

INTEGRATED AMPLIFIER

PMA-800NE



- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual when referring to the operating instructions without fail.
- Some illustrations used in this service manual are slightly different from the actual product.

Click here!

On-line service parts list

<http://dmedia.dmglobal.com/Document/DocumentDetails/24547>

[ONLINE PARTS LIST](#) (P5)

WEB owner's manual

NA: <http://manuals.denon.com/PMA800NE/NA/EN/index.php>

EU: <http://manuals.denon.com/PMA800NE/EU/EN/index.php>

AP: <http://manuals.denon.com/PMA800NE/AP/ZH/index.php>

JP: <http://manuals.denon.com/PMA800NE/JP/JA/index.php>

Upload is planned for the time of a future press release.

BEFORE SERVICING THIS UNIT**ELECTRICAL****MECHANICAL****REPAIR INFORMATION****UPDATING****Confidential**

BEFORE SERVICING THIS UNIT

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HANDLING THE SEMICONDUCTOR AND OPTICS

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SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

Leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

CAUTION

Please heed the following cautions and instructions during servicing and inspection.

⦿ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

⦿ Cautions concerning electric shock!

- (1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.
- (2) There are high voltage parts inside. Handle with extra care when the set is energized.

⦿ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

⦿ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the ⚠ mark on schematic diagrams and parts lists, be sure to use the designated parts.

⦿ Be sure to mount parts and arrange the wires as they were originally placed!

For safety reasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care should also be taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

⦿ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorated the area around. Then make an insulation check on the external metal connectors and between the blades of the power plug. And otherwise check that safety is ensured.

(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power.

Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1M Ω or greater. If it is less, the set must be inspected and repaired.

CAUTION

Concerning important safety parts

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

- (1) Schematic diagrams Indicated by the ⚠ mark.
- (2) Parts lists Indicated by the ⚠ mark.

The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

NOTE FOR SCHEMATIC DIAGRAM

WARNING:

Parts indicated by the $\triangle$ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

WARNING:

DO NOT return the set to the customer unless the problem is identified and remedied.

NOTICE:

- (1) ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM
- (2) ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD.
- (3) EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
- (4) CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

HANDLING THE SEMICONDUCTOR AND OPTICS

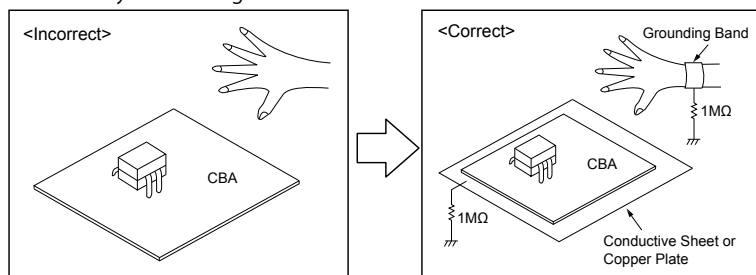
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1 M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing



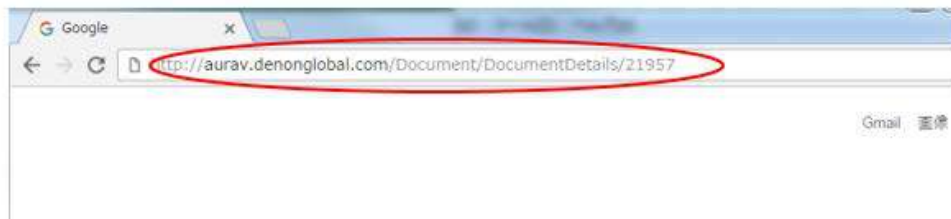
ONLINE PARTS LIST

Accessing the Parts List

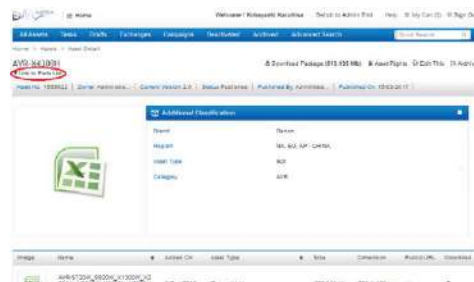
- (1) Access from the Service Manual
 - Click the URL link on the cover of the service manual.
- Examples of display



NOTE: If the web browser does not open automatically, copy the URL and paste it into the address bar of the web browser and then press Enter.



- (2) Accessing the Part List from the Model Asset Screen.
 - Display Model Asset from New SDI.
 - Click the section displayed as ▼ Link to Part Lists under the model name.

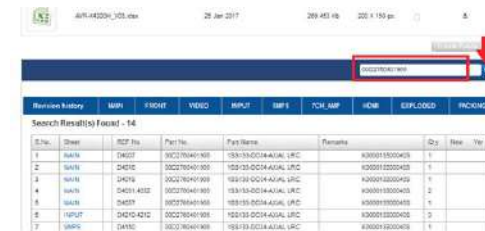


NOTE: If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

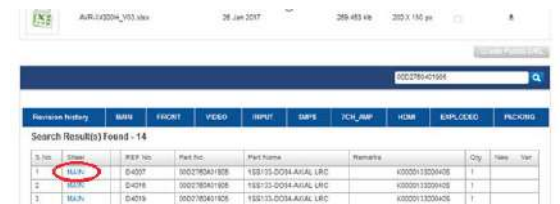
Searching Part Numbers or Ref. Numbers

You can search a Parts List for part numbers or Ref. numbers.

- (1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.
- (2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.



- (3) Next, click the "Sheet" section of the search results.



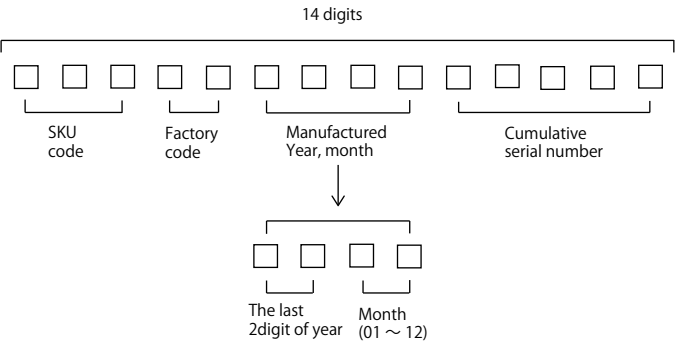
NOTE FOR PARTS LIST

- Parts indicated by "nsp" on this table cannot be supplied.
 - When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.
 - A part ordered without specifying its part number can not be supplied.
 - Part indicated by "@" mark is not illustrated in the exploded and packaging view.
- WARNING:** Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

SERIAL NUMBER

Serial Number Organization

The 14-digit serial number that contains the code of the manufacturing plant and the manufacturing date.



SKU Code of this Unit

Product SKU	SKU Code
PMA800NEBKE3	BBA
PMA800NEBKE2	BAY
PMA800NESPE2	BAZ
PMA800NESPE1C	BEN
PMA800NESP	BBB

POST-SERVICE PRECAUTIONS

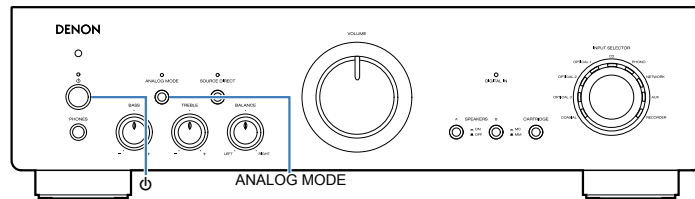
Initializing this Unit

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the PCB.

1. While holding down the "**ANALOG MODE**" button, press the power button to turn on the power.
2. All LEDs light once the unit is initialized.
 - * The unit is initialized.
 - Settings return to default.
 - Protection history is not initialized.
- (3) Turn off power to exit from service mode.

NOTE :

- If the unit fails to enter the service mode in step 2, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.



SCHEMATIC DIAGRAMS

[SCH01 DIGITAL](#)

[SCH02 PHONO](#)

[SCH03 TONE](#)

[SCH04 HP & SIDE CNT & FUNCTION](#)

[SCH05 MAIN1](#)

[SCH06 MAIN2](#)

[SCH07 VOLUME & MAIN CNT](#)

[SCH08 STBY & POWER SW](#)

PRINTED CIRCUIT BOARDS

[DIGITAL, PHONO, STANDBY, POWER SW](#)

[TONE, SIDE CNT, FUNCTION, HP](#)

[MAIN, GUIDE, HP GUIDE, HEATSINK GUIDE1, HEATSINK GUIDE2, MAIN-CNT, VOLUME](#)

LEVEL and BLOCK DIAGRAM

[AUDIO DIAGRAM](#)

[レベルダイヤグラム](#)

POWER DIAGRAM

WIRING DIAGRAM

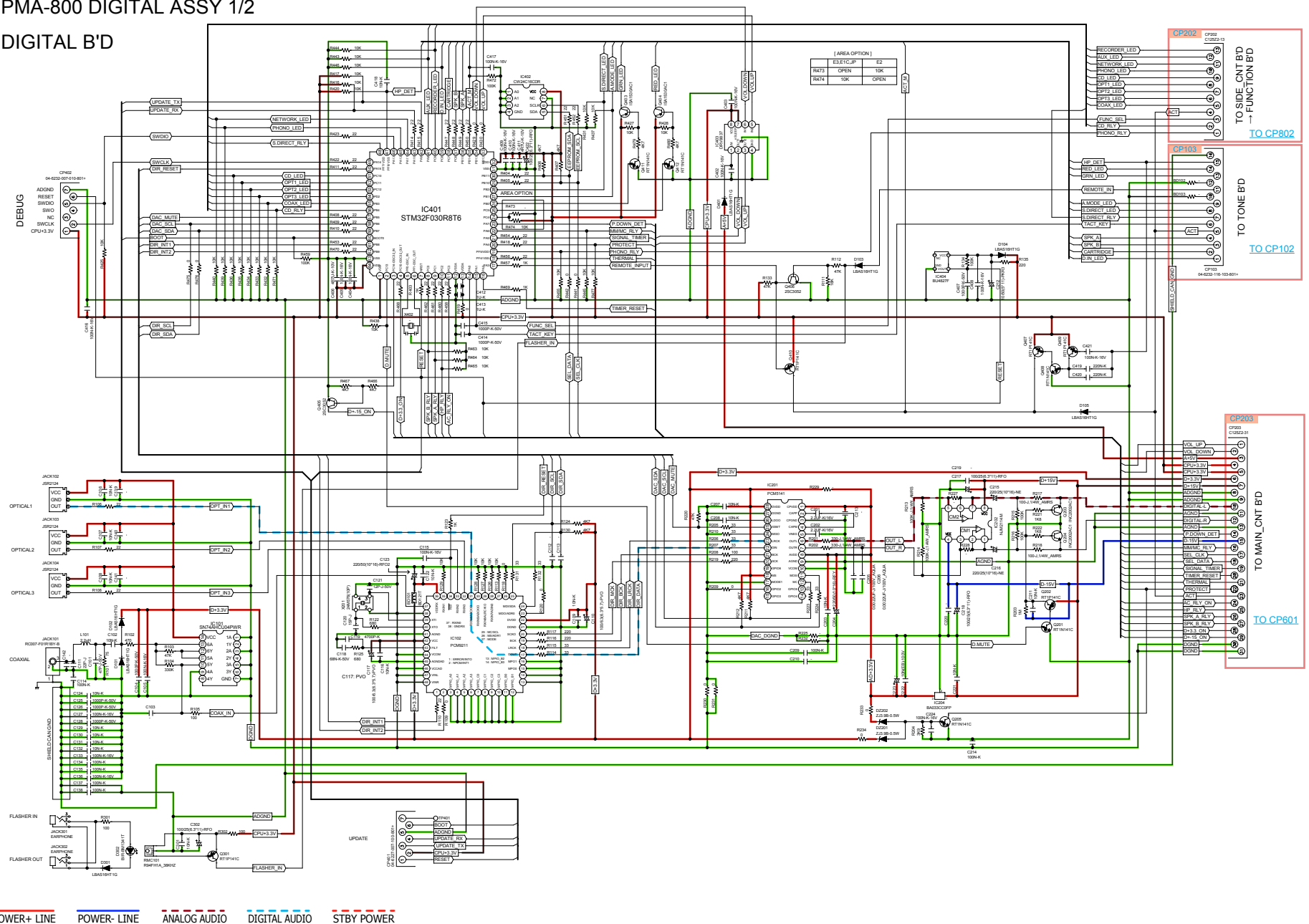
SEMICONDUCTORS

[1. IC's](#)

[3. Remote Code Table](#)

PMA-800 DIGITAL ASSY 1/2

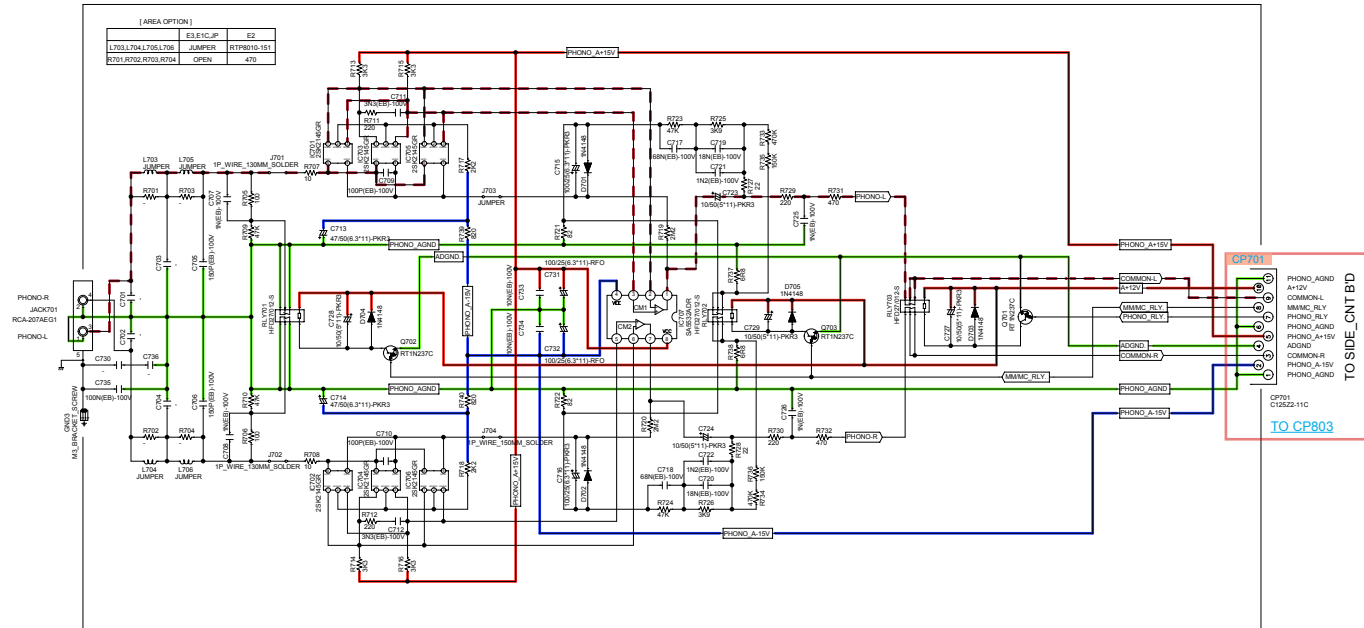
DIGITAL B'D



PMA-800 DIGITAL ASSY 2/2

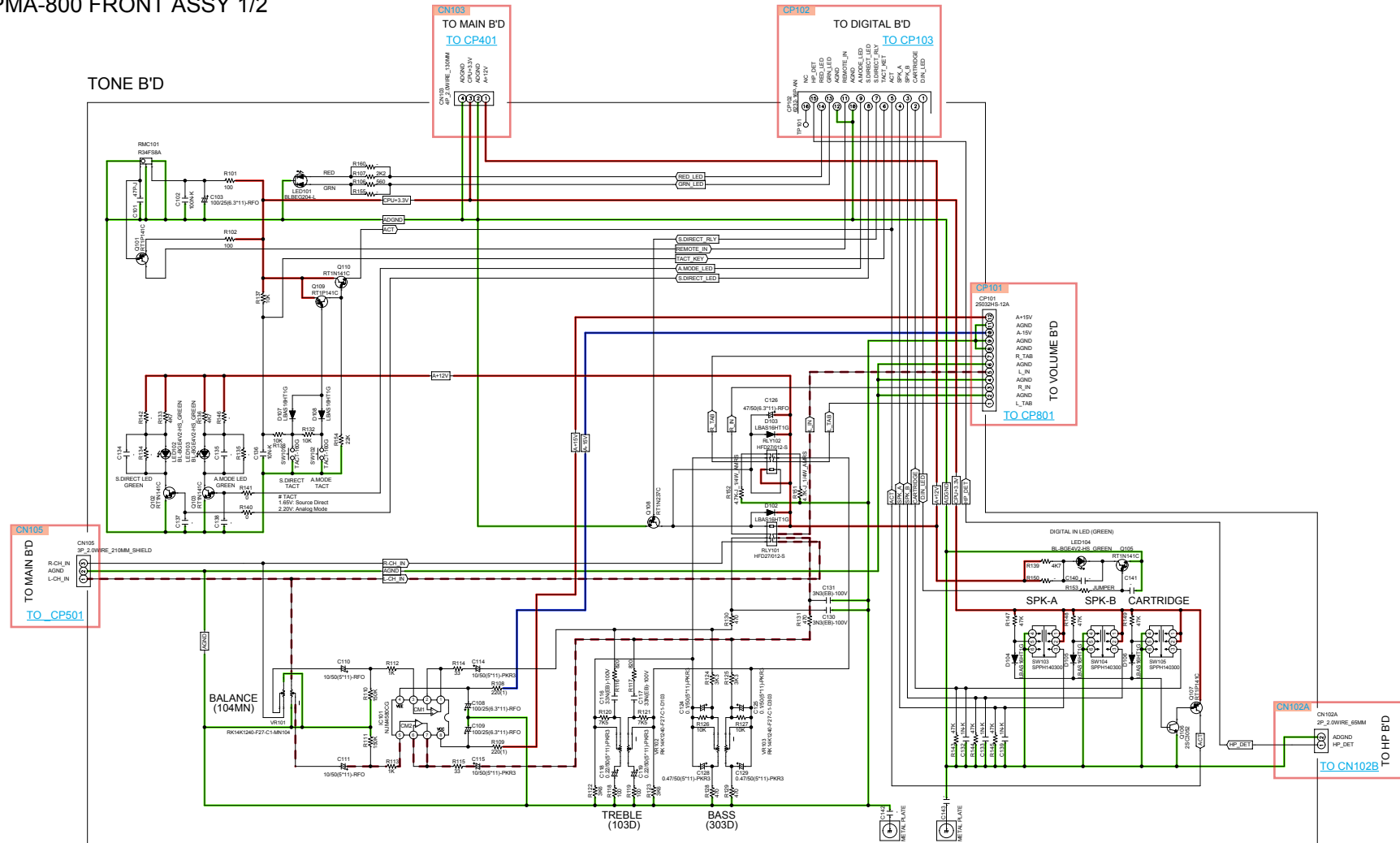
PHONO B'D

PHONO B'D

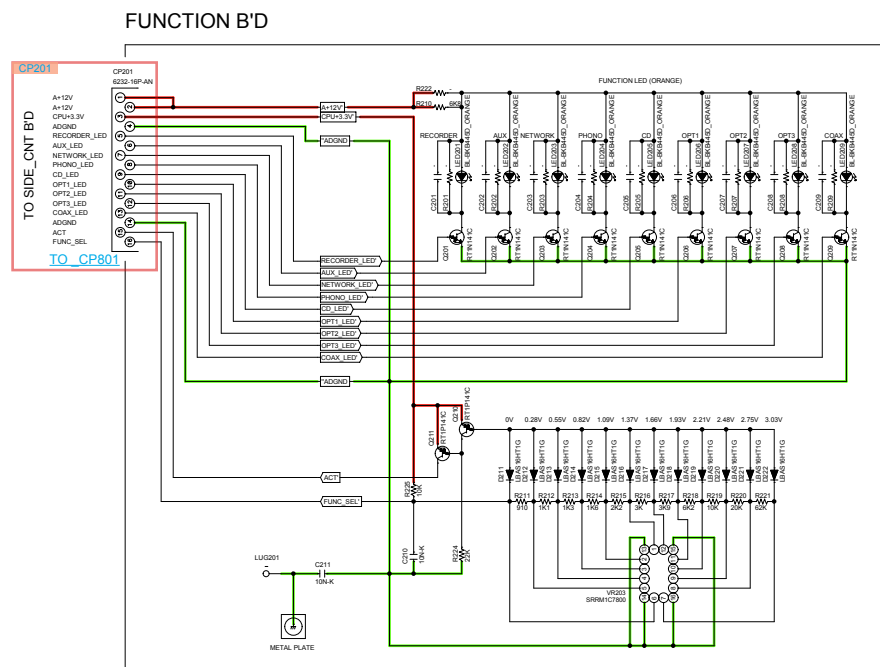
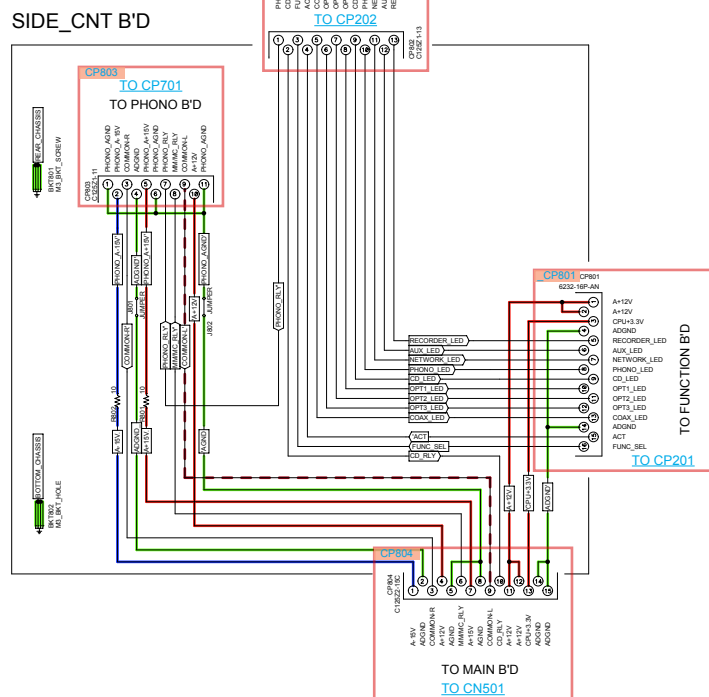
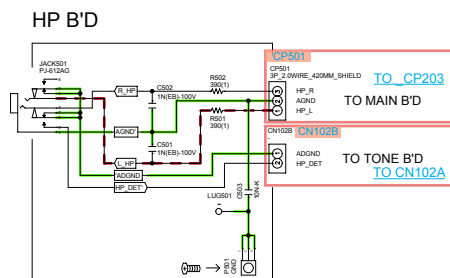
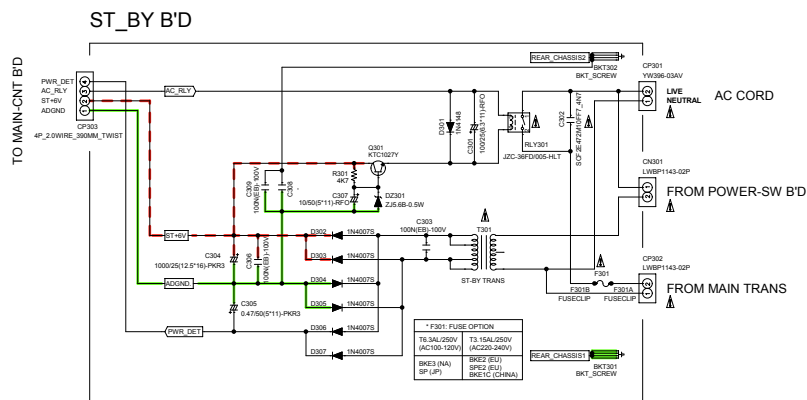


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

PMA-800 FRONT ASSY 1/2



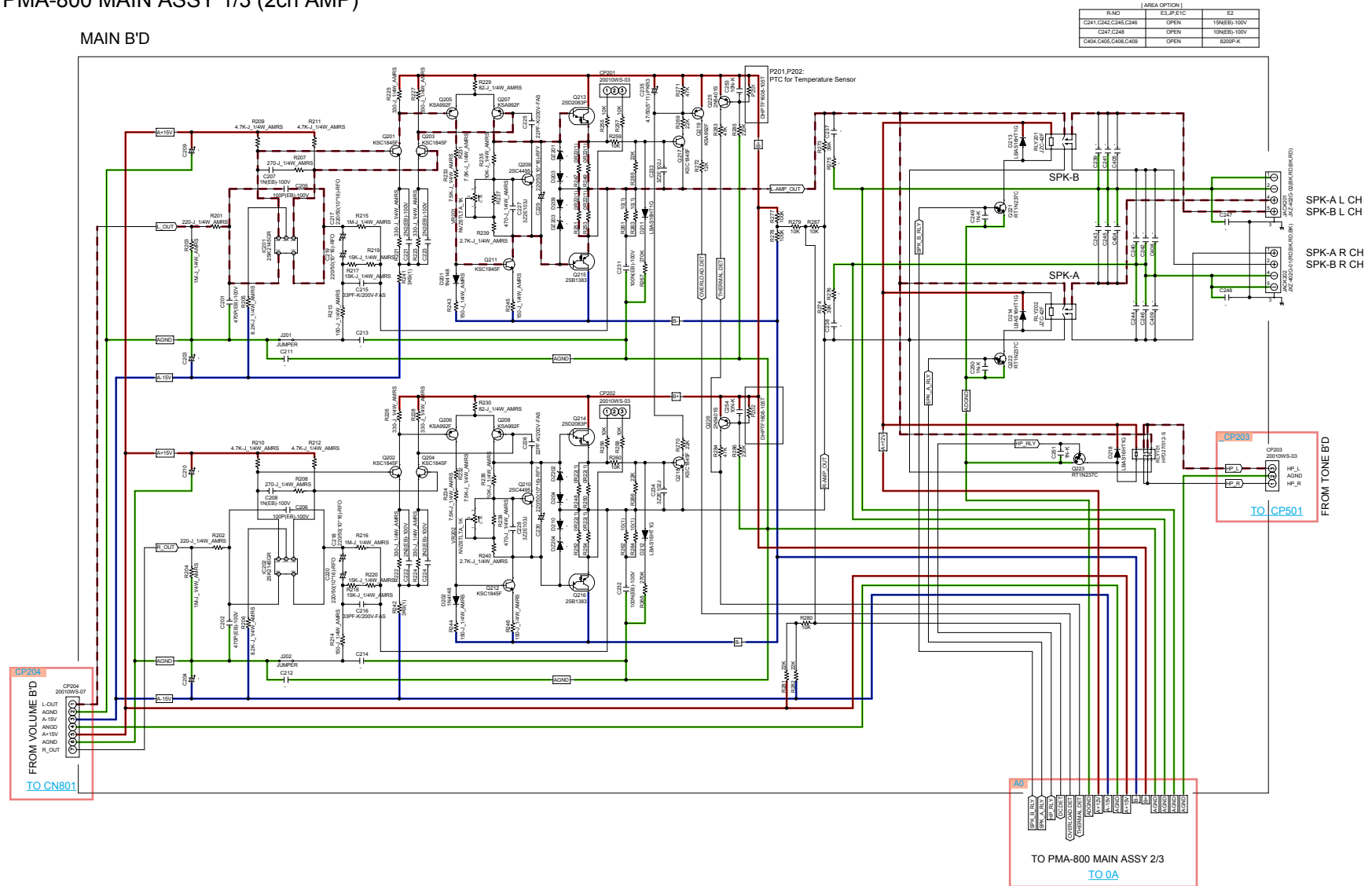
PMA-800 FRONT ASSY 2/2



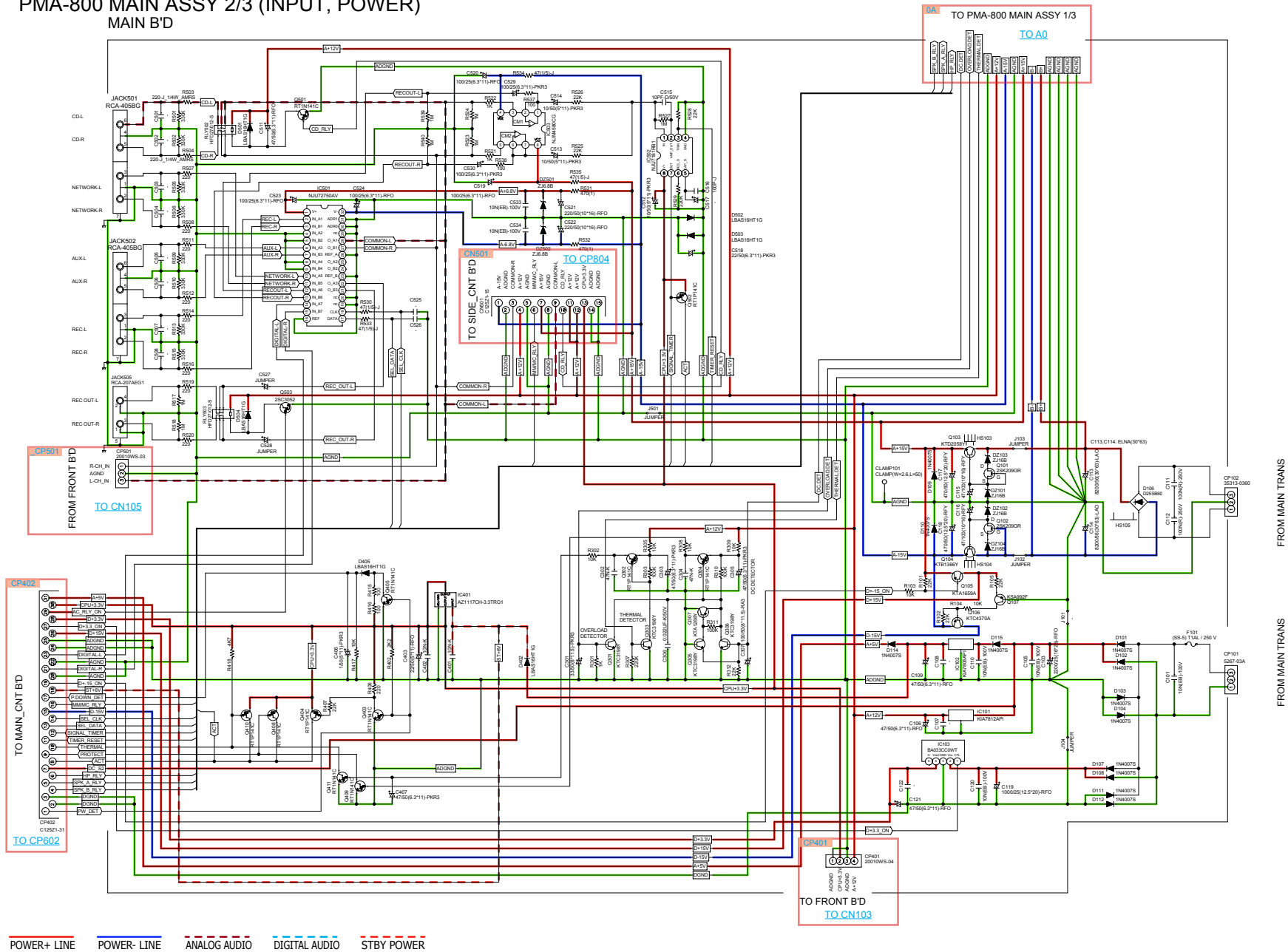
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

PMA-800 MAIN ASSY 1/3 (2ch AMP)

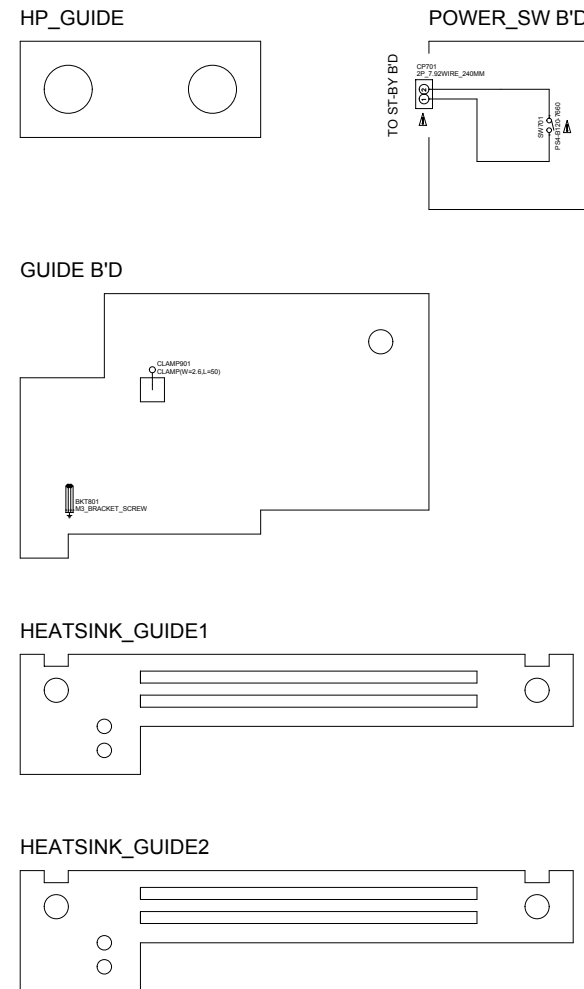
MAIN B'D



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO STBY POWER

PMA-800 MAIN ASSY 2/3 (INPUT, POWER)
MAIN B'D

15



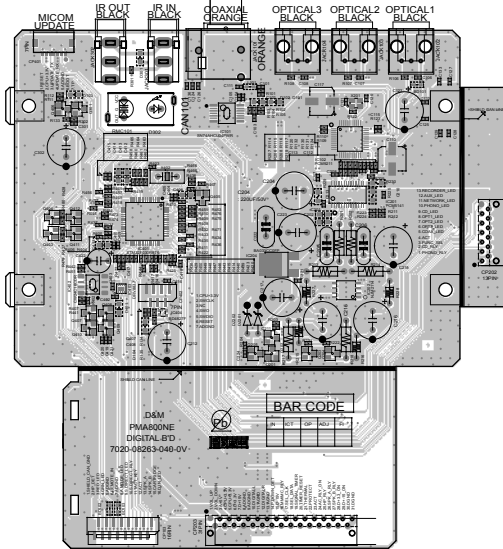
PRINTED CIRCUIT BOARDS

DIGITAL, PHONO, STANDBY, POWER SW

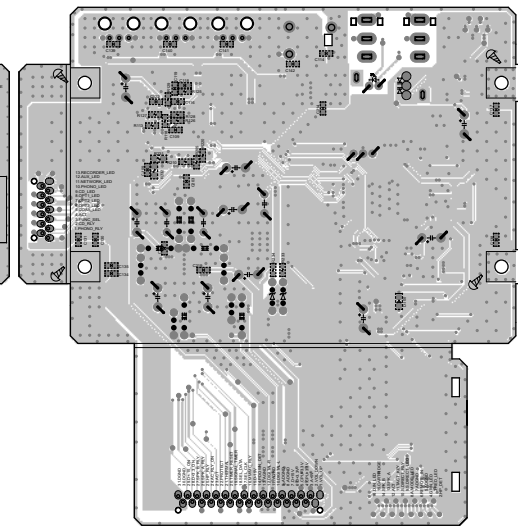
Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

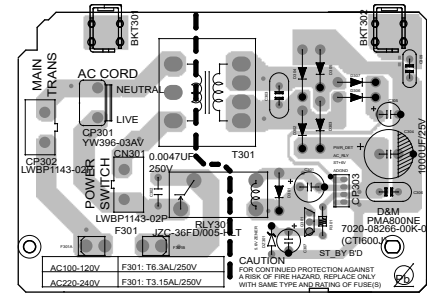
DIGITAL (A SIDE)



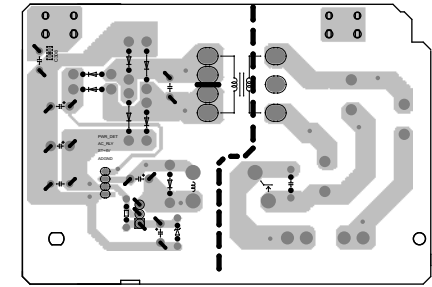
DIGITAL (B SIDE)



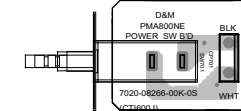
STANDBY (A SIDE)



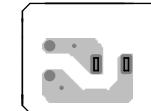
STANDBY (B SIDE)



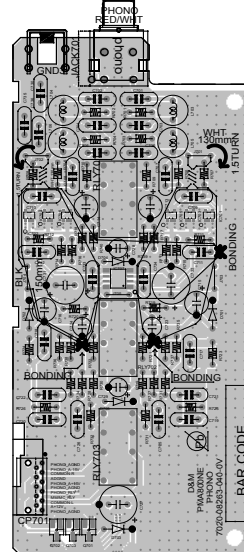
POWER SW (A SIDE)



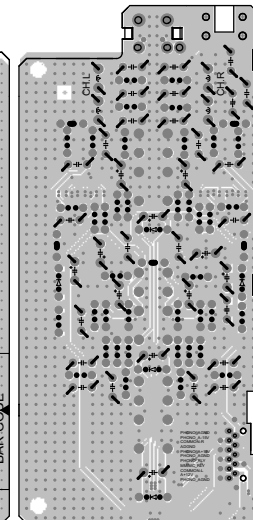
POWER SW (B SIDE)

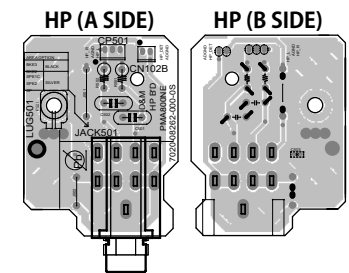
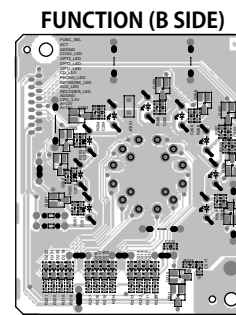
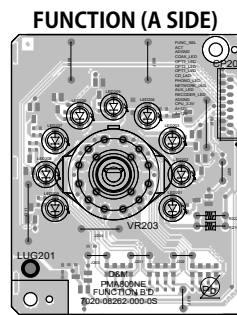
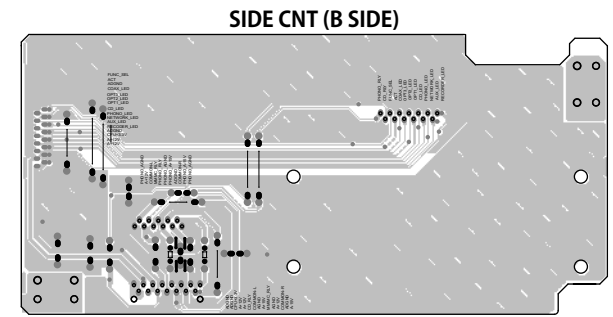
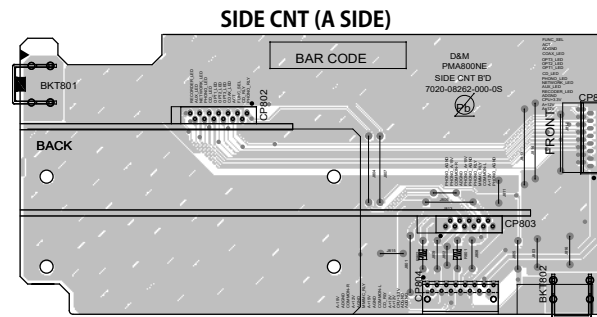
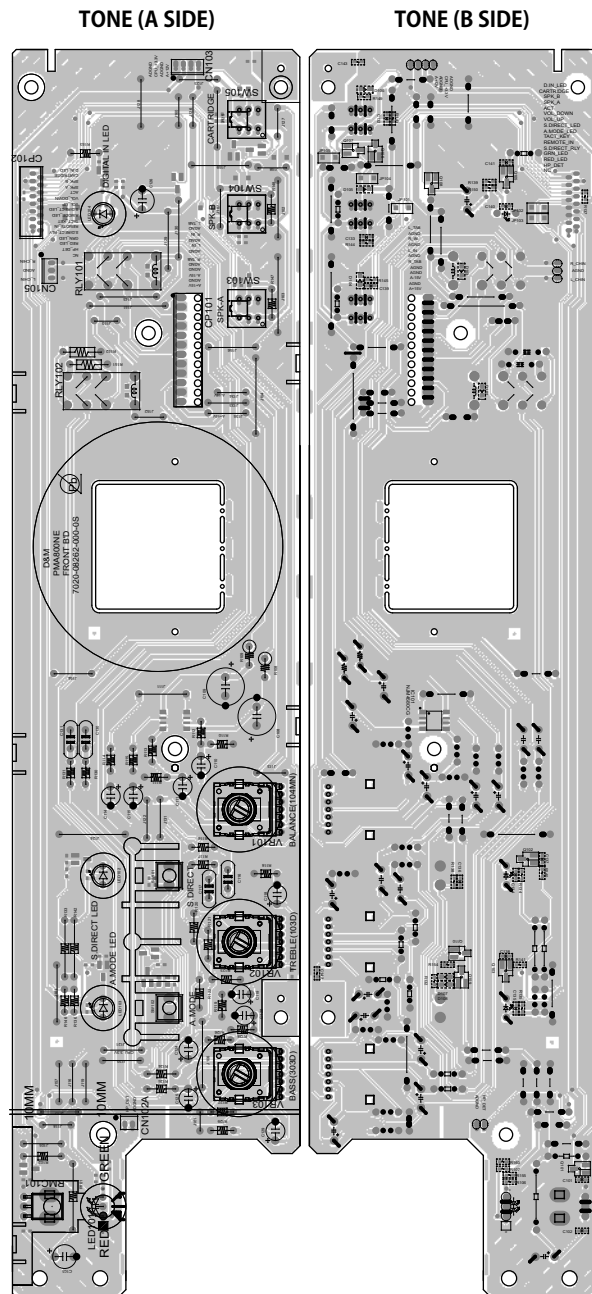


PHONO (A SIDE)



PHONO (B SIDE)

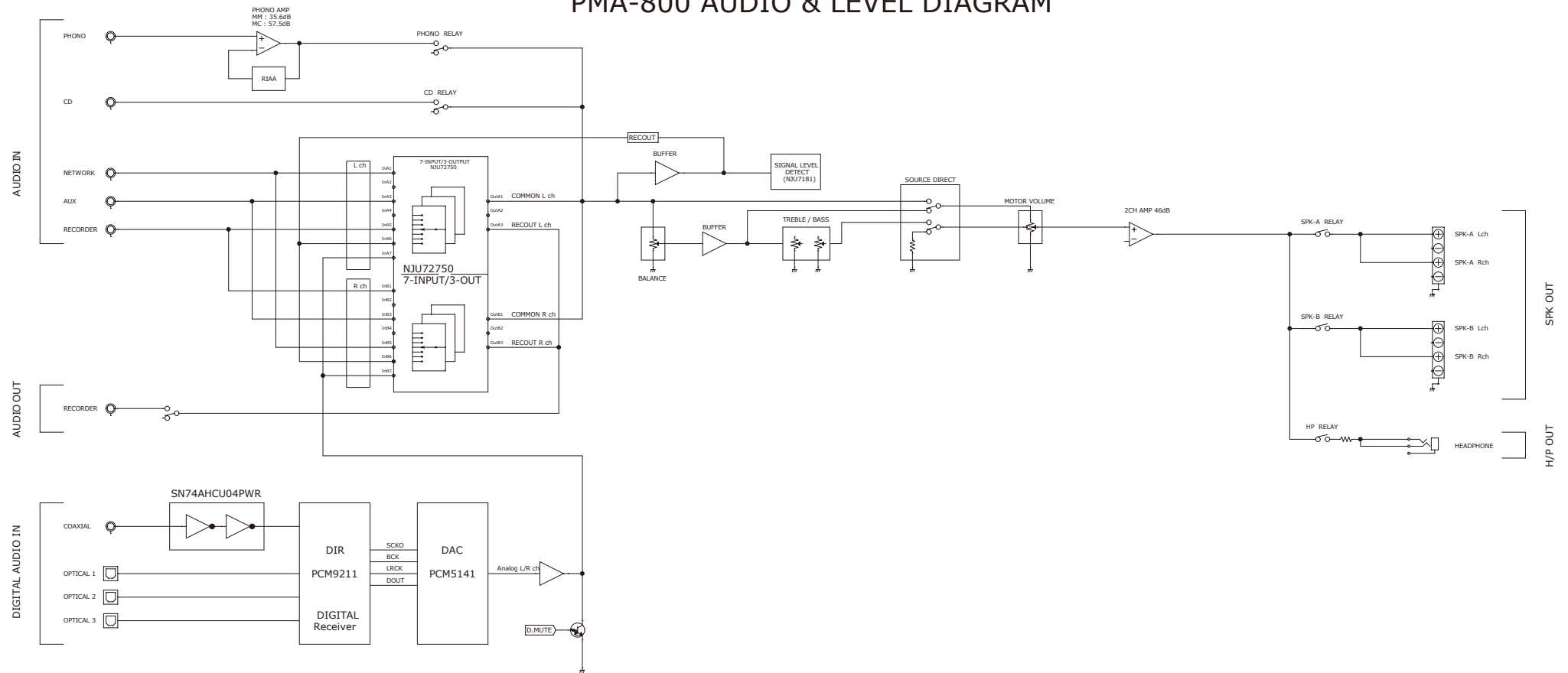




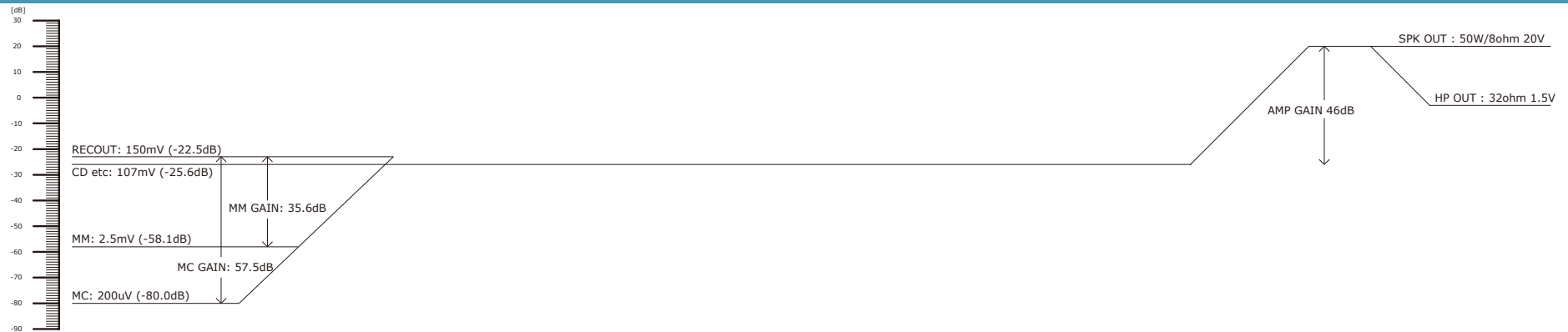
LEVEL and BLOCK DIAGRAM

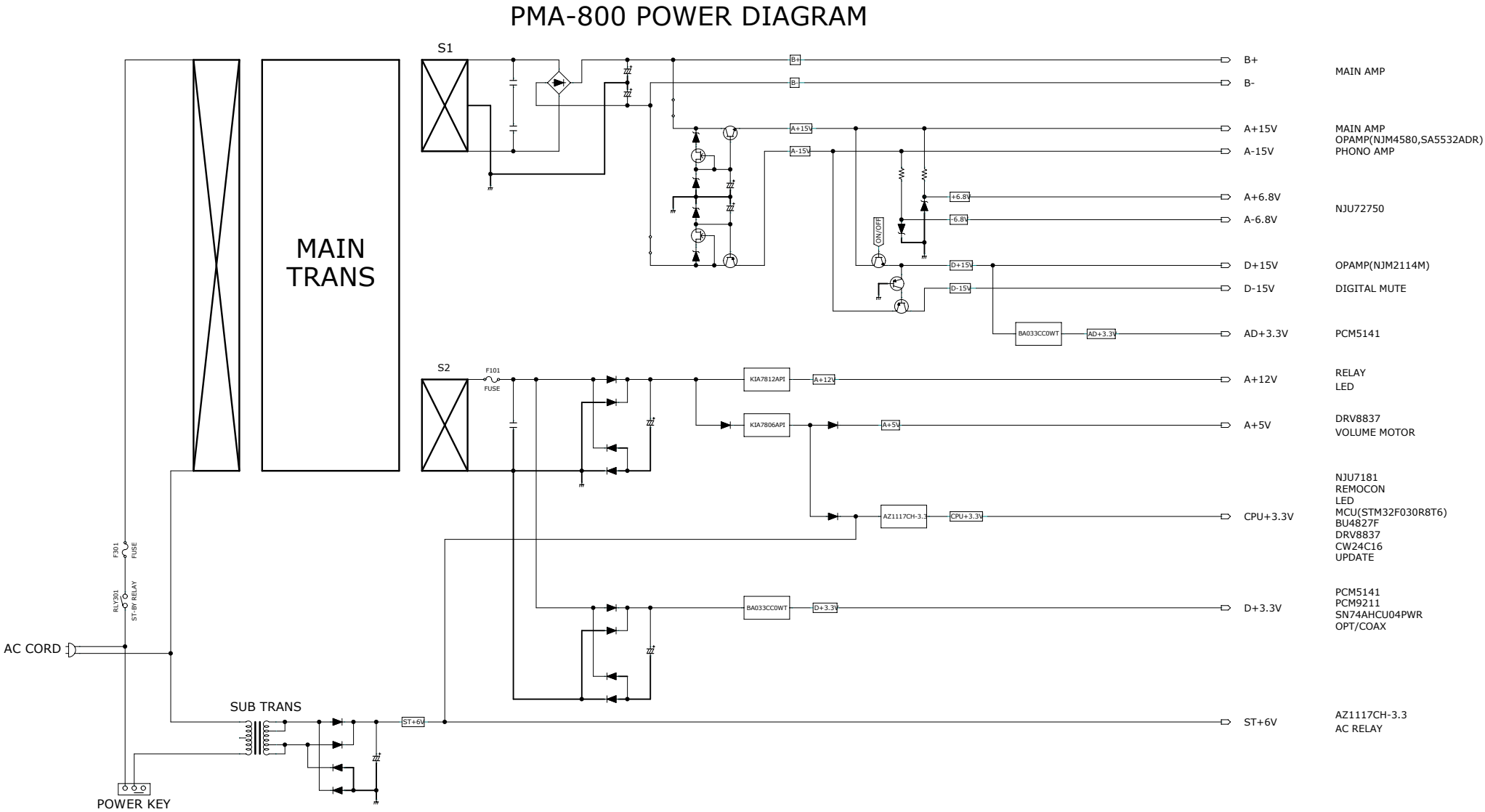
AUDIO DIAGRAM

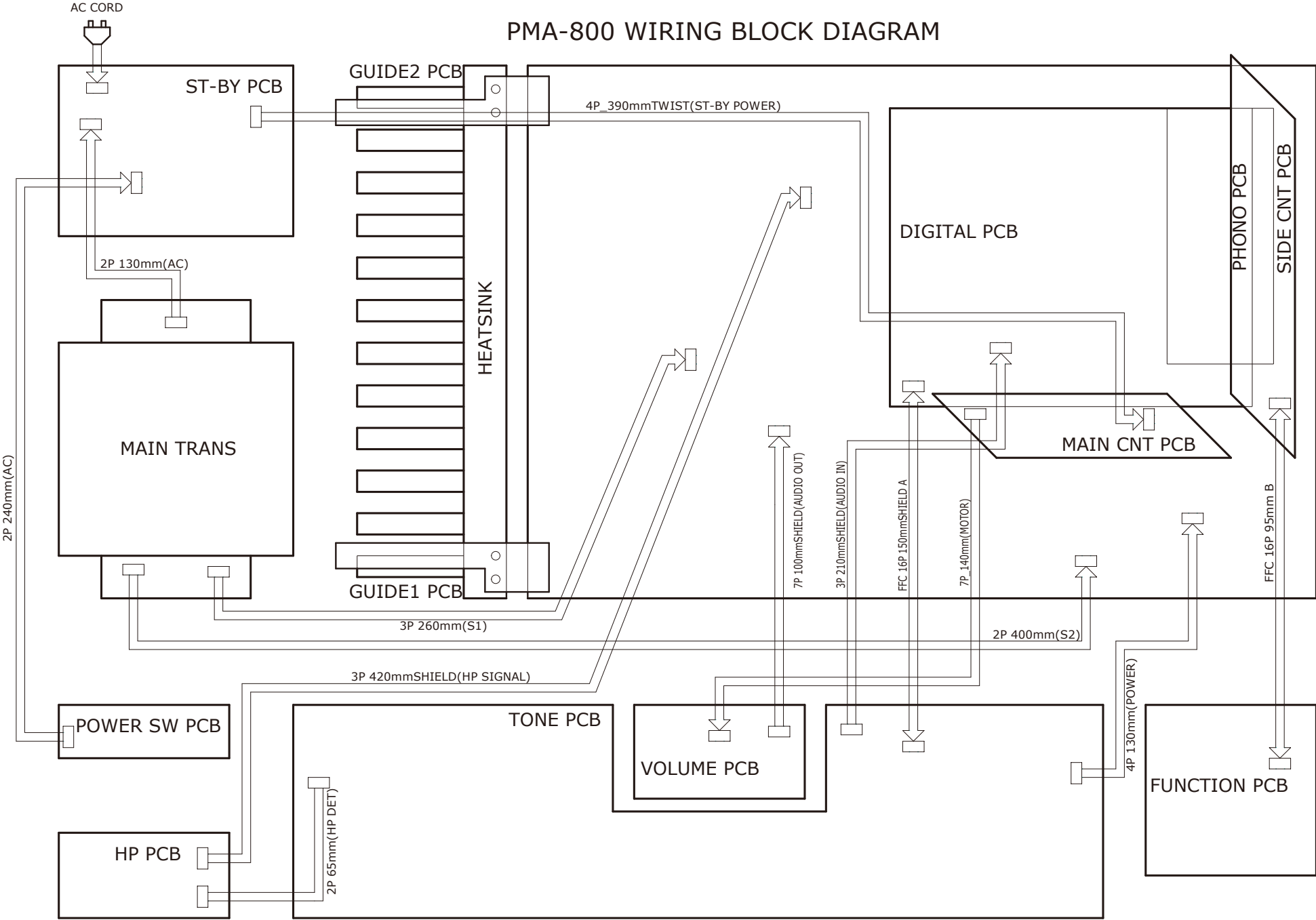
PMA-800 AUDIO & LEVEL DIAGRAM



LEVEL DIAGRAM





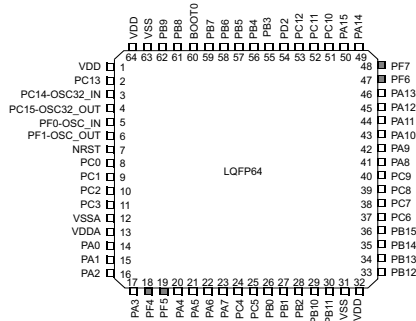


SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

1. IC's

STM32F030R8T6 (DIGITAL : IC401)

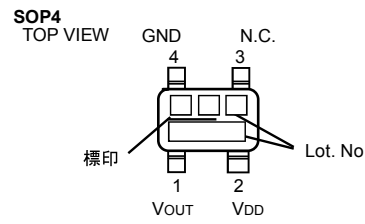


Terminal Functions

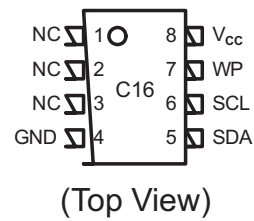
pin	port	Symbol	I/O	Function
1	VDD	VDD	-	SOURCE SUPPLY
2	PC13	D.MUTE	O	DIGITAL MUTE
3	PC14-OSC32_IN (PC14)	D+15_ON	O	DIGITAL +15V ENABLE
4	PC15-OSC32_OUT (PC15)	D+3.3_ON	O	DIGITAL +3.3V ENABLE
5	PF0-OSC_IN (PF0)	X1	-	Non - OSC_IN
6	PF1-OSC_OUT (PF1)	X2	-	Non - OSC_OUT
7	NRST	RESET	I	RESET FOR SYSTEM
8	PC0	SPK_B_RLY	O	SPEAKER B RELAY ON/OFF
9	PC1	SPK_A_RLY	O	SPEAKER A RELAY ON/OFF
10	PC2	HP_RLY	O	HEADPHONE RELAY ON/OFF
11	PC3	AC_RLY_ON	O	AC POWER RELAY ON/OFF
12	VSSA	VSSA	-	VSSA
13	VDDA	VDDA	-	VDDA
14	PA0	TACT_KEY	I	KEY A/D
15	PA1	FUNC_SEL	I	FUNCTION A/D
16	PA2	TIMER_RESET	O	TIMER RESET
17	PA3	REMOTE_INPUT	I	REMOTE CONTROLLER INPUT
18	PF4	THERMAL	I	THERMAL PROTECTION DETECT
19	PF5	PHONO_RLY	O	PHONO RELAY ON/OFF
20	PA4	PROTECT	I	DC/ASO PROTECTION DETECT
21	PA5	SIGNAL_TIMER	I	SIGNAL INPUT DETECT
22	PA6	MM/MC_RLY	O	MM/MC SELECT
23	PA7	P.DOWN_DET	I	POWER DOWN DETECT
24	PC4	AREA_OPTION	I	AREA OPTION
25	PC5	RED_LED	O	POWER LED
26	PB0	GRN_LED	O	POWER LED

pin	port	Symbol	I/O	Function
27	PB1	A.MODE_LED	O	ANALOG MODE LED
28	PB2	S.DIRECT_LED	O	SOURCE DIRECT LED
29	PB10	EEPROM_SCL	O	I2C clock for EEPROM
30	PB11	EEPROM_SDA	I/O	I2C data for EEPROM
31	VSS	VSS	-	VSS
32	VDD	VDD	-	VDD
33	PB12	VOL.UP	O	MOTOR VOLUME UP CONTROL
34	PB13	VOL.DOWN	O	MOTOR VOLUME DOWN CONTROL
35	PB14	ACT	I	MCU STOP MODE
36	PB15	SPK_A	I	SPEAKER A ON/OFF KEY
37	PC6	SPK_B	I	SPEAKER B ON/OFF KEY
38	PC7	CARTRIDGE	I	MM/MC KEY
39	PC8	D.IN.LED	O	DIGITAL INPUT LED
40	PC9	RECORDER_LED	O	RECORDER FUNCTION LED
41	PA8	AUX_LED	O	AUX FUNCTION LED
42	PA9	UPDATE_TX	I	MCU UPDATE
43	PA10	UPDATE_RX	O	MCU UPDATE
44	PA11	NETWORK_LED	O	NETWORK FUNCTION LED
45	PA12	PHONO_LED	O	PHONO FUNCTION LED
46	PA13 (SWDIO)	SWDIO	I/O	DEBUGGER
47	PF6	HP_DET	I	HEADPHONE DETECT
48	PF7	S.DIRECT_RLY	O	SOURCE DIRECT RELAY ON/OFF
49	PA14 (SWCLK)	SWCLK	O	DEBUGGER
50	PA15	DIR_RESET	O	RESET FOR DIR(PCM9211)
51	PC10	CD_LED	O	CD FUNCTION LED
52	PC11	OPT1_LED	O	OPTICAL1 FUNCTION LED
53	PC12	OPT2_LED	O	OPTICAL2 FUNCTION LED
54	PD2	OPT3_LED	O	OPTICAL3 FUNCTION LED
55	PB3	COAX_LED	O	COAXIAL FUNCTION LED
56	PB4	CD_RLY	O	CD FUNCTION RELAY ON/OFF
57	PB5	DAC_MUTE	O	DAC MUTE(PCM5141)
58	PB6	DAC_SCL	O	DAC I2C CLOCK
59	PB7	DAC_SDA	I/O	DAC I2C DATA
60	BOOT0	BOOT	I	BOOT0
61	PB8	DIR_INT1	I	Interrupt for DIR(PCM9211)
62	PB9	DIR_INT2	I	Interrupt for DIR(PCM9211)
63	VSS	VSS	-	VSS
64	VDD	VDD	-	VDD

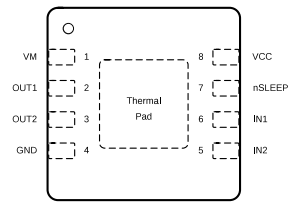
BU4827F (DIGITAL : IC404)



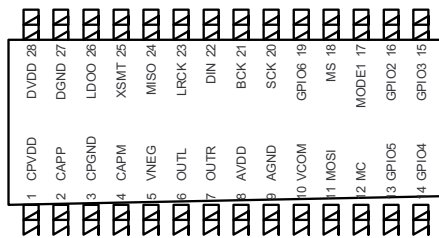
CW24C16CDR (DIGITAL : IC402)



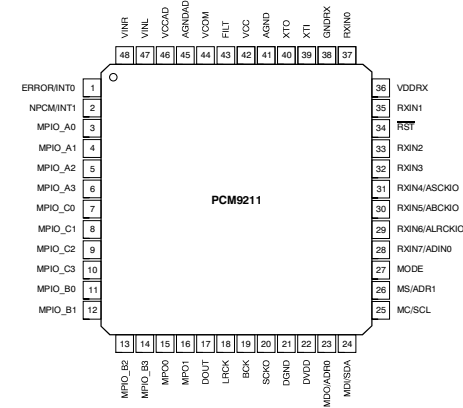
DRV8837 (DIGITAL : IC403)



PMC5141 (DIGITAL : IC201)



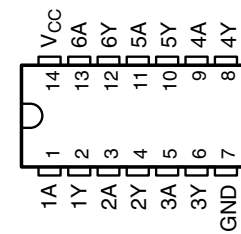
PMC9211 (DIGITAL : IC102)



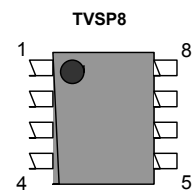
Pin Functions

PIN		I/O	5-V TOLERANT	DESCRIPTION
NO.	NAME			
1	ERROR/INT0	O	No	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	No	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Yes	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Yes	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Yes	Multipurpose I/O, Group A(1)
6	MPIO_A3	I/O	Yes	Multipurpose I/O, Group A(1)
7	MPIO_C0	I/O	Yes	Multipurpose I/O, Group C(1)
8	MPIO_C1	I/O	Yes	Multipurpose I/O, Group C(1)
9	MPIO_C2	I/O	Yes	Multipurpose I/O, Group C(1)
10	MPIO_C3	I/O	Yes	Multipurpose I/O, Group C(1)
11	MPIO_B0	I/O	Yes	Multipurpose I/O, Group B (1)
12	MPIO_B1	I/O	Yes	Multipurpose I/O, Group B (1)
13	MPIO_B2	I/O	Yes	Multipurpose I/O, Group B (1)
14	MPIO_B3	I/O	Yes	Multipurpose I/O, Group B (1)
15	MPO0	O	No	Multipurpose output 0
16	MPO1	O	No	Multipurpose output 1
17	DOUT	O	No	Main output port, serial digital audio data output
18	LRCK	O	No	Main output port, LR clock output
19	BCK	O	No	Main output port, Bit clock output
20	SCKO	O	No	Main output port, System clock output
21	DGND	-	-	Ground, for digital

SN74AHCU04PWR (DIGITAL : IC101)



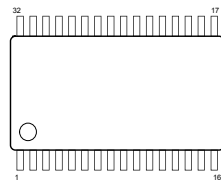
NJU7181 (MAIN : IC502)



Pin Function

PIN		DESCRIPTION
NO.	NAME	
1	IN	AC signal input terminal
2	AMP_OUT	Amplifier output terminal
3	TRIN	External trigger input terminal
4	GND	Ground terminal
5	CAP_D	Capacitor connection terminal for delay time setting
6	RES_D	Resistor connection terminal for delay time setting
7	OUT	DC output terminal
8	V	Power supply voltage terminal

NJU72750A (MAIN : IC501)



Pin Function

No.	Symbol	Function	No.	Symbol	Function
1	V+	positive power supply terminal	17	DATA	IC control data input
2	InA1	Ach input1	18	CLOCK	IC control clock input
3	InB1	Bch input1	19	NC	-
4	InA2	Ach input2	20	NC	-
5	InB2	Bch input2	21	OutB3	Bch output3
6	InA3	Ach input3	22	OutA3	Ach output3
7	InB3	Bch input3	23	REF_B	Bch reference potential terminal
8	InA4	Ach input4	24	OutB2	Bch output2
9	InB4	Bch input4	25	OutA2	Ach output2
10	InA5	Ach input5	26	REF_A	Ach reference potential terminal
11	InB5	Bch input5	27	OutB1	Bch output1
12	InA6	Ach input6	28	OutA1	Ach output1
13	InB6	Bch input6	29	NC	-
14	InA7	Ach input7	30	ADR0	Address selection pin 0
15	InB7	Bch input7	31	ADR1	Address selection pin 1
16	REF	Reference potential terminal for BIAS	32	V-	negative power supply terminal

3. Remote Code Table

PMA-800NE Kaseikyo code

Maker Code (C ₀ C ₁)
DENON (3254H)

Byte 1	Byte 2
00101010	01001100

Internal Use Only

Key No	Name	Genre 1(D ₀)	Genre 2(D ₁)	DATA Code (D ₂)	Parity (D _P)
KEY 1	AMP POWER	AMP/TUNER (7H)	PRE-MAIN (1H)	POWER ON/OFF (010H)	70H
KEY 2	CD	AMP/TUNER (7H)	PRE-MAIN (1H)	CD (002H)	51H
KEY 3	RECORDER	AMP/TUNER (7H)	PRE-MAIN (1H)	TAPE1 (019H)	E0H
KEY 4	NETWORK	AMP/TUNER (7H)	PRE-MAIN (1H)	NETWORK (007H)	01H
KEY 5	OPTICAL 1	AMP/TUNER (7H)	PRE-MAIN (1H)	OPTICAL-1 (014H)	30H
KEY 6	OPTICAL 2	AMP/TUNER (7H)	PRE-MAIN (1H)	OPTICAL-2 (015H)	20H
KEY 7	OPTICAL 3	AMP/TUNER (7H)	PRE-MAIN (1H)	OPTICAL-3 (074H)	36H
KEY 8	PHONO	AMP/TUNER (7H)	PRE-MAIN (1H)	PHONO (001H)	61H
KEY 9	AUX	AMP/TUNER (7H)	PRE-MAIN (1H)	AUX1/DVD (004H)	31H
KEY 10	COAXIAL	AMP/TUNER (7H)	PRE-MAIN (1H)	COAXIAL-1 (016H)	10H
KEY 11	MUTE	AMP/TUNER (7H)	PRE-MAIN (1H)	MUTING (00BH)	C1H
KEY 12	VOLUME ▲	AMP/TUNER (7H)	PRE-MAIN (1H)	VOLUME UP (00DH)	A1H
KEY 13	VOLUME ▼	AMP/TUNER (7H)	PRE-MAIN (1H)	VOLUME DOWN (00CH)	B1H

Byte 3	Byte 4	Byte 5	Byte 6
00001110	10000000	10000000	00001110
00001110	10000100	00000000	10001010
00001110	10001001	10000000	00000111
00001110	10001110	00000000	10000000
00001110	10000010	10000000	00001100
00001110	10001010	10000000	00000100
00001110	10000010	11100000	01101100
00001110	10001000	00000000	10000110
00001110	10000010	00000000	10001100
00001110	10000110	10000000	00001000
00001110	10001101	00000000	10000011
00001110	10001011	00000000	10000101
00001110	10000011	00000000	10001101

new

Extended Code

No.	Name	Genre 1(D ₀)	Genre 2(D ₁)	DATA Code (D ₂)	Parity (D _P)
EX 1	POWER ON	AMP/TUNER (7H)	PRE-MAIN (1H)	POWER ON (05EH)	94H
EX 2	POWER OFF	AMP/TUNER (7H)	PRE-MAIN (1H)	POWER OFF (05FH)	84H
EX 3	INPUT SELECT ▲	AMP/TUNER (7H)	PRE-MAIN (1H)	INPUT FUNCTION UP (00FH)	81H
EX 4	INPUT SELECT ▼	AMP/TUNER (7H)	PRE-MAIN (1H)	INPUT FUNCTION DOWN (00EH)	91H
EX 5	MUTE ON	AMP/TUNER (7H)	PRE-MAIN (1H)	MUTING ON (02CH)	B3H
EX 6	MUTE OFF	AMP/TUNER (7H)	PRE-MAIN (1H)	MUTING OFF (02DH)	A3H
EX 7	OPTICAL toggle	AMP/TUNER (7H)	PRE-MAIN (1H)	OPTICAL toggle (071H)	66H
EX 8	COAXIAL toggle	AMP/TUNER (7H)	PRE-MAIN (1H)	COAXIAL toggle (072H)	56H
EX 9	DIGITAL IN toggle	AMP/TUNER (7H)	PRE-MAIN (1H)	DIGITALIN toggle (073H)	46H
EX 10	ANALOG MODE	AMP/TUNER (7H)	PRE-MAIN (1H)	ANALOG MODE (033H)	42H
EX 11	SOURCE DIRECT	AMP/TUNER (7H)	PRE-MAIN (1H)	SOURCE DIRECT (011H)	60H

Byte 3	Byte 4	Byte 5	Byte 6
00001110	10000111	10100000	00101001
00001110	10001111	10100000	00100001
00001110	10001111	00000000	10000001
00001110	10000111	00000000	10001001
00001110	10000011	01000000	11001101
00001110	10001011	01000000	11000101
00001110	10001000	11100000	01100110
00001110	10000100	11100000	01101010
00001110	10001100	11100000	01100010
00001110	10001100	11000000	01000010
00001110	10001000	10000000	00000110

PMA-800NE must receive following codes.

These codes are not included in the RC-1223

PMA-800NE Sharp code

Internal Use Only

Extended Code

Key No.	Name	台帳登録名称	分類	システム・アドレス					データ						拡張		マスク判定	
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
SH 1	⏻ AMP POWER	POWER ON/OFF	pre-main	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0
SH 2	CD	CD	pre-main	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0
SH 3	RECORDER	TAPE1/DAT	pre-main	0	1	0	0	0	1	0	0	1	1	0	0	1	0	0
SH 4	PHONO	PHONO	pre-main	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0
SH 5	AUX	AUX1/DVD	pre-main	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0
SH 6	MUTE	MUTING	pre-main	0	1	0	0	0	1	1	0	1	0	0	0	1	0	0
SH 7	VOLUME ▲	VOLUME UP	pre-main	0	1	0	0	0	1	0	1	1	0	0	0	1	0	0
SH 8	VOLUME ▼	VOLUME DOWN	pre-main	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0
SH 9	INPUT SELECT ▲	INPUT FUNCTION UP	pre-main	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0
SH 10	INPUT SELECT ▼	INPUT FUNCTION DOWN	pre-main	0	1	0	0	0	0	1	1	1	0	0	0	1	0	0
SH 11	SOURCE DIRECT	SOURCE DIRECT	pre-main	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0
-	NETWORK																	
-	OPTICAL 1																	
-	OPTICAL 2																	
-	OPTICAL 3																	
-	COAXIAL																	
-	POWER ON																	
-	POWER OFF																	
-	MUTE ON																	
-	MUTE OFF																	
-	OPTICAL toggle																	
-	COAXIAL toggle																	
-	DIGITAL IN toggle																	
-	ANALOG MODE																	

PMA-800NE must receive following codes.

These codes are not included in the RC-1223

DISASSEMBLY

Flowchart

1. FRONT PANEL ASSY

2. DIGITAL ASSY

3. STANDBY PCB

4. POWER TRANS

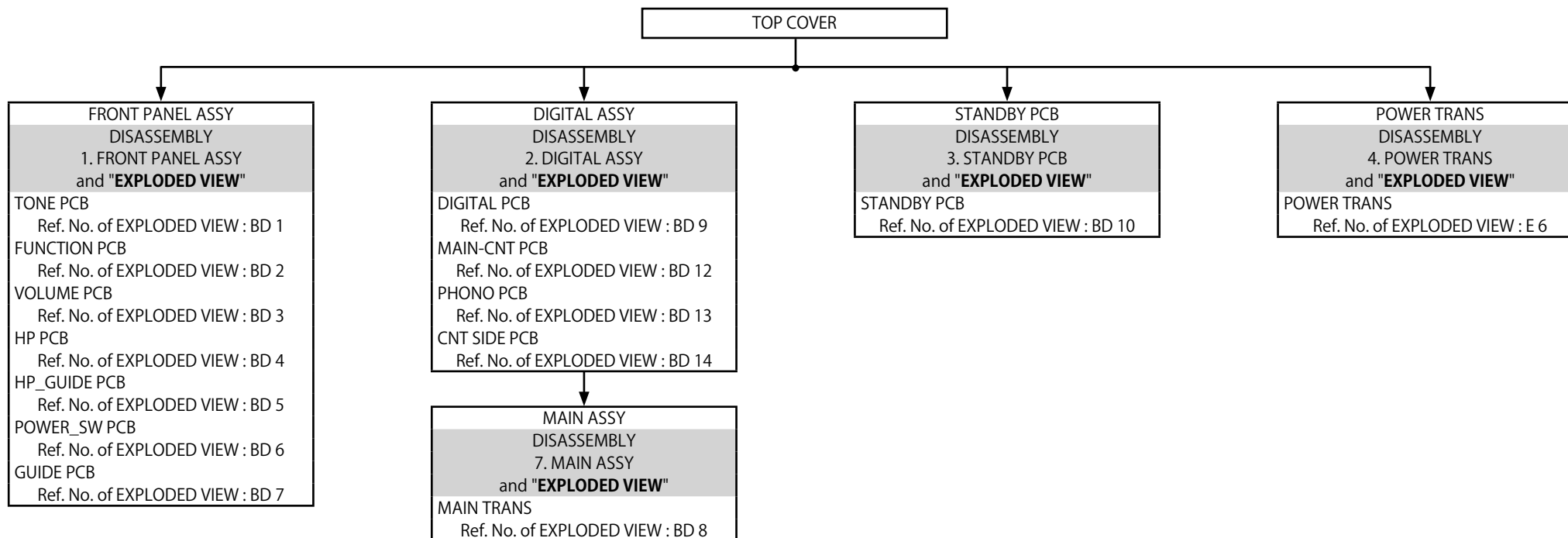
5. MAIN ASSY

EXPLODED VIEW

PACKAGING VIEW

Flowchart

- Remove each part following the flow below.
- Reassemble the removed parts in the reverse order.
- Read "[SAFETY PRECAUTIONS](#)" before reassembling the removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.
- See "[EXPLODED VIEW](#)"

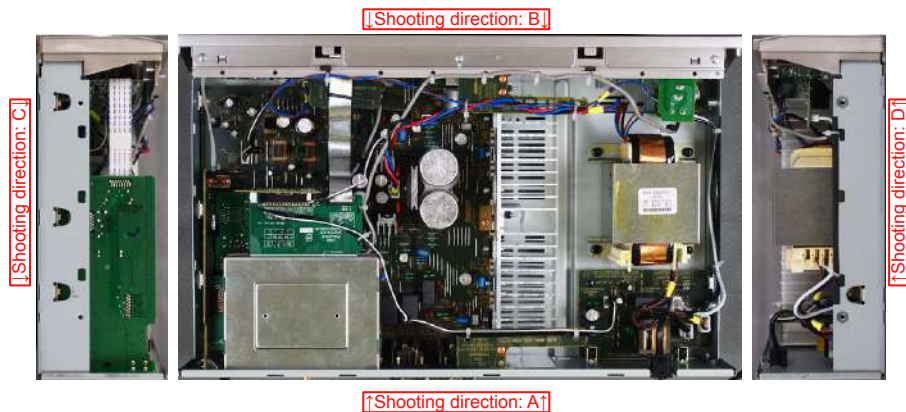


Explanatory Photos for DISASSEMBLY

- For the shooting direction of each photos used in this manual, see the photo below.
- **A, B, C and D** in the photo below indicate the shooting directions of photos.
- The photographs with no shooting direction indicated were taken from the top of the unit.
- Photos of PMA-800NE E1C are used in this manual.

The viewpoint of each photograph

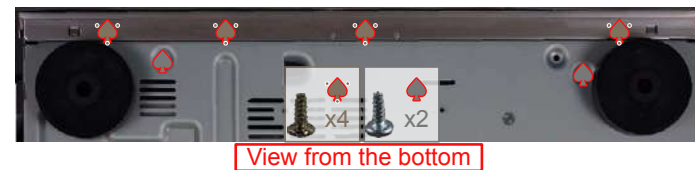
(Shooting direction : X) [View from the top]



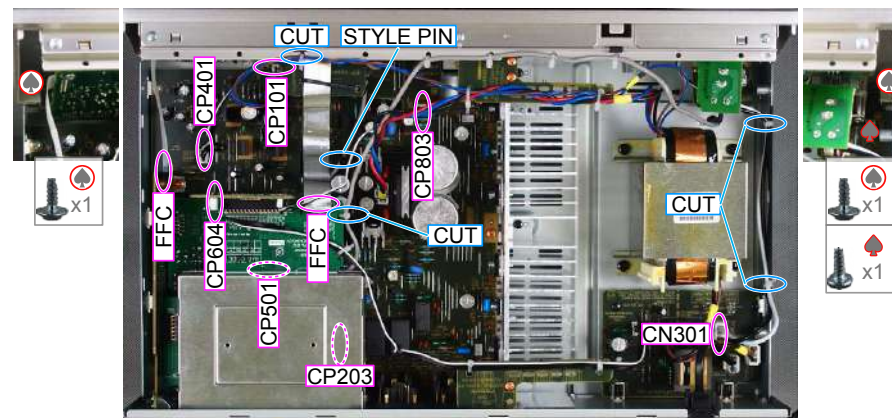
1. FRONT PANEL ASSY

Proceeding : **TOP COVER** → **FRONT PANEL ASSY**

- (1) Remove the screws.



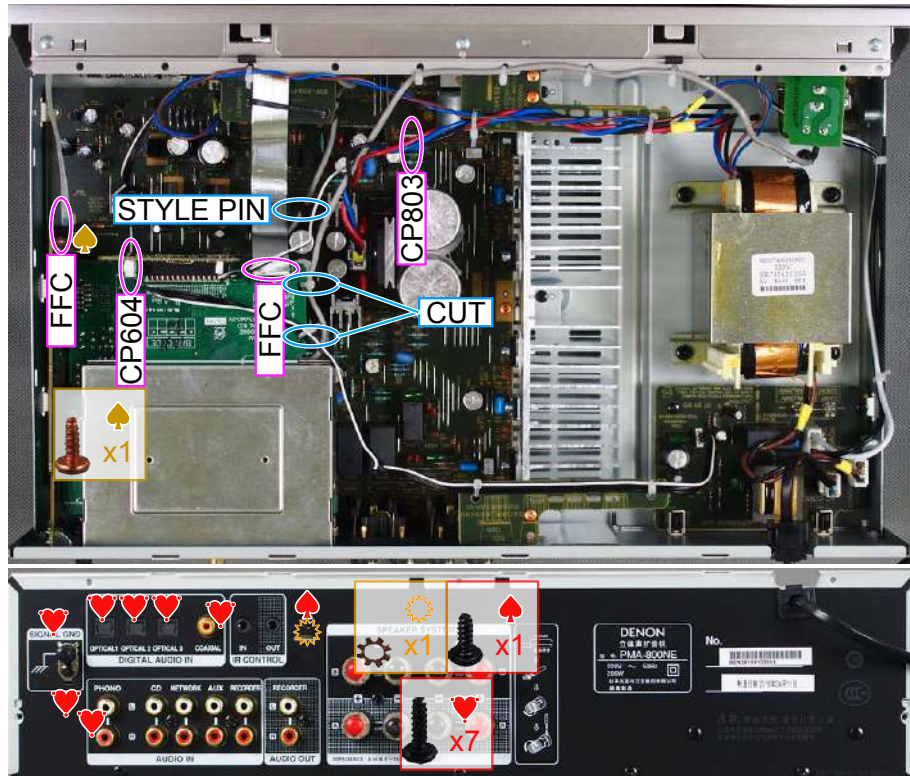
- (1) Remove the screws. Cut the wire clamp, then remove the connector. Remove the STYLE PIN.



2. DIGITAL ASSY

Proceeding : **TOP COVER** → **DIGITAL ASSY**

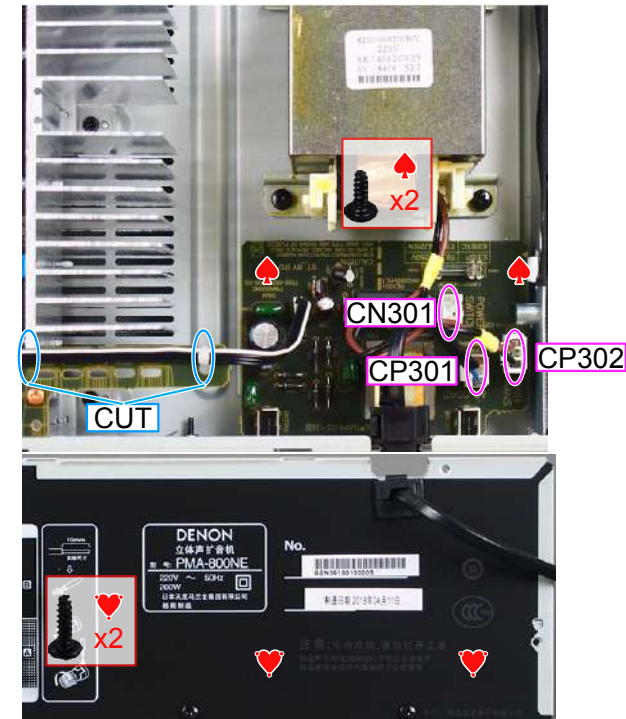
(1) Remove the screws. Cut the wire clamp, then remove the connector. Remove the STYLE PIN.



3. STANDBY PCB

Proceeding : **TOP COVER** → **STANDBY PCB**

(1) Remove the screws. Cut the wire clamp, then remove the connector.



4. POWER TRANS

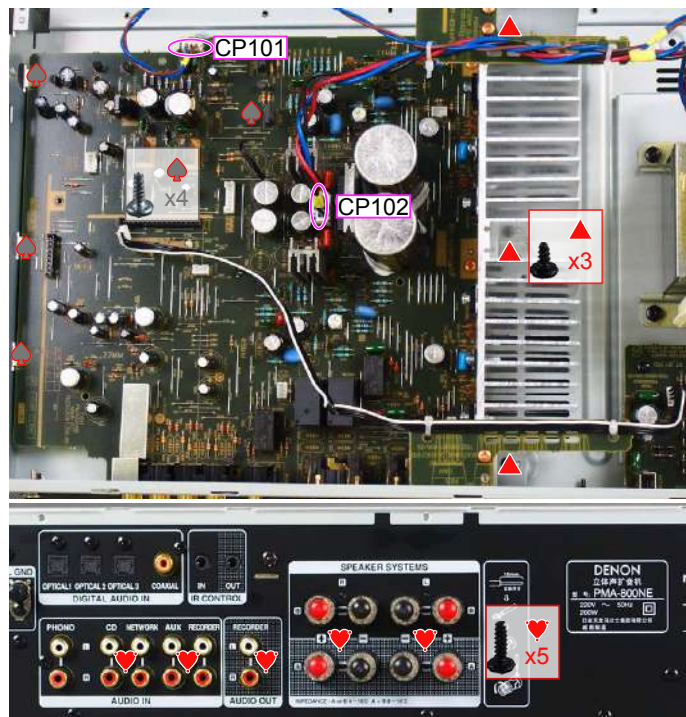
Proceeding : **TOP COVER** → **POWER TRANS**

See "EXPLODED VIEW" for instructions on removing the transformer (TRANS).

5. MAIN ASSY

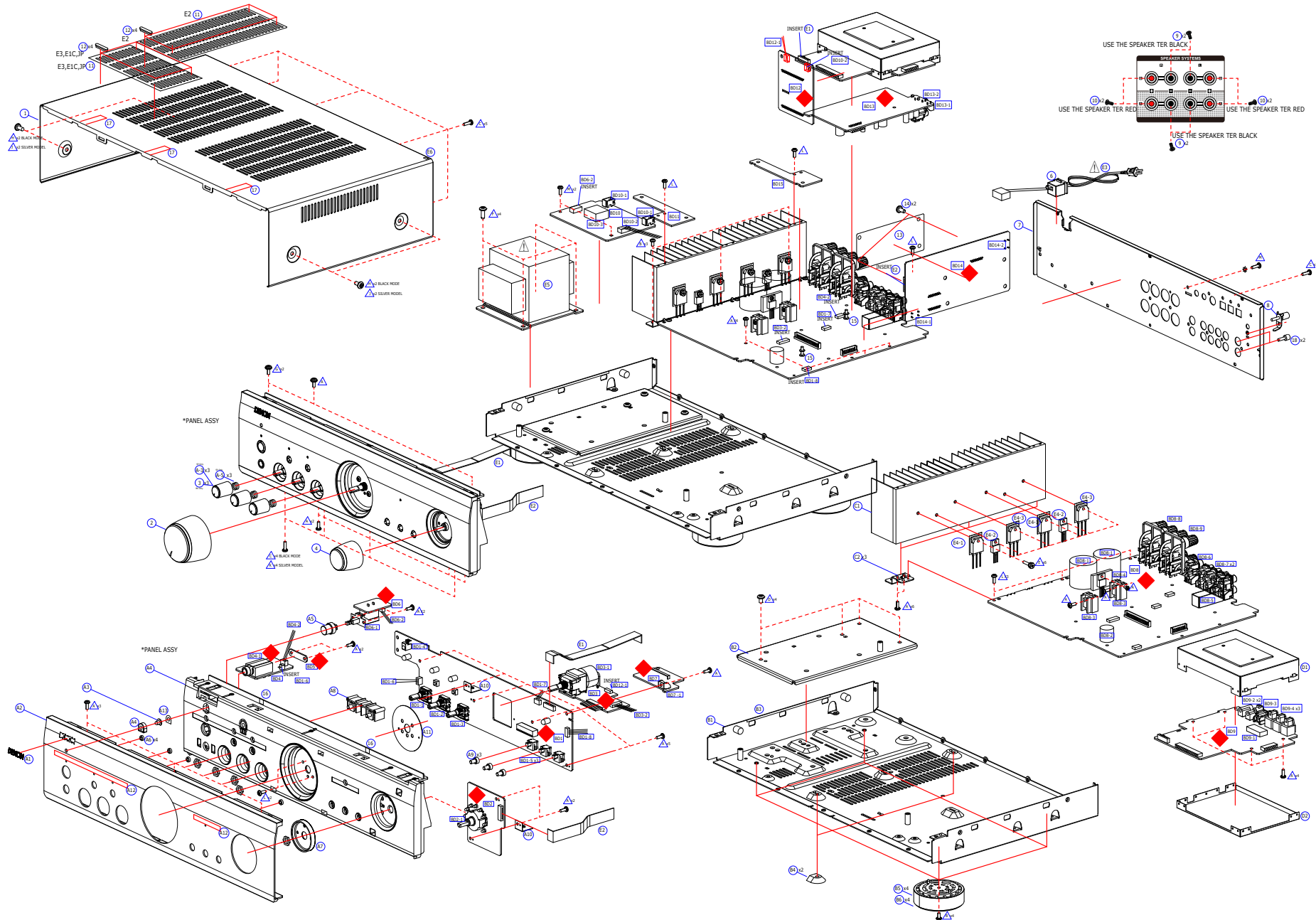
Proceeding : **TOP COVER** → **FRONT PANEL ASSY** → **DIGITAL ASSY** → **MAIN ASSY**

(1) Remove the screws. Remove the connector.



EXPLODED VIEW

Parts List : <http://dmedia.dmglobal.com/Document/DocumentDetails/24547>



WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

Parts List : <http://dmedia.dmglobal.com/Document/DocumentDetails/24547>



Mechanical

Updating

TROUBLE SHOOTING

1. The power cannot be turned on
(POWER LED is not lit(STANDBY MODE))
2. The power cannot be turned on
(POWER LED is slow→light flashes)
3. STANDBY LED flashes while using the unit (Protection circuit becomes activated)
4. The power turns on but no sound is output (both channels)
6. There is no sound from Optical 1, 2, 3, and Coax input.

SPECIAL MODE

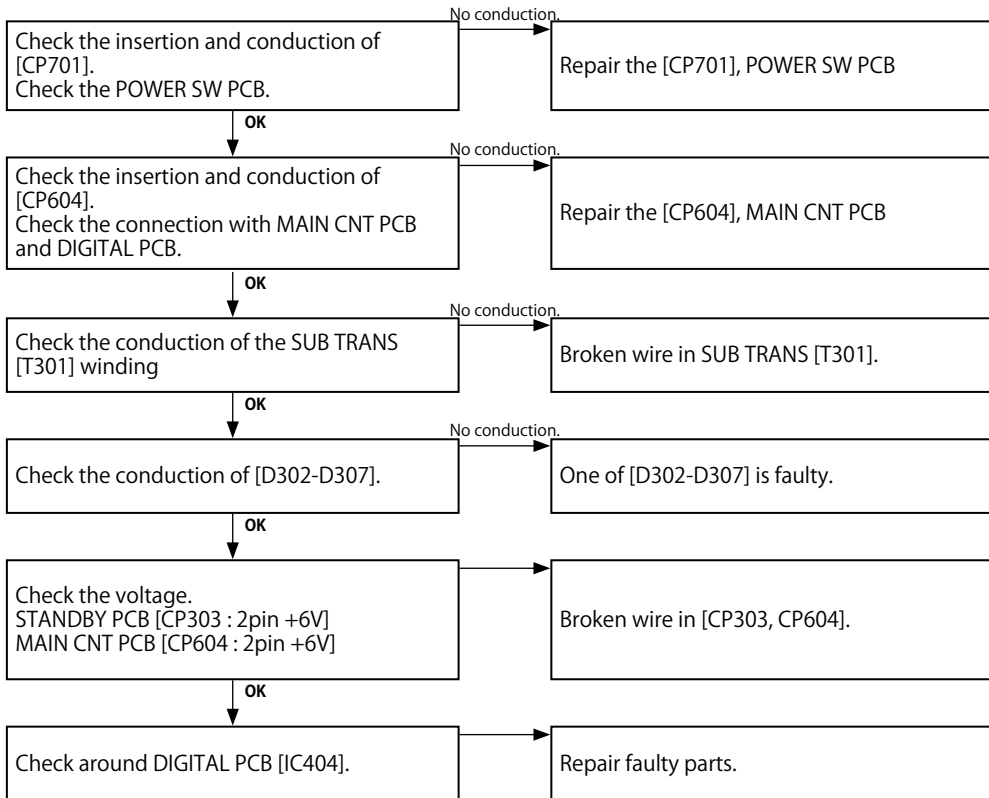
Special mode setting button

1. Service mode

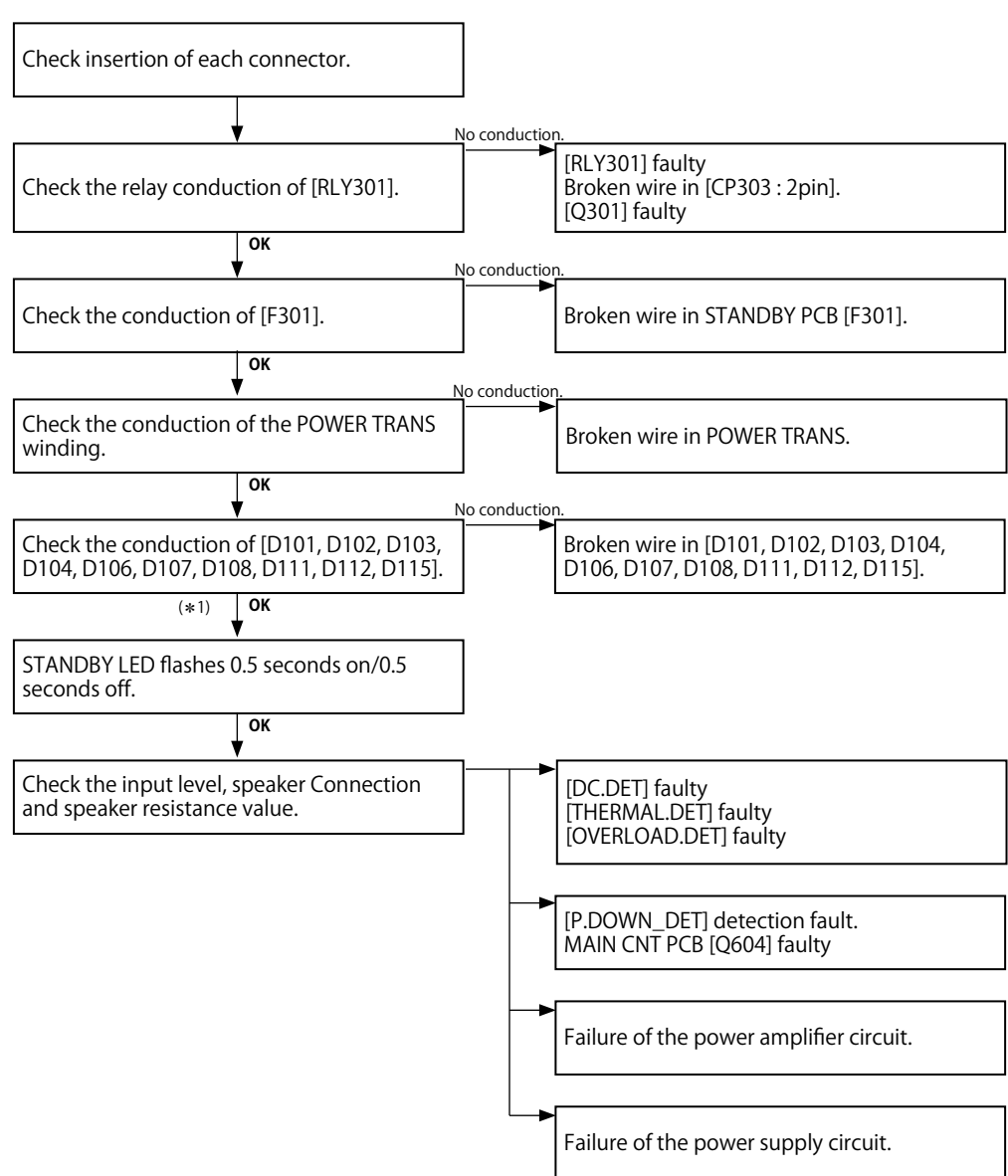
ADJUSTMENT

TROUBLE SHOOTING

1. The power cannot be turned on (POWER LED is not lit(STANDBY MODE))



2. The power cannot be turned on (POWER LED is slow → light flashes)



Before Servicing
This Unit

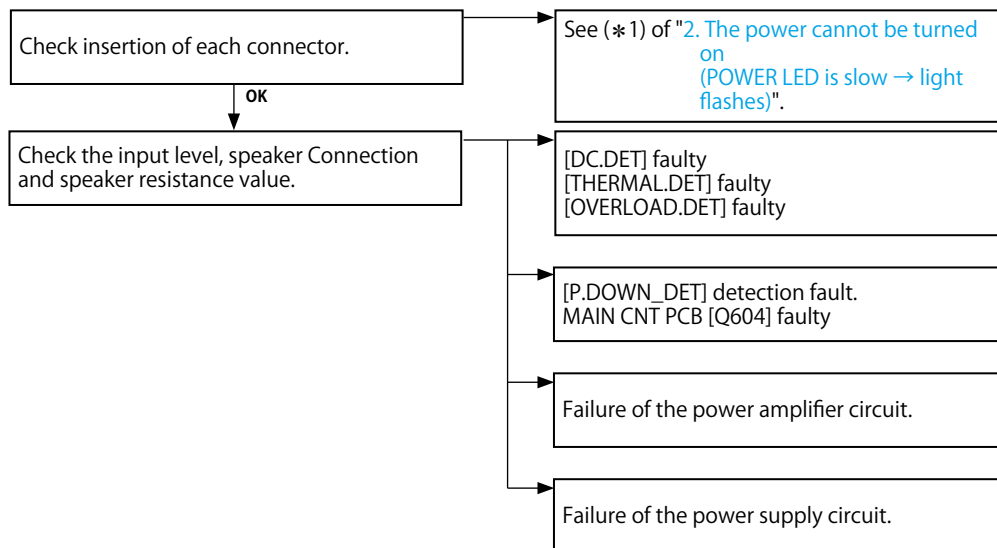
Electrical

Mechanical

Repair Information

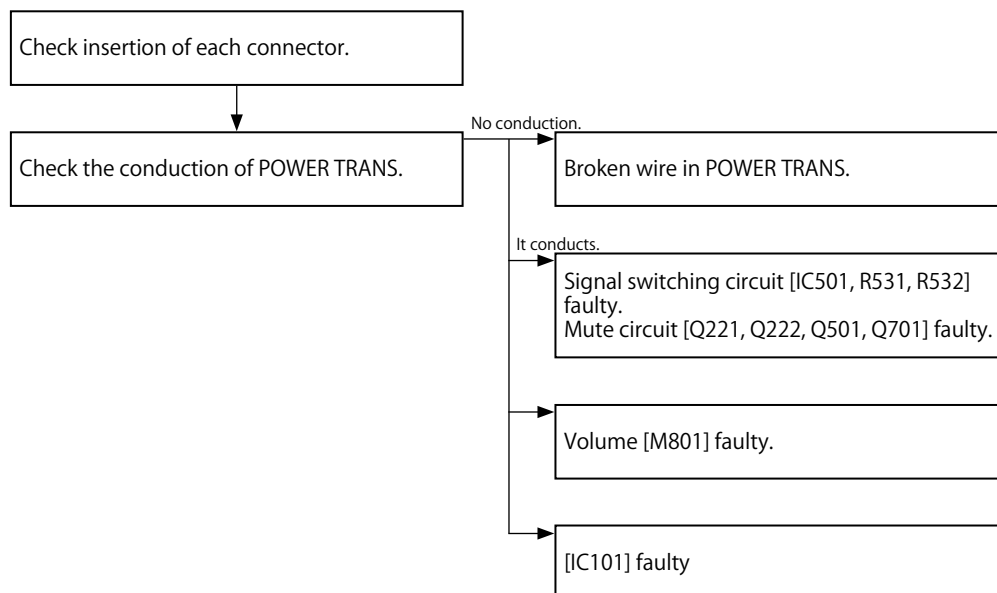
Updating

3. STANDBY LED flashes while using the unit (Protection circuit becomes activated)

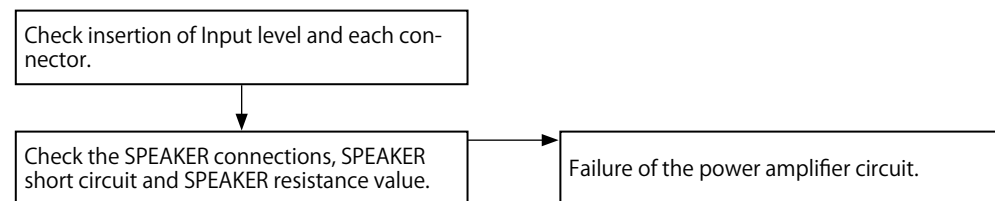


4. The power turns on but no sound is output (both channels)

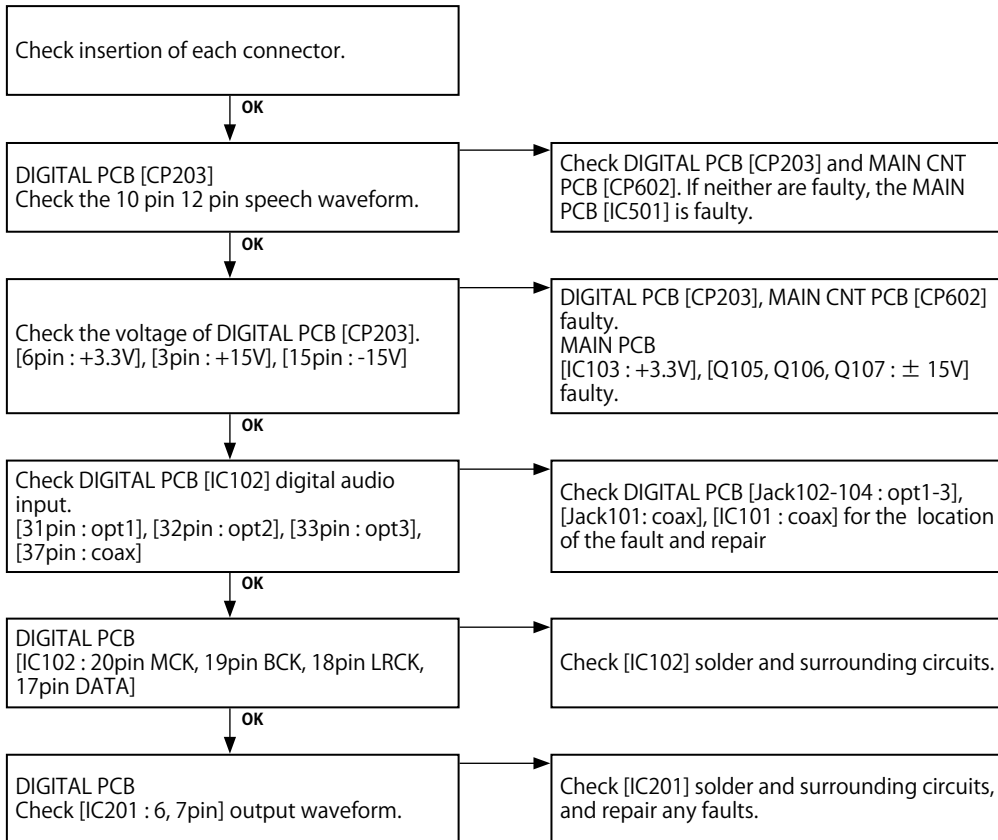
4.1 STANDBY LED not flashing (no protection operation)



4.2 POWER LED flashes when the volume is increased (protection circuit operates)



6. There is no sound from Optical 1, 2, 3, and Coax input.



SPECIAL MODE

Special mode setting button

※ No. 1, 2 : While holding down the "A" button, press the power button to turn on the power.

No.	Mode	Button A	Descriptions
1	Service mode	SOURCE DIRECT	The firmware version is display. Displays the most recently detected protection. (See 1. Service mode)
2	Initialization Mode	ANALOG MODE	All LEDs light once the unit is initialized. (See Initializing this Unit)

1. Service mode

1.1. Actions

The firmware version is display.
Displays the most recently detected protection.

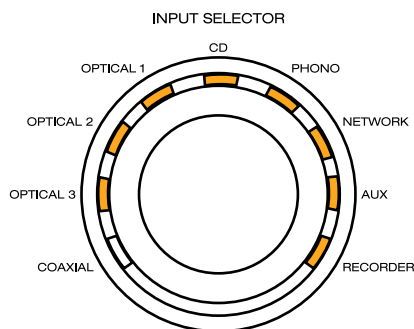
1.2. Starting up

(1) While holding down the "SOURCE DIRECT" button, press the power button to turn on the power.

(2) FIRMWARE version is displayed by INPUT LED. (Only displayed for 5 seconds)

※ Section where LED is lit indicates the version.

LED	COAXIAL	OPTICAL 3	OPTICAL 2	OPTICAL 1	CD	PHONO	NETWORK	AUX	RECORDER
Version	Non	128	64	32	16	8	4	2	1



Case of E2 : DIGITAL IN LED is lit.

Case of JP : DIGITAL IN LED is turns off.

Example display

Light up RECORDER [1], Version : 1

Light up RECORDER [1] and NETWORK [4], Version : 5

Light up RECORDER [1] and TUNER [8], Version : 9

Light up RECORDER [1] and NETWORK [32], Version : 37

(3) Front panel LEDs light in order, after which all are lit.

All LEDs light for one second each, one by one in sequence. (Only one LED lights at a time)
[POWER(Red)] → [POWER(Green)] → [ANALOG MODE] → [SOURCE DIRECT] → [DIGITAL IN]
→ [COAXIAL] → [OPTICAL 3] → [OPTICAL 2] → [OPTICAL 1] → [CD] → [PHONO]
→ [NETWORK] → [AUX] → [RECORDER]

LED	POWER	ANALOG MODE	SOURCE DIRECT	DIGITAL IN	INPUT
Actions	Red → Green	1 second	1 second	1 second	1 second each

(4) Resetting the protection history

(4-1) Check the most recently detected protection with POWER LED.

- No Protect : Lights in green.
- ASO or DC Protect: Blinks red in 0.5s intervals (0.25s on, 0.25s off).
- Thermal Protect : Blinks red in 2s intervals (1s on, 1s off).

LED	POWER	ANALOG MODE	SOURCE DIRECT	DIGITAL IN	INPUT
Actions	Red or Green	Non	Non	Non	Non

(4-2) Protection history display

Press and hold ANALOG MODE for 5 seconds or more while protection history is displayed to clear history.

•After clearing, it returns to the protection history display. (No Protect : Lights in green)

LED	POWER	ANALOG MODE	SOURCE DIRECT	DIGITAL IN	INPUT
Actions	Green	Non	Non	Non	Non

(4-3) Auto Standby test

Checks Auto Standby operations.

- Press and hold the SOURCE DIRECT button for 5 seconds or more while protection history is displayed.
- Automatically enters standby if 1 minute elapses without any operation or signal from the CD input.

The SOURCE DIRECT LED lights up when CD input is detected.

(Light turns off when there is no signal)

Pressing a button or using the remote control will cause operation to be detected and clear the timer without performing that operation.

LED	POWER	ANALOG MODE	SOURCE DIRECT	DIGITAL IN	INPUT
Actions	Green → Non	Non	Non or Lighting up	Non	CD

(5) This mode is canceled when the power is turned off.

ADJUSTMENT

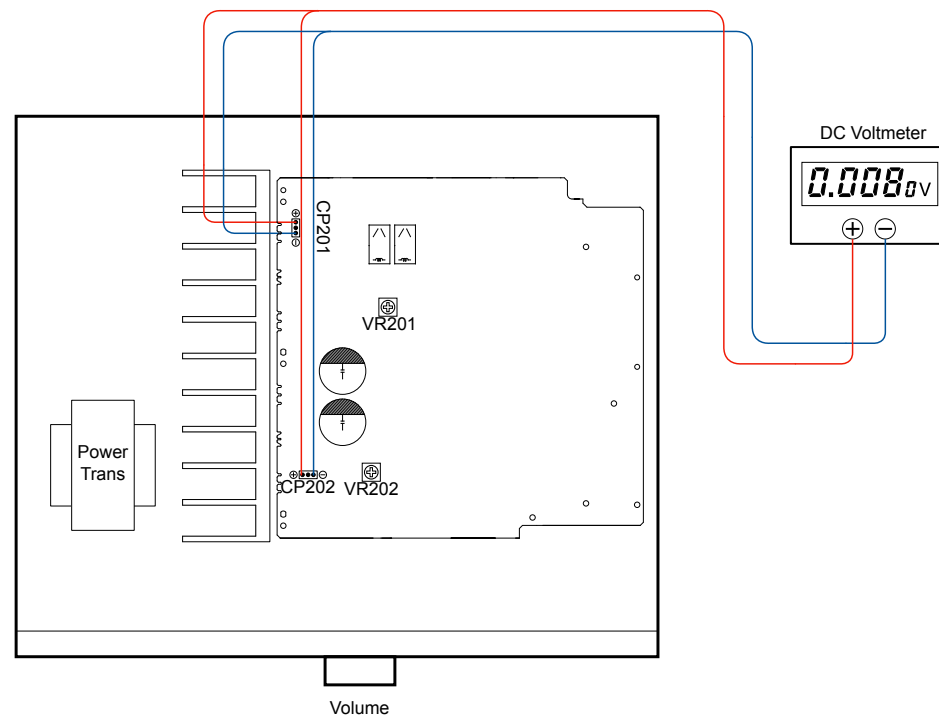
Idling Current Adjustment

1. Preparation

- (1) Prepare a DC voltmeter.
- (2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.
The set requires an ambient temperature of 15°C to 30°C and standard humidity.
- (3) Settings of This Unit
 - POWER (Power source switch) STANDBY
 - SPEAKER (Speaker terminal) No load(Do not connect equipment such as speakers or dummy resistors.)

2. Adjustment Procedure

- (1) Remove the top cover and turn "VR201(VR202)" of the AMP PCB counterclockwise(↺) as far as possible.
- (2) Connect the DC Voltmeter to the test points.
Lch : CP201 +side 1pin, -side 3pin : VR201
Rch : CP202 +side 1pin, -side 3pin : VR202
- (3) Connect the power cord to an outlet. Next, press the power button to turn on the power.
- (4) Set this unit as follows.
MASTER VOLUME : "----" (↺ min.) : turn counterclockwise to the lowest position.
SPEAKER (Speaker terminal) : No load
(Do not connect equipment such as speakers or dummy resistors.)
- (5) Immediately after turning on the power, rotate "VR201(VR202)" clockwise to (↻) and adjust the test voltage to " $10 \pm 1\text{mV}$ ".
- (6) After warming up for 2 minutes, rotate "VR201(VR202)" and adjust the voltage to " $10 \pm 1\text{mV}$ ".
- (7) After warming up for another 10 minutes, rotate "VR201(VR202)" and adjust the voltage to " $10 \pm 0.5\text{mV}$ ".



UPDATING

PROCEDURE AFTER REPLACING THE PCB.

PROCEDURE AFTER REPLACING THE U-COM, ETC.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update
2. Updating via System u-com (IC401)

PROCEDURE AFTER REPLACING THE PCB.

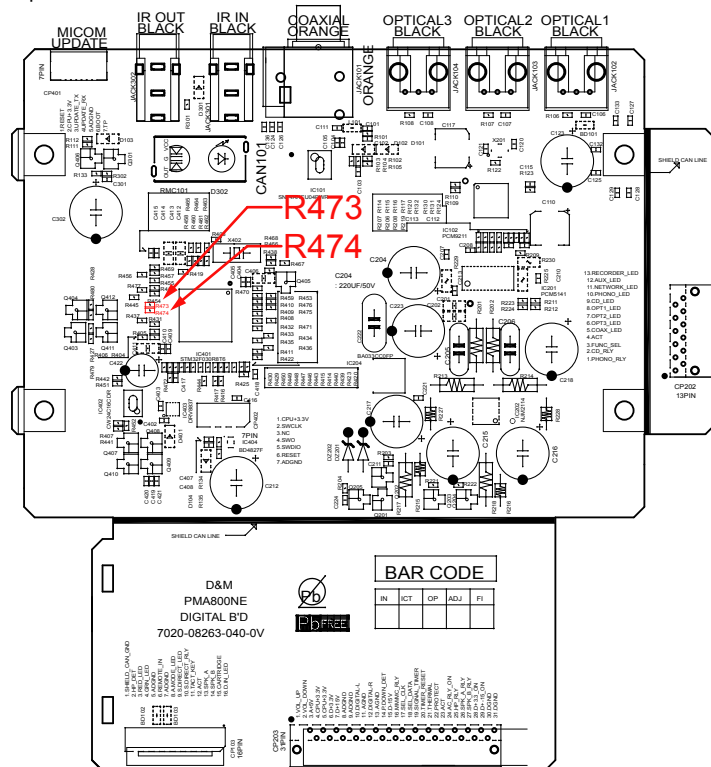
The procedure after replacing the printed circuit boards is as follows.

(1) Change the resistor for setting the region.

Model Area	DIGITAL PCB	
	R473	R474
PMA-800NE (E3)	OPEN	10k
PMA-800NE (E2)	10k	OPEN
PMA-800NE (E1C)	OPEN	10k
PMA-800NE (JP)	OPEN	10k

See the PCB below.

(2) Be sure to replace the software with the latest version.



PROCEDURE AFTER REPLACING THE U-COM, ETC.

The procedure after replacing the u-COM (microprocessor), flash ROM, etc. is as follows.

PCB Name	Ref. No.	Description	Procedure after Re- placement	Remark
DIGITAL	IC401	STM32F03R8T6	C	SOFTWARE : Main

Procedure after Replacement

A : The software has been written. The software is not written at the time of replacement.

B : The software has been written. The software may need to be rewritten by version updates. Check the version.

C : The software has not been written. The software needs to be written after replacement.

See "[FIRMWARE UPDATE PROCEDURE](#)" for information on writing the software.

D : The software has been written. Be sure to replace the software with the latest version.

See "[FIRMWARE UPDATE PROCEDURE](#)" for information on writing the software.

FIRMWARE UPDATE PROCEDURE

1. Items necessary for update

Items necessary for update are as follows.

Update Type	Needed Part for Update	Requirement	Offered / not Offered		
			Standard Service Equipment Not offered by D&M	Purchase from D&M Article code	Download from SDI
System u-com Update	RS-232C cable	9P (Male), Straight	X	-	-
	8U-210100S WRITING KIT	OLD JIG : SPK-581 WRITING KIT	-	8U- 210100S	-
	7P FFC	Straight	-	606050028012P	-

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

2. Updating via System u-com (IC401)

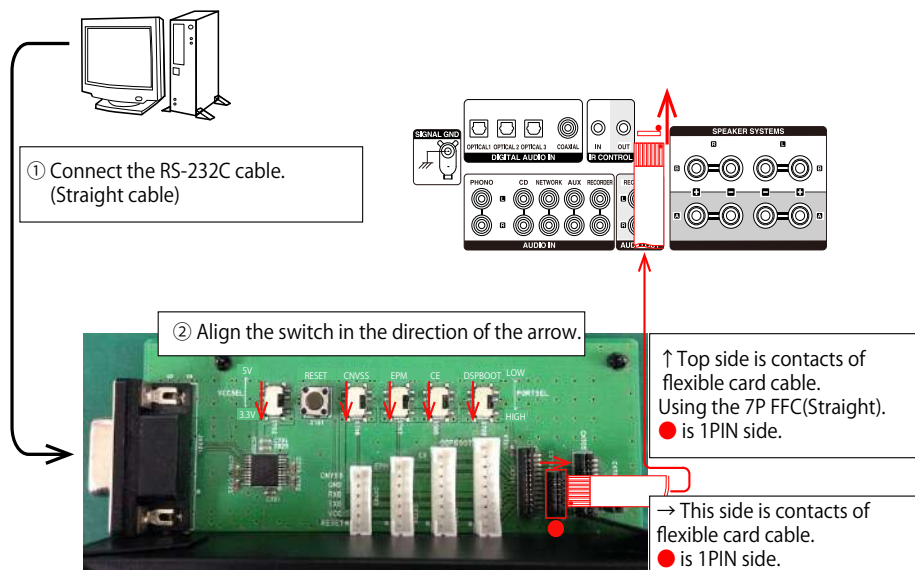
2.1. Items to Be Prepared

- (1) Obtain "**flash_loader_demo_vX.X.X.exe**" from SDI.
- (2) Personal Computer (Be installed "**flash_loader_demo_vX.X.X.exe**").
- (3) RS-232C cable (9P (Male), Straight).
- (4) 8U-210100S : WRITING KIT (OLD JIG : SPK-581 WRITING KIT)
606050028012P : 7P FFC (Straight)

2.2. Connecting the WRITING KIT to This Unit

- (1) Check that the power of this unit is off.
- (2) Connect the RS-232C cable to the computer and WRITING KIT.
- (3) Connect the update terminal of this unit to the WRITING KIT.
- (4) Set the WRITING KIT switch.

VCCSEL	CNVSS	EPM	CE	DSPBOOT
3.3	H	H	H	H



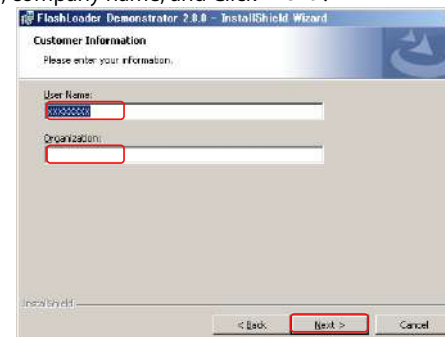
2.3. Installing the Software

Install the writing software "**flash_loader_demo_vX.X.X.exe**" on your computer.

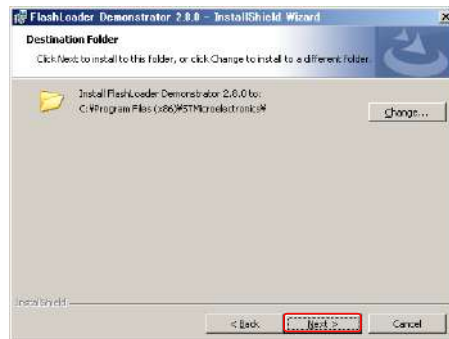
- (1) Run the "**flash_loader_demo_vX.X.X.exe**"
- (2) Click "**Next >**".



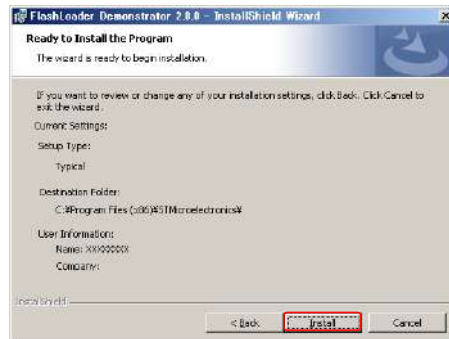
- (3) Enter the user name, company name, and Click "**Next**".



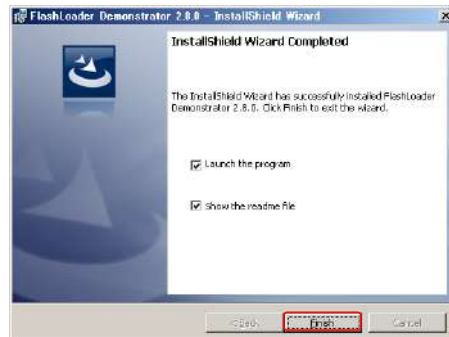
(4) Click **"Next >"**.



(5) Click **"Next >"**.



(6) Click **"Finish"**.

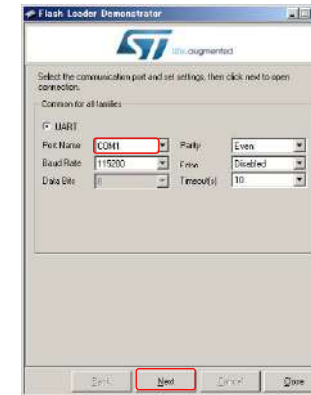


2.4. Run the Flash Loader Demo

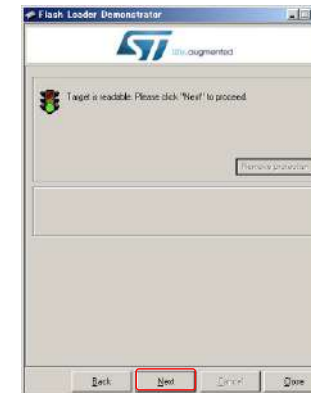
Run the "flash_loader_demo_vX.X.X.exe" on desktop of PC.

(1) Click **"Flash Loader Demo"**.

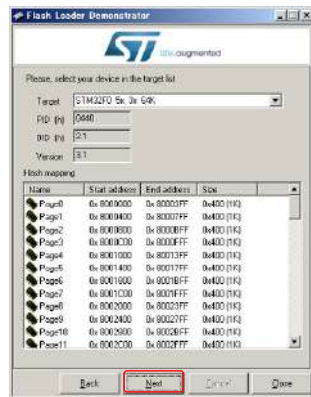
(2) Select the RS-232C serial port number on your computer.
Insert the AC plug of this unit into the power supply.
(At this time, the Display of the unit is not lit.)
Click **"Next"**.



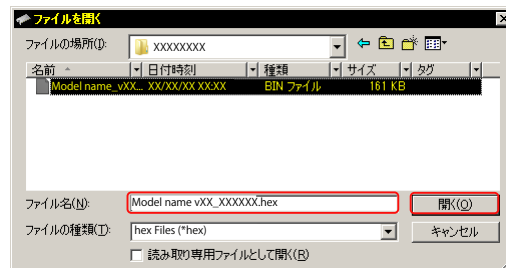
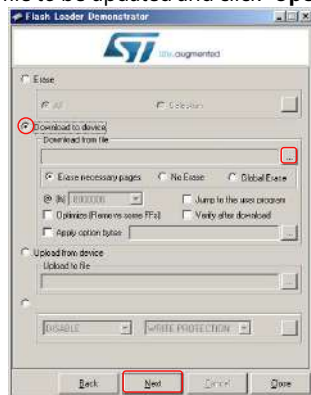
(3) Click **"Next >"**.



(4) Click **"Next >"**.



(5) "Check the **"Download to device"** and click button of **"Download from file"**.
Select the file to be updated and click **"Open (O)"**."



(6) Click **"Next >"**.



(7) The file is downloaded and written.



(8) The following display appears when the firmware update is complete.
Click **"Close"**.



(9) Remove the AC plug of this unit from the socket.
Remove the 7P FFC form the unit.

(10) After updating the firmware, check the version.
See ["1. Service mode"](#)

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