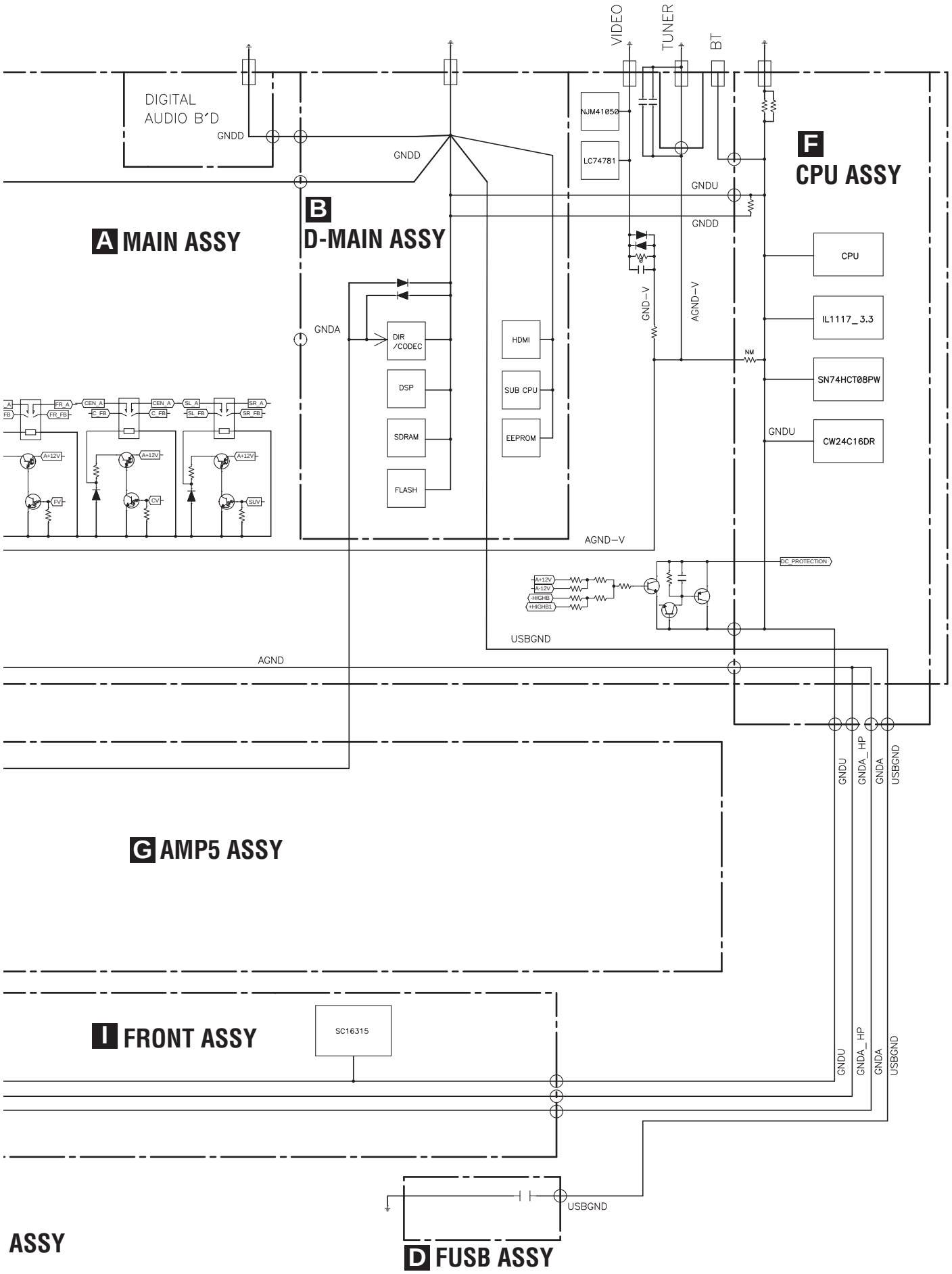
4.3 POWER SUPPLY BLOCK DIAGRAM




G AMP5 ASSY
HIGHB
HIGHB
I FRONT ASSY
FL-30V
FL_AC1
FL_AC2
ST_H+5V
LED
CPU_3.3V
Q702
VCC_16315
SC16315
STBY_RLY
DIO PART
VIDEO PART
SPK RELAY
UTC4580E
A+12V
A+6.8V
R2A15218FP
A-6.8V
R2A15218FP
A-12V
UTC4580E
V+5V
NJM41050VT
LC74781
TUNER+5V
TUNER
B D-MAIN ASSY
H+3.3V
EP9442
R1EX24016
AZ1068
IC2017
H+1.8V
EP9442
Q2026
RAQ045P01
Q2036
RAQ045P01
H+3.3V_FETON
H+1.8V_ON
DSP+3.3V(USB)
D808K013CPTP400
SMPS+5.6V
IC2007
AP6503
3.3V
D+3.3V_ON
Q2040
RAQ045P01
AP1117-1.8V
IC2015
D+1.8V_ON
DSP+1.8V(USB)
D808K013CPTP400
DMAIN+3.3V
Q2042
RAQ045P01
SA1117D-1.2V
IC2013
D+1.2V_ON
DSP+1.2V
D808K013CPTP400
SMPS+5.6V
D+3.3V
D808K013CPTP400
74LCX257MTCX
DSP+3.3V_FETON
IC2008
MM3529A32PRE
SMPS+5.6V
IC2004
NJM2831F33
SCPU+3.3V
EPF025A
SUB_ON
H+5V_FETON
ON/OFF
VOUT
VSS
NC
VIN
IC2005
S-1170B50UC-OUJ
H+5V
TX+5V
HDMI OUT
IC2025
CPU_3.3V
IC2021
BA00DD0WHFP
NC(GND)
Vout
VCC(IN)
CTL
NC
USB5V_ON
IC2024
NCP380
USB+5V
USB5V_DET
D+5V_FETON
ON/OFF
VOUT
VSS
NC
VIN
D+5V
AK4588
IC2006
S-1170B50UC-OUJ
Q2010
VCC_3959
MFI337S3959
3959_PWR
USB
USB+5V
D FUSB ASSY
ZD101
LUDZS6.8B
A+12V
HP RELAY
A+6.8V
MIC
ZD102
LUDZS6.8B
A-6.8V
MIC
ST_H+5V
F CPU ASSY
IC301
AP1117-3.3
CPU_3.3V
M3030RFGPFP
D+3.3V
OPT
C OPTCO ASSY

4.4 GND BLOCK DIAGRAM

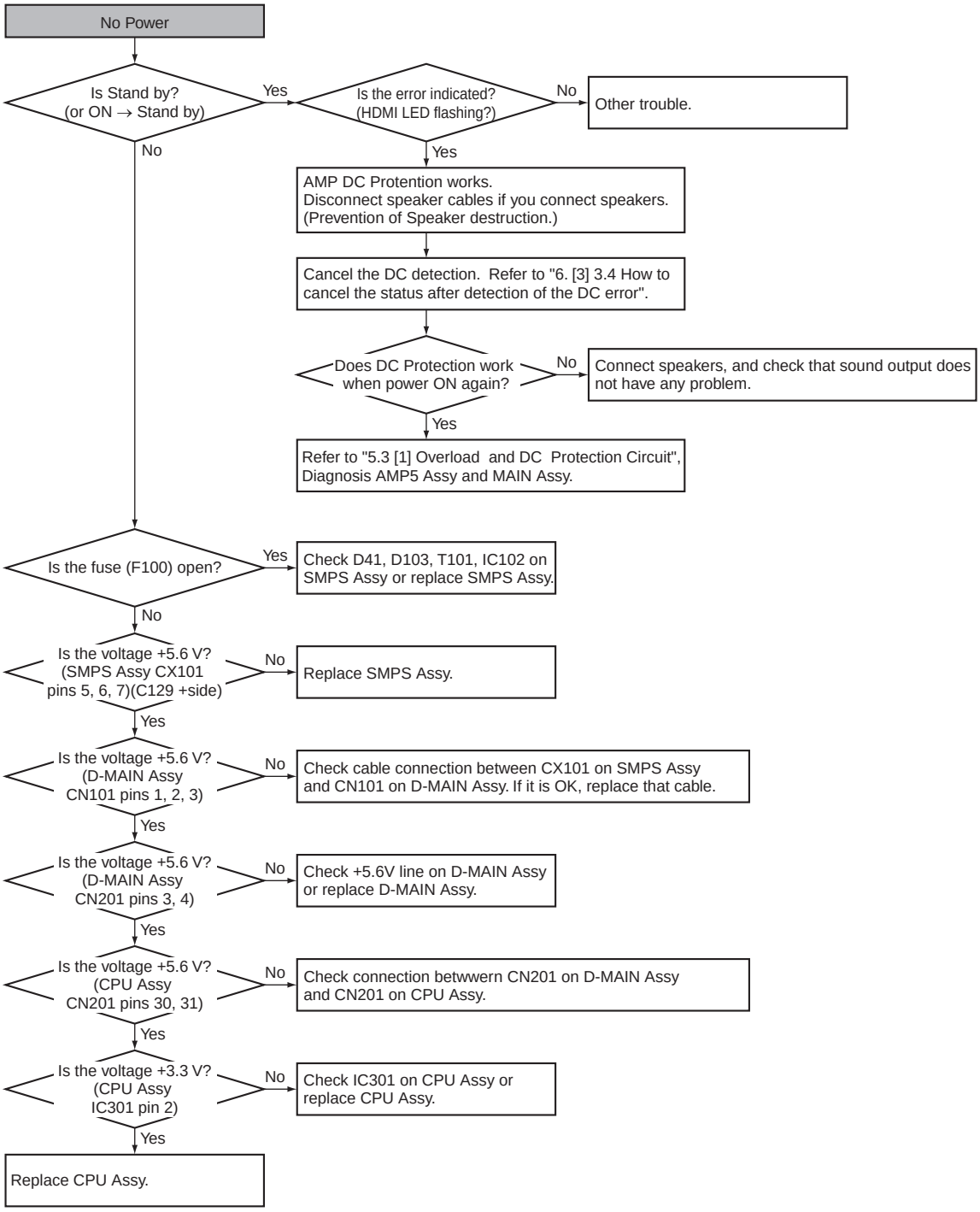



VIDEO
TUNER
BT
DIGITAL
AUDIO B'D
GNDD
NJM41050
LC74781
F
CPU ASSY
B
D-MAIN ASSY
A MAIN ASSY
CPU
IL1117_3.3
SN74HCT08PW
CW24C16DR
GNDU
GND-V
AGND-V
NM
GNDA
DIR /CODEC
HDMI
DSP
SUB CPU
SDRAM
EEPROM
FLASH
DC_PROTECTION
A+12V
-HIGHB
+HIGHB1
USBGND
AGND
GNDU
GNDA_HP
GNDA
USBGND
G AMP5 ASSY
I FRONT ASSY
SC16315
USBGND
ASSY
D FUSB ASSY

5. DIAGNOSIS
5.1 TROUBLESHOOTING

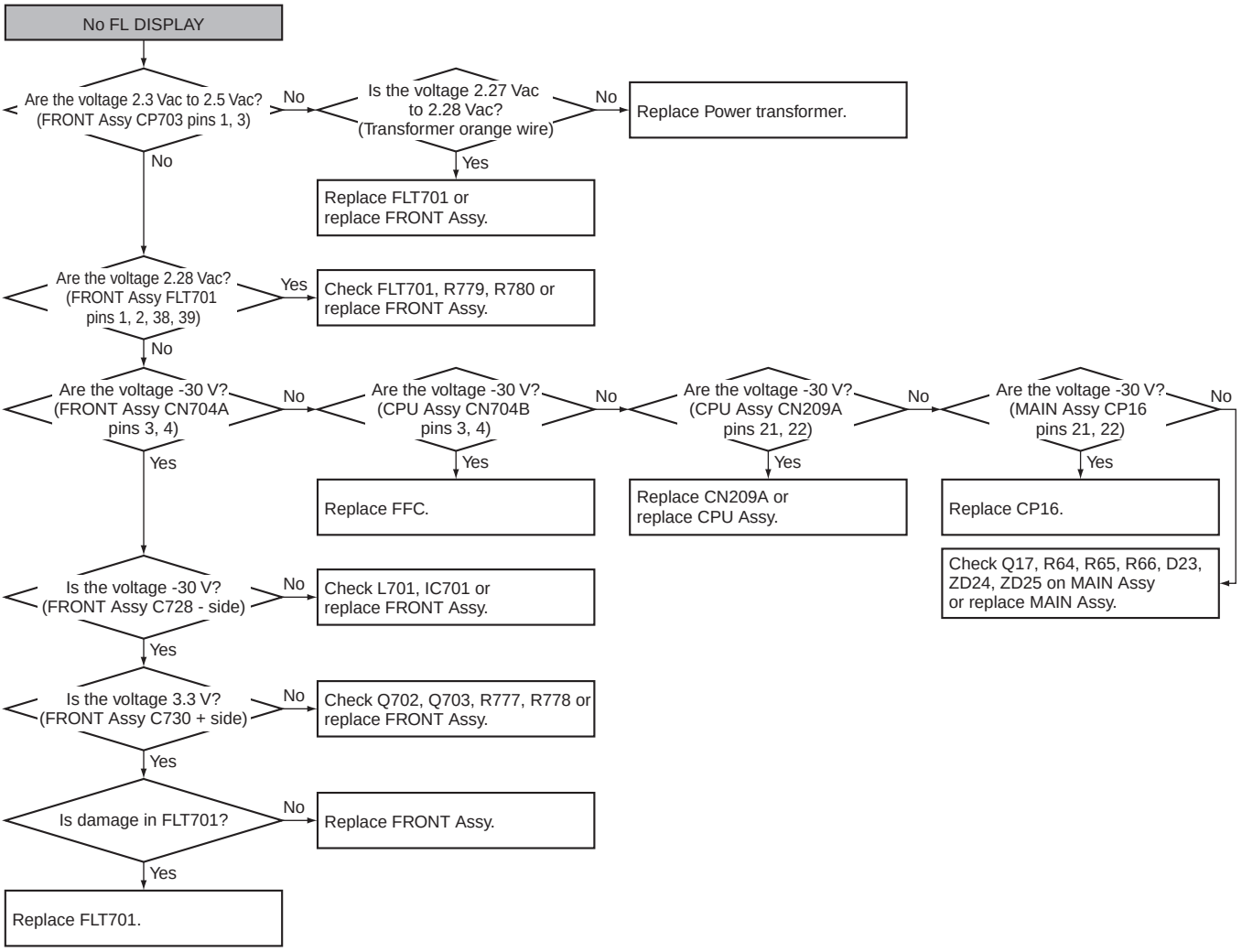
No Power

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



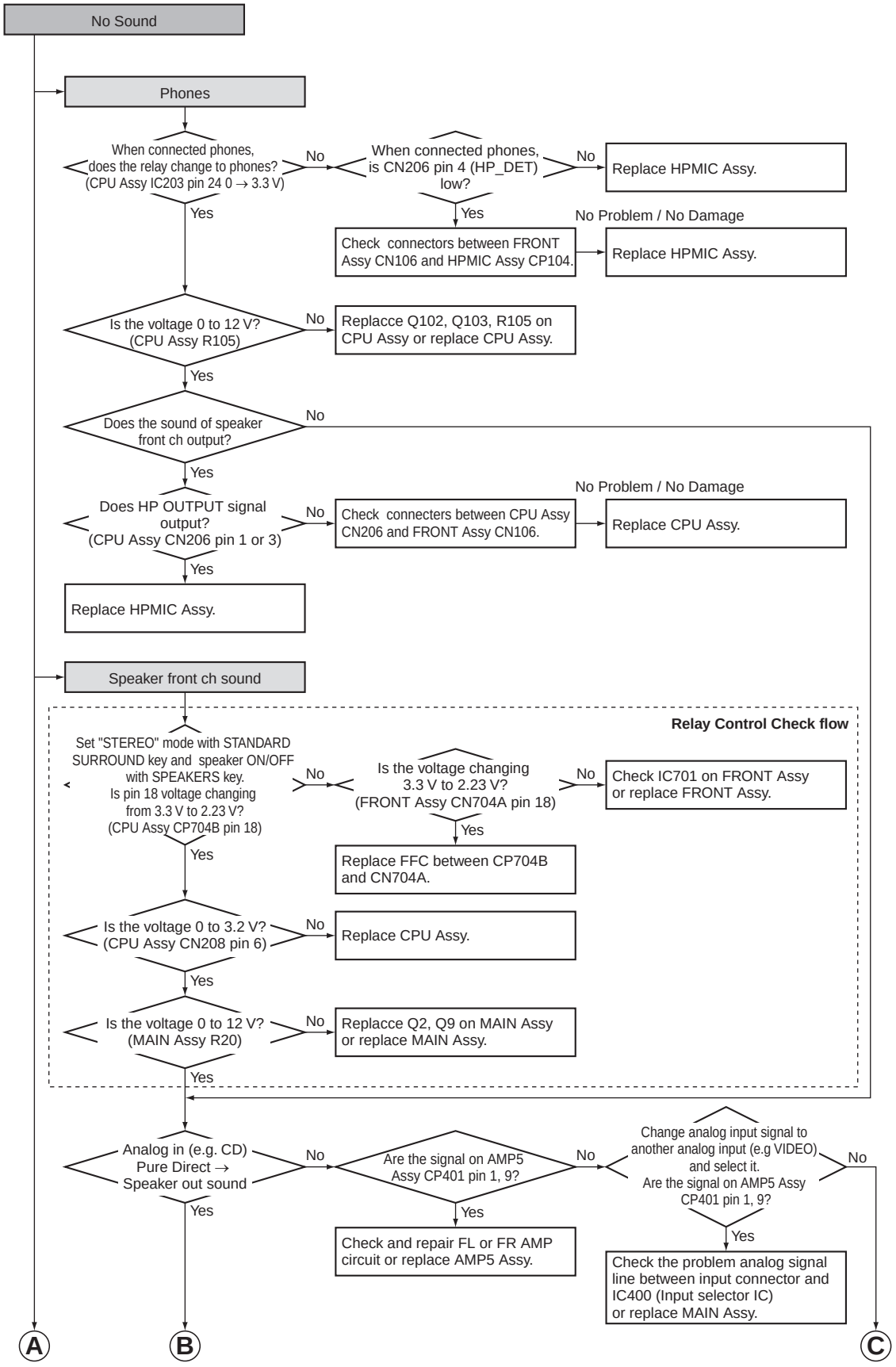
No FL DISPLAY

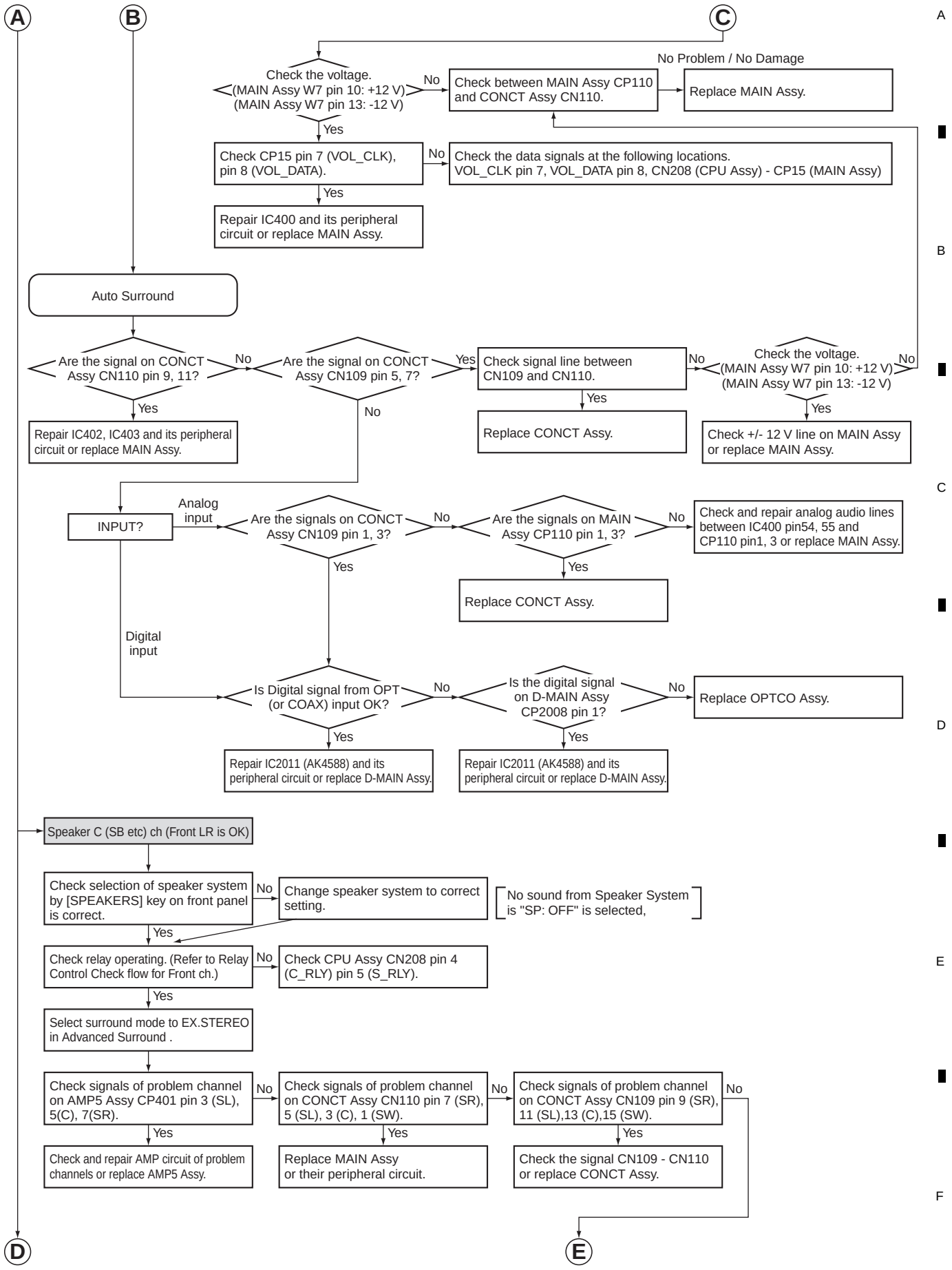
This is just for general reference and does not including every single case.

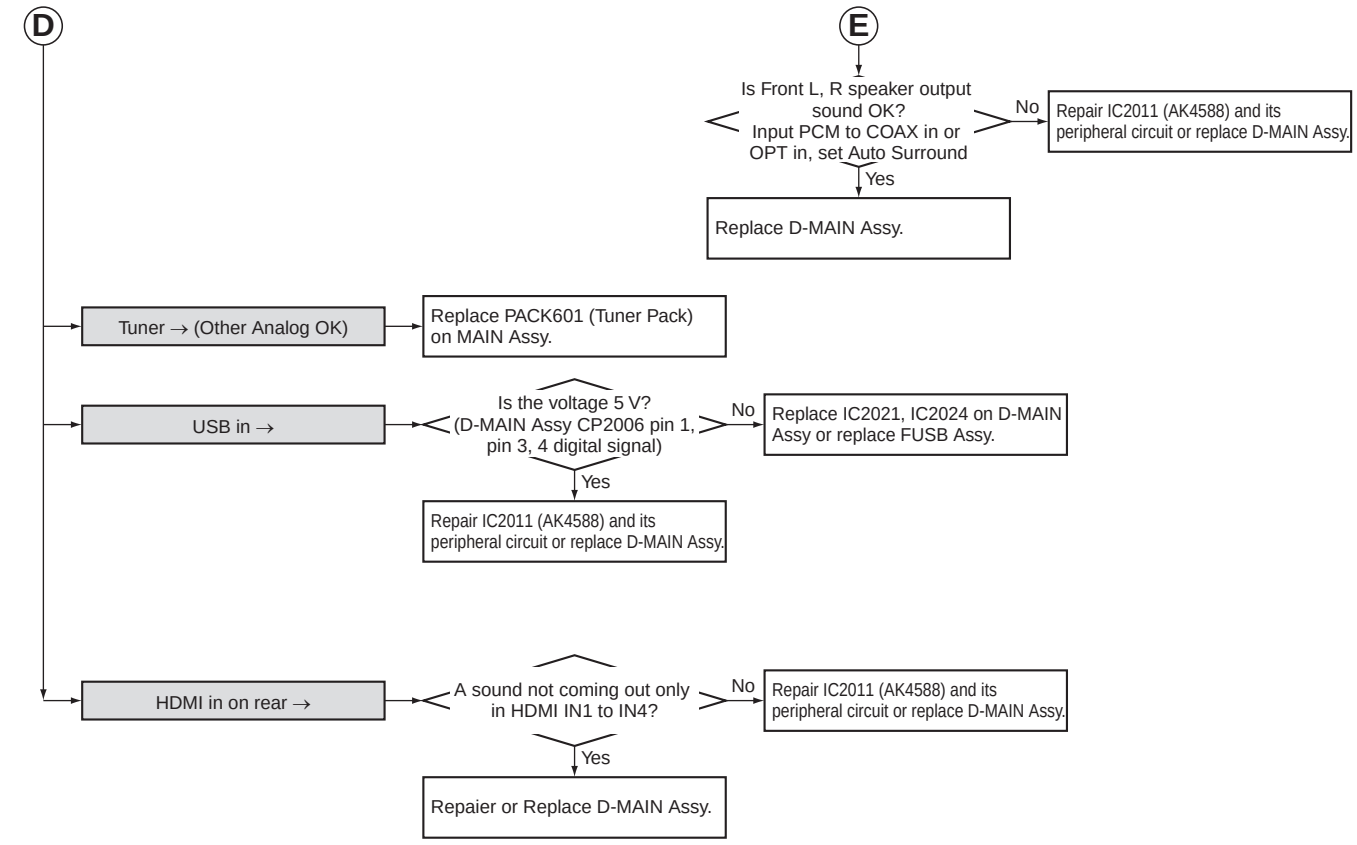


No Sound

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

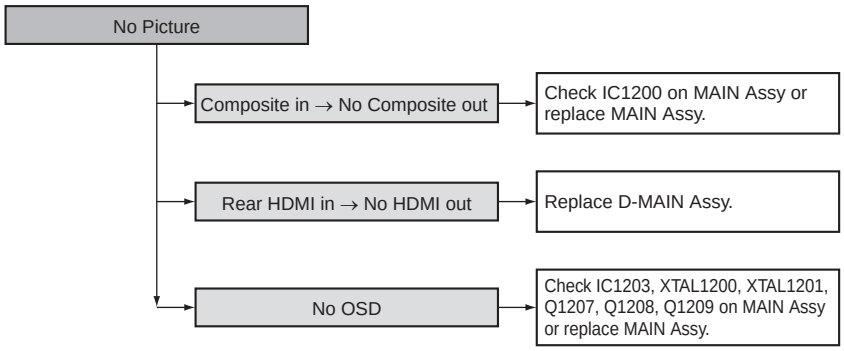



A
B
C
Check the voltage.
(MAIN Assy W7 pin 10: +12 V)
(MAIN Assy W7 pin 13: -12 V)
No
Check between MAIN Assy CP110 and CONCT Assy CN110.
No Problem / No Damage
Replace MAIN Assy.
Yes
Check CP15 pin 7 (VOL_CLK), pin 8 (VOL_DATA).
No
Check the data signals at the following locations.
VOL_CLK pin 7, VOL_DATA pin 8, CN208 (CPU Assy) - CP15 (MAIN Assy)
Yes
Repair IC400 and its peripheral circuit or replace MAIN Assy.
Auto Surround
Are the signal on CONCT Assy CN110 pin 9, 11?
No
Are the signal on CONCT Assy CN109 pin 5, 7?
Yes
Check signal line between CN109 and CN110.
No
Check the voltage.
(MAIN Assy W7 pin 10: +12 V)
(MAIN Assy W7 pin 13: -12 V)
No
Yes
Repair IC402, IC403 and its peripheral circuit or replace MAIN Assy.
No
Yes
Replace CONCT Assy.
Yes
Check +/- 12 V line on MAIN Assy or replace MAIN Assy.
INPUT?
Analog input
Are the signals on CONCT Assy CN109 pin 1, 3?
No
Are the signals on MAIN Assy CP110 pin 1, 3?
No
Check and repair analog audio lines between IC400 pin54, 55 and CP110 pin1, 3 or replace MAIN Assy.
Yes
Yes
Replace CONCT Assy.
Digital input
Is Digital signal from OPT (or COAX) input OK?
No
Is the digital signal on D-MAIN Assy CP2008 pin 1?
No
Replace OPTCO Assy.
Yes
Yes
Repair IC2011 (AK4588) and its peripheral circuit or replace D-MAIN Assy.
Repair IC2011 (AK4588) 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 CN208 pin 4 (C_RLY) pin 5 (S_RLY).
Yes
Select surround mode to EX.STEREO in Advanced Surround .
Check signals of problem channel on AMP5 Assy CP401 pin 3 (SL), 5(C), 7(SR).
No
Check signals of problem channel on CONCT Assy CN110 pin 7 (SR), 5 (SL), 3 (C), 1 (SW).
No
Check signals of problem channel on CONCT Assy CN109 pin 9 (SR), 11 (SL),13 (C),15 (SW).
No
Yes
Check and repair AMP circuit of problem channels or replace AMP5 Assy.
Yes
Replace MAIN Assy or their peripheral circuit.
Yes
Check the signal CN109 - CN110 or replace CONCT Assy.
D
E



No Picture

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

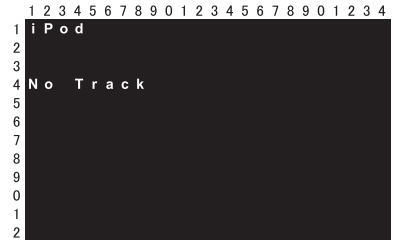


5.2 USB/iPod ERROR MESSAGE

Functional Name
iPod ERROR MESSAGE

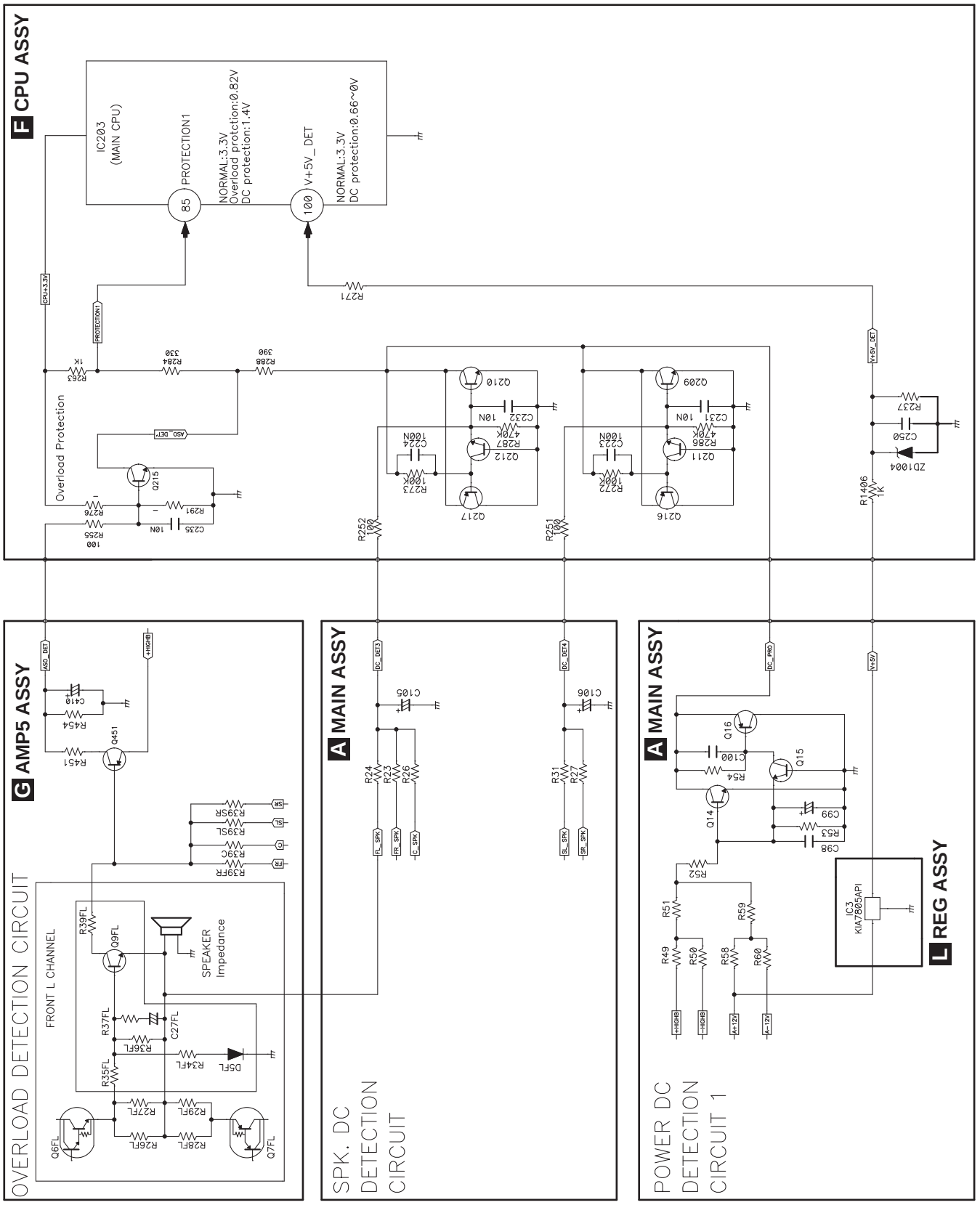
Outline
Error message is displayed at abnormality time.

Basic Operation

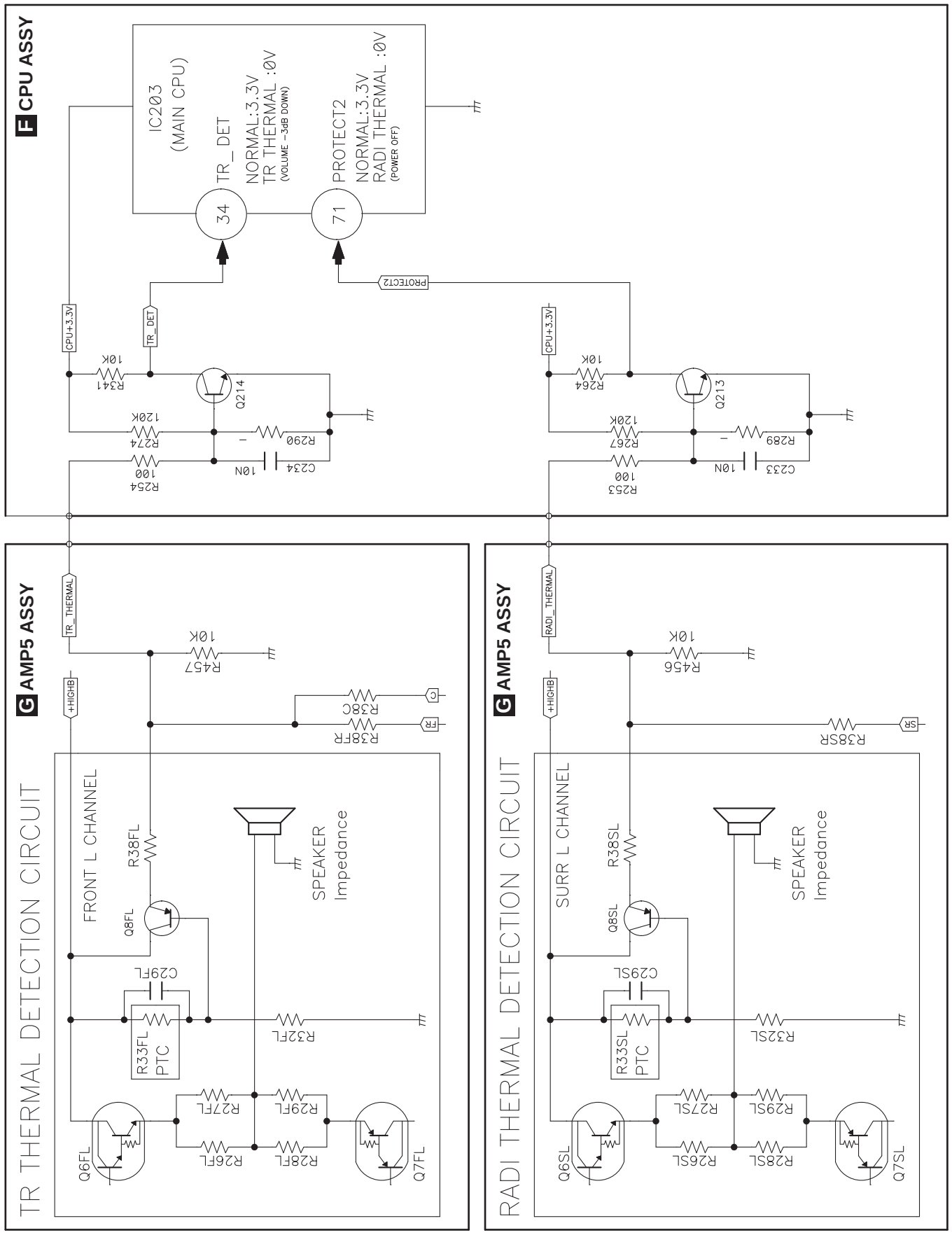
Front Key Sequence Change	OSD display	Time (sec)	FL Display
Over Current Error			I/U ERR4
No Track Caution			NO TRACK

5.3 PROTECTION CIRCUIT

[1] Overload and DC Protection Circuit



[2] TEMP Protection Circuit



5.4 IC INFORMATION

■ (M3030RFGPFP_256K)(CPU ASSY: IC203)

MAIN CPU

• Pin Function

No.	Symbol	I/O	Description
1	DIRECT_SEL	O	Not used
2	CNT_LED	O	Not used
3	3959_RST	O	MFI IC reset signal
4	3959_PWR	O	MFI IC Power control pin
5	POWERDOWN	I	Power down signal input pin
6	NC		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 CPU
11	24C16_SCL	O	Clock signal output for data backup of main CPU
12	RESET	I	CPU 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	4588_INT	I	AK4588 Interrupt signal input pin
20	WOL_NW	I	Not used
21	NC		Not used
22	A_MUTE	O	Audio output control pins at Mute Tr (active at L)
23	HP_DET	I	Monitoring the input pin headphone connection
24	HP_RLY	I	Headphone audio output control pins at Mute Tr (active at L)
25	SW_SUM	I	Output for Sub Woofer SUMMING Control (H: SUMMING)
26	CTL_B	O	IC control signal B output pin for selecting the video input
27	NC		Not used
28	OSD/FLT_CLK	O	OSD & FL drive IC output pin of the Clock
29	CTL_A	O	IC control signal A output pin for selecting the video input
30	MUTE_B+_CONT	O	Power control pin mute B+
31	U_TX	O	Output for Upgrade (UART)
32	U_RX	I	Input for Upgrade (UART)
33	BUSY_JTAG	O	BUSY signal output pin
34	SCLK_JTAG/TR_DET'	I	Serial clock input and Protection pin
35	VOL_DATA	O	Data signal output for R2A15219 (I2C)
36	VOL_CLK	O	CLK signal output for R2A15219 (I2C)
37	STBY_RLY	O	Output to ST-BY Relay ON/OFF (active at H)
38	OSD_RST	O	OSD IC Reset signal output pin
39	F_RLY	O	Tr driven control pins at the Front speaker output Relay (active at H)
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	NC		Not used
46	OSD_CE/CE	O	OSD IC enable signal output and UPGRADE pin
47	NC		Not used
48	S_RLY	O	Tr driven control pins at the Surround speaker output Relay (active at H)
49	3959_SDA	I/O	MFI IC DATA signal
50	3959_SCL	I/O	MFI IC CLK signal

No.	Symbol	I/O	Description
51	C_RLY	O	Tr driven control pins at the Center speaker output Relay (active at H)
52	NC		Not used
53	SP_DC	O	HDMI LED on/off control pin if Speaker DC Protection
54	NET_PWR	O	Control pin HDMI IC +5 V REG. IC (on: H)
55	H+1.8V_ON	O	Control pin HDMI IC +1.8 V REG. IC (on: H)
56	D+3.3V_ON	O	Control pin digital +3.3V DC/DC IC (on: H)
57	MIC_DET	O	Monitoring the input pin microphone connection (detection: L)
58	4588_PDN	O	Output for AK4588 power down
59	4588_SDA	I/O	Data signal output for AK4588 (I2C)
60	4588_SCL	O	Clock signal output for AK4588 (I2C)
61	DSP_SIMO	O	Data signal Input for DA808
62	3V3		+3.3 V Power Supply
63	DSP_SPICLK	O	Clock signal output for DA808 (SPI)
64	GND		Ground
65	DSP_RST	O	Output to reset DA808
66	NC		Not used
67	DSP_SOMI	I	Data signal output for DA808 (SPI)
68	DSP_CS	O	Chip select signal output for DA808
69	DSP_ENABLE	I	SPI Enable signal input from DA808
70	HDMI_SEL	O	IC signal of the control pins at select HDMI or analog audio
71	PROTECT2	I	AMP Assy input signal of the RADIATOR THERMAL pin (L = PROTECTION)
72	H+3.3V_FET_ON	O	Control pin HDMI IC +3.3 V REG. IC (on: H)
73	SUB_ON	O	Control pin sub CPU IC +3.3 V REG. IC (on: H)
74	SUB_IRQ	I	Interrupt signal output pin to main CPU
75	HDMI_MUTE	I	Input for HDMI_RX_MUTE condition
76	USB5V_ON	O	Output for NCP380 Enable Input
77	SUB_RST	O	Output to reset sub CPU
78	USB5V_DET	O	USB+5 Voltage monitor input pin overcurrent protection
79	SCDO_MAIN	O	Data signal output to sub CPU
80	CSCK_MAIN	O	Clock signal output for sub CPU
81	SET OPTION	I	Input for Set option
82	STEP OPTION	I	Input for Step (Group) option
83	VIDEO_MUTE	O	Ouput for Video IC MUTE condition
84	OSD/FLT_DATA	O	OSD or FLT Data pin
85	PROTECT1	I	AMP Assy Protection detection signal input pin (ASO = 0.82 V, DC = 1.39 V)
86	VOL_DN	I	Data input for VOLUME encoder (VOLUME DOWN is counterclockwise direction)
87	VOL_UP	I	Data input for VOLUME encoder (VOLUME UP is clockwise direction)
88	IN_UP	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_DN	I	Data input for INPUT selector encoder
94	FLT_CE	O	Output for chip enable of SC16315
95	NC		Not used
96	GND		Ground
97	USBDCERR	O	Not used
98	3V3		+3.3 V Power Supply
99	3V3		+3.3 V Power Supply
100	V+5V_DET	I	Detection pin V+5V protection

(EPF025A)(D-MAIN ASSY: IC2001)

SUB CPU

• Pin Function

No.	Symbol	I/O	Description
1	NC		Not used
2	CSCK_MAIN	I	Clock signal input from main CPU
3	SCDO_MAIN	I	Data signal input from main CPU
4	HSCL	I/O	IIC clock signal output pin
5	HSDA	I/O	IIC data signal in/output pin
6	3V3		+3.3 V power supply
7	NC		Not used
8	3V3		+3.3 V power supply
9	GND		Ground
10	NC		Not used
11	NC		Not used
12	3V3		+3.3 V power supply
13	NC		Not used
14	NC		Not used
15	SUB_RST	I	Sub CPU 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	D+1.2V_ON	O	Control pin DSP IC +1.2 V REG. IC (on: H)
23	D+1.8V_ON	O	Control pin DSP IC +1.8 V REG. IC (on: H)
24	NC		Not used
25	NC		Not used
26	NC		Not used
27	NC		Not used
28	NC		Not used
29	D+3.3V_FETON	O	Control pin DSP IC +3.3 V REG. IC (on: H)
30	D+5V_FETON	O	Control pin AK4588 IC +5 V REG. IC (on: H)
31	NC		Not used
32	NC		Not used
33	NC		Not used
34	NC		Not used
35	NC		Not used
36	SUB_IRQ	O	Interrupt signal output pin to main CPU
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	3V3		+3.3 V power supply
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	NC		Not used
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.

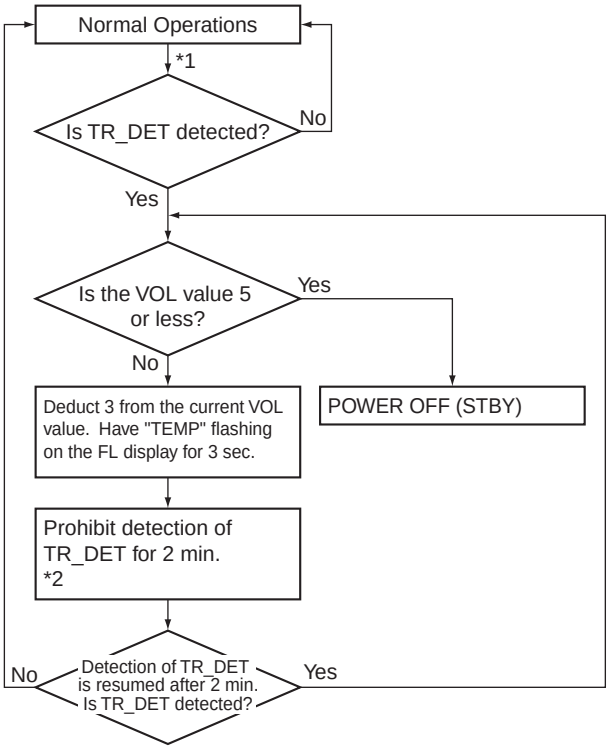
3.2 OVERLOAD (overcurrent) error detection

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

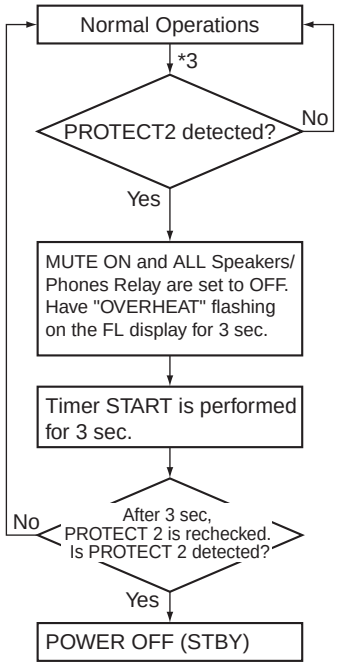
For detection of a TEMP error, the unit monitors both the TR_DET and PROTECT2 signals. If a TEMP error is detected, the processes shown below will be performed. The processes shown below are rough operational specifications and are not the actual commands from the mounted components.
After a TEMP error is detected, the count of protection activation detections will be updated.

Counter: Temp2 TR_DET
P6_4 (34 pin)
(TRTHER_DET from AMP Assy)



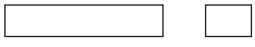
*1: The detection interval must be 1 sec or less.
*2: If PROTECT 2 is detected while TR_DET detection is prohibited for 2 min, the PROTECT 2 function will be activated.

Counter: Temp1 PROTECT2
PL2_1 (71 pin)
(RADI_DET from AMP Assy)



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

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

Key Operation	FL Display	Time (sec.)	Description of Indications
(STANDBY state) [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.

7. DISASSEMBLY

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.

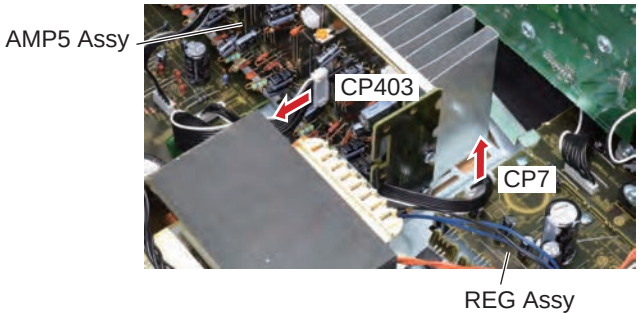
Some connections of the housing wires or connectors may be tight. When disconnecting those wires or connectors, be careful not to damage them.

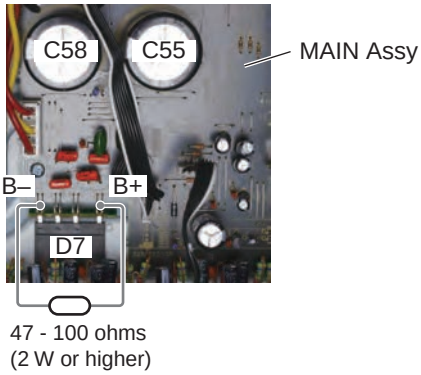
1. Discharging

[1] MAIN Assy Capacitor (C55, C58)

[Procedures]

(1) Unplug the power cord.
(2) Disconnect the 10P connector from CP403 of the AMP5 Assy between CN3 of the MAIN Assy.
(3) Disconnect the 7P connector from CP7 of the REG Assy between W7 of the MAIN Assy.
(4) 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.
(5) 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 (4).

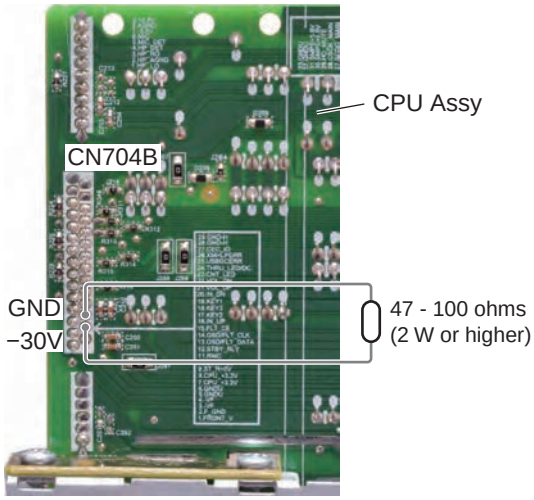




[2] FL-30 V Capacitor (MAIN Assy C101)

[Procedures]

(1) Unplug the power cord.
(2) Connect pins 3, 4 (–30V) and pins 5, 6 (GND) of the CN704B 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).



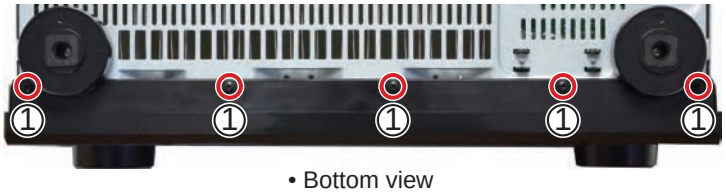
2. Disassembly

Note:
For performing the diagnosis shown below, the following jigs for service is required:
- Board to board extension jig cable (GGD1846)
- Board to board extension jig cable (GGD1847)
- Board to board extension jig cable (GGD1848)

[1] Front Panel Section

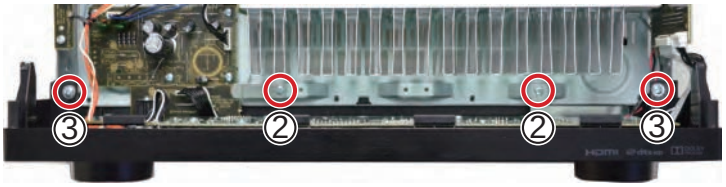
Remove the cabinet by removing the 10 screws.

(1) Remove the five screws.
(BBZ30P080FTB)

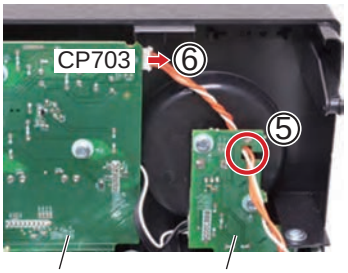


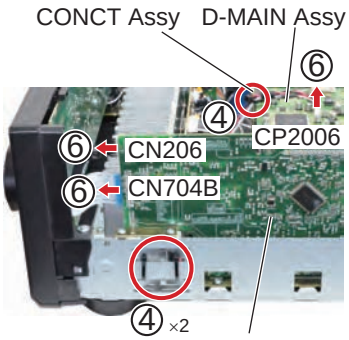
• Bottom view

(2) Remove the two screws.
(BBZ30P080FTC)
(3) Remove the two screws.
(1500001206010-IL)

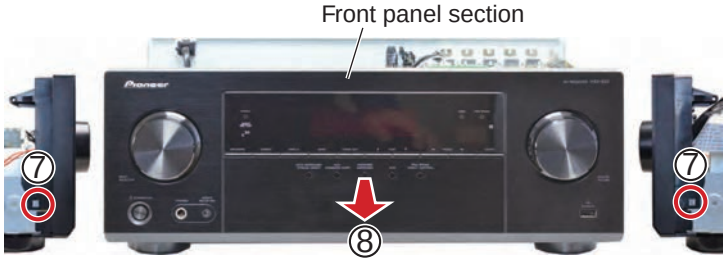


(4) Cut the three binders.
(5) Release the jumper wire.
(6) Disconnect the one flexible cable and three connectors.
(CN206, CN704B, CP703, CP2006)





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

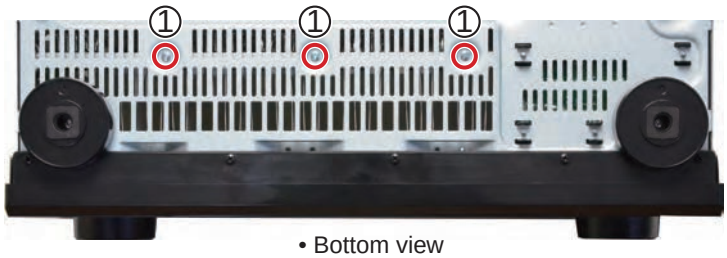


[2] Heatsink Section

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

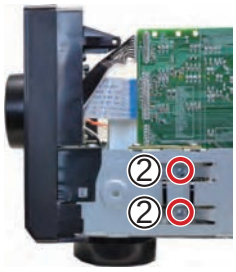
Remove the cabinet by removing the 10 screws.

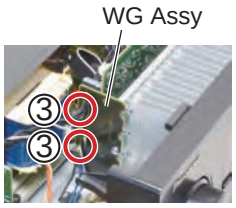
(1) Remove the three screws. (BBZ30P080FTC)



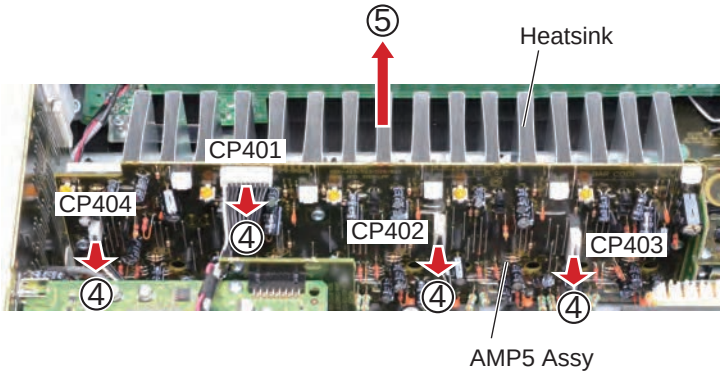
• Bottom view

(2) Remove the two screws. (BBZ30P080FTC)
(3) Release the two jumper wires.





(4) Disconnect the four connectors. (CP401 to CP404)
(5) Remove the heatsink section.

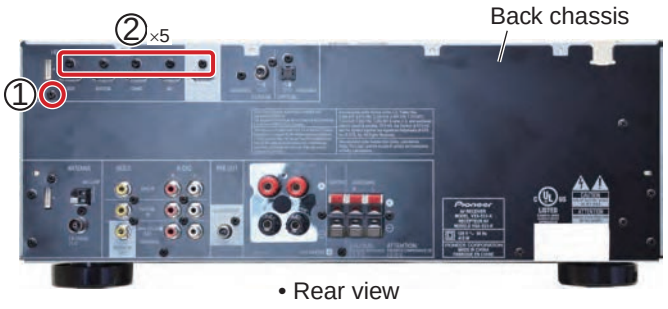


[3] D-MAIN Assy

Remove the cabinet by removing the 10 screws.

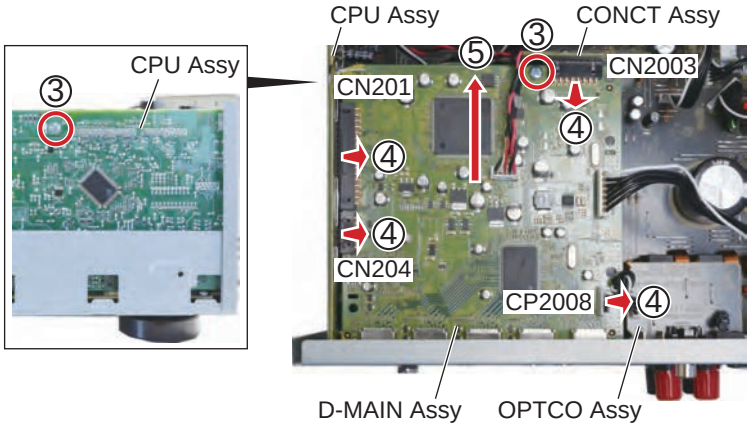
[3-1] Disassembly

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



• Rear view

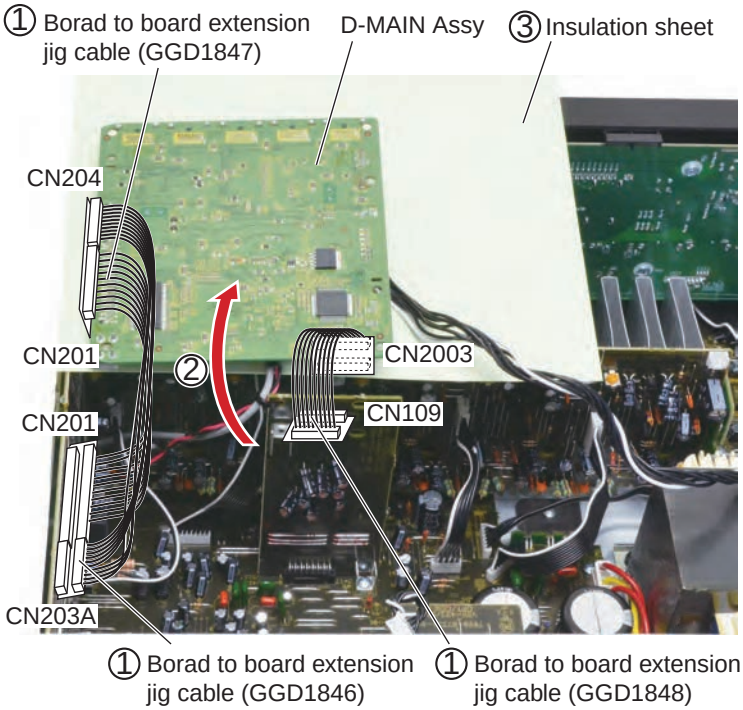
(3) Remove the two screws.
(BBZ30P080FTC)
(4) Disconnect the three B to B connectors and one connector.
(CN201, 204, 2003, CP2008)
(5) Remove the D-MAIN Assy.



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

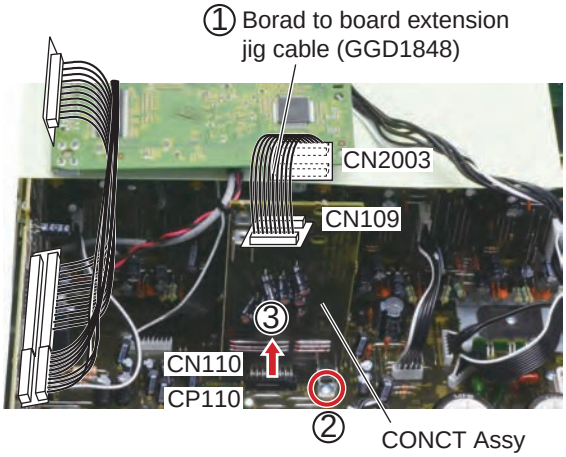
(1) Connect the three extension jig cables.
(2) Arrange the D-MAIN Assy in the photo below.
(3) Insert any insulation sheet.

Diagnosis



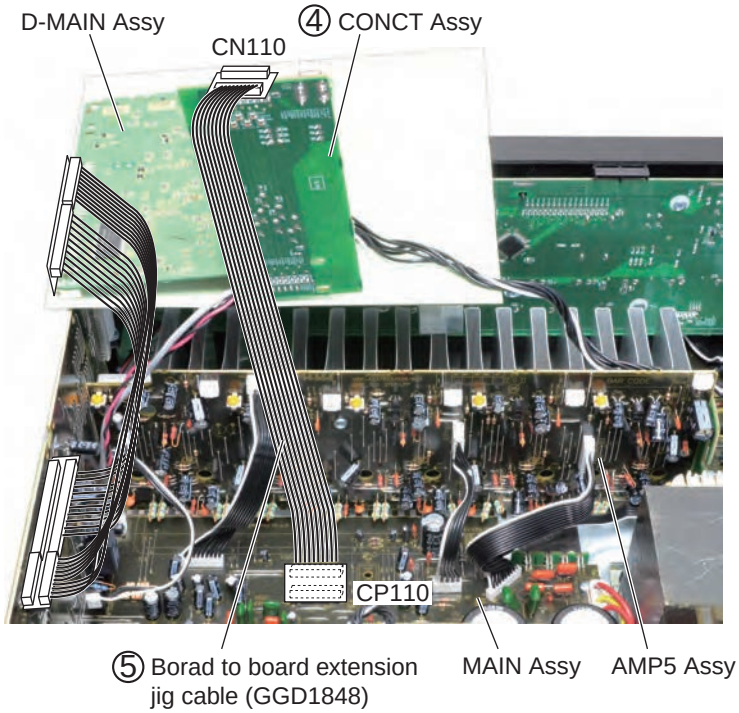
[3-3] Diagnosis of AMP5 Assy

(1) Disconnect the one extension jig cable.
(2) Remove the one screw.
(BBZ30P180FTC)
(3) Remove the CONCT Assy by disconnecting the one BtoB connector.
(CN110)



(4) Reassemble the CONCT Assy to D-MAIN Assy.
(5) Connect the one extension jig cable.

Diagnosis

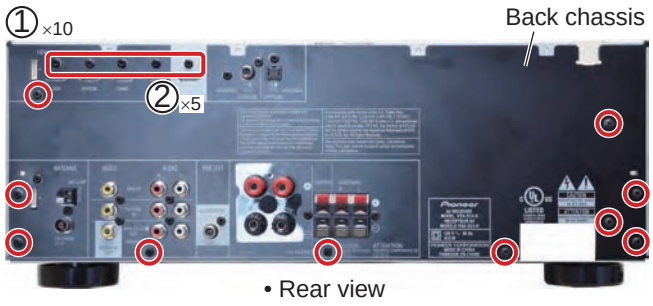


[4] MAIN Assy

Remove the cabinet by removing the 10 screws.

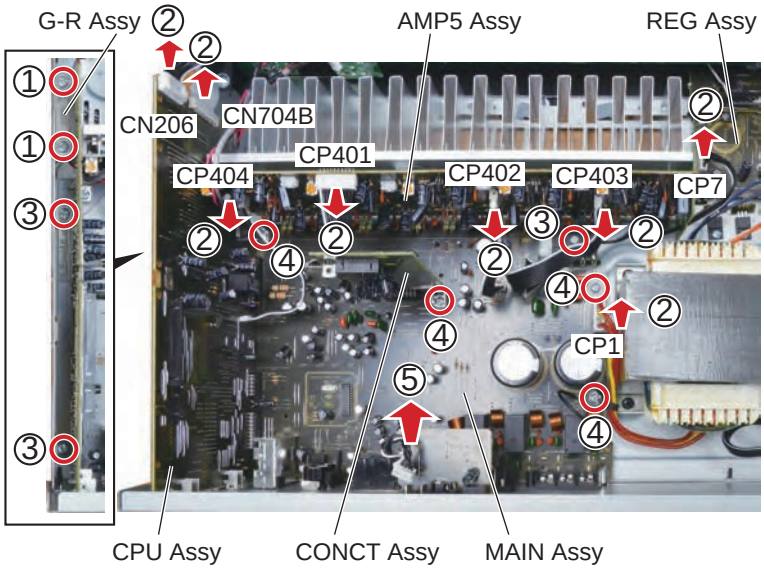
[4-1] Back chassis, D-MAIN Assy

(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) Remove the G-R Assy by removing the two screws.
(BBZ30P080FTC)
(2) Disconnect the one flexible cable and seven connectors.
(CN206, 704B, CP1, 7, 401 to 404)
(3) Remove the three screws.
(BBZ30P080FTC)
(4) Remove the four screws.
(BBZ30P180FTC)
(5) Remove the MAIN Assy with CPU Assy and back chassis.



8. EACH SETTING AND ADJUSTMENT

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

8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

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

■ When any of the following parts is replaced

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

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

8.2 UPDATING OF THE FIRMWARE

[Purpose]

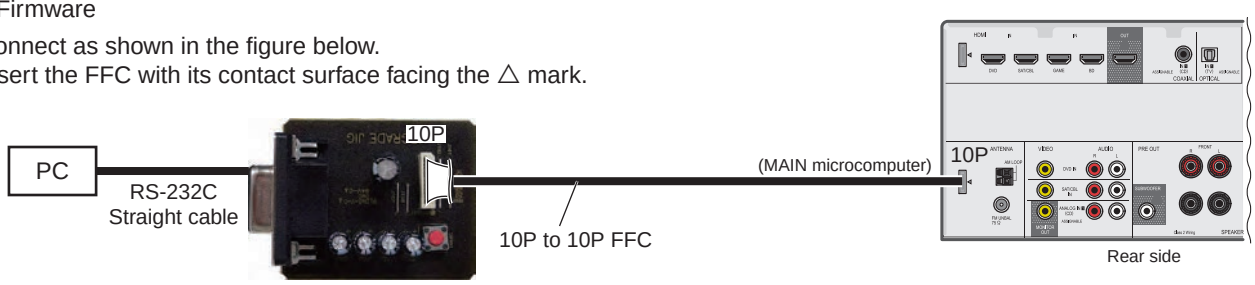
Refer to this section when updating the firmware of each microcomputer is required by the service information, etc.

[Necessary Tools and Connections]

① **MAIN microcomputer**

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

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



UPDATE jig
GGF1642

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

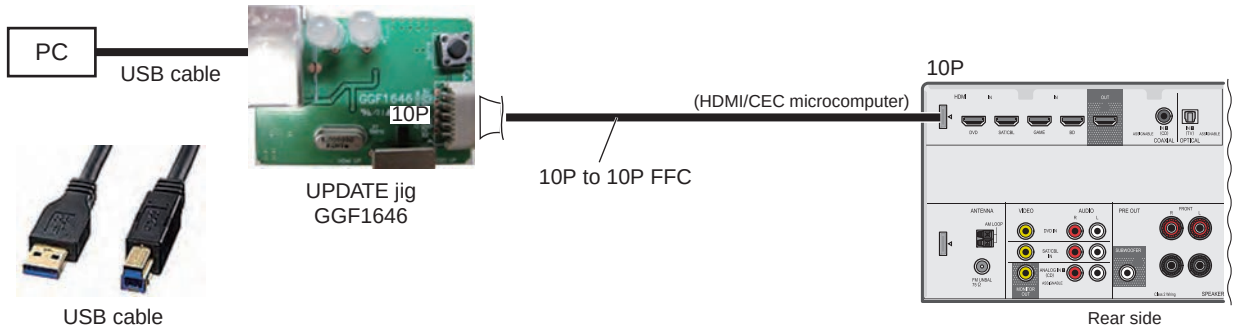
   * Store the EPFlash.exe file in the desktop of the PC.

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.



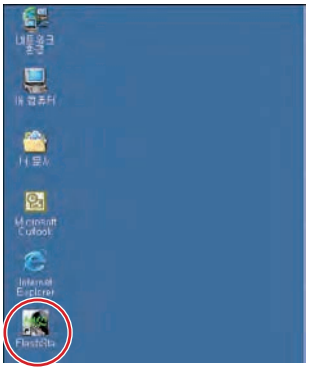
USB cable
A type <-> B type

Microcomputers update

[Procedures]

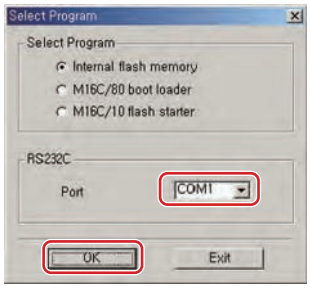
■ for MAIN microcomputer

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



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

3. Press the OK button.

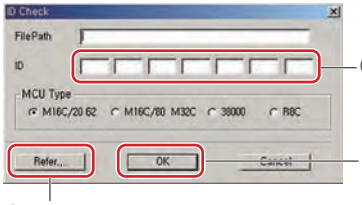


Select for COM port.

[if the following messages are displayed]

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

4. Select the update file and enter ID.

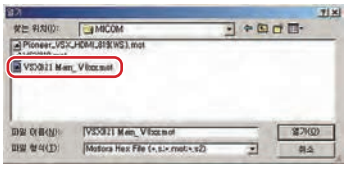


② Enter ID.
Enter "ff" in all field.

③ Press OK button to go to next step.

① Selection of upgrade file

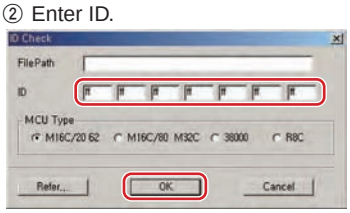
① Select the update file



Select "VSX523 Main V1xx.mot" file to update the MCU.

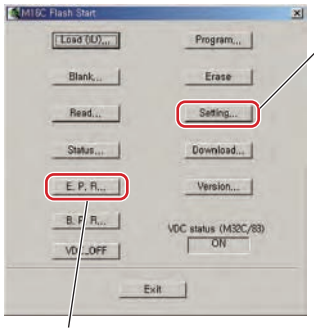
Press the OK button.

② Enter ID.

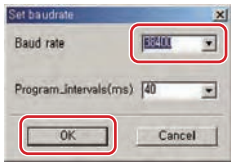


Press the OK button.

5. Set speed update and update the MCU.



① Set speed of update.



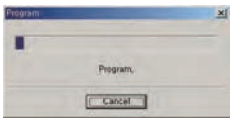
① Set speed of update.
Set Baud rate to 38400.

Press the OK button.

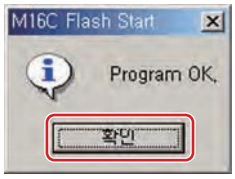
② Update the MCU.
E.P.R=>Erase+Program+Read

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

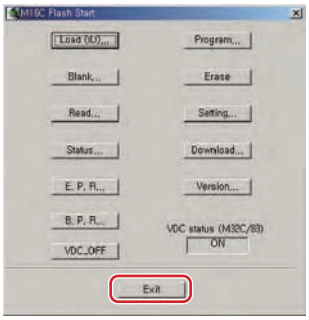
Press OK button.



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.

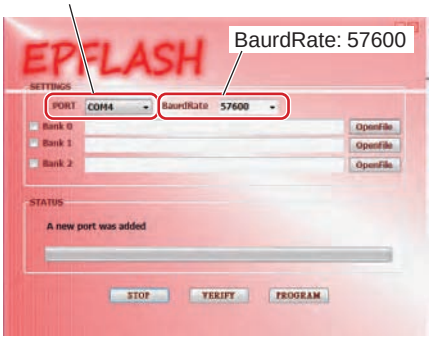
Select the 9600 of the Board rate then press the OK button

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

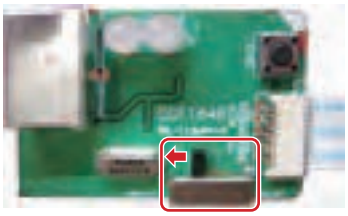
■ for HDMI & CEC (SUB) microcomputer

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.

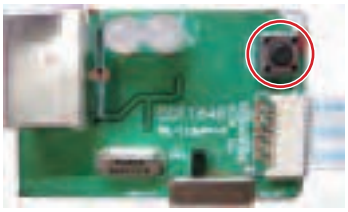


2. Select "HDMI UP" on the Upgrade Jig.

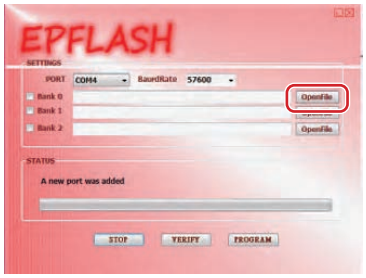


Connect the PC and the Upgrade Jig.
Connect the FFC cable. (HDMI microcomputer)

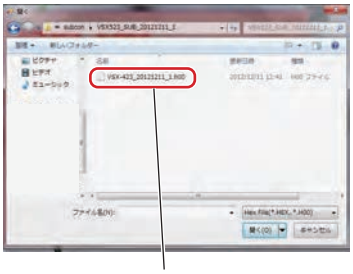
3. Holding down the tact switch (RESET) of the Upgrade Jig in AC OFF state. Release the tact switch after AC ON, power ON (2-3 seconds later).



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

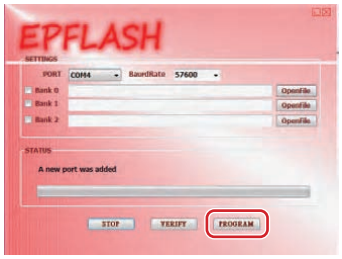


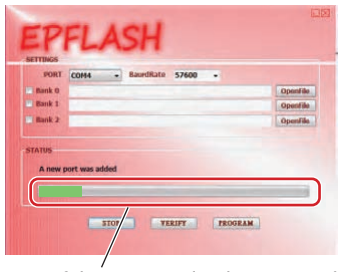
Be chosen automatically to Bank 2 when you choose file of H00 in Bank 0.



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

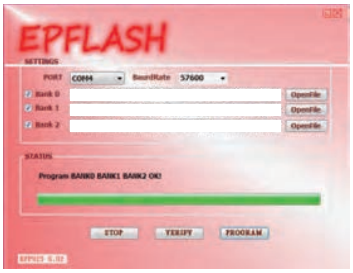
5. Press the "PROGRAM" button to update the firmware.



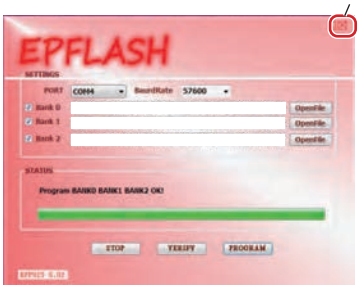


Rate of the progression is appeared.

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.

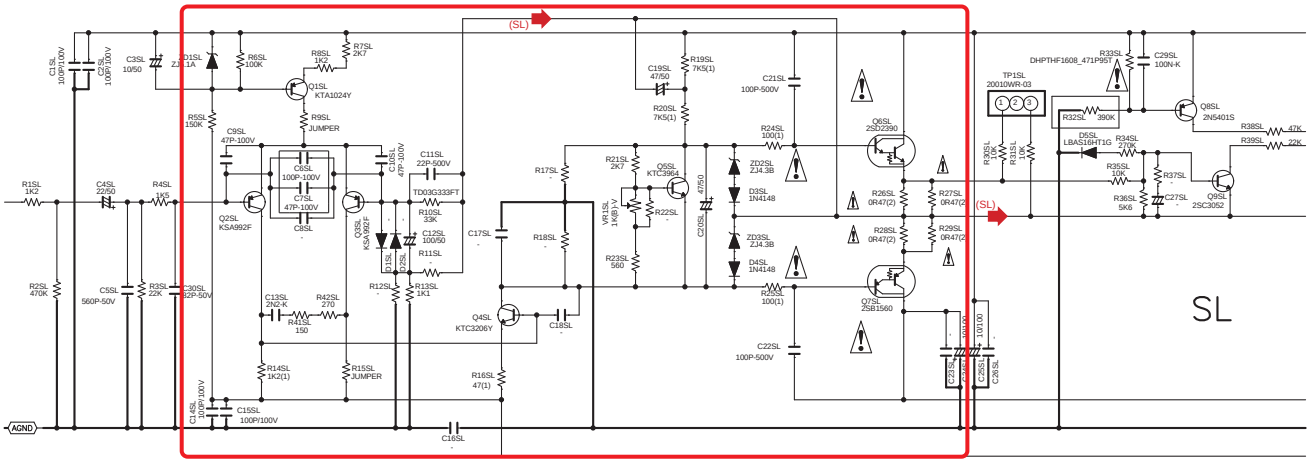
■ DSP firmware update

[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.

8.3 IDLE CURRENT ADJUSTMENT

When any component parts which are within the red square on the following circuit diagram are replaced, the idle current adjustment of that channel is required. (Idle current adjustment for another channel is not required.)
However, when any capacitors are replaced, the adjustment is not required.
(The following circuit diagram is for SL channel, but another channel also has same circuit diagram and same adjustment is required)



Channel	Measurement Points	Adjustment Points	Procedure
FL	TP1FL pin 1 (+) TP1FL pin 3 (–)	VR1FL	① Turn on the power. ② Perform aging for one minute. ③ Connect a digital voltmeter to the measurement point. ④ Turn the adjustment VR so that the voltage becomes in 2.0 mV ± 0.2 mV. (Condition : No signal and no load)
FR	TP1FR pin 1 (+) TP1FR pin 3 (–)	VR1FR	
C	TP1C pin 1 (+) TP1C pin 3 (–)	VR1C	
SL	TP1SL pin 1 (+) TP1SL pin 3 (–)	VR1SL	
SR	TP1SR pin 1 (+) TP1SR pin 3 (–)	VR1SR	

• Adjustment points and measurement points.... see fig.1.

G AMP5 ASSY

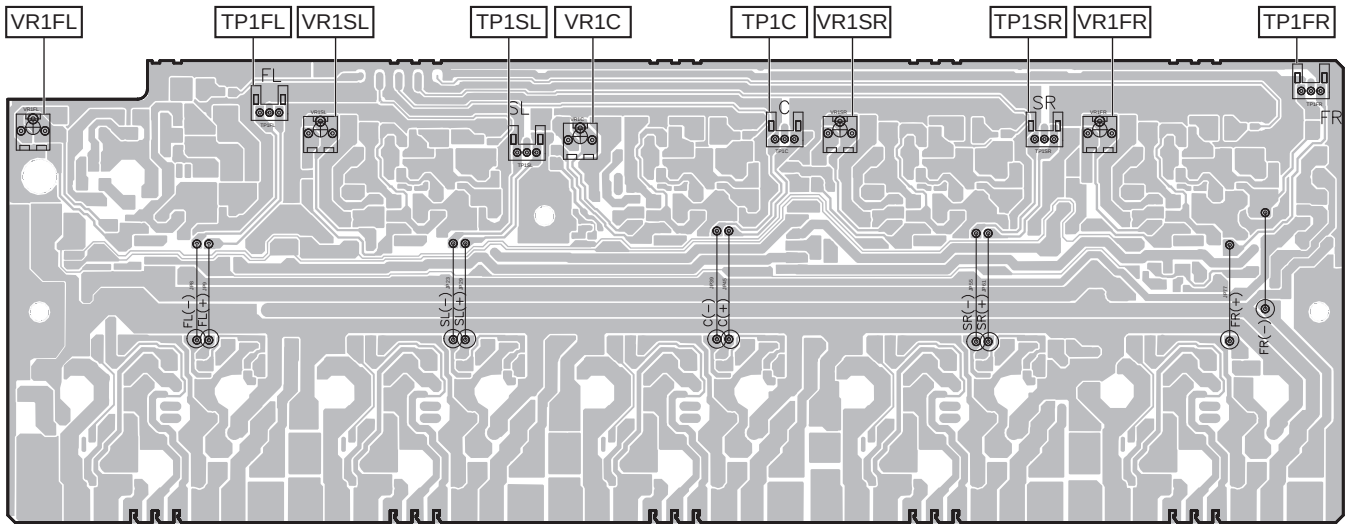


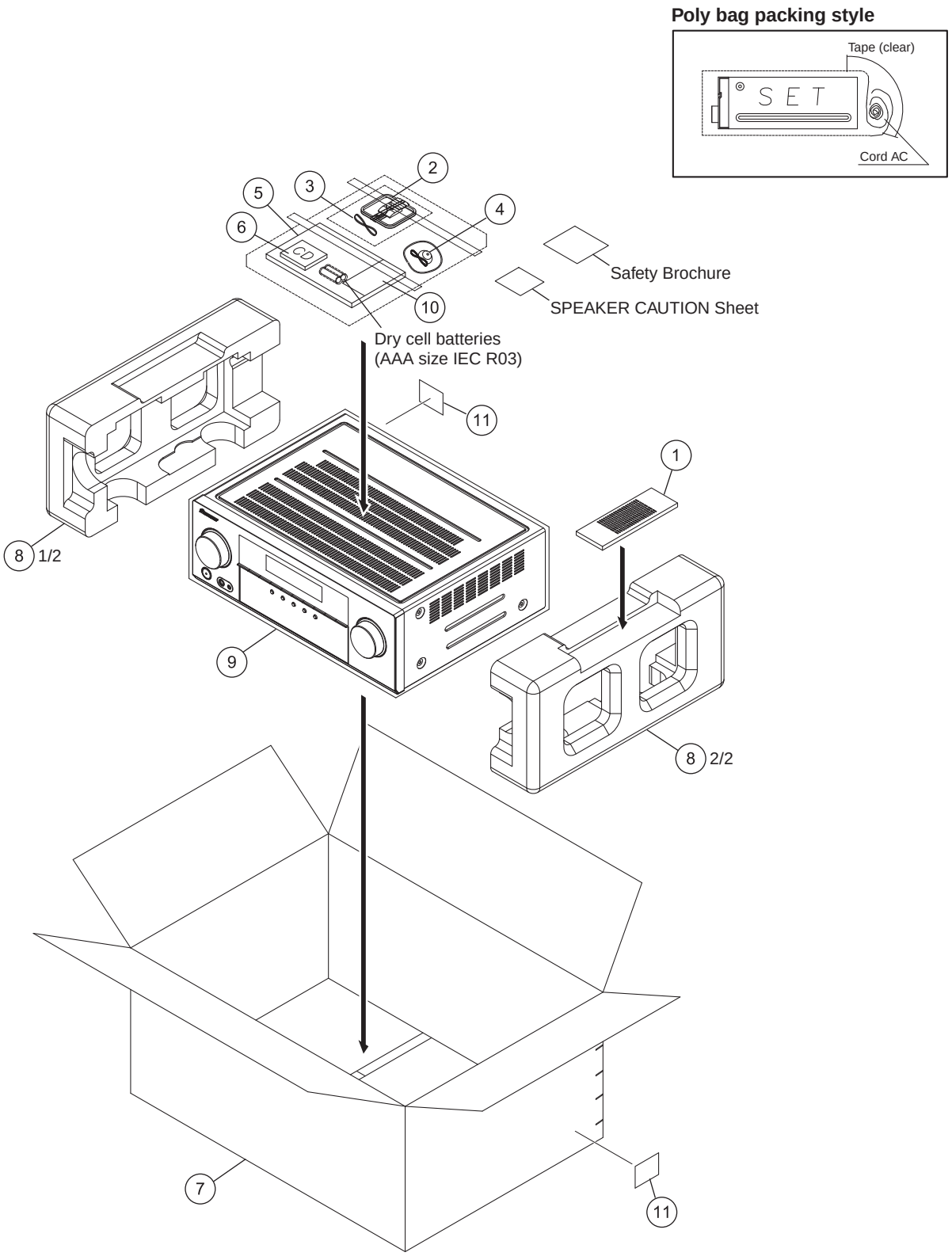
Fig.1

SIDE A

9. EXPLODED VIEWS AND PARTS LIST

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

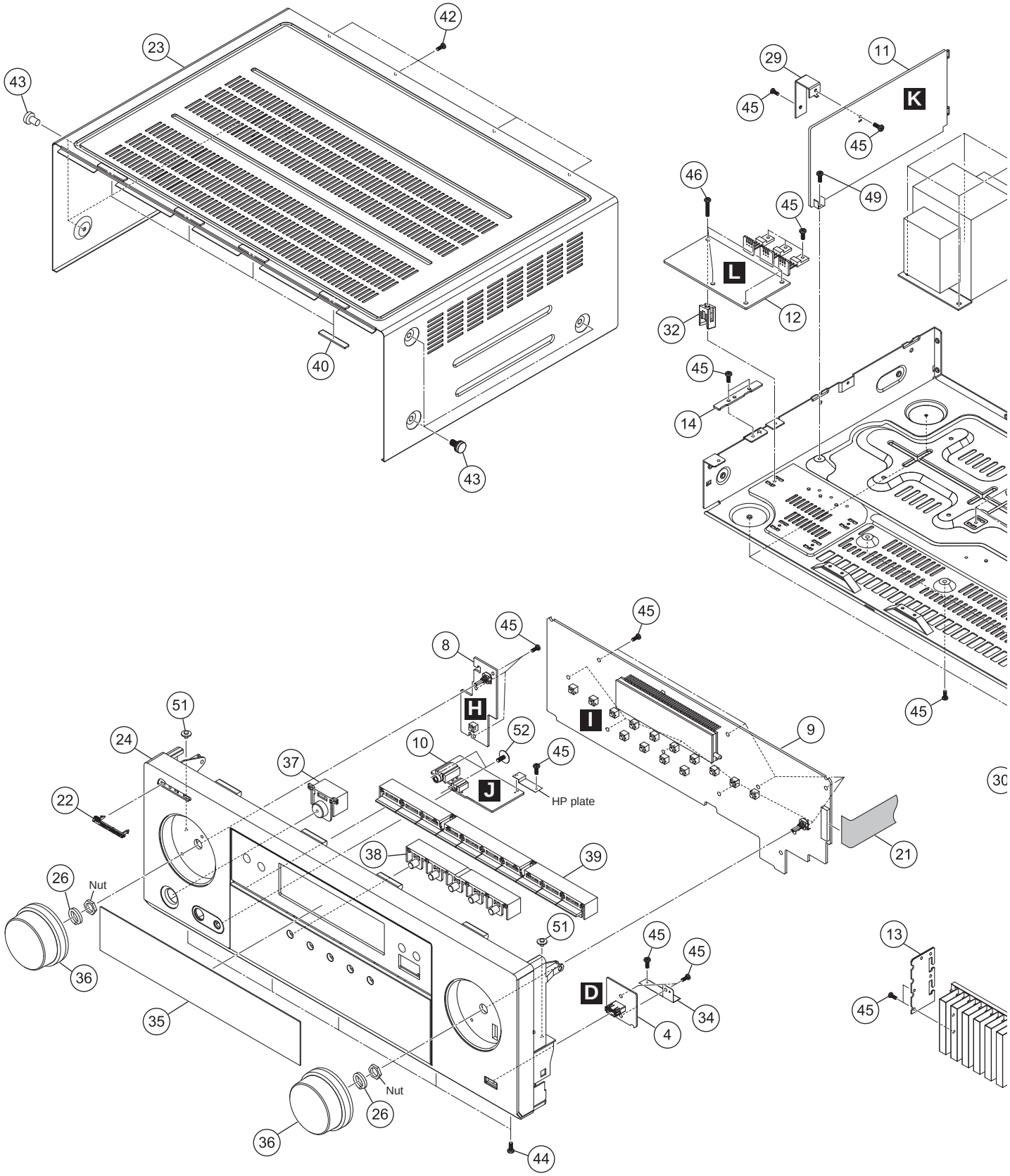
9.1 PACKING SECTION

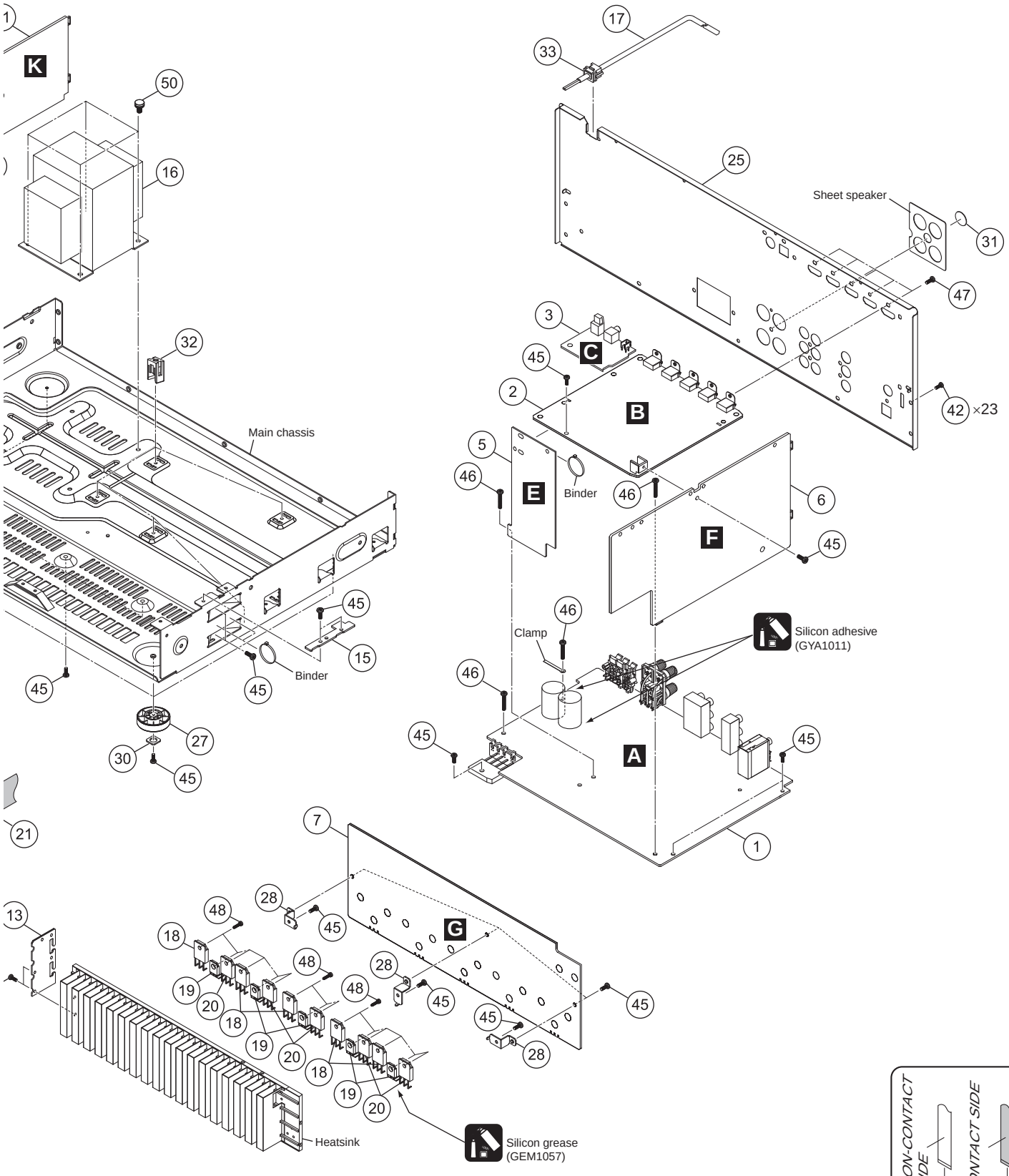


PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Remote control (AXD7690)	8300769000010-IL
	2	AM Loop Antenna	E601019000010-IL
	3	FM Wire Antenna	E605010140010-IL
	4	Microphone (for Auto MCACC setup)	APM7011
	5	Quick Start Guide	5707000007800-IL
	6	Operating Instructions (CD-ROM)	6517000001280-IL
	7	Box, Gift VSX523CU	6007212370000-IL
	8	Cushion, Snow VSX523	6230213384000-IL
	9	PE, Sheet	6327040059000-IL
NSP	10	Warranty Card	ARY7172
NSP	11	Label	VRW1629

9.2 EXTERIOR SECTION




K
50
16
32
Main chassis
45
15
Binder
45
45
27
30
45
21
17
33
25
Sheet speaker
31
47
3
C
45
2
B
42 ×23
5
46
E
Binder
46
6
F
45
46
Clamp
Silicon adhesive
(GYA1011)
46
45
A
45
1
7
28
45
G
13
48
18
19
20
18
48
48
28
45
45
45
28
18
19
20
19
20
Heatsink
Silicon grease
(GEM1057)
NON-CONTACT SIDE
CONTACT SIDE

EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN Assy	7028073311010-IL
	2	D-MAIN Assy	7028073351010-IL
	3	OPTCO Assy	7028073313010-IL
	4	FUSB Assy	7028073323010-IL
	5	CONCT Assy	7028073325010-IL
	6	CPU Assy	7028073331010-IL
	7	AMP5 Assy	7028073341010-IL
	8	INSEL Assy	7028073324010-IL
	9	FRONT Assy	7028073321010-IL
	10	HPMIC Assy	7028073322010-IL
⚠	11	SMPS Assy	7028073361010-IL
	12	REG Assy	7028073312010-IL
	13	WG Assy	7028073315010-IL
	14	G-L Assy	7028073316010-IL
	15	G-R Assy	7028073317010-IL
⚠	16	Power Trans 523CU	8200960611280-IL
⚠	17	Cord Assy	L068125101710-IL
⚠	18	Transistor	J5011560Y0000-IL
⚠	19	Semi, TR/GE NPN 2SC	J502396400010-IL
⚠	20	Transistor	J5032390Y0000-IL
	21	Cable Flat Card 1.0	N711250822480-IL
	22	Pioneer Badge B (PLS)	XAM3006
	23	Cabinet VSX-523	3008212076000-IL
	24	Front Panel 523CU	3067215871000-IL
	25	Back Chassis 523CU	3207214566000-IL
	26	Spring	3720210276000-IL
	27	Foot (PLS)	4000210391000-IL
	28	Bracket	4010056906010-IL
	29	Bracket SMPS	401021488600D-IL
	30	Cushion	4050211605000-IL
	31	Screw Cover	4050211745100-IL
	32	Support	4070001601010-IL
	33	Stopper	4380040162010-IL
	34	Plate F/USB	4470212736000-IL
	35	Window 522CU Upper	5077213113080-IL
	36	Knob	5080212431000-IL
	37	Button	5090213741100-IL
	38	5 Key Button	5090214561000-IL
	39	10 Key Button	5090214571000-IL
	40	Sheet	1210210235000-IL
	41	• • • • •	
	42	Screw	BBT30P100FTB
	43	Screw	BBT40P080FTB
	44	Screw	BBZ30P080FTB
	45	Screw	BBZ30P080FTC
	46	Screw	BBZ30P180FTC
	47	Screw	BSZ30P040FTB
	48	Screw Tapping Assy	B018230141H11-IL
	49	Screw, Tap Tite	B020230063B10-IL
	50	Screw	B028940101B11-IL
	51	Screw	1500001206010-IL
	52	Screw	1500001456010-IL

A

B

C

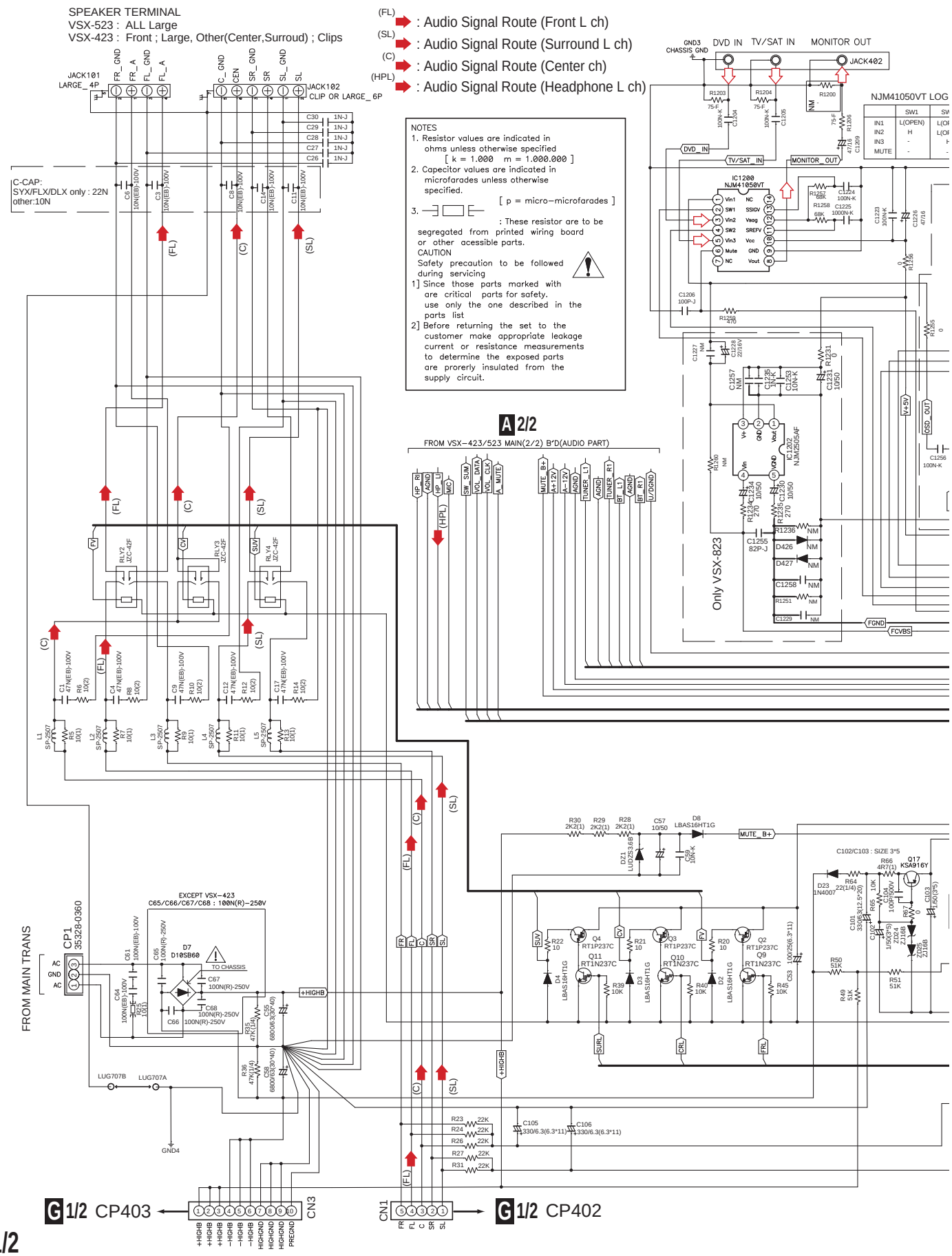
D

E

F

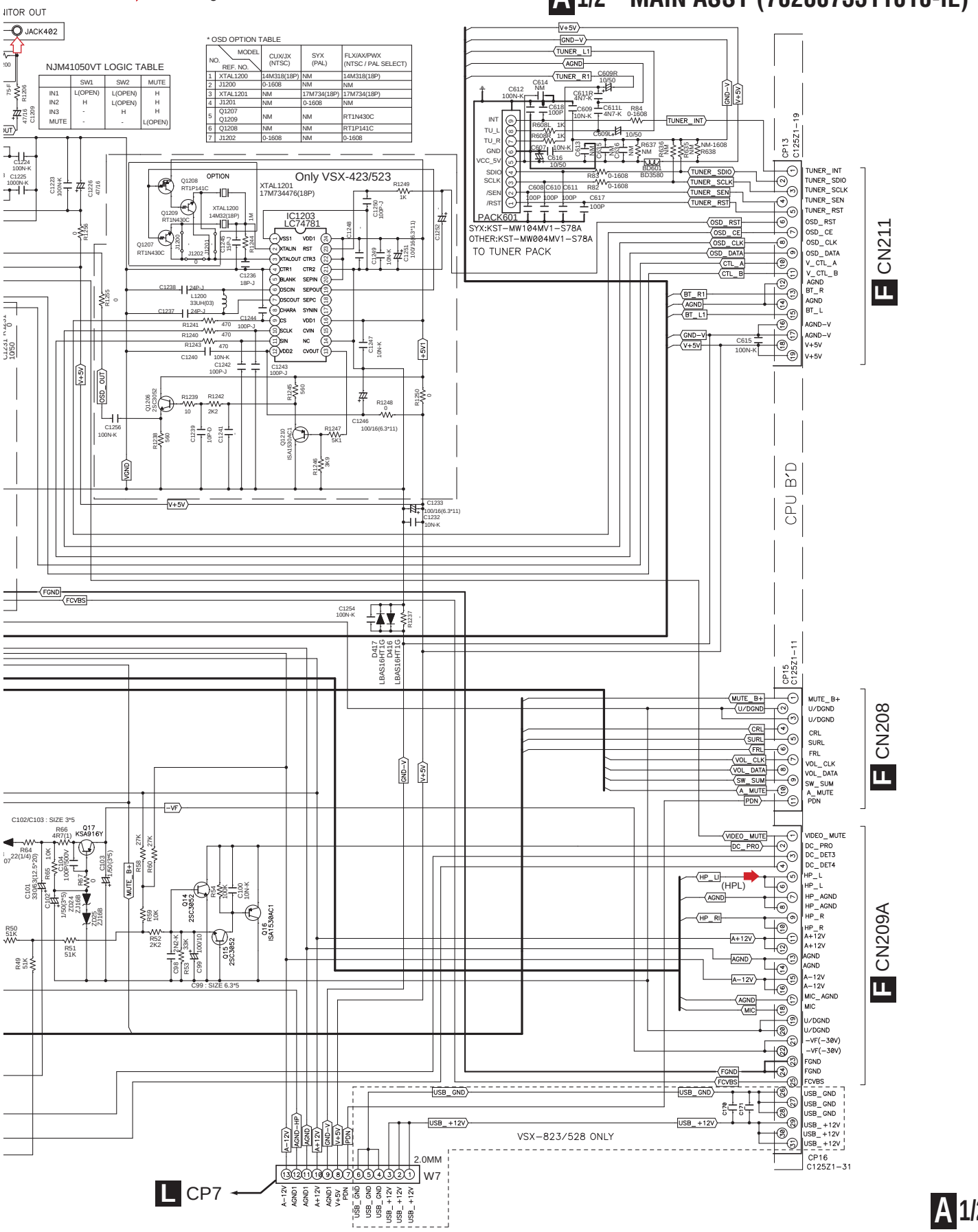
10. SCHEMATIC DIAGRAM

10.1 MAIN ASSY (1/2)



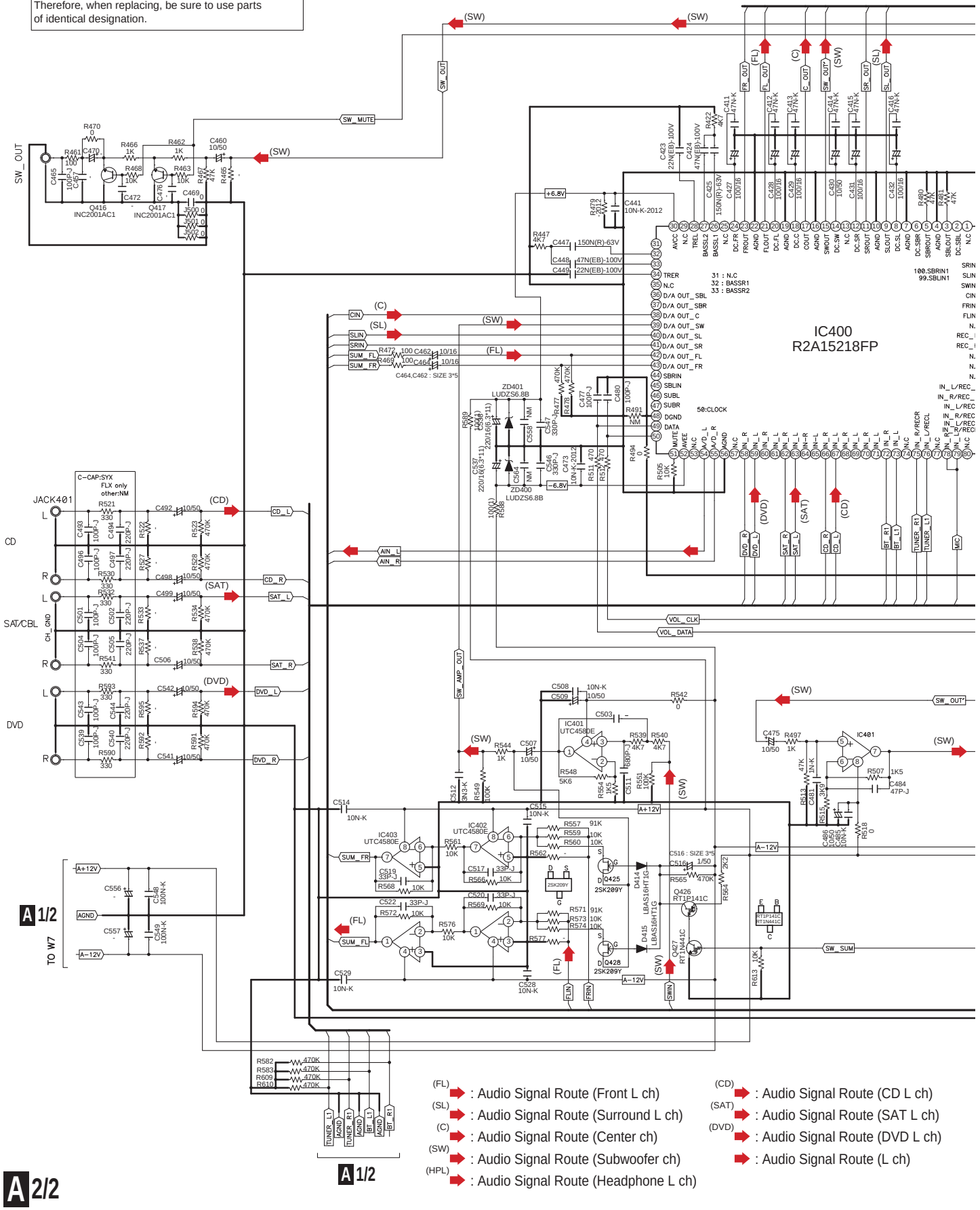
: Video Signal Route

A 1/2 MAIN ASSY (7028073311010-IL)

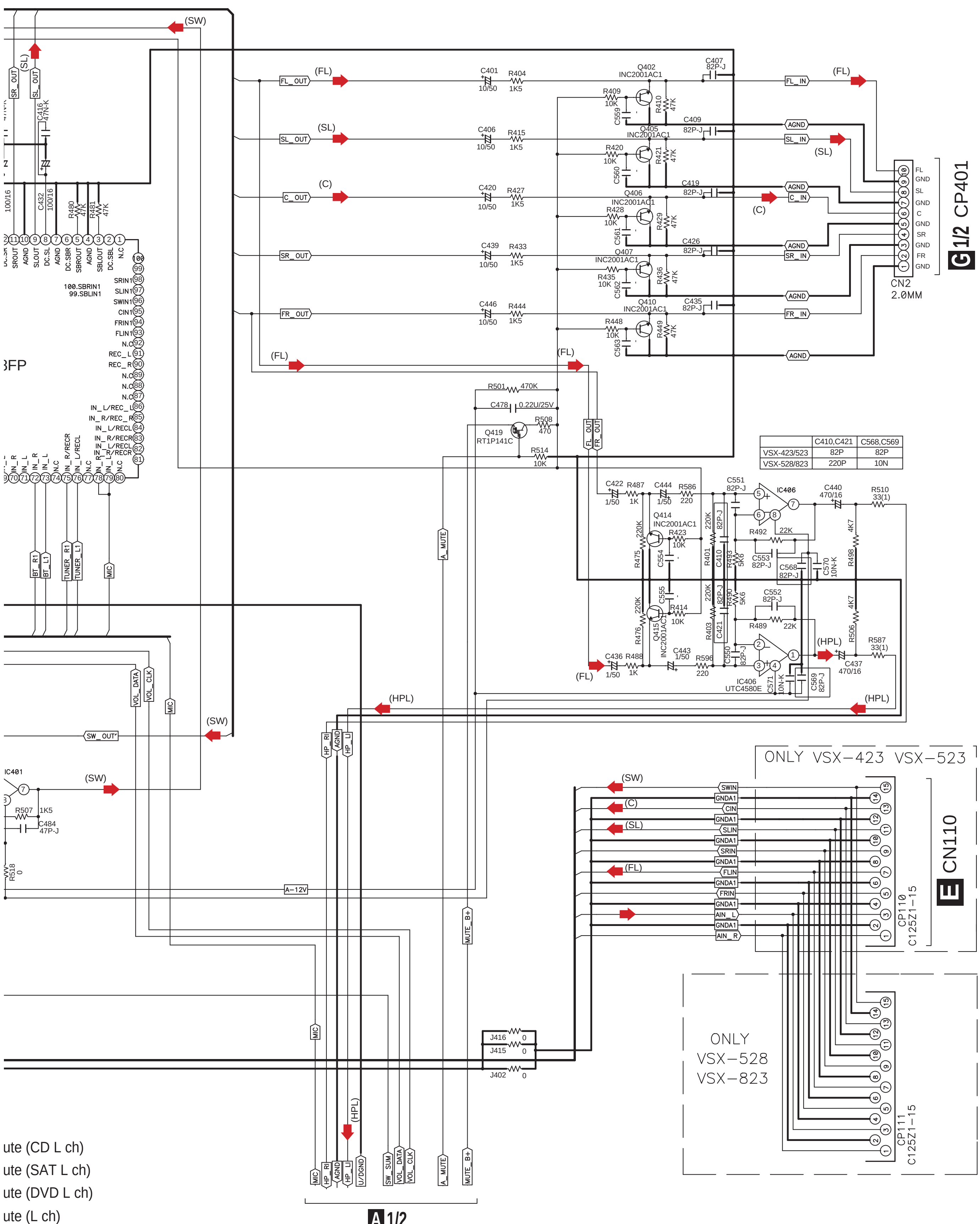


10.2 MAIN ASSY (2/2)

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



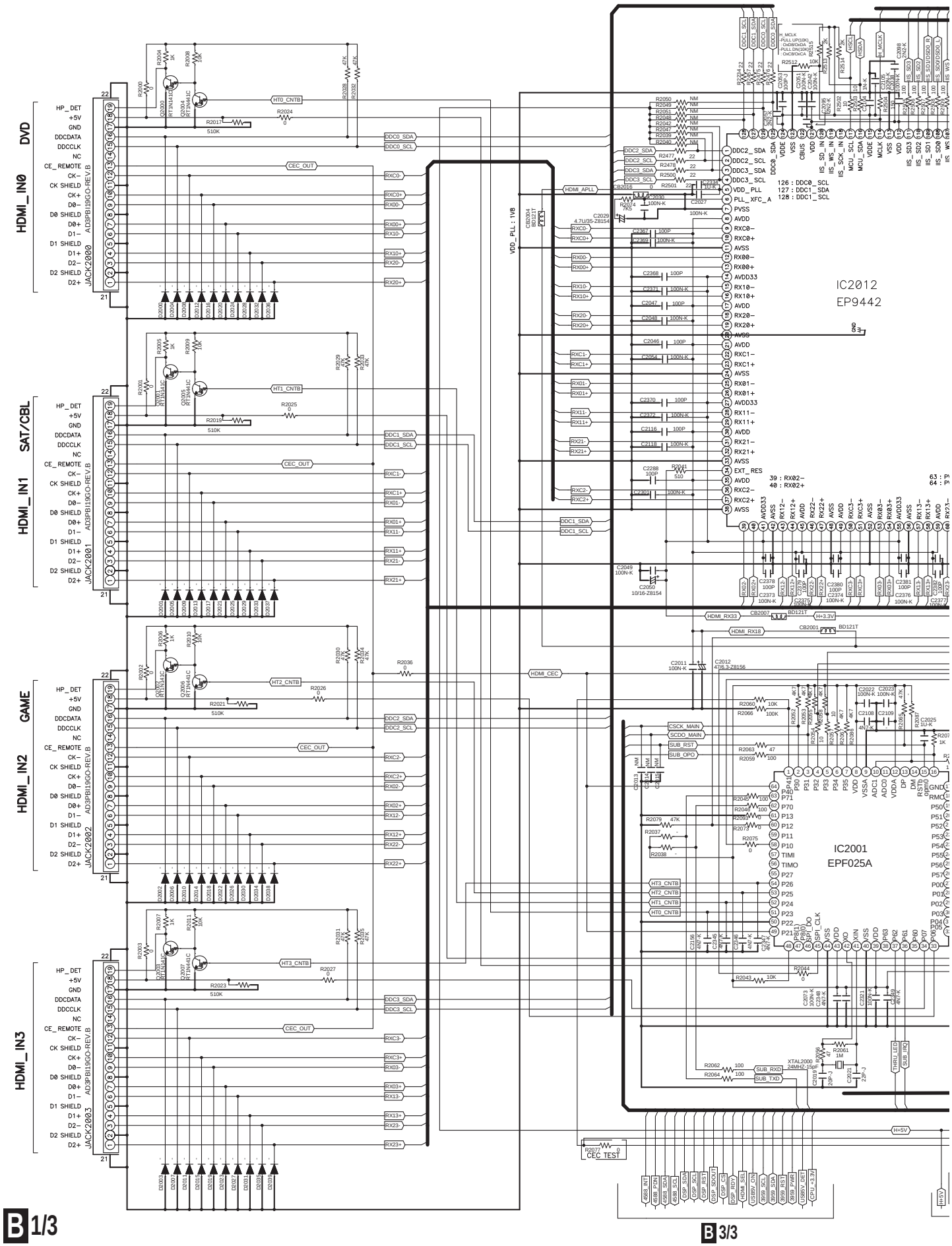
A 2/2 MAIN ASSY (7028073311010-IL)



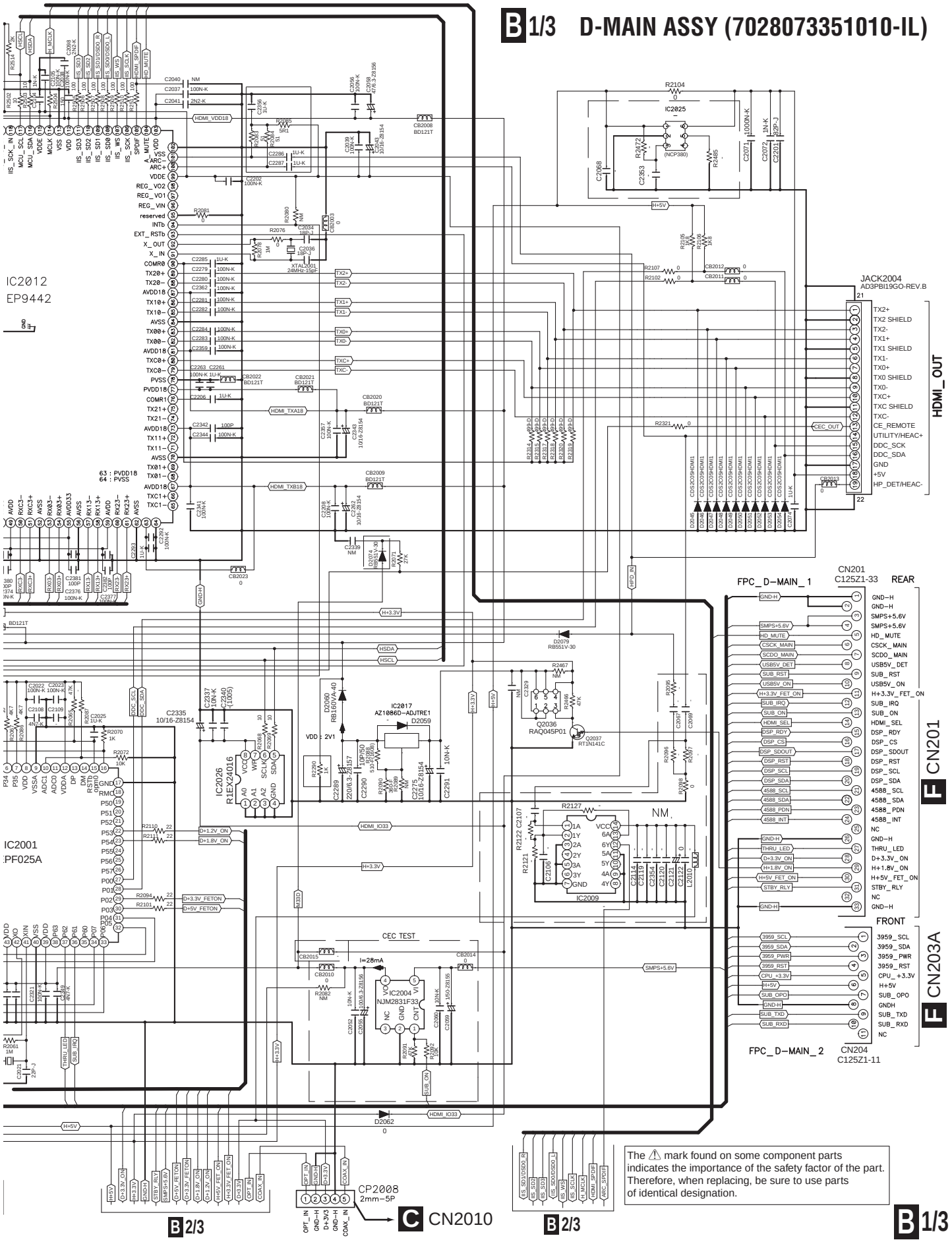
	C410,C421	C568,C569
VSX-423/523	82P	82P
VSX-528/823	220P	10N

A 2/2

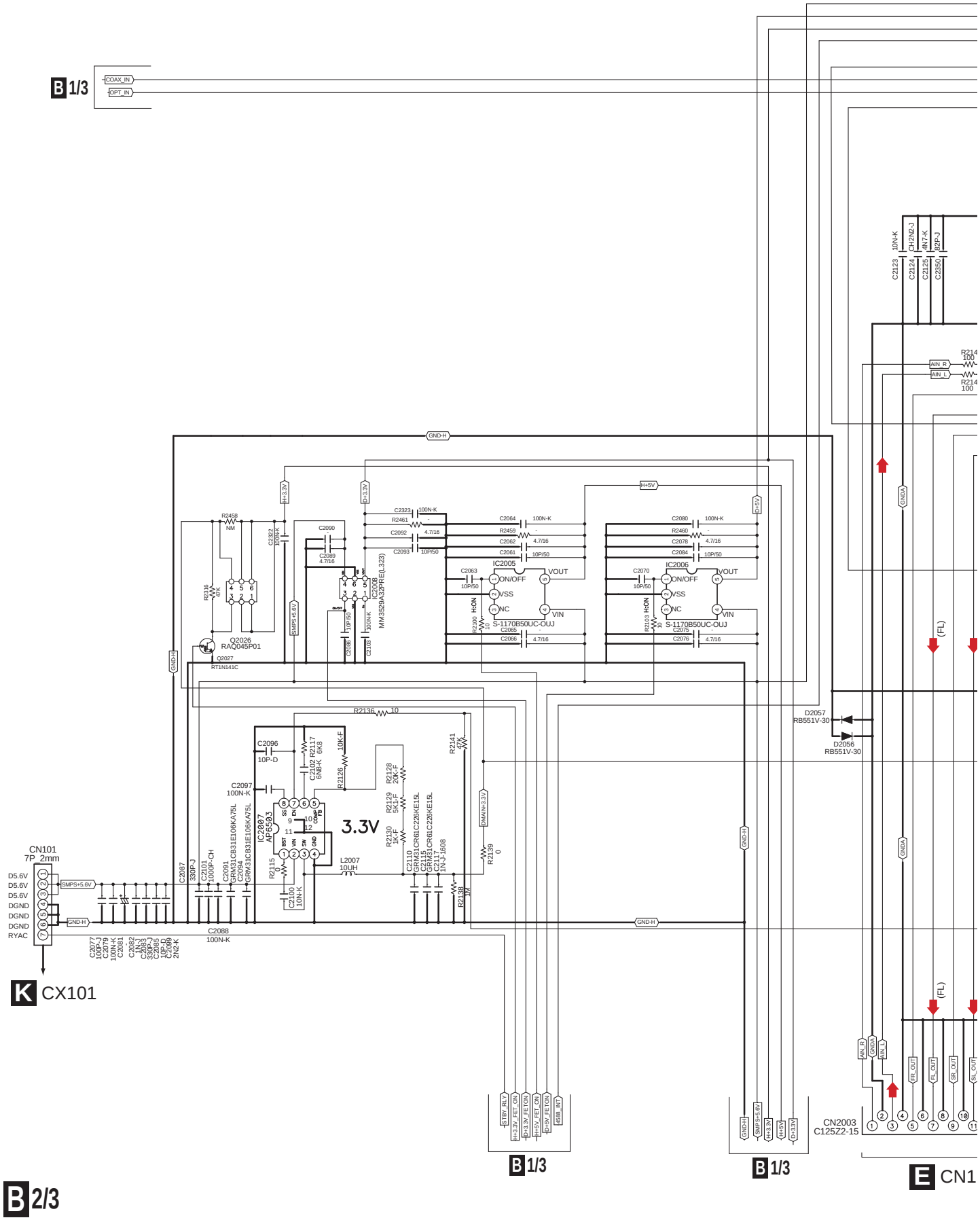
10.3 D-MAIN ASSY (1/3)



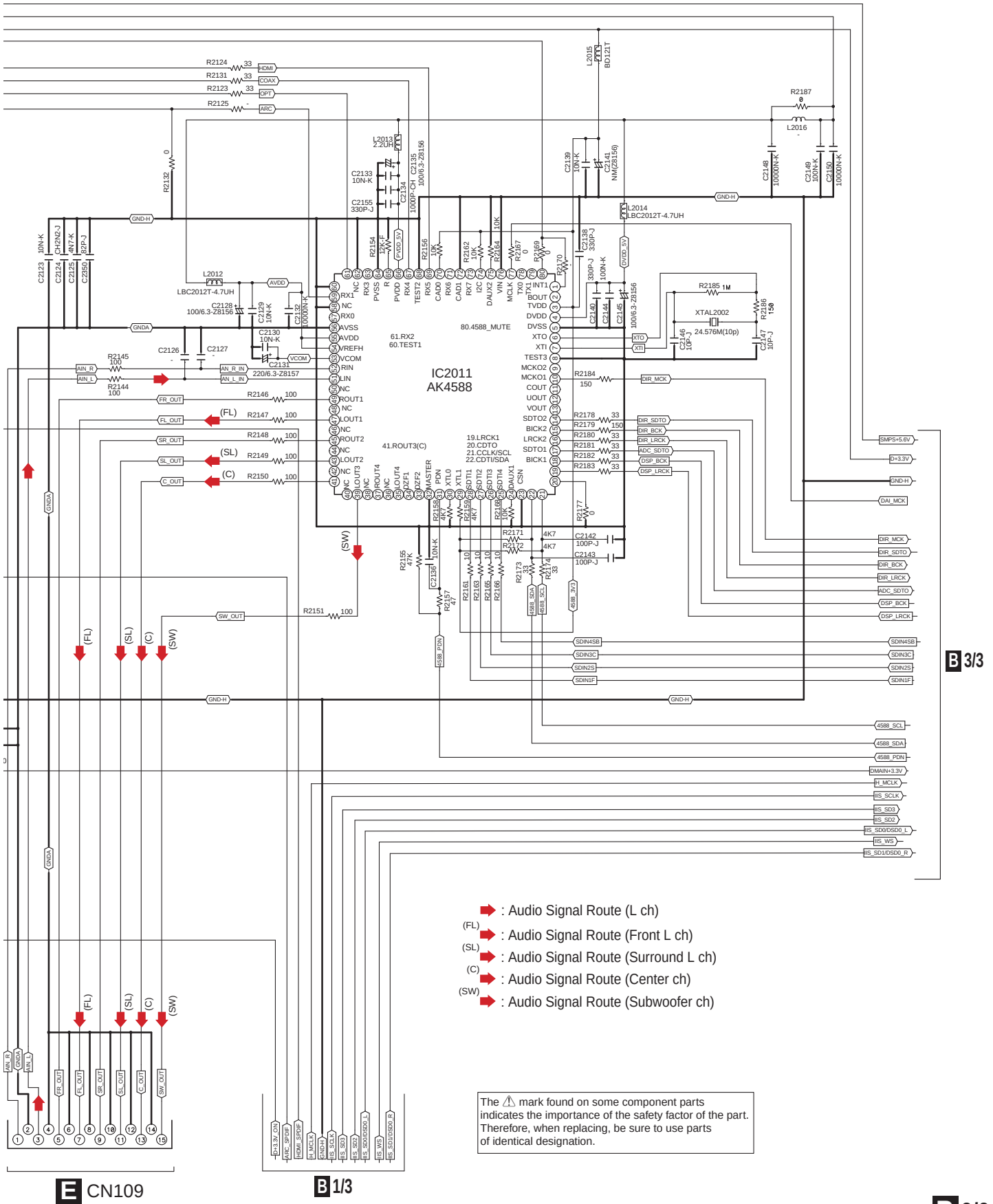
B 1/3 D-MAIN ASSY (7028073351010-IL)



10.4 D-MAIN ASSY (2/3)

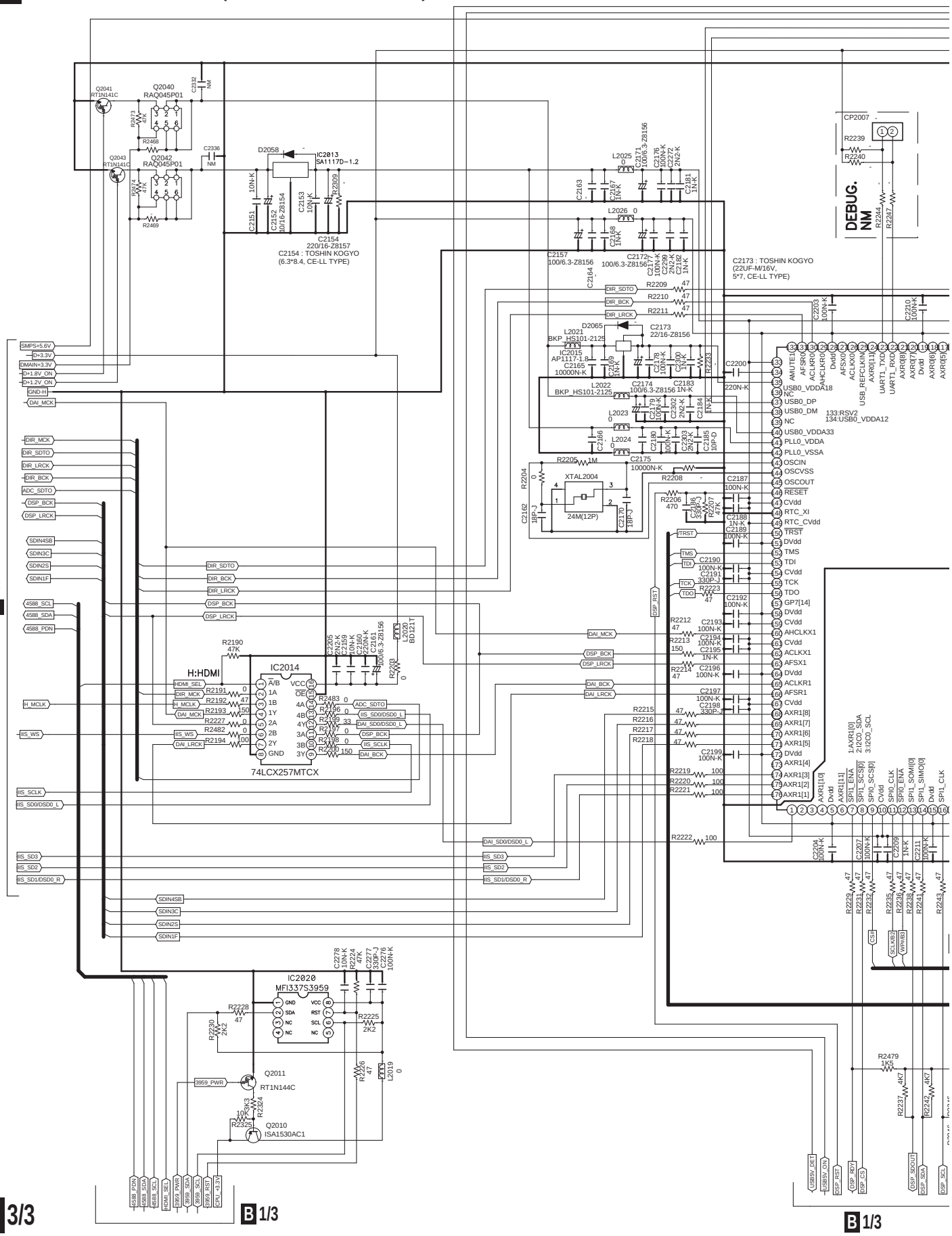


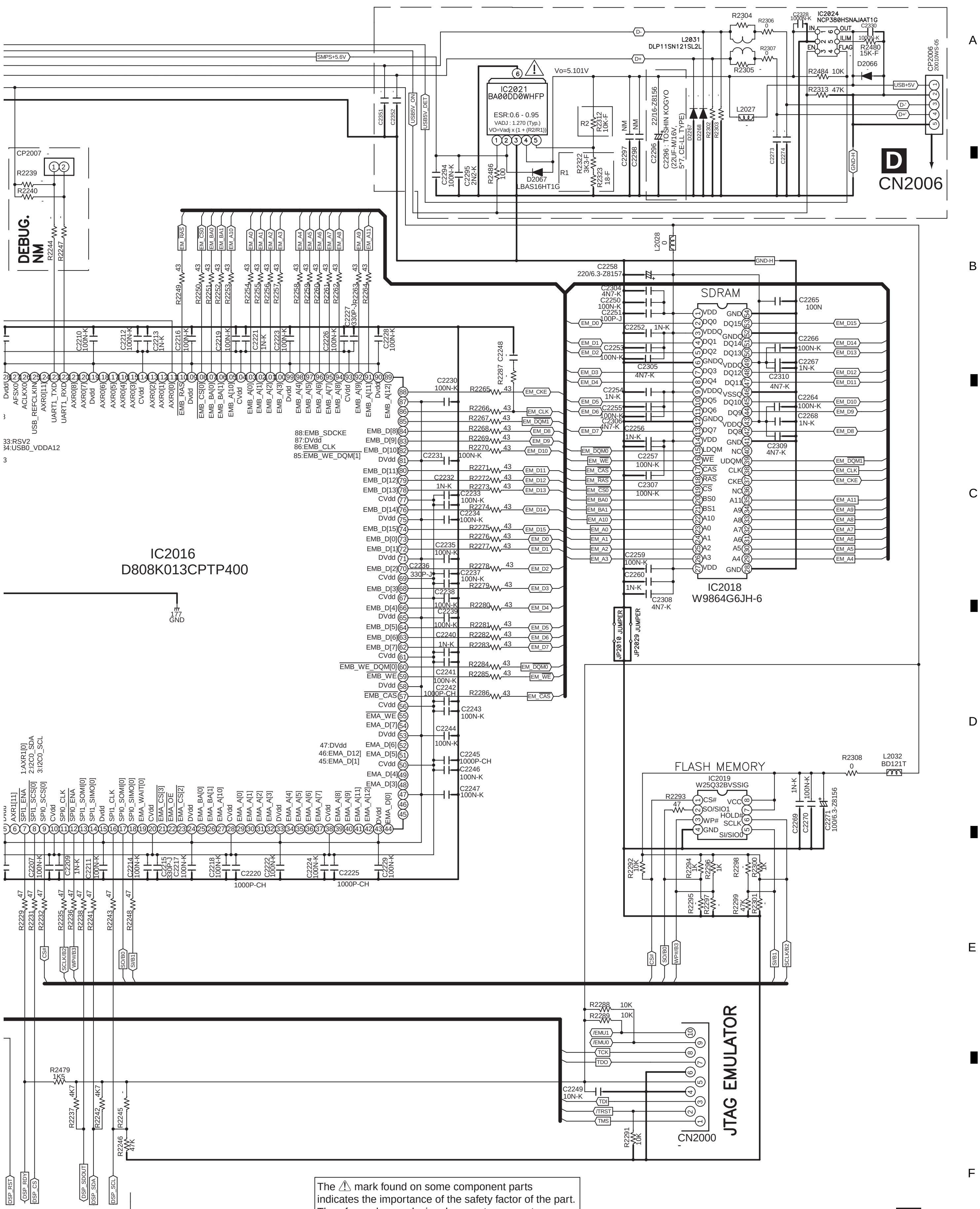
B 2/3 D-MAIN ASSY (7028073351010-IL)



10.5 D-MAIN ASSY (3/3)

B 3/3 D-MAIN ASSY (7028073351010-IL)

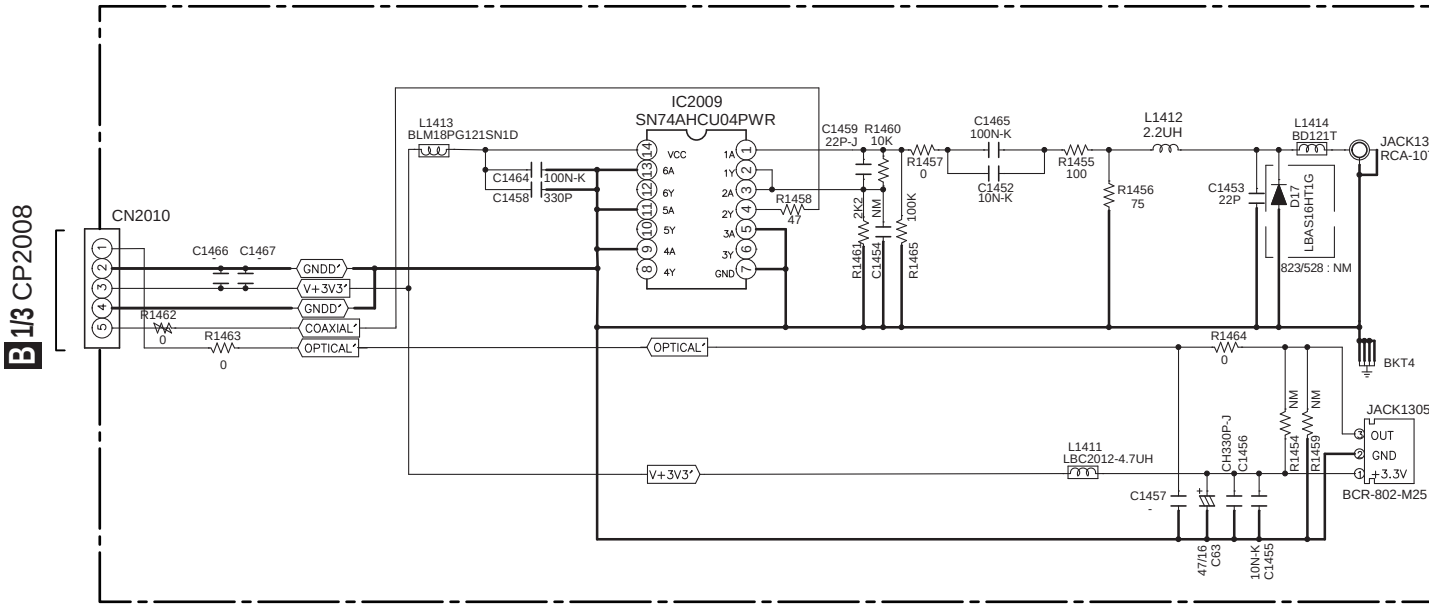




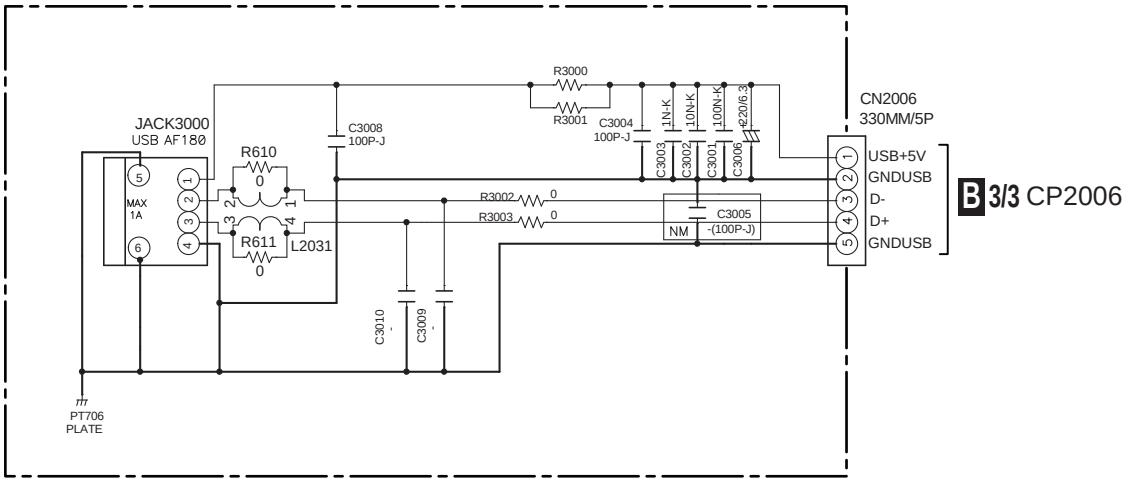
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

10.6 OPTCO, FUSB and CONCT ASSYS

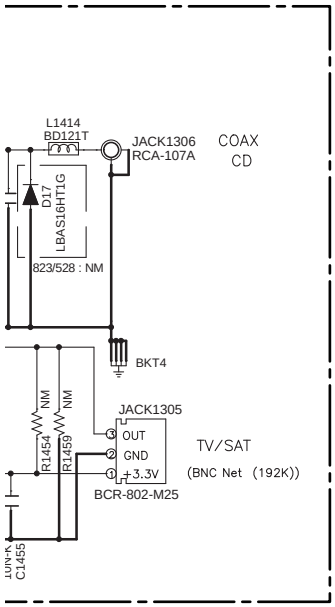
C OPTCO ASSY (7028073313010-IL)

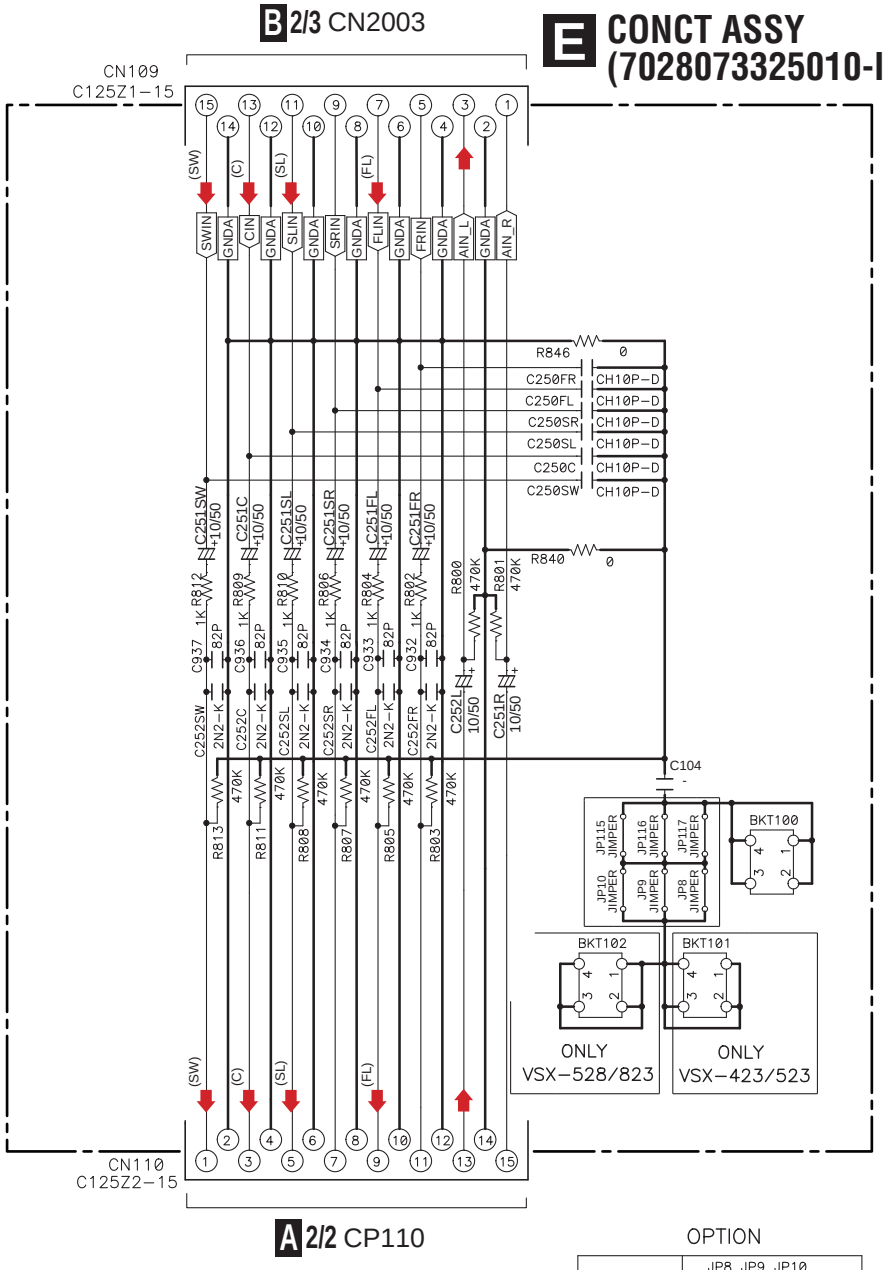


D FUSB ASSY (7028073323010-IL)



C D



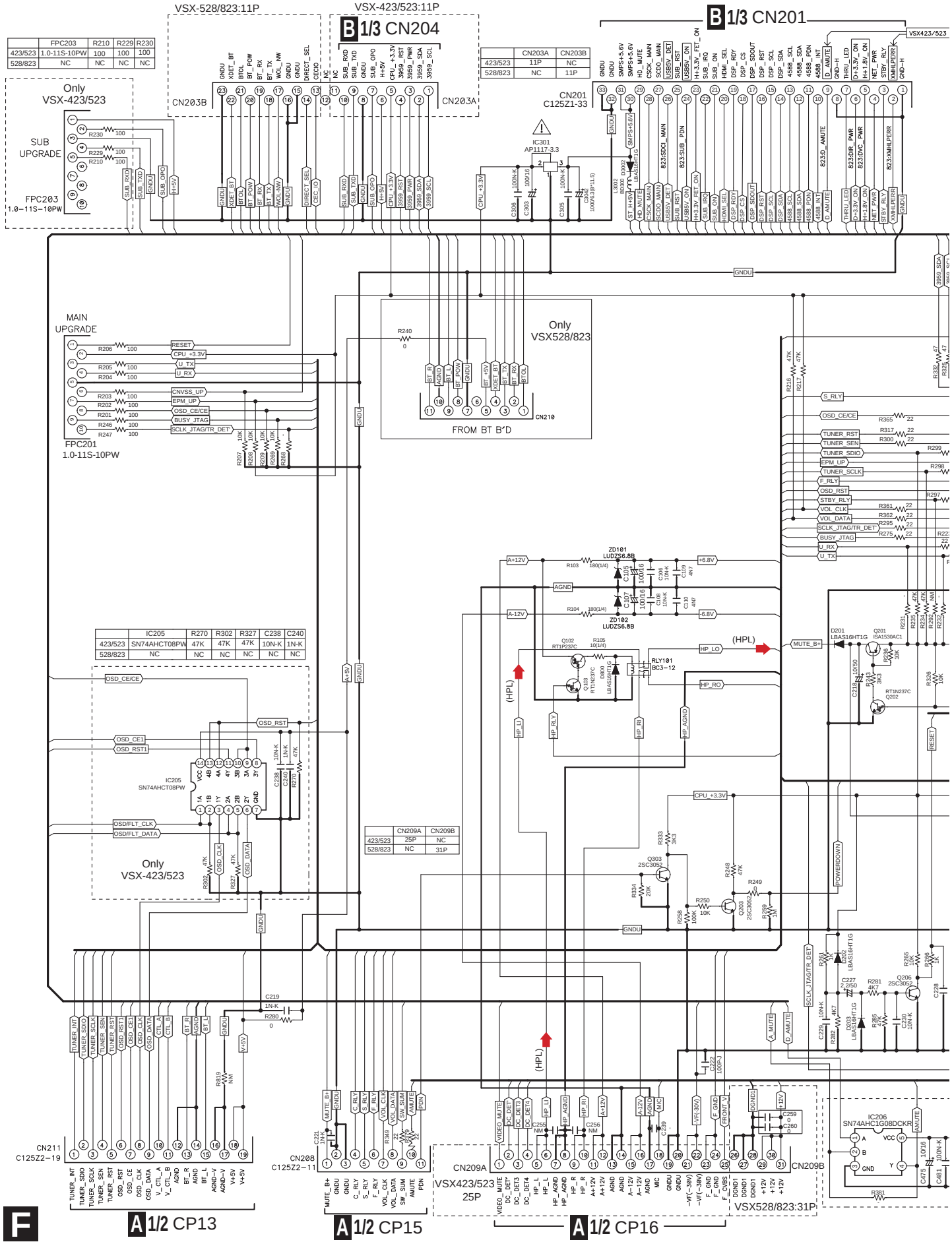


OPTION

	JP8, JP9, JP10, JP115, JP116, JP117
VSX-423/523	JUMPER
VSX-528/823	NM

➡ : Audio Signal Route (L ch)
(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 CPU ASSY



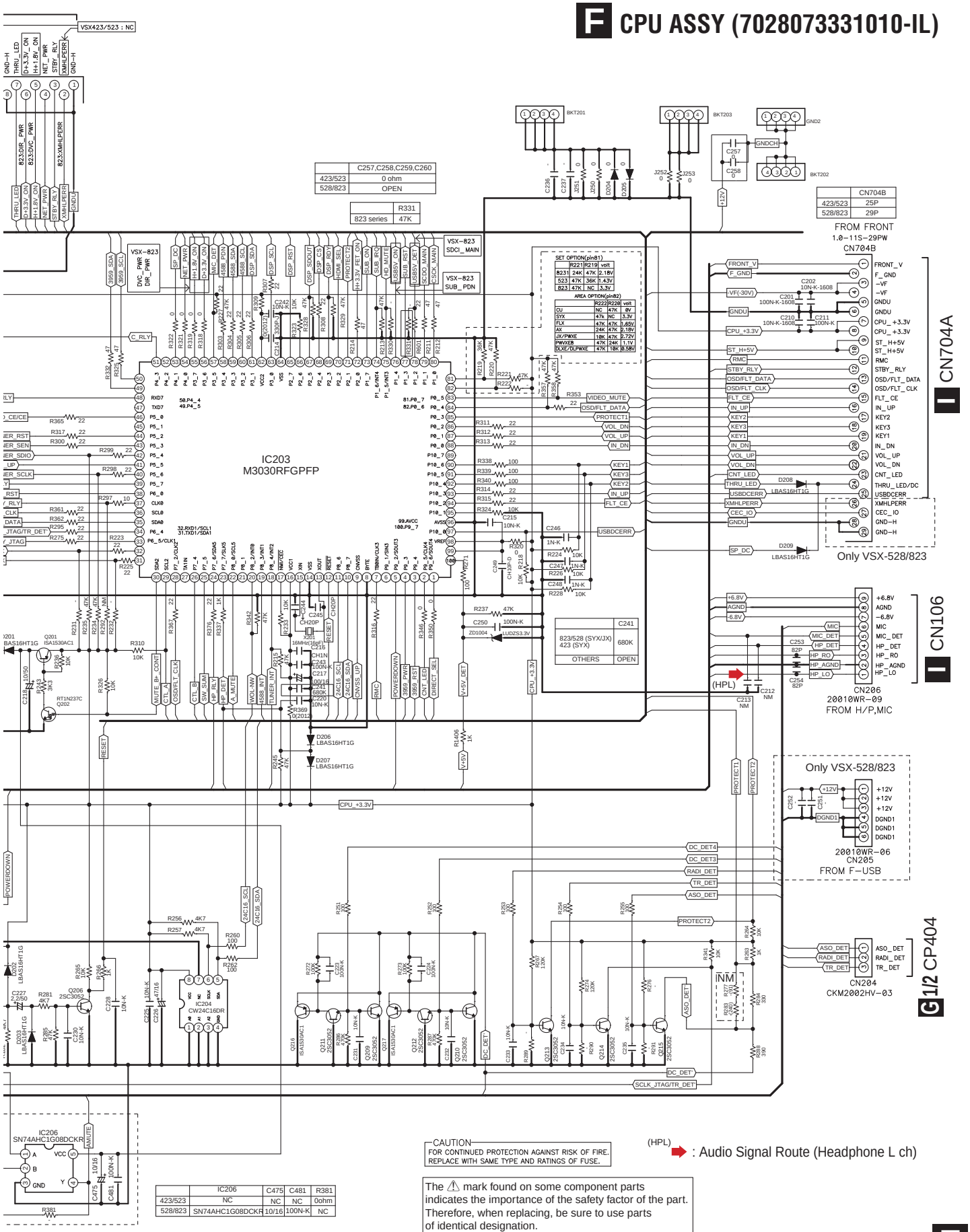
	FPC203	R210	R229	R230
423/523	1.0-11S-10PW	100	100	100
528/823	NC	NC	NC	NC

	CN203A	CN203B
423/523	11P	NC
528/823	NC	11P

	IC205	R270	R302	R327	C238	C240
423/523	SN74AHCT08PW	47K	47K	47K	10N-K	1N-K
528/823	NC	NC	NC	NC	NC	NC

	CN209A	CN209B
423/523	25P	NC
528/823	NC	31P

F CPU ASSY (7028073331010-IL)



	C257,C258,C259,C260
423/523	0 ohm
528/823	OPEN

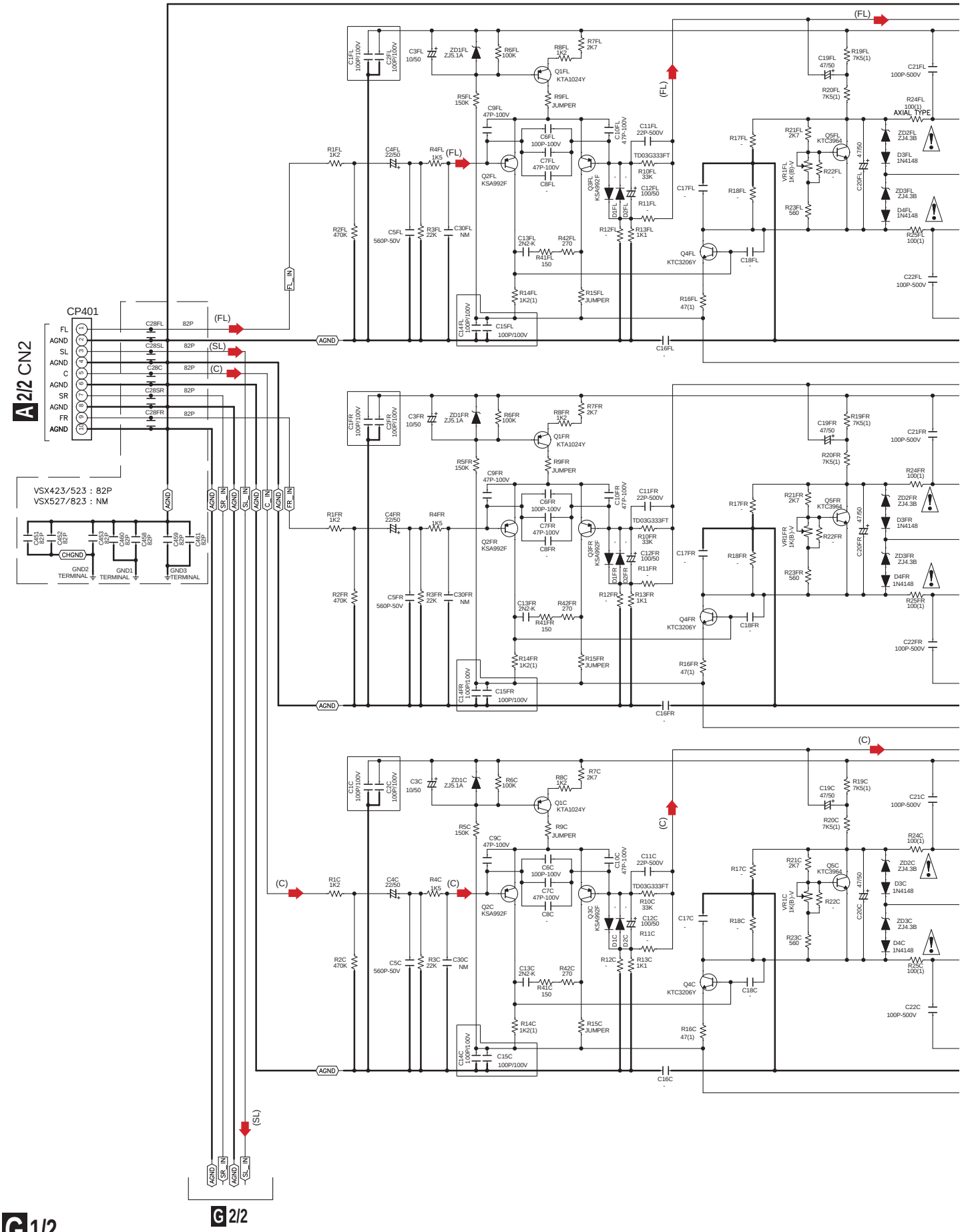
	R331
823 series	47K

	CN704B
423/523	25P
528/823	29P

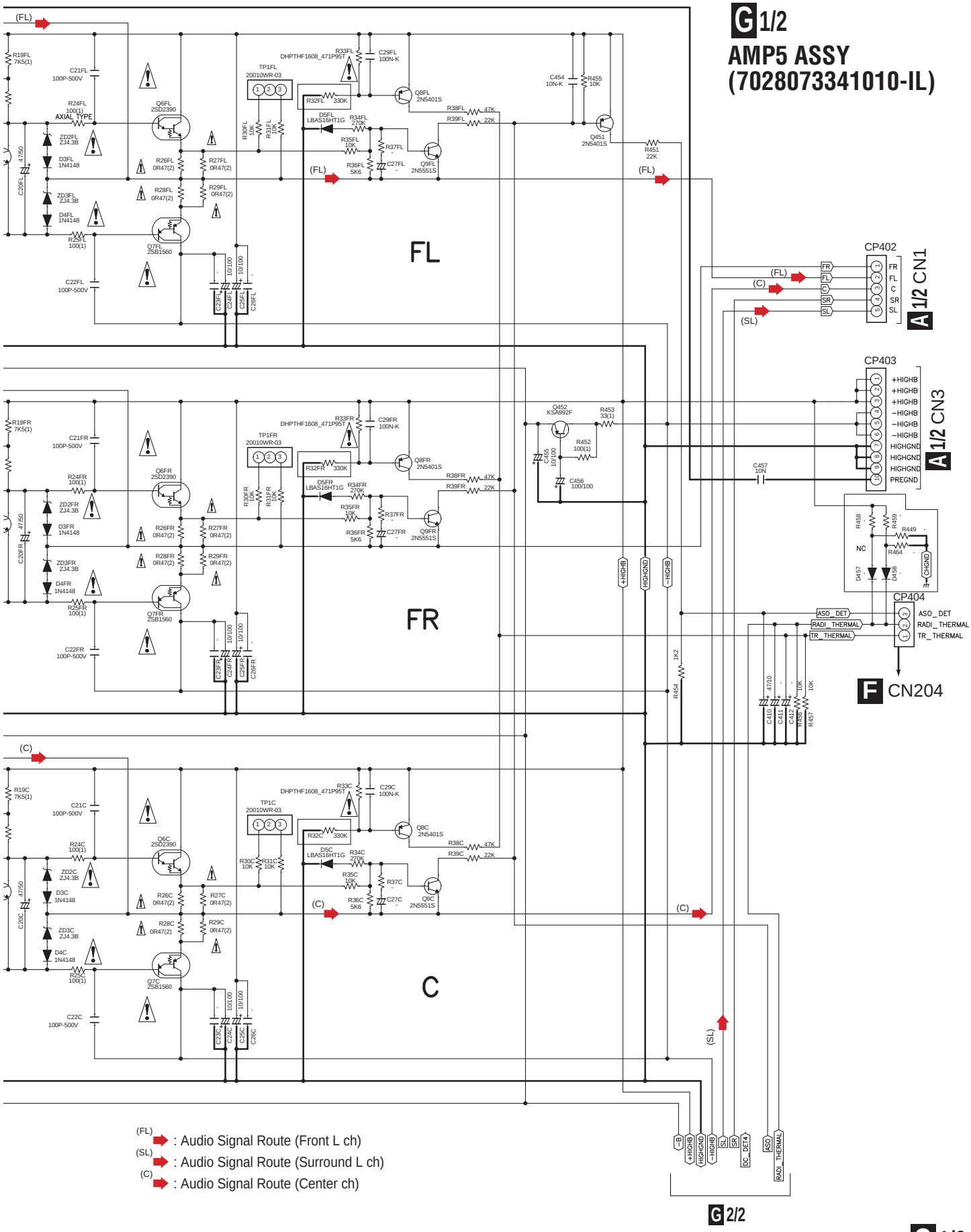
	IC206	C475	C481	R381
423/523	NC	NC	NC	0ohm
528/823	SN74AHC1G08DCKR	10/16	100N-K	NC

	C241
823/528 (SYX/JX) 423 (SYX)	680K
OTHERS	OPEN

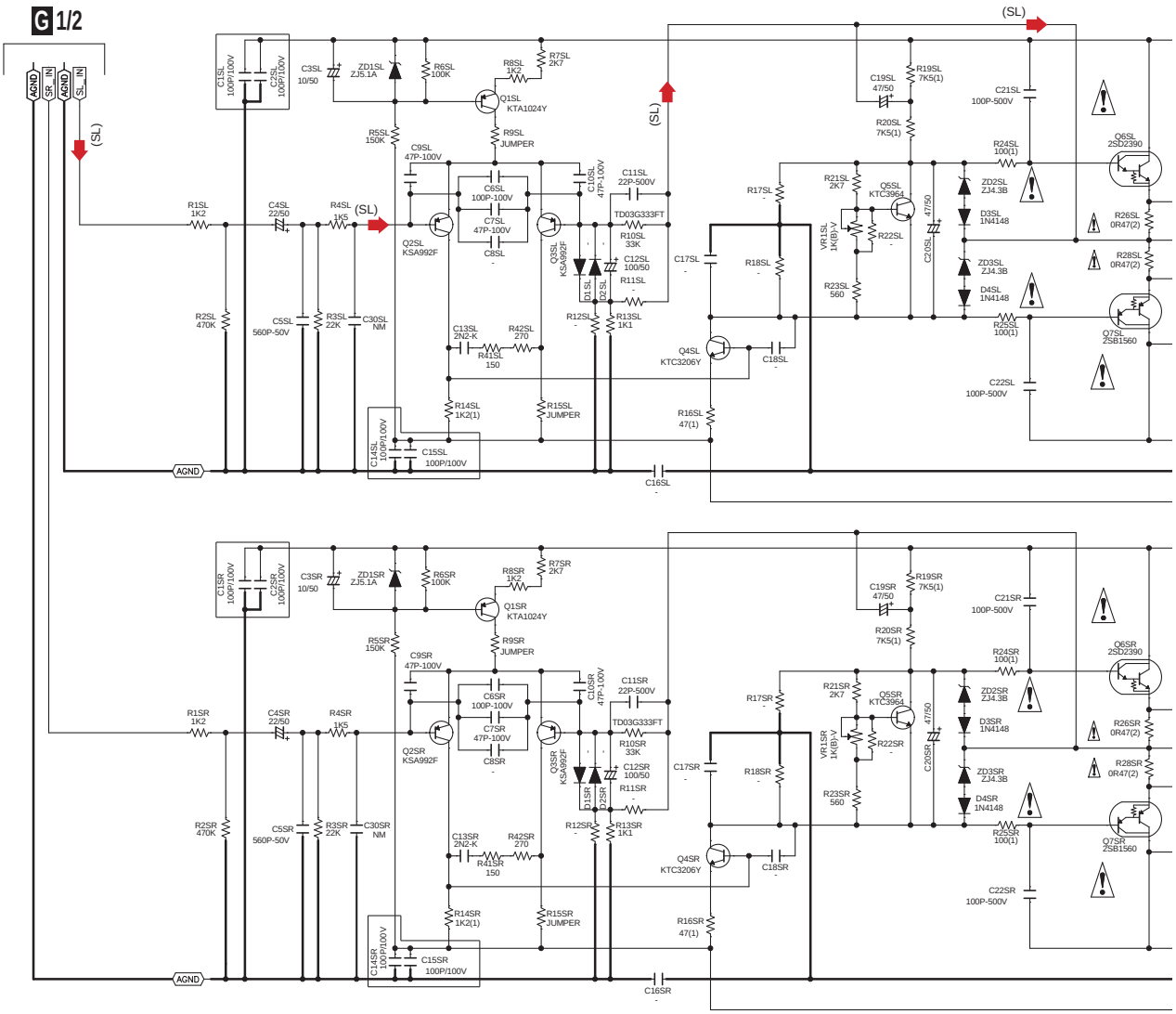
10.8 AMP5 ASSY (1/2)

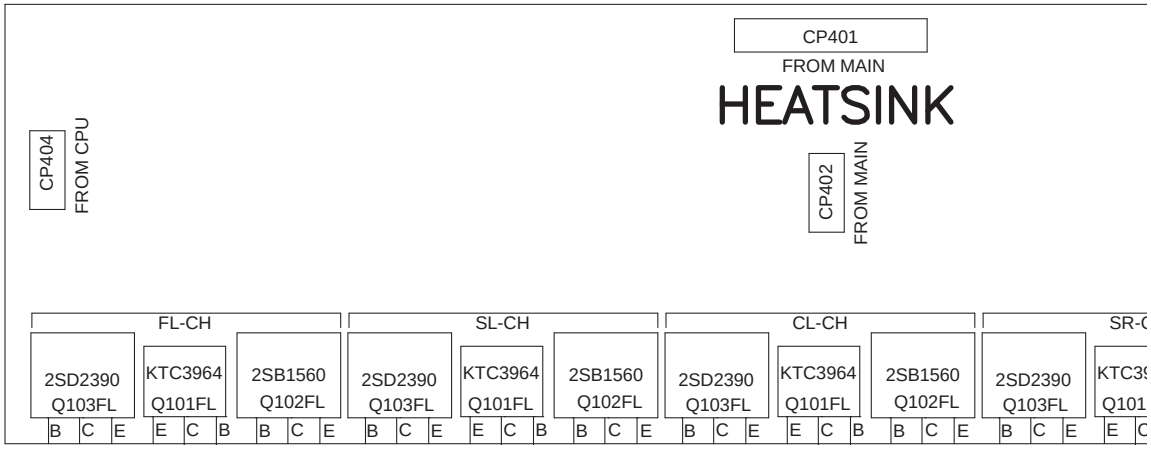


G 1/2
AMP5 ASSY (7028073341010-IL)



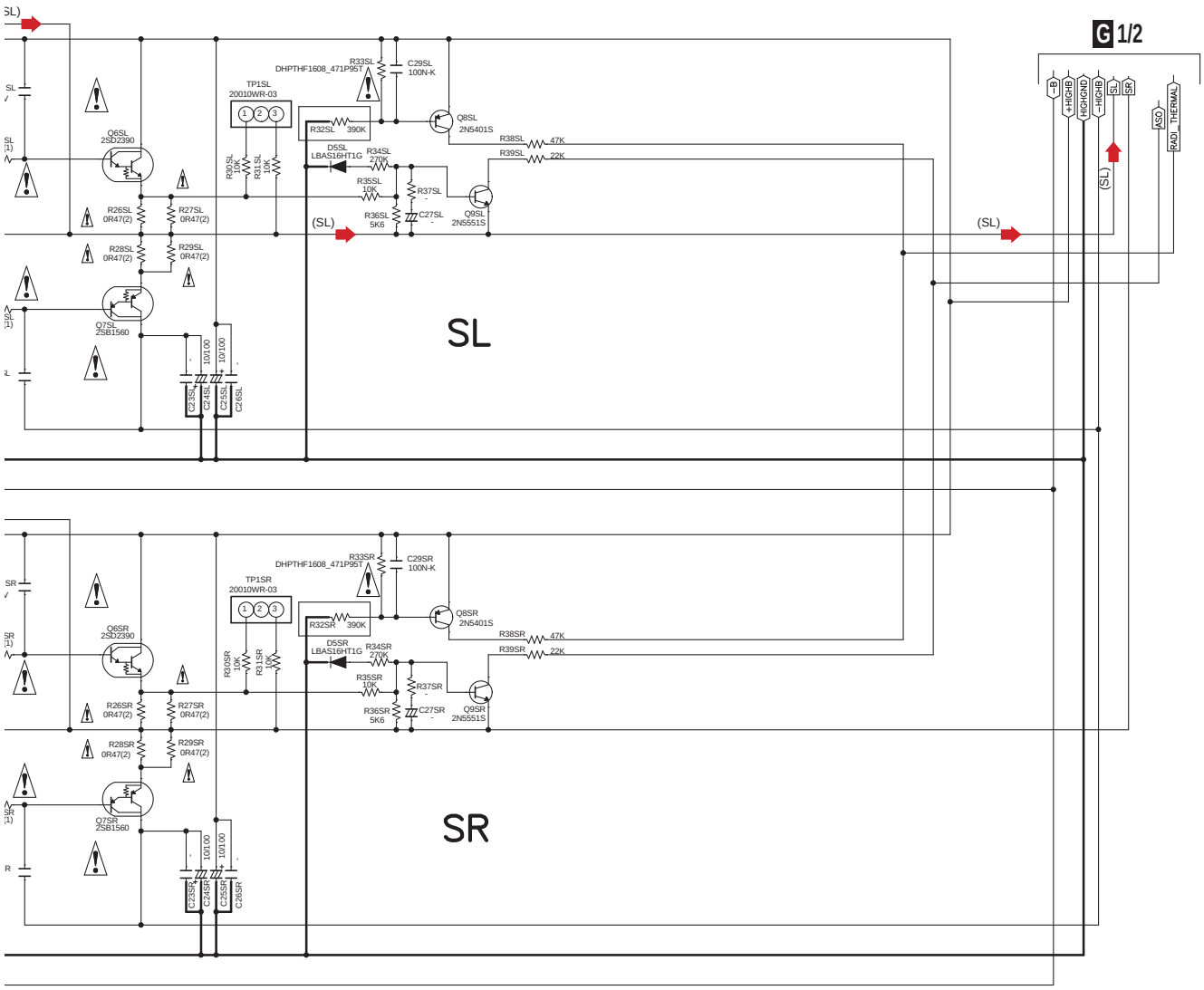
10.9 AMP5 ASSY (2/2)

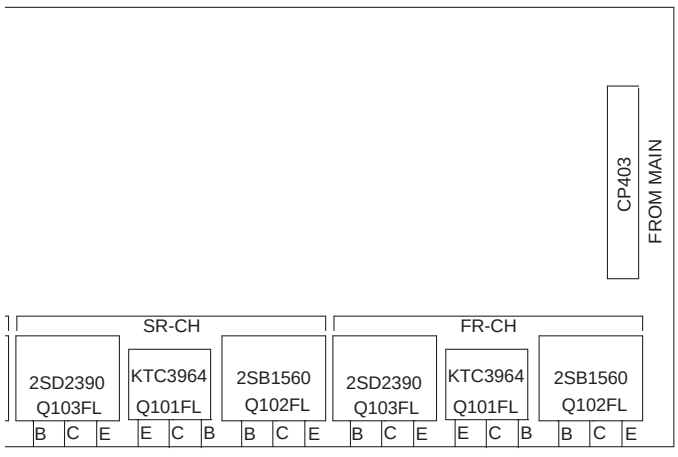




G 2/2

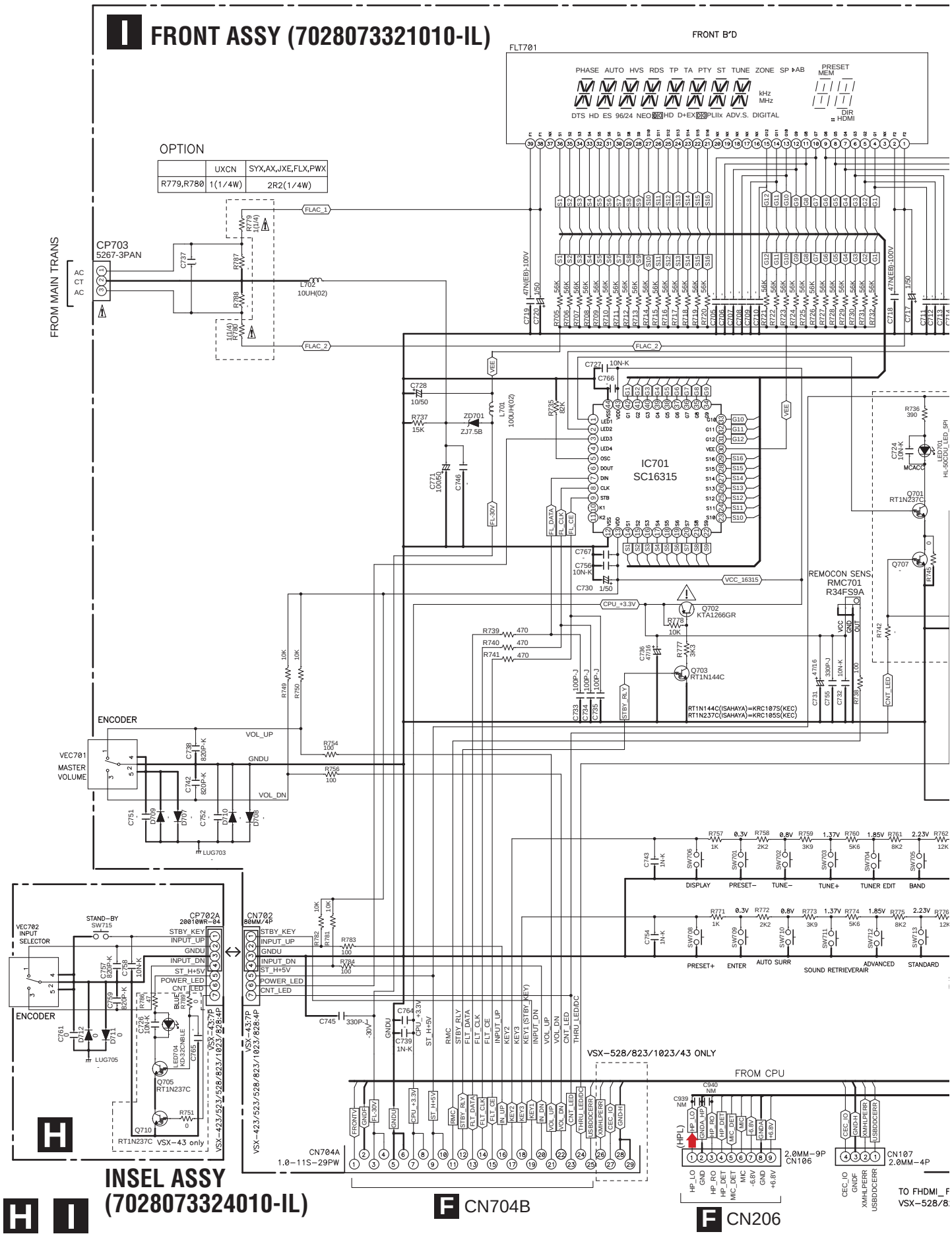
G 2/2 AMP5 ASSY (7028073341010-IL)

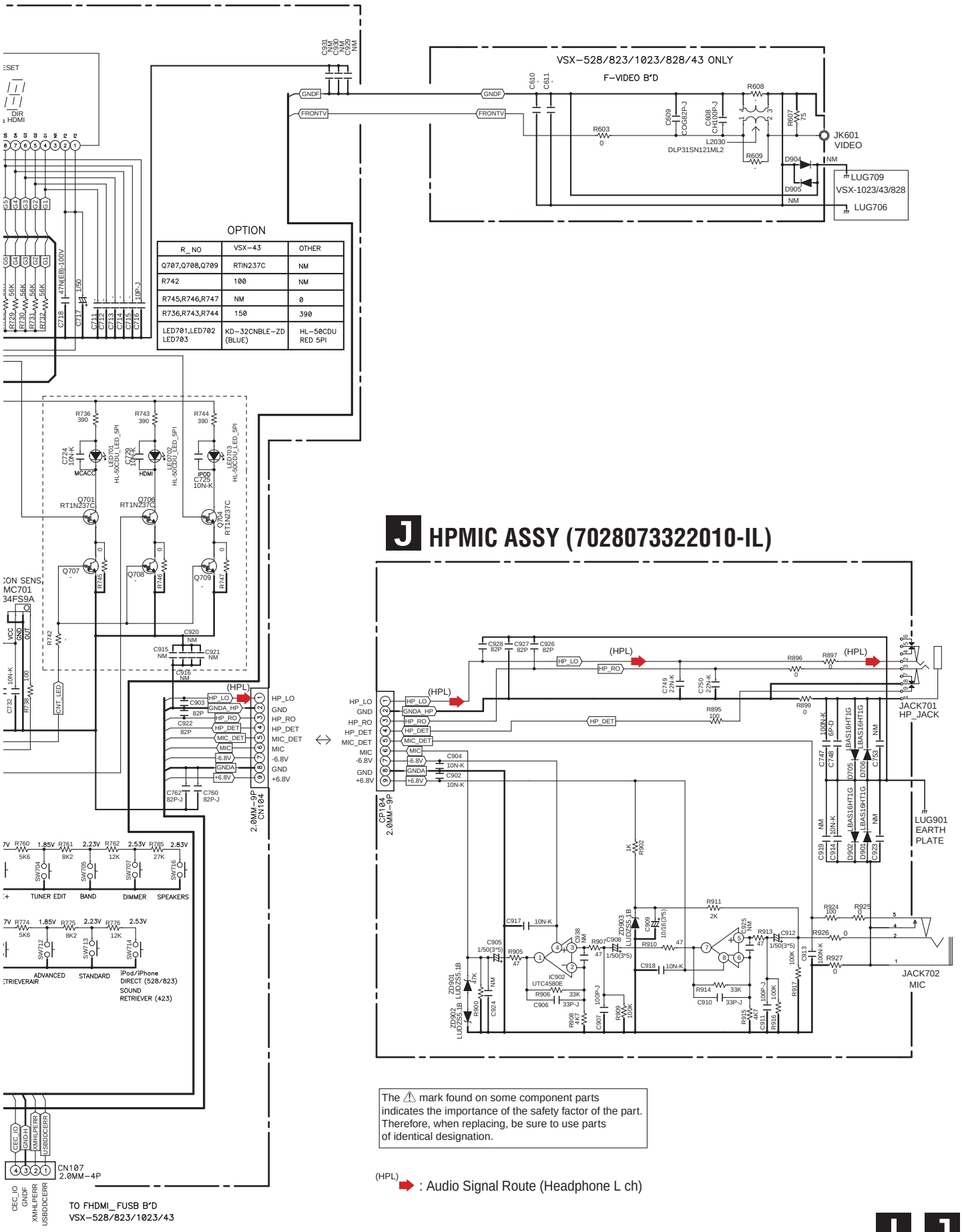




(SL) : Audio Signal Route (Surround L ch)

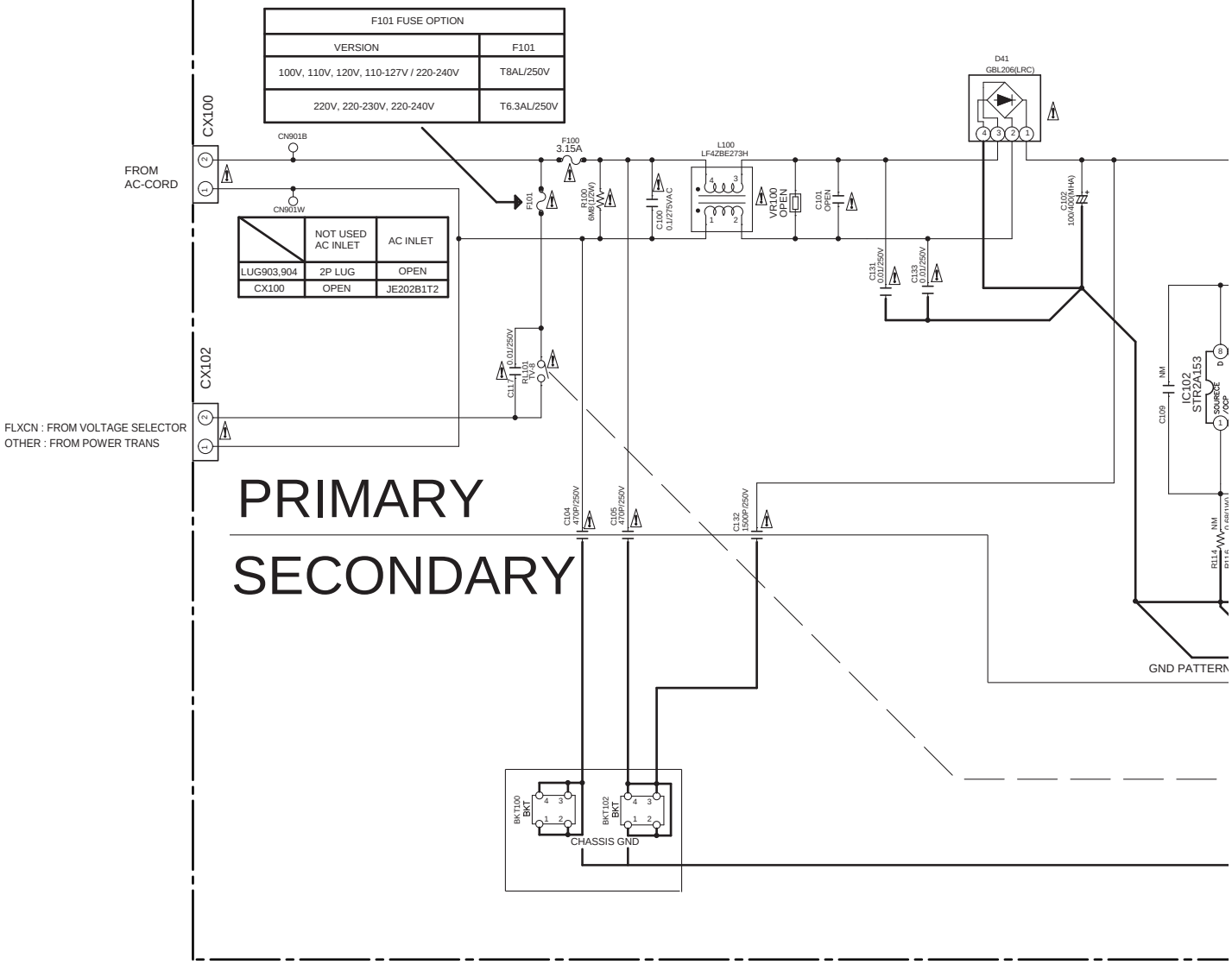
10.10 INSEL, FRONT and HPMIC ASSYS




VSX–528/823/1023/828/43 ONLY
F–VIDEO B'D
JK601
VIDEO
LUG709
VSX-1023/43/828
LUG706
OPTION
R_NO | VSX–43 | OTHER
Q707,Q708,Q709 | RTIN237C | NM
R742 | 100 | NM
R745,R746,R747 | NM | 0
R736,R743,R744 | 150 | 390
LED701,LED702 LED703 | KD–32CNBLE–ZD (BLUE) | HL–50CDU RED 5PI
J HPMIC ASSY (7028073322010-IL)
JACK701
HP_JACK
LUG901
EARTH PLATE
JACK702
MIC
CN104
2.0MM–9P
CN107
2.0MM–4P
TO FHDMI_FUSB B'D
VSX–528/823/1023/43
(HPL) : Audio Signal Route (Headphone L 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.

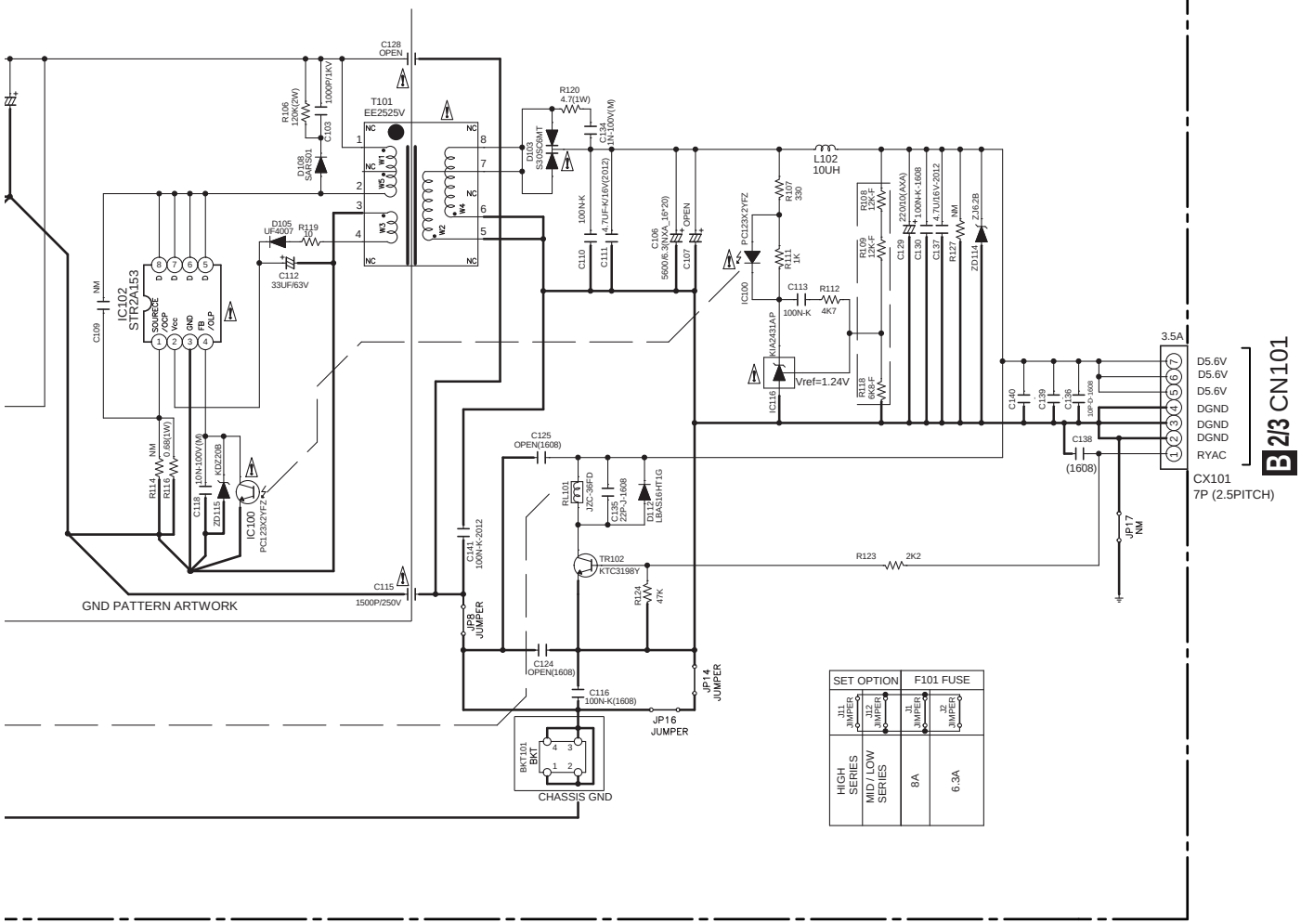
10.11 SMPS ASSY

K SMPS ASSY (7028073361010-IL)



• NOTE FOR FUSE REPLACEMENT

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



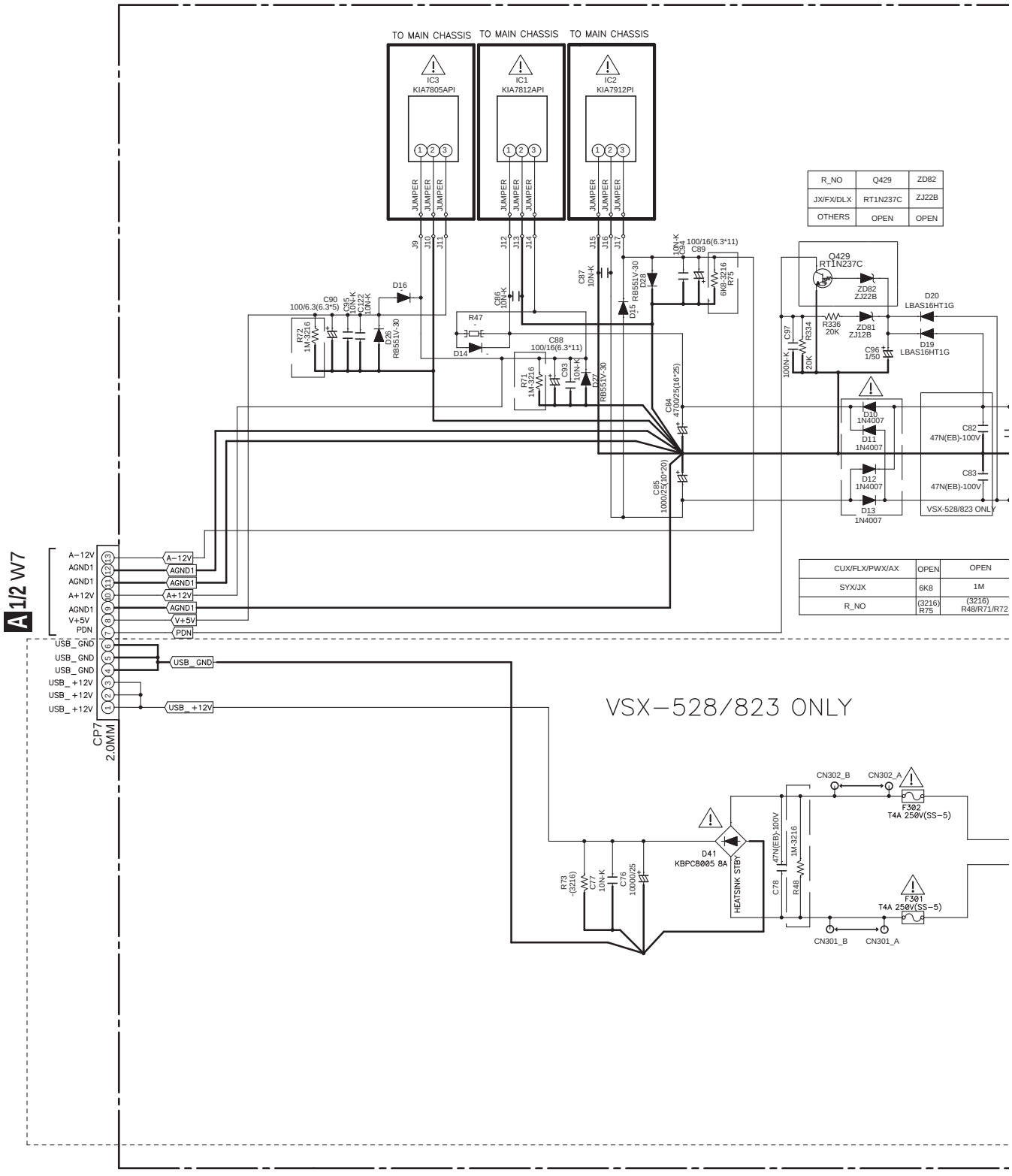
NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[k = 1.000 m = 1.000.000]
2. Capecitor values are indicated in microfarades unless otherwise specified.
[p = micro-microfarades]
3. : These resistor are to be segregated from printed wiring board or other acessible parts.
CAUTION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

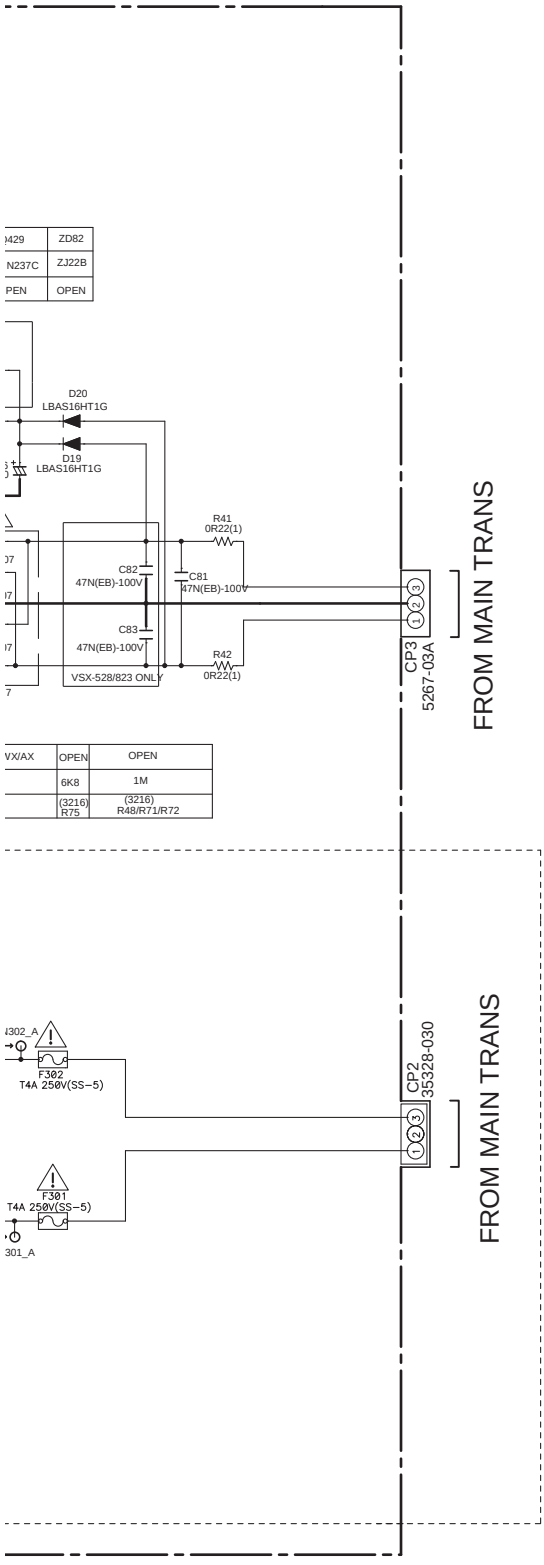
INDICATES SAFETY CRITICAL COMPONENTS.

TO REDUCE THE RISK OF ELECTIC SHOCK, LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHALL BE CARRIED OUT (EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT) BEFORE THE APPLIANCE RETURNED TO THE CUSTOMER.

10.12 REG ASSY

L REG ASSY (7028073312010-IL)





• NOTE FOR FUSE REPLACEMENT

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

NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[k = 1.000 m = 1.000.000]
2. Capecitor 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.

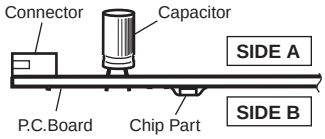
CAUTION
Safety precaution to be followed during servicing
1] Since those parts marked with are critical parts for safety. use only the one described in the parts list
2] Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are prorerly insulated from the supply circuit.

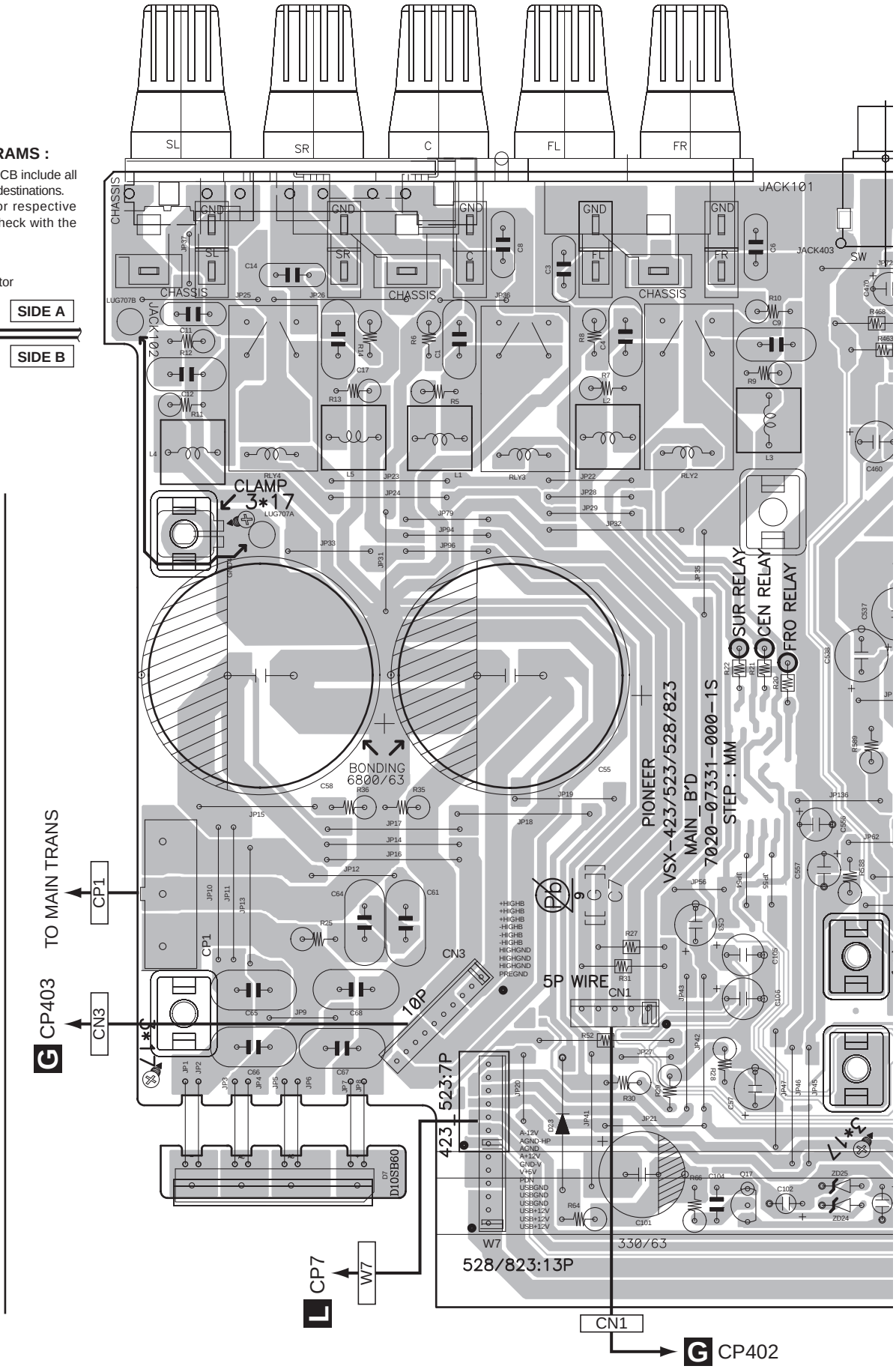
11. PCB CONNECTION DIAGRAM
11.1 MAIN ASSY

SIDE A

NOTE FOR PCB DIAGRAMS :

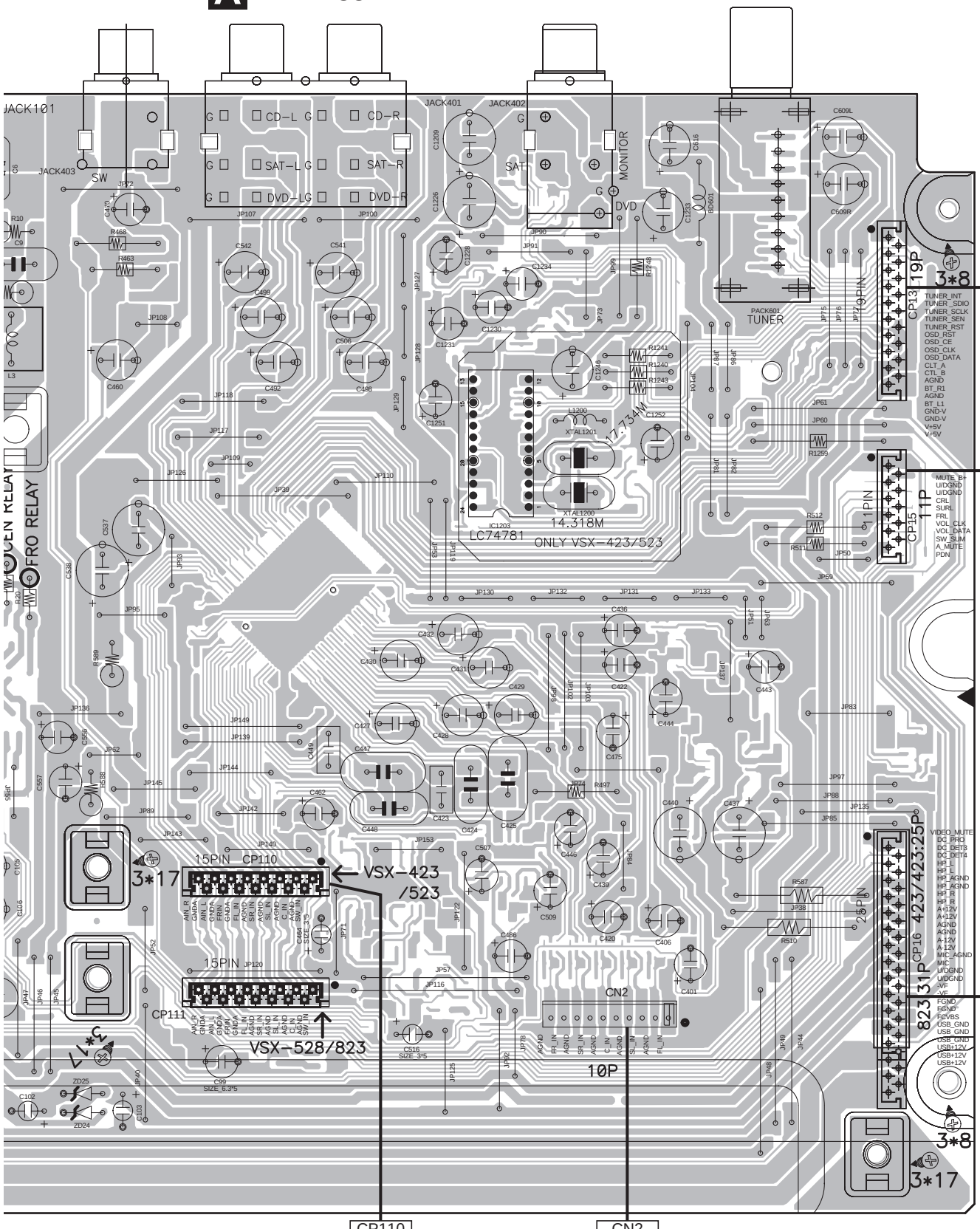
1. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.
2. View point of PCB diagrams.





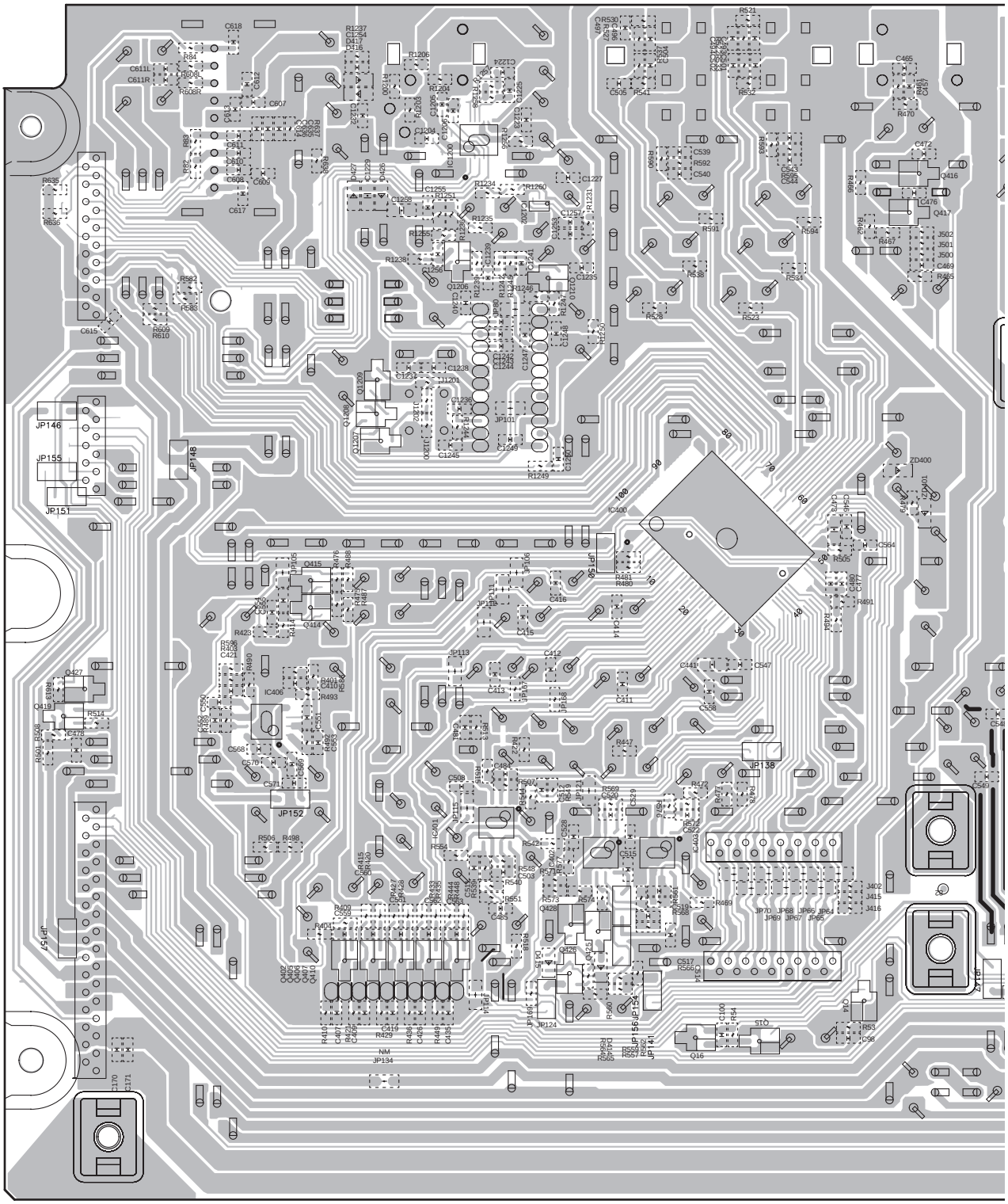
SIDE A

A MAIN ASSY

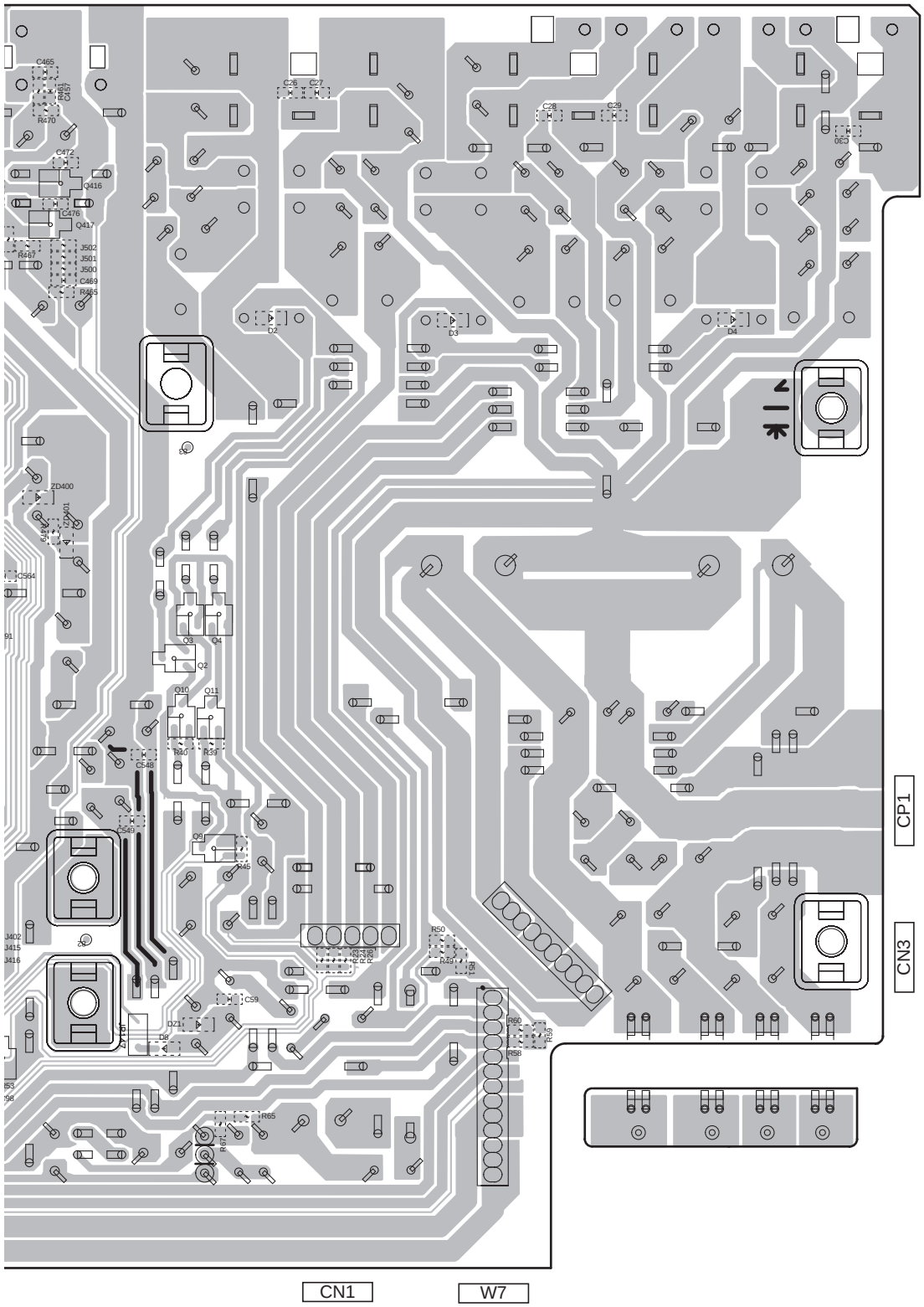


SIDE B

A MAIN ASSY



SIDE B

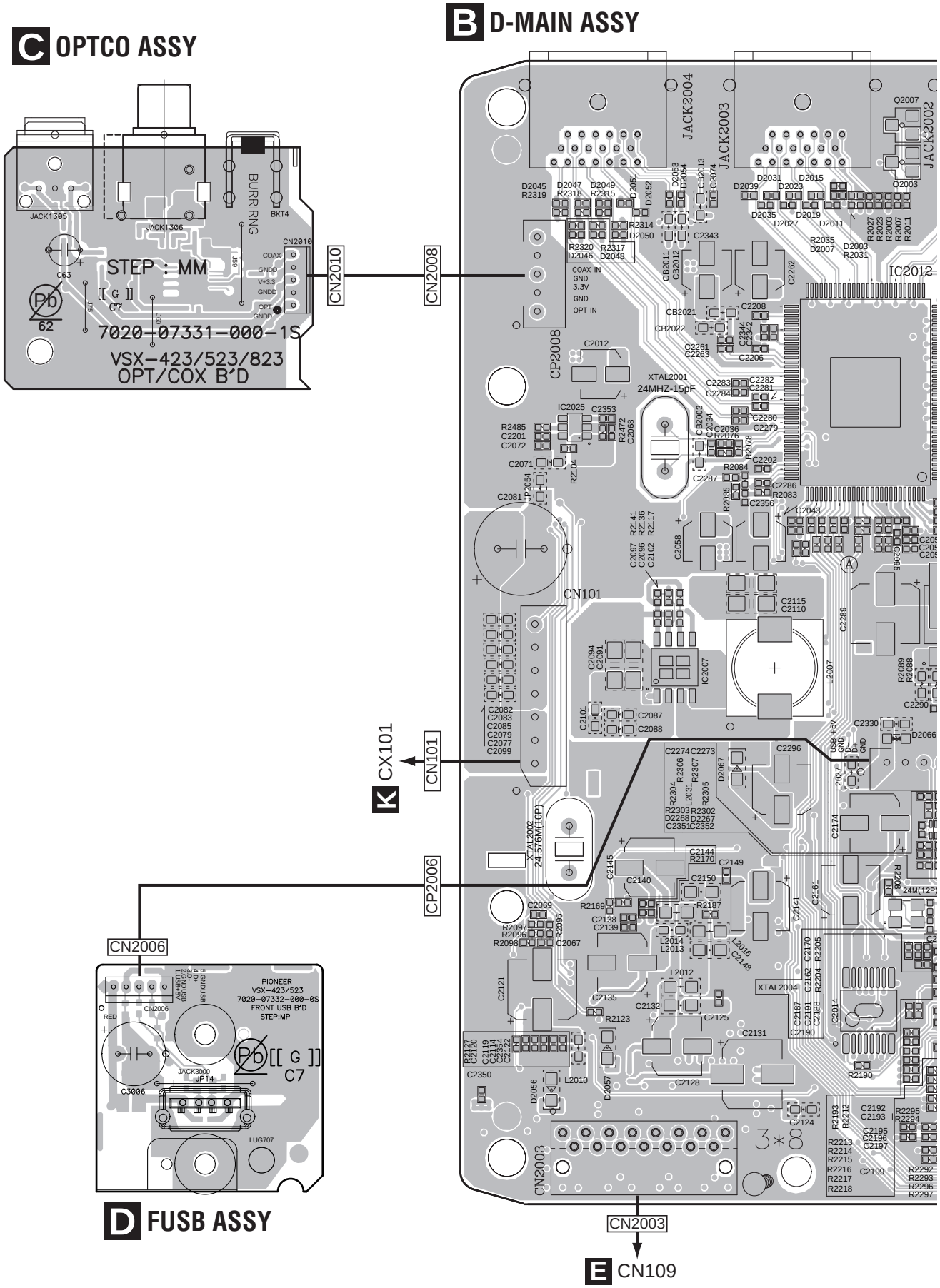


IC1200
Q416
IC1202
Q417
Q1206
Q1210
Q1209
Q1208
Q1207
IC400
Q3
Q415
Q4
Q414
Q2
Q10
Q427
Q11
Q419
IC406
Q9
IC401
IC402
IC403
Q428
Q425
Q426
Q14
Q16
Q15

A B C D E F

11.2 D-MAIN, OPTCO and FUSB ASSYS

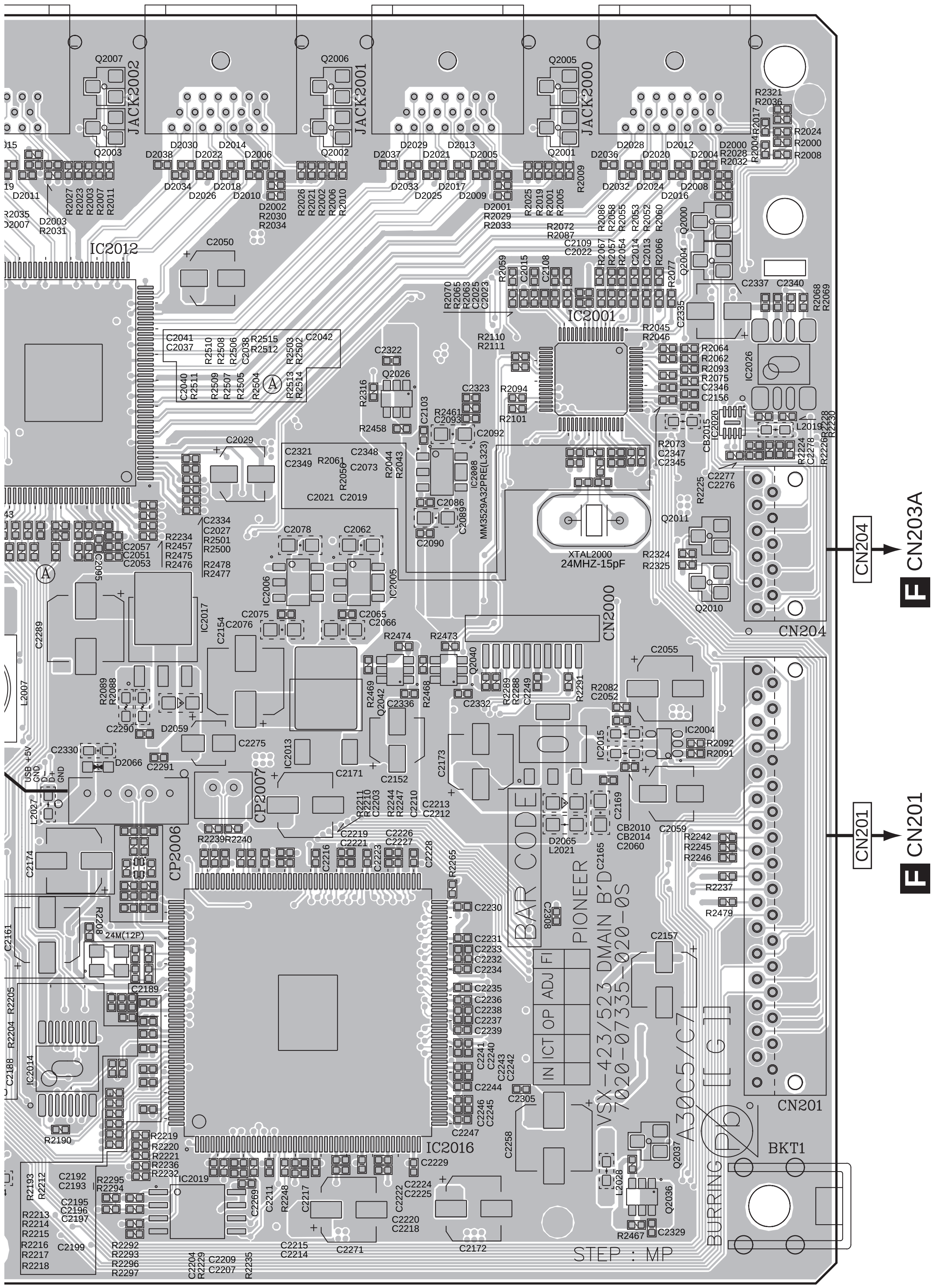
SIDE A



B C D

SIDE A

A



Q2007 Q2005
Q2006

Q2003 Q2001
Q2002

Q2000

B

Q2004

IC2001 IC2026
IC2012
Q2026
IC2025
IC2020

IC2008

C

Q2011
IC2005
IC2006
Q2010

IC2017

Q2040
IC2013 Q2042
IC2007

IC2015 IC2004

D

IC2016

E

IC2014

Q2037

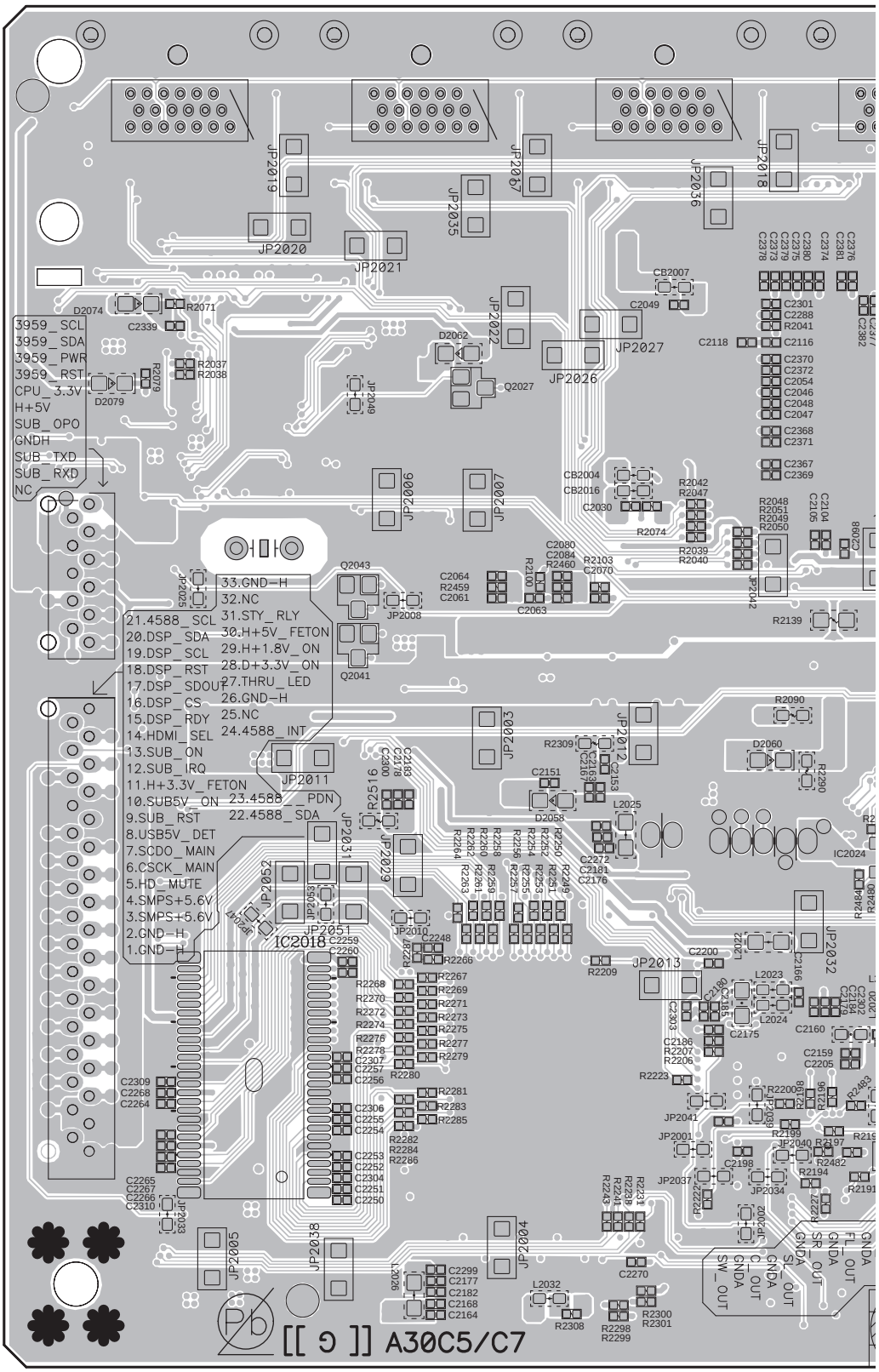
Q2036
IC2019

F

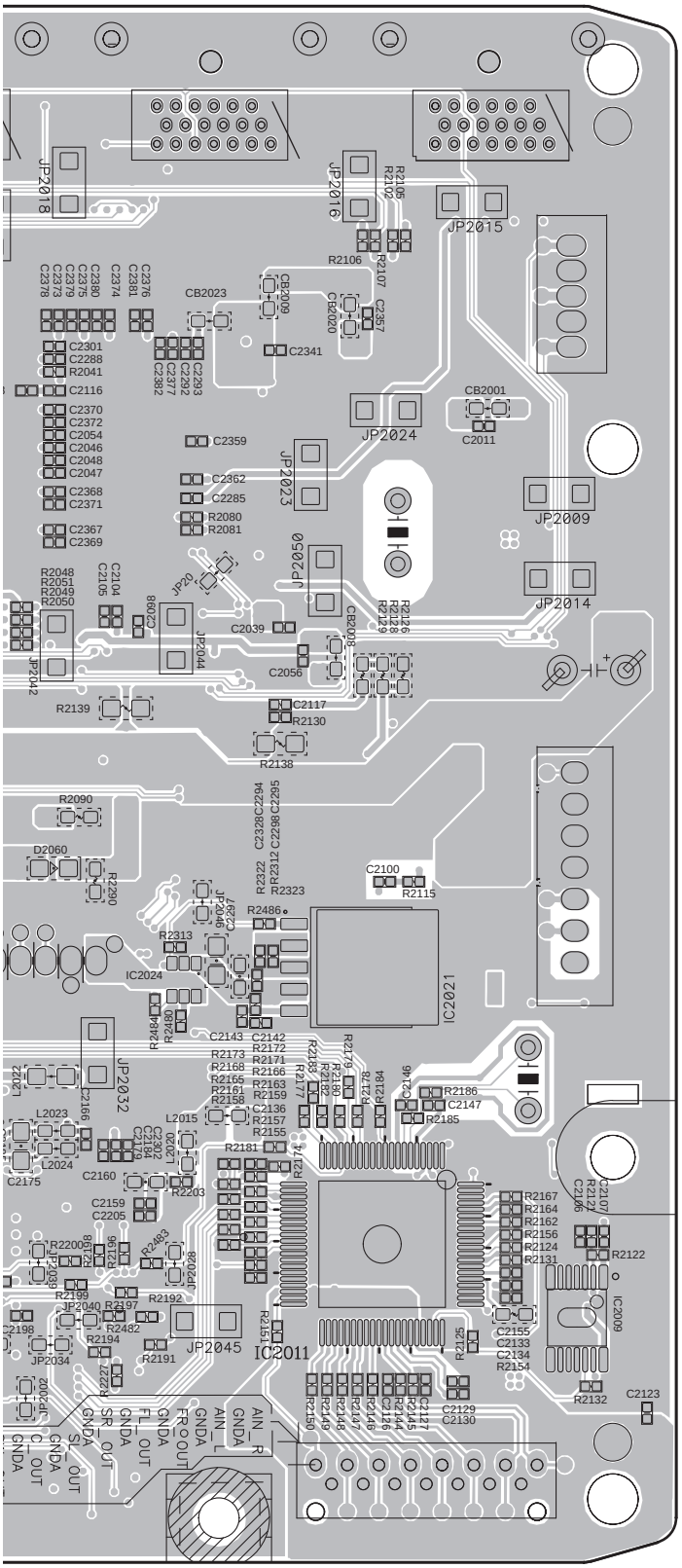
B

SIDE B

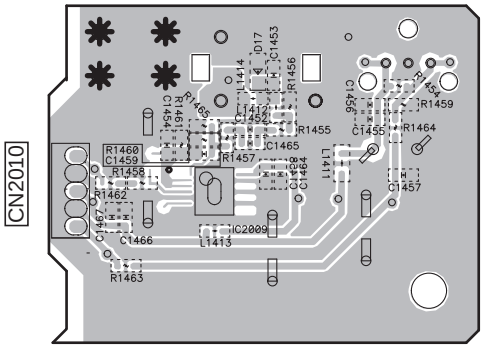
B D-MAIN ASSY



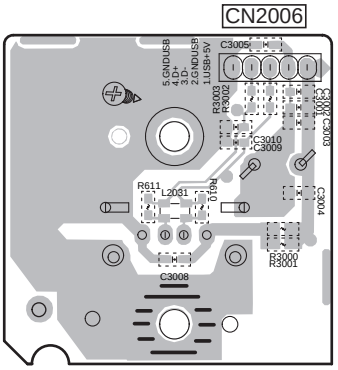
SIDE B



C OPTCO ASSY



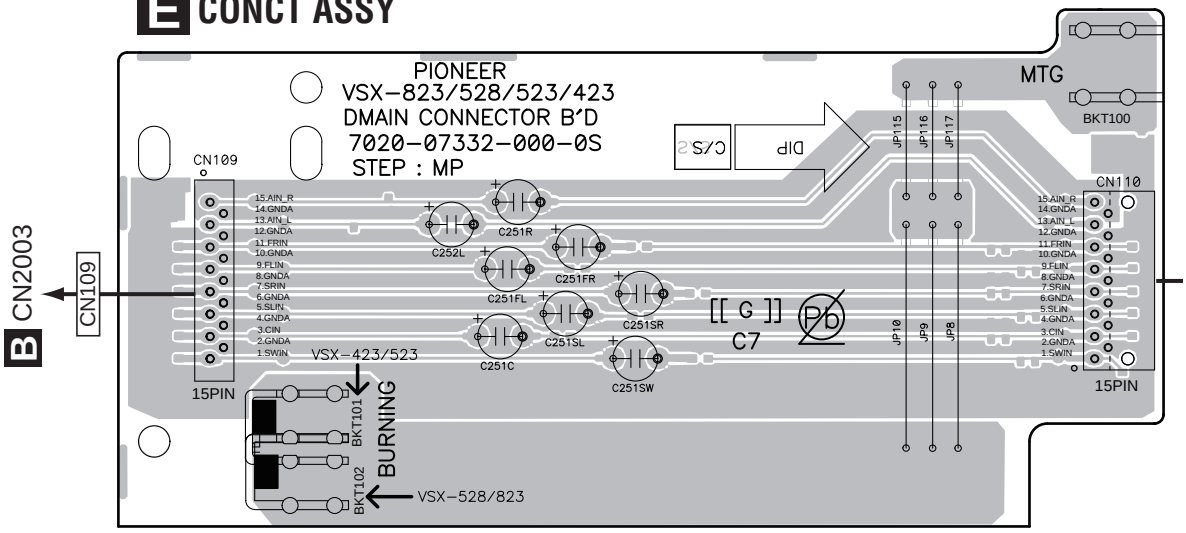
D FUSB ASSY



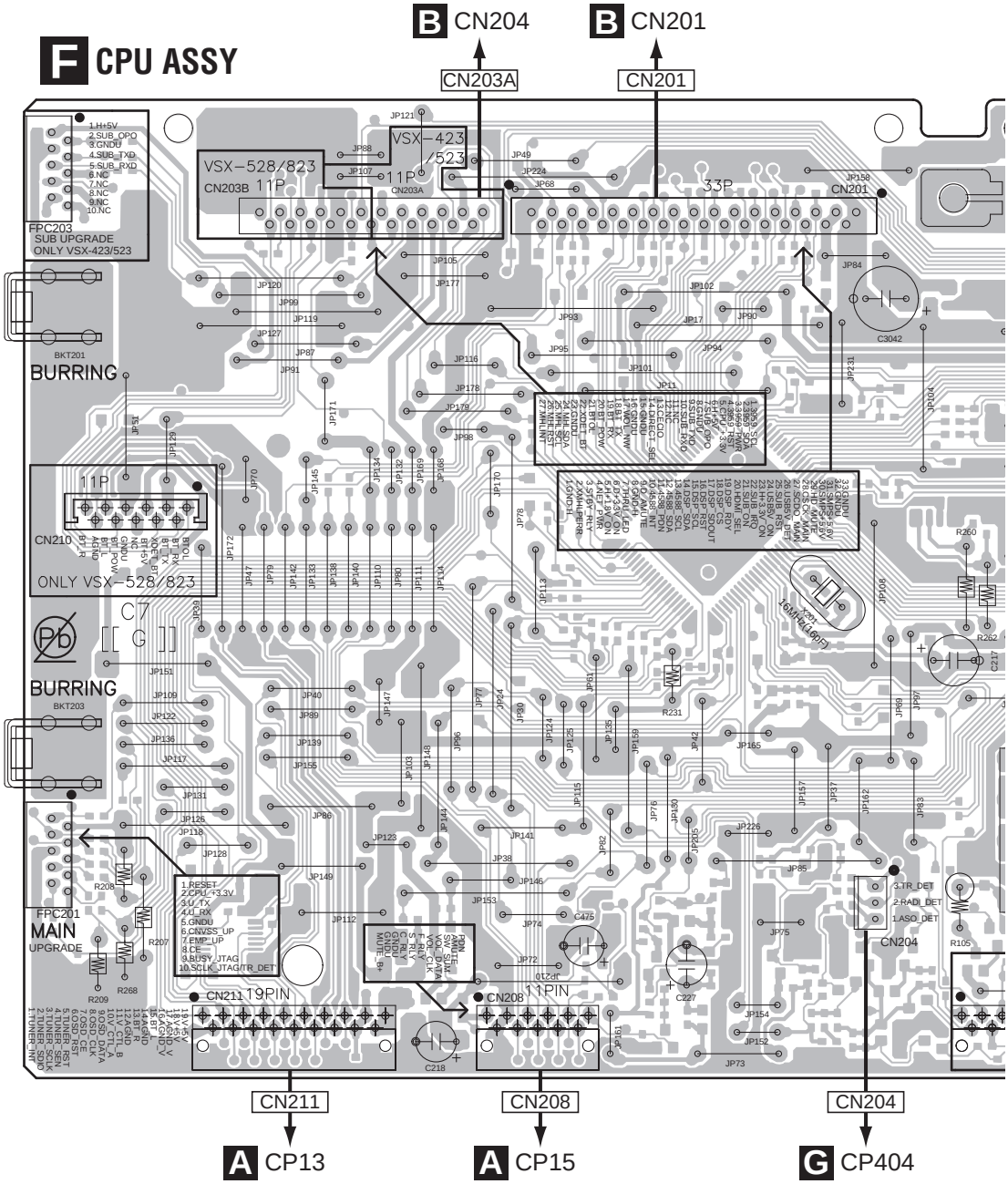
11.3 CONCT and CPU ASSYS

SIDE A

E CONCT ASSY

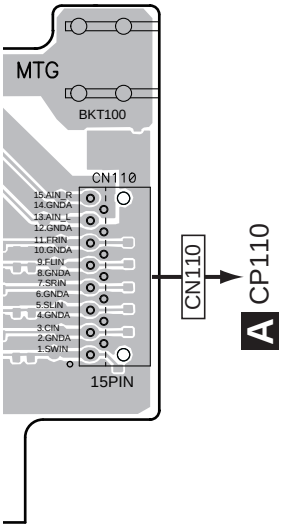


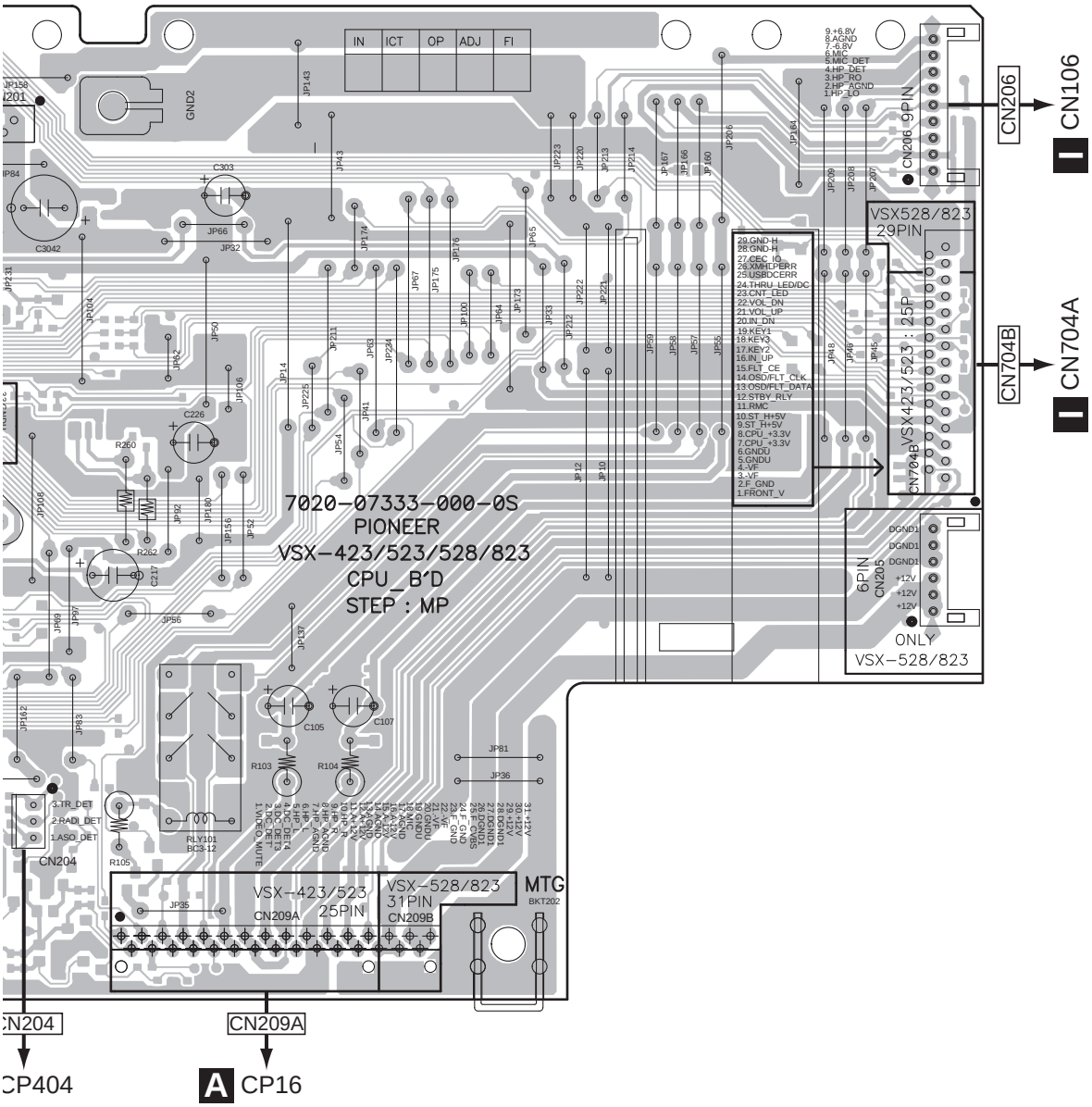
F CPU ASSY



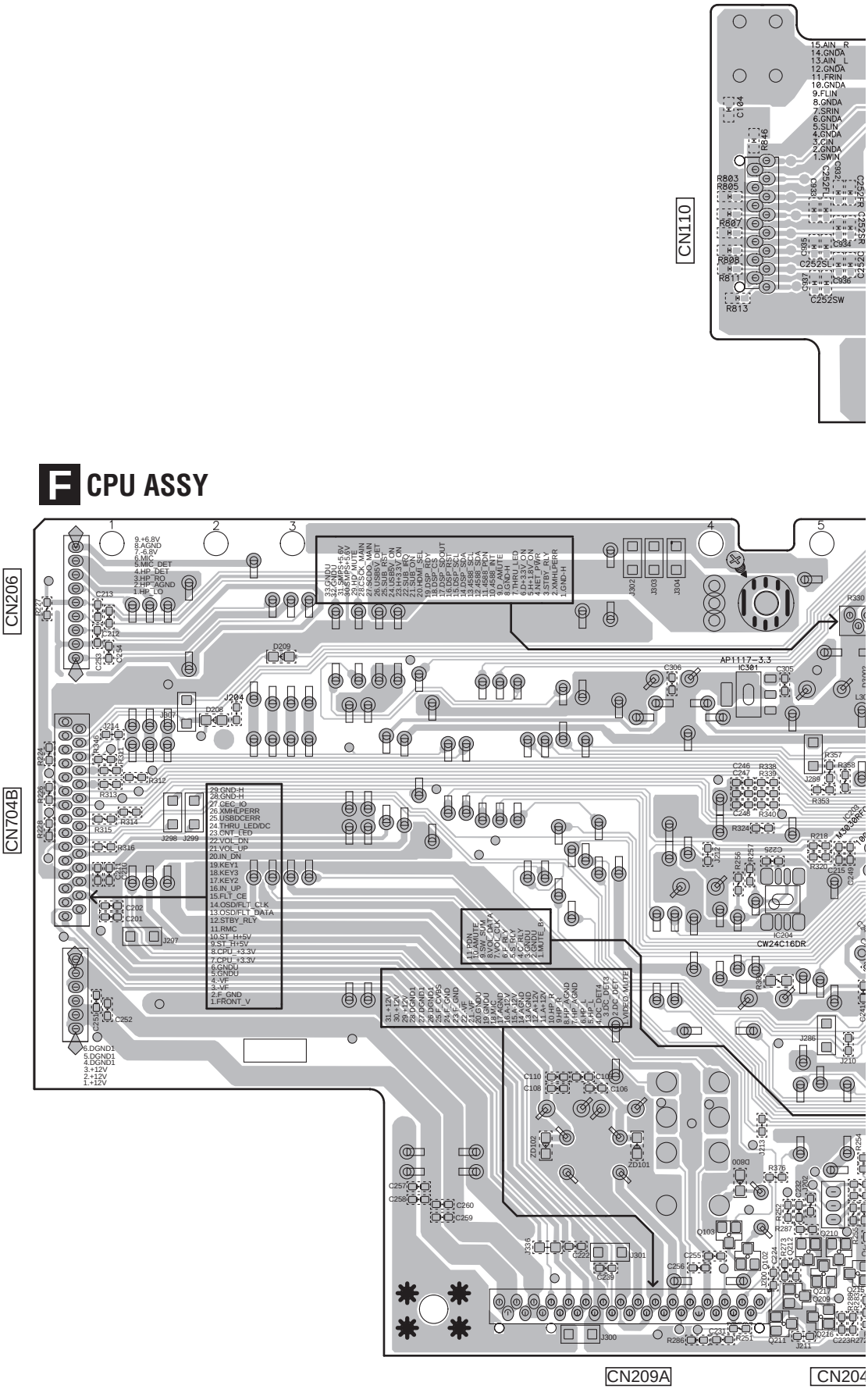
E F

SIDE A


MTG
BKT100
CN110
15.AIN_R
14.GNDA
13.AIN_L
12.GNDA
11.FIIN
10.GNDA
9.FIIN
8.GNDA
7.SFIIN
6.GNDA
5.SLIN
4.GNDA
3.CIN
2.GNDA
1.SWIN
15PIN
CN110
A CP110

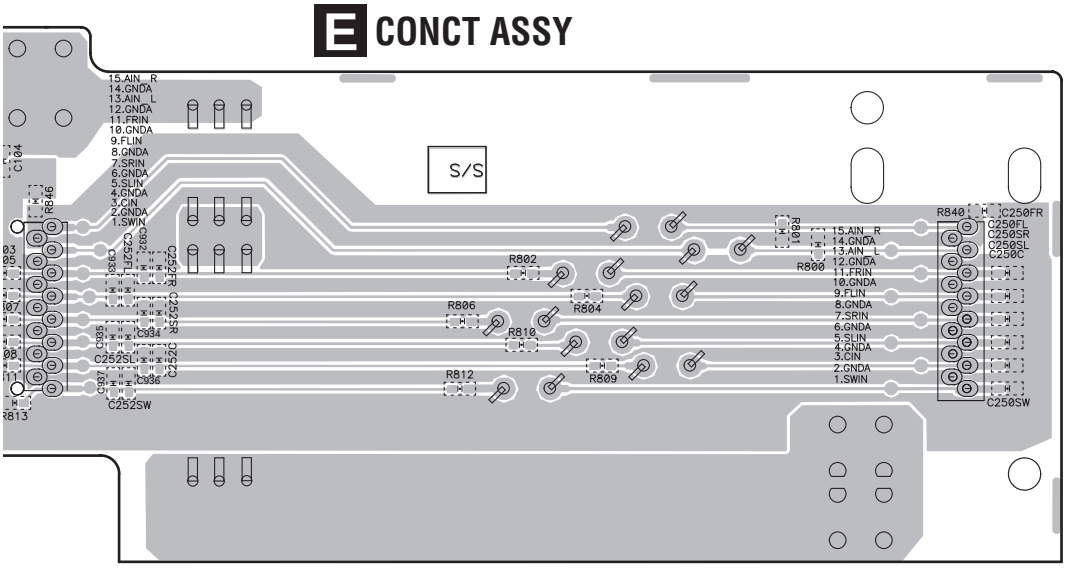

7020-07333-000-0S
PIONEER
VSX-423/523/528/823
CPU_B'D
STEP : MP
CN206
CN106
CN704B
CN704A
VSX528/823
29PIN
VSX423/523 : 25P
6PIN
CN205
ONLY
VSX-528/823
CN204
CN209A
VSX-423/523
25PIN
VSX-528/823
31PIN
CN209B
MTG
BKT202
A CP404
A CP16

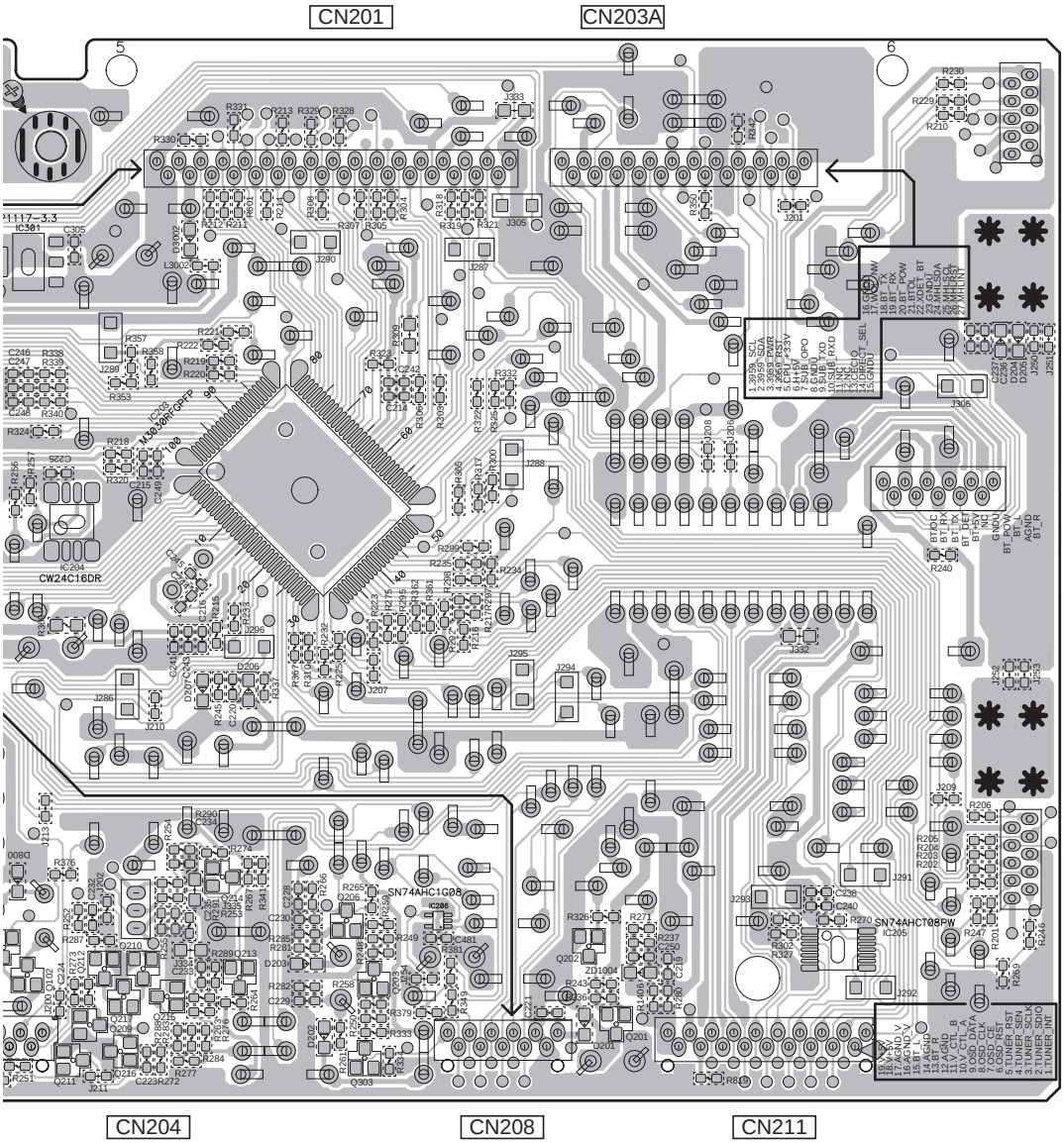
F CPU ASSY


CN110
CN206
CN704B
CN209A
CN204
AP1117-3.3
IC301
IC204
CW24C16DR
15.AIN_R
14.GNDA
13.AIN_L
12.GNDA
11.FRIN
10.GNDA
9.FLIN
8.GNDA
7.SRIN
6.GNDA
5.SLIN
4.GNDA
3.CIN
2.GNDA
1.SWIN
C252SW
9.+6.8V
8.AGND
7.-6.8V
6.MIC
5.MIC_DET
4.HP_DET
3.HP_RO
2.HP_AGND
1.HP_LO
29.GND-H
28.GND-H
27.CEC_IO
26.XMHLPERR
25.USBDCERR
24.THRU_LED/DC
23.CNT_LED
22.VOL_DN
21.VOL_UP
20.IN_DN
19.KEY1
18.KEY3
17.KEY2
16.IN_UP
15.FLT_CE
14.OSD/FLT_CLK
13.OSD/FLT_DATA
12.STBY_RLY
11.RMC
10.ST_H+5V
9.ST_H+5V
8.CPU_+3.3V
7.CPU_+3.3V
6.GNDU
5.GNDU
4.-VF
3.-VF
2.F_GND
1.FRONT_V
6.DGND1
5.DGND1
4.DGND1
3.+12V
2.+12V
1.+12V

SIDE B

E CONCT ASSY

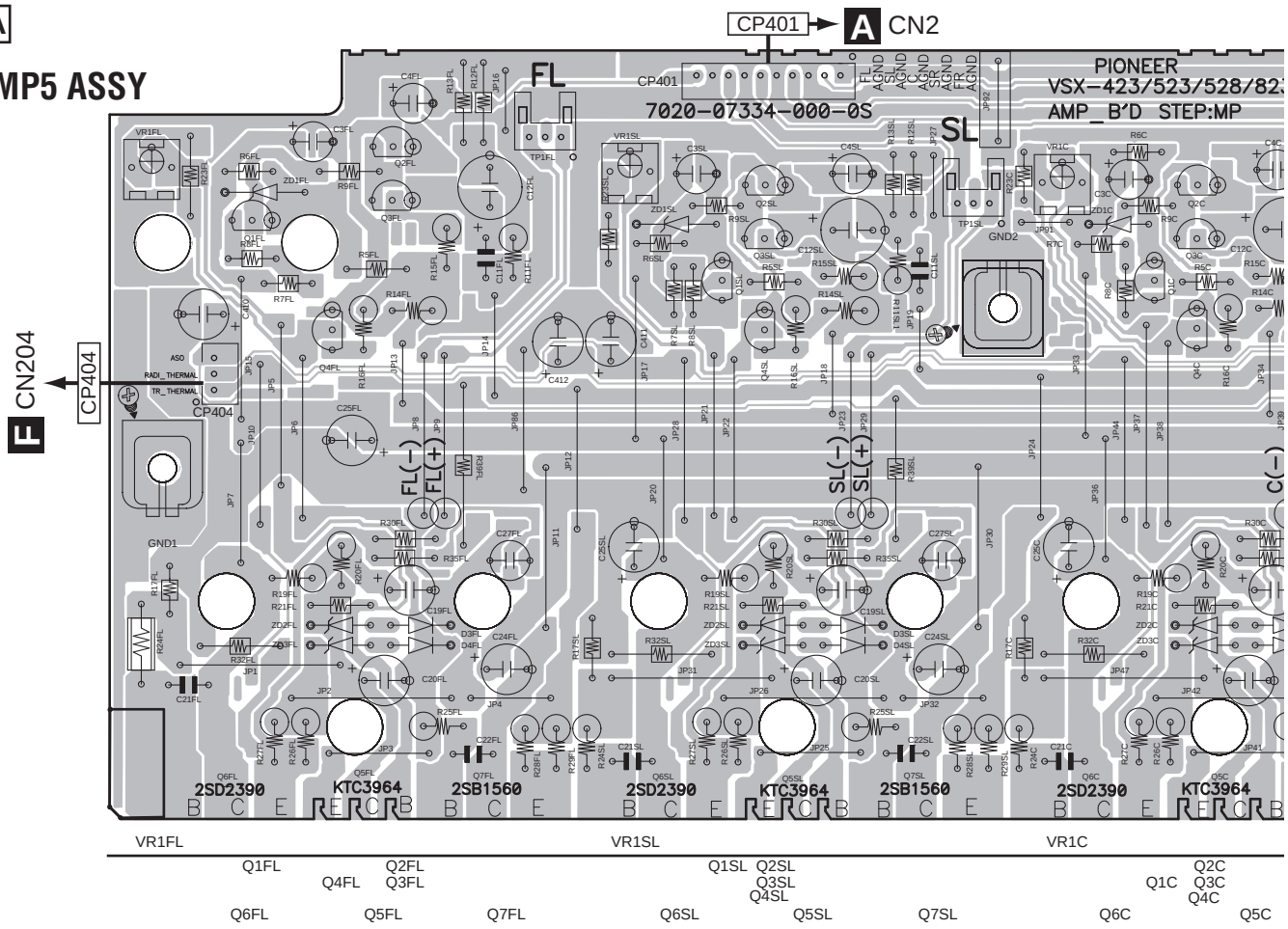




11.4 AMP5 ASSY

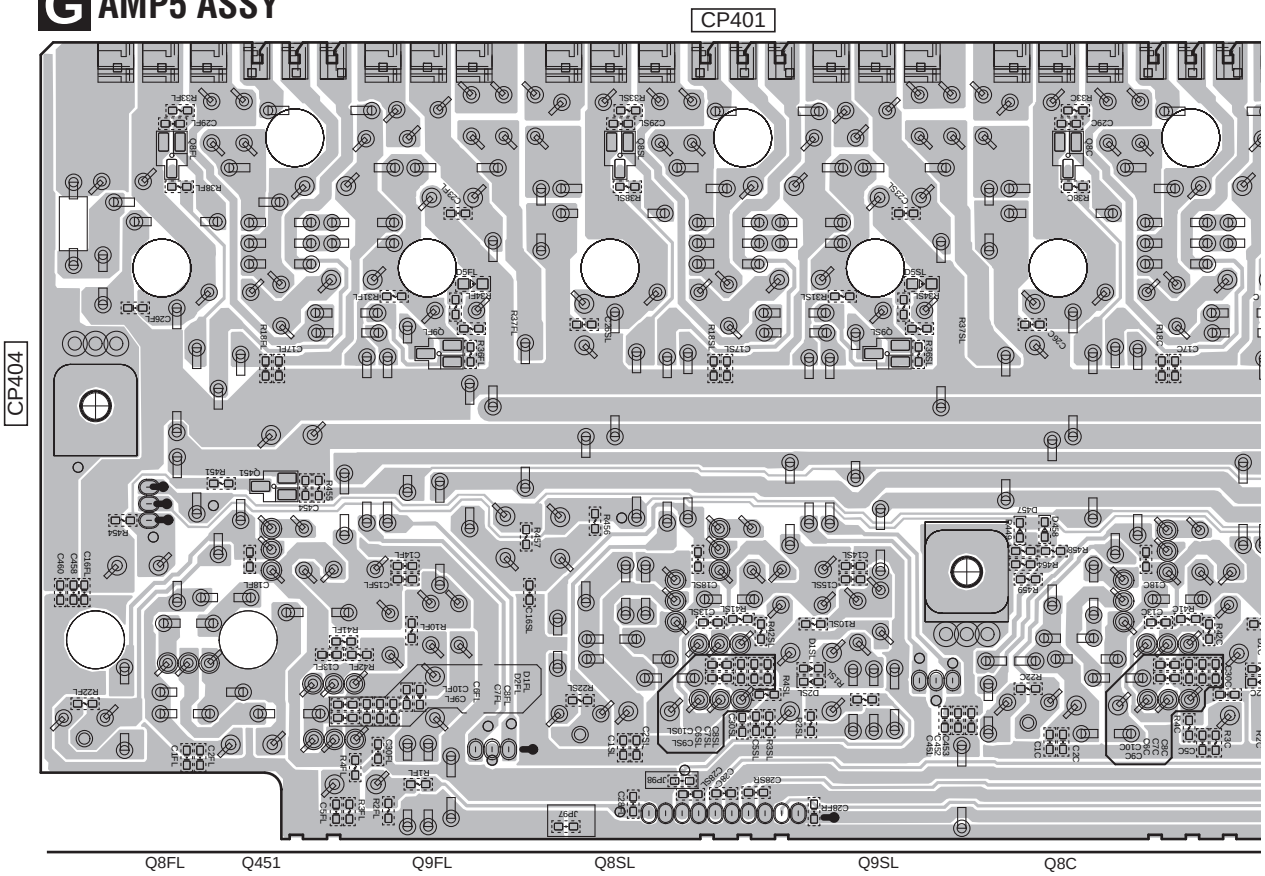
SIDE A

G AMP5 ASSY

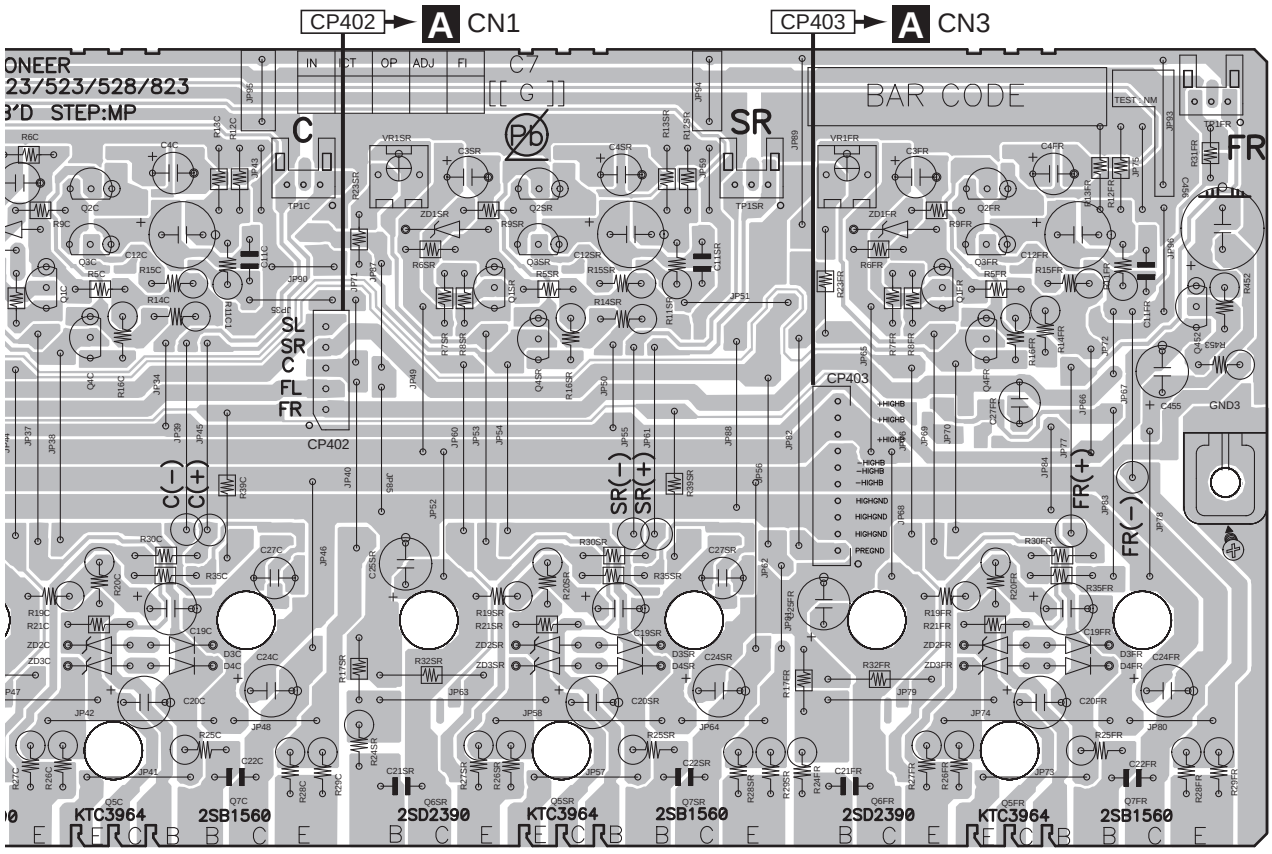


SIDE B

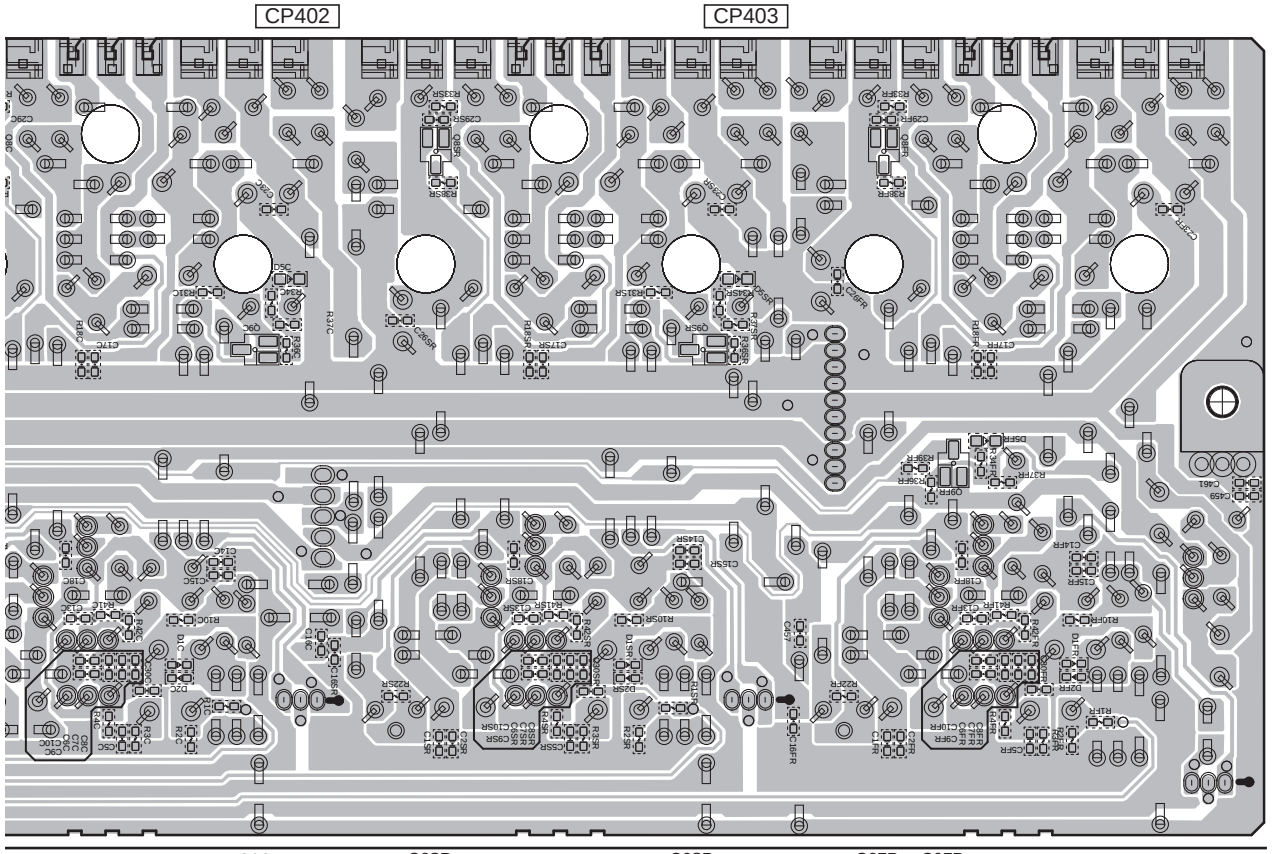
G AMP5 ASSY



SIDE A


CP402
A CN1
CP403
A CN3
BAR CODE
CP402
CP403
VR1SR
VR1FR
Q2C
Q1C Q3C
Q4C
Q2SR
Q1SR Q3SR
Q4SR
Q2PR
Q1FR Q3FR
Q4FR
Q452
Q5C
Q7C
Q6SR
Q5SR
Q7SR
Q6FR
Q5FR
Q7FR

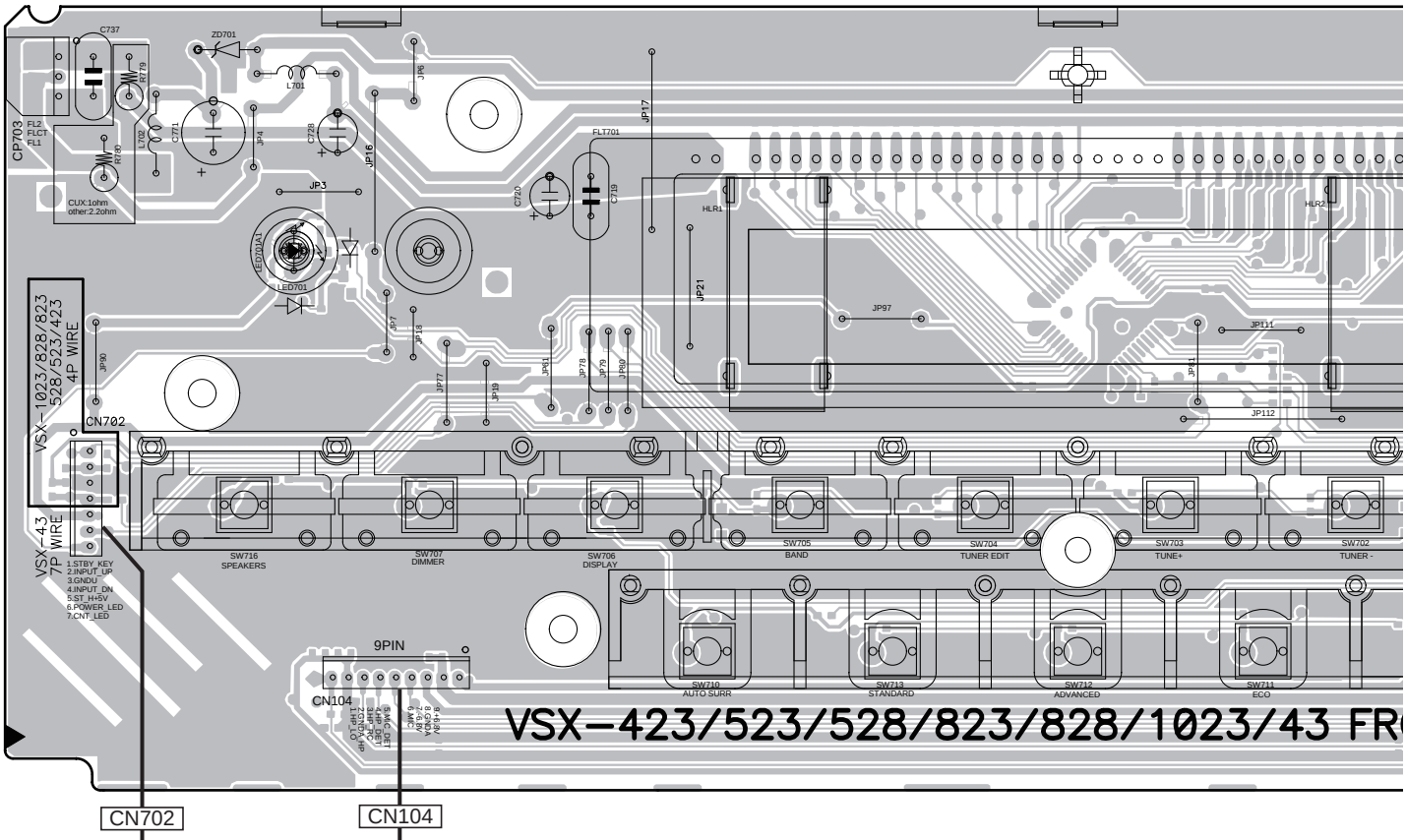
SIDE B


CP402
CP403
Q9C
Q8SR
Q9SR
Q8FR
Q9FR

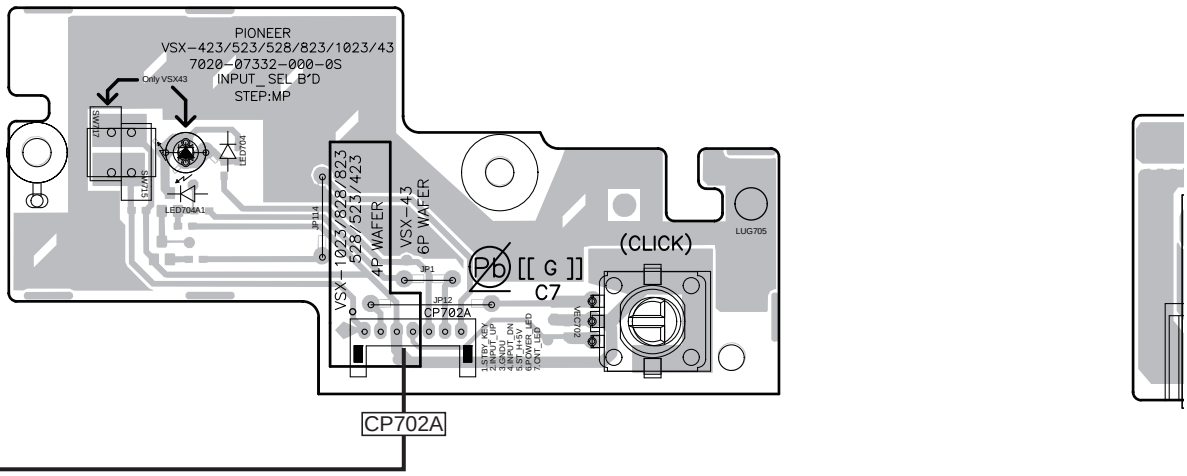
11.5 INSEL, FRONT and HPMIC ASSYS

SIDE A

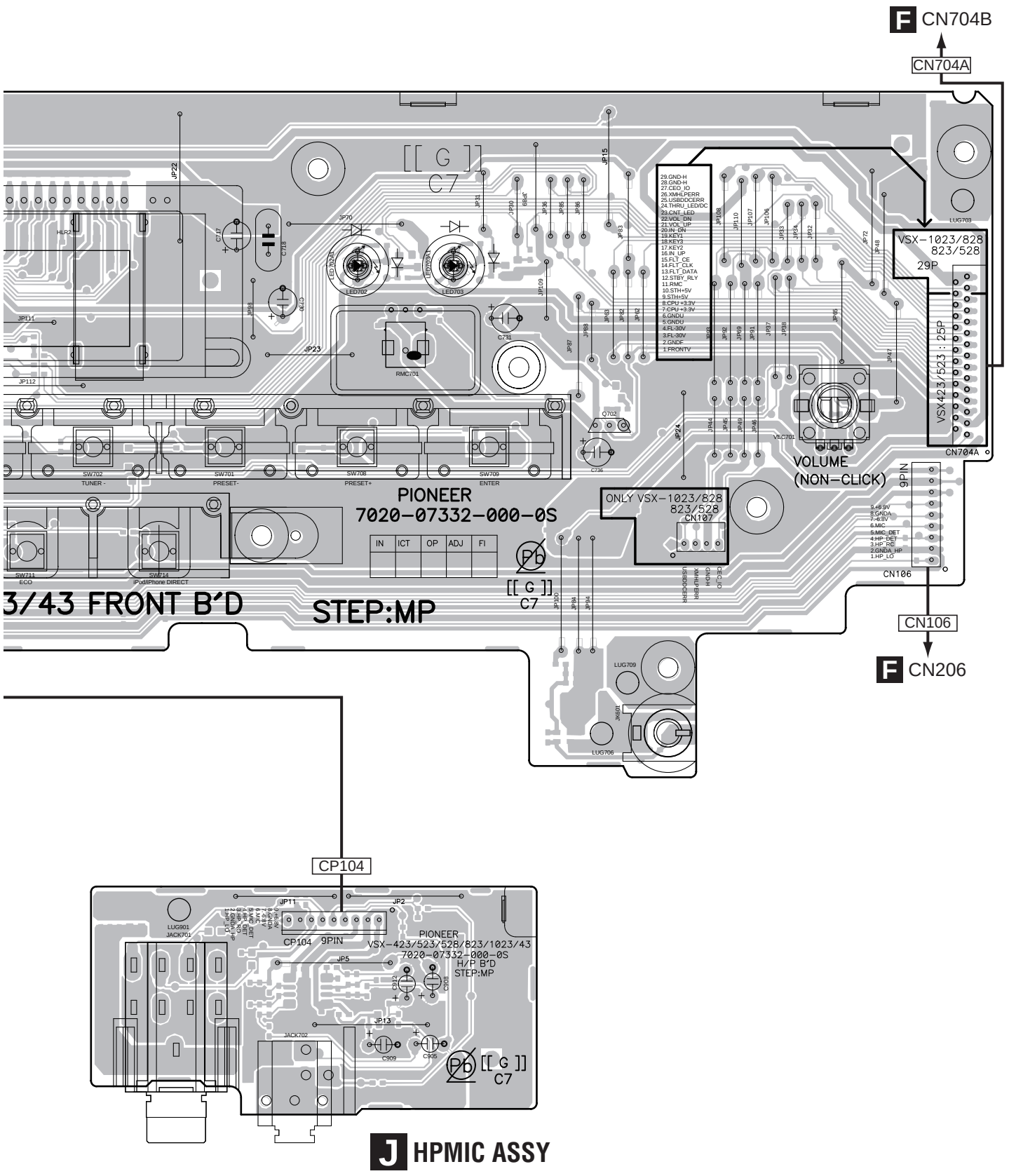
I FRONT ASSY



H INSEL ASSY



SIDE A

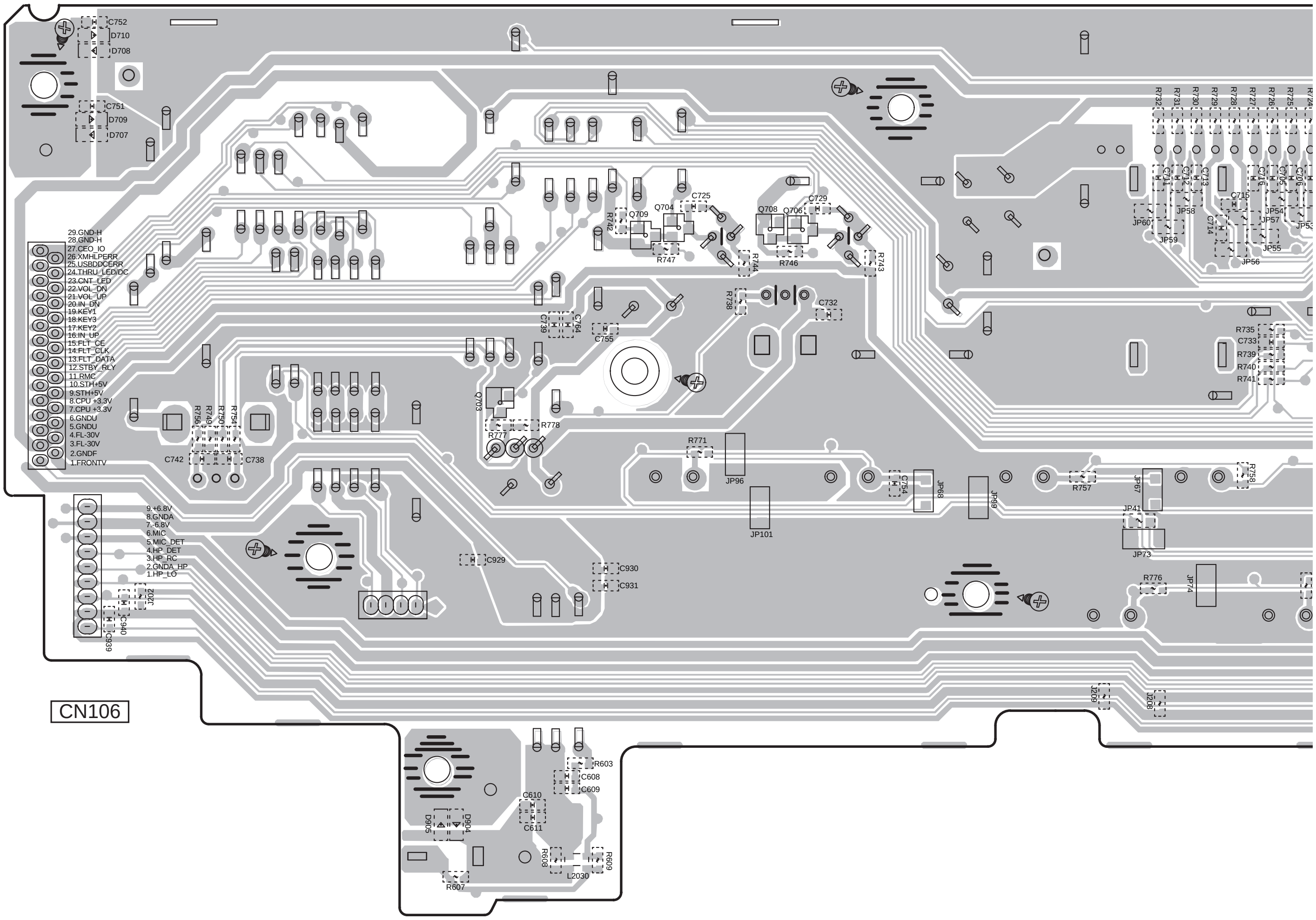

F CN704B
CN704A
VSX−1023/828
823/528
29P
VSX423/523 : 25P
CN704A
VOLUME
(NON−CLICK)
9PIN
CN106
F CN206
PIONEER
7020−07332−000−0S
ONLY VSX−1023/828
823/528
CN107
IN ICT OP ADJ FI
[[G]]
C7
3/43 FRONT B'D
STEP:MP
SW702 TUNER -
SW701 PRESET-
SW708 PRESET+
SW709 ENTER
SW711 ECO
SW714 iPod/iPhone DIRECT
RMC701
LED702
LED703
LUG703
LUG709
LUG706
VEC701
Q702
C731
C736
29.GND-H
28.GND-H
27.CEO_IO
26.XM+LPSRR
25.USBDOCERR
24.THRU_LED/DC
23.CNT_LED
22.VOL_DN
21.VOL_UP
20.IN_DN
19.KEY1
18.KEY3
17.KEY2
16.IN_UP
15.FLT_CE
14.FLT_CLK
13.FLT_DATA
12.STBY_RLY
11.RMC
10.STH+5V
9.STH+5V
8.CPU+3.3V
7.CPU+3.3V
6.GNDU
5.GNDU
4.FL-30V
3.FL-30V
2.GNDF
1.FRONTV
9.+8.9V
8.GNDA
7.+8.9V
6.MIC
5.MIC_DET
4.HP_DET
3.HP_RE
2.GNDA_HP
1.HP_LO
CP104
J HPMIC ASSY
PIONEER
VSX−423/523/528/823/1023/43
7020−07332−000−0S
H/P B'D
STEP:MP
CP104 9PIN
LUG901
JACK701
JACK702
C909
C935
C912
C908

SIDE B

Q703 Q709 Q704 Q708 Q706

I FRONT ASSY

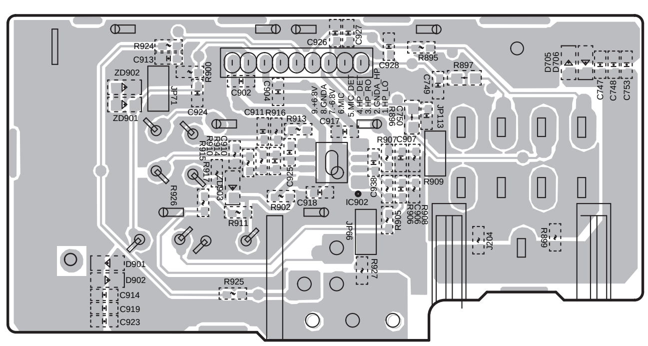
CN704A



CN106

J HPMIC ASSY

CP104

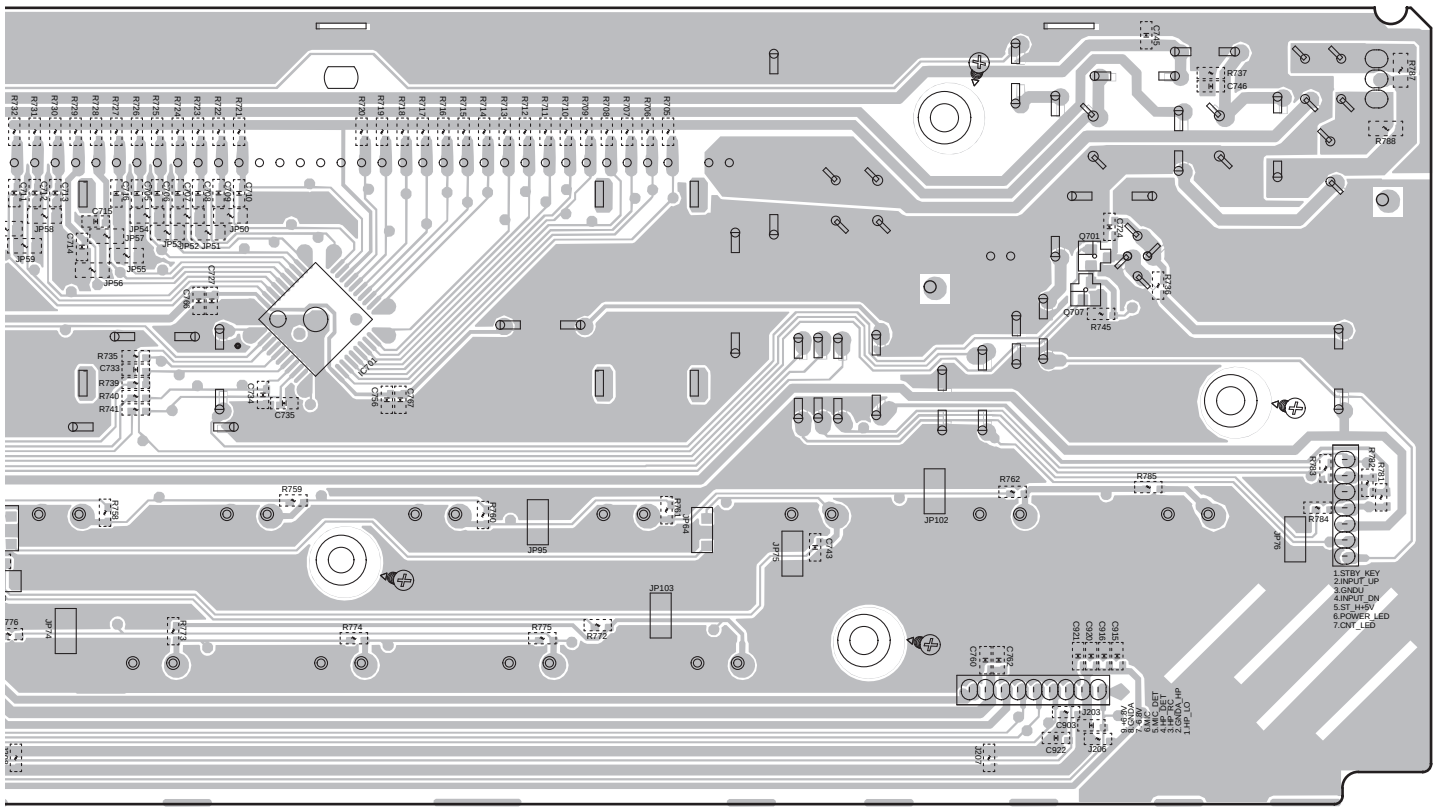


IC902

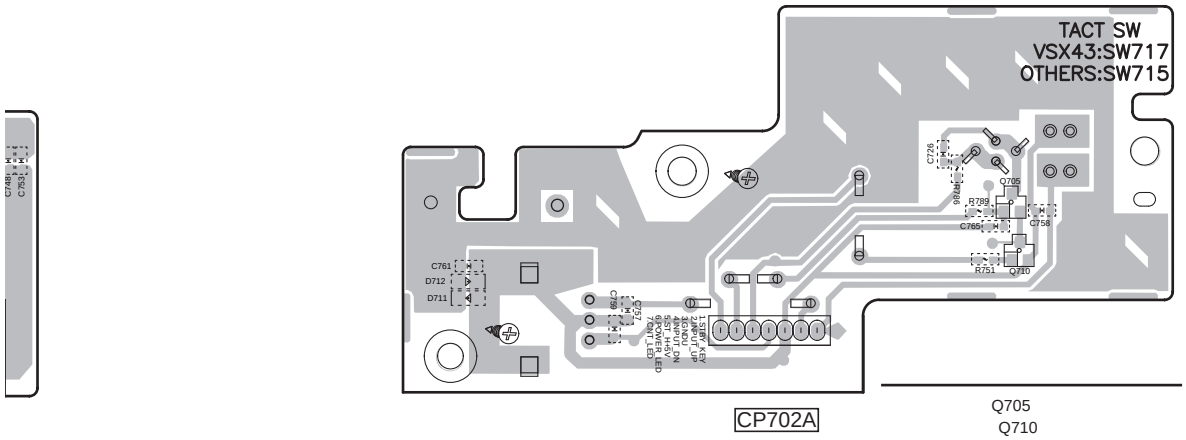
SIDE B

IC701

Q701
Q707



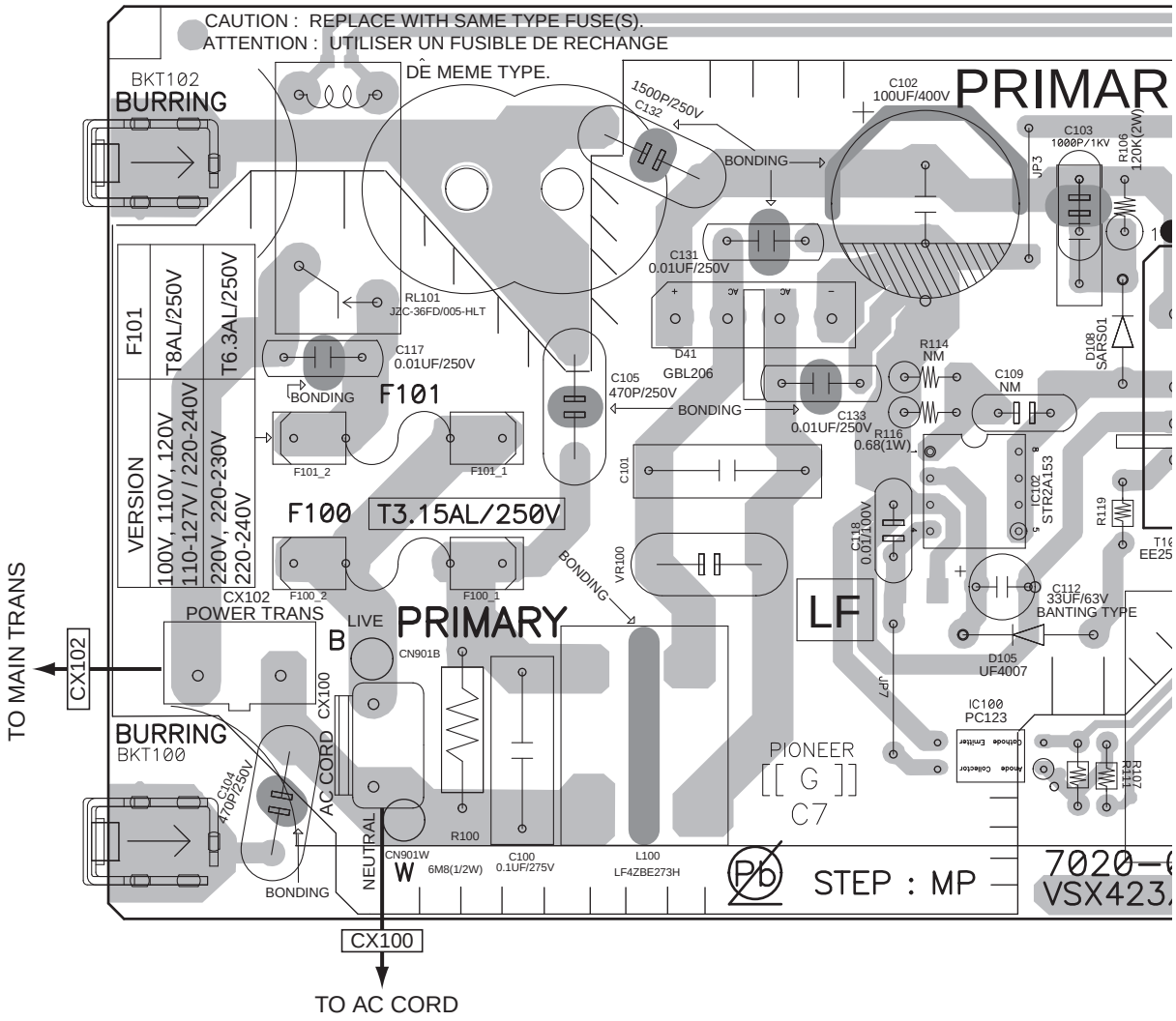
H INSEL ASSY



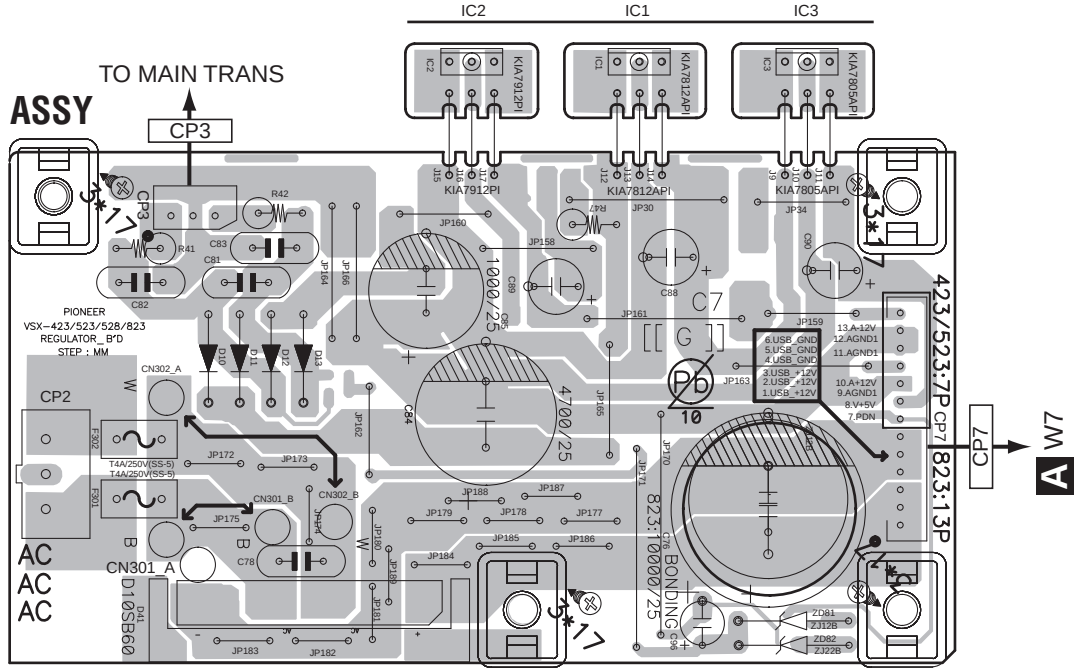
11.6 SMPS and REG ASSYS

SIDE A

K SMPS ASSY

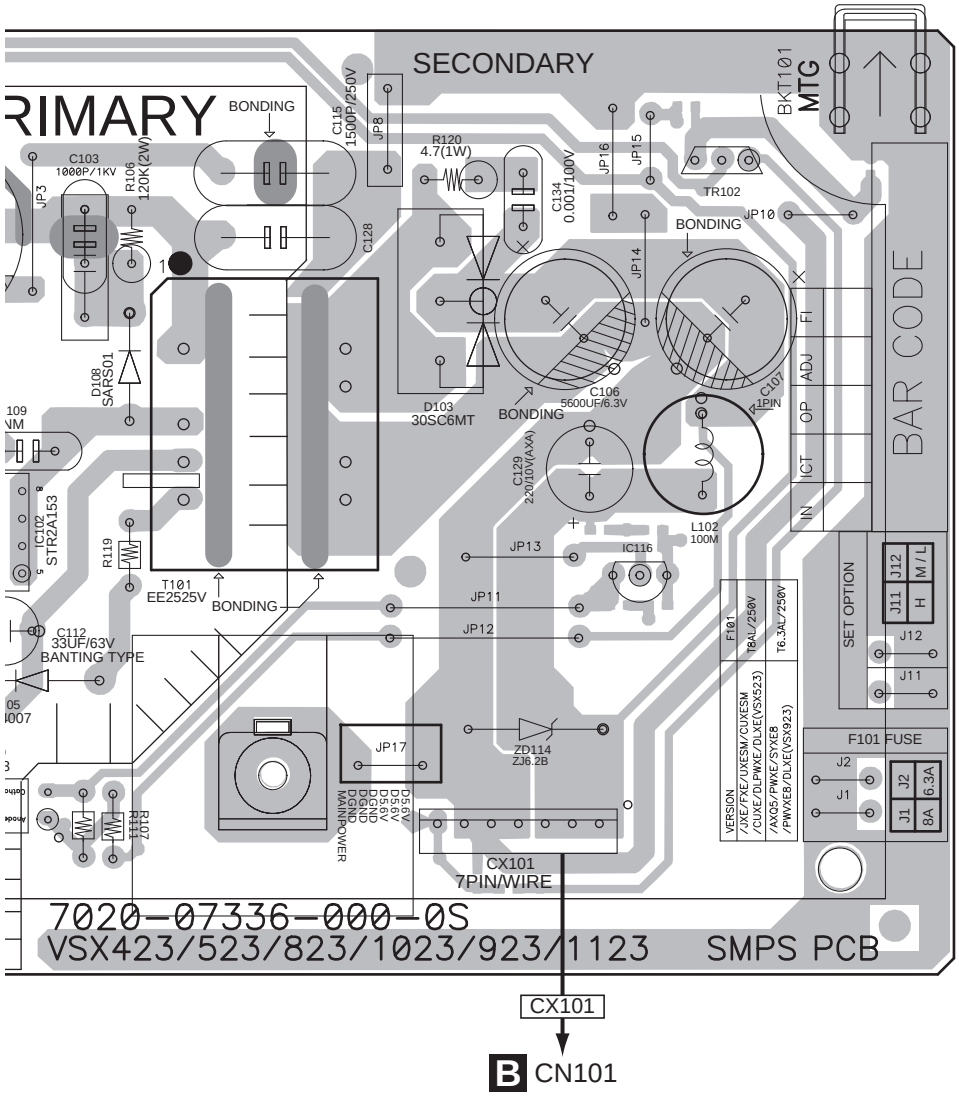


L REG ASSY



K L

SIDE A



IC102
IC116
IC100

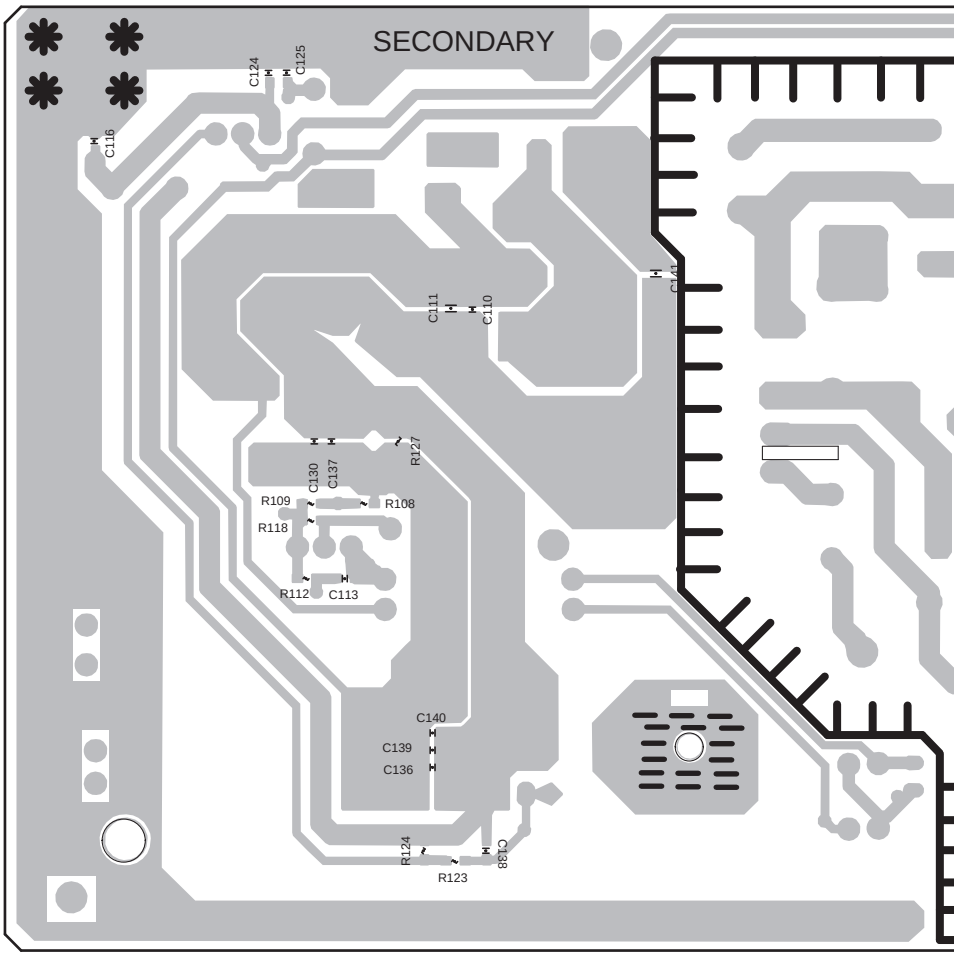
CX101

B CN101

A W7

SIDE B

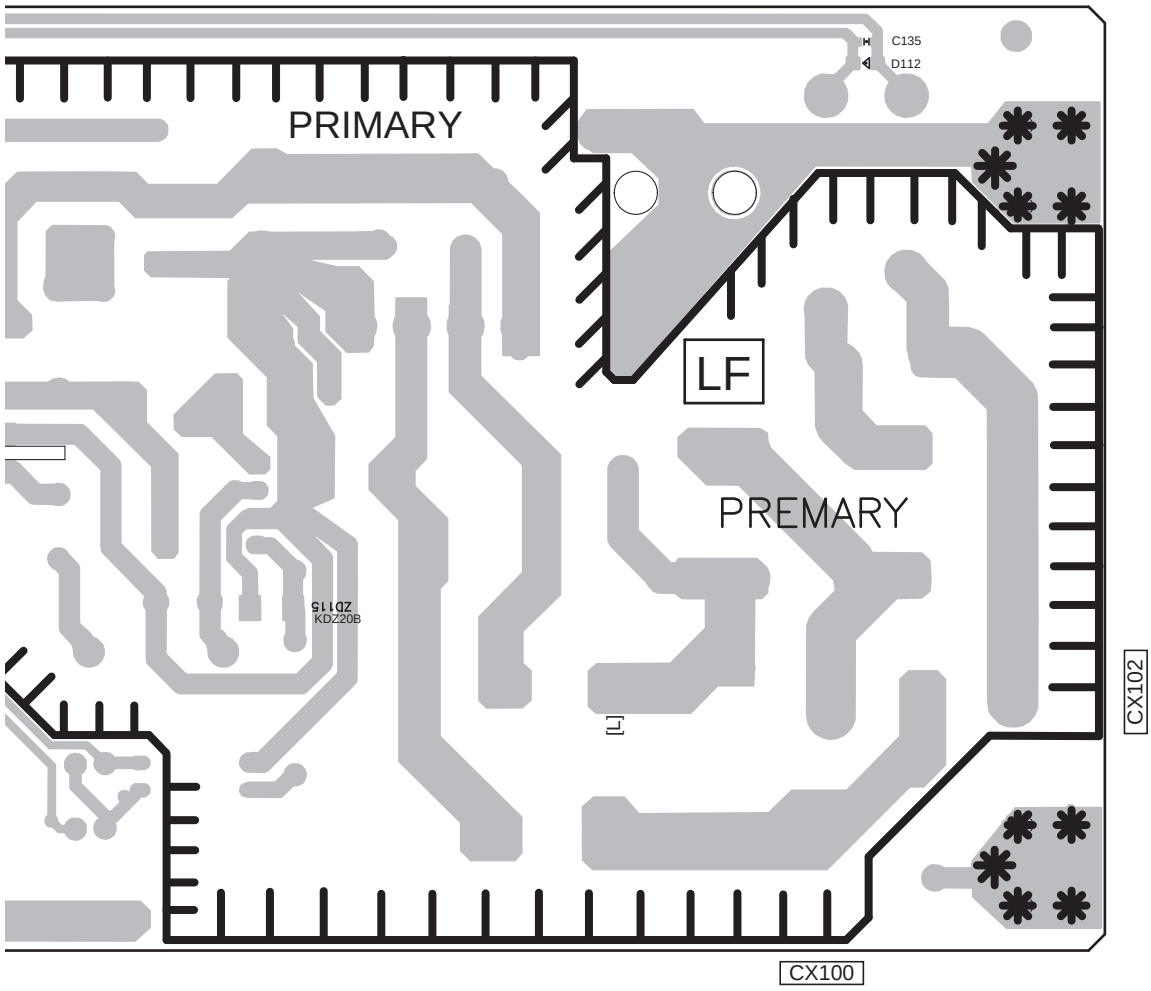
K SMPS ASSY



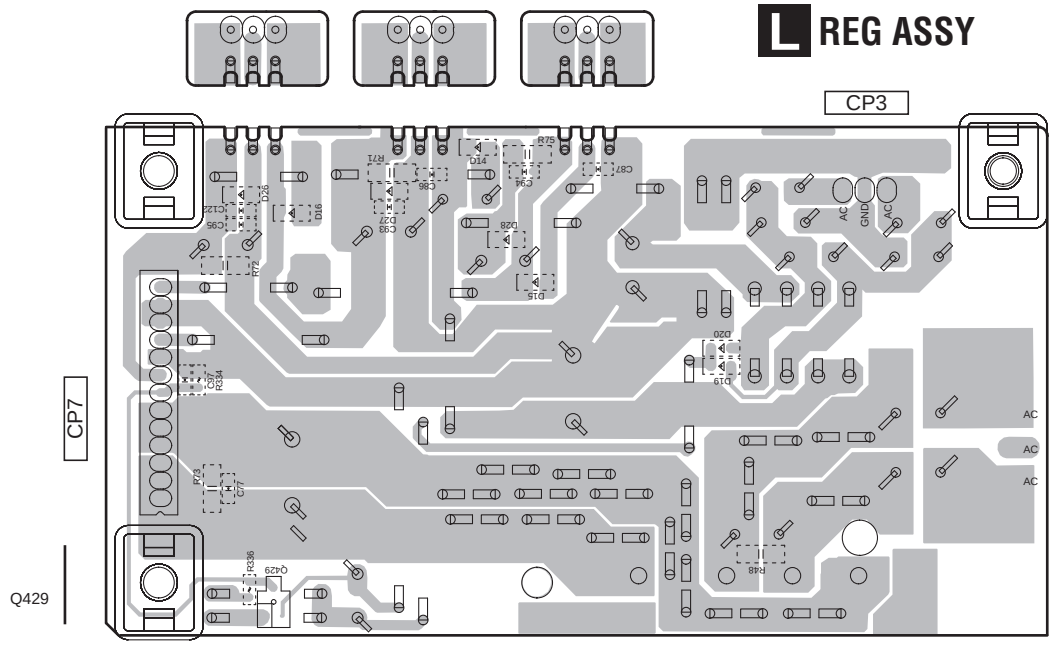
CX101

Q429

SIDE B



L REG ASSY



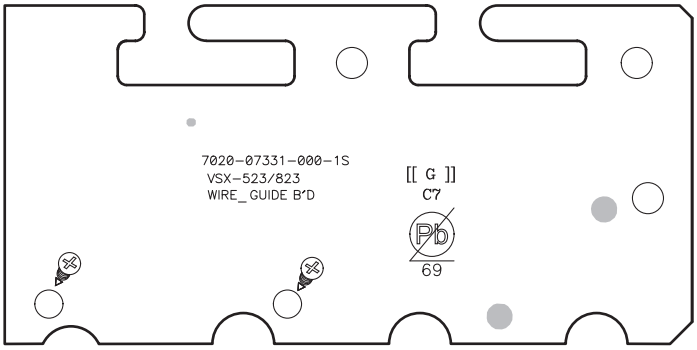
VSX-523-K

11.7 WG, G-L and G-R ASSYS

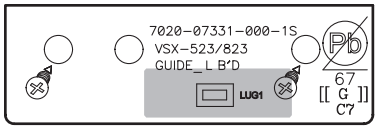
SIDE A

SIDE A

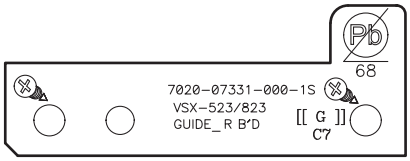
WG ASSY



G-L ASSY



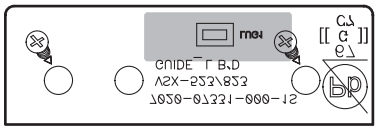
G-R ASSY



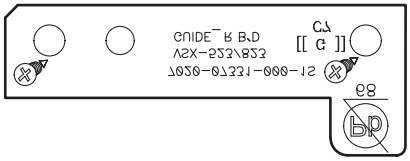
SIDE B

SIDE B

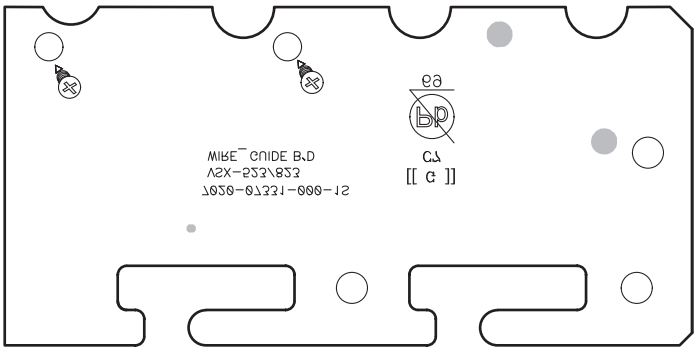
G-L ASSY



G-R ASSY



WG ASSY



12. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω	→	*56 × 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	No.	Description	Part No.
NSP	1	..PCB TTL ASSY MAIN	7025HK1211010-IL
	2	..MAIN ASSY (PCB SUB ASSY MAIN)	7028073311010-IL
	2	..REG ASSY (PCB SUB ASSY REG)	7028073312010-IL
	2	..OPTCO ASSY (PCB SUB ASSY OPTCO)	7028073313010-IL
	2	..WG ASSY (PCB SUB ASSY WG)	7028073315010-IL
	2	..G-L ASSY (PCB SUB ASSY G-L)	7028073316010-IL
	2	..G-R ASSY (PCB SUB ASSY G-R)	7028073317010-IL
NSP	1	..PCB TTL ASSY DMAIN	7025HK1211012-IL
	2	..D-MAIN ASSY (PCB SUB ASSY DMAIN)	7028073351010-IL
NSP	1	..PCB TTL ASSY CPU	7025HK1211013-IL
	2	..CPU ASSY (PCB SUB ASSY CPU)	7028073331010-IL
NSP	1	..PCB TTL ASSY AMP5	7025HK1211014-IL
	2	..AMP5 ASSY (PCB SUB ASSY AMP5)	7028073341010-IL
NSP	1	..PCB TTL ASSY FRONT	7025HK1211011-IL
	2	..FRONT ASSY (PCB SUB ASSY FRONT)	7028073321010-IL
	2	..HPMIC ASSY (PCB SUB ASSY HPMIC)	7028073322010-IL
	2	..FUSB ASSY (PCB SUB ASSY FUSB)	7028073323010-IL
	2	..INSEL ASSY (PCB SUB ASSY INSEL)	7028073324010-IL
	2	..CONCT ASSY (PCB SUB ASSY CONCT)	7028073325010-IL
NSP	1	..PCB TTL ASSY SMPS	7025HK1211015-IL
⚠	2	..SMPS ASSY (PCB SUB ASSY SMPS)	7028073361010-IL

Mark	No.	Description	Part No.
A		**MAIN ASSY**	
		SEMICONDUCTORS	
	IC	400	J084152180010-IL
	IC	401-403,406	J121458001010-IL
	IC	1200	J127410500010-IL
	IC	1203	J170747810010-IL
	Q	17	J5000916Y0050-IL
⚠	D	7	K047100600220-IL
	D	23	K000400700220-IL
	D	9001	K06603R64P430-IL
	D	9024,9025	K06016R044522-IL
		MISCELLANEOUS	
	JA	101 TER,BOARD SCREW 4P	G612405E0200Y-IL
	JA	102 TER,BOARD PUSH 6P	G596601SA010Y-IL
	JA	401 TER,RCA 6PIN	G603610A0001Y-IL
	JA	402 TER,RCA 3PIN	G606305AW140Y-IL
	JA	403 TER,RCA 1PIN	G600107A0000Y-IL
	RY	2-4 RELAY	G680060103010-IL
	X	1200 CRYSTAL (14.32 MHz)	E80014R318080-IL
	CN	9013 CN,WAFER	L109012511920-IL
	CN	9015 CN,WAFER	L109012511120-IL
	CN	9016 CN,WAFER	L109012512520-IL
	CN	9110 CN,WAFER	L109012511520-IL
		601 TUNER,FM/AM	E903004100780-IL
		RESISTORS	
	R	5,7,9,11	C060010065050-IL
	R	6,8,10,12	C060010066050-IL
	R	13,25	C060010065050-IL
	R	14	C060010066050-IL
	R	64	C060022063050-IL
	R	66	C0604R7065050-IL
	R	510,587	C000033065520-IL
	R	588,589	C060010165060-IL
		CAPACITORS	
	C	55,58	D040682088010-IL

Mark	No.	Description	Part No.
B		**D-MAIN ASSY**	
		SEMICONDUCTORS	
⚠	IC	2004	J126283133010-IL
⚠	IC	2005,2006	S-1170B50UC-OUJ

Mark	No.	Description	Part No.
⚠	IC	2008	MM3529A33P
	IC	2011	J080458800010-IL
	IC	2014	J040742570040-IL
	IC	2018	J001986466010-IL
⚠	IC	2024	J127380010060-IL
	IC	2026	J000240160080-IL
	Q	2026,2036,2040,2042	J543045010060-IL

MISCELLANEOUS

	JA	2000-2004 CN.WAFER	L109100190160-IL
	X	2000,2001 CRYSTAL (24 MHz)	E80024R000030-IL
	X	2002 CRYSTAL (24.576 MHz)	E80024R576040-IL

C OPTCO ASSY

SEMICONDUCTORS

	IC	2009	J040740400290-IL

MISCELLANEOUS

	JA	1305 MODULE	E100802000250-IL
	JA	1306 TER,RCA 1PIN	G600107A0000Y-IL

D FUSB ASSY

MISCELLANEOUS

	JA	3000 CN,PLUG CONTACT	G480040000180-IL

E CONCT ASSY

MISCELLANEOUS

	CN	109 CN,WAFER	L109012511520-IL

F CPU ASSY

SEMICONDUCTORS

	IC	204	J000241600170-IL
	IC	205	J040740800240-IL
⚠	IC	301	J126111733230-IL

MISCELLANEOUS

	RY	101 RELAY	G680240202030-IL
	X	201 CRYSTAL (16 MHz)	E80016R000030-IL
	CN	203 CN,WAFER	L109012511120-IL

RESISTORS

	R	103,104	C060018163050-IL
	R	105	C060010063050-IL

CAPACITORS

	C	3042	D040102081060-IL

G AMP5 ASSY

SEMICONDUCTORS

	Q	1	J5001024Y0050-IL
	Q	2,3,452	J5000992FA050-IL
	Q	4	J5023206Y0050-IL
	D	9001	K06005R134522-IL
	D	9002,9003	K06004R344522-IL

MISCELLANEOUS

	VR	1 VR,SEMI CARBON MOLD	C541102315000-IL

Mark	No.	Description	Part No.

RESISTORS

	R	16	C060047065060-IL
⚠	R	24,25	C060010165060-IL
⚠	R	26-29	N113136647820-IL
⚠	R	33	F320471000950-IL
	R	452	C060010165060-IL
	R	453	C060033065050-IL

H INSEL ASSY

MISCELLANEOUS

	S	715 SWITCH	G180501000010-IL
	S	9702 SW,ENCODER	G121121200230-IL

I FRONT ASSY

SEMICONDUCTORS

	IC	701	J127163150020-IL
⚠	Q	702	J5001266G0050-IL
	D	701-703	K500052009011-IL
	D	9701	K06007R544522-IL

MISCELLANEOUS

	V	701 DISPLAY,FLT	K530126600011-IL
	S	701-714,716 SWITCH	G180501000010-IL
	S	9701 SW,ENCODER	G121122400230-IL
		1 HOLDER	4320211306000-IL
	U	701 MODULE,REMOCON	E940349003810-IL

RESISTORS

⚠	R	779,780	C060001063050-IL

J HPMIC ASSY

SEMICONDUCTORS

	IC	902	J121458001010-IL

MISCELLANEOUS

	JA	701 JACK,D6.5	G402PJ612A09Y-IL
	JA	702 JACK,D3.5	G40132340000Y-IL

K SMPS ASSY

SEMICONDUCTORS

⚠	IC	100	K614123000010-IL
⚠	IC	102	J122201530080-IL
⚠	IC	116	J126243118010-IL
	Q	102	J5023198Y0000-IL
⚠	D	41	K047200600010-IL
⚠	D	103	K120300600010-IL
	D	105	K050400700010-IL
	D	108	K050010010010-IL
	D	9114	K06006R244522-IL
	D	9115	K06620R04P410-IL

MISCELLANEOUS

⚠	L	100 COIL,LINE FILTER	D320201405510-IL
⚠	RY	101 RELAY	G680060103030-IL
⚠	T	101 TRANS,SWITCHING	E060252505510-IL
⚠	CN	9100 CN.WAFER 7.92MM	L108396030010-IL
⚠	CN	9102 CN.WAFER 7.92MM	L108011430210-IL
		100,102 BRACKET	4010215796000-IL
		101 BRACKET	4010210196000-IL

Mark	No.	Description	Part No.
⚠	FU 100	FUSE GLASS TUBE 20MM (3.15 A)	N751503151160-IL
⚠	FU 101	FUSE GLASS TUBE 20MM (T8AL/250V)	N751508001160-IL

RESISTORS

⚠	R	100	C060068564520-IL
	R	116	C060R68065050-IL
	R	120	C0604R7065050-IL

CAPACITORS

⚠	C	100	D02110407H010-IL
	C	102	D04010108K000-IL
	C	103	D00810207Q010-IL
⚠	C	104,105	D00847127H010-IL
	C	106	D041562081001-IL
⚠	C	115,132	D00815248H010-IL
⚠	C	117,131,133	D008103589010-IL
	C	129	D041221082230-IL

L REG ASSY

SEMICONDUCTORS

⚠	IC	1	J126781200040-IL
⚠	IC	2	J126791200060-IL
⚠	IC	3	J126780500110-IL
⚠	D	10-13	K000400700220-IL
	D	19,20	K005041480230-IL
	D	9081	K06012R044522-IL

RESISTORS

	R	41,42	C060R22065050-IL

CAPACITORS

	C	84	D040472084020-IL
	C	85	D040102084060-IL

WG ASSY

There is no service parts.

G-L ASSY

There is no service parts.

G-R ASSY

There is no service parts.