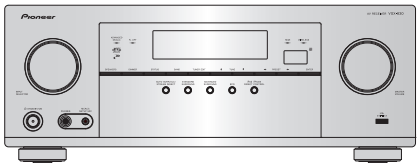
Pioneer

Service Manual



VSX-830-K

ORDER NO.
RRV4594

AV Receiver

VSX-830-K
VSX-45
VSX-830-S

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

Model	Type	Power Requirement	Remarks
VSX-830-K	CUXESM	AC 120 V	
VSX-45	CUXE	AC 120 V	
VSX-830-K	SYXEV8	AC 220 V to 230 V	
VSX-830-S	SYXEV8	AC 220 V to 230 V	

THIS SERVICE MANUAL SHOULD BE USED TOGETHER WITH THE FOLLOWING MANUAL(S).

Model	Order No.	Remarks
VSX-830-K, VSX-45, VSX-830-S	RRV4595	SCHEMATIC DIAGRAM, PCB CONNECTION DIAGRAM, PCB PARTS LIST

PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
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K-MZV MAR. 2015 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

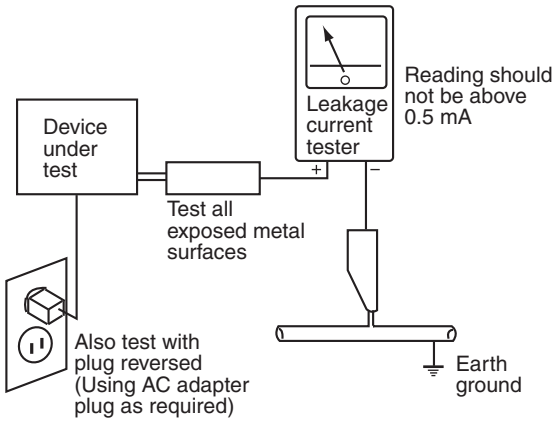
(FOR USA MODEL ONLY)

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.

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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 SERVICE NOTICE

■ Discharging

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

■ Notice of the Parts exchange

As the screw covers for the speaker terminals are subject to breakage, be careful when removing them.
If a screw cover is broken during removal, replace it with a new one.
Continuous use of a broken screw cover may cause short-circuiting of speaker terminals.

2. SPECIFICATIONS

Amplifier section (VSX-830-K/CUXESM only)
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 %, 1 ch driven) ..... 140 W
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 (VSX-830-K/CUXESM)
Input (Sensitivity/Impedance)
LINE..... 315 mV/47 kΩ
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE..... 100 dB

Audio Section (VSX-830-K,S/SYXEV8)
Rated power output (1 kHz, 6 Ω, 1 %)
Front, Center, Surround..... 130 W per channel
Rated power output (20 Hz to 20 kHz, 8 Ω, 0.09 %)
Front, Center, Surround..... 100 W per channel
Total harmonic distortion .... 0.06 % (20 Hz to 20 kHz, 50 W/ch, 8 Ω)
Guaranteed speaker impedance ..... 6 Ω to 16 Ω
Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE..... 100 dB
Frequency Response ..... 5 Hz to 100 000 Hz $^{+0}_{-3}$ dB (Pure Direct Mode)
Input (Sensitivity/Impedance)
LINE..... 315 mV/47 kΩ

Tuner Section
Frequency Range (FM) ..... 87.5 MHz to 108 MHz
Antenna Input (FM)..... 75 Ω unbalanced
Frequency Range (AM) (VSX-830-K/CUXESM)..... 530 kHz to 1 700 kHz
Frequency Range (AM) (VSX-830-K,S/SYXEV8) ..... 531 kHz to 1 602 kHz
Antenna (AM) ..... Loop antenna (balanced)

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

Bluetooth Section
Version..... Bluetooth Specification Ver. 2.1 + EDR
Output..... Bluetooth Specification Class 2
Estimated line-of-sight transmission distance* ..... About 10 m
* The line-of-sight transmission distance is an estimate. Actual transmission distances supported may differ depending on surrounding conditions.
Frequency range..... 2.4 GHz
Supported Bluetooth profiles..... A2DP, AVRCP
Supported Codec ..... SBC (Subband Codec), AAC

Digital In/Out Section
HDMI terminal ..... 19-pin (Not DVI)
HDMI output type..... 5 V, 55 mA
HDMI input/MHL terminal..... 5 V, 900 mA
USB terminal ..... USB2.0 High Speed (Type A) 5 V, 1 A
iPod terminal..... USB

Network Section (Wired)
LAN terminal..... 10 BASE-T/100 BASE-TX

Network Section (Wireless)
WLAN standards ..... IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
Frequency band
(VSX-830-K/CUXESM, VSX-45/CUXE)
2.4 GHz band (2.412 GHz to 2.462 GHz)..... Channel 1 to Channel 11
5 GHz band (5.180 GHz to 5.240 GHz, 5.745 GHz to 5.825 GHz) ..... Channel 36 to Channel 48, Channel 149 to Channel 165
(VSX-830-K, S/SYXEV8)
2.4 GHz band (2.412 GHz to 2.472 GHz) ..... Channel 1 to Channel 13
5 GHz band (5.180 GHz to 5.240 GHz)..... Channel 36 to Channel 48
Security ..... Disabled (no encryption)
WEP (Key length: 64 bit/128 bit, Key format: ASCII/Hex)
WPA2 Mixed (WPA/WPA2, Encryption method: TKIP/AES, Recognition method: PSK)

Miscellaneous
Power requirements..... AC 120 V, 60 Hz (VSX-830-K/CUXESM)
Power requirements..... AC 220 V to 230 V, 50 Hz/60 Hz (VSX-830-K,S/SYXEV8)
Power consumption ..... 450 W
In standby..... 0.1 W
In standby (HDMI control on)..... 0.3 W
In standby (Network standby on)..... 2.7 W
In standby (Network standby on, wireless LAN connected) .... 3.0 W
In standby (HDMI control on, Network standby on)..... 2.7 W
In standby (HDMI control on, Network standby on, wireless LAN connected)..... 3.0 W
Auto power down..... 15 min, 30 min, 60 min, off (default) (VSX-830-K/CUXESM, VSX-45/CUXE)
15 min (default), 30 min, 60 min, off (VSX-830-K,-S/SYXEV8)
Dimensions..... 435 mm (W) x 168 mm (H) x 331.5 mm (D)
(17 3/16 in. (W) x 6 5/8 in. (H) x 13 1/16 in. (D))
Weight (without package) ..... 8.7 kg (19 lb 3 oz)

Accessories

- MCACC Setup microphone (APM7011)
- Remote control unit (8300773900010S)
- AAA size IEC R03 dry cell batteries
- AM loop antenna (E605010140010S)
- FM wire antenna (E605010140010-IL)
- Power cord (VSX-830-K, -S/SYXEV8 only) (L068250160070S)
- CD-ROM
  (VSX-830-K/CUXESM: 6517000002141S)
  (VSX-45/CUXE: 6517000002131S)
  (VSX-830-K,-S/SYXEV8: 6517000002151S)
- Quick start guide
  (VSX-830-K/CUXESM: 5707000009910S)
  (VSX-45/CUXE: 5707000009890S)
  (VSX-830-K,-S/SYXEV8: 5707000009930S)
- Safety Brochure
- Warranty sheet

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	Check the firmware version.	The firmware version must be the latest one. If it is not the latest one, be sure to update it.
2	Confirm whether the customer complain has been solved. If the customer complain occurs with the particular source, such as Dolby Digital, DTS, AAC and HDMI, input it for the operation check.	The customer complain must not be reappeared. Video, Audio and operations must be normal.
3	Check the analog audio playback. (Make the analog connections with a CD/DVD/BD player.)	Each channel audio and operations must be normal.
4	Check the HDMI digital audio playback. (Make the digital connections with a BD player.)	Each channel audio and operations must be normal.
5	Check a supported music file playback (e.g. wav. flac. mp3, etc). (Make the connections with a USB memory or an iOS device)	Audio and operations including OSD output must be normal.
6	Check surround playback. (Select Surround mode and check the multichannel operations via the DSP circuit.)	Each channel audio and operations must be normal.
7	Check the video outputs. (Connect with a BD player.)	Video and operations must be normal.
8	Check the tuner (AM and FM) operations.	Audio and operations must be normal.
9	Check the sound from headphone output.	Sound must be normal, without noise.
10	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	Too dark	Distortion	Volume too high
Horizontal noise	Too bright	Noise	Volume fluctuating
Flicker	Mottled color	Volume too low	Sound interrupted
Disturbed image (video jumpiness)			

3.2 JIGS LIST

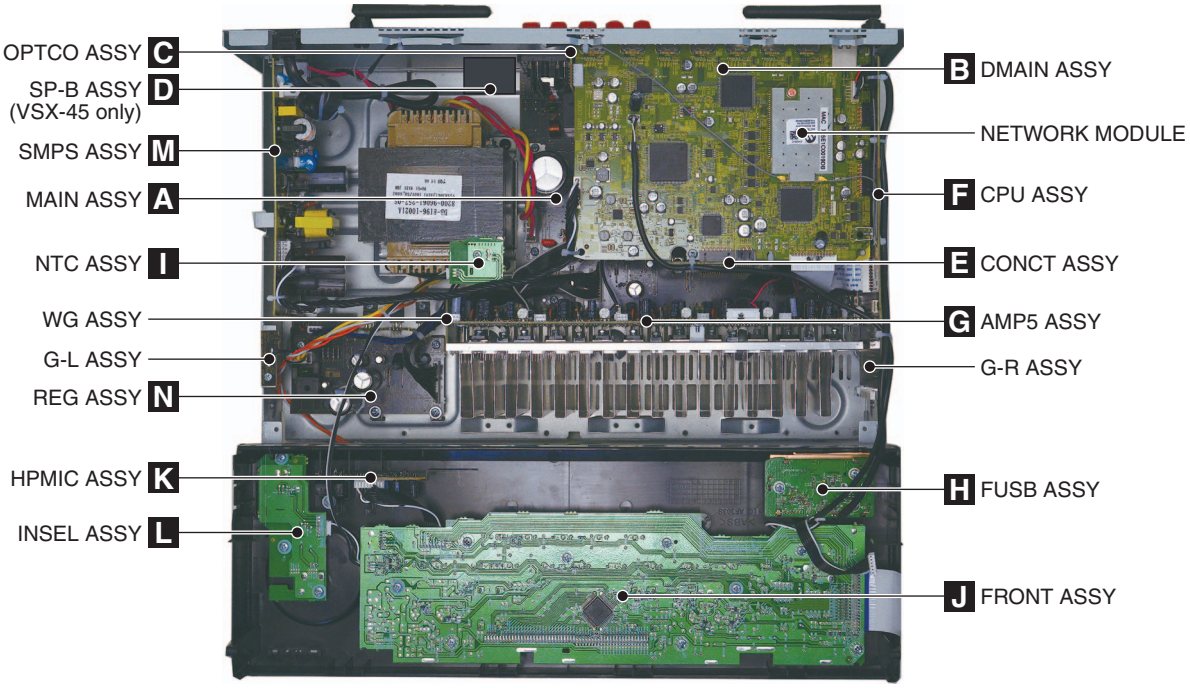
■ Jigs List

Jig Name	Part No.	Remarks
Board to board extension jig cable (15P)	GGD1876	Diagnosis (DMAIN Assy ↔ CONCT Assy)
Board to board extension jig cable (15P)	GGD1848	Diagnosis (DMAIN Assy ↔ CPU Assy)
Board to board extension jig cable (9P)	GGD1890	Diagnosis (DMAIN Assy ↔ CPU Assy)
Board to board extension jig cable (7P)	GGD1891	Diagnosis (DMAIN 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	Symbol and Description	VSX-830-K /CUXESM	VSX-45 /CUXE	VSX-830-K /SYXEV8	VSX-830-S /SYXEV8
NSP	1..PCB TTL ASSY MAIN	7025HK1402010	7025HK1402020	7025HK1402030	7025HK1402040
	2..MAIN ASSY (PCB SUB ASSY MAIN)	7028077711030	7028077711010	7028077711020	7028077711020
	2..REG ASSY (PCB SUB ASSY REG)	7028077712030	7028077712010	7028077712020	7028077712020
	2..CONCT ASSY (PCB SUB ASSY CONCT)	7028077713030	7028077713010	7028077713020	7028077713020
	2..G-R ASSY (PCB SUB ASSY G-R)	7028077714030	7028077714010	7028077714020	7028077714020
NSP	1..PCB TTL ASSY DMAIN	7025HK1402011	7025HK1402021	7025HK1402031	7025HK1402041
	2..DMAIN ASSY (PCB SUB ASSY DMAIN)	7028077771030	7028077771010	7028077771020	7028077771020
	2..NETWORK MODULE	AXX7293	AXX7293	AXX7293	AXX7293
NSP	1..PCB TTL ASSY FRONT	7025HK1402012	7025HK1402022	7025HK1402032	7025HK1402042
	2..FRONT ASSY (PCB SUB ASSY FRONT)	7028077721050	7028077721010	7028077721040	7028077721040
	2..INSEL ASSY (PCB SUB ASSY INSEL)	7028077722050	7028077722010	7028077722040	7028077722040
	2..OPTCO ASSY (PCB SUB ASSY OPTCO)	7028077723050	7028077723010	7028077723040	7028077723040
	2..HPMIC ASSY (PCB SUB ASSY HPMIC)	7028077724050	7028077724010	7028077724040	7028077724040
	2..NTC ASSY (PCB SUB ASSY NTC)	7028077725050	7028077725010	7028077725040	7028077725040
	2..G-L ASSY (PCB SUB ASSY G-L)	7028077726050	7028077726010	7028077726040	7028077726040
NSP	1..PCB TTL ASSY CPU	7025HK1402013	7025HK1402023	7025HK1402033	7025HK1402043
	2..CPU ASSY (PCB SUB ASSY CPU)	7028077731050	7028077731010	7028077731040	7028077731040
	2..SP-B ASSY (PCB SUB ASSY SP-B)	Not used	7028077732010	Not used	Not used
NSP	1..PCB TTL ASSY AMP5	7025HK1402014	7025HK1402024	7025HK1402034	7025HK1402044
	2..AMP5 ASSY (PCB SUB ASSY AMP5)	7028074541040	7028074541040	7028074541040	7028074541040
	2..WG ASSY (PCB SUB ASSY WG)	7028074542040	7028074542040	7028074542040	7028074542040
NSP	1..PCB TTL ASSY SMPS	7025HK1402015	7025HK1402025	7025HK1402035	7025HK1402045
⚠	2..SMPS ASSY (PCB SUB ASSY SMPS)	70280733610GA	70280733610GA	70280733610HA	70280733610HA
NSP	1..PCB TTL ASSY FUSB	7025HK1402016	7025HK1402026	7025HK1402036	7025HK1402046
	2..FUSB ASSY (PCB SUB ASSY FUSB)	7028077781040	7028077781010	7028077781030	7028077781030

A

B

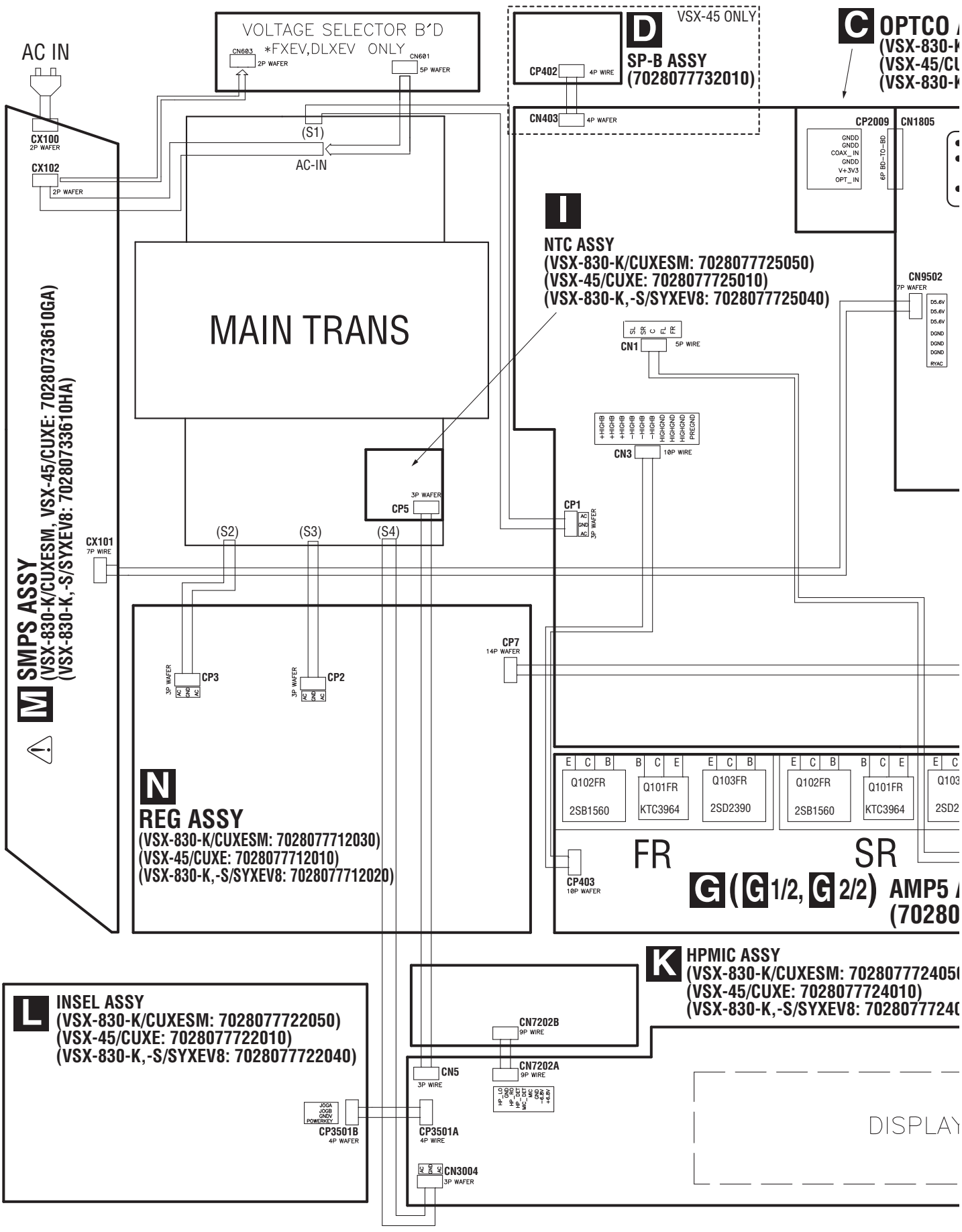
C

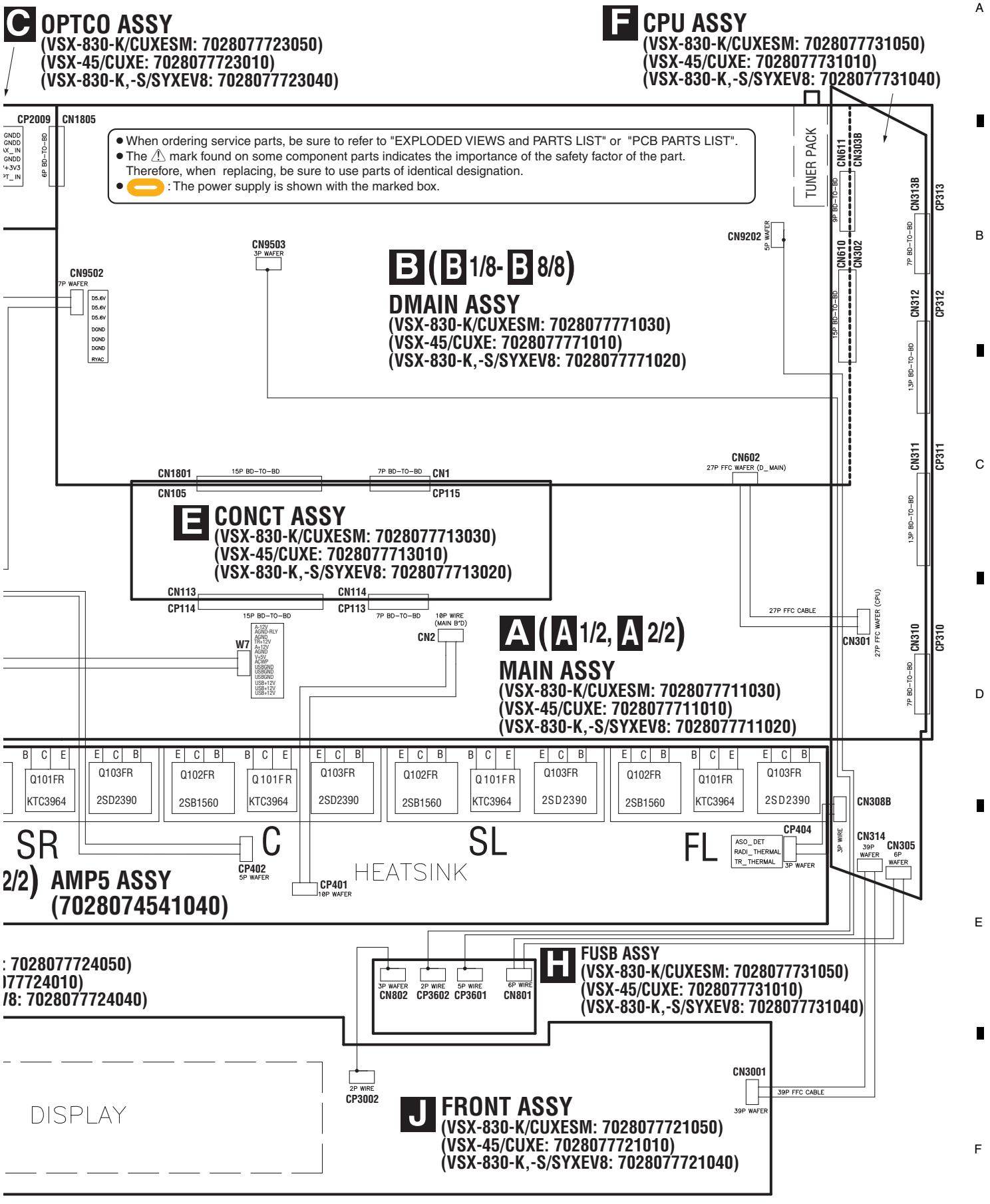
D

E

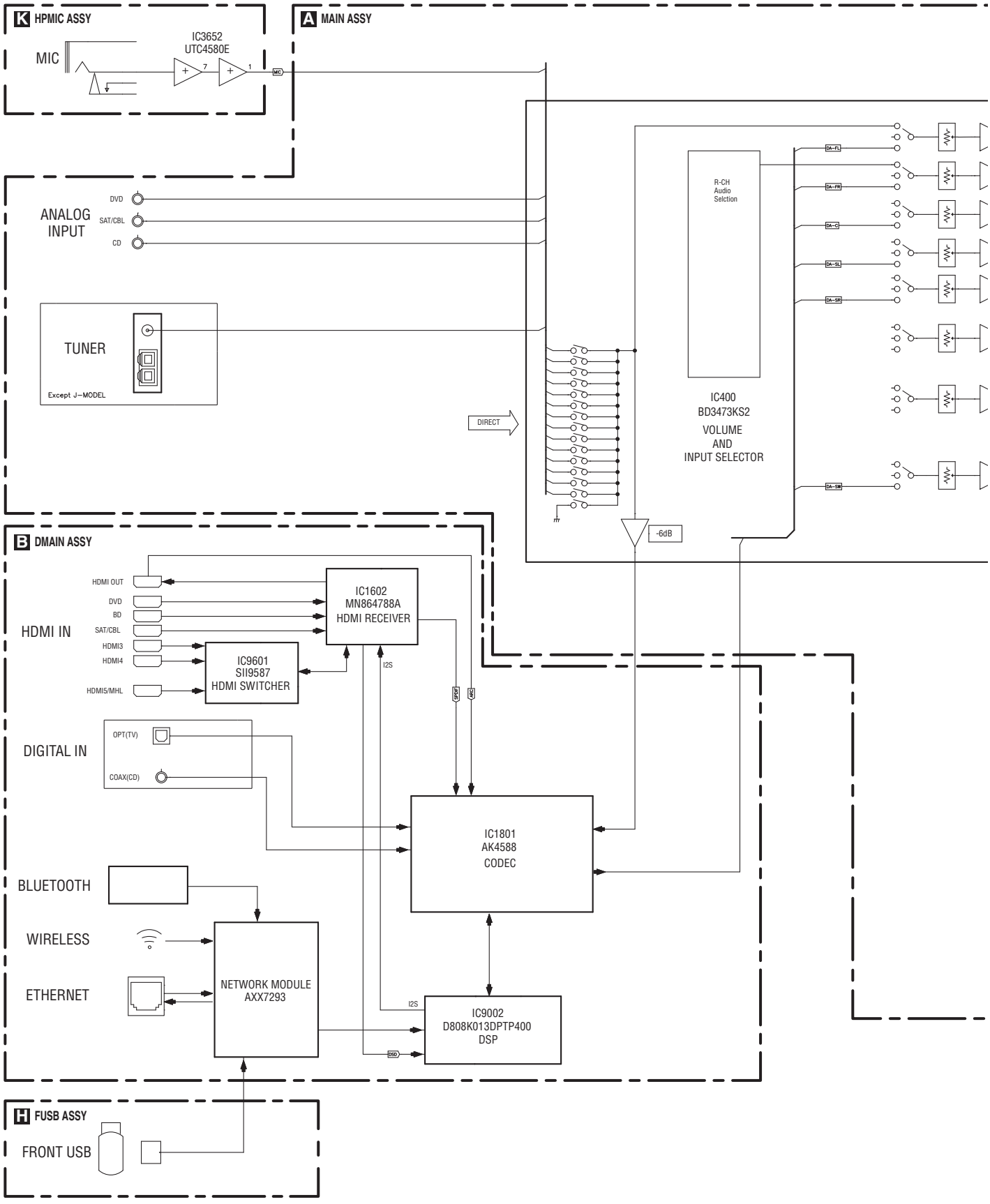
F

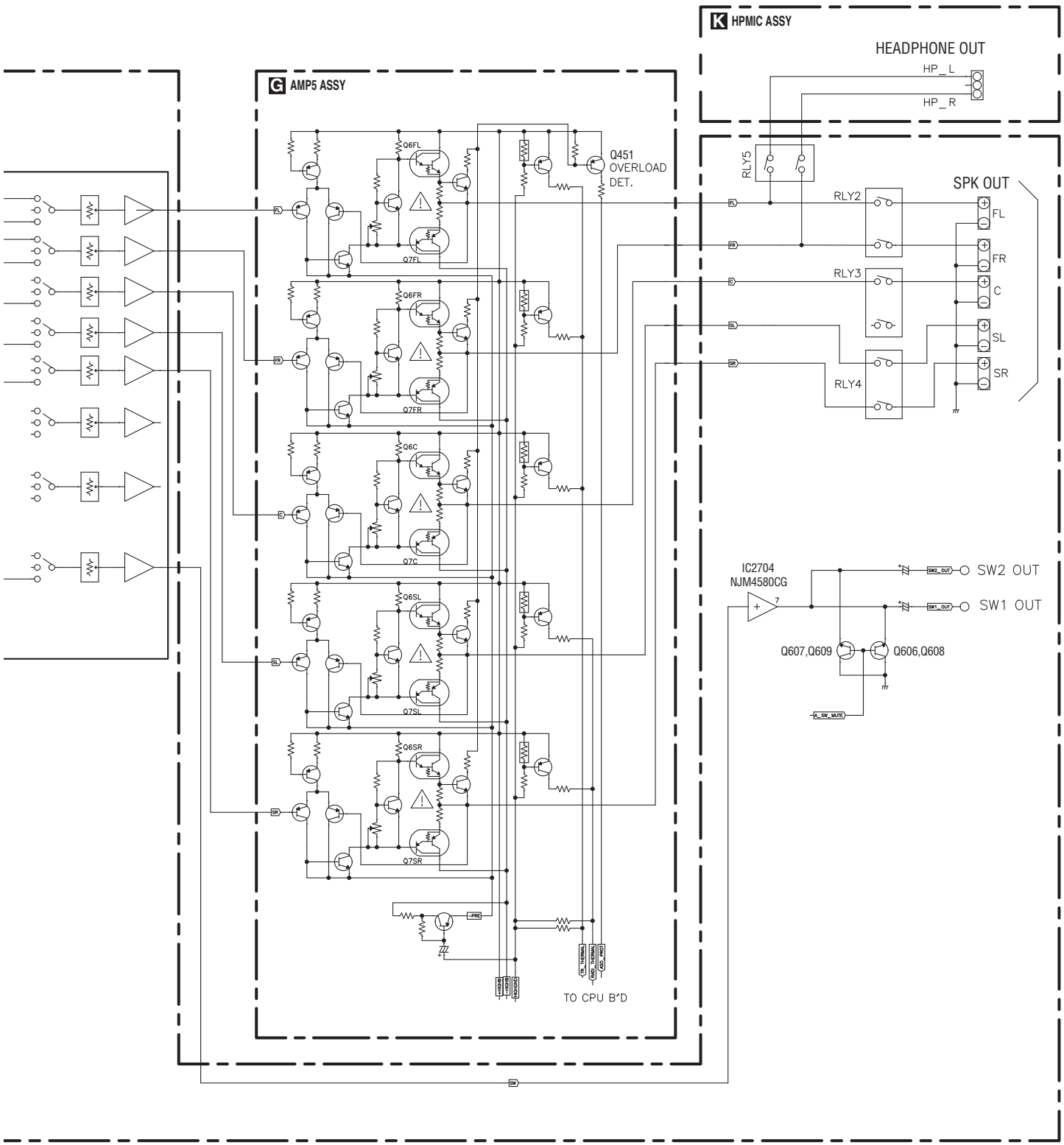
4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM




C OPTCO ASSY
(VSX-830-K/CUXESM: 7028077723050)
(VSX-45/CUXE: 7028077723010)
(VSX-830-K,-S/SYXEV8: 7028077723040)
F CPU ASSY
(VSX-830-K/CUXESM: 7028077731050)
(VSX-45/CUXE: 7028077731010)
(VSX-830-K,-S/SYXEV8: 7028077731040)
CP2009
CN1805
6P BD-TO-BD
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.
TUNER PACK
CN9202
5P WAFER
CN611
CN303B
9P BD-TO-BD
CN313B
CP313
CN610
CN302
7P BD-TO-BD
CN312
CP312
15P BD-TO-BD
13P BD-TO-BD
CN9503
3P WAFER
CN9502
7P WAFER
B (B 1/8- B 8/8)
DMAIN ASSY
(VSX-830-K/CUXESM: 7028077771030)
(VSX-45/CUXE: 7028077771010)
(VSX-830-K,-S/SYXEV8: 7028077771020)
CN602
27P FFC WAFER (D_MAIN)
CN311
CP311
CN1801
CN105
15P BD-TO-BD
7P BD-TO-BD
CN1
CP115
E CONCT ASSY
(VSX-830-K/CUXESM: 7028077713030)
(VSX-45/CUXE: 7028077713010)
(VSX-830-K,-S/SYXEV8: 7028077713020)
CN113
CP114
CN114
CP113
15P BD-TO-BD
7P BD-TO-BD
10P WIRE (MAIN B"D)
CN2
W7
27P FFC CABLE
CN301
27P FFC WAFER (CPU)
CN310
CP310
A (A 1/2, A 2/2)
MAIN ASSY
(VSX-830-K/CUXESM: 7028077711030)
(VSX-45/CUXE: 7028077711010)
(VSX-830-K,-S/SYXEV8: 7028077711020)
Q101FR KTC3964
Q103FR 2SD2390
Q102FR 2SB1560
CN308B
CP404
3P WIRE
CN314
39P WAFER
CN305
6P WAFER
ASO_DET
RADI_THERMAL
TR_THERMAL
3P WAFER
SR
C
SL
FL
HEATSINK
2/2) AMP5 ASSY
(7028074541040)
CP402
5P WAFER
CP401
10P WAFER
: 7028077724050)
I77724010)
/8: 7028077724040)
H FUSB ASSY
(VSX-830-K/CUXESM: 7028077731050)
(VSX-45/CUXE: 7028077731010)
(VSX-830-K,-S/SYXEV8: 7028077731040)
3P WAFER CN802
2P WIRE CP3602
5P WIRE CP3601
6P WIRE CN801
2P WIRE CP3002
DISPLAY
CN3001
39P WAFER
39P FFC CABLE
J FRONT ASSY
(VSX-830-K/CUXESM: 7028077721050)
(VSX-45/CUXE: 7028077721010)
(VSX-830-K,-S/SYXEV8: 7028077721040)

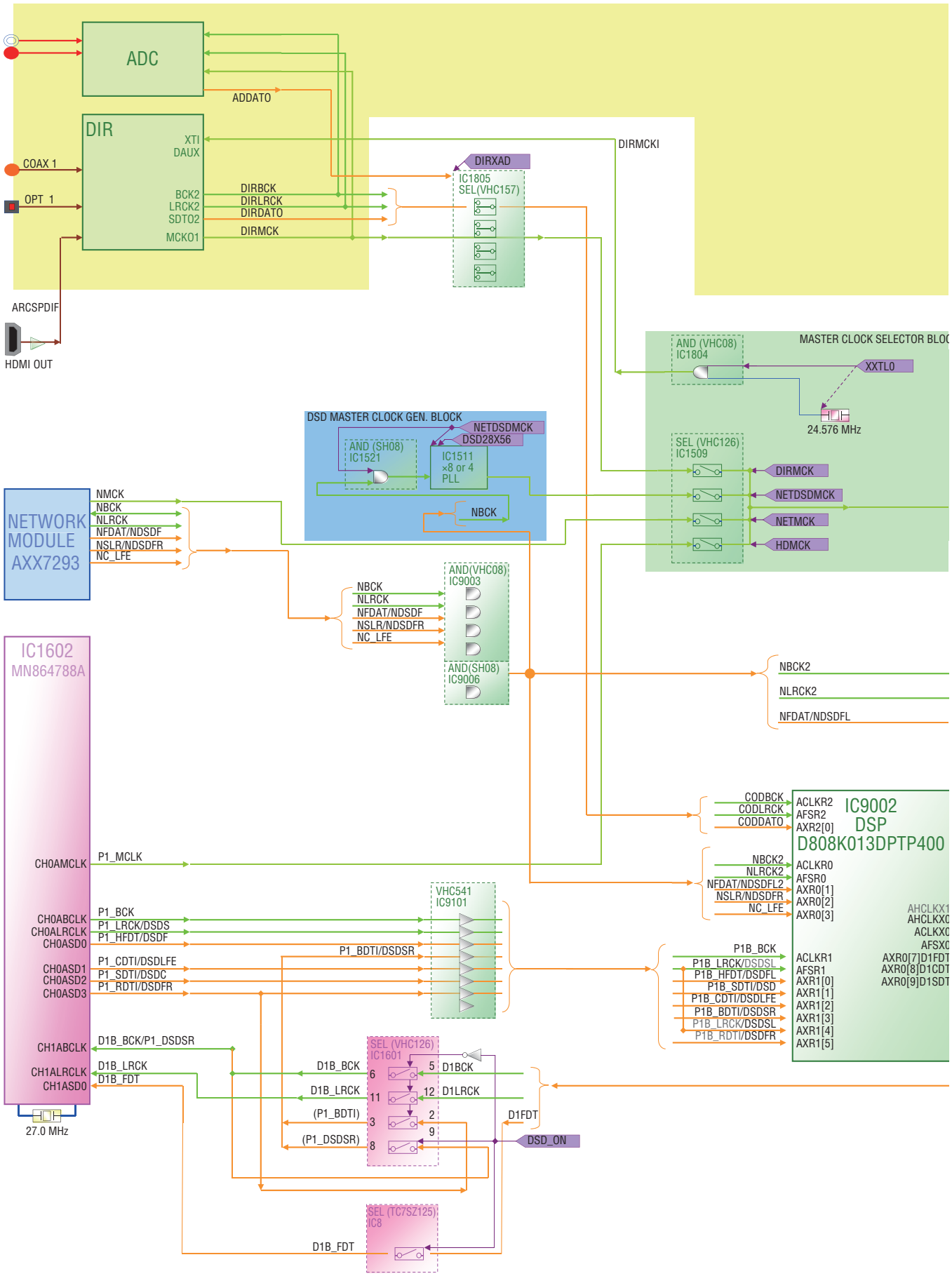
4.2 AUDIO BLOCK DIAGRAM

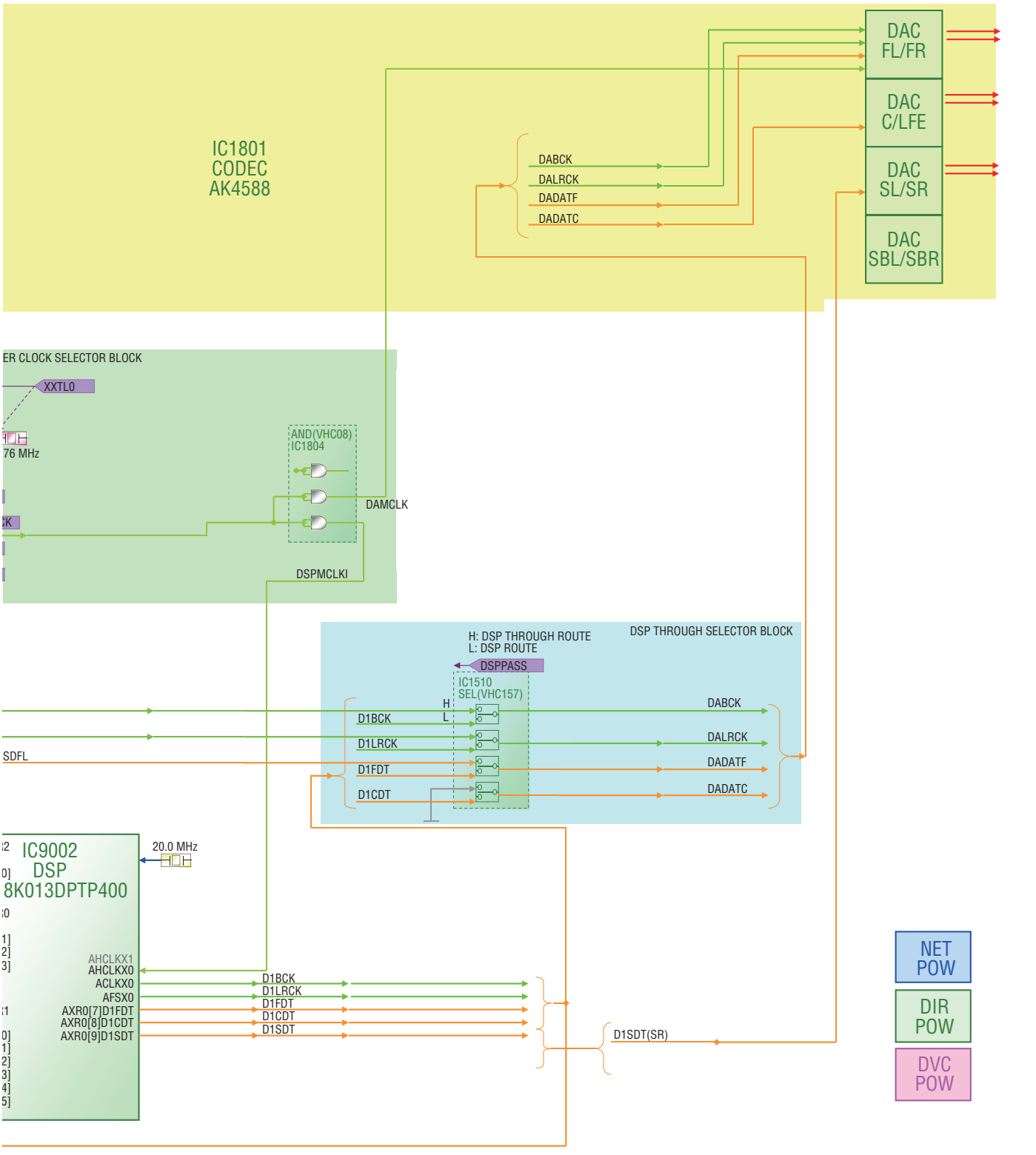



K HPMIC ASSY
HEADPHONE OUT
HP_L
HP_R
C AMP5 ASSY
Q6FL
Q7FL
Q6FR
Q7FR
Q6C
Q7C
Q6SL
Q7SL
Q6SR
Q7SR
Q451
OVERLOAD
DET.
RLY5
RLY2
RLY3
RLY4
SPK OUT
FL
FR
C
SL
SR
IC2704
NJM4580CG
SW2 OUT
SW1 OUT
Q607,Q609
Q606,Q608
TO CPU B'D

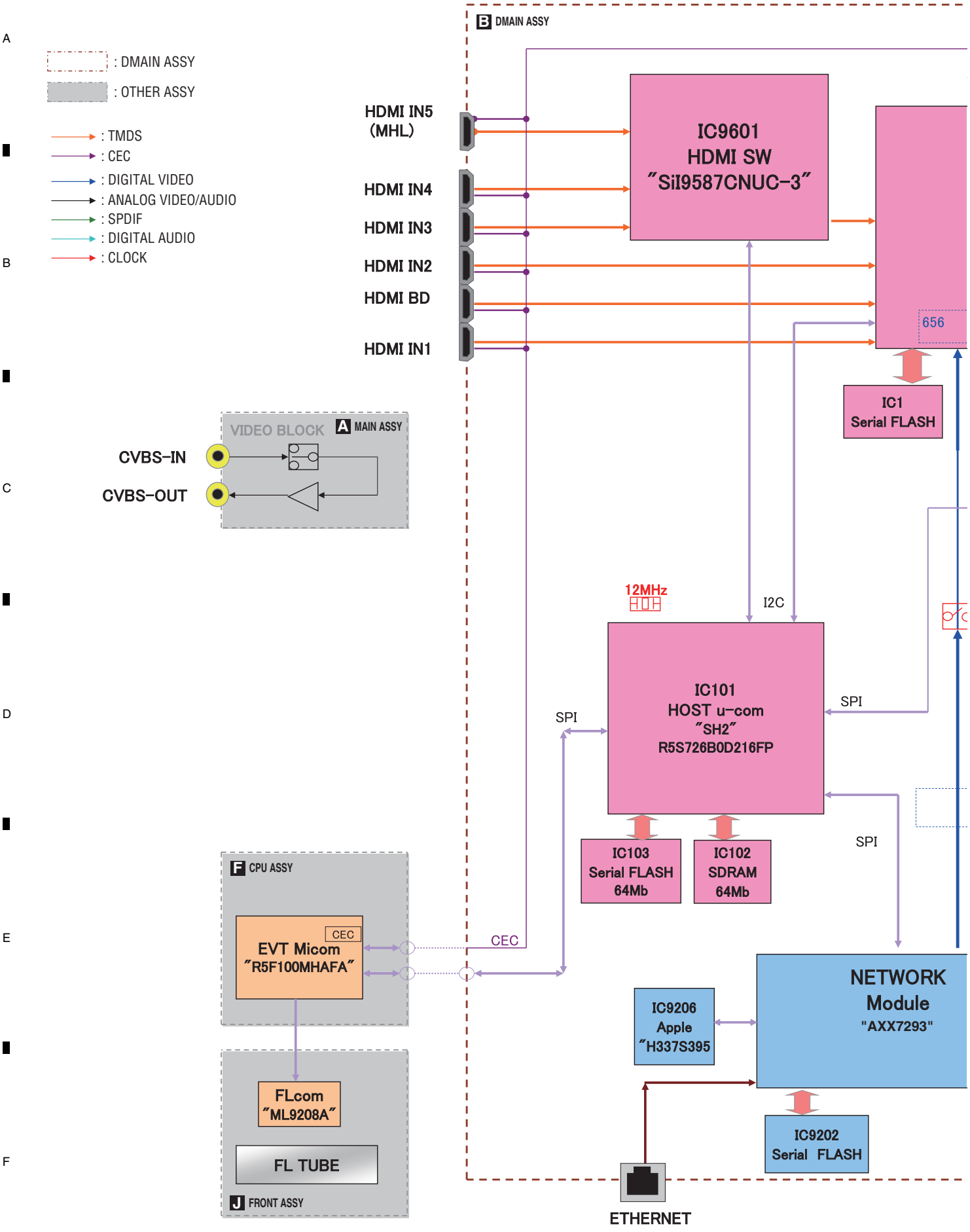
4.3 DMAIN BLOCK DIAGRAM (AUDIO)

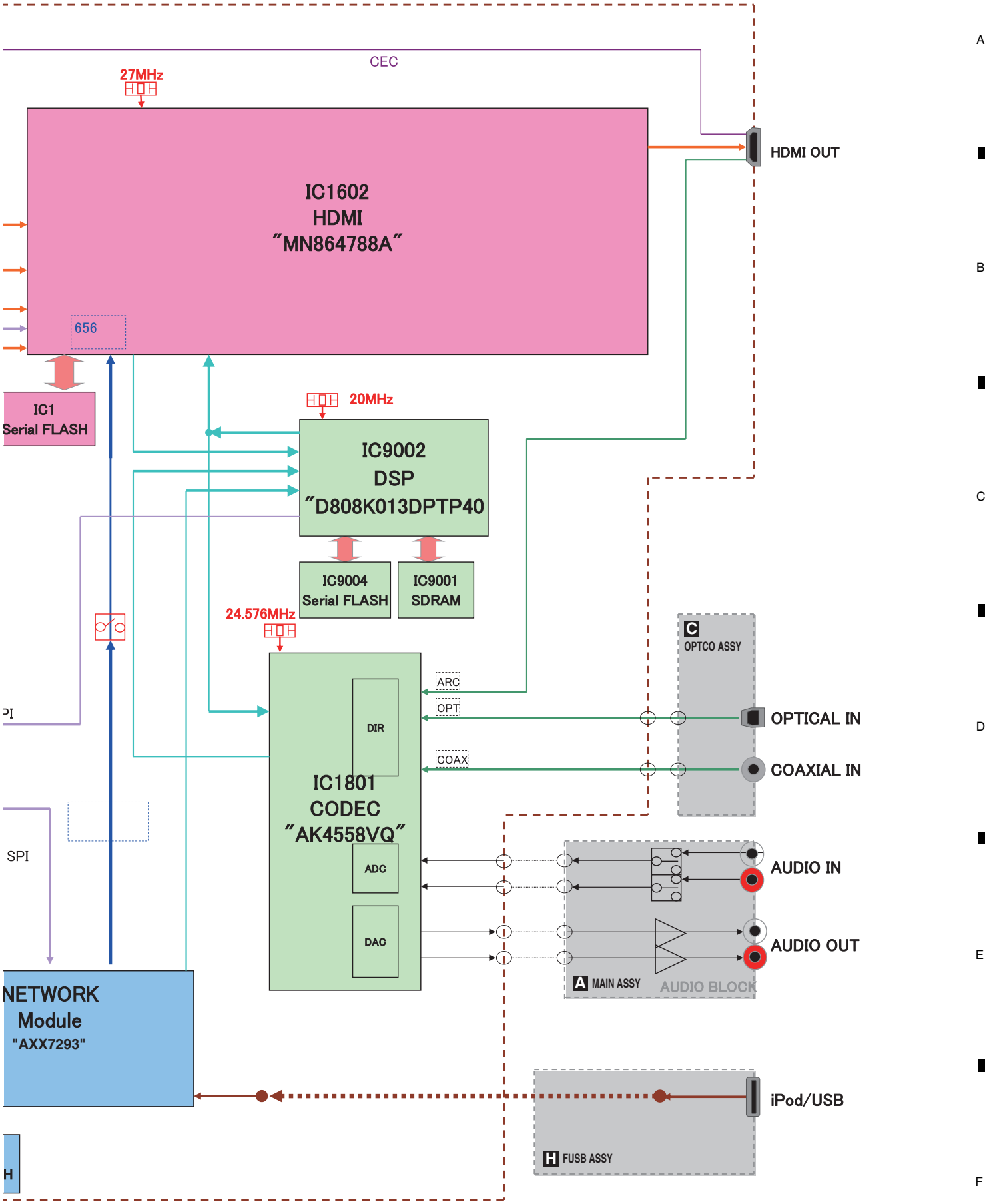
B DMAIN ASSY



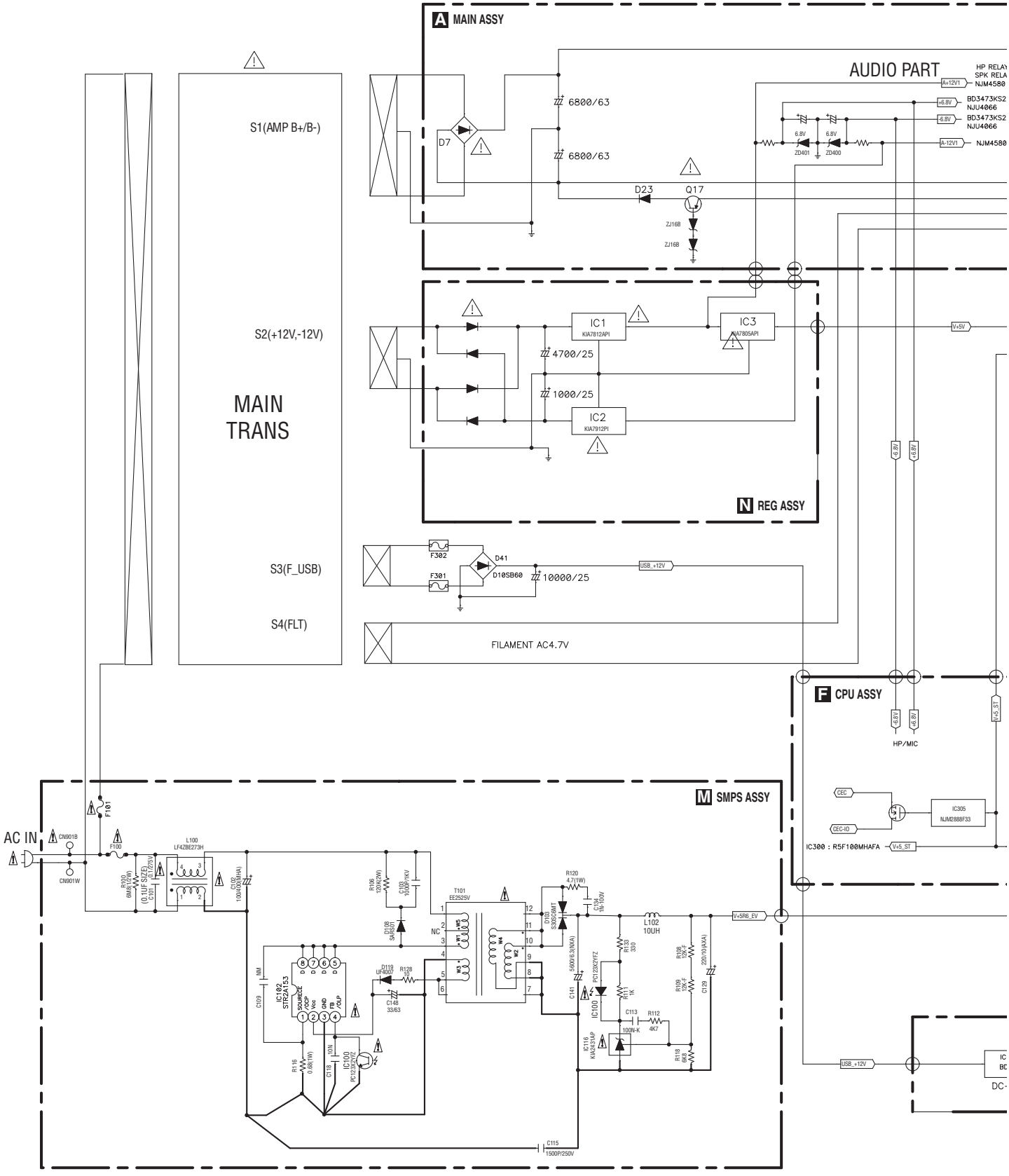

IC1801
CODEC
AK4588
DABCK
DALRCK
DADATF
DADATC
DAC
FL/FR
DAC
C/LFE
DAC
SL/SR
DAC
SBL/SBR
ER CLOCK SELECTOR BLOCK
XXTL0
76 MHz
AND(VHC08)
IC1804
DAMCLK
DSPMCLKI
H: DSP THROUGH ROUTE
L: DSP ROUTE
DSP THROUGH SELECTOR BLOCK
DSPPASS
IC1510
SEL(VHC157)
H
L
D1BCK
D1LRCK
D1FDT
D1CDT
DABCK
DALRCK
DADATF
DADATC
SDFL
IC9002
DSP
8K013DPTP400
20.0 MHz
AHCLKX1
AHCLKX0
ACLKX0
AFSX0
AXR0[7]D1FDT
AXR0[8]D1CDT
AXR0[9]D1SDT
D1BCK
D1LRCK
D1FDT
D1CDT
D1SDT
D1SDT(SR)
NET
POW
DIR
POW
DVC
POW
: SPDIF
: AMCLK
: I2S
: I2S BCK, LRCK
: SYSCLK
: FLG

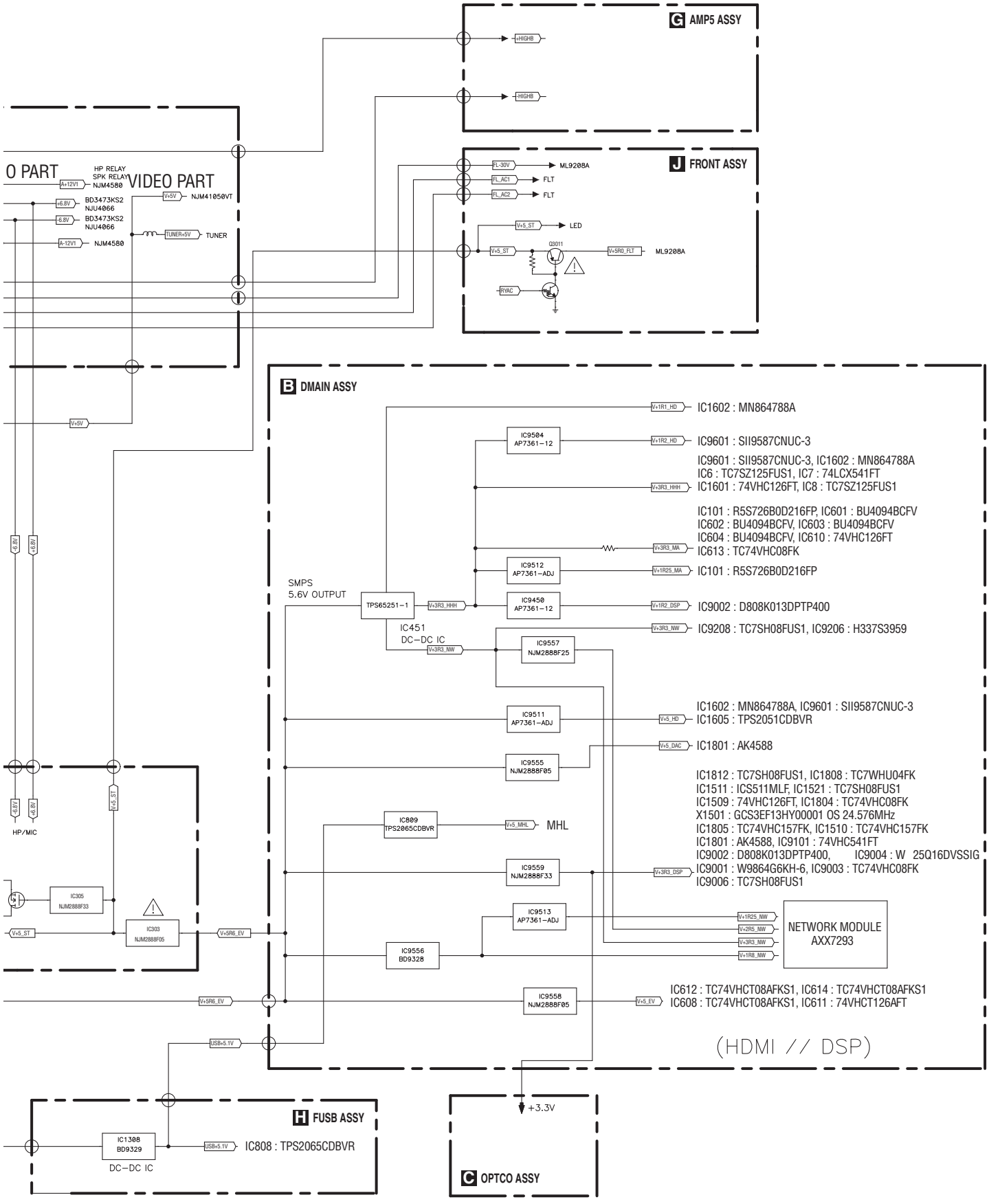
4.4 DMAIN BLOCK DIAGRAM (SYSTEM)



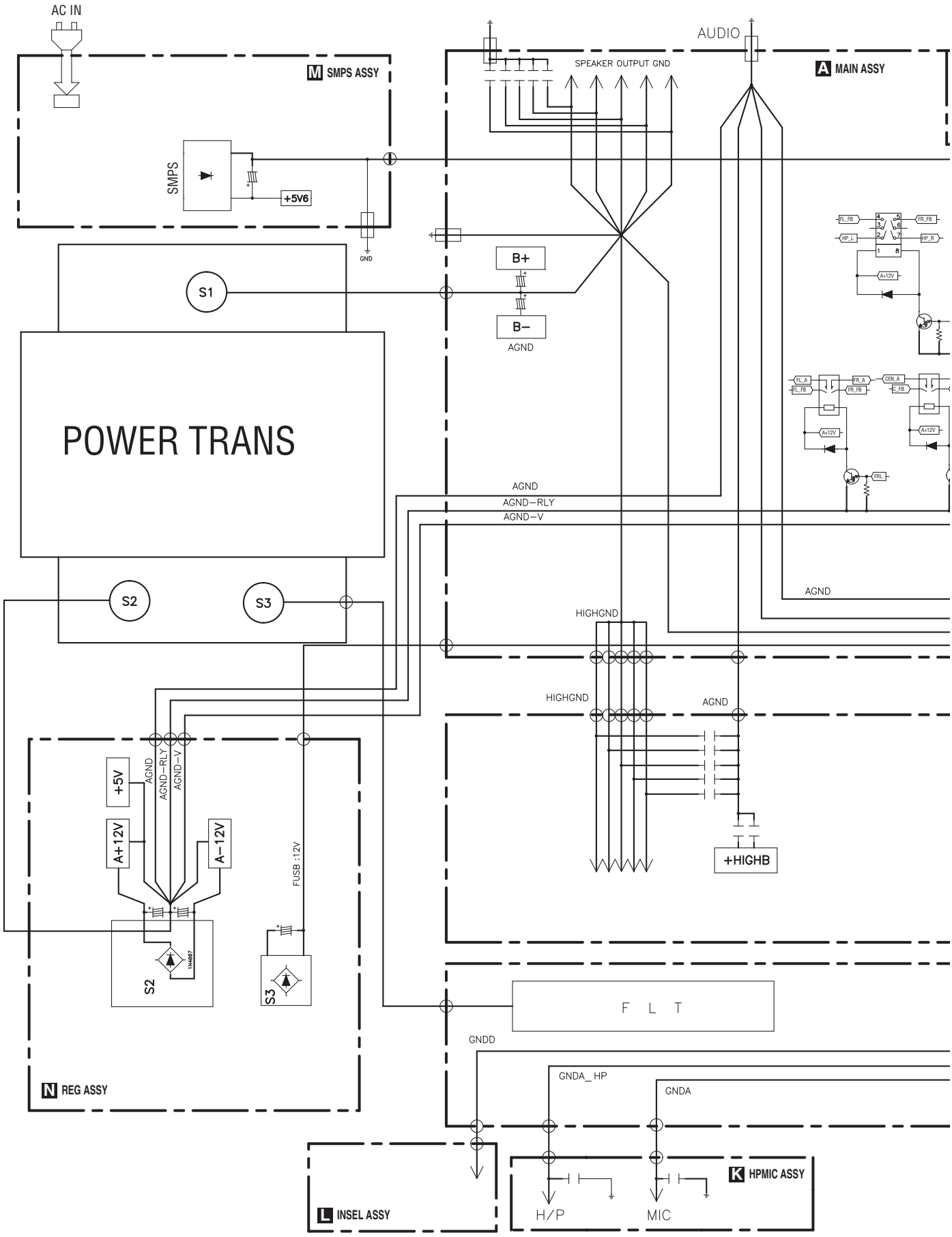

CEC
27MHz
IC1602
HDMI
"MN864788A"
HDMI OUT
656
IC1
Serial FLASH
20MHz
IC9002
DSP
"D808K013DPTP40
IC9004
Serial FLASH
IC9001
SDRAM
24.576MHz
C
OPTCO ASSY
ARC
OPT
COAX
DIR
IC1801
CODEC
"AK4558VQ"
ADC
DAC
OPTICAL IN
COAXIAL IN
AUDIO IN
AUDIO OUT
A MAIN ASSY
AUDIO BLOCK
SPI
NETWORK
Module
"AXX7293"
iPod/USB
H FUSB ASSY

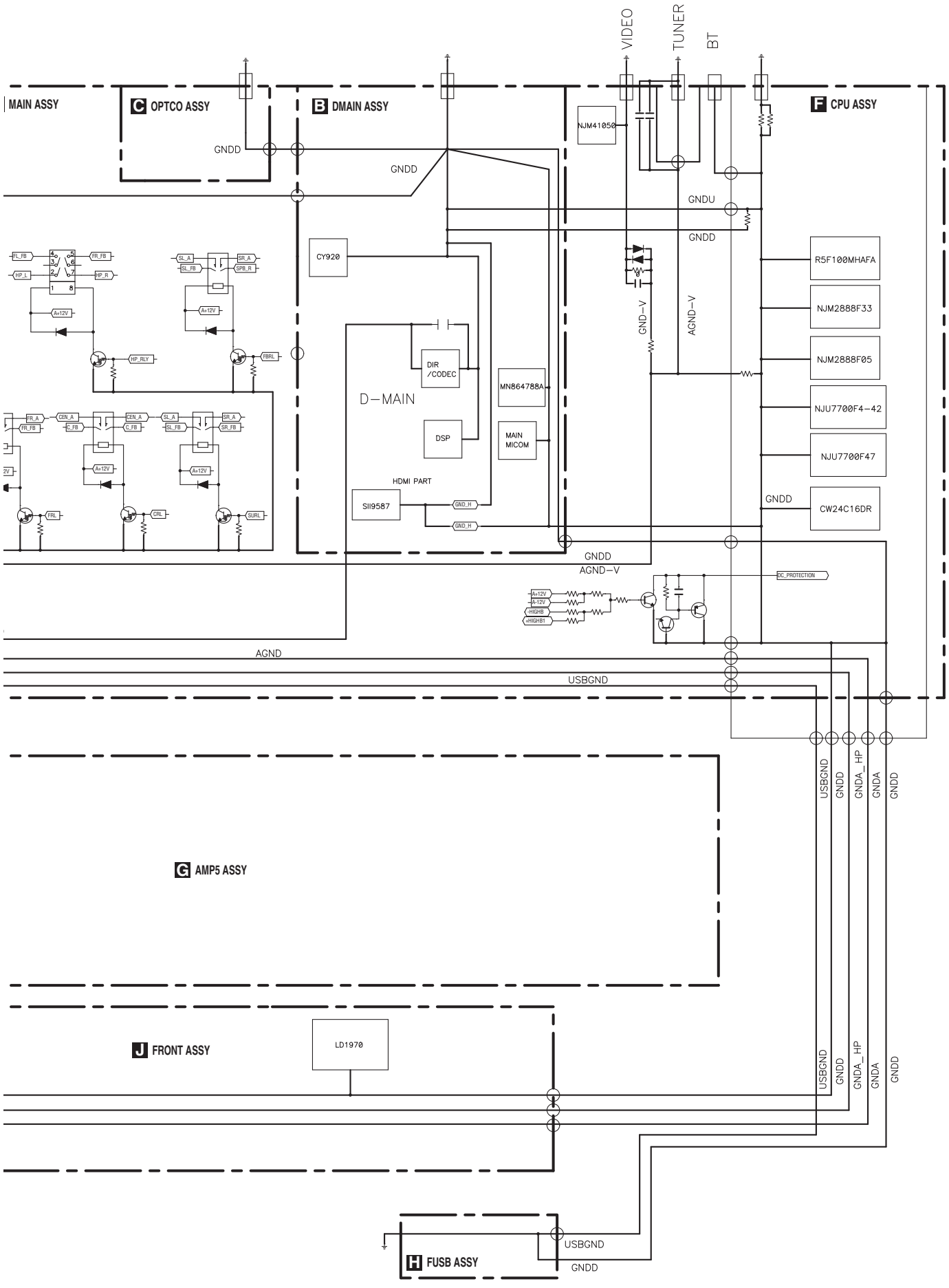
4.5 POWER SUPPLY BLOCK DIAGRAM




G AMP5 ASSY
HIGHB
HIGHB
J FRONT ASSY
FL-30V
ML9208A
FL_AC1
FLT
FL_AC2
FLT
V+5_ST
LED
Q3011
V+5_ST
V+5R0_FLT
ML9208A
RYAC
O PART
HP RELAY
SPK RELAY
NJM4580
VIDEO PART
A+12V1
V+5V
NJM41050VT
+6.8V
BD3473KS2
NJU4066
-6.8V
BD3473KS2
NJU4066
TUNER+5V
TUNER
A-12V1
NJM4580
V+5V
B DMAIN ASSY
V+1R1_HD
IC1602 : MN864788A
IC9504
AP7361-12
V+1R2_HD
IC9601 : SII9587CNUC-3
IC9601 : SII9587CNUC-3, IC1602 : MN864788A
IC6 : TC7SZ125FUS1, IC7 : 74LCX541FT
V+3R3_HHH
IC1601 : 74VHC126FT, IC8 : TC7SZ125FUS1
IC101 : R5S726B0D216FP, IC601 : BU4094BCFV
IC602 : BU4094BCFV, IC603 : BU4094BCFV
IC604 : BU4094BCFV, IC610 : 74VHC126FT
V+3R3_MA
IC613 : TC74VHC08FK
IC9512
AP7361-ADJ
V+1R25_MA
IC101 : R5S726B0D216FP
SMPS
5.6V OUTPUT
TPS65251-1
V+3R3_HHH
IC9450
AP7361-12
V+1R2_DSP
IC9002 : D808K013DPTP400
V+3R3_NW
IC9208 : TC7SH08FUS1, IC9206 : H337S3959
IC451
DC-DC IC
V+3R3_NW
IC9557
NJM2888F25
IC9511
AP7361-ADJ
V+5_HD
IC1602 : MN864788A, IC9601 : SII9587CNUC-3
IC1605 : TPS2051CDBVR
V+5_DAC
IC1801 : AK4588
IC9555
NJM2888F05
IC1812 : TC7SH08FUS1, IC1808 : TC7WHU04FK
IC1511 : ICS511MLF, IC1521 : TC7SH08FUS1
IC1509 : 74VHC126FT, IC1804 : TC74VHC08FK
X1501 : GCS3EF13HY00001 OS 24.576MHz
IC1805 : TC74VHC157FK, IC1510 : TC74VHC157FK
IC1801 : AK4588, IC9101 : 74VHC541FT
IC9002 : D808K013DPTP400, IC9004 : W 25Q16DVSSIG
IC9001 : W9864G6KH-6, IC9003 : TC74VHC08FK
IC9006 : TC7SH08FUS1
IC809
TPS2065CDBVR
V+5_MHL
MHL
IC9559
NJM2888F33
V+3R3_DSP
IC9513
AP7361-ADJ
V+1R25_NW
V+2R5_NW
V+3R3_NW
V+1R8_NW
NETWORK MODULE
AXX7293
IC9556
BD9328
IC9558
NJM2888F05
V+5_EV
IC612 : TC74VHCT08AFKS1, IC614 : TC74VHCT08AFKS1
IC608 : TC74VHCT08AFKS1, IC611 : 74VHCT126AFT
(HDMI // DSP)
-6.8V
+6.8V
V+5_ST
HP/MIC
IC305
NJM2888F33
IC303
NJM2888F05
V+5_ST
V+5R6_EV
V+5R6_EV
USB+5.1V
H FUSB ASSY
IC1308
BD9329
USB+5.1V
IC808 : TPS2065CDBVR
DC-DC IC
+3.3V
C OPTCO ASSY

4.6 GND BLOCK DIAGRAM

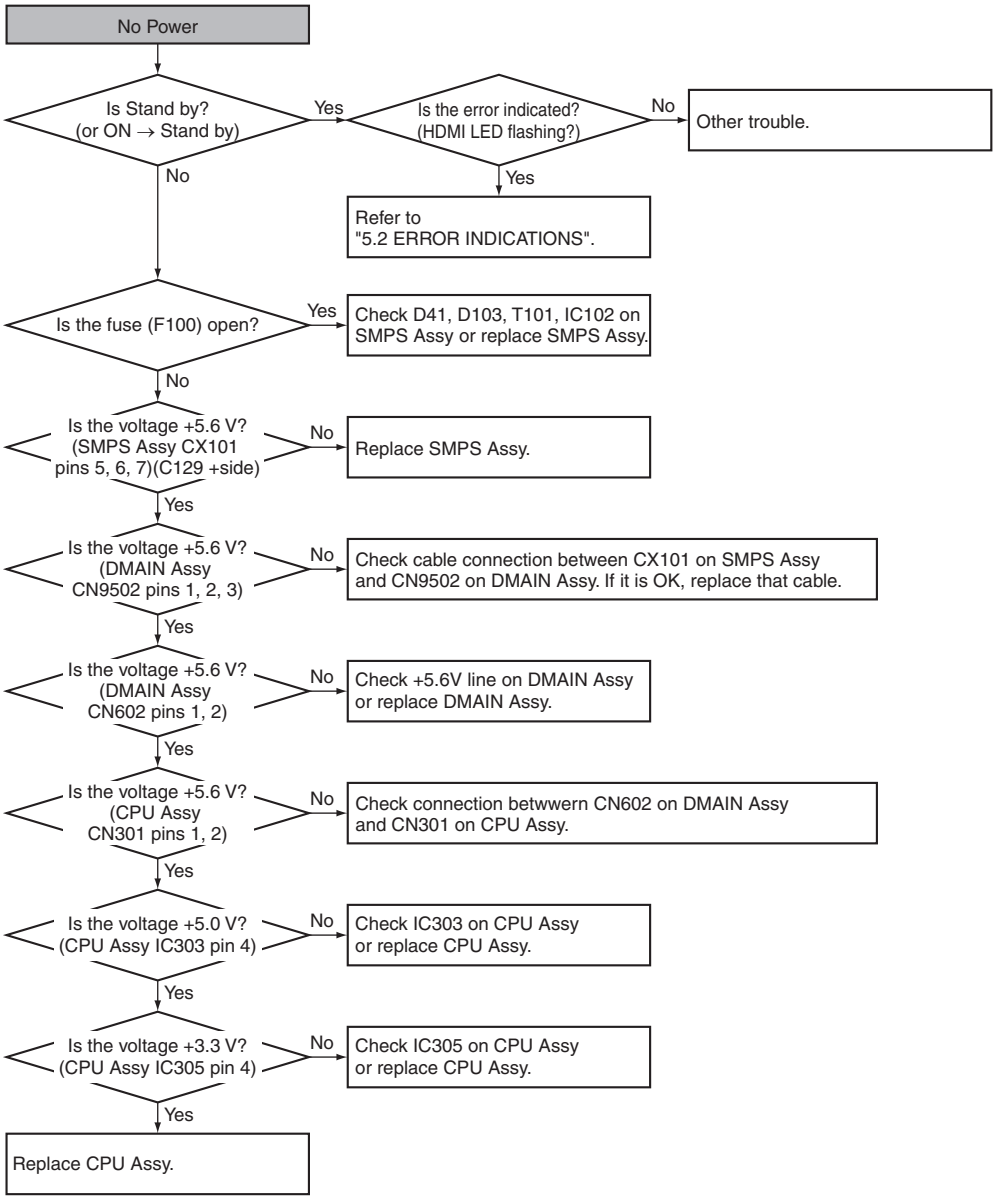



MAIN ASSY
C OPTCO ASSY
B DMAIN ASSY
F CPU ASSY
VIDEO
TUNER
BT
NJM41050
GNDD
GNDU
CY920
R5F100MHAFA
NJM2888F33
NJM2888F05
NJU7700F4-42
NJU7700F47
CW24C16DR
GND-V
AGND-V
DIR /CODEC
D-MAIN
MN864788A
DSP
MAIN MICOM
HDMI PART
SII9587
GND_H
GNDD
AGND-V
DC_PROTECTION
AGND
USBGND
G AMP5 ASSY
J FRONT ASSY
LD1970
USBGND
GNDD
GNDA_HP
GNDA
GNDD
H FUSB ASSY
USBGND
GNDD

5. DIAGNOSIS
5.1 TROUBLESHOOTING

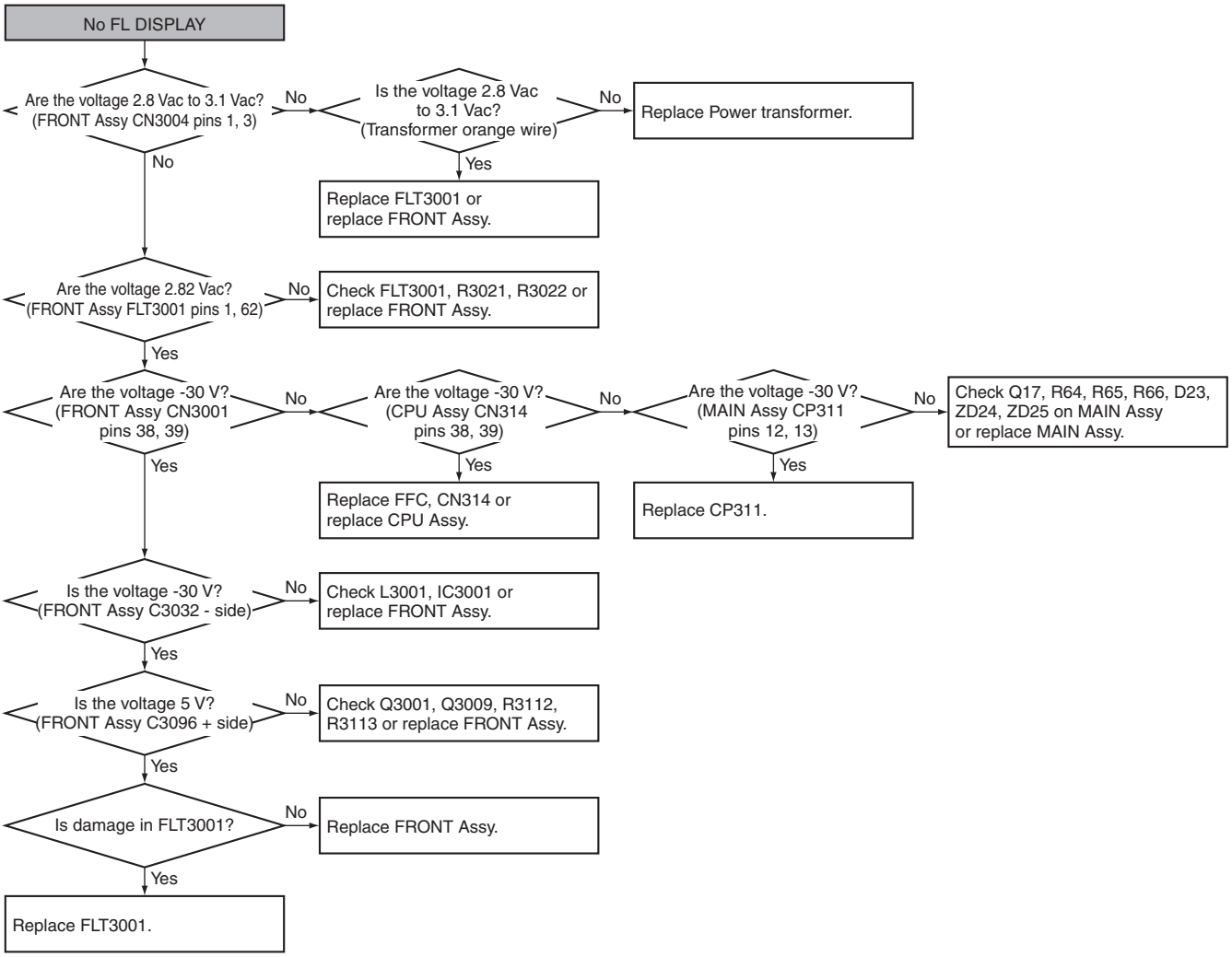
No Power

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



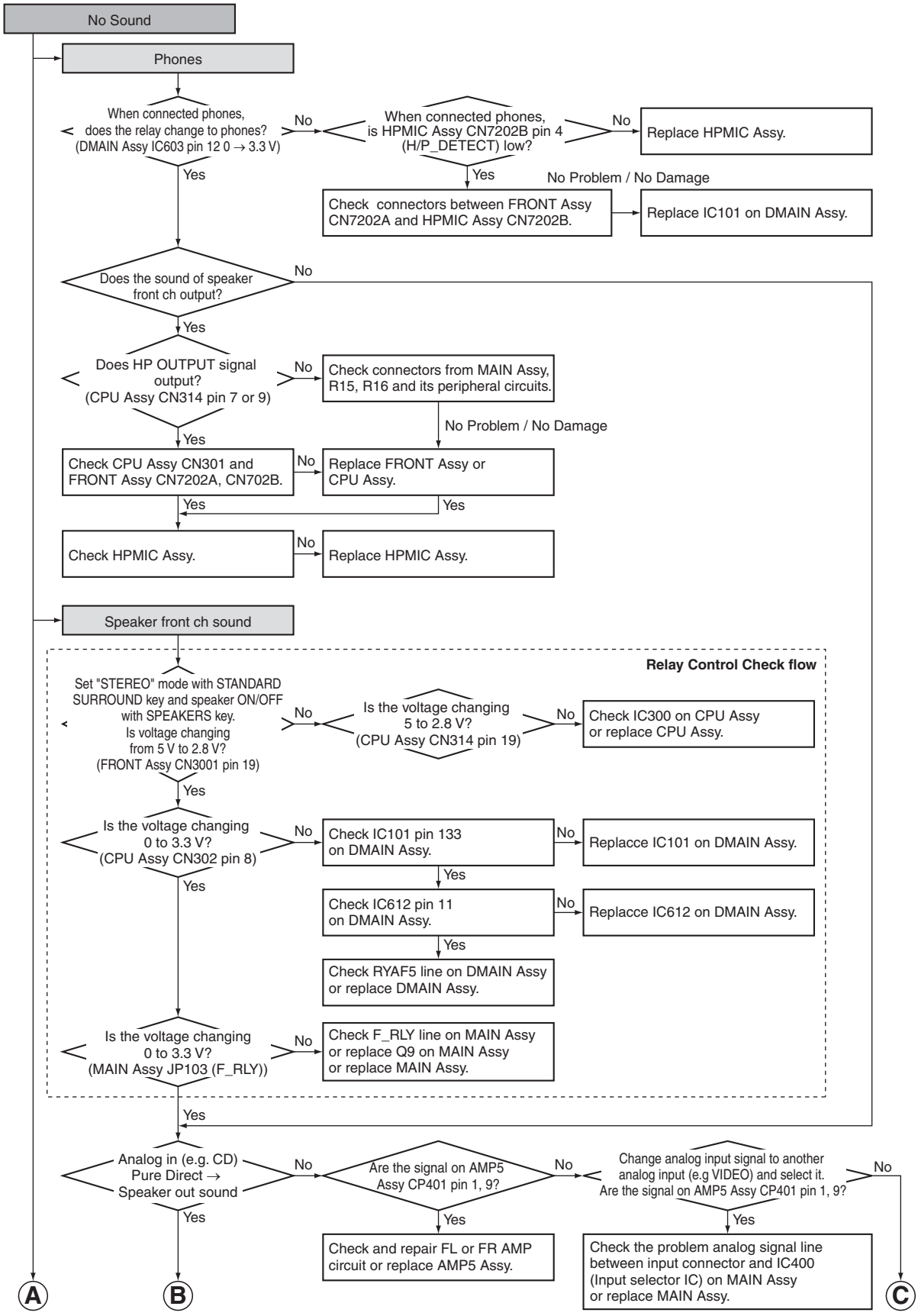
No FL DISPLAY

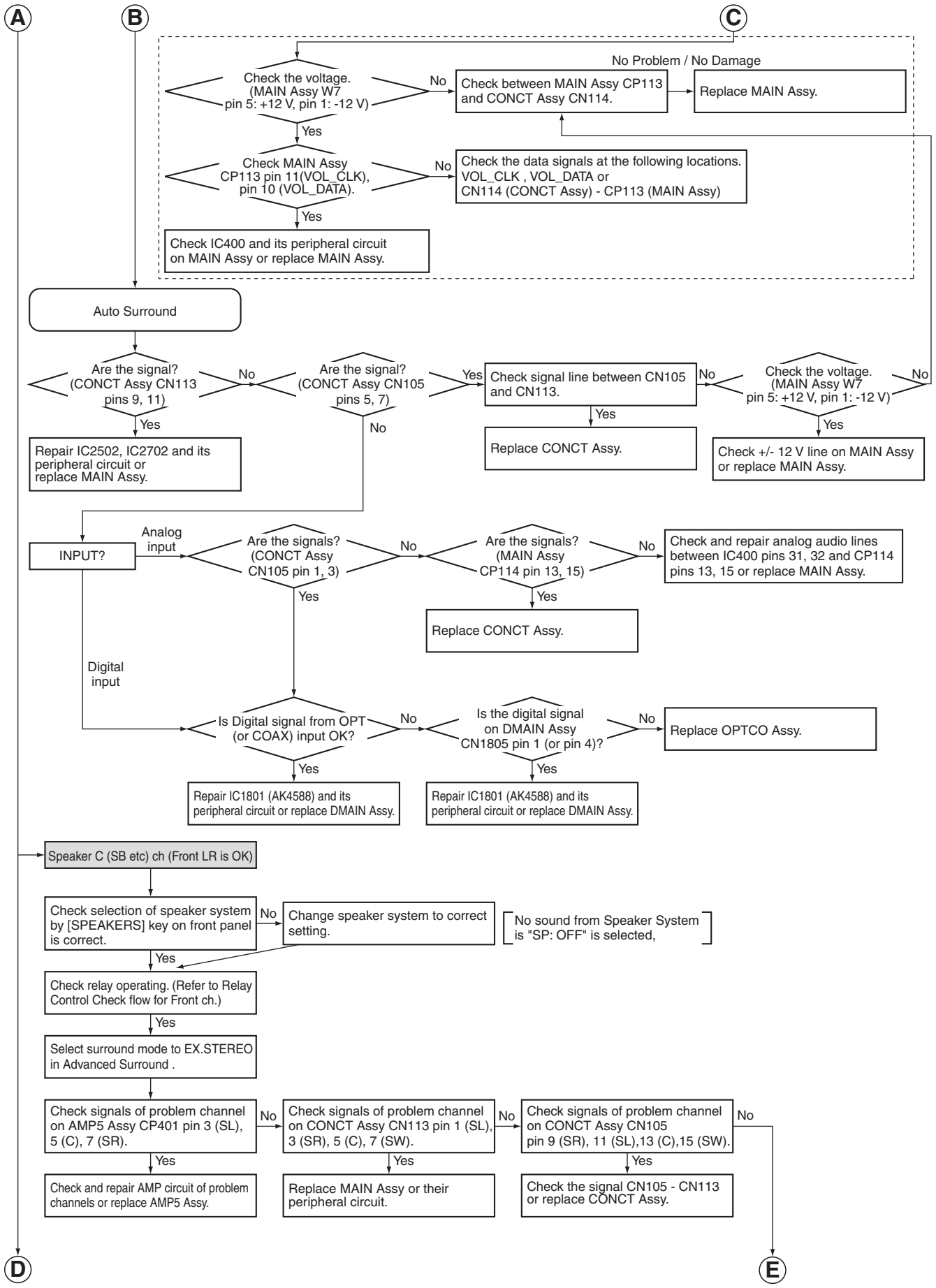
This is just for general reference and does not including every single case.

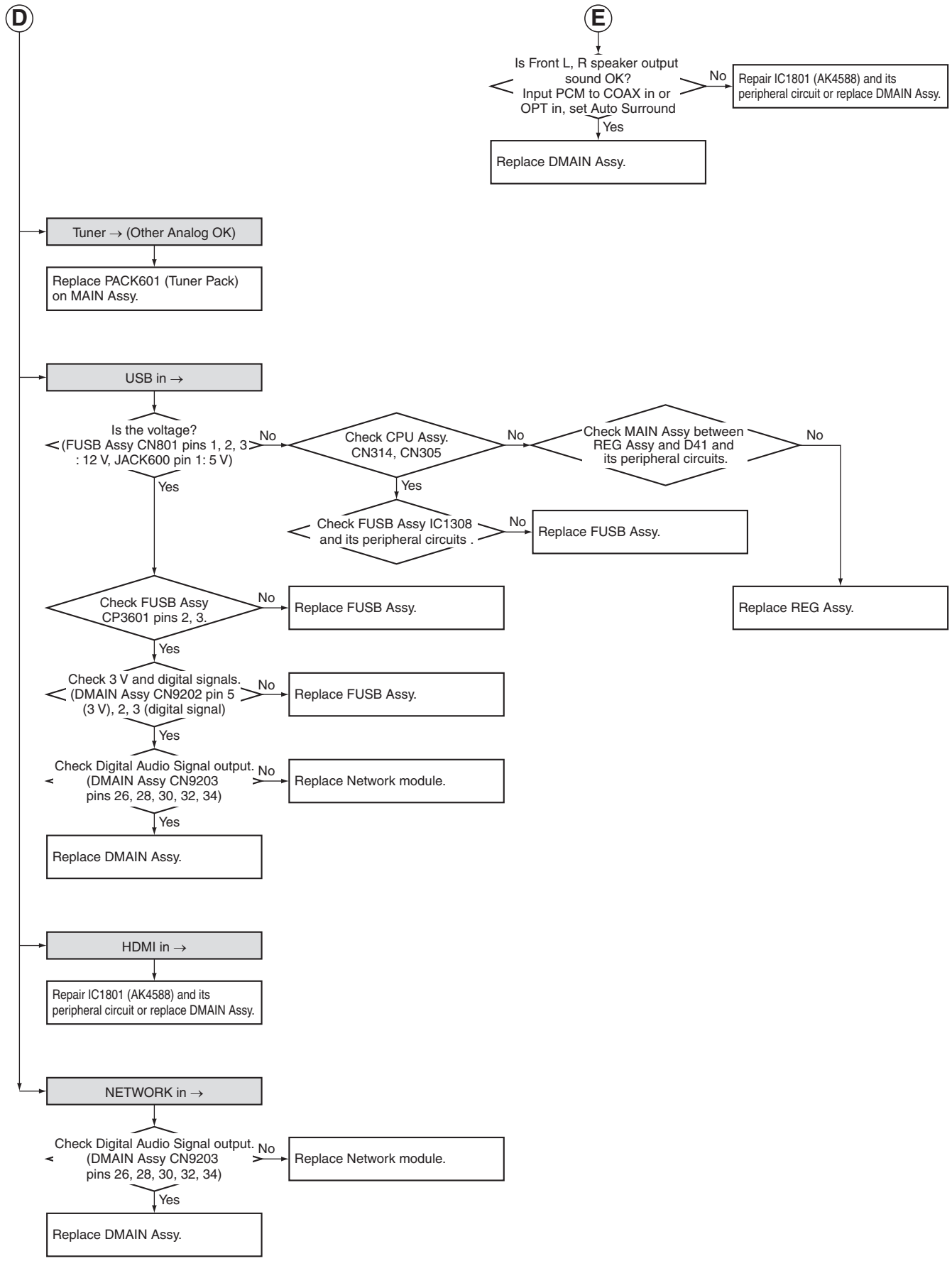


No Sound

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

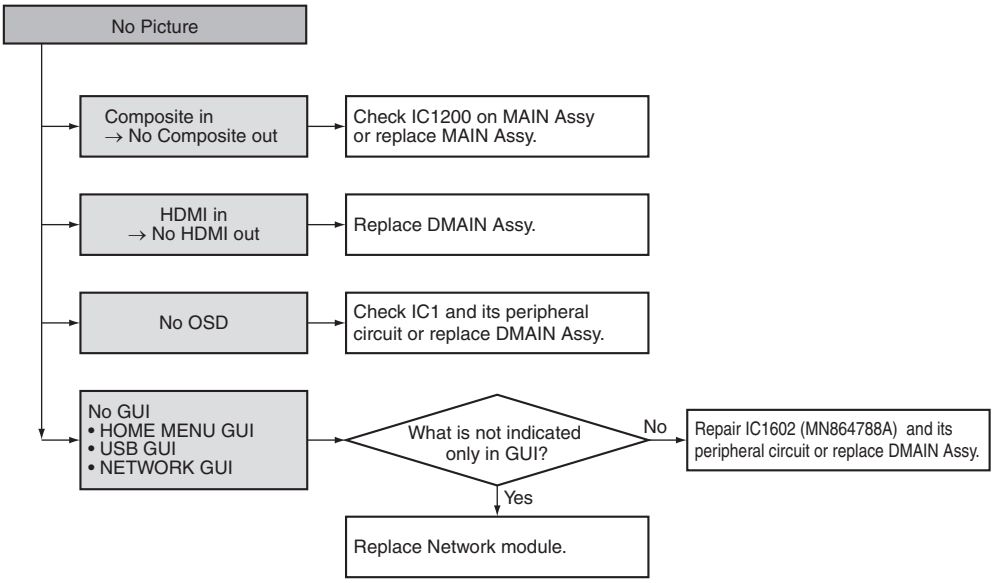



A
B
C
No Problem / No Damage
Check the voltage. (MAIN Assy W7 pin 5: +12 V, pin 1: -12 V)
No
Check between MAIN Assy CP113 and CONCT Assy CN114.
Replace MAIN Assy.
Yes
Check MAIN Assy CP113 pin 11(VOL_CLK), pin 10 (VOL_DATA).
No
Check the data signals at the following locations. VOL_CLK , VOL_DATA or CN114 (CONCT Assy) - CP113 (MAIN Assy)
Yes
Check IC400 and its peripheral circuit on MAIN Assy or replace MAIN Assy.
Auto Surround
Are the signal? (CONCT Assy CN113 pins 9, 11)
No
Are the signal? (CONCT Assy CN105 pins 5, 7)
Yes
Check signal line between CN105 and CN113.
No
Check the voltage. (MAIN Assy W7 pin 5: +12 V, pin 1: -12 V)
No
Yes
Repair IC2502, IC2702 and its peripheral circuit or replace MAIN Assy.
Yes
Replace CONCT Assy.
Yes
Check +/- 12 V line on MAIN Assy or replace MAIN Assy.
No
INPUT?
Analog input
Are the signals? (CONCT Assy CN105 pin 1, 3)
No
Are the signals? (MAIN Assy CP114 pin 13, 15)
No
Check and repair analog audio lines between IC400 pins 31, 32 and CP114 pins 13, 15 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 DMAIN Assy CN1805 pin 1 (or pin 4)?
No
Replace OPTCO Assy.
Yes
Yes
Repair IC1801 (AK4588) and its peripheral circuit or replace DMAIN Assy.
Repair IC1801 (AK4588) and its peripheral circuit or replace DMAIN 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.)
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 CN113 pin 1 (SL), 3 (SR), 5 (C), 7 (SW).
No
Check signals of problem channel on CONCT Assy CN105 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 CN105 - CN113 or replace CONCT Assy.
D
E


D
E
Is Front L, R speaker output sound OK? Input PCM to COAX in or OPT in, set Auto Surround
No
Repair IC1801 (AK4588) and its peripheral circuit or replace DMAIN Assy.
Yes
Replace DMAIN Assy.
Tuner → (Other Analog OK)
Replace PACK601 (Tuner Pack) on MAIN Assy.
USB in →
Is the voltage? (FUSB Assy CN801 pins 1, 2, 3 : 12 V, JACK600 pin 1: 5 V)
No
Check CPU Assy. CN314, CN305
No
Check MAIN Assy between REG Assy and D41 and its peripheral circuits.
No
Yes
Yes
Check FUSB Assy IC1308 and its peripheral circuits .
No
Replace FUSB Assy.
Check FUSB Assy CP3601 pins 2, 3.
No
Replace FUSB Assy.
Replace REG Assy.
Yes
Check 3 V and digital signals. (DMAIN Assy CN9202 pin 5 (3 V), 2, 3 (digital signal)
No
Replace FUSB Assy.
Yes
Check Digital Audio Signal output. (DMAIN Assy CN9203 pins 26, 28, 30, 32, 34)
No
Replace Network module.
Yes
Replace DMAIN Assy.
HDMI in →
Repair IC1801 (AK4588) and its peripheral circuit or replace DMAIN Assy.
NETWORK in →
Check Digital Audio Signal output. (DMAIN Assy CN9203 pins 26, 28, 30, 32, 34)
No
Replace Network module.
Yes
Replace DMAIN Assy.

No Picture

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

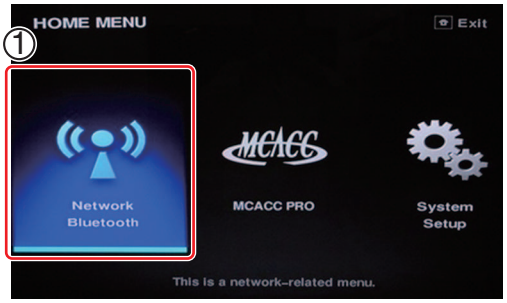


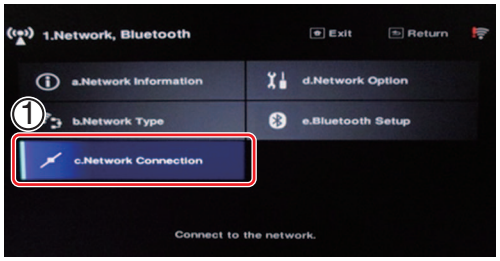
5.2 CONFIMATION OF THE NETWORK MODULE

Check if the set SSID of this unit is displayed on a device such as a PC or a smart phone, following the procedures shown below.
If the SSID is displayed on the device, the antenna connections of the Network module are normal.
If the SSID is not displayed, check the antenna cable connections on the network module.

Procedures:

① Press "Home Menu" button on a remote control and select "Network Connection" from the Network, Bluetooth menu on screen.



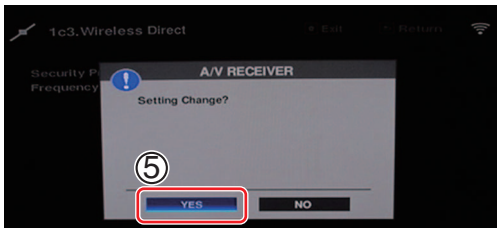


② Select "Wireless Direct" from the Network Connection menu.

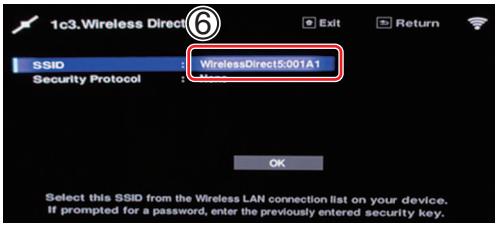
③ Select the encryption method to "None" with ⬅ / ➡ from Security Protocol.

④ Select "Frequency Band" at ⬇ and select the frequency to "2.4GHz".

⑤ Select "OK" then press ENTER. "Setting change?" window is displayed, then select "YES" and press ENTER.



⑥ Select the SSID shown on the screen of this receiver. (e.g. WirelessDirectX: XXXXXX)



How to Check on a PC Equipped with a Wireless LAN Device

[Windows 7]

① Left-click on the wireless network icon on the system tray.

② Check that the above-mentioned SSID (WirelessDirectX:XXXXXX) is displayed on the list that appears.

How to Check on a Smartphone (Example: iPod Touch)

① At the top screen of an iPod Touch, select Settings.

② Select Wi-Fi.

③ Check that the above-mentioned SSID (WirelessDirectX:XXXXXX) is displayed in the "Choose a Network" box.

5.3 ERROR INDICATIONS

■Error Indications When an Abnormality in The Amplifier System is Detected

[Purpose]

Errors upon detection of abnormalities in the amp system are indicated.

[Error Indications]

Item	FL Display	LED Flashes	NG Count.	Detection Method	Process After Detection	Description / Remarks
"AMP DC" ("DC output from SP term") detection	Flashing "AMP ERR" for 3 seconds	ADVANCED MCACC LED	DC	XDCERR (Pin 21 of IC300) Detect "L"	1) Muting on, speaker relay off. 2) "AMP ERR" flashing 3) Shutdown after 3 seconds. 4) "ADVANCED MCACC" LED flashing 5) Power on is not acceptable.	To detect high DC output from amplifier damage (defect status). A process to protect speakers (for protection of connected external devices). For checking, refer to "How to enter release mode" below. If the DC detection port become "H" for 3 seconds, the unit will returns to normal condition automatically.
"AMP overload" detection.	N/A	Wireless LED	OL	XOLERR (Pin 13 of IC300) Detect "L"	1) Muting on, speaker relay off. 2) Shutdown immediately. 3) "Wireless" LED flashing 4) Power on is acceptable.	To detect overloading (abnormal status) with low-load driving or a short circuit of the speaker terminals (for protection of the amplifier).
"Over Heat" detection.	Flashing "AMP OVERHEAT" for 3 seconds	FL OFF LED	STMP	TEMPERR5 (Pin 24 of IC300) Detect "L" (REDI _DET)	1) Muting on, speaker relay off, 2) "AMP OVERHEAT" flashing 3) Shutdown after 3 seconds. 4) "FL OFF" LED flashing 5) Power on is acceptable after 1 minute.	To detect overheat of inner tempareture. If the TEMPERR5 port become "H" for 3 seconds, the unit will returns to normal condition automatically.
"Abnormality DC voltage of the Digital power supply" detection	N/A	Wireless LED	DERR	XVDDERR (Pin 60 of IC300) Detect "L"	1) Muting on, speaker relay off. 2) Shutdown immediately. 3) "Wireless" LED flashing 4) Power on is acceptable.	To detect the abnormality voltage of Digital power supply circuit for the DMAIN Assy.
"USB Overload" detection	"Over Current" No Flashing	N/A	N/A	USB ERR (VCO0) (DM920) Detect "L"	1) USB bus Power off 2) Display "Over Current"	To detect the connected USB device is overload. (over 2.1 A)
"HDCP of HDMI Error" detection	Flashes "HDCP ERROR" for 5 seconds	N/A	N/A	Read Register value	1) Display "HDCP ERROR"	The monitor does not support HDCP type or is in standby mode. (Warning indication for HDMI Simplay)
Analog POWER SUPPLY Error	N/A	ADVANCED MCACC LED	XPRT	XPROTECT (Pin 12 of IC300) Detect "L"	1) Muting on, speaker relay off. 2) Shutdown immediately. 3) "ADVANCED MCACC" LED flashing 4) Power on is acceptable after 1 minute.	Power-on impossible for 1 min.
"Temp Over" detection	N/A (VOL LEVEL)	N/A	N/A	TEMP L (TR_DET) (Pin 11 of IC300) Detect "L"	VOL 3 dB down	After this error is detected, the system interrupts the "Temp Over" detection for 2 minutes.

[How to Enter Release Mode]

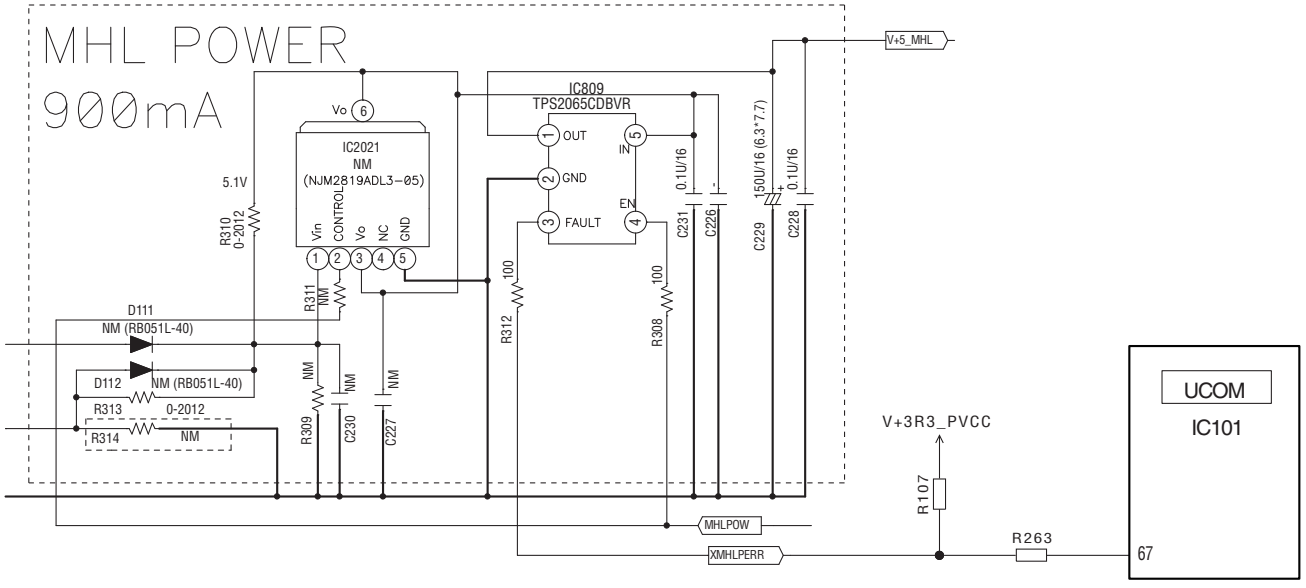
During Standby mode, simultaneously press and hold the "TUNE ↓" and "STATUS" keys for 5 seconds.

Protection Circuit Process List (XMHLPERR)

Item	Purpose	Detection Method	Status of Equipment	Warning Indication	Remarks
MHL Overcurrent detecition	Detection of overcurrent in MHL power supply	IC809 detectes MHL circuit overcurrent and XMHLPERR port is set to "L".	Flashes "MHL POW ERR" and stops MHL power supply.	Flashes "MHL POW ERR".	MHL power is not supplied until the MHL equipment is acknowledged after second power-on.

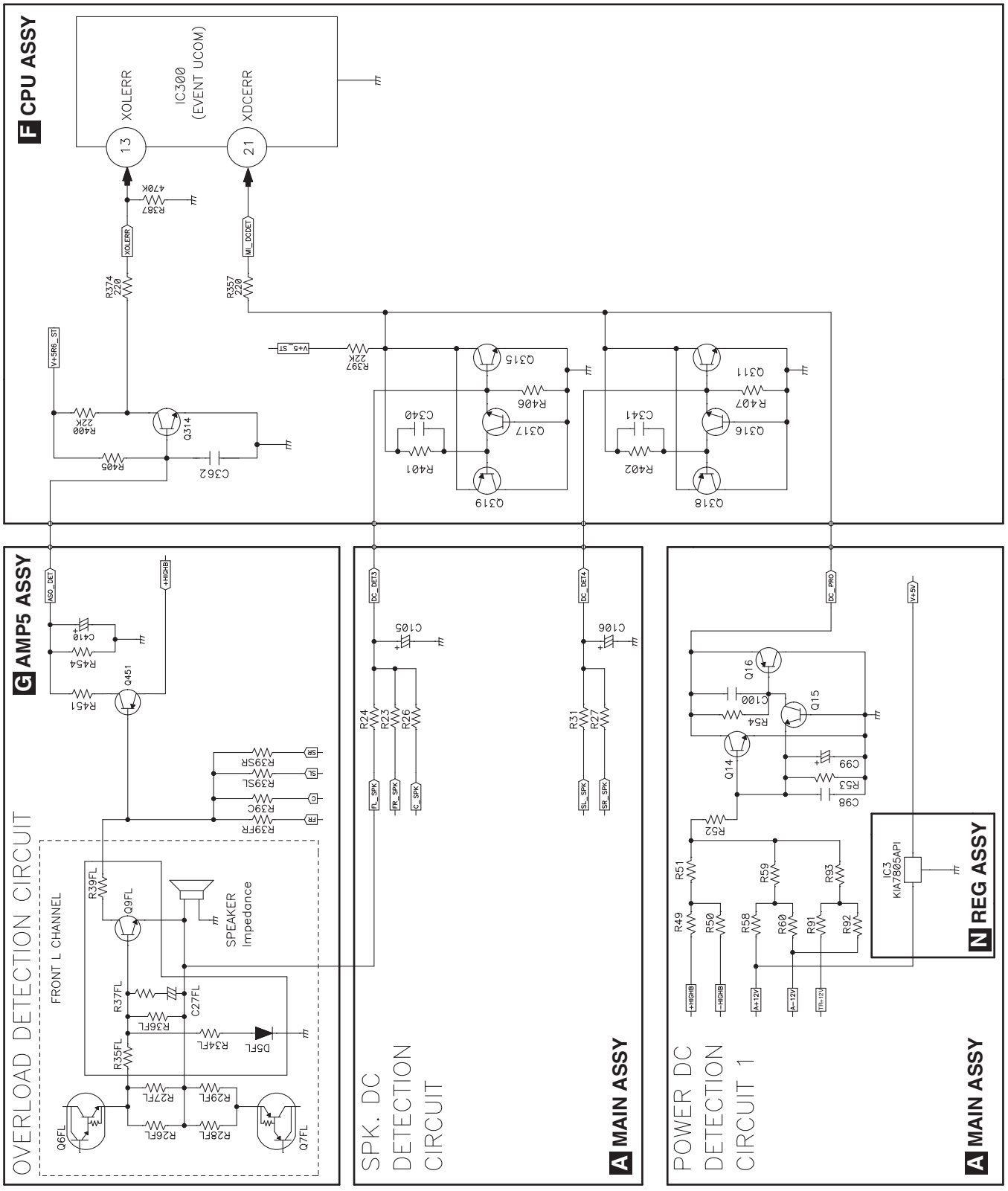
XMHLPERR Circuit

B DMAIN ASSY



5.4 PROTECTION CIRCUIT

[1] Overload and DC Protection Circuit

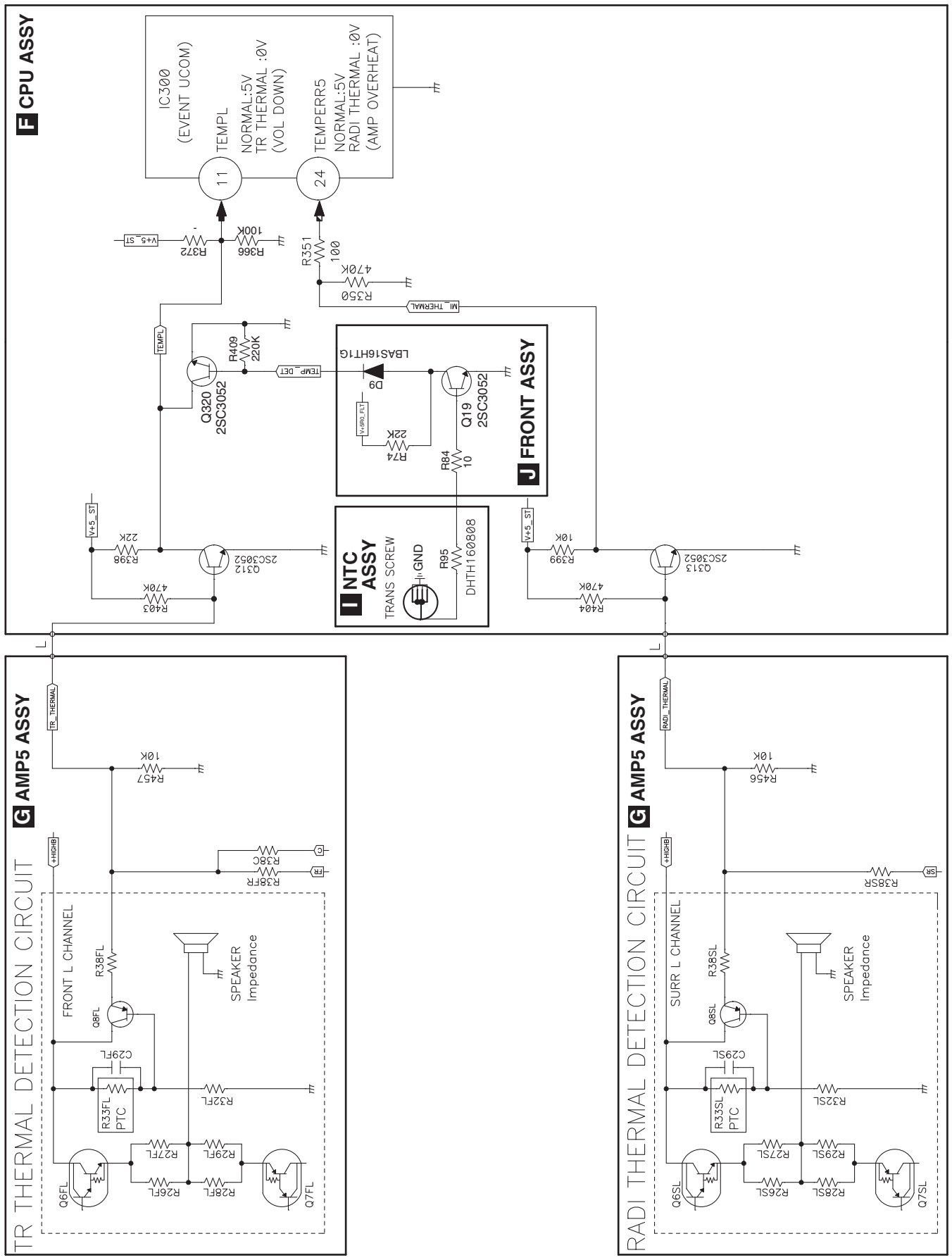


■ Reference information

Each DC power supply voltage value that DC PROTECT circuit works

- +HIGH: Less than +44 V (at normal: +55 V)
- -HIGH: More than -41 V (at normal: -55 V)
- A+12V: Less than +8 V (at normal: +12 V)
- A-12V: More than -9 V (at normal: -12V)
- +12V TRIGGER: Less than +8 V (at normal: +12 V)(VSX-45 only)

[2] TEMP Protection Circuit



6. SERVICE MODE
6.1 TEST MODE

[1] Detected protection history

[Purpose]

The numbers of detections for various protection processes are displayed.

[How to enter]

During Standby mode, simultaneously press and hold “STATUS” and “ENTER” keys for 5 seconds to enter this mode.
Turn off the power to this unit by setting the main volume level to “---dB” and Multi-zone to “OFF”.

[How to exit]

Turning off the power or pressing the RETURN key returns to the normal mode.

[Basic operations]

Key operation	FL display
Display number of times DC is detected.	D C : ＊＊＊
[↓] [↑]	
Display number of times OVERLOAD is detected.	O L : ＊＊＊
[↓] [↑]	
Display number of times COMBINATION is detected. (Detects DC and OVERLOAD simultaneously)	C O M : ＊＊＊
[↓] [↑]	
Display number of times Power abnormality is detected.	X P R T : ＊＊＊
[↓] [↑]	
Display number of times AMP overheat is detected.	S T M P : ＊＊＊
[↓] [↑]	
Display number of times Digital Power abnormality is detected.	D E R R : ＊＊＊
[↓] [↑]	
Resetting the number of times error is detected.	R E S E T ◀H O L D▶
[↓] [↑]	

Front Panel Key

[↓] : TUNE key
[↑] : TUNE key
[←] : PRESET key
[→] : PRESET key

Resetting the number of times error is detected

Key operation	FL display
[←][→]	R E S E T ◀C L E A R ?▶
[ENTER]	R E S E T ◀ R E S E T ▶
↓ Continued	

Key operation	FL display
Display accumulated time & RESET.	12345h20m ◀ HLD ▶
[↓] [↑]	
Display CEC(TEST) state.	CEC ◀ OFF ▶
[↓] [↑]	
Display FAN(TEST) state. This function does not work on this model.	FAN ◀ OFF ▶
[↓] [↑]	
USB Backup state	USB BAK ◀ HOLD ▶
[↓] [↑]	
Display Wireless disconnection judgement time	WLAN DC ◀ 3min ▶
[↓] [↑]	
Display Model Name/Destination state.	VSX-830/CUXESM VSX-45/CUXE VSX-830/SYXEV8
[↓] [↑]	
Change cyclically	

Resetting the accumulated time

Key operation	FL display
[←][→]	12345h 20m ◀ CL? ▶
[ENTER]	0h 00m ◀ RST ▶
↓ Continued	

Display CEC(TEST) state.

Key operation	FL display
[←][→]	CEC ◀ ON ▶
↓ Change cyclically	

Saving and Loading of USB backup state.

Key operation	FL display
[←][→]	(A/V Receiver → USB) USB BAK ◀ SAVE? ▶
[←][→]	(USB → A/V Receiver) USB BAK ◀ LOAD? ▶
↓ Change cyclically	

Key operation	FL display
[ENTER]	PLEASE WAIT
SAVE or LOAD is completed. ↓ 5 sec Power OFF (All zone OFF)	COMPLETE

Selecting Wireless disconnection judgement time

Key operation	FL display
[←][→]	WLAN DC ◀ 5min ▶ ↓ <10min>,<15min>,<30min> ↓
[←][→]	WLAN DC ◀ 60min ▶
↓ Change cyclically	

[Description]

CEC TEST : The function for making the HDMI output terminal to output 4 Hz square wave. If the square wave is output, the CEC line is considered to be normal.

FAN TEST : The function for making the FAN to be forced to rotate.

6.2 DEFAULT SETTINGS

Default system settings

Setting		Default
SPEAKERS		**ON**
Speaker System		**5.2ch**
Speaker Setting	Front	**SMALL**
	Center	**SMALL**
	Surr	**SMALL**
	SW	**YES**
Crossover		**80Hz**
X-Curve		**OFF**
DIMMER		Brightest
Inputs		
Input Volume Absorber	All Inputs	**0dB**
HDMI		
HDMI Audio		**AMP**
Control		**OFF**
Control Mode		**---** (OFF)
ARC (Audio Return Channel)		**---** (OFF)
Standby Through		**OFF**
4K/60pBD		**4:2:0**
4K/60pH1 (HDMI IN 1)		**4:2:0**
4K/60pH2 (HDMI IN 2)		**4:2:0**
DSP		
Power On Level		**LAST**
Volume Limit		**OFF**
Mute Level		**FULL**
Phase Control		**ON**
Auto Sound Retriever		**OFF**
Sound Delay		**0** ms
Dual Mono		**CH1**
DRC		**OFF**
LFE Attenuate		**0dB**
Auto delay		**OFF**
Digital Safety		**OFF**
Effect Level	ALC (Auto Level Control)	**50**
PL II Music Options	Center Width	**3**
	Dimension	**0**
	Panorama	**OFF**
Neo:6 Options	Center Image	Neo:6 CINEMA: **10** Neo:6 MUSIC: **3**
All Inputs	Listening Mode (2 ch/multi ch)	**AUTO SURROUND**
	Listening Mode (Headphones)	**STEREO**
MCACC		
MCACC Position Memory		**M1. MEMORY 1**
Channel Level (M1 to M6)		0.0 dB
Speaker Distance (M1 to M6)		10'00''
Standing Wave (M1 to M6)	ATT of all channels/filters	0.0 dB
	SWch Wide Trim	0.0 dB
EQ Data (M1 to M6)	All channels/bands	0.0 dB
	EQ Wide Trim	0.0 dB
Network		
Network Standby		**ON**
DHCP		**ON**

Default input settings

Input function	Input Terminals	
	HDMI	Audio
BD	(BD)	
DVD	IN 1	●
SAT/CBL	IN 2	●
HDMI 1	●	
HDMI 2	●	
HDMI 3	IN 3	
HDMI 4	IN 4	
HDMI 5/MHL	IN 5	
INTERNET RADIO		
PANDORA		
Spotify		
MEDIA SERVER		
FAVORITES		
iPod/USB		
TV		OPTICAL <a>
CD		COAXIAL
TUNER		
BT AUDIO		

a When **ARC** at **HDMI Setup** is set to **ON**, it is not possible to make assignments to the **TV** input's **Audio In** terminals.

Resetting the system

Use this procedure to reset all the receiver's settings to the factory default. Use the front panel controls to do this.
Set MULTI-ZONE to **MULTI ZONE OFF**.

- Disconnect the iPod and USB memory device from the receiver beforehand.
- Set the **Control** with HDMI to **OFF**.

1 **Switch the receiver into standby.**
2 **While holding down ENTER on the front panel, press ⏻ STANDBY/ON.**
The display shows **RESET ◄ NO ►**.
3 **Select 'RESET' using PRESET ⇐/⇒, then press ENTER on the front panel.**
The display shows **RESET? OK**.
4 **Press ENTER to confirm**.
OK appears in the display to indicate that the receiver has been reset to the factory default settings.

- Note that all settings will be saved, even if the receiver is unplugged.

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.

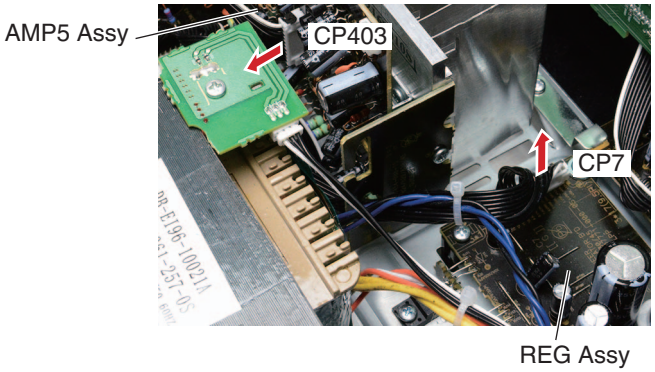
Some connections of the housing wires or connectors may be tight. When disconnecting those wires or connectors, be careful not to damage them.

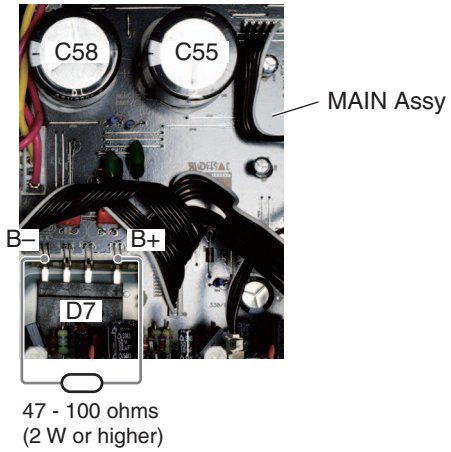
1. Discharging

[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).

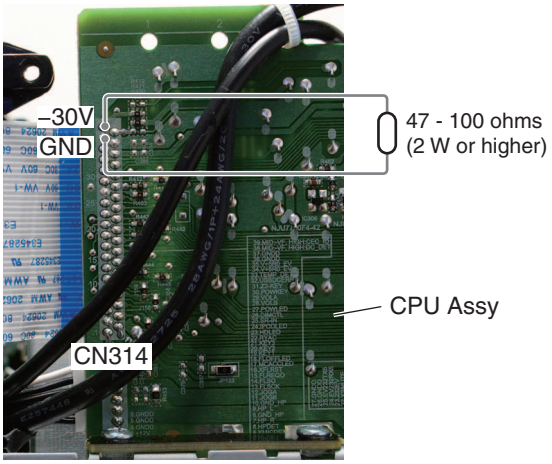




[2] FL-30 V Capacitor (MAIN Assy C101)

[Procedures]

(1) Unplug the power cord.
(2) Connect pins 38, 39 (–30V) and pins 36, 37 (GND) of the CN314 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).



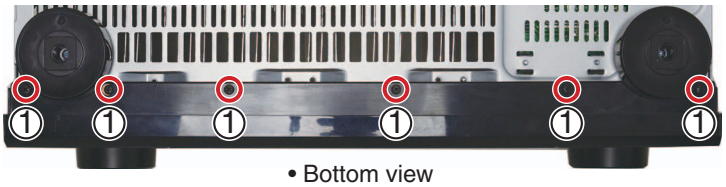
2. Disassembly

Note:
For performing the diagnosis shown below, the following jigs for service is required:
- Board to board extension jig cable (15P)(GGD1876)
- Board to board extension jig cable (15P)(GGD1848)
- Board to board extension jig cable (9P) (GGD1890)
- Board to board extension jig cable (7P) (GGD1891)

[1] Front Panel Section

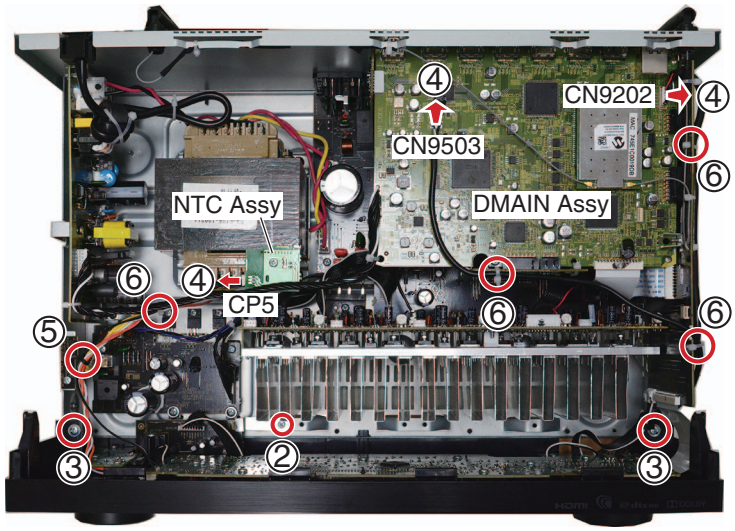
Remove the cabinet by removing the 10 screws.

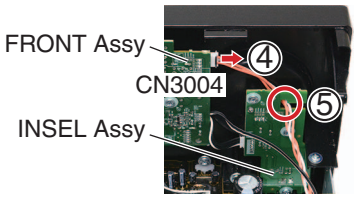
(1) Remove the 6 screws.
(BBZ30P080FTB)

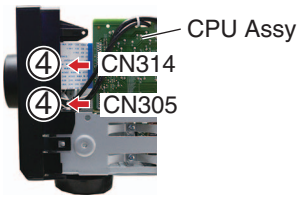


• Bottom view

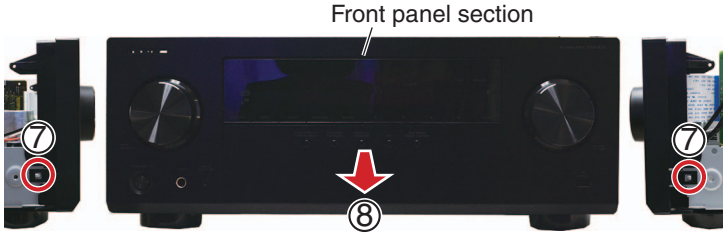
(2) Remove the 1 screw.
(BBZ30P080FTC)
(3) Remove the 2 screws.
(1500001206010-IL)
(4) Disconnect the 1 flexible cable and 5 connectors.
(CN305, 314, 3004, 9202, 9503, CP5)
(5) Release the 2 jumper wires.
(6) Cut the 4 cable ties.







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

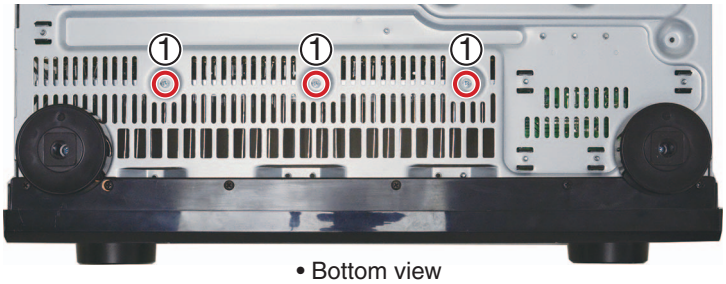


[2] Heatsink Section

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

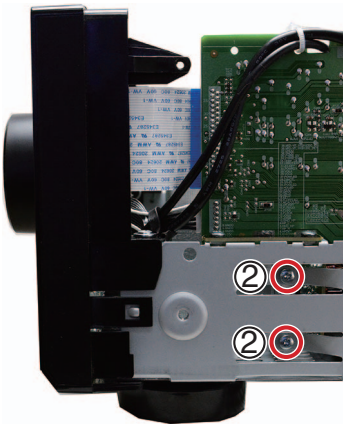
Remove the cabinet by removing the 10 screws.

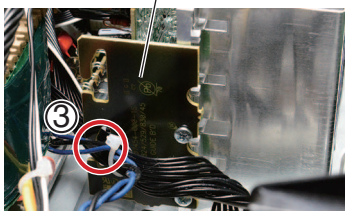
(1) Remove the 3 screws.
(BBZ30P080FTC)



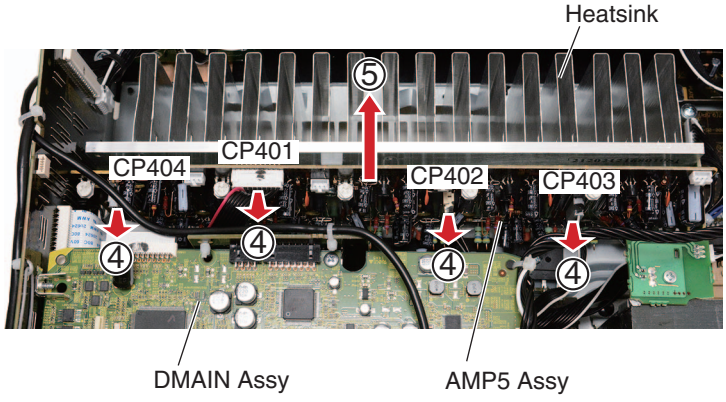
• Bottom view

(2) Remove the 2 screws.
(BBZ30P080FTC)
(3) Release the jumper wire.





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

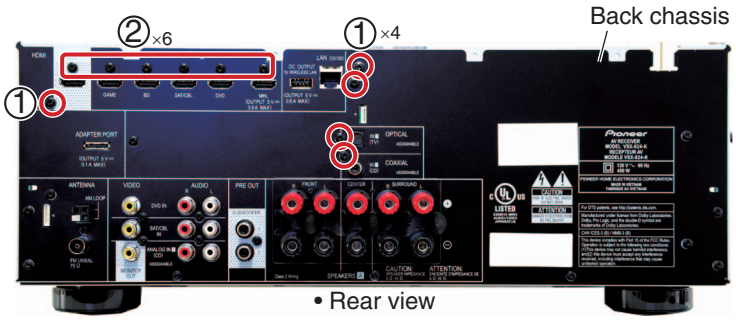


[3] DMAIN Assy

Remove the cabinet by removing the 10 screws.

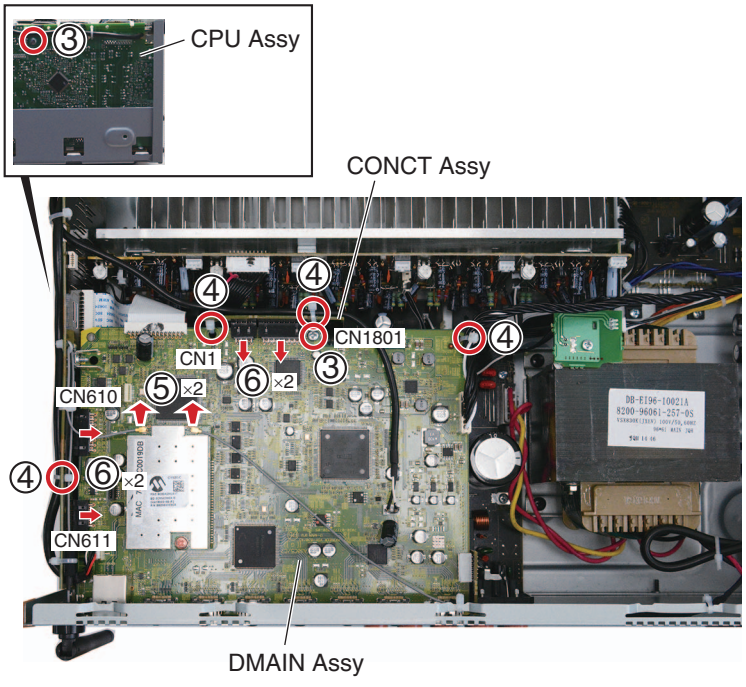
[3-1] DMAIN Assy

(1) Remove the 5 screws.
(BBT30P100FTB)
(2) Remove the 6 screws.
(BSZ30P040FTB)



(3) Remove the 2 screws.
(BBZ30P080FTC)
(4) Cut the 4 cable ties.
(5) Disconnect the 2 antenna cables.
(6) Disconnect the 4 B to B connectors.
(CN1, 610, 611, 1801)

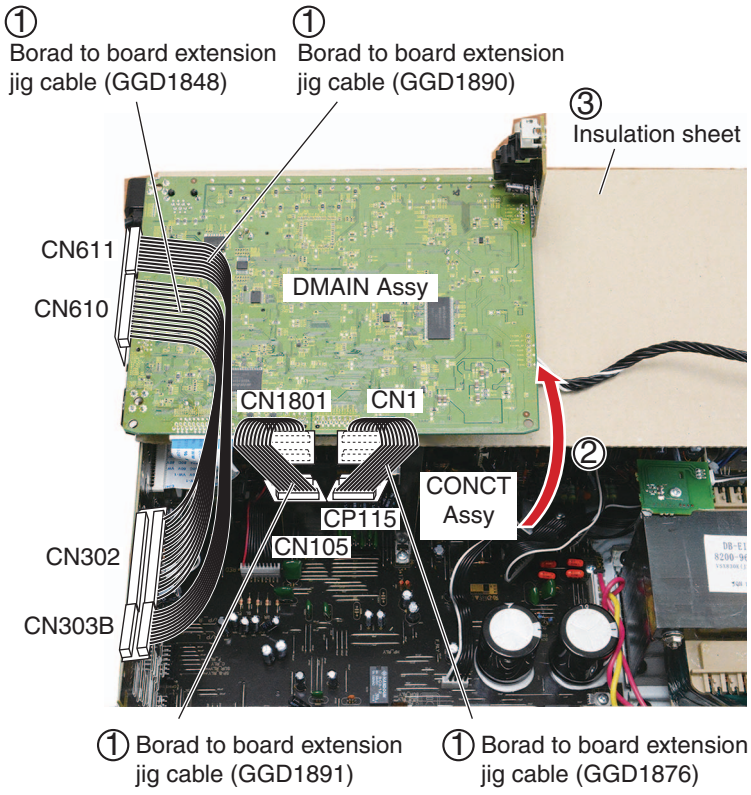
Note: Some connections of the housing wires or connectors may be tight. When disconnecting those wires or connectors, be careful not to damage them.



[3-3] Diagnosis of DMAIN Assy and MAIN Assy

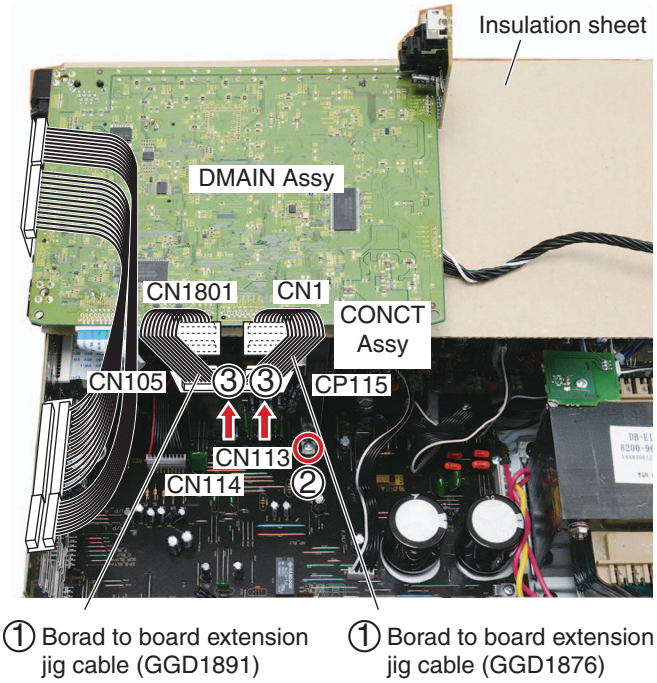
(1) Connect the 4 extension jig cables.
(2) Arrange the DMAIN Assy in the photo below.
(3) Insert any insulation sheet.

Diagnosis



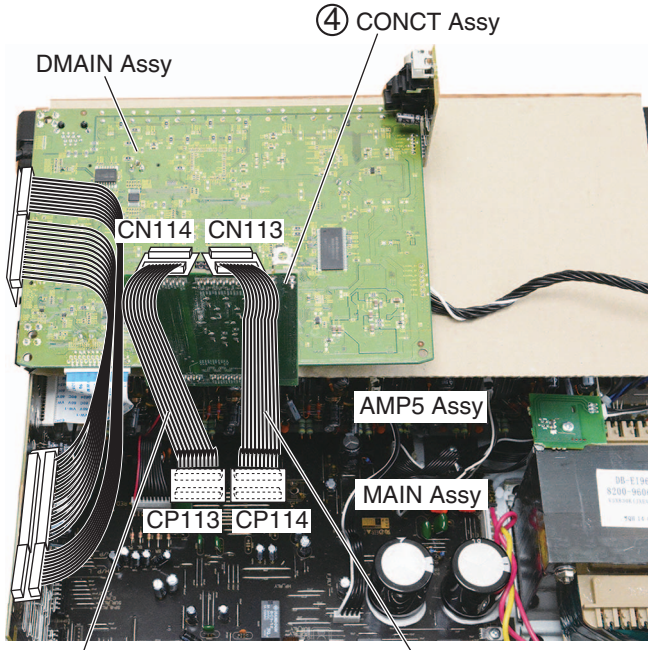
[3-4] Diagnosis of AMP5 Assy

(1) Disconnect the 2 extension jig cables.
(2) Remove the one screw.
(BBZ30P180FTC)
(3) Remove the CONCT Assy by disconnecting the 2 BtoB connectors.
(CN113, 114)



(4) Reassemble the CONCT Assy to DMAIN Assy.
(5) Connect the 2 extension jig cables.

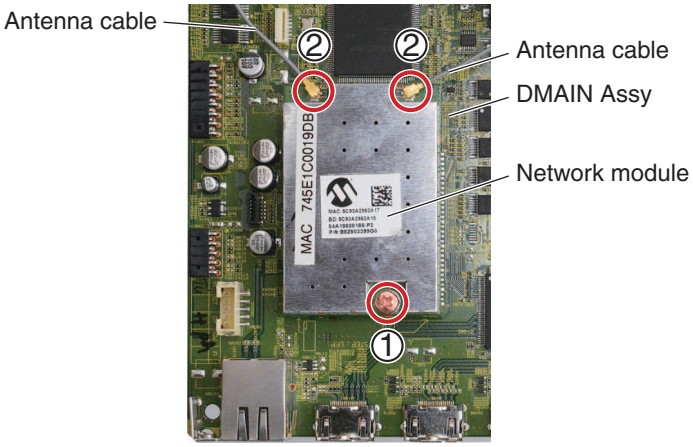
Diagnosis



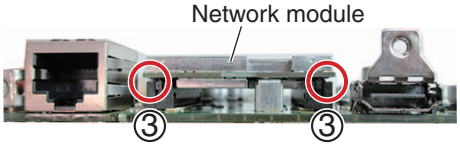
[3-5] Network module (AXX7293)

(1) Remove the 1 screw.
(BSZ30P040FCC)
(2) Disconnect the 2 antenna cables.

Note:
After having attached the network module to DMAIN Assy, attach the antenna cables to the network module surely.

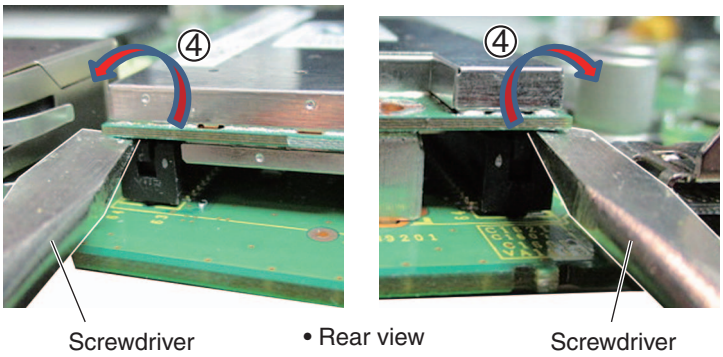


(3) Insert the tip of a large screwdriver into either part circled in red in the photo.

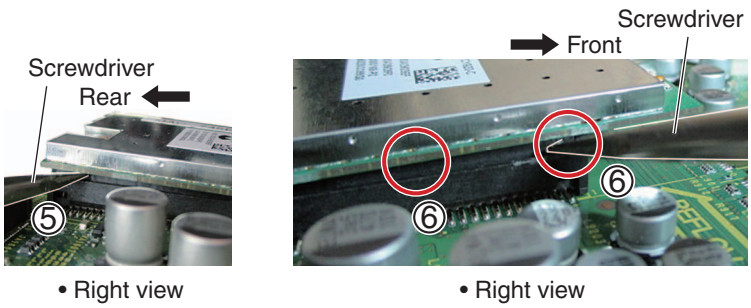


• Rear view

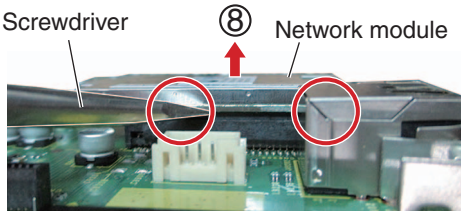
(4) Rotate the screwdriver a little to widen the gap between the network module and the connector to several millimeters.
Do the same for the other part circled in red.



(5) Insert the tip of the screwdriver into one end of either side of the module then widen the gap to several millimeters.
(6) Widen the gap in the same way at the middle and the other end of the side of the module so that the gap between the module and the connector is evenly widened.
(7) Widen the gap in the same way on the opposite side of the module connector.



(8) Repeat Steps (6) and (7) several times to gradually widen the gap between the DMAIN connector and the module then detach the network module.



[Note]
If you attempt to forcibly detach the module all at once, the connector of the module will be damaged and the module cannot be reused.
Be sure to gradually widen the gap between the connectors from both sides of the module.

After replacing the network module, updating is necessary. Refer to "**UPDATA PANEL Mode (Version update)**" on "8.3 UPDATING OF THE FIRMWARE".

[4] MAIN Assy

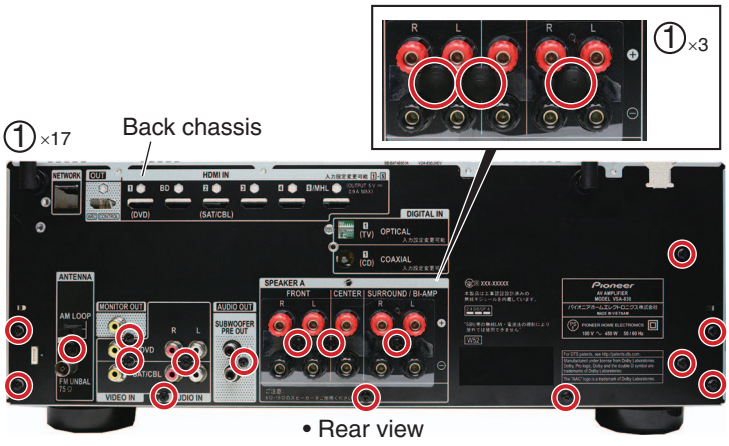
Remove the cabinet by removing the 10 screws.

[4-1] DMAIN Assy

(1) Remove the DMAIN Assy.
(See procedure [3].)

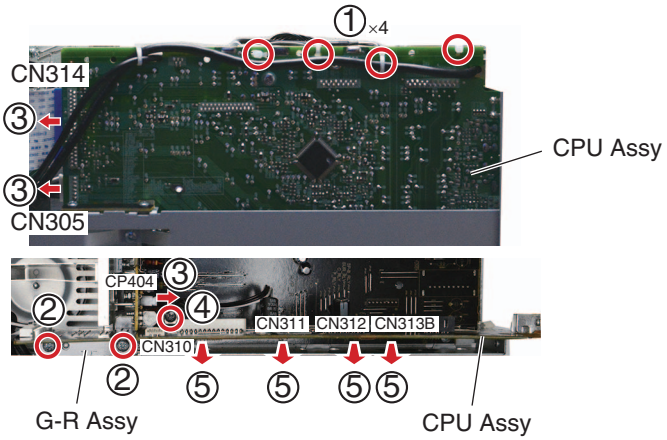
[4-2] Back chassis

(1) Remove the 3 screw covers.
(If any cushion is torn, replace it with a new one.)
(2) Remove the back chassis by remove the 17 screws.
(BBT30P100FTB)



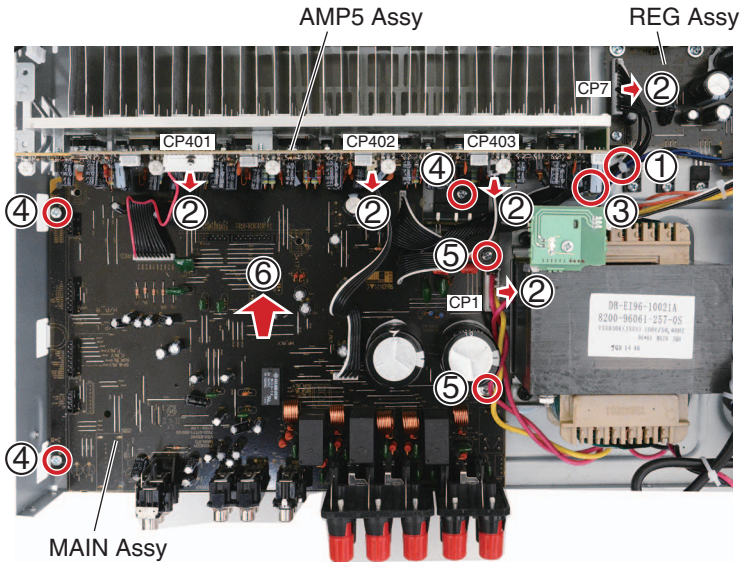
[4-3] CPU Assy

(1) Cut the 4 cable ties.
(Release the antenna cable (short).)
(2) Remove the G-R Assy by removing the 2 screws.
(BBZ30P080FTC)
(3) Disconnect the 1 flexible cable and 2 connector.s
(CN305, 314, CP404)
(4) Remove the 1 screw.
(BBZ30P180FTC)
(5) Remove the CPU Assy by disconnecting the 4 BtoB connectors.
(CN310, 311, 312, 313B)

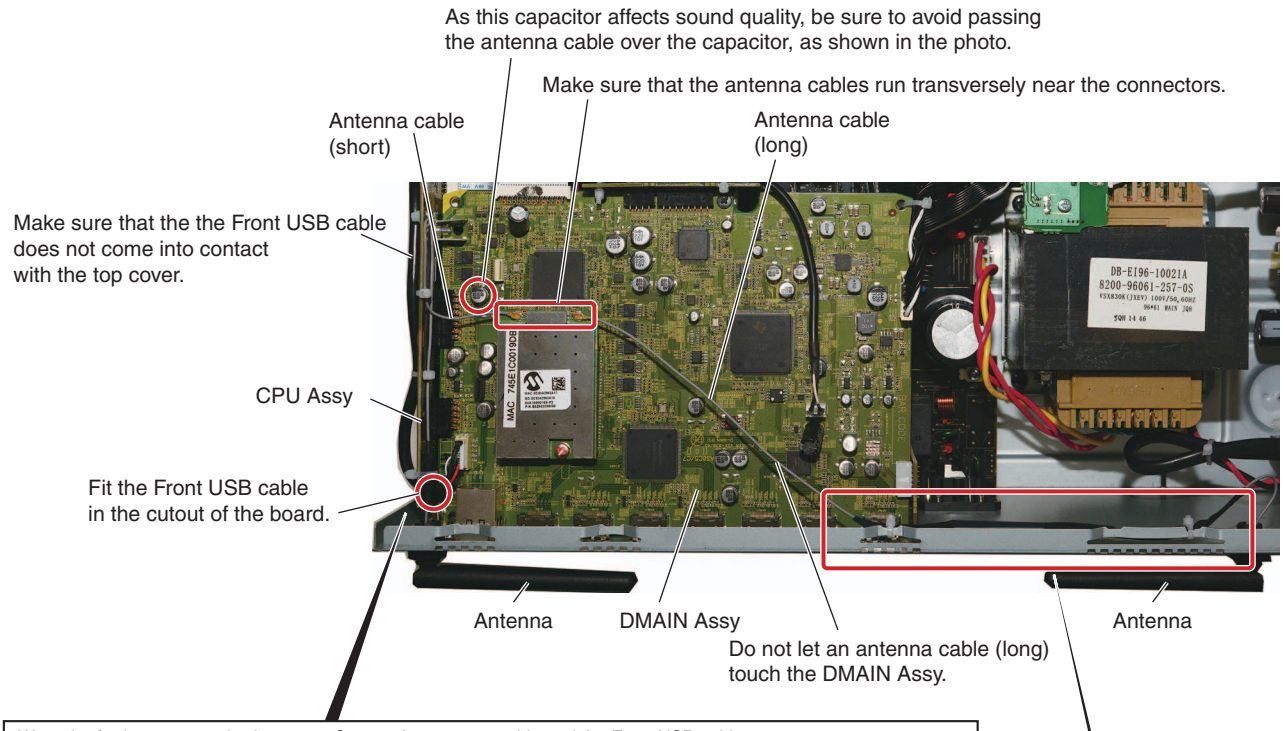


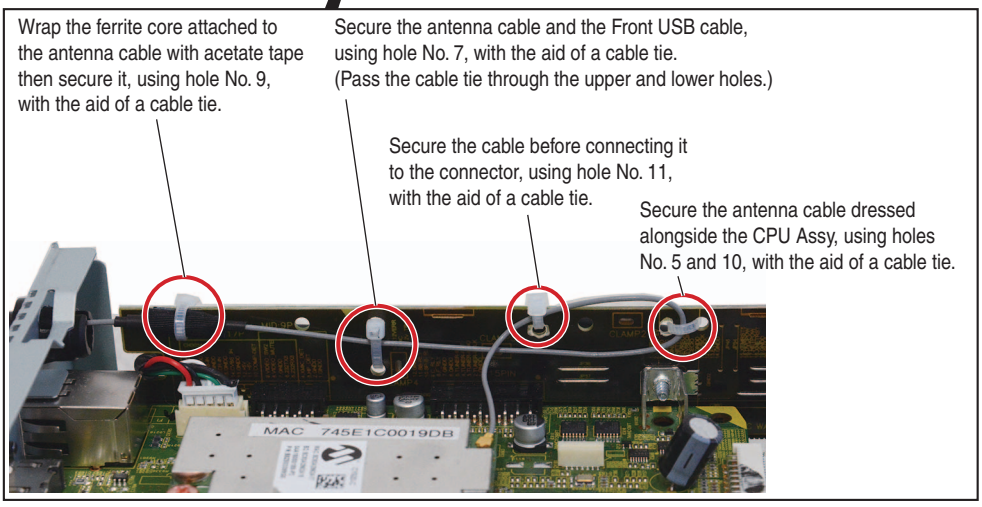
[4-4] MAIN Assy

(1) Cut the 1 cable tie.
(2) Disconnect the 5 connectors.
(CP1, 7, 401, 402, 403)
(3) Unhook the jumper wires.
(4) Remove the 3 screws.
(BBZ30P080FTC)
(5) Remove the 2 screws.
(BBZ30P180FTC)
(6) Remove the MAIN Assy.



Dressing the Antenna cables





Acetate tape

The sensitivity of the wireless antenna will be affected if the antenna cable comes into direct contact with the Back chassis. Wrap the acetate tape (APPROX 170 mm) around the entire part of the antenna cable close to the Back chassis when replacing this antena cable.

Note:
There is an acetate tape as a service jig.
Part number: GYH1001
Size: 16mm × 30M
(If similar acetate tape is readily available, it can be used to the unit)

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	➡	"8.4 IDLE CURRENT ADJUSTMENT" (All channel)
DMAIN Assy	➡	"8.2 USB BACKUP"
Other assemblies	➡	No adjustment required

■ When any of the following parts is replaced

AMP5 Assy	➡	"8.4 IDLE CURRENT ADJUSTMENT" (Only channel of replacement parts)
Other assemblies	➡	No adjustment required

Note 1:
After replacing DMAIN Assy, the unit needs to reset factory default settings.
Refer to "Resetting the system" on "6.2 DEFAULT SETTINGS" , reset the unit.

Note 2:
After replacing Network module (AXX7293) or DMAIN Assy, the unit needs to update.
Refer to "UPDATE PANEL Mode (Version update)" on "8.3 UPDATING OF THE FIRMWARE"

Note 3:
After replacing Network module (AXX7293) or DMAIN Assy, the unit needs to test Wi-Fi function.
Refer to "5.2 CONFIMATION OF THE NETWORK MODULE"

8.2 USB BACKUP

[Introduction]

This model is capable of saving the set values stored in the MAIN Ucom of DMAIN Assy in the USB and loading them in a new DMAIN Assy. (Note that MAIN Ucom should normally operate to enable this function.)
When replacing DMAIN Assy, execute the above mentioned processes.

[Data that can be saved/cannot be saved]

The following **data can not be saved**. Data other than these can be saved.

Contents to save	Destination to save
Last memory for turning ON/OFF the Main power and power supply for ZONE2, HDZONE Last memory for inputting the Main power, ZONE2, HDZONE Data to be save upon the operation of protection circuit	EVENT Ucom (IC300)
Internet Radio Last Station, Favorite, etc.	Network module (AXX7293)

(As the data saved by EVENT Ucom is on the CPU Assy, the data cannot be deleted unless Assy is replaced at the same time.)

[Requirements for USB memory]

USB memory to be used should meet the following requirements.

- Compatible with USB Mass storage Class
- With a file system of FAT (FAT32)

[File saving format]

Files are to be saved in the following format:
Example: VSX-830_BK01.avr

[How to save in the USB memory from AV amplifier]

1. Insert the usable USB memory into the USB terminal when the main device is off.
2. Enter the SERVICE MODE and select [USB BAK ◄ HOLD ►] with ↑↓ keys.
   (See [6.1 TEST MODE] for how to enter the SERVICE MODE.)
3. Select [USB BAK ◄ SAVE? ►] with ⇄ keys and press [ENTER].
   Note: The system cannot execute SAVE, LOAD until start is completed of Network module.
4. Saving in the USB starts and the main device automatically goes off after the normal completion ([COMPLETE] is displayed.).
5. Remove the USB and saving is finished.

*1. If the following errors occur after "SAVE" is executed, error message will be displayed and "SAVE" will be stopped and the power will be turned off.
   - Ejecting of USB device
   - Short capacity of USB device
   - Error during writing in the USB device (Read Only or defective Sector, etc.)

*2. If the same file name exists in the USB, overwriting will be automatically executed.

[How to write into AV amplifier from the USB memory]

1. Insert the USB with the saved file into the USB terminal when the main device is off.
2. Enter the TEST MODE and select [USB BAK ◄ HOLD ►] with ↑↓ keys.
   (See [6.1 TEST MODE] for how to enter the TEST MODE.)
3. Select [USB BAK ◄ LOAD? ►] with ⇄ keys and press [ENTER].
4. Saving in the main device starts and it automatically goes off after the normal completion ([COMPLETE] is displayed.).
5. Remove the USB and loading is finished.

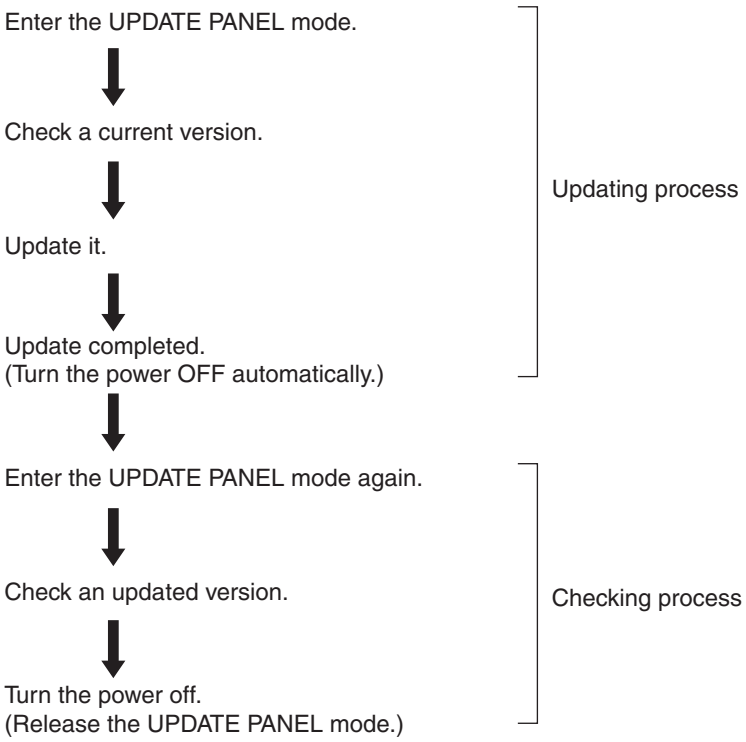
* If the following errors occur after "LOAD" is executed, error message will be displayed and "LOAD" will be stopped and the power will be turned off.
   - No setting file
   - Mismatching between the setting file and the specification of the A/V RECEIVER type to be loaded back
   - Error due to Checksum, Signature Check, and Size Check
   - Ejecting of USB device (during reading of the setting file)

Precautions

- Files are stored in Root of USB memory.
- Files are read from Root of USB memory.
  ⇨ To make operations such as moving files, be sure to assign the saved file in Root of the USB memory. Also please be careful not to assign *.avr in multiple numbers.
- The time and date of updating for saved file is fixed to "2006/03/08 20:01."
- In principle, please implement Load without making of factory default settings.
- Depending on the type of USB memory device, the setting file may not have properly been saved even though [COMPLETE] is displayed after a SAVE process.
  Before replacing the DMAIN Assy, perform a LOAD process and check that [COMPLETE] is displayed.

8.3 UPDATING OF THE FIRMWARE

Workflow



MAIN com, SUB com (EVENT), DSP Flash ROM and Network module Update by USB Memory and the Confirmation of the Version

● UPDATE PANEL Mode (Version update)

[Preparations]

1. Copy the UPDATE FILE to the root directory of the USB Memory.
   Note: NEVER copy several UPDATE FILES to the root directory of the USB Memory. Copy only the corresponding UPDATE FILE.
2. Turn off the power to this unit by setting Multi-Zone to "OFF".
3. Connect the USB Memory to the USB terminal (A type) of the front panel.

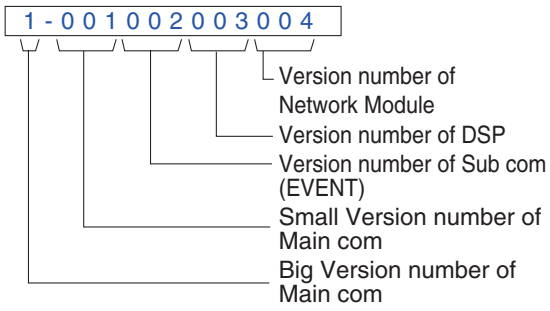
[Procedure]

1. While holding down **"TUNE↑"** key on the front panel, press **"STANDBY ON/OFF"** key and moves to the **UPDATE PANEL mode**.
2. The updating process is as follows.

Key operation	FL display
[TUNE↑] + [STANDBY ON/OFF]	
↓	POWER ON
Booting is completed	
↓	Version is displayed.
	1-0010020003004
[TUNE↓] or [TUNE↑]	
[↓] [↑]	
	Update Menu
	UPDATE

Front Panel Key

[↓] : TUNE key
[↑] : TUNE key
[←] : PRESET key
[→] : PRESET key



Do not do time-out during update panel indication.
It takes about 45 seconds till version of the Network module is displayed.
Meanwhile, version of the Network module is displayed with ***.

Key operation	FL display
	Update Menu
	UPDATE
[ENTER]	
[PRESET→] or [PRESET←]	Update Confirmation
	UPDATE ? ◀NO▶
[←] [→]	
	Update Confirmation
	UPDATE ? ◀YES▶
[ENTER]	
	File searching
	Accessing
UPDATE FILE searching completed	

Key operation	FL display
UPDATE FILE searching completed	
↓	Updating process ＊Ｕｐｄａｔｉｎｇ．　０％
UPDATE start	
↓	
UPDATE completed	
↓	Update completion display ＊Ｕｐｄａｔｉｎｇ．　１００％
5 Second	
↓	
Power turns off automatically. (All ZONE OFF) Disconnect the USB MEMORY.	

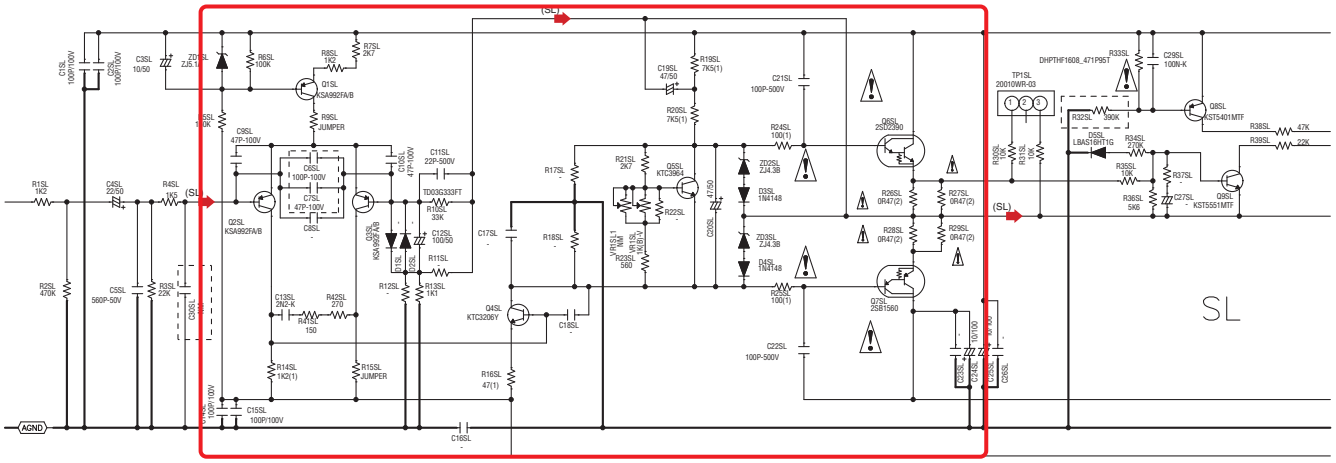
Update time is fluctuated by contents of the update. It will take about 26 minutes at the maximum.
(Actual time is from 3 minutes to 26 minutes.)
Time required for updating varies, because only the programs that require updating will be updated.

[Confirmation]

Enter UPDATE PANEL mode and check that the programs have been updated.

8.4 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

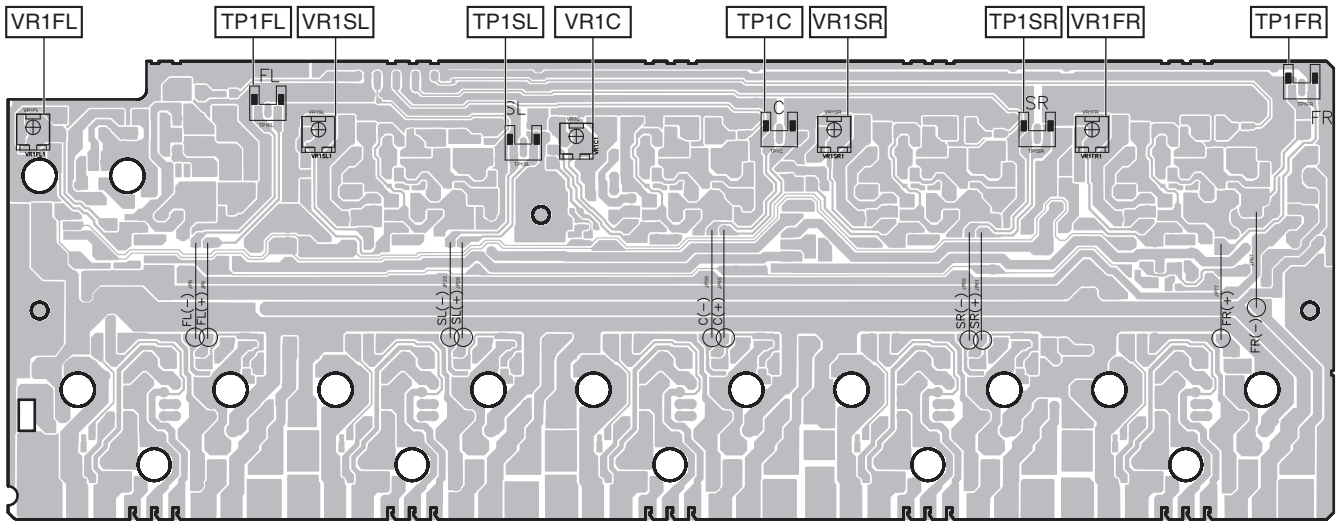


Fig. 1

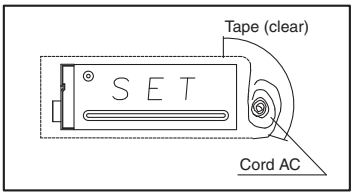
SIDE A

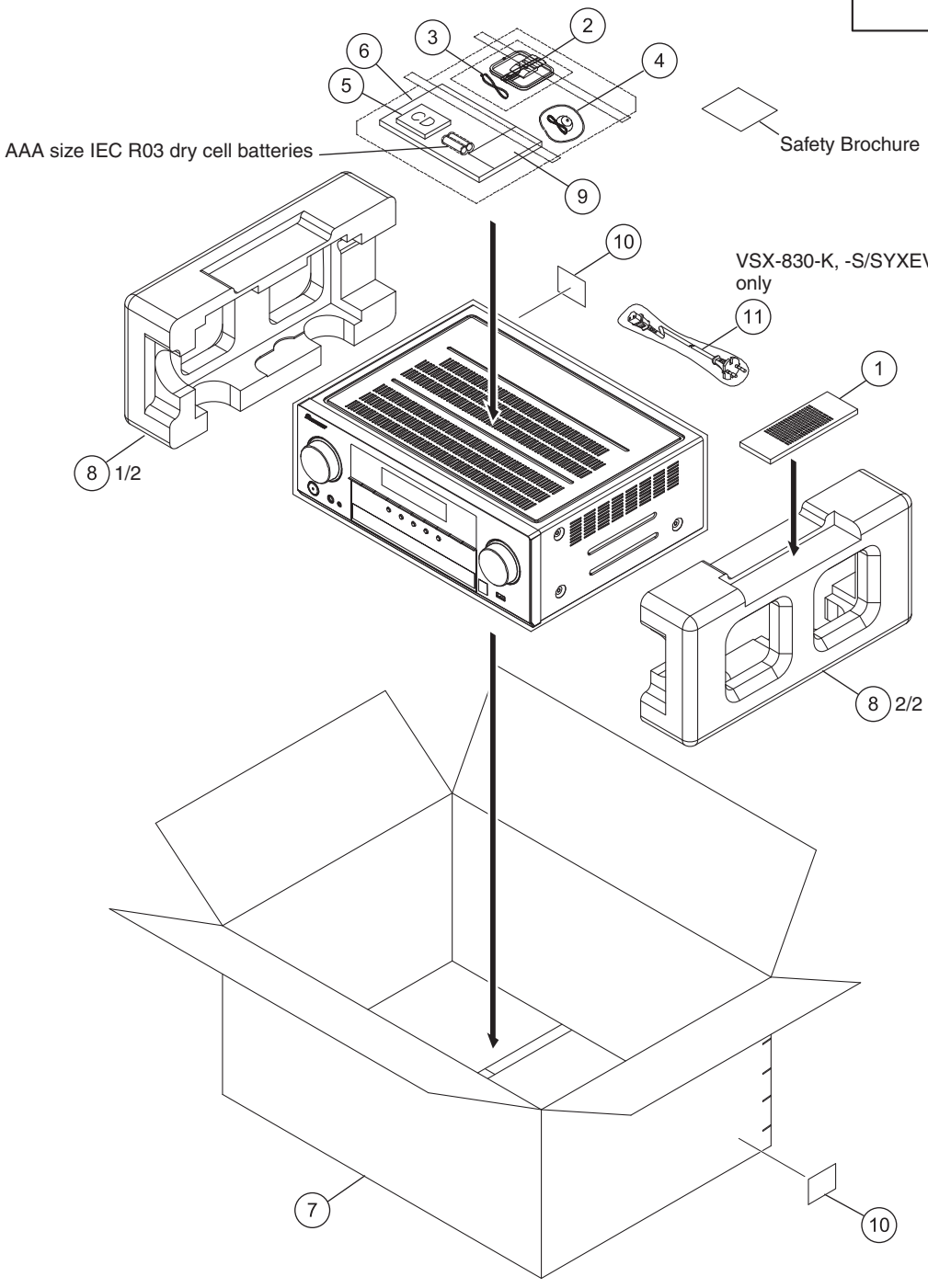
9. EXPLODED VIEWS AND PARTS LIST

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

Poly bag packing style





(1) PACKING SECTION PARTS LIST

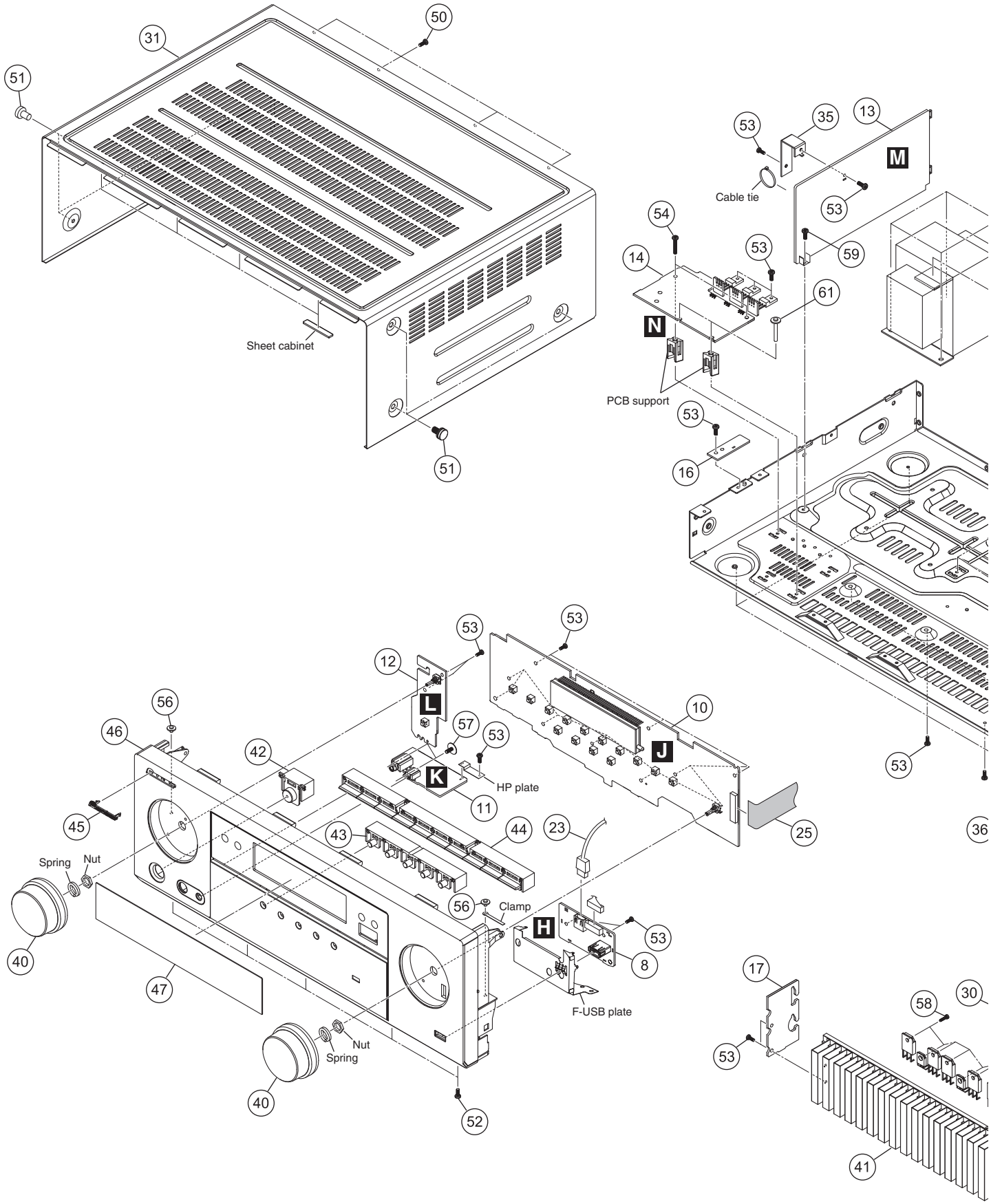
Mark	No.	Description	Part No.
	1	Remote Control Unit (AXD7739)	8300773900010S
	2	AM Loop Antenna	E605010140010S
	3	FM Wire Antenna	E605010140010-IL
	4	MCACC Setup Microphone	APM7011
	5	CD-ROM	See Contrast table (2)
	6	Quick Start Guide	See Contrast table (2)
	7	Box	See Contrast table (2)
	8	Cushion, Snow	6230213974000S
NSP	9	Warranty Sheet	See Contrast table (2)
NSP	10	Label	VRW1629
⚠	11	Power Cord	See Contrast table (2)

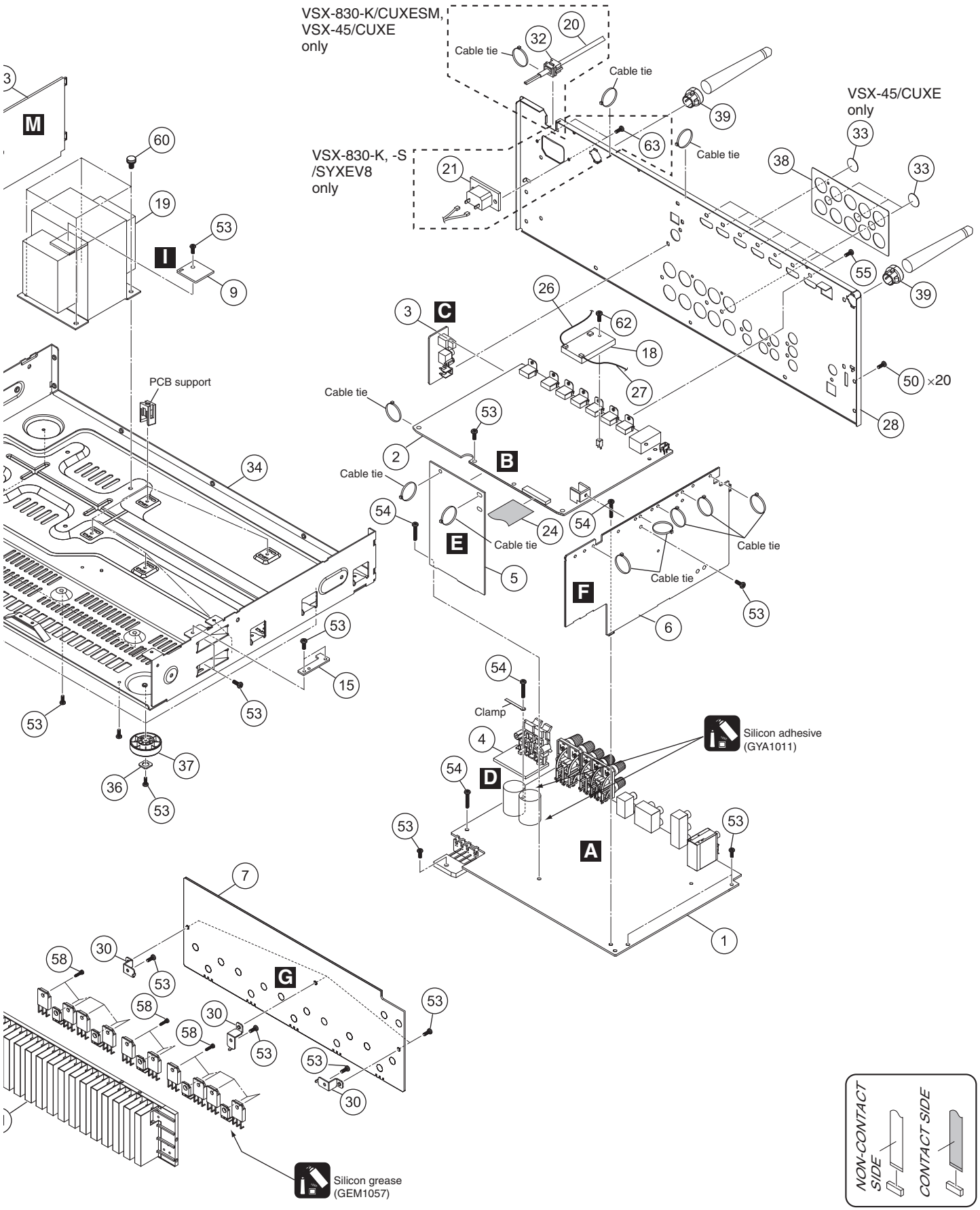
(2) CONTRAST TABLE

VSX-830-K/CUXESM, VSX-45/CUXE, VSX-830-K/SYXEV8 and VSX-830-S/SYXEV8 are constructed the same except for the following:

Mark	No.	Symbol and Description	VSX-830-K /CUXESM	VSX-45 /CUXE	VSX-830-K /SYXEV8	VSX-830-S /SYXEV8
	5	CD-ROM	6517000002141S	6517000002131S	6517000002151S	6517000002151S
	6	Quick Start Guide	5707000009910S	5707000009890S	5707000009930S	5707000009930S
	7	Box	60072123700P0S	6007212370280S	60072125800D0S	60072125800E0S
NSP	9	Warranty Sheet	ARY7172	ARY7177	ARY7191	ARY7191
⚠	11	Power Cord	Not used	Not used	L068250160070S	L068250160070S

9.2 EXTERIOR SECTION




VSX-830-K/CUXESM,
VSX-45/CUXE
only
VSX-830-K, -S
/SYXEV8
only
VSX-45/CUXE
only
Cable tie
PCB support
Clamp
Silicon adhesive
(GYA1011)
Silicon grease
(GEM1057)
×20
NON-CONTACT SIDE
CONTACT SIDE

(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN Assy	See Contrast table (2)
	2	DMAIN Assy	See Contrast table (2)
	3	OPTCO Assy	See Contrast table (2)
	4	SP-B Assy	See Contrast table (2)
	5	CONCT Assy	See Contrast table (2)
	6	CPU Assy	See Contrast table (2)
	7	AMP5 Assy	7028074541040
	8	FUSB Assy	See Contrast table (2)
	9	NTC Assy	See Contrast table (2)
	10	FRONT Assy	See Contrast table (2)
	11	HPMIC Assy	See Contrast table (2)
	12	INSEL Assy	See Contrast table (2)
⚠	13	SMPS Assy	See Contrast table (2)
	14	REG Assy	See Contrast table (2)
	15	G-R Assy	See Contrast table (2)
	16	G-L Assy	See Contrast table (2)
	17	WG Assy	7028074542040
	18	Network Module	AXX7293
⚠	19	Power Trans	See Contrast table (2)
⚠	20	Power Cord	See Contrast table (2)
⚠	21	AC Inlet	See Contrast table (2)
	22	•••••	
	23	Cable HDMI 230 mm	L304231190240S
	24	Cable HDMI 110 mm	N711271122480S
	25	FFC Cable 1 mm	N711390922480S
	26	Other Antenna	ADH7048
	27	Other Antenna	ADH7049
	28	Back Chassis	See Contrast table (2)
	29	•••••	
	30	HS Bracket	4010056906010S
	31	Cabinet	3008212076000-IL
	32	Stopper	See Contrast table (2)
	33	Screw Cover	4050211745100-IL
	34	Main Chassis 830	3200214556101S
	35	SMPS Bracket	401021488600DS
	36	Cushion	4050211605000-IL
	37	Foot (PLS)	4000210391000-IL
	38	Speaker Sheet 830	1210212862000S
	39	Wi-Fi Antenna Bush	2410210171000S
	40	Knob	5080212431000-IL
	41	Heatsink	See Contrast table (2)
	42	Standby Button	See Contrast table (2)
	43	5 Key Button	See Contrast table (2)
	44	10 Key Button	5090214571000S
	45	Pioneer Badge	See Contrast table (2)

Mark	No.	Description	Part No.
	46	Front Panel	See Contrast table (2)
	47	Display Window	See Contrast table (2)
	48	•••••	
	49	•••••	
	50	Screw	BBT30P100FTB
	51	Screw	BBT40P080FTB
	52	Screw	BBZ30P080FTB
	53	Screw	BBZ30P080FTC
	54	Screw	BBZ30P180FTC
	55	Screw	BSZ30P040FTB
	56	Screw	1500001206010-IL
	57	Screw	1500001456010-IL
	58	Screw	B018230141H11-IL
	59	Screw	B020230063B10-IL
	60	Screw	B028940101B11-IL
	61	Screw	1500001206020SV
	62	Screw	BSZ30P040FCC
	63	Screw	See Contrast table (2)

(2) CONTRAST TABLE

VSX-830-K/CUXESM, VSX-45/CUXE, VSX-830-K/SYXEV8 and VSX-830-S/SYXEV8 are constructed the same except for the following:

Mark	No.	Symbol and Description	VSX-830-K /CUXESM	VSX-45 /CUXE	VSX-830-K /SYXEV8	VSX-830-S /SYXEV8
	1	MAIN Assy	7028077711030	7028077711010	7028077711020	7028077711020
	2	DMAIN Assy	7028077771030	7028077771010	7028077771020	7028077771020
	3	OPTCO Assy	7028077723050	7028077723010	7028077723040	7028077723040
	4	SP-B Assy	Not used	7028077732010	Not used	Not used
	5	CONCT Assy	7028077713030	7028077713010	7028077713020	7028077713020
	6	CPU Assy	7028077731050	7028077731010	7028077731040	7028077731040
	8	FUSB Assy	7028077781040	7028077781010	7028077781030	7028077781030
	9	NTC Assy	7028077725050	7028077725010	7028077725040	7028077725040
	10	FRONT Assy	7028077721050	7028077721010	7028077721040	7028077721040
	11	HPMIC Assy	7028077724050	7028077724010	7028077724040	7028077724040
	12	INSEL Assy	7028077722050	7028077722010	7028077722040	7028077722040
⚠	13	SMPS Assy	70280733610GA	70280733610GA	70280733610HA	70280733610HA
	14	REG Assy	7028077712030	7028077712010	7028077712020	7028077712020
	15	G-R Assy	7028077714030	7028077714010	7028077714020	7028077714020
	16	G-L Assy	7028077726050	7028077726010	7028077726040	7028077726040
⚠	19	Power Trans	8200960612550S	8200960612550S	8200960612560S	8200960612560S
⚠	20	Power Cord	L068125101710S	L068125101710S	Not used	Not used
⚠	21	AC Inlet	Not used	Not used	G430040807010S	G430040807010S
	28	Back Chassis	3207215186000S	3207215186400S	3207215186100S	3207215186110S
	31	Cabinet	3008212076000-IL	3008212076000-IL	3008212076000-IL	3008212076010-IL
	32	Stopper	4380040162010-IL	4380040162010-IL	Not used	Not used
	41	Heatsink	212021216800DS	212021216800DS	21202121680105	21202121680105
	42	Standby Button	5090213741100S	5090213741100S	5090213741100S	5097213741000S
	43	5 Key Button	5090214561000S	5090214561000S	5090214561000S	5097214561300S
	45	Pioneer Badge	XAM3006	PAM1791	XAM3006	VAM1129
	46	Front Panel	30672158714005	30672158713005	30672158714005	30672158712205
	47	Display Window	50772131130R0S	50772131130N0S	50772131130R0S	50772131130R0S
	63	Screw	Not used	Not used	CBZ30P080FTB	CBZ30P080FTB