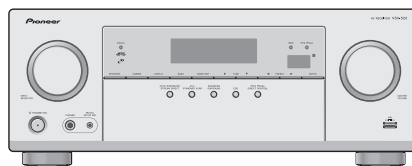


Pioneer

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

PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.

PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium

PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

©PIONEER CORPORATION 2013

K-MZV 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

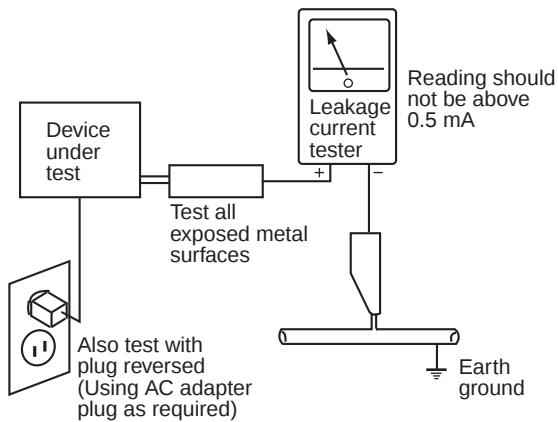
(FOR USA MODEL ONLY)

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

SAFETY INFORMATION.....	2	
1. SERVICE PRECAUTIONS.....	4	
1.1 NOTES ON SOLDERING	4	A
1.2 NOTES ON REPLACING PARTS	4	
1.3 SERVICE NOTICE.....	4	
2. SPECIFICATIONS.....	5	
3. BASIC ITEMS FOR SERVICE	6	
3.1 CHECK POINTS AFTER SERVICING	6	
3.2 JIGS LIST	6	
3.3 PCB LOCATIONS	7	
4. BLOCK DIAGRAM	8	
4.1 OVERALL WIRING DIAGRAM	8	
4.2 AUDIO BLOCK DIAGRAM.....	10	
4.3 POWER SUPPLY BLOCK DIAGRAM.....	12	
4.4 GND BLOCK DIAGRAM	14	B
5. DIAGNOSIS	16	
5.1 TROUBLESHOOTING	16	
5.2 USB/iPod ERROR MESSAGE.....	21	
5.3 PROTECTION CIRCUIT	22	
5.4 IC INFORMATION	24	
6. SERVICE MODE	27	
7. DISASSEMBLY	31	
8. EACH SETTING AND ADJUSTMENT	37	
8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED	37	
8.2 UPDATING OF THE FIRMWARE	38	
8.3 IDLE CURRENT ADJUSTMENT	43	
9. EXPLODED VIEWS AND PARTS LIST.....	44	C
9.1 PACKING SECTION	44	
9.2 EXTERIOR SECTION	46	
10. SCHEMATIC DIAGRAM	50	
10.1 MAIN ASSY (1/2).....	50	
10.2 MAIN ASSY (2/2).....	52	
10.3 D-MAIN ASSY (1/3)	54	
10.4 D-MAIN ASSY (2/3)	56	
10.5 D-MAIN ASSY (3/3)	58	
10.6 OPTCO, FUSB and CONCT ASSYS.....	60	
10.7 CPU ASSY.....	62	
10.8 AMP5 ASSY (1/2)	64	
10.9 AMP5 ASSY (2/2)	66	D
10.10 INSEL, FRONT and HPMIC ASSYS	68	
10.11 SMPS ASSY	70	
10.12 REG ASSY	72	
11. PCB CONNECTION DIAGRAM	74	
11.1 MAIN ASSY	74	
11.2 D-MAIN, OPTCO and FUSB ASSYS.....	78	
11.3 CONCT and CPU ASSYS	82	
11.4 AMP5 ASSY	86	
11.5 INSEL, FRONT and HPMIC ASSYS	88	
11.6 SMPS and REG ASSYS.....	92	
11.7 WG, G-L and G-R ASSYS	96	E
12. PCB PARTS LIST	97	

1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

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

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

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

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

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

1.2 NOTES ON REPLACING PARTS

The part listed below is difficult to replace as a discrete component part.
When the part listed in the table is defective, replace whole Assy.

Assy Name	Parts that is Difficult to Replace			
	Ref No.	Function	Part No.	Remarks
D-MAIN Assy	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".

5

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)

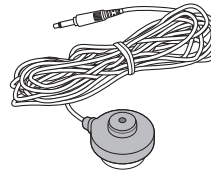
17 3/16 in. (W), 6 5/8 in. (H), 13 1/16 in. (D)

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

A Items to be checked after servicing

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

No.	Procedures	Check points
1	Confirm whether the customer complain has been solved. 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".



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

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

1 2 3 4

4. BLOCK DIAGRAM

4.1 OVERALL WIRING DIAGRAM

A

B

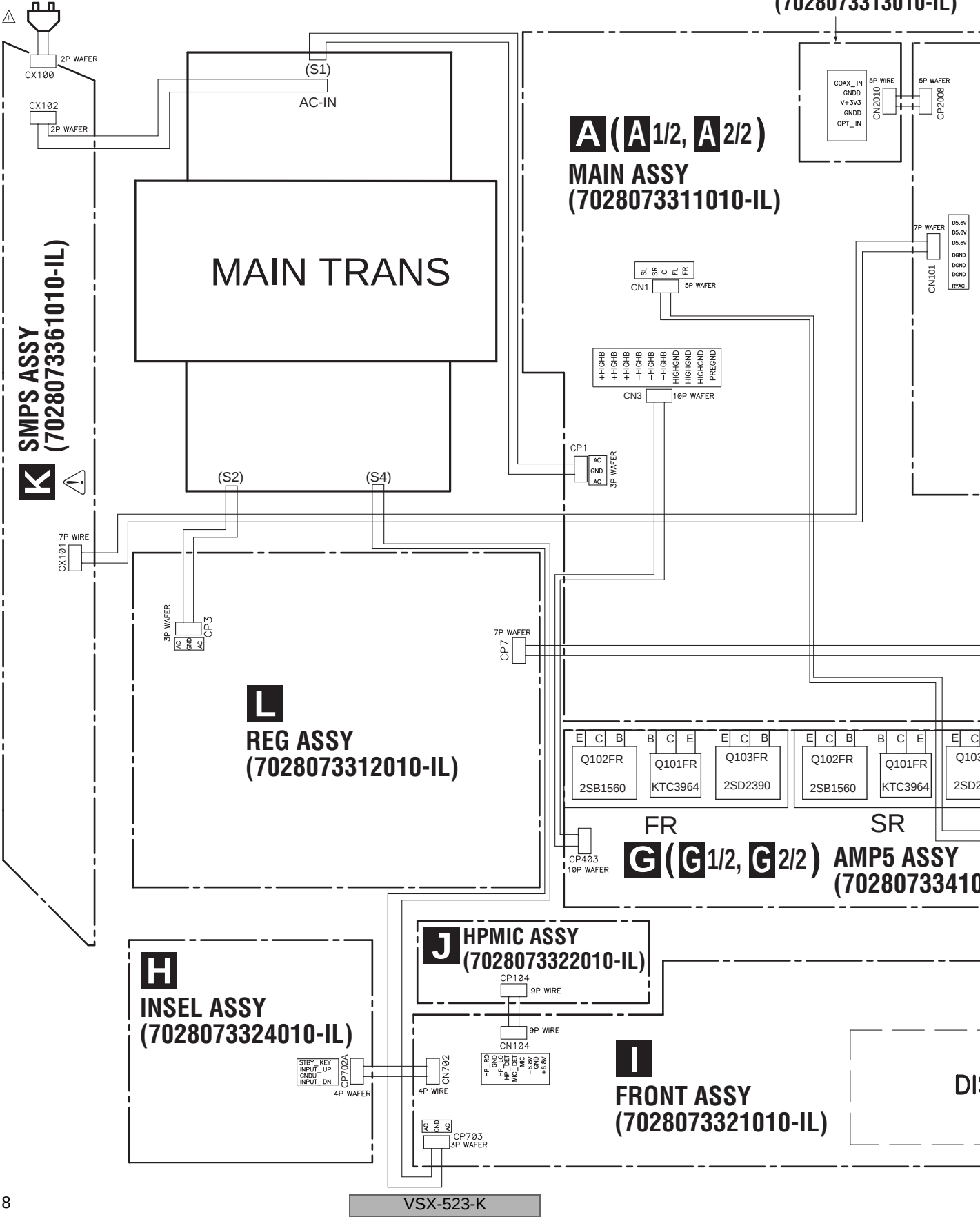
C

D

E

F

AC CORD
or INLET



1 2 3 4

4.2 AUDIO BLOCK DIAGRAM

A

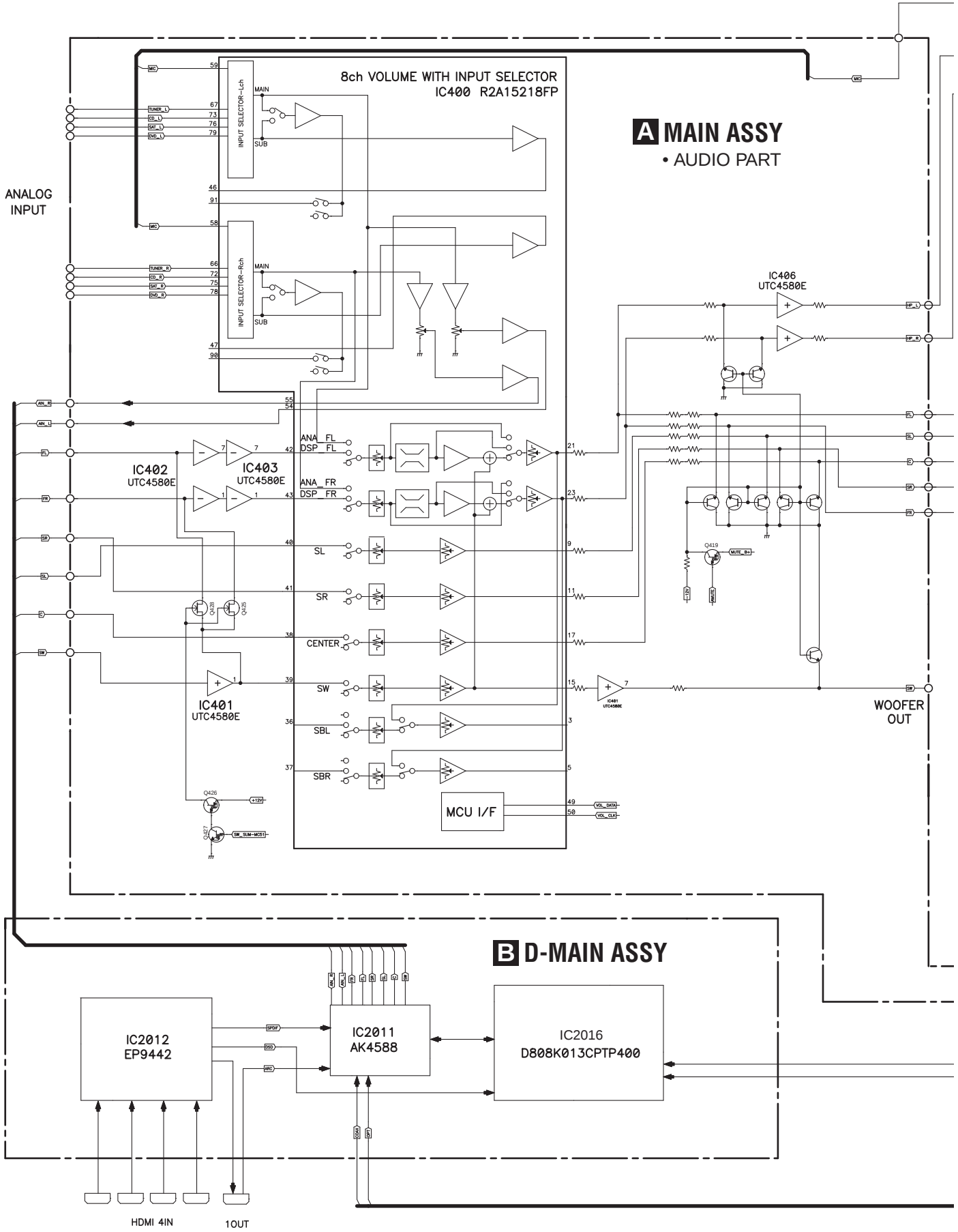
B

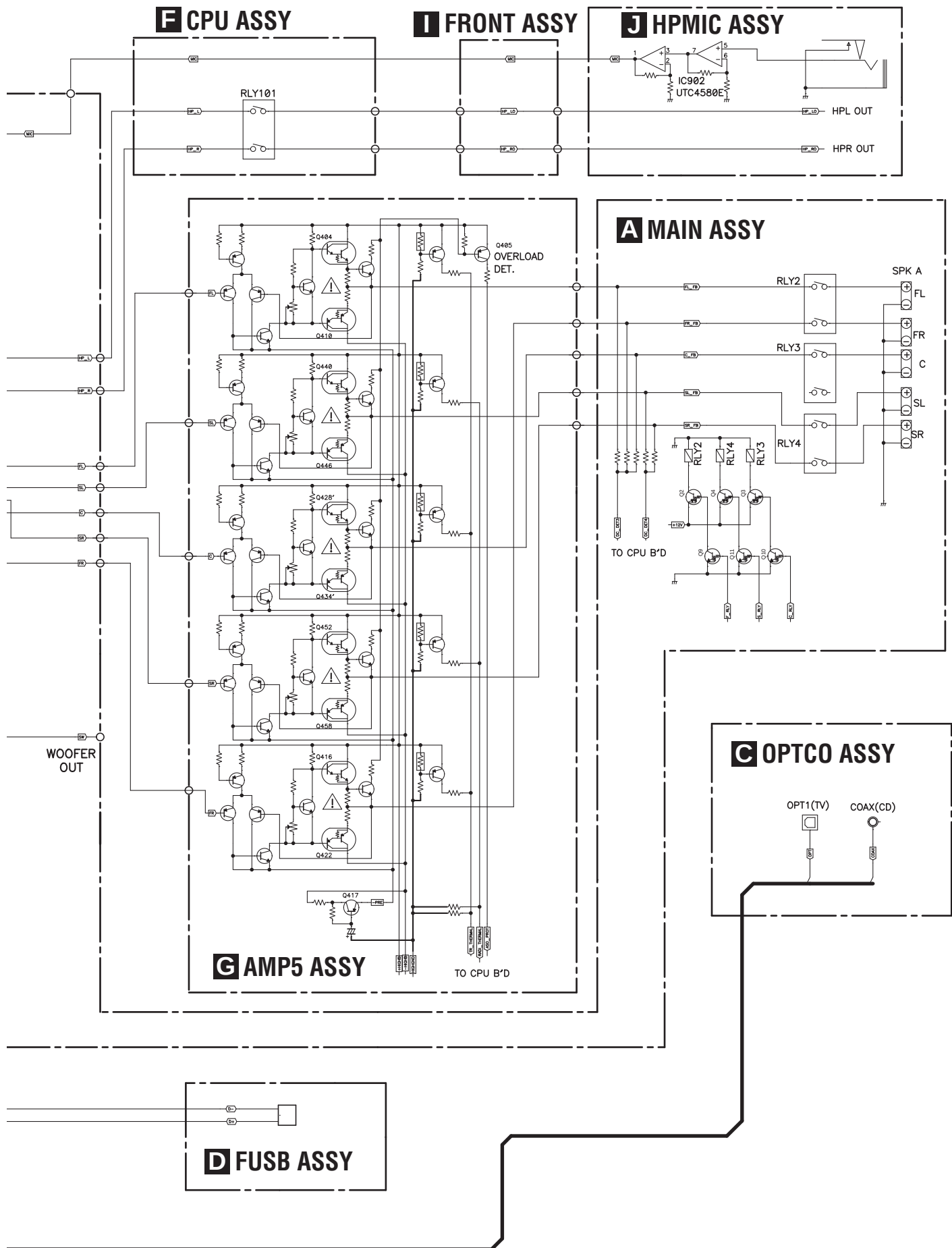
C

D

E

F



F CPU ASSY**I FRONT ASSY****J HPMIC ASSY****A MAIN ASSY****C OPTCO ASSY****G AMP5 ASSY****D FUSB ASSY**

1 2 3 4

4.3 POWER SUPPLY BLOCK DIAGRAM

A

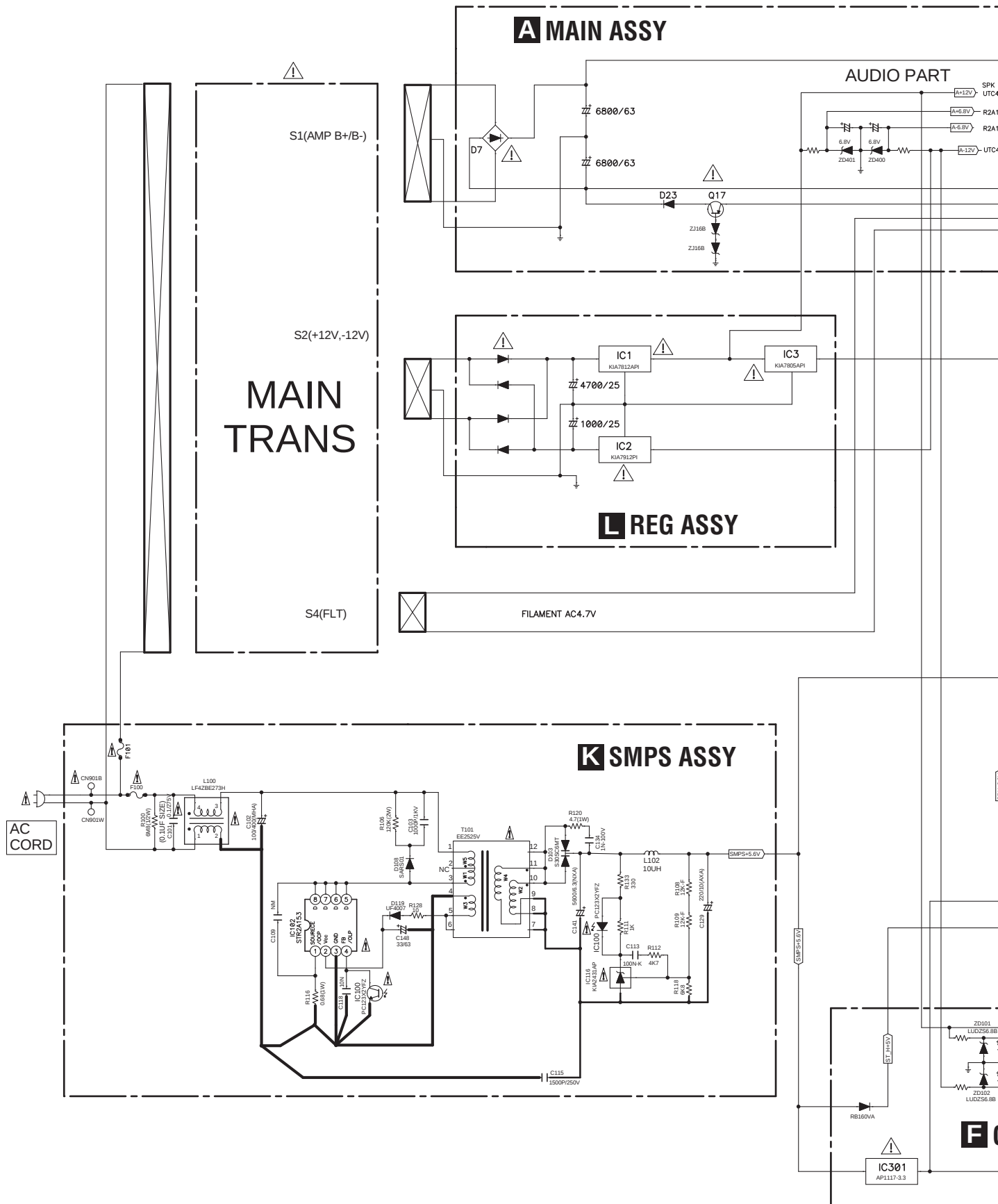
B

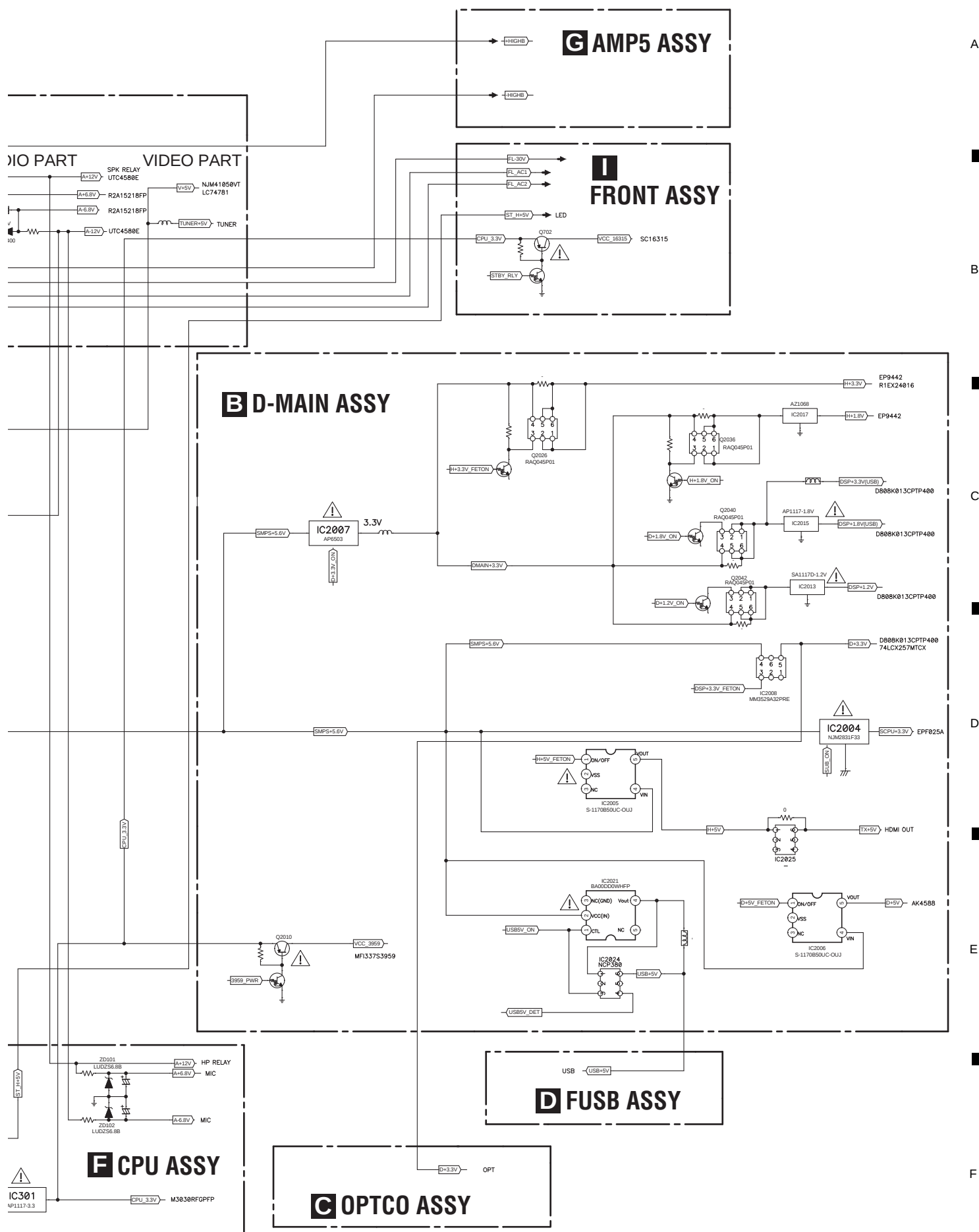
C

D

E

F





A

B

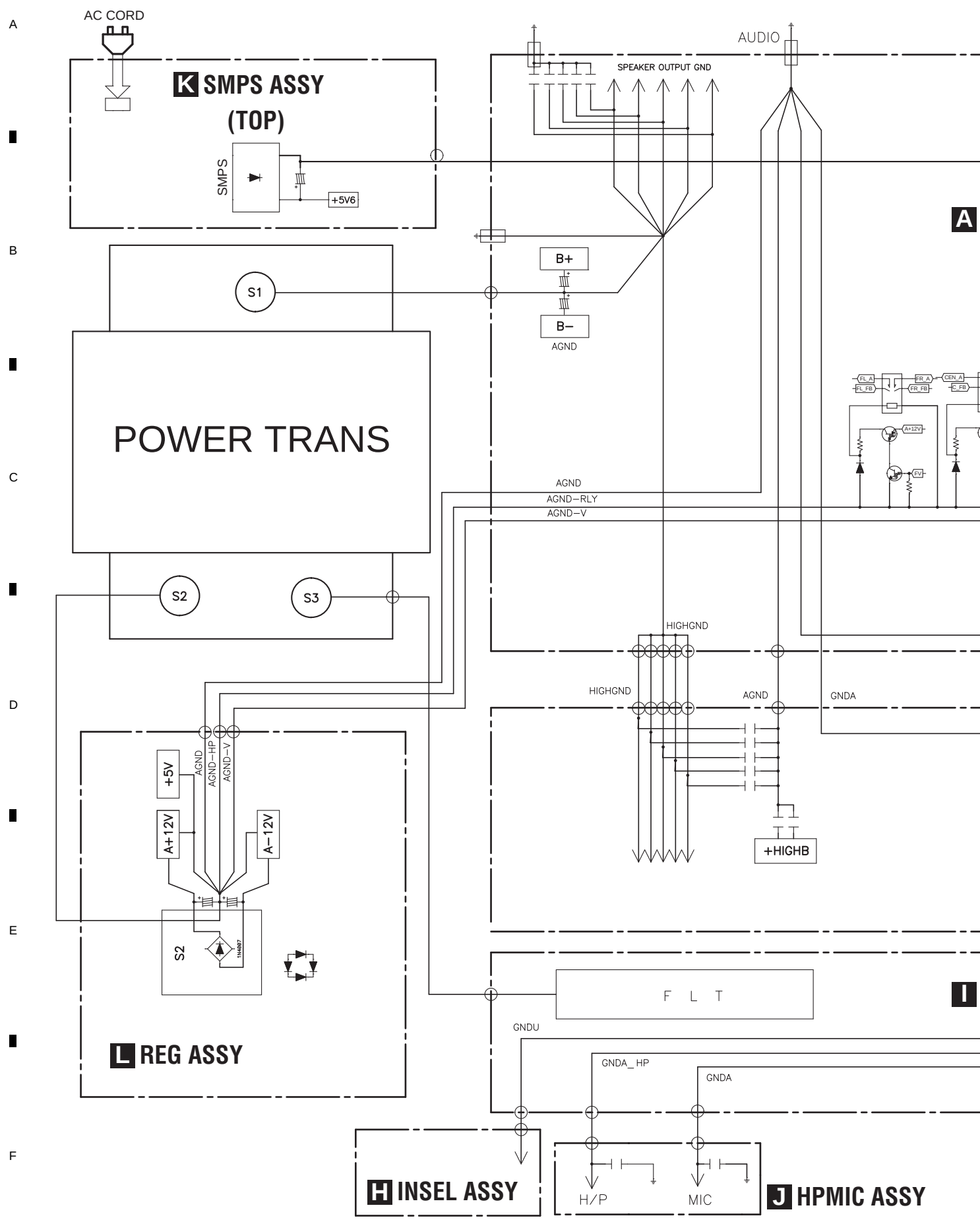
C

D

E

F

4.4 GND BLOCK DIAGRAM



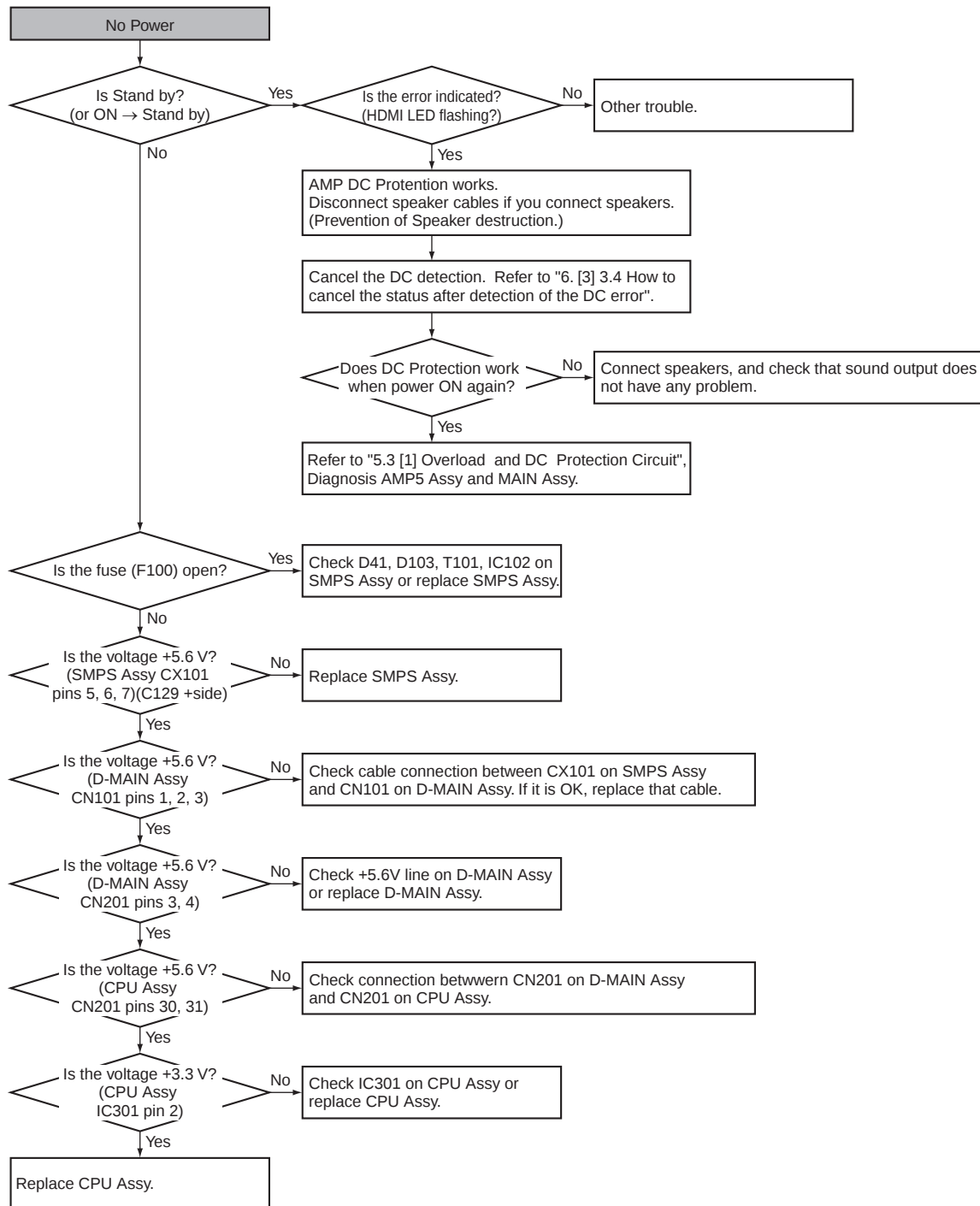


5. DIAGNOSIS

5.1 TROUBLESHOOTING

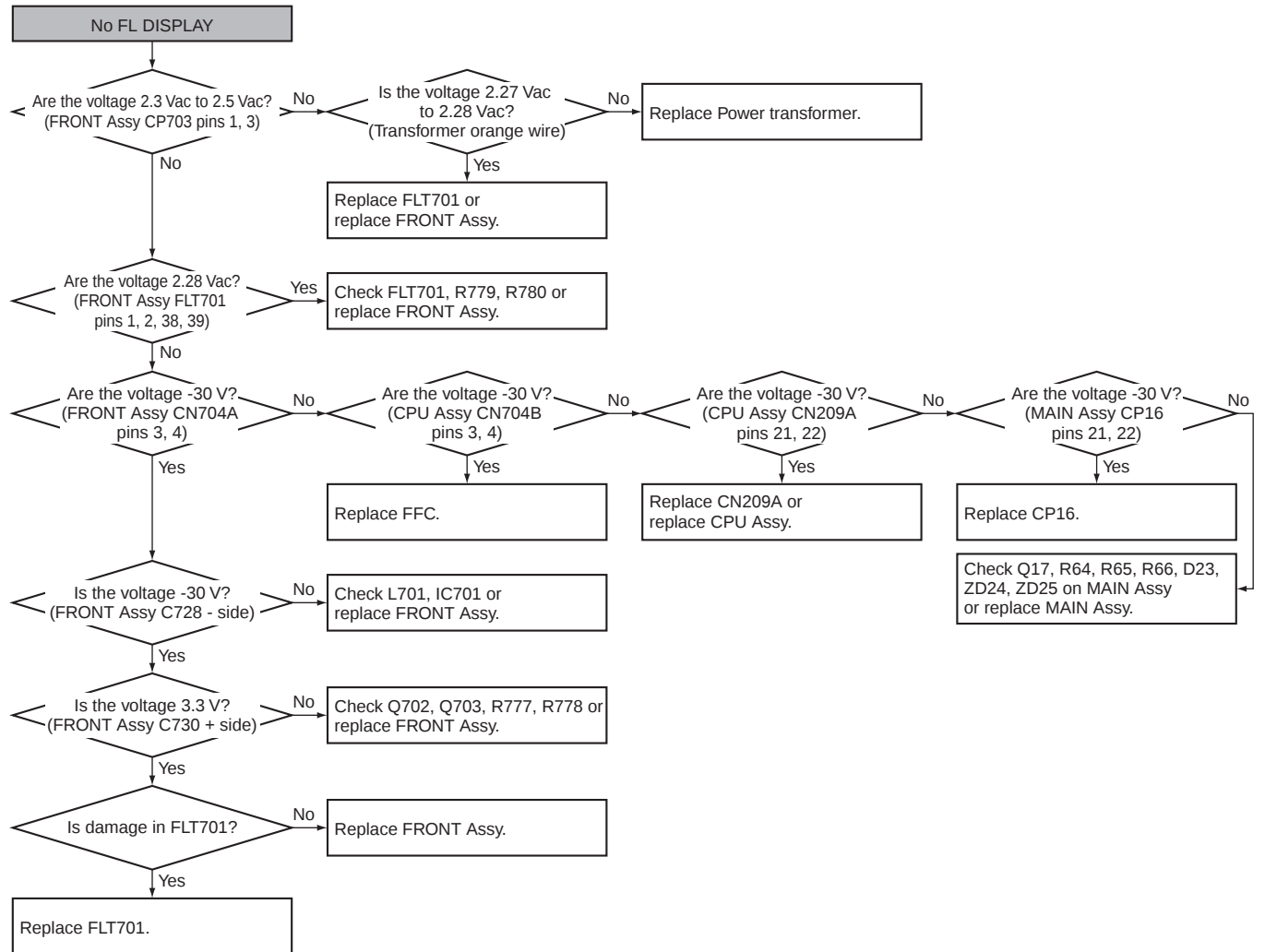
No Power

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



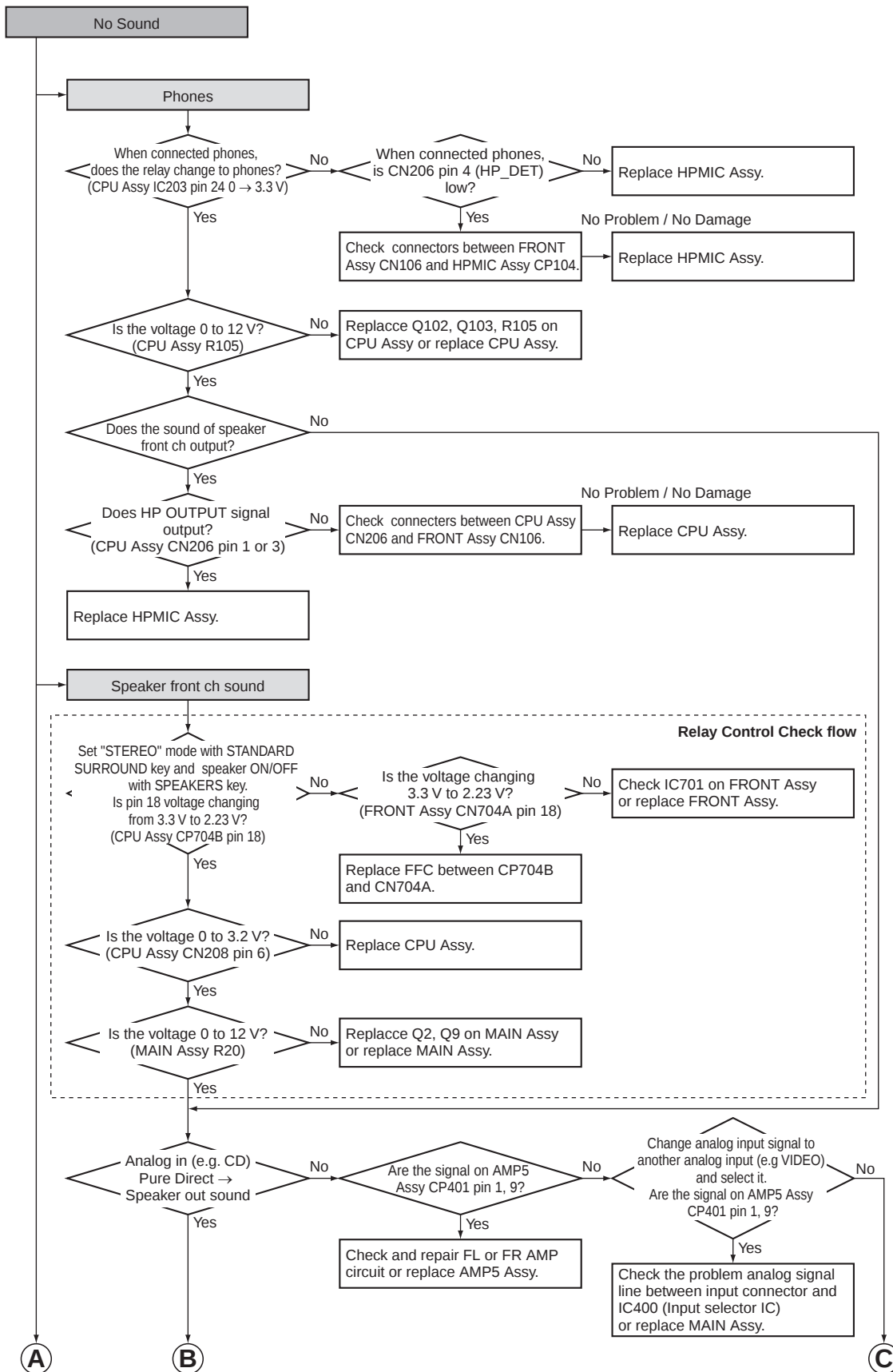
No FL DISPLAY

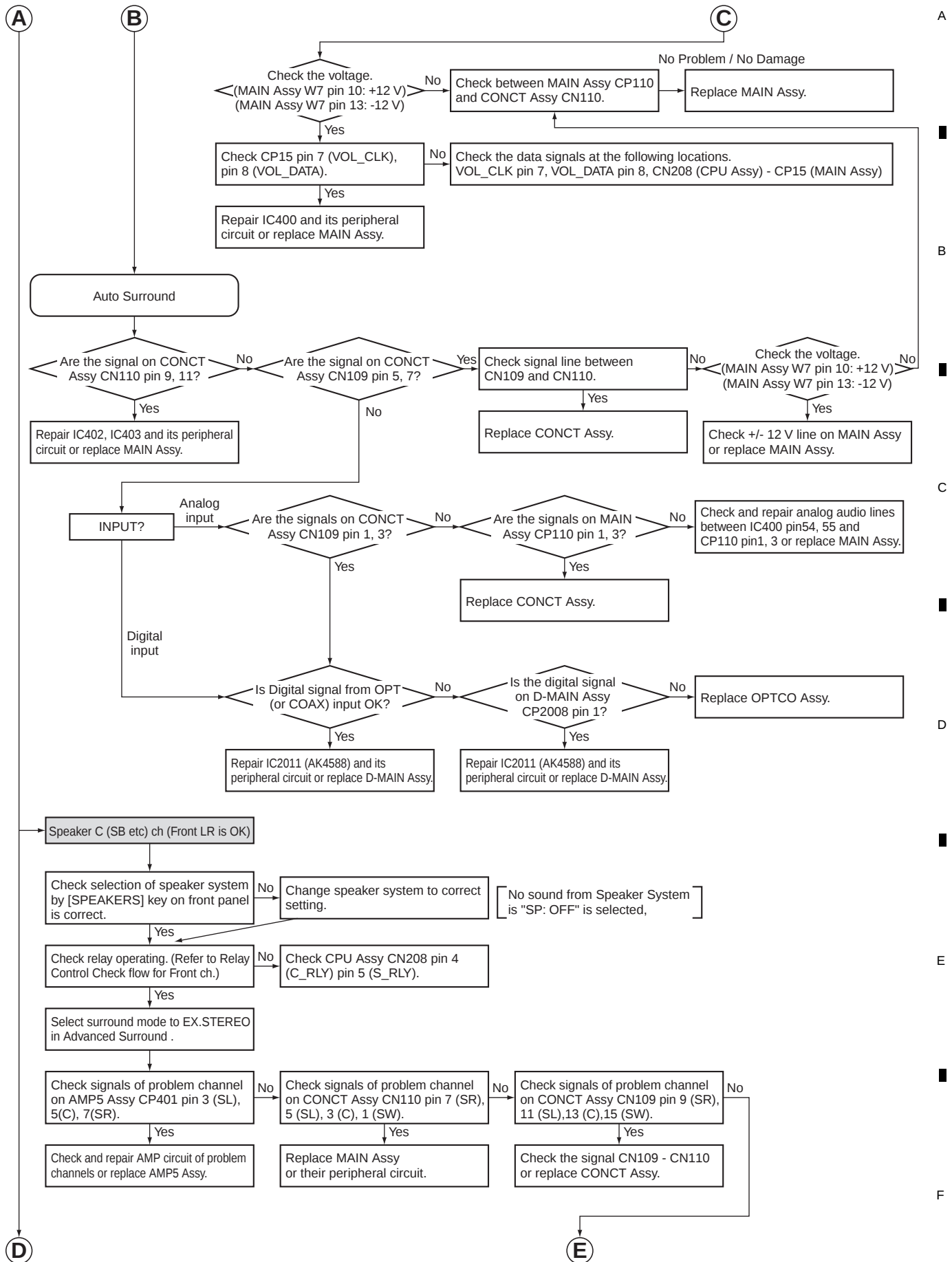
This is just for general reference and does not including every single case.

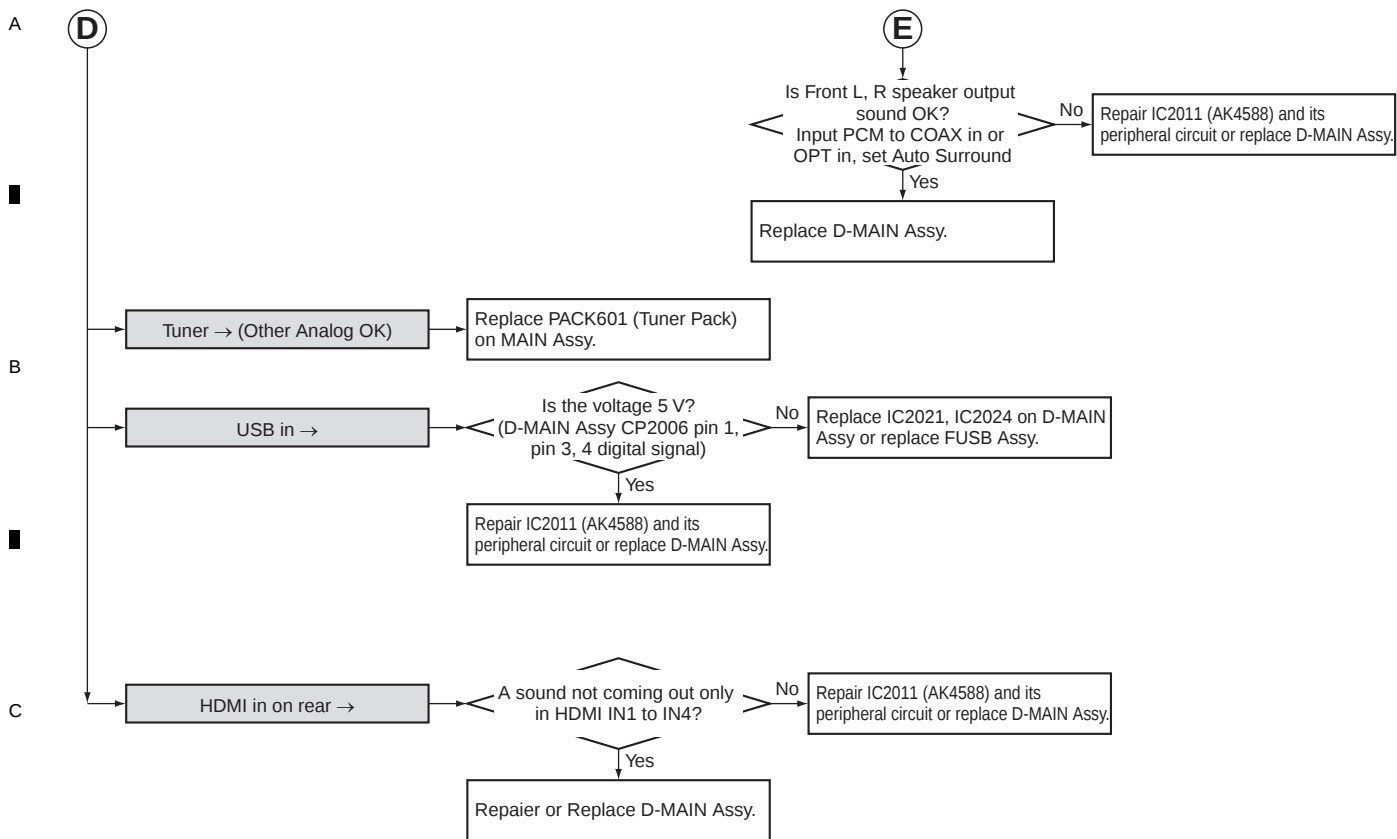


No Sound

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

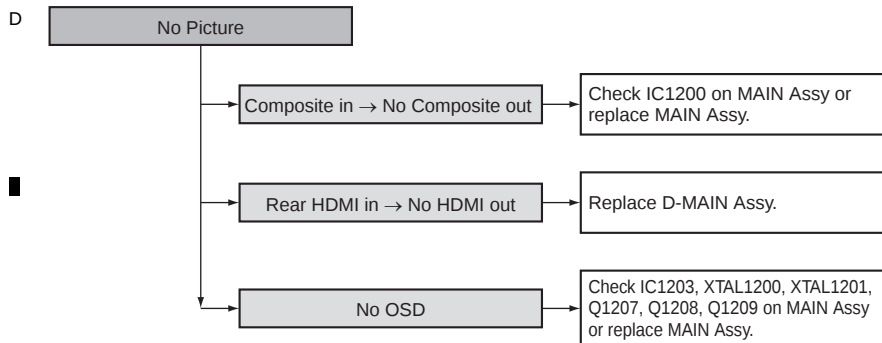






No Picture

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



Functional Name

iPod ERROR MESSAGE

Outline

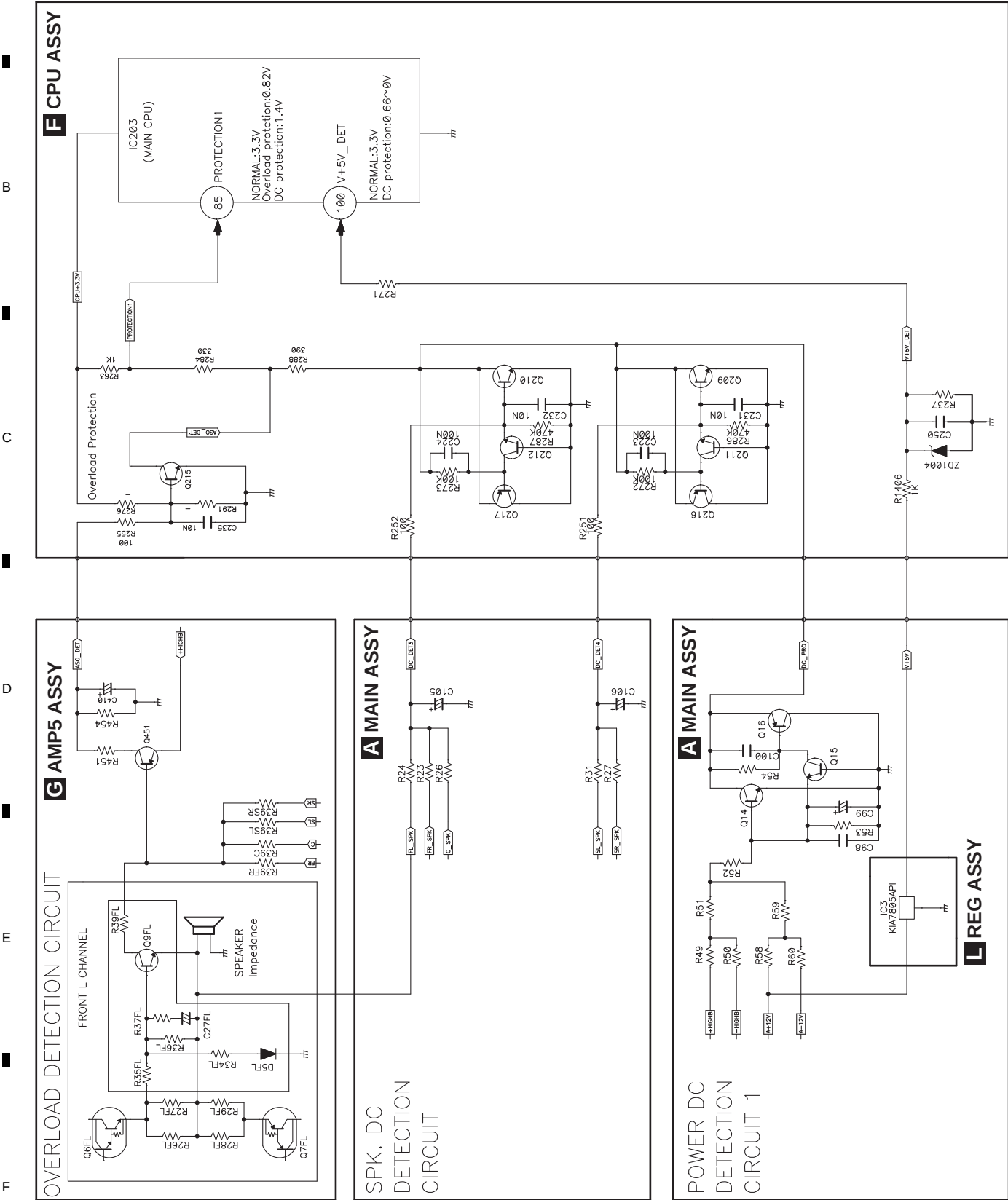
Error message is displayed at abnormality time.

Front Key Sequence Change	OSD display	Time (sec)	FL Display
Over Current Error	123456789012345678901234 1iPod 2 3 4iPod / USB Error 4 5 6 7 8 9 0 1 2		I//UERR4
No Track Caution	123456789012345678901234 1iPod 2 3 4No Track 5 6 7 8 9 0 1 2		N.O: TRACK

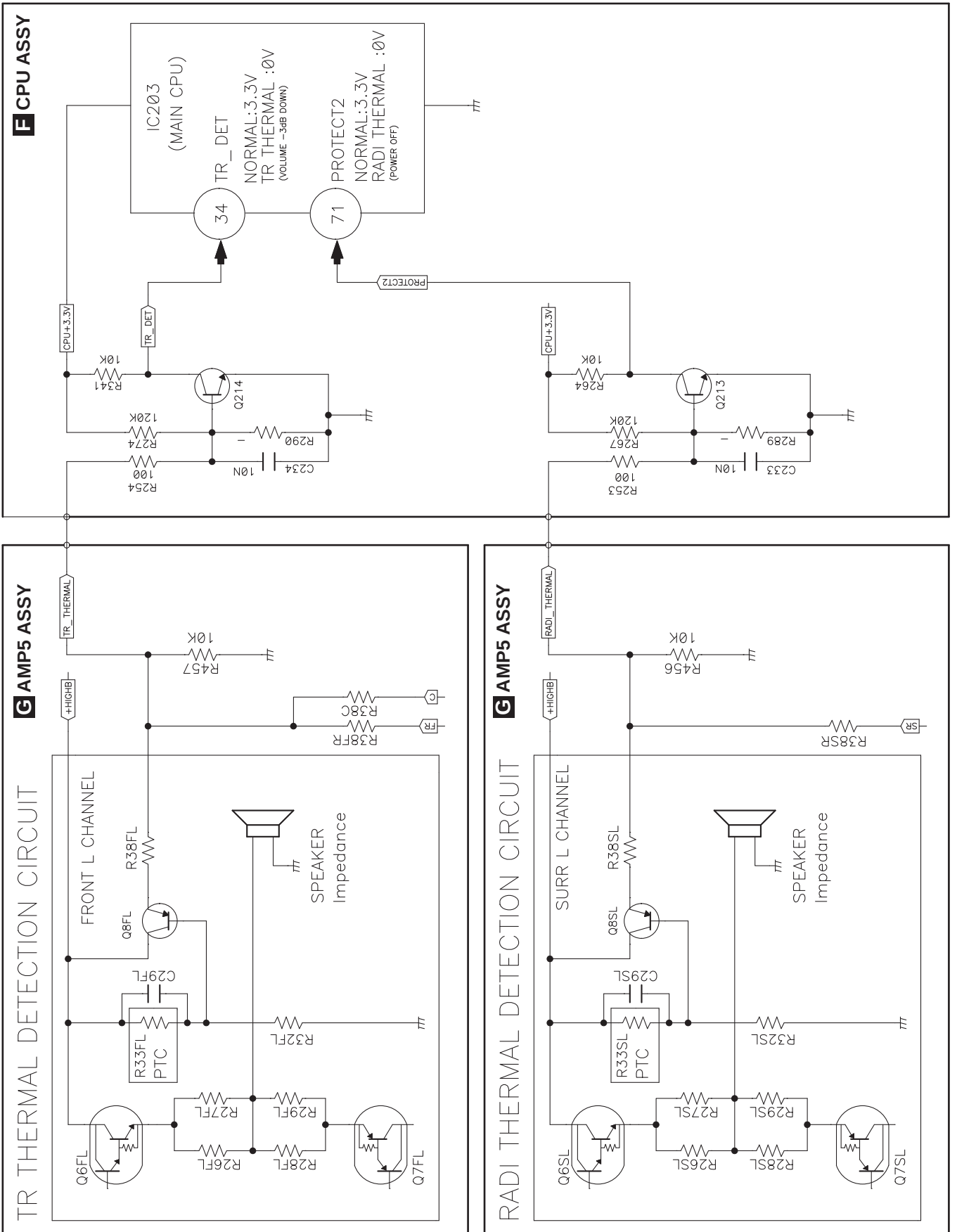
1 2 3 4

5.3 PROTECTION CIRCUIT

A [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	Output 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	USBD CERR	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

A ■ (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	Input for HDMIOUT HPD
61	NC		Not used
62	SUB_RXD	I	Soft update UART communication data input pin (UPDATE JIG B'D)
63	SUB_TXD	O	Soft update UART communication data output pin (UPDATE JIG B'D)
64	HDMI_CEC	I/O	Data signal Input from HDMI_CEC

[2] Reset mode for numbers of protection detections

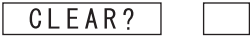
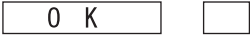
[Purpose]

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.)		5 (-> normal) *1	
[ENTER] key ↓		5 (-> normal) *1	
(Counter Clear end)			
(Normal display)	 *2	usually	

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

*2 Indication when the BD function is selected

[Detailed explanations]

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

[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)			

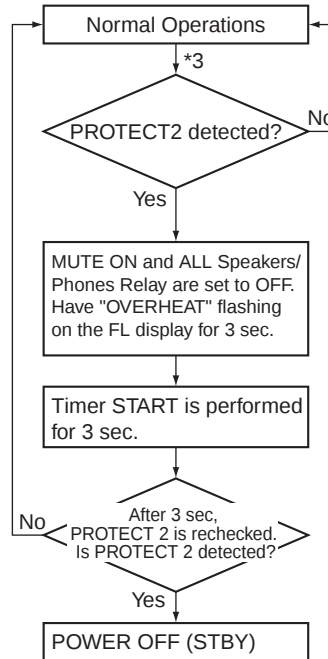
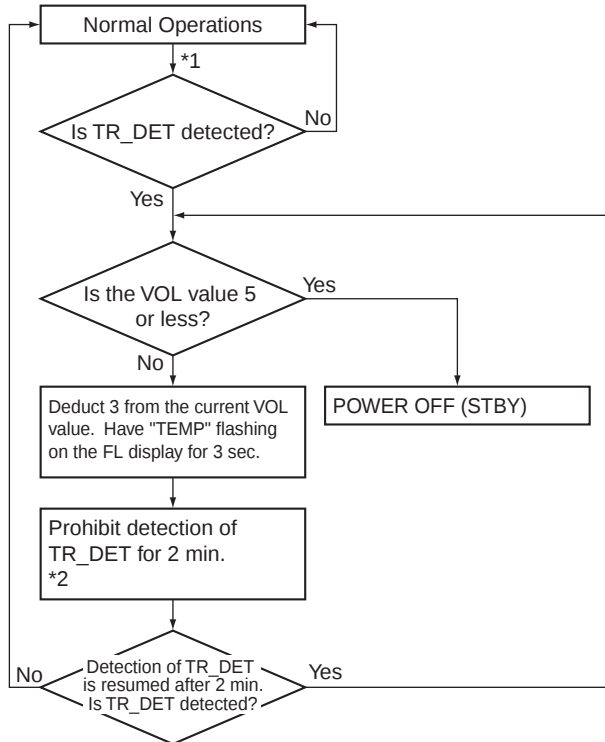
3.3 TEMP (AMP overheat) error detection

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)

Counter: Temp1 PROTECT2
PL2_1 (71 pin)
(RADI_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.

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

7. DISASSEMBLY

Note:

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

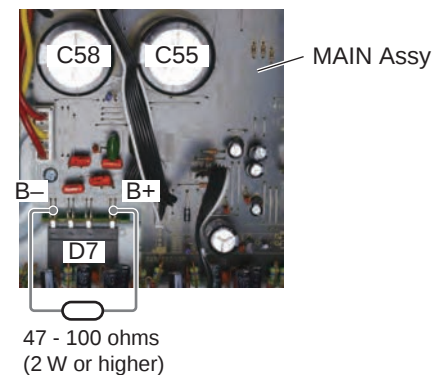
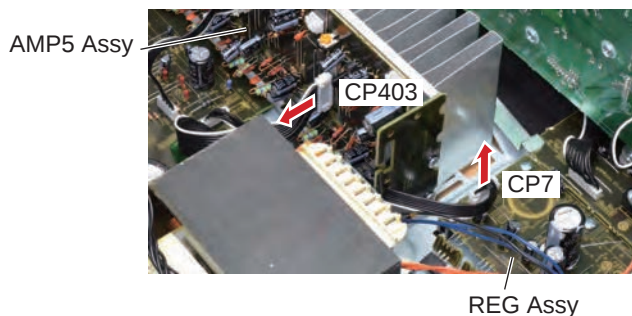
Some connections of the housing wires or connectors may be tight. When disconnecting those wires or connectors, be careful not to damage them.

1. Discharging

[1] MAIN Assy Capacitor (C55, C58)

[Procedures]

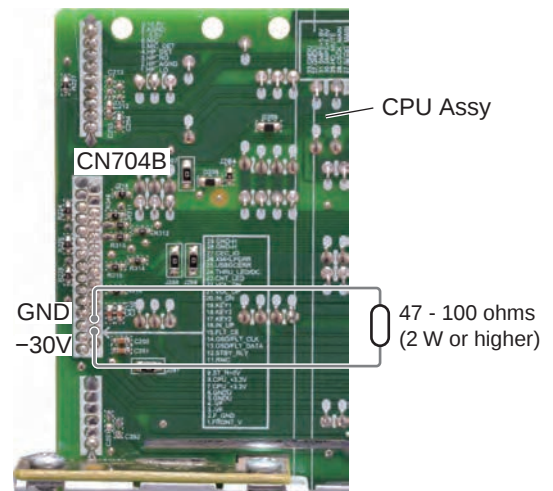
- (1) Unplug the power cord.
- (2) Disconnect the 10P connector from CP403 of the AMP5 Assy between CN3 of the MAIN Assy.
- (3) Disconnect the 7P connector from CP7 of the REG Assy between W7 of the MAIN Assy.
- (4) Connect B+ and B- terminal of the D7, using resistor leads with 47 - 100 ohms (2 W or 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).



A 2. Disassembly

Note:

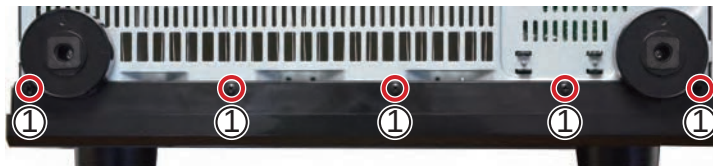
For performing the diagnosis shown below, the following jigs for service is required:

- 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.

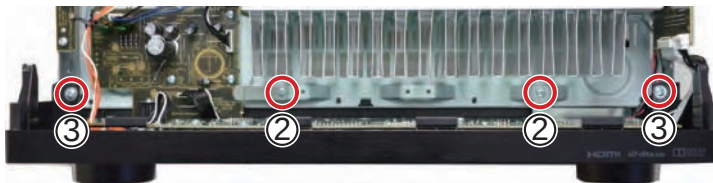
- (1) Remove the five screws.
(BBZ30P080FTB)



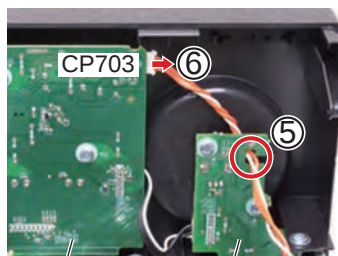
• Bottom view

- (2) Remove the two screws.
(BBZ30P080FTC)

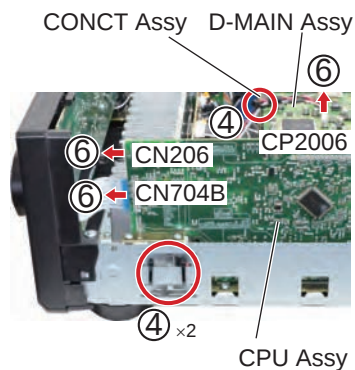
- (3) Remove the two screws.
(1500001206010-IL)



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



FRONT Assy INSEL Assy



CPU Assy

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

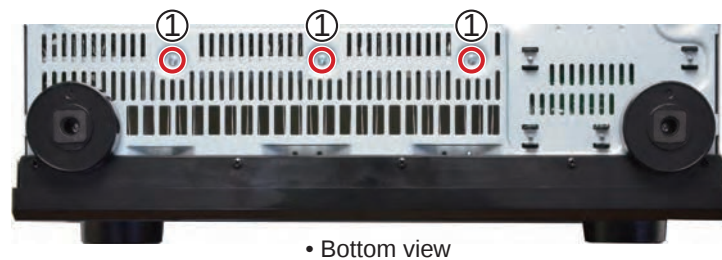


[2] Heatsink Section

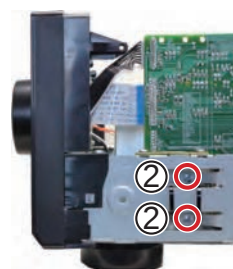
Caution: Heatsink section in work becomes hot, and be careful with it.

Remove the cabinet by removing the 10 screws.

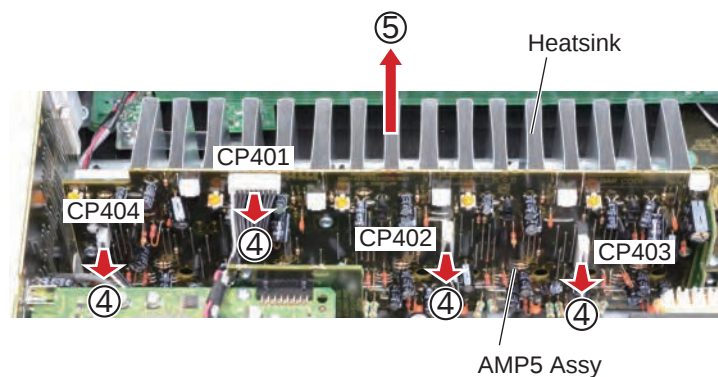
- (1) Remove the three screws.
(BBZ30P080FTC)



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



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



A [3] D-MAIN Assy

Remove the cabinet by removing the 10 screws.

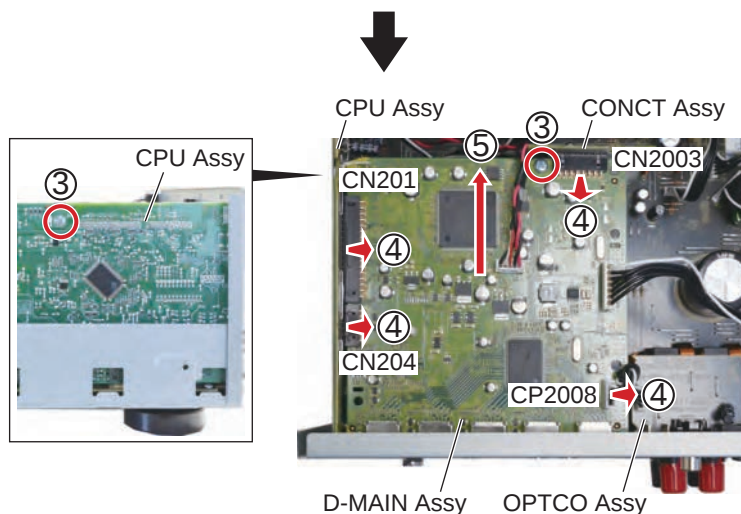
[3-1] Disassembly

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



• Rear view

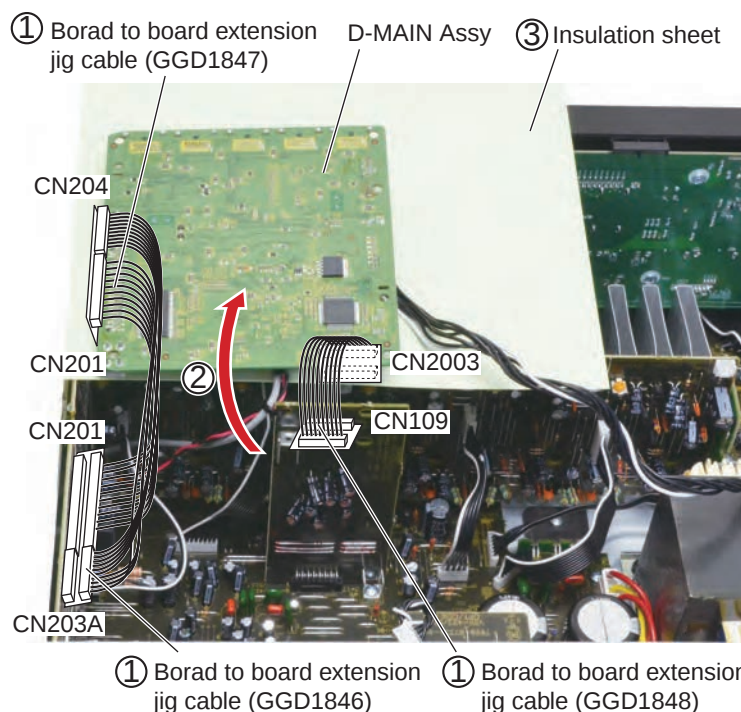
- (3) Remove the two screws.
(BBZ30P080FTC)
- (4) Disconnect the three B to B connectors and one connector.
(CN201, 204, 2003, CP2008)
- (5) Remove the D-MAIN Assy.



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

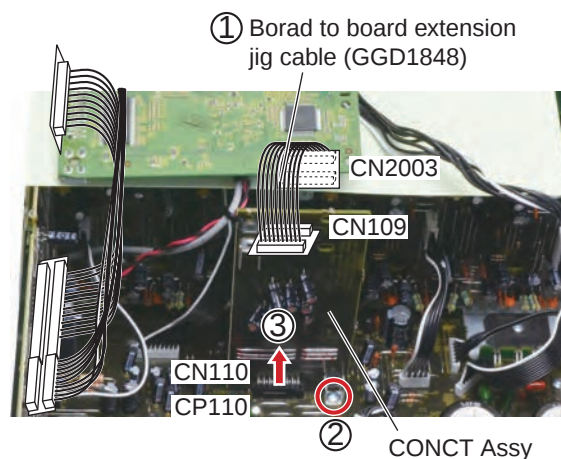
- (1) Connect the three extension jig cables.
- (2) Arrange the D-MAIN Assy in the photo below.
- (3) Insert any insulation sheet.

Diagnosis



[3-3] Diagnosis of AMP5 Assy

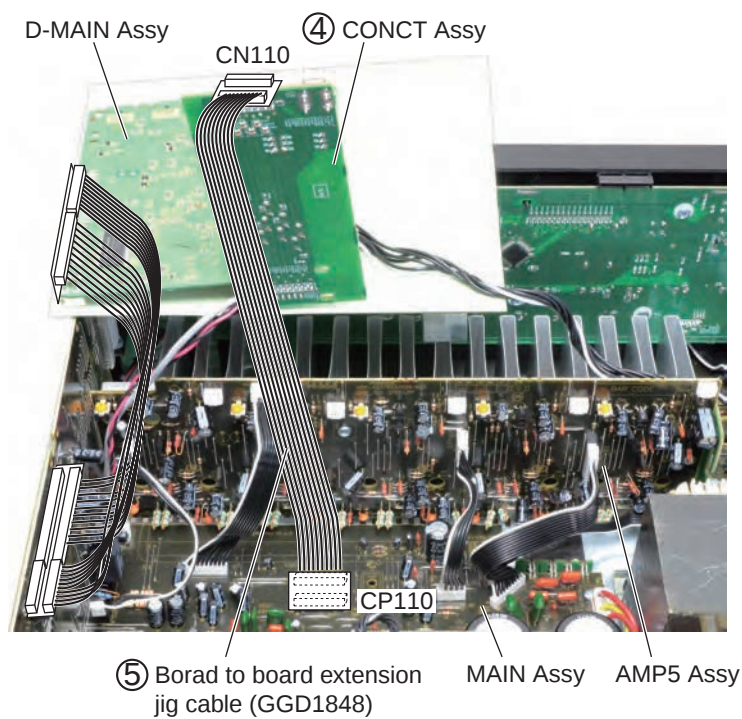
- (1) Disconnect the one extension jig cable.
- (2) Remove the one screw.
(BBZ30P180FTC)
- (3) Remove the CONCT Assy by disconnecting the one BtoB connector.
(CN110)



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

↓

Diagnosis

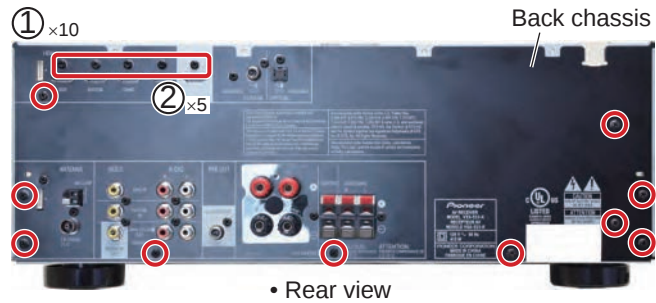


A [4] MAIN Assy

Remove the cabinet by removing the 10 screws.

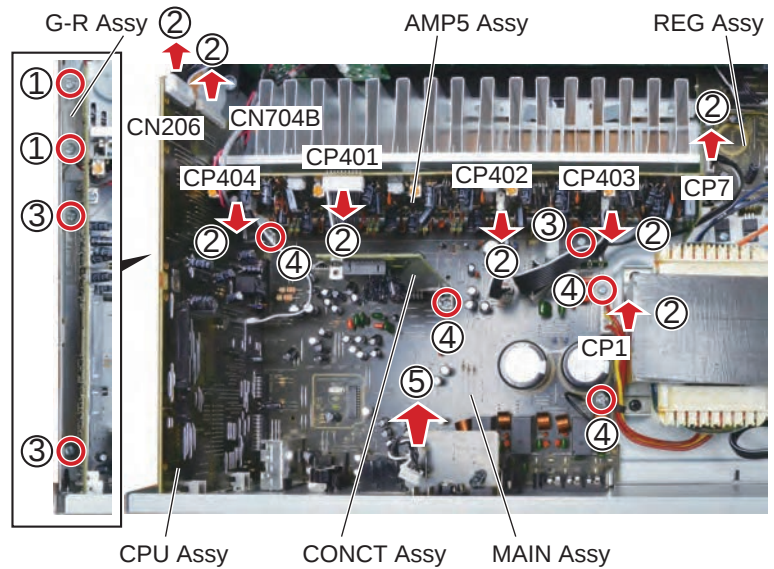
[4-1] Back chassis, D-MAIN Assy

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



C [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 ON REPLACING 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.

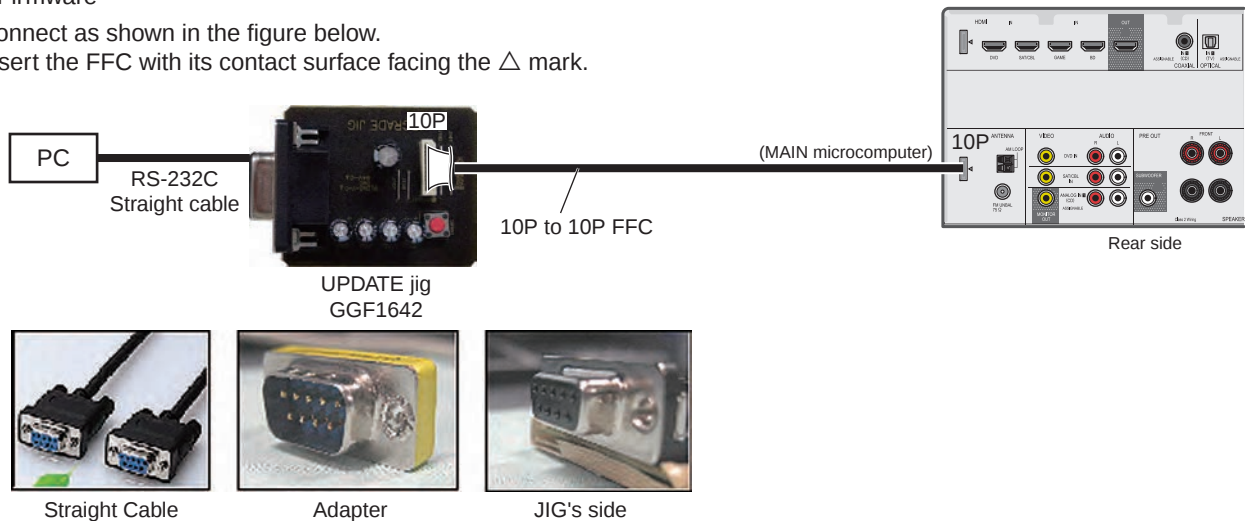
[Necessary Tools and Connections]

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.



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>

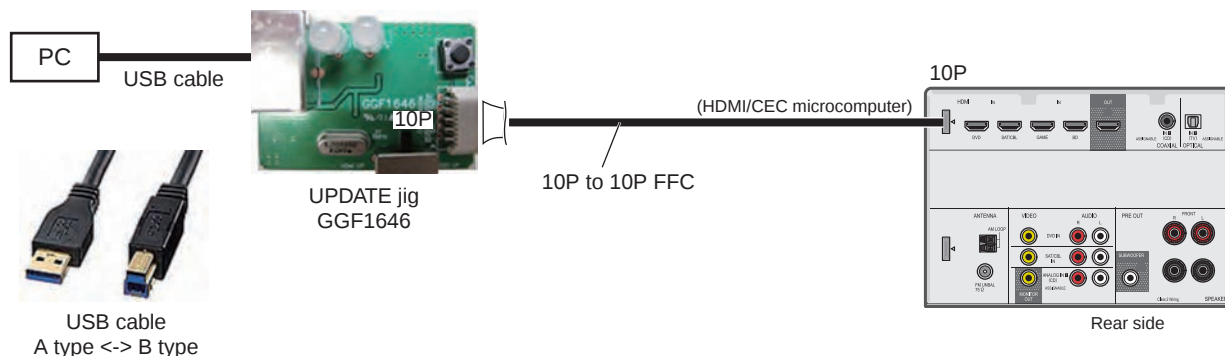
1. Thaw the upgrade programII.zip.
Appear the below folderes and files.
Folder name: CDM20812
Folder name: EPFlash
* Store the EPFlash.exe file in the desktop of the PC.

2. Install the driver.
Request the driver at the time of the conecting 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 Δ mark.

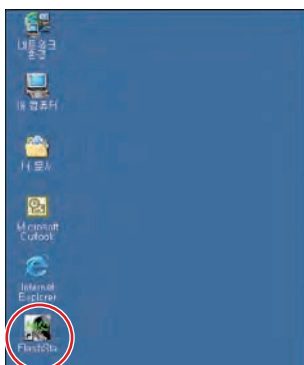


Microcomputers update

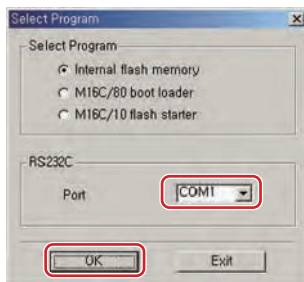
[Procedures]

■ for MAIN microcomputer

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



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



Select for COM port.

[if the following messages are displayed]



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

4. Select the update file and enter ID.

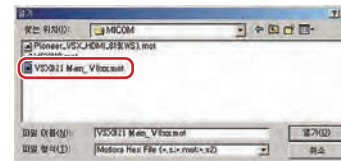


② Enter ID.
Enter "ff" in all field.

③ Press OK button to go to next step.

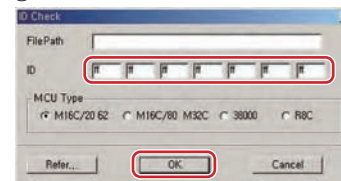
① Selection of upgrade file

① Select the update file



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

② Enter ID.

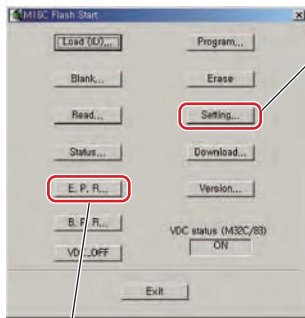


Press the OK button.



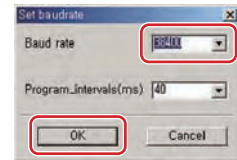
Press the OK button.

5. Set speed update and update the MCU.



① Set speed of update.

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



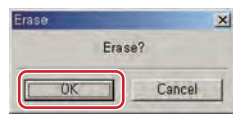
Press the OK button.

② Update the MCU.

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

② Update the MCU

Press the E.P.R ... button



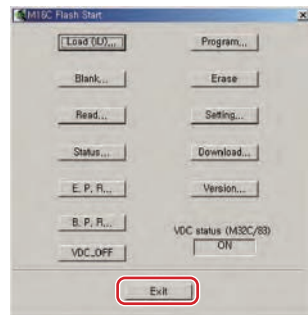
Press OK button.



6. Update Finished MAIN microcomputer.



Press the OK button.

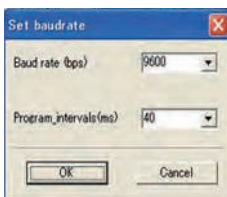


Press the Exit button.
Please wait for until this window disappears.

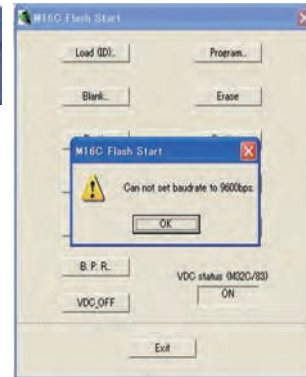
If the following messages are displayed, shut the update program down, and start the update again from step 1.



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



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



7. Unplug the AC cord.

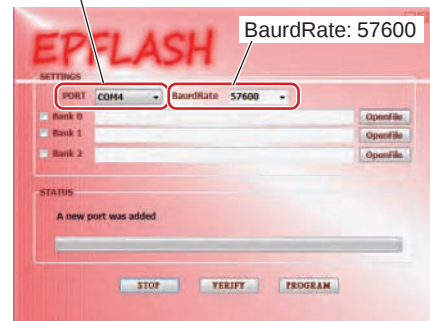
Disconnect the FFC cable.

for HDMI & CEC (SUB) microcomputer

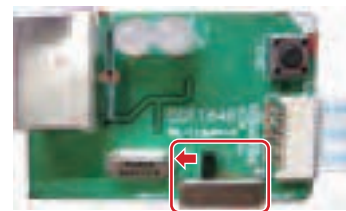
1. Unplug the AC cord.

Start up the application EPFlash on the PC.

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



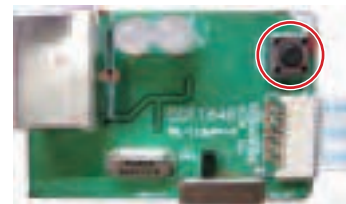
2. Select "HDMI UP" on the Upgrade Jig.



Connect the PC and the Upgrade Jig.

Connect the FFC cable. (HDMI microcomputer)

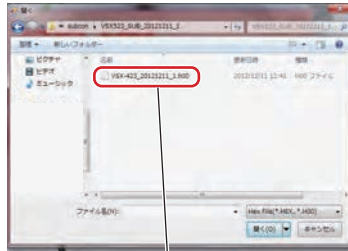
3. Holding down the tact switch (RESET) of the Upgrade Jig in AC OFF state. Release the tact switch after AC ON, power ON (2-3 seconds later).



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

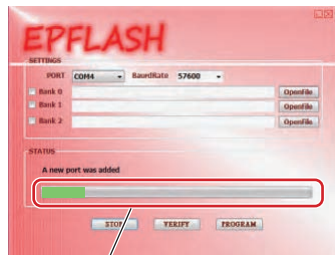


Be chosen automatically to Bank 2 when you choose file of H00 in Bank 0.



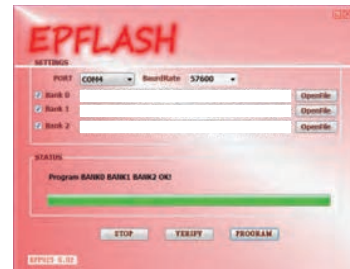
Select "VSX-423_*****.h00" file to update MCU.

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

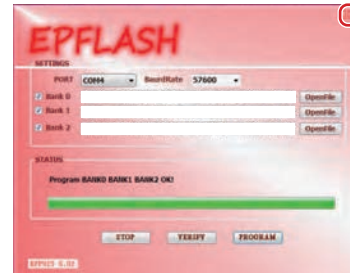


Rate of the progression is appeared.

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.

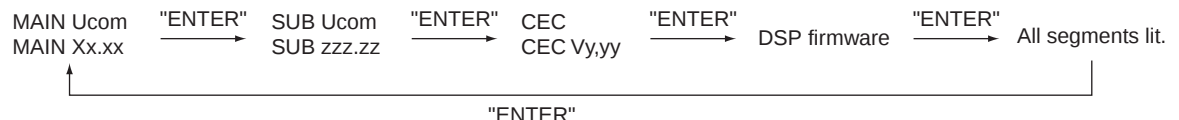
If a message except the above is indicated, does AC OFF, and confirm a PC, Upgrade Jig, connection of FFC Cable, and start the update again from step 1.

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 version 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:



2. Turn the unit off.

A ■ DSP firmware update**[Procedures]**

1. Select TV function, 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.

B

C

D

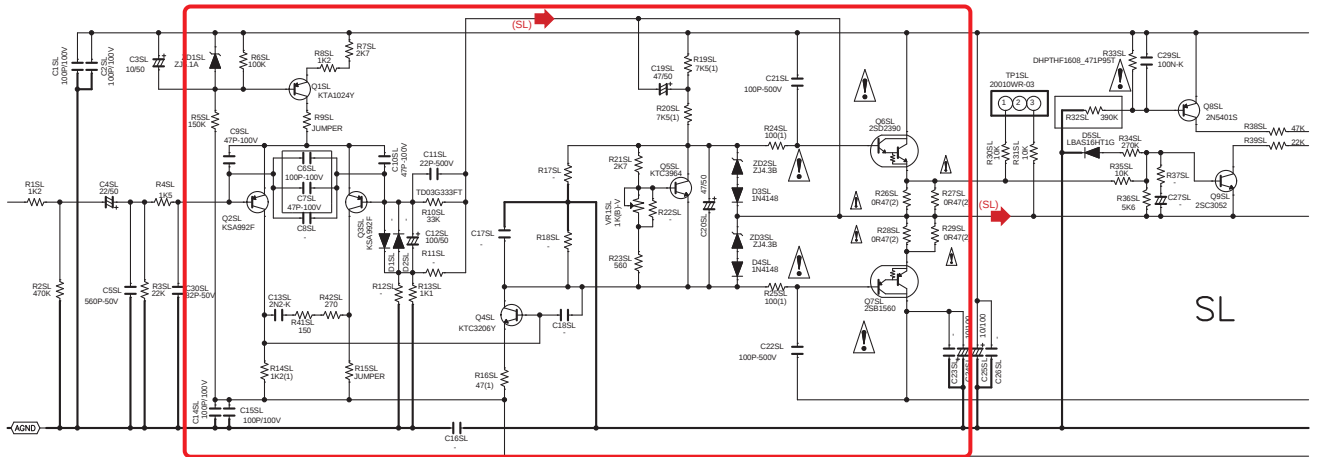
E

F

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	- Turn on the power. - Perform aging for one minute. - Connect a digital voltmeter to the measurement point. - Turn the adjustment VR so that the voltage becomes in 2.0 mV $\pm$ 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.

AMP5 ASSY

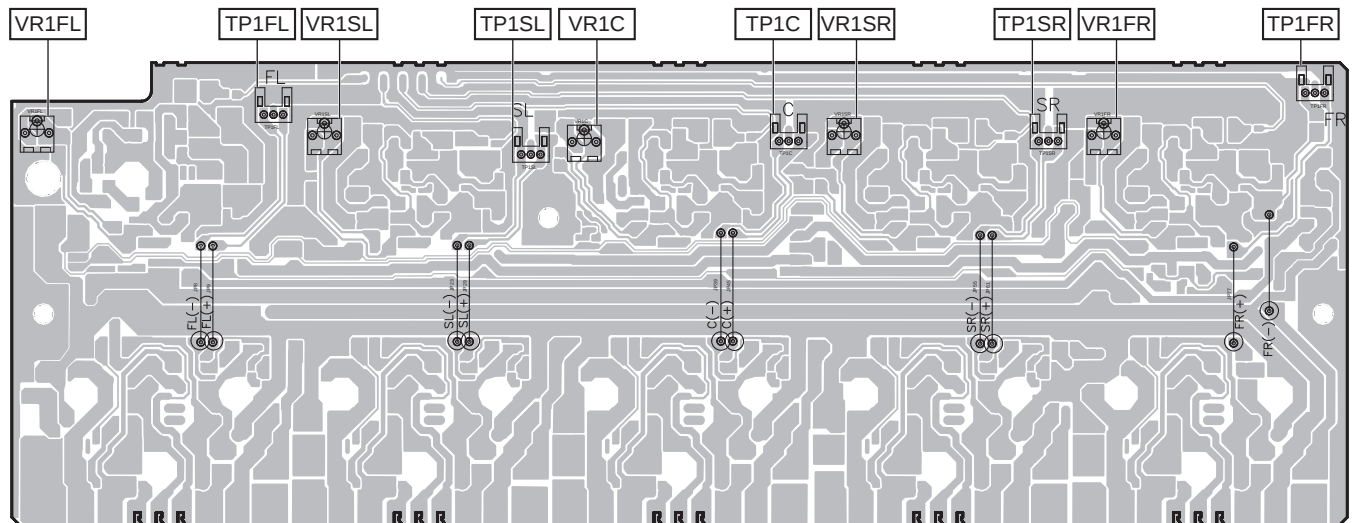


Fig.1

SIDE A

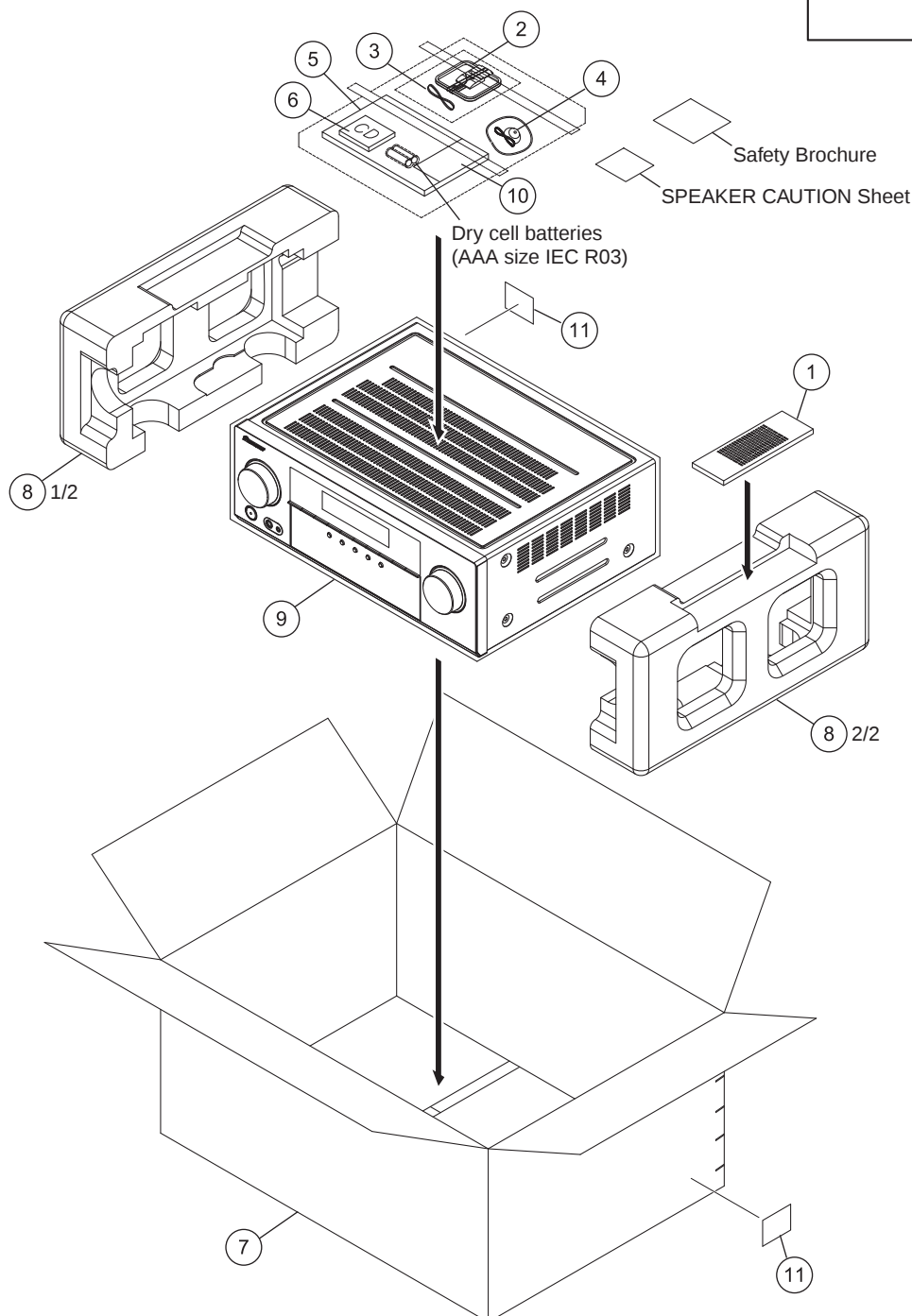
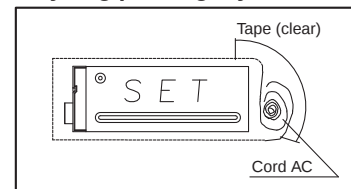
9. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.

- The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screws adjacent to ▼ mark on product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
(In the case of no amount instructions, apply as you think it appropriate.)

9.1 PACKING SECTION

Poly bag packing style



△

A

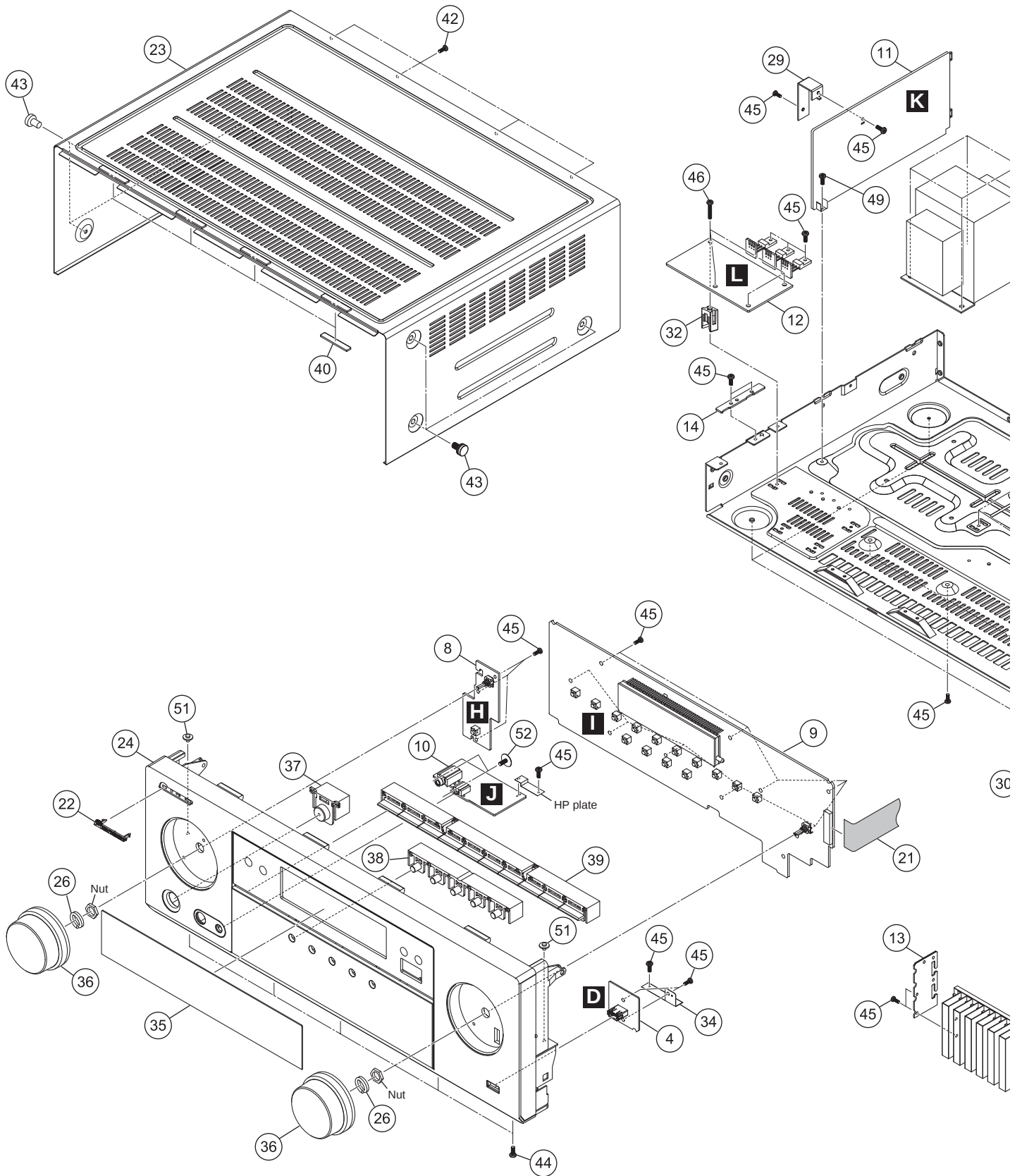
B

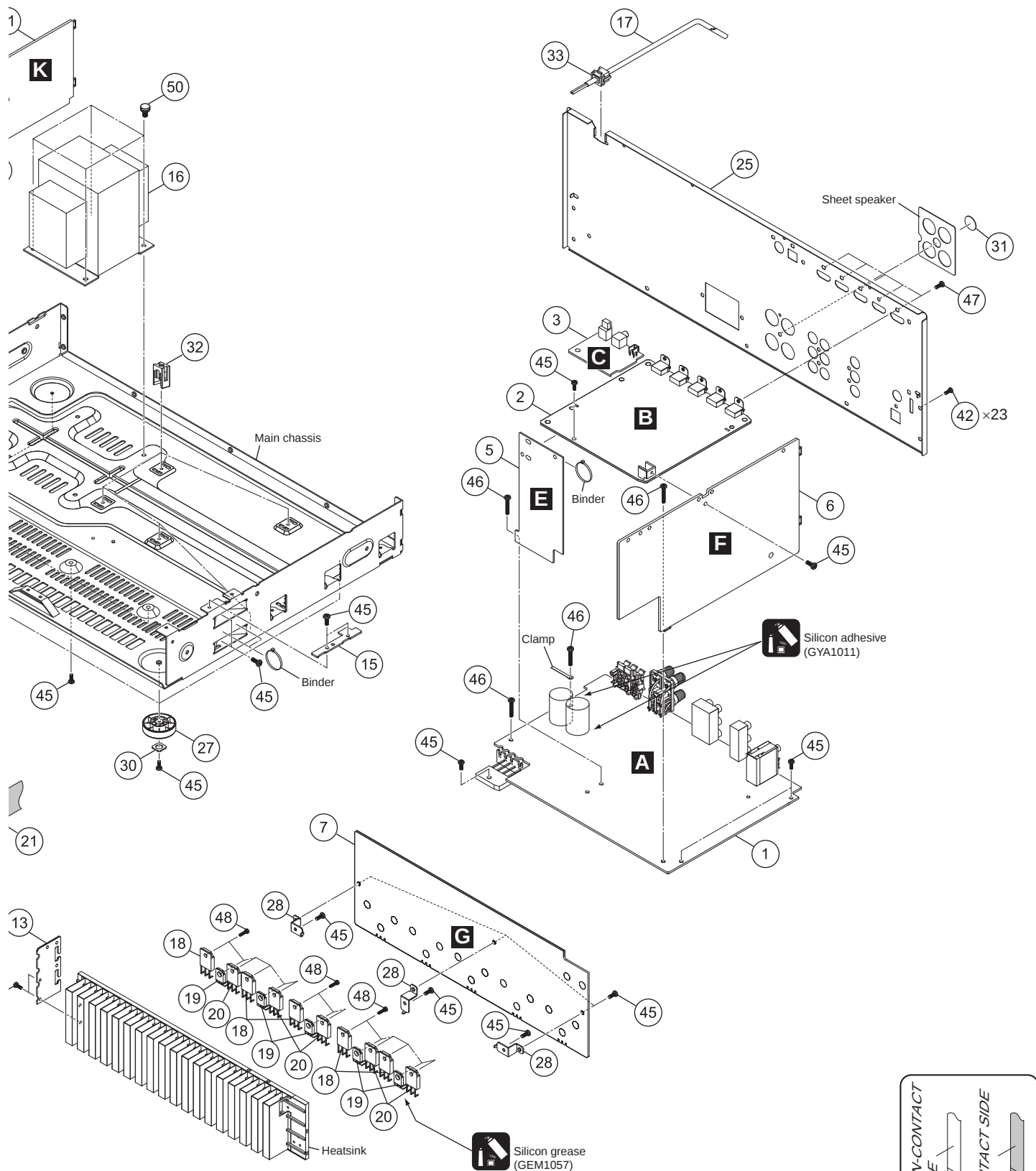
C

D

E

F





EXTERIOR SECTION PARTS LIST

	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
A	1	MAIN Assy	7028073311010-IL	46	Screw	BBZ30P180FTC
	2	D-MAIN Assy	7028073351010-IL	47	Screw	BSZ30P040FTB
	3	OPTCO Assy	7028073313010-IL	48	Screw Tapping Assy	B018230141H11-IL
	4	FUSB Assy	7028073323010-IL	49	Screw, Tap Tite	B020230063B10-IL
	5	CONCT Assy	7028073325010-IL	50	Screw	B028940101B11-IL
	6	CPU Assy	7028073331010-IL	51	Screw	1500001206010-IL
	7	AMP5 Assy	7028073341010-IL	52	Screw	1500001456010-IL
	8	INSEL Assy	7028073324010-IL			
	9	FRONT Assy	7028073321010-IL			
	10	HPMIC Assy	7028073322010-IL			
B	⚠ 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			
C						
	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			
D						
	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			
E						
	41	•••••				
	42	Screw	BBT30P100FTB			
	43	Screw	BBT40P080FTB			
	44	Screw	BBZ30P080FTB			
	45	Screw	BBZ30P080FTC			

F

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

8

■

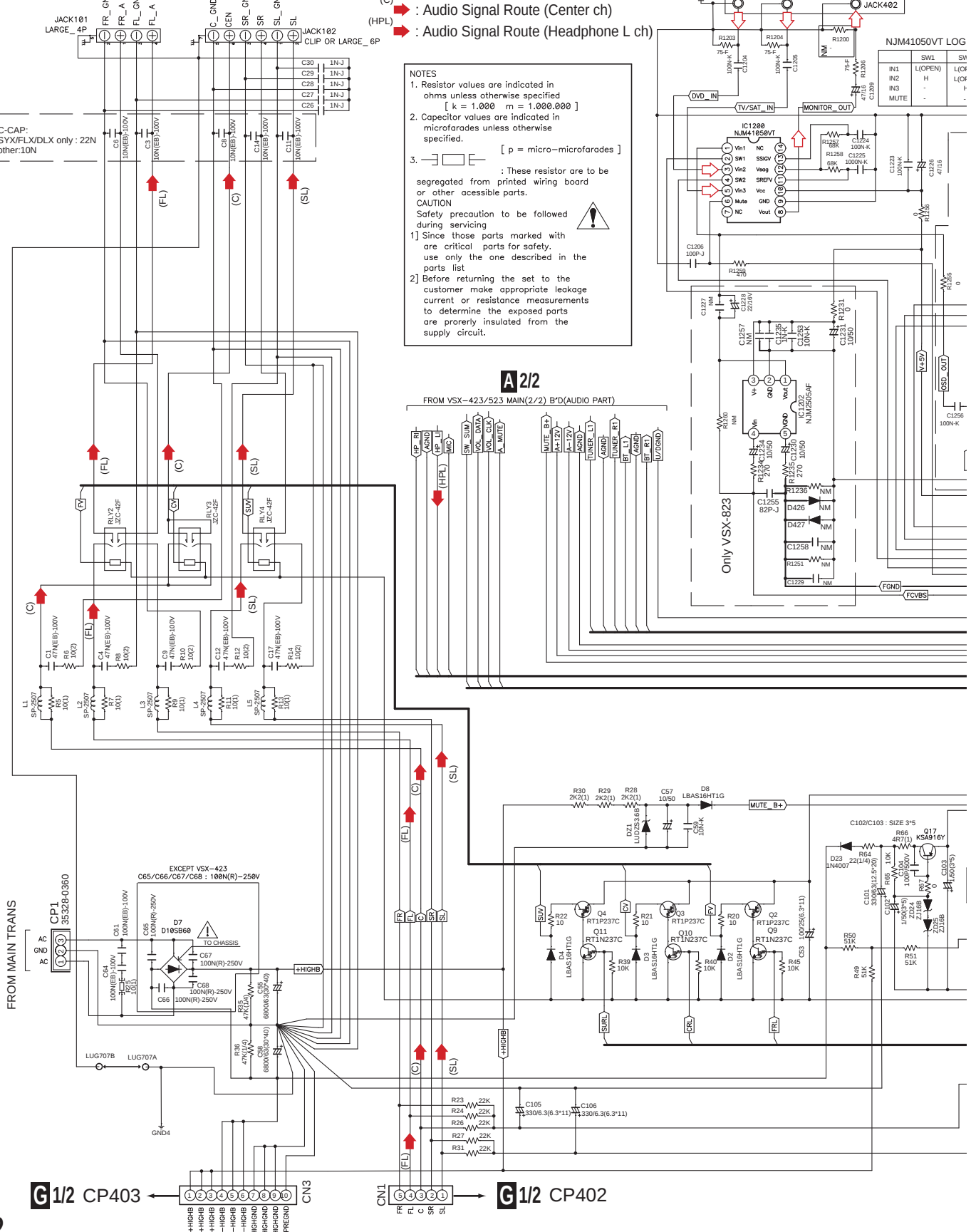
10. SCHEMATIC DIAGRAM

10.1 MAIN ASSY (1/2)

SPEAKER TERMINAL
VSX-523 : ALL Large
VSX-423 : Front ; Large, Other(Center, Surround) ; Clips

(FL) : Audio Signal Route (Front L ch)
(SL) : Audio Signal Route (Surround L ch)
(C) : Audio Signal Route (Center ch)
(HPL) : Audio Signal Route (Headphone L ch)

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



A1/2 MAIN ASSY (7028073311010-IL)



F CN208

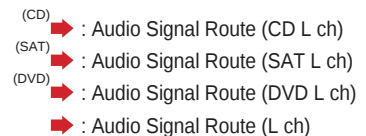
F CN209A

L CP7

VSX-523-K

△

F



10.3 D-MAIN ASSY (1/3)

A

B

C

D

E

F

HDMI_IN0 DVD

HDMI_IN1 SAT/CBL

HDMI_IN2 GAME

HDMI_IN3

1

2

3

4

1

2

3

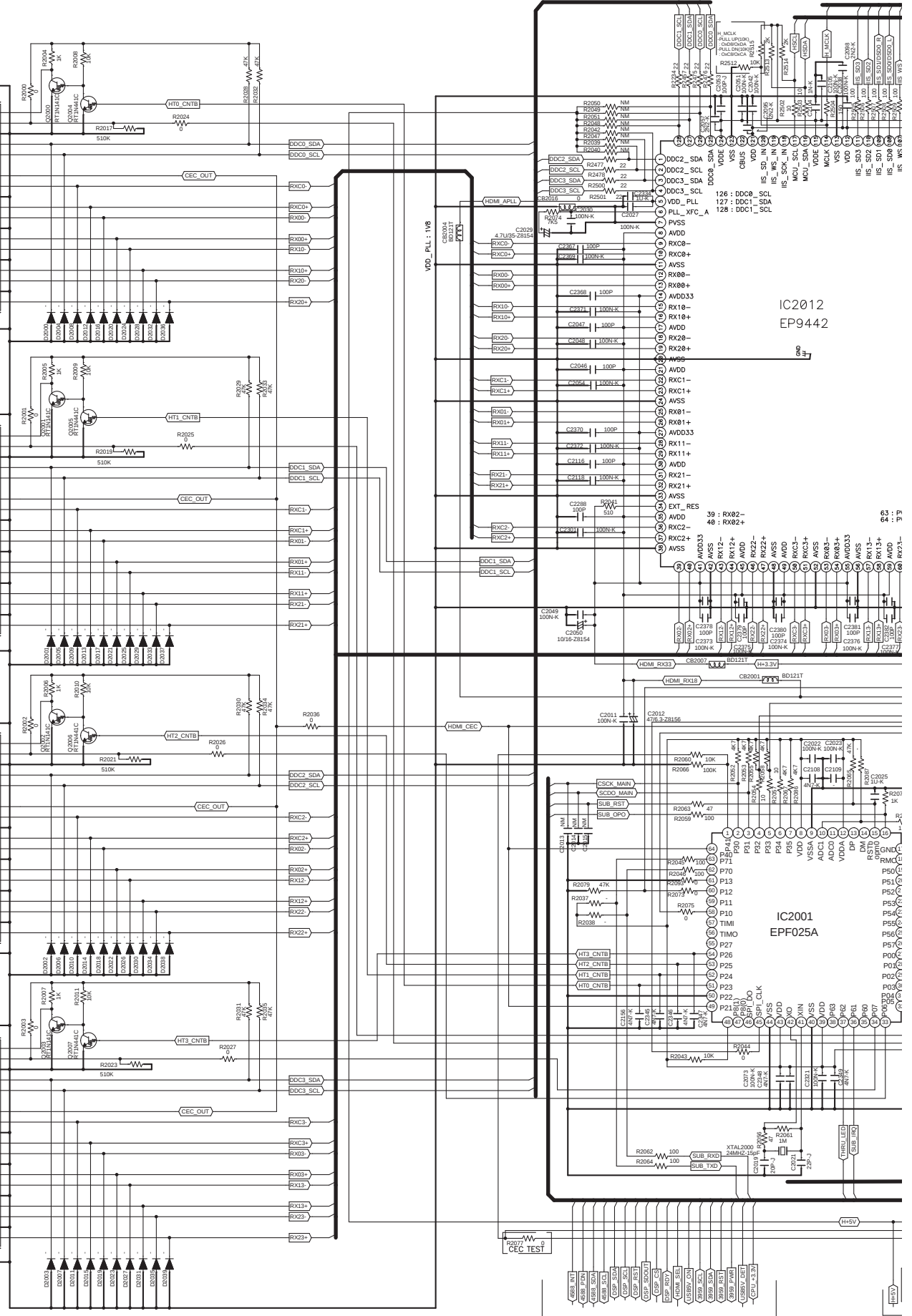
4

B1/3

54

VSX-523-K

B3/3



A



11

C

□

FNI201

5

CN1203A

F

B 1/3

55

B 2/3

B 2/3

C CN2010

VSX-523-K

4

F



A



C

B 3/3

C

E

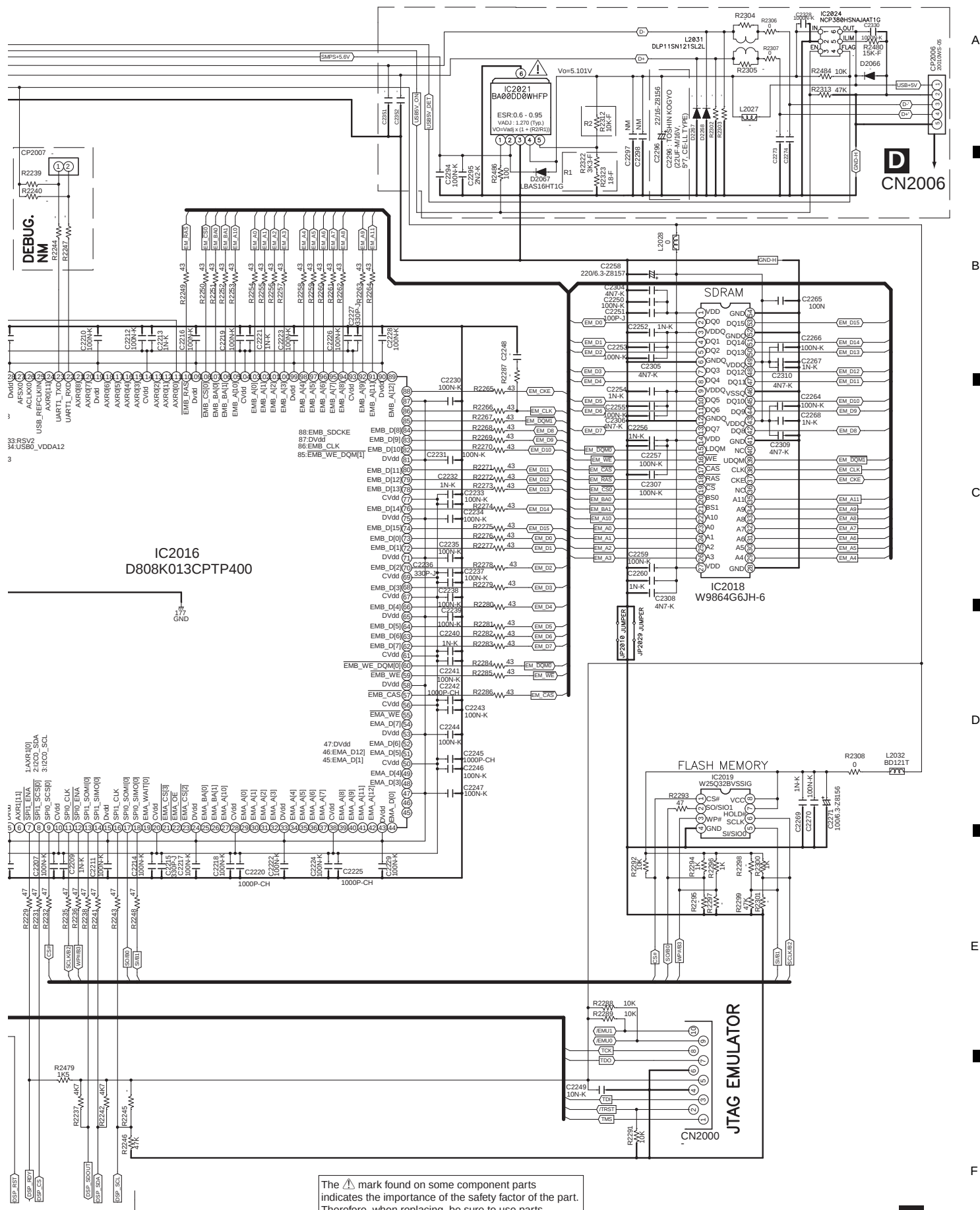
F

B 1/3

B 2/3

B3/3 D-MAIN ASSY (7028073351010-IL)





4



A

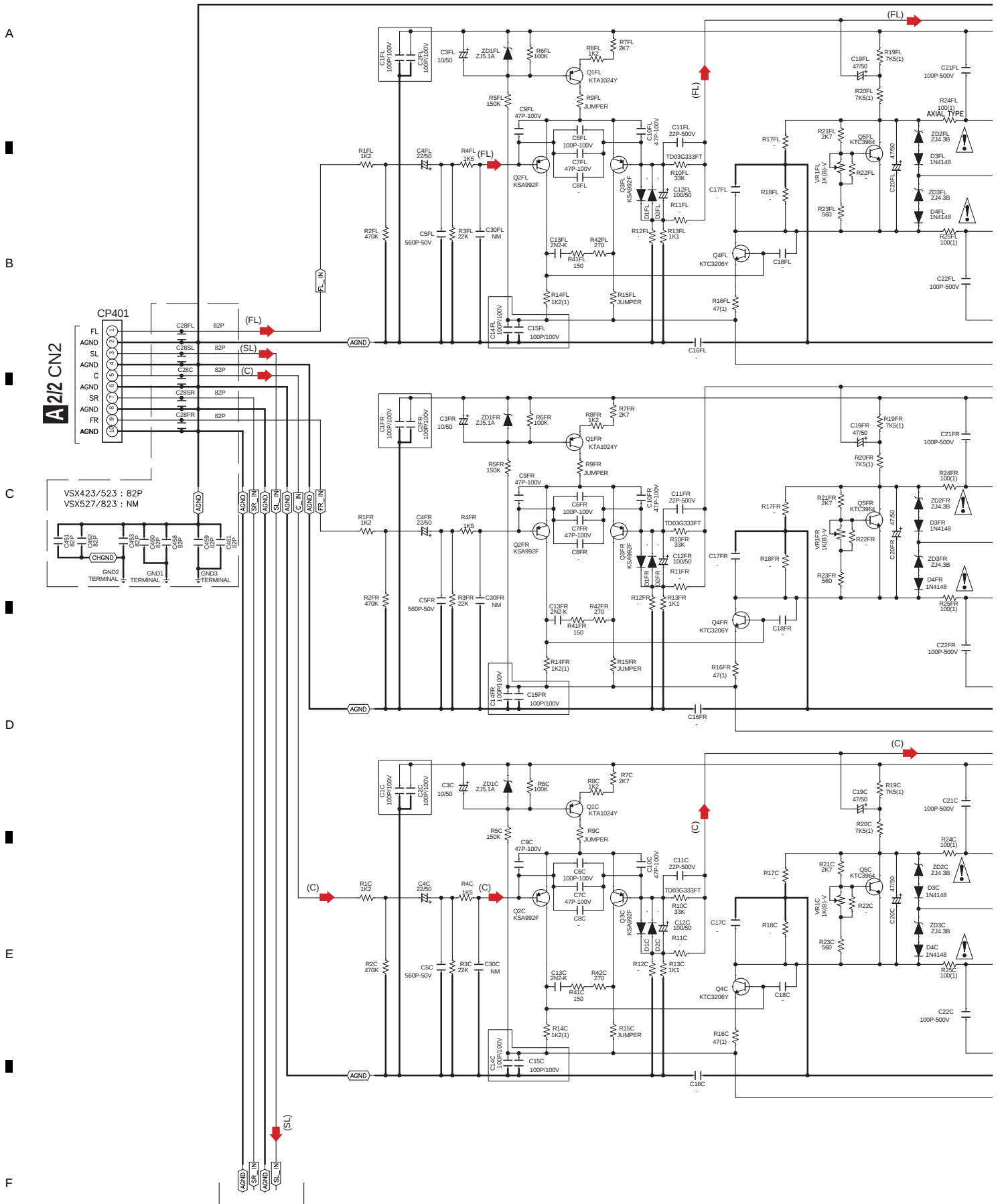


(HPL)  : Audio Signal Route (Headphone L ch)

F

F

10.8 AMP5 ASSY (1/2)

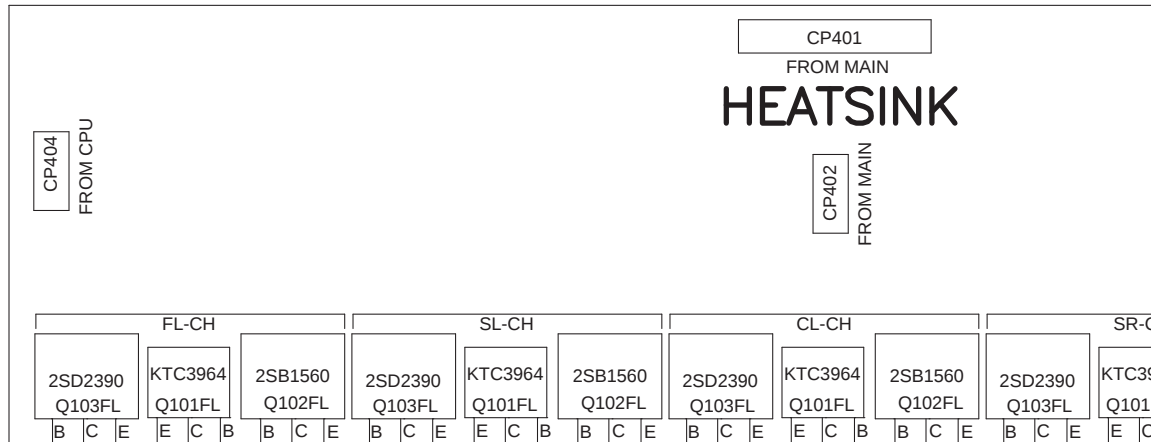


G1/2

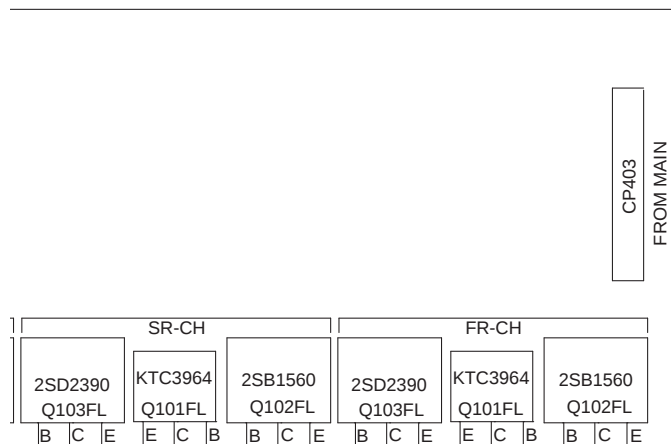
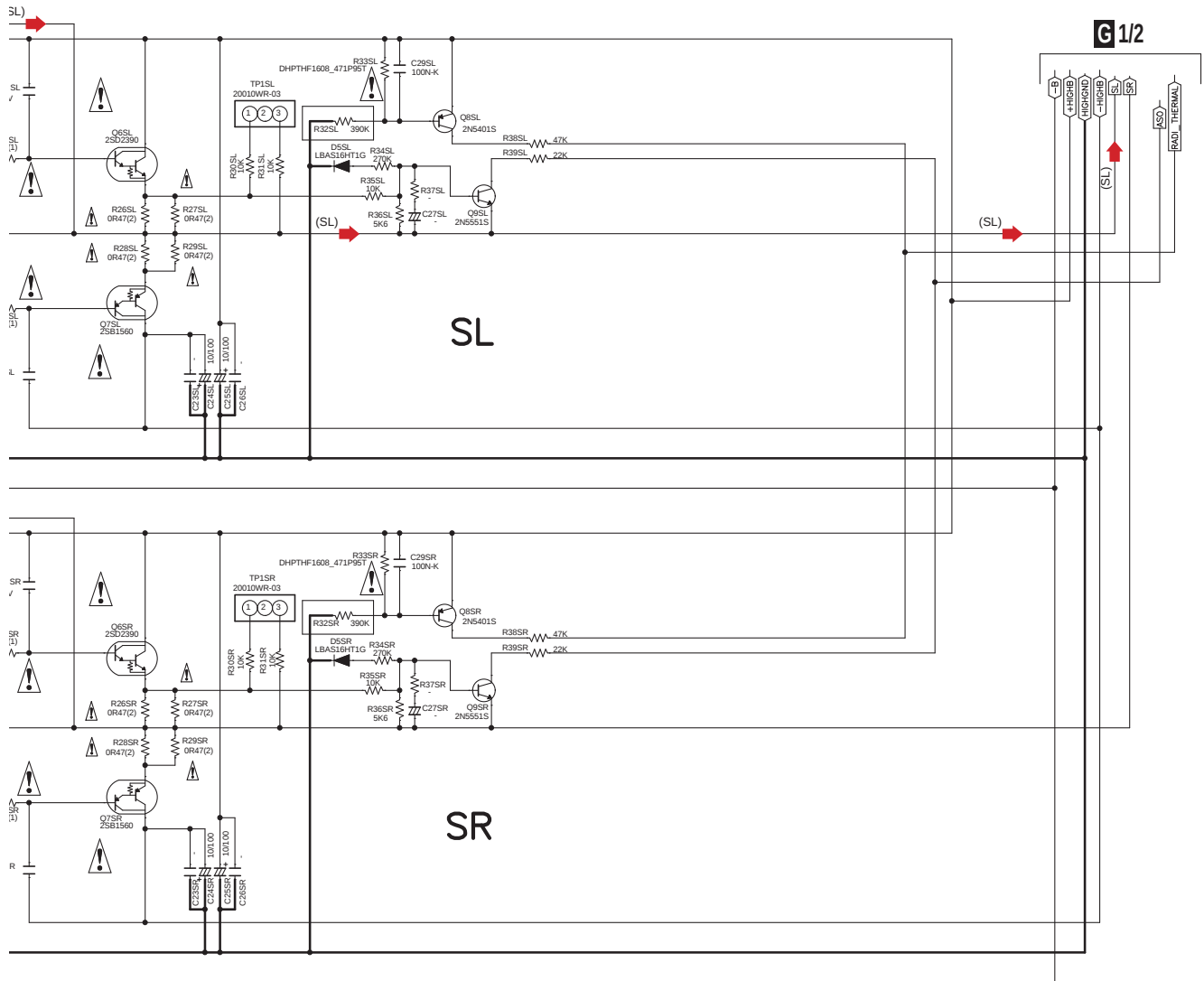
**G 2/2****G 1/2**

4

F



G2/2 AMP5 ASSY (7028073341010-IL)



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

10.10 INSEL, FRONT and HPMIC ASSYS

FRONT ASSY (7028073321010-IL)

OPTION

UXCN	SYX,AX,JXE,FLX,PWX
R779,R780	1(1/4W) 2R2(1/4W)

FROM MAIN TRANS

CP703
5267-3PAN

C737

R787

R788

R789

R790

R791

R792

R793

R794

R795

R796

R797

R798

R799

R800

R801

R802

R803

R804

R805

R806

R807

R808

R809

R810

R811

R812

R813

R814

R815

R816

R817

R818

R819

R820

R821

R822

R823

R824

R825

R826

R827

R828

R829

R830

R831

R832

R833

R834

R835

R836

R837

R838

R839

R840

R841

R842

R843

R844

R845

R846

R847

R848

R849

R850

R851

R852

R853

R854

R855

R856

R857

R858

R859

R860

R861

R862

R863

R864

R865

R866

R867

R868

R869

R870

R871

R872

R873

R874

R875

R876

R877

R878

R879

R880

R881

R882

R883

R884

R885

R886

R887

R888

R889

R890

R891

R892

R893

R894

R895

R896

R897

R898

R899

R900

R901

R902

R903

R904

R905

R906

R907

R908

R909

R910

R911

R912

R913

R914

R915

R916

R917

R918

R919

R920

R921

R922

R923

R924

R925

R926

R927

R928

R929

R930

R931

R932

R933

R934

R935

R936

R937

R938

R939

R940

R941

R942

R943

R944

R945

R946

R947

R948

R949

R950

R951

R952

R953

R954

R955

R956

R957

R958

R959

R960

R961

R962

R963

R964

R965

R966

R967

R968

R969

R970

R971

R972

R973

R974

R975

R976

R977

R978

R979

R980

R981

R982

R983

R984

R985

R986

R987

R988

R989

R990

R991

R992

R993

R994

R995

R996

R997

R998

R999

R1000

R1001

R1002

R1003

R1004

R1005

R1006

R1007

R1008

R1009

R1010

R1011

R1012

R1013

R1014

R1015

R1016

R1017

R1018

R1019

R1020

R1021

R1022

R1023

R1024

R1025

R1026

R1027

R1028

R1029

R1030

R1031

R1032

R1033

R1034

R1035

R1036

R1037

R1038

R1039

R1040

R1041

R1042

R1043

R1044

R1045

R1046

R1047

R1048

R1049

R1050

R1051

R1052

R1053

R1054

R1055

R1056

R1057

R1058

R1059

R1060

R1061

R1062

R1063

R1064

R1065

R1066

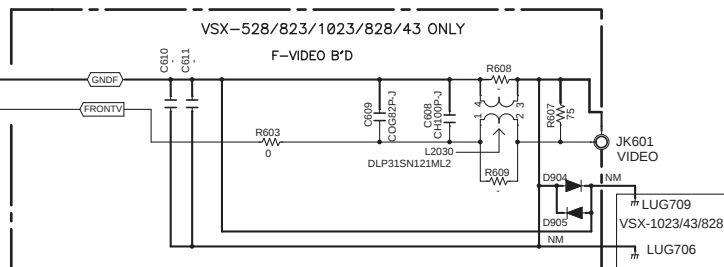
R1067

R1068

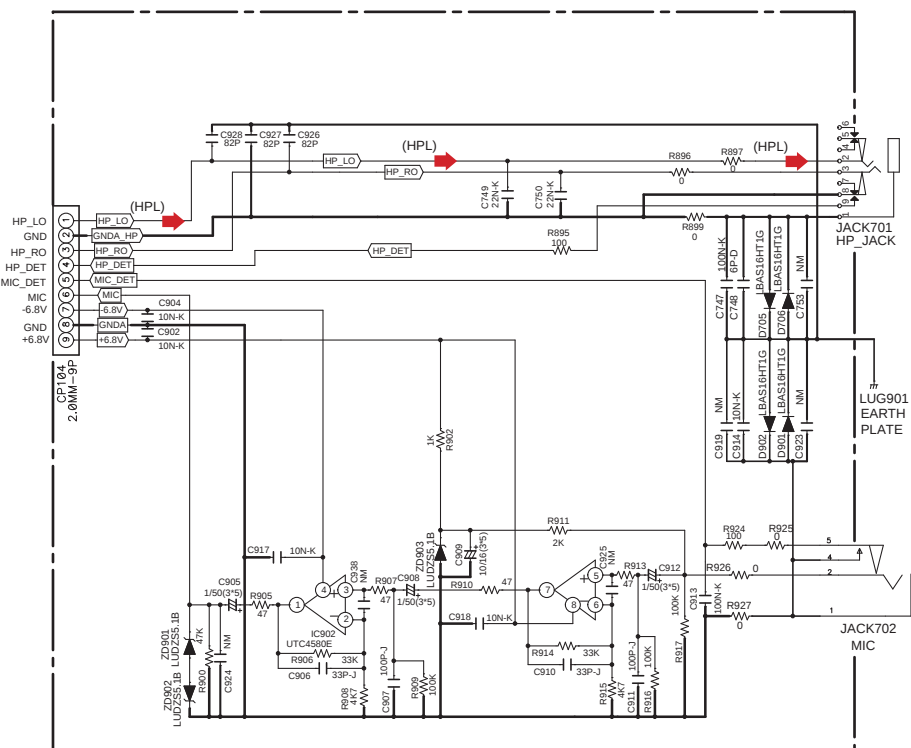
R1069

R1070

R1071



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-50C0DU RED 5PI



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.

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

A

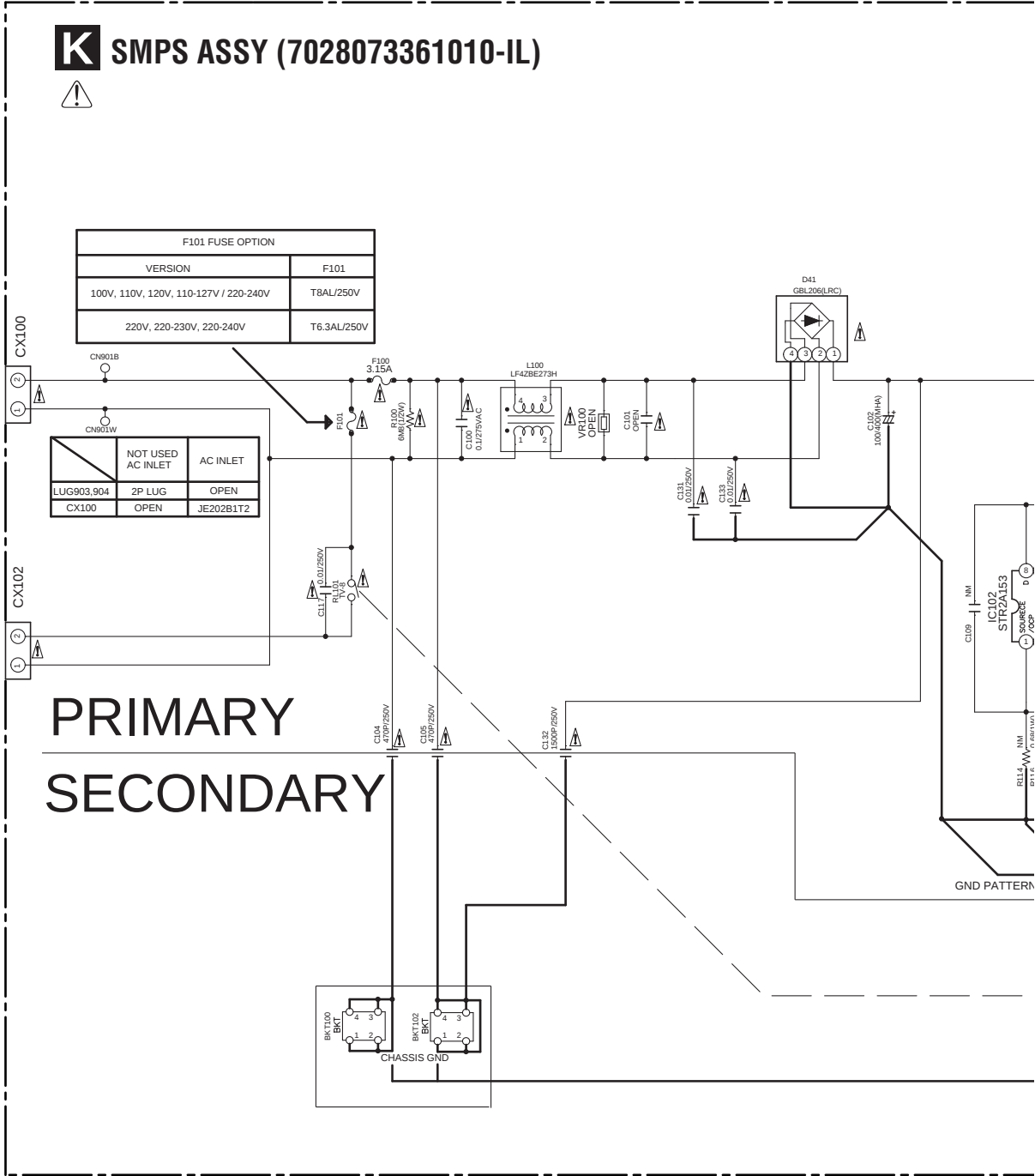
B

C

D

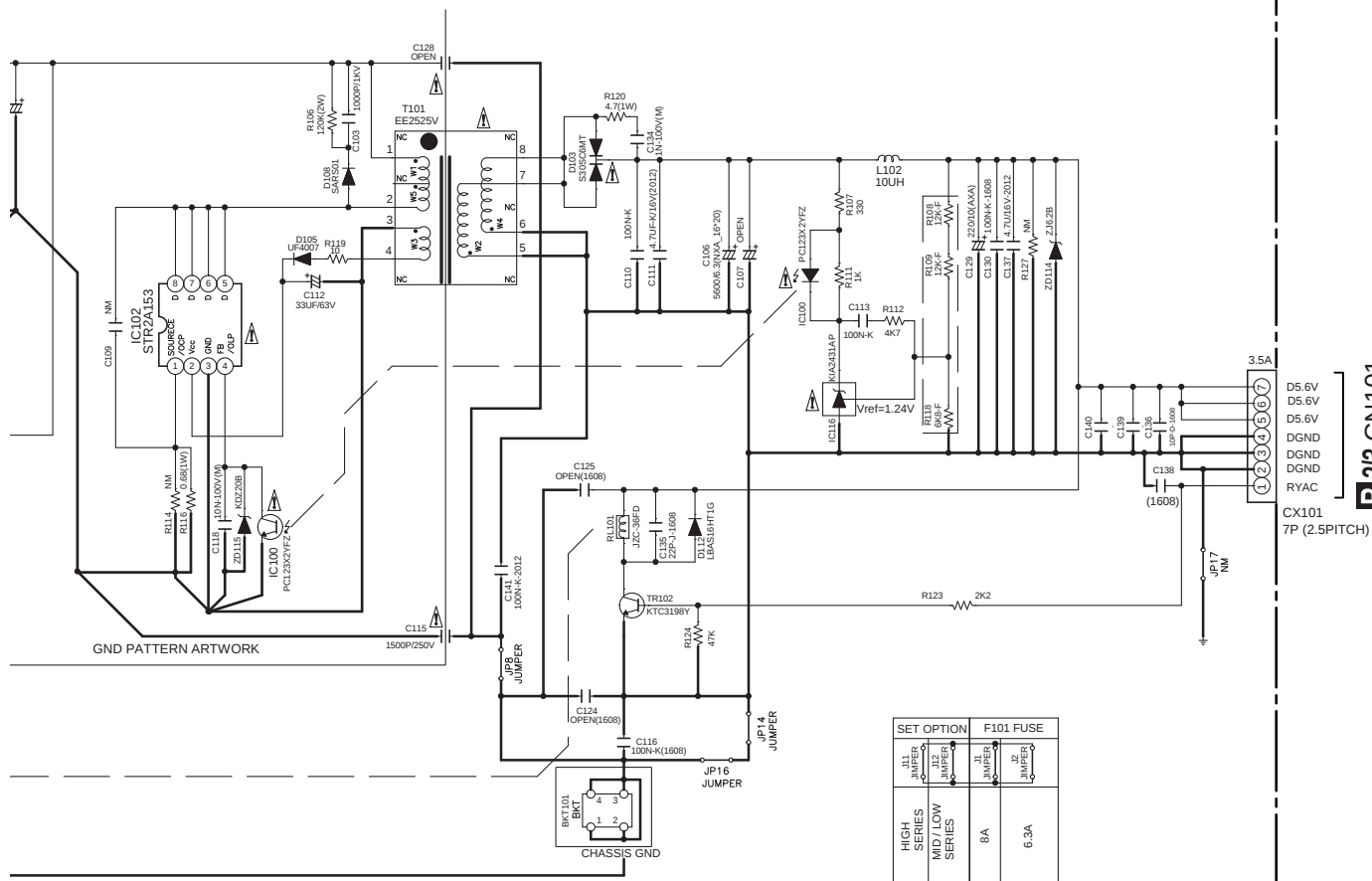
E

F



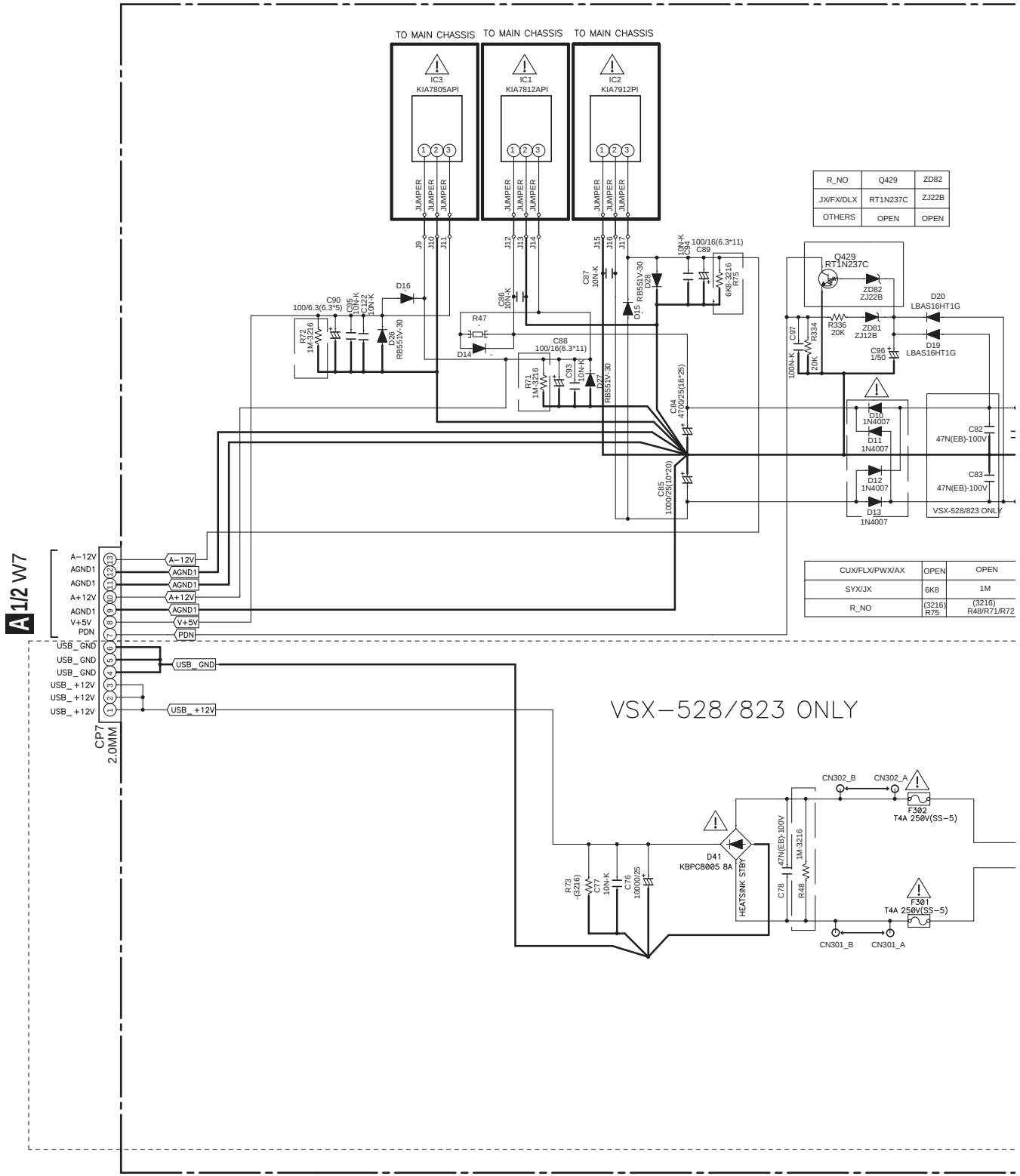
• NOTE FOR FUSE REPLACEMENT

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

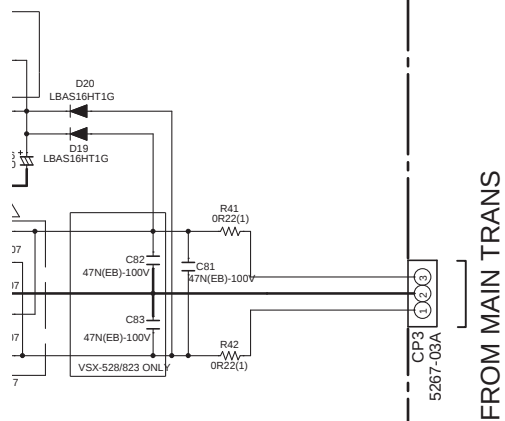


10.12 REG ASSY

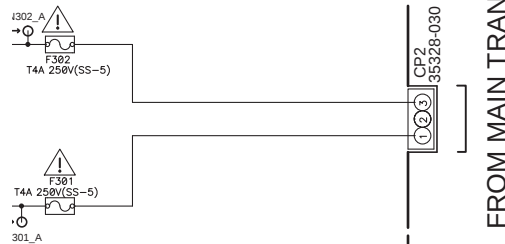
REG ASSY (7028073312010-IL)



M29	ZD82
N237C	ZJ22B
PEN	OPEN



VX/AX	OPEN	OPEN
	6K8	1M
	(3216) R75	(3216) R48/R71/R72



• 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. Capacitor values are indicated in microfarads unless otherwise specified.
[p = micro-microfarads]
3.  : These resistor are to be segregated from printed wiring board or other accessible parts.
CAUTION
Safety precaution to be followed during servicing

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

11. PCB CONNECTION DIAGRAM

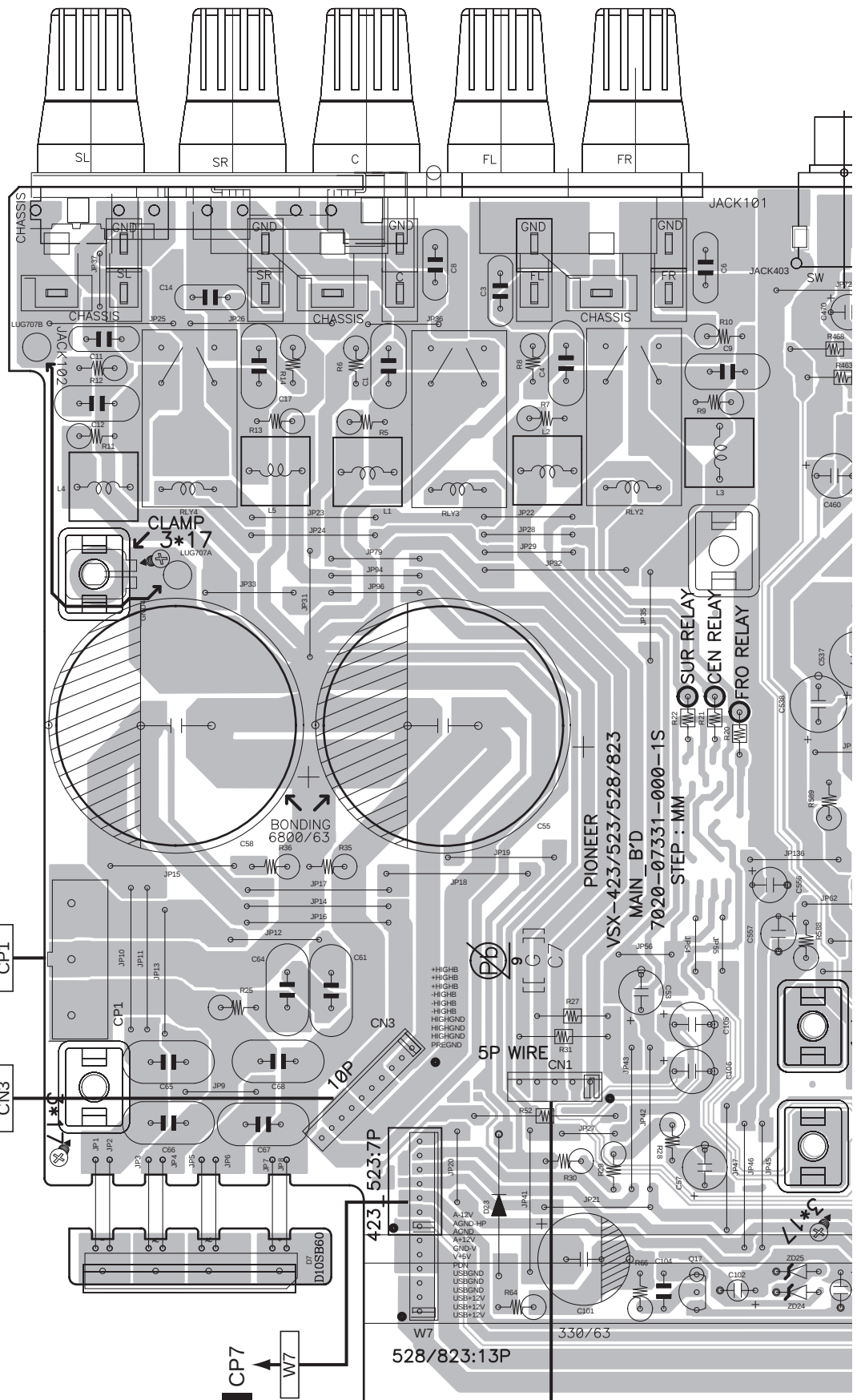
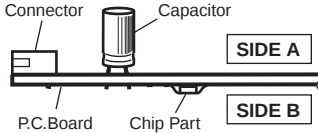
11.1 MAIN ASSY

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.



A

A

A



A

75

SIDE B

A

B

C

D

E

F

A MAIN ASSY

CP13

CP15

CP16

CN2

CP110

A

SIDE B

A

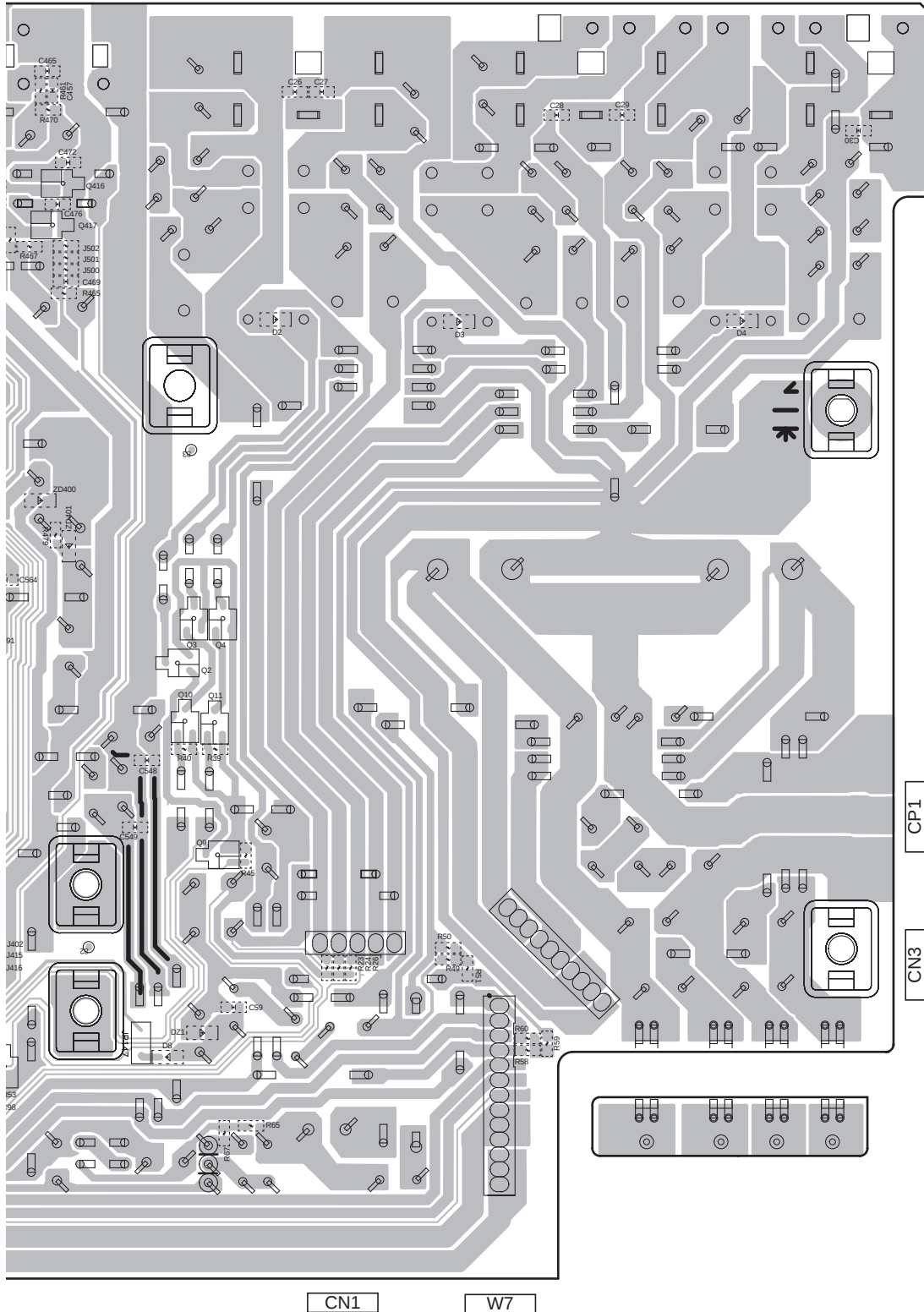
B

C

D

E

F



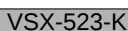
IC1200
Q416
IC1202 Q417
Q1206
Q1210
Q1209
Q1208
Q1207
IC400
Q415 Q3
Q414 Q4
Q2
Q10
Q427 Q11
Q419
IC406
Q9
IC401
IC402 IC403
Q428
Q425
Q426
Q14
Q16
Q15

SIDE A

B D-MAIN ASSY



A



E

79

SIDE A

B CN2003

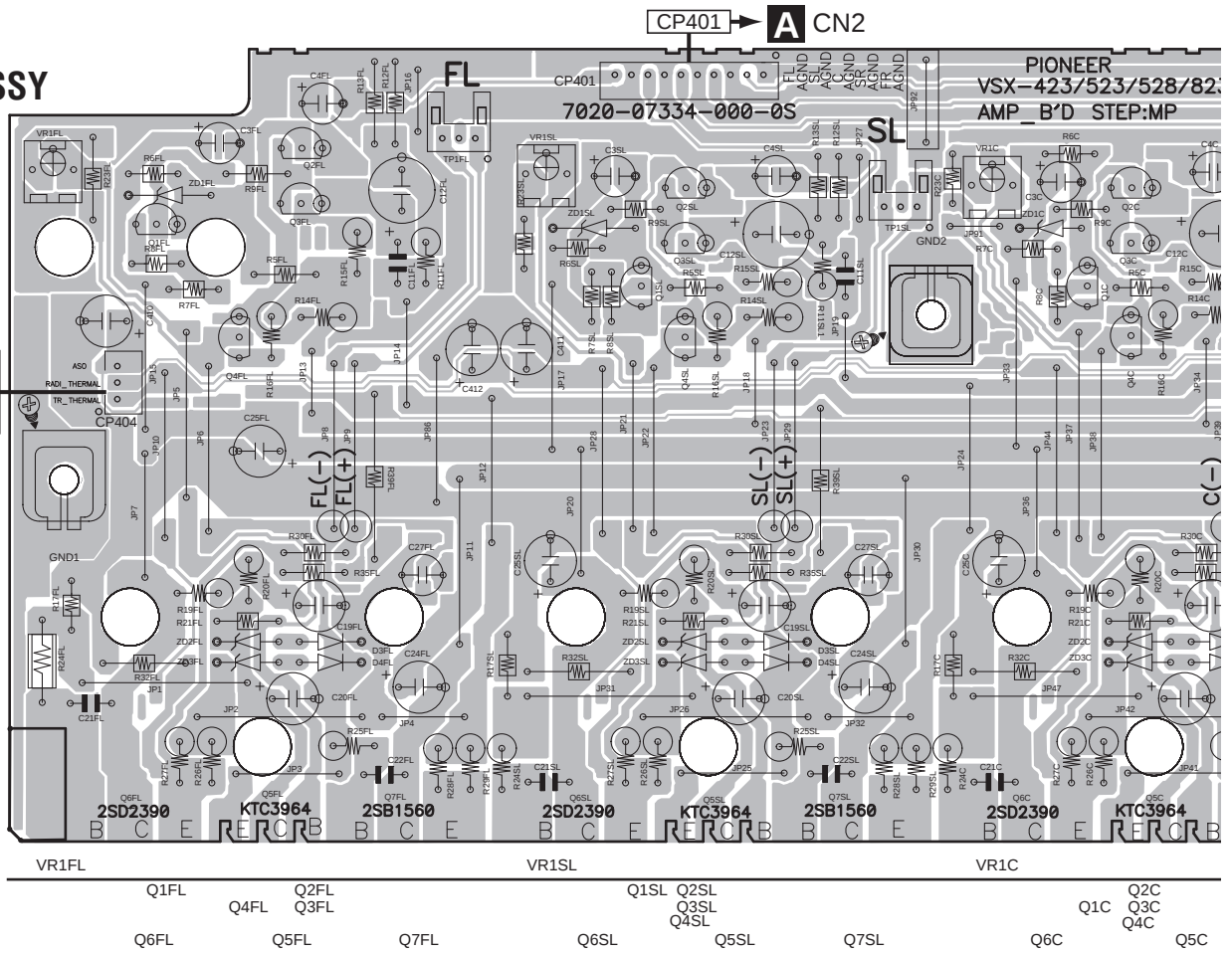


83

11.4 AMP5 ASSY

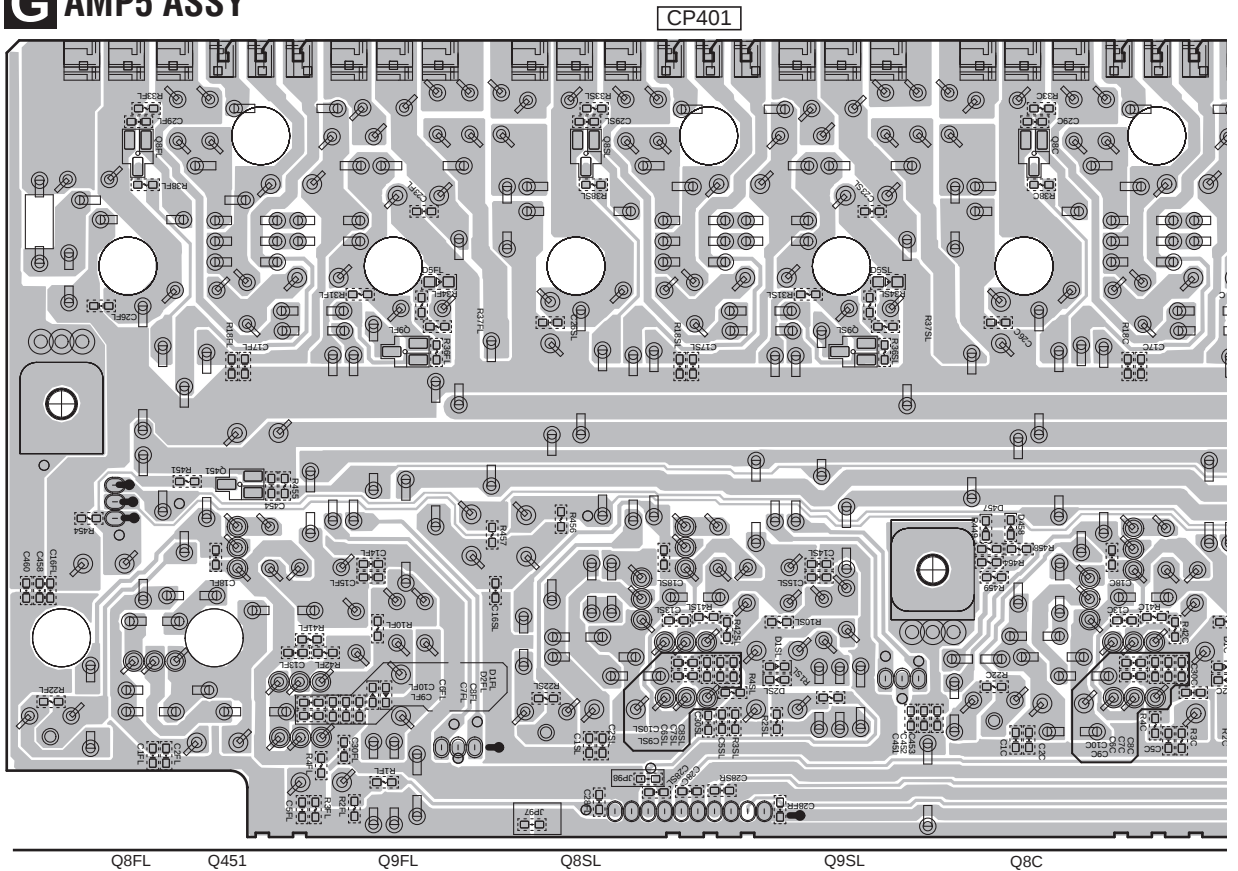
SIDE A

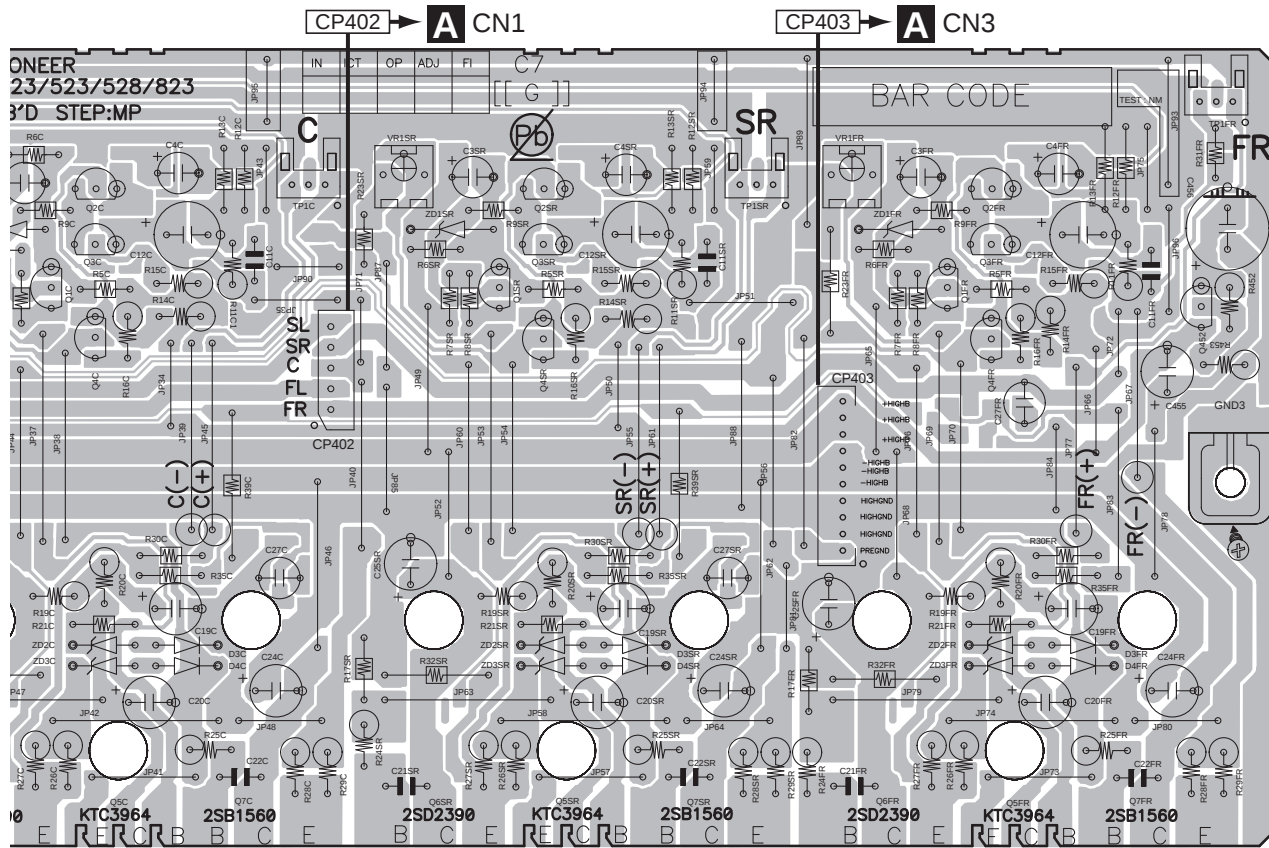
G AMP5 ASSY



SIDE B

G AMP5 ASSY





SIDE A

A

B

C

SIDE B

D

E

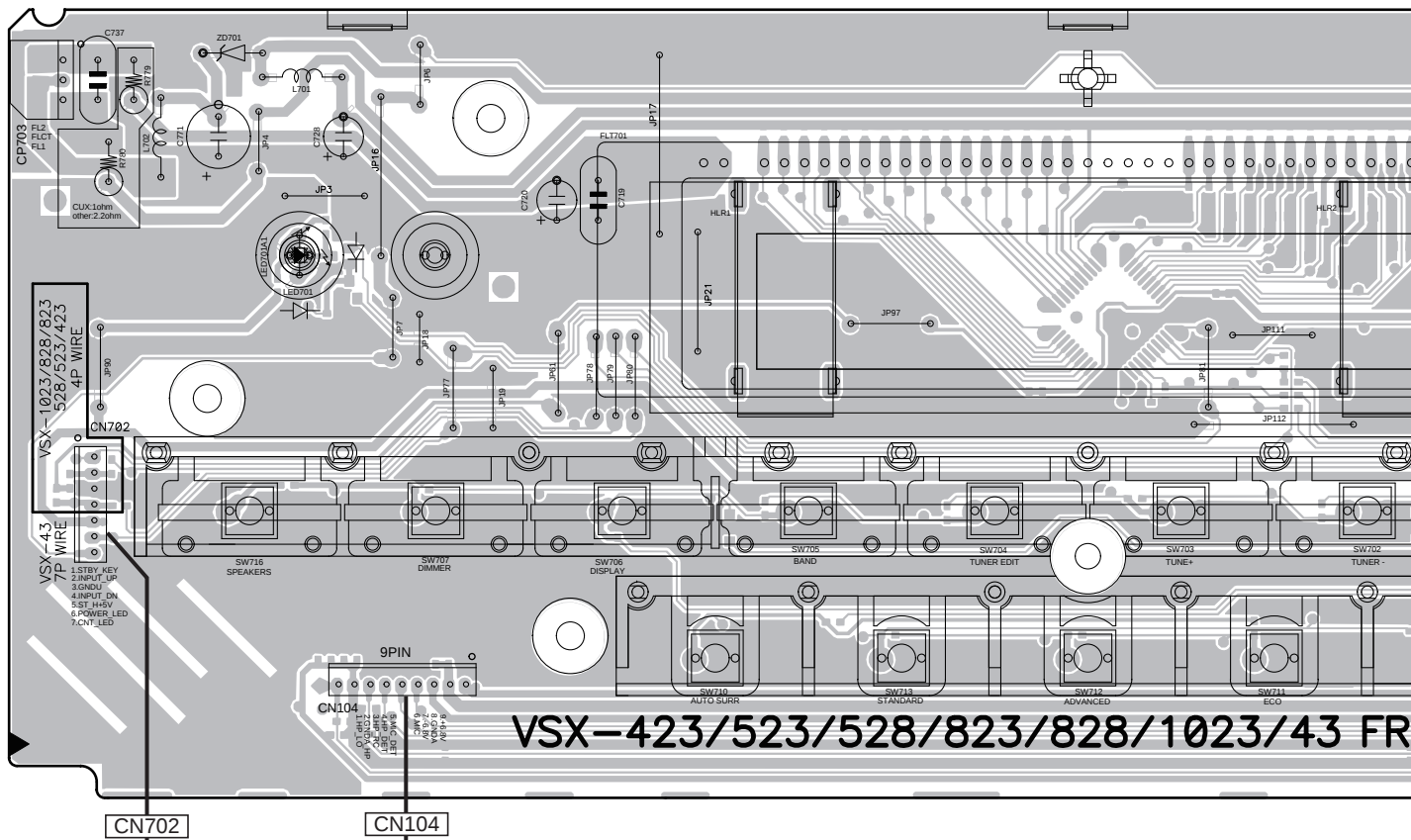
F

G

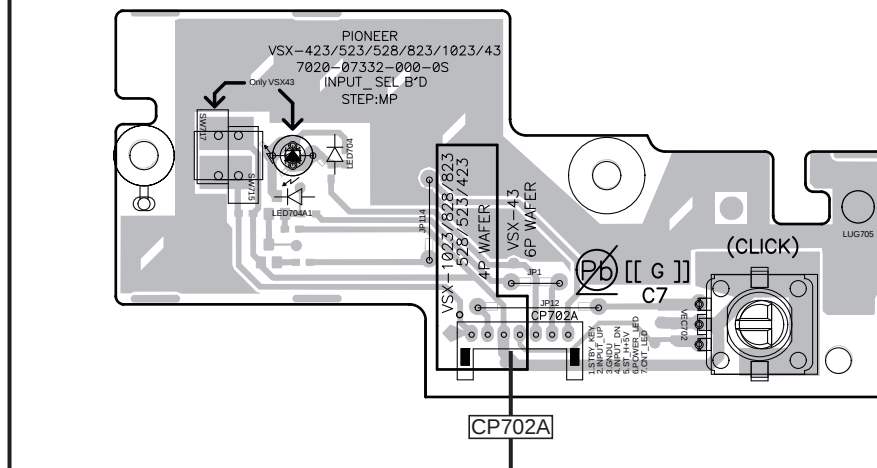
11.5 INSEL, FRONT and HPMIC ASSYS

SIDE A

FRONT ASSY



INSEL ASSY



SIDE A

A

F CN704B

CN704A

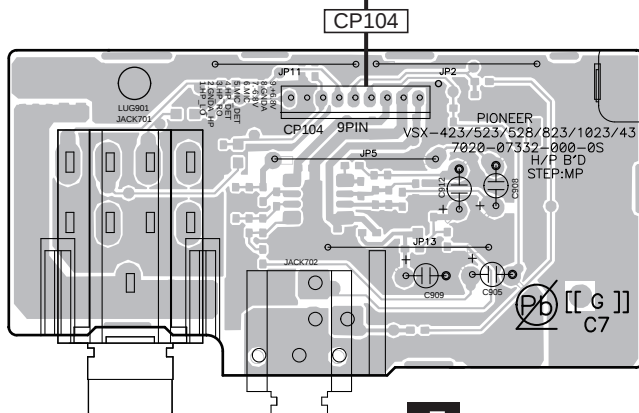
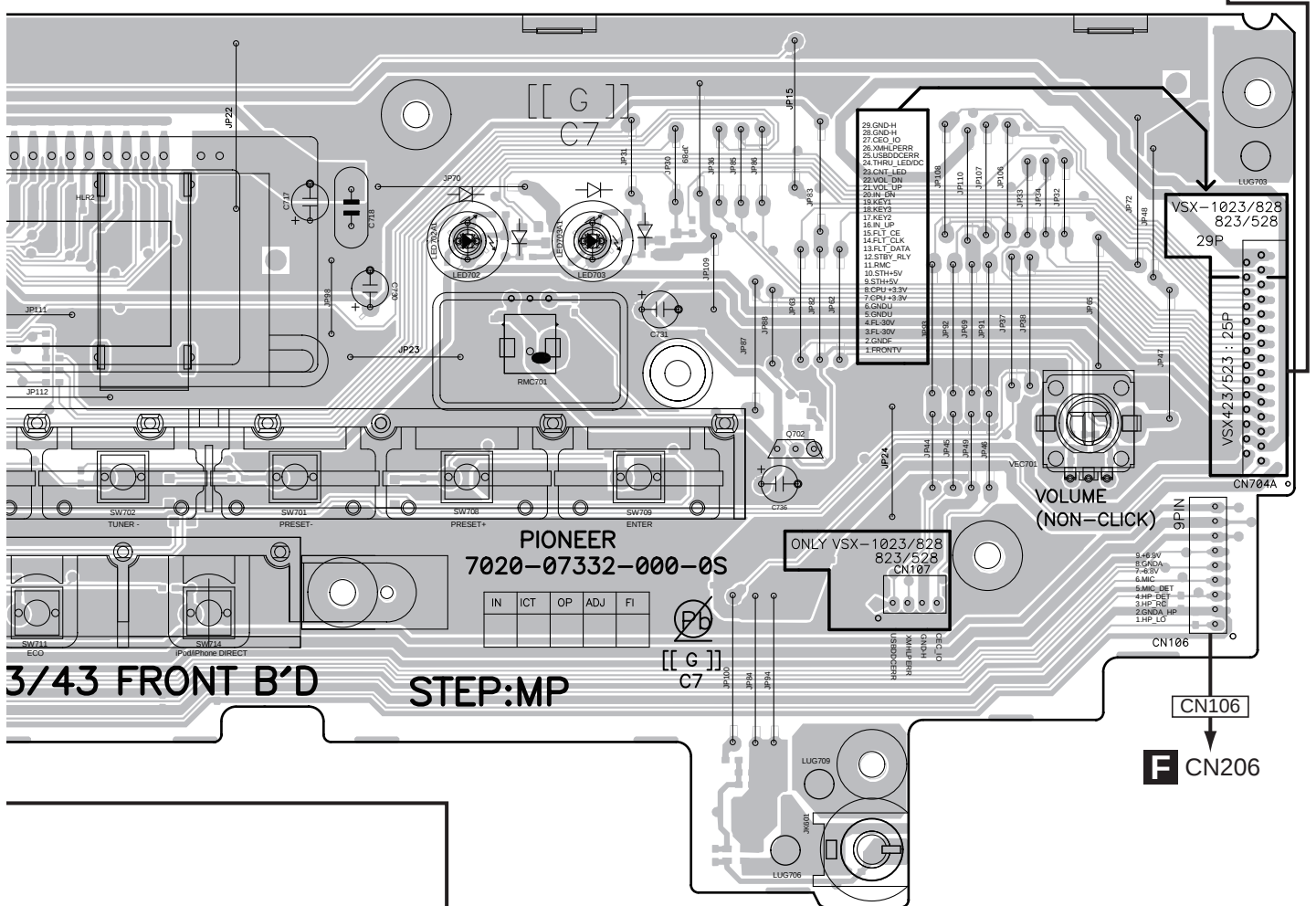
B

C

D

E

F



J HP MIC ASSY

VSX-523-K

89

SIDE B

A

Q703

Q709 Q704

Q708 Q706

CN704A

FRONT ASSY

B

C

D

E

F

CN106

J HPMIC ASSY

CP104

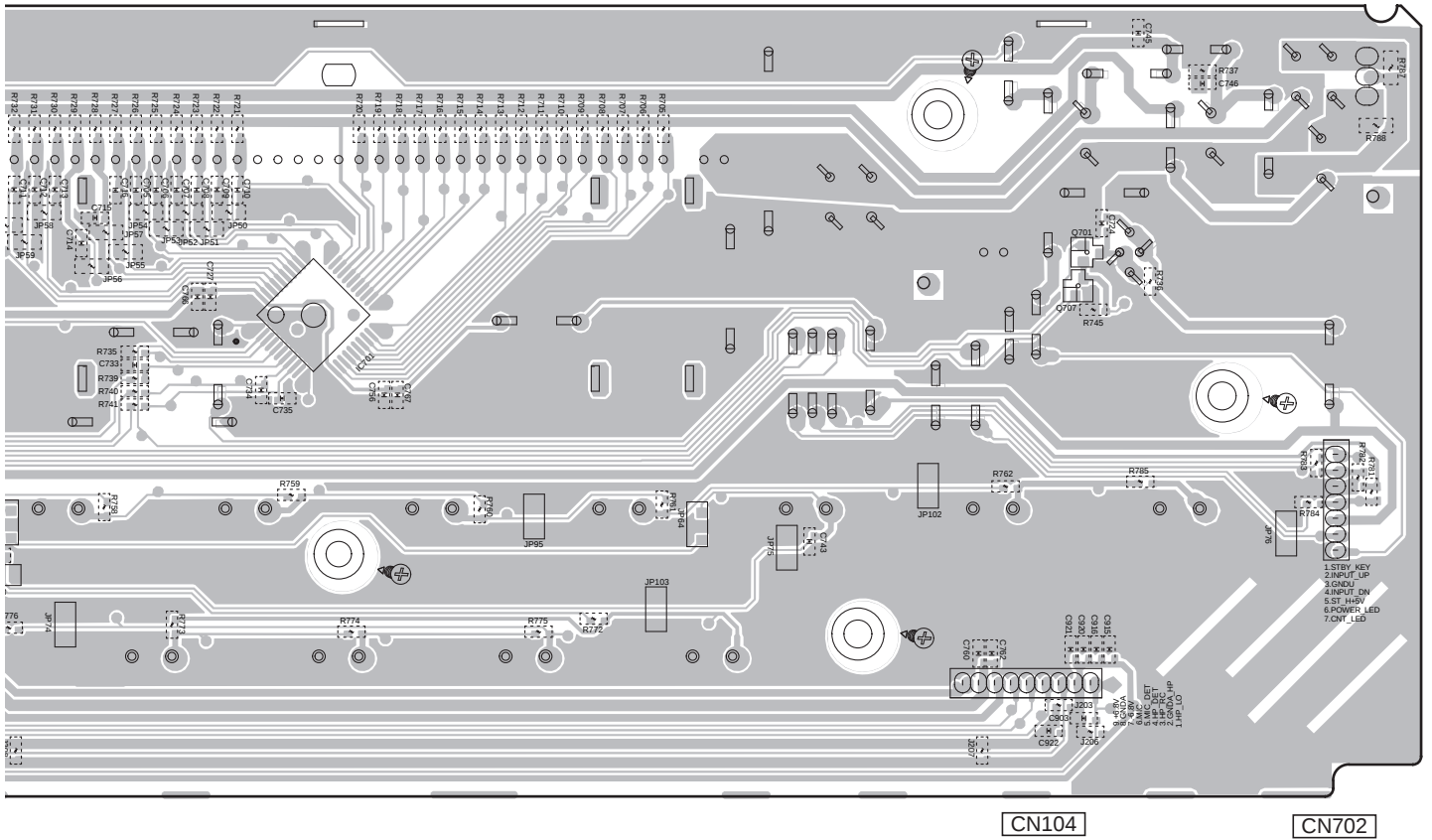
IC902

VSX-523-K

SIDE B

A

IC701

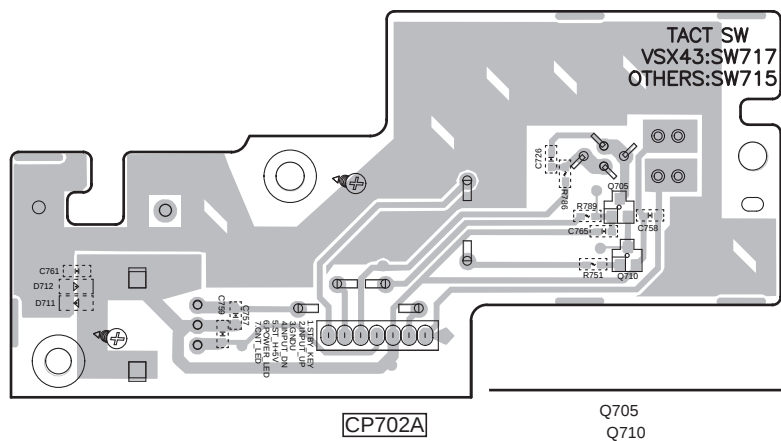
Q701
Q707

B

C

D

H INSEL ASSY



E

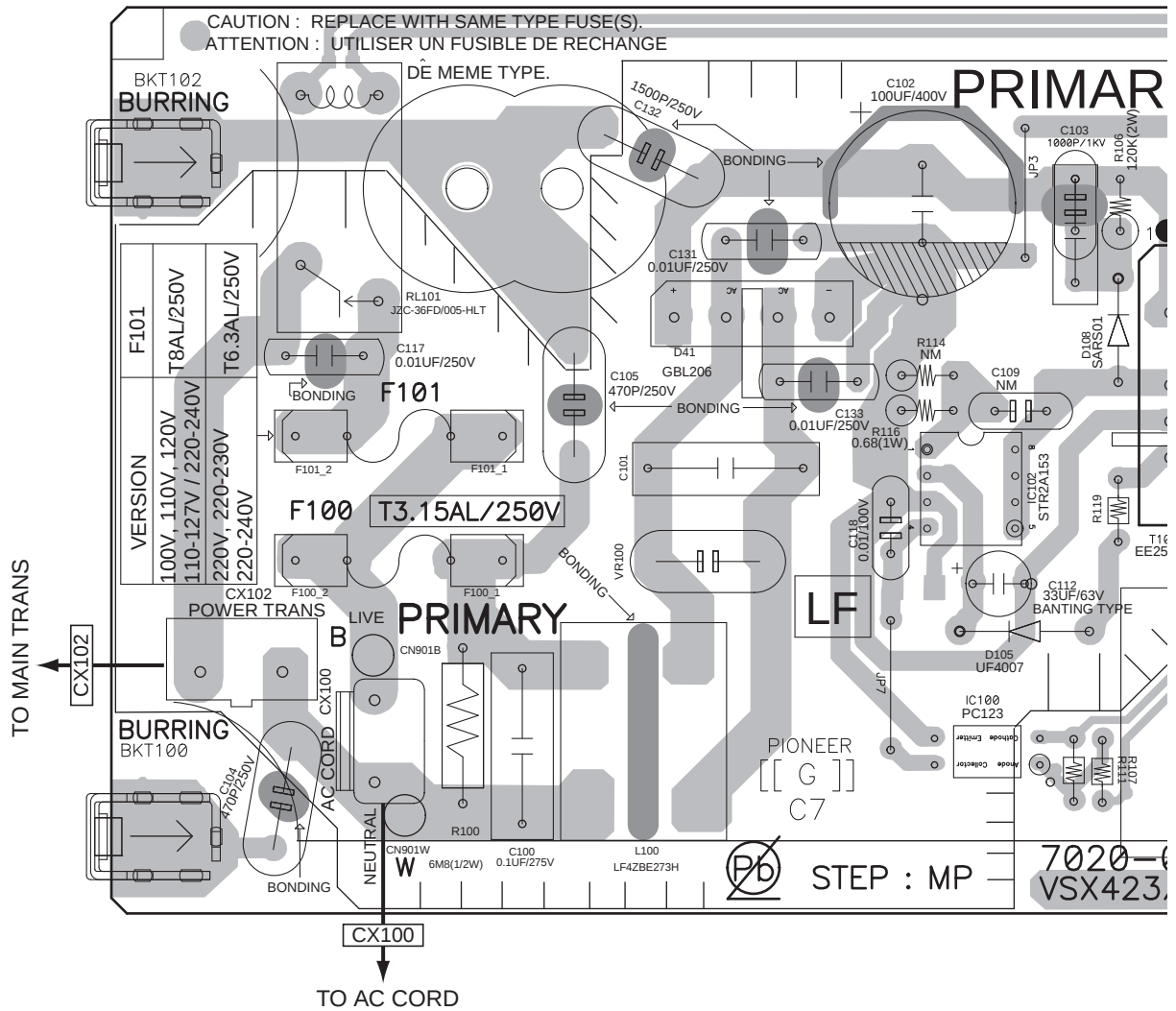
F

H I

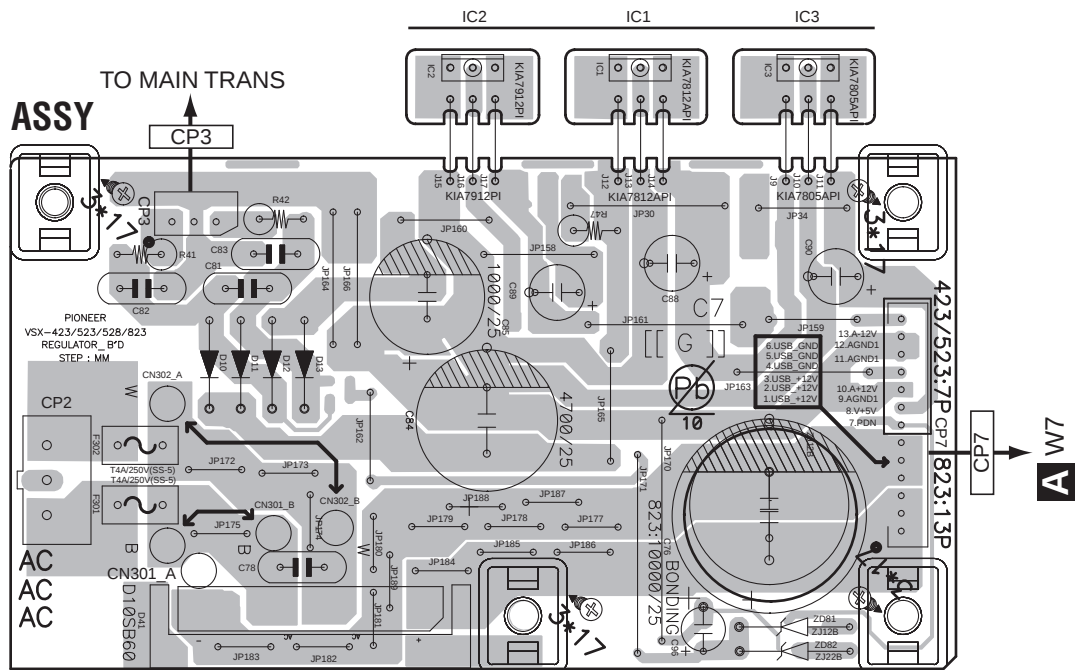
11.6 SMPS and REG ASSYS

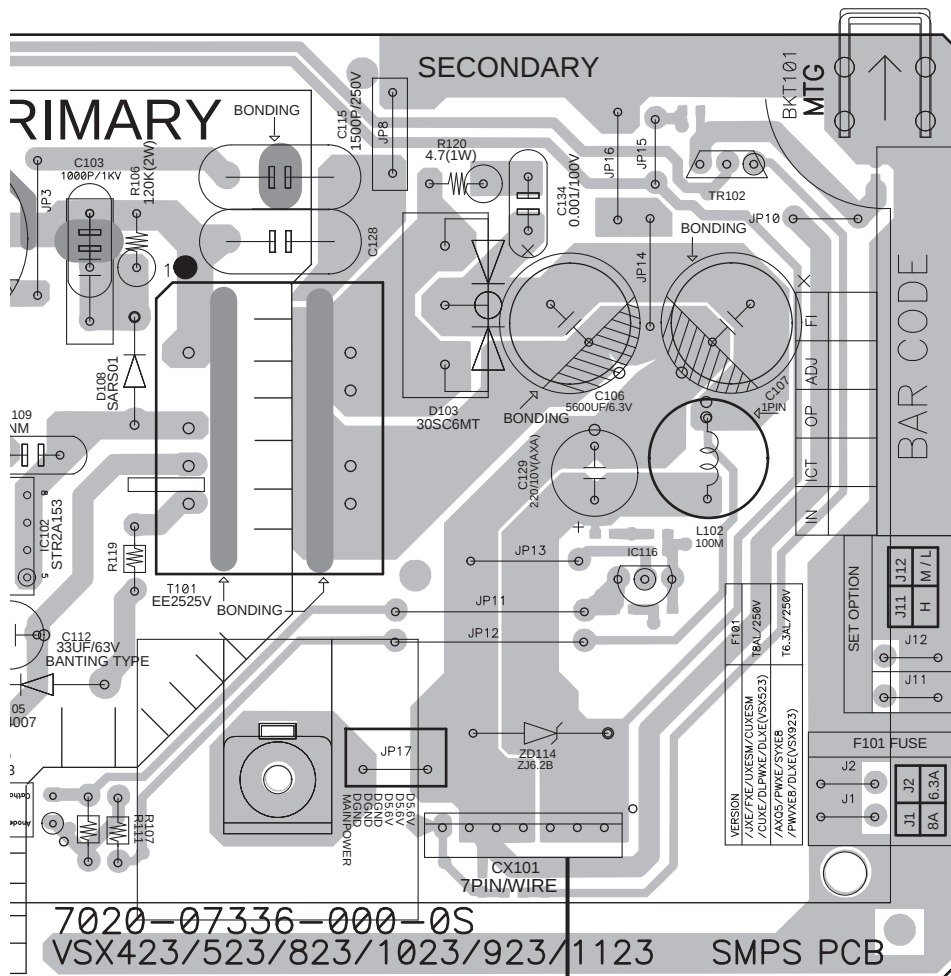
SIDE A

K SMPS ASSY



L REG ASSY





A W7

1

2

3

4

SIDE B

A

K SMPS ASSY

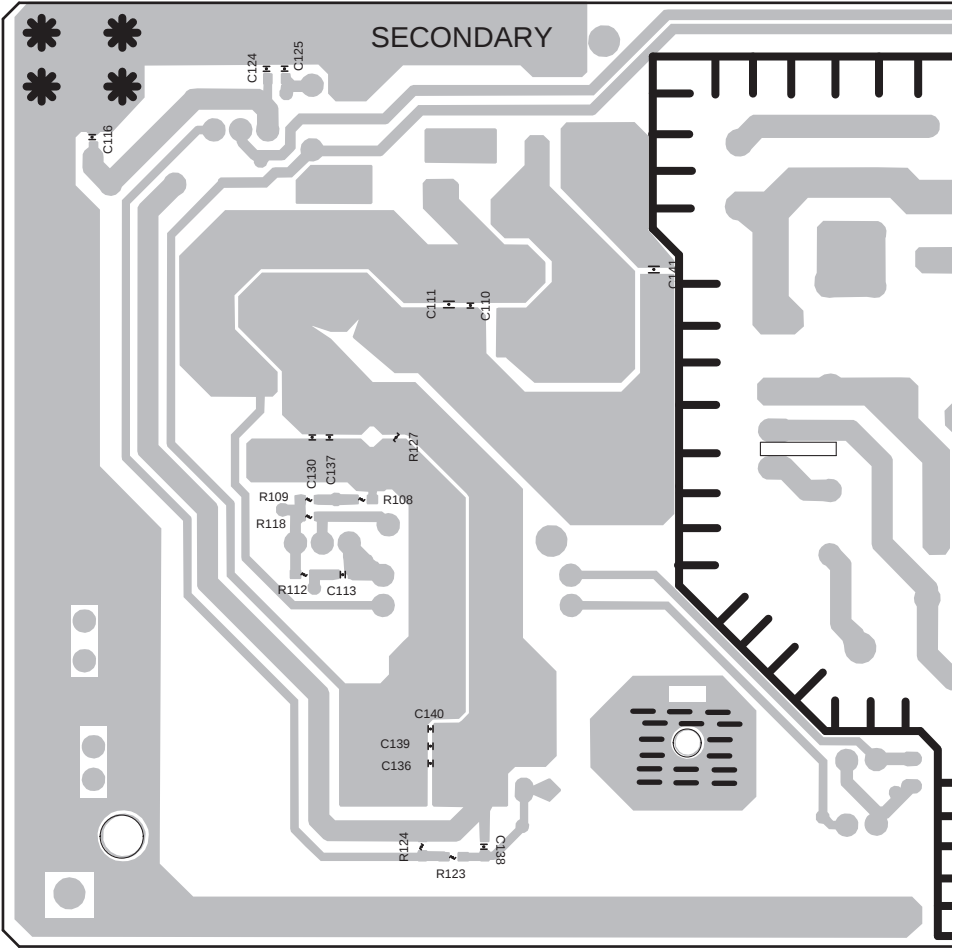
B

C

D

E

F



CX101

Q429

K

1

2

3

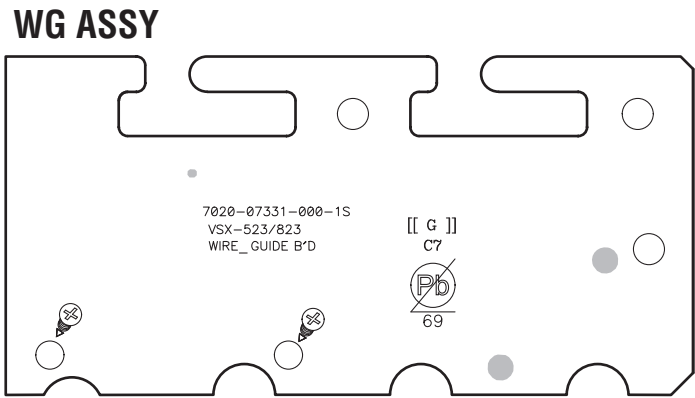
4

11.7 WG, G-L and G-R ASSYS

SIDE A

SIDE A

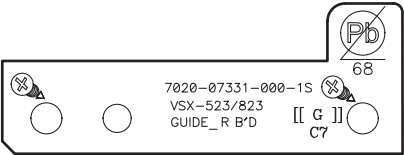
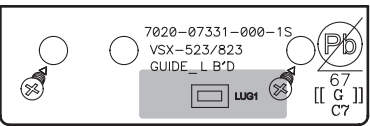
A



B

G-L ASSY

G-R ASSY



C

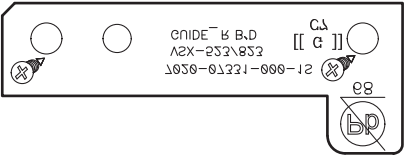
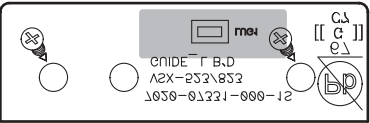
SIDE B

SIDE B

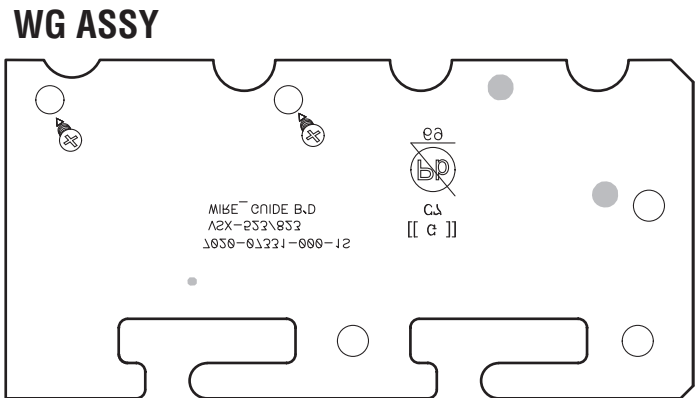
D

G-L ASSY

G-R ASSY



E



F

12. PCB PARTS LIST

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

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

560 Ω $\rightarrow$ 56×10^1 $\rightarrow$ 561 RD1/4PU $\begin{bmatrix} 5 \\ 6 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} J$
47 k Ω $\rightarrow$ 47×10^3 $\rightarrow$ 473 RD1/4PU $\begin{bmatrix} 4 \\ 7 \end{bmatrix} \begin{bmatrix} 3 \\ 3 \end{bmatrix} J$
0.5 Ω $\rightarrow$ R50 RN2H $\begin{bmatrix} R \\ 5 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} K$
1 Ω $\rightarrow$ 1R0 RS1P $\begin{bmatrix} 1 \\ R \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} K$

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

5.62 k Ω $\rightarrow$ 562×10^1 $\rightarrow$ 5621 RN1/4PC $\begin{bmatrix} 5 \\ 6 \end{bmatrix} \begin{bmatrix} 2 \\ 2 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} F$

● SCHEMATIC DIAGRAM and PCB CONNECTION DIAGRAM $\rightarrow$ ● PCB PARTS LIST

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

Mark No. Description **Part No.**

LIST OF ASSEMBLIES

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
$\triangle$	2..SMPS ASSY (PCB SUB ASSY SMPS)	7028073361010-IL

Mark No. Description **Part No.**

Q	17	J5000916Y0050-IL
$\triangle$	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
CN9013	CN,WAFER	L109012511920-IL
CN9015	CN,WAFER	L109012511120-IL
CN9016	CN,WAFER	L109012512520-IL

CN9110	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.**

A MAIN ASSY

SEMICONDUCTORS

IC 400	J084152180010-IL
IC 401-403,406	J121458001010-IL
IC 1200	J127410500010-IL
IC 1203	J170747810010-IL

B D-MAIN ASSY

SEMICONDUCTORS

$\triangle$ IC 2004	J126283133010-IL
$\triangle$ IC 2005,2006	S-1170B50UC-OUJ

Diagram illustrating the VSX-523-K system configuration. The central unit is labeled VSX-523-K. It is connected to four peripheral units, numbered 1, 2, 3, and 4. The total number of units is 98.

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.