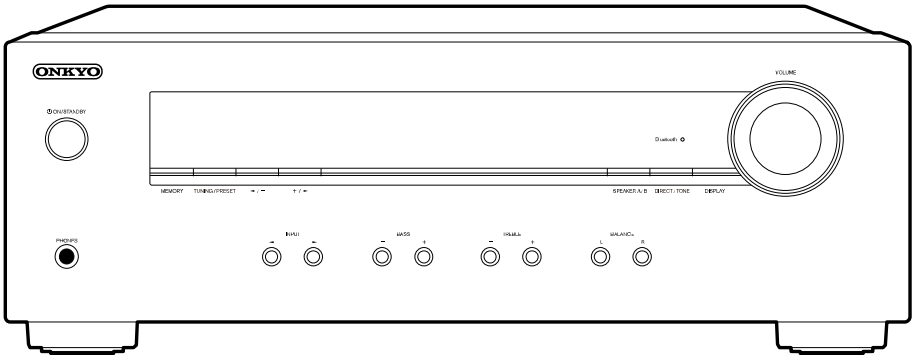


Stereo Receiver

Service Manual

TX-8220

Final Issue



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

Model	Color	Type	Power Requirement	Remarks
TX-8220	(B) - Black	MMP	AC 220 V to 240 V	Europe
TX-8220	(S) - Silver	MMP	AC 220 V to 240 V	Europe
TX-8220	(B) - Black	MDC	AC 120 V	Canada/USA/(Mexico)



1. Safety-related component warning!!

Components identified by mark \triangle on the schematic diagram and by mark “!” in the parts list are critical for risk of fire and electrical shock. Replace these components with ONKYO parts whose part numbers appear as shown in this manual.

2. Safety check after servicing

- (1) To ensure safety, check that the covered insulating sheet or tube are removed, all parts and wires which are removed or disconnected while servicing have been put back to their original positions after servicing.
- (2) To insure structural integrity, check that all the screws or mechanical parts have been put back in their original positions after servicing.
- (3) Check that in the process of servicing or replacing parts that the surrounding area has not been contaminated or adversely affected.
- (4) After servicing an insulation check on the external metal connectors and between the blades of the power plug must be performed.

Method of checking insulation resistance

Unplug the power cord and short the both ends of the plug with a jumper wire.
Using a 500V insulation resistance tester, check that the insulation resistance value between the plug of the power cord and externally exposed metal parts is 1MΩ or greater.
※The mechanical power switch should be turned on if it is available.

3. Caution on replacing the battery

Danger of explosion if rechargeable batteries is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. When disposing of used batteries, please comply with governmental regulations or environmental public institution’s rules that apply in your country / area.

4. Other Cautions

- When AC plug is non-polarized and if Main or Primary fuse enters in the Neutral line of AC Mains supply or if there is possibility of Main or Primary Fuse entering in the Neutral line of AC Mains supply, then AC Mains supply must be disconnected to de-energize the circuit.
- Be sure to use only lead free solder.
- When soldering, please be careful not to use too much solder and affect adjacent components.

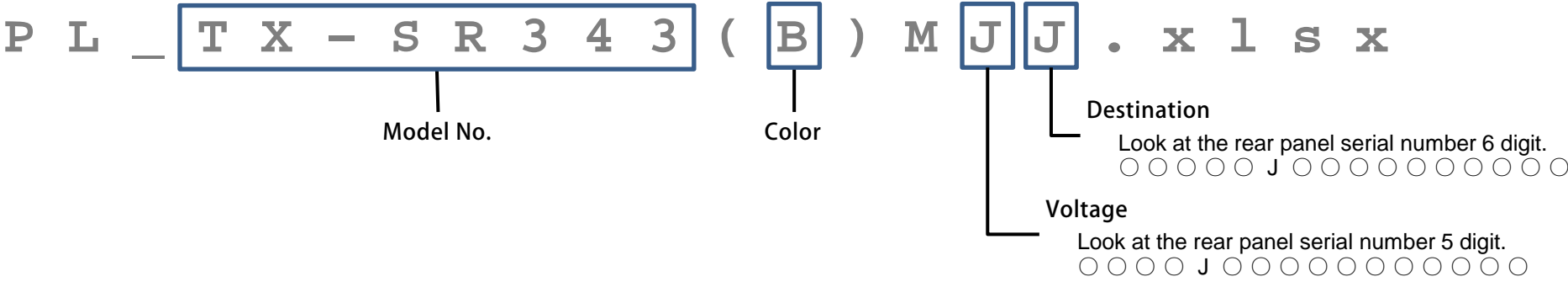


This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly 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.

File Name of Parts List File (EXCEL File)

Note for Parts List

When parts list is EXCEL file, please refer to the following explanation about file name.



Color			
(X)	Not related to color		
(B)	Black	(M)	Wood
(BR)	Brown	(O)	Orange
(C)	Cherry	(P)	Pink
(G)	Gold	(R)	Red
(GR)	Green	(S)	Silver
(H)	Gray	(V)	Violet
(K)	Black	(W)	White
(L)	Blue	(Y)	Yellow
(LB)	Light Blue		

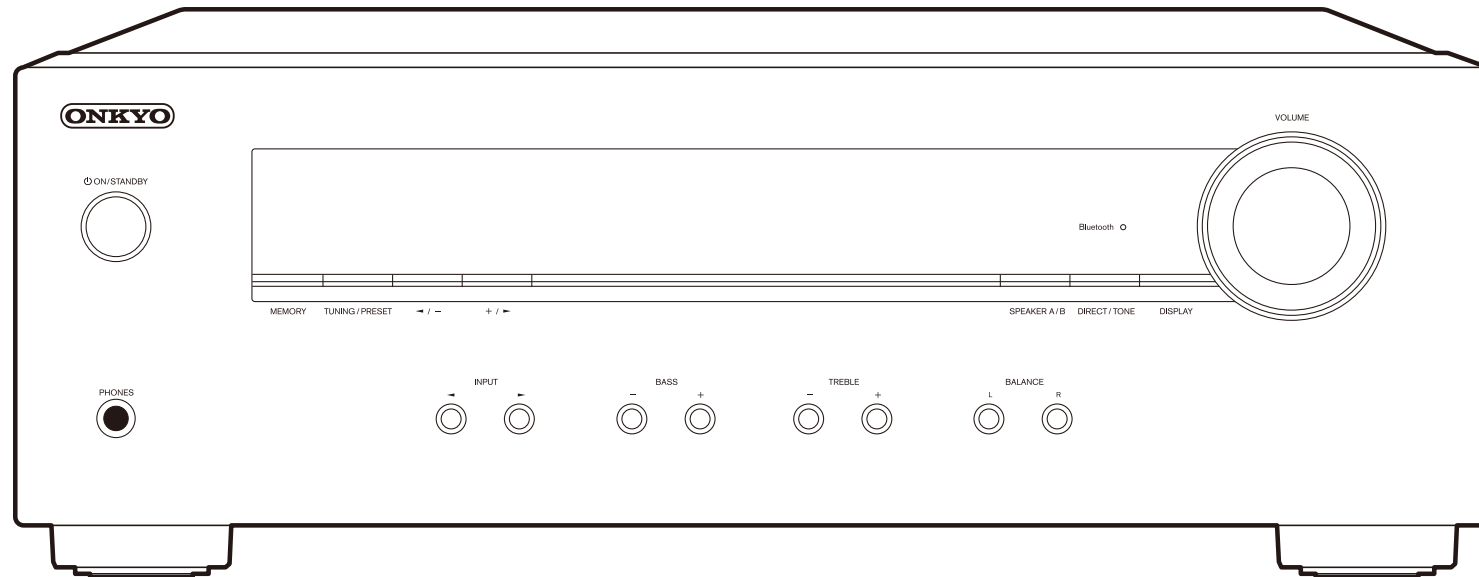
Voltage	
D	120V AC
G	220~230V
H	220~230／240V
J	100V AC
M	220~240V AC
P	230V AC
U	100~240V AC
V	110~240V
W	120V／220~240V
Z	※1
Speaker System (without AMP.) :	
0	Passive Subwoofer
F	Front Speaker
C	Center Speaker
R	Rear Speaker
B	Back Speaker

Destination	
A	Australia
B	United Kingdom
C	North American
D	USA
F	Taiwan
J	Japan
K	Korea
L	Russia
P	Europe
Q	Hong Kong
R	China
S	Brazil
T	Thai
U	Worldwide

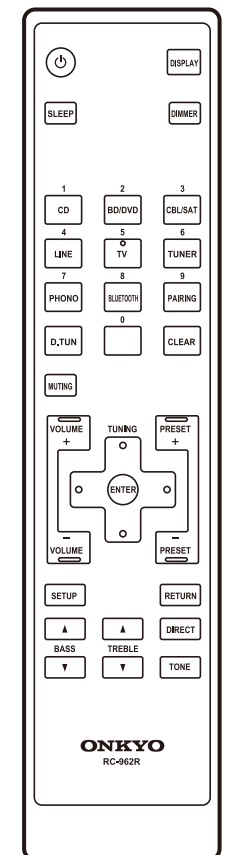
Speaker System (without AMP.) :	
L	Left channel
R	Right channel
0	Center channel

※1 There is a charge function and a power supply (adapter) is needed, but an adapter isn't bundled.

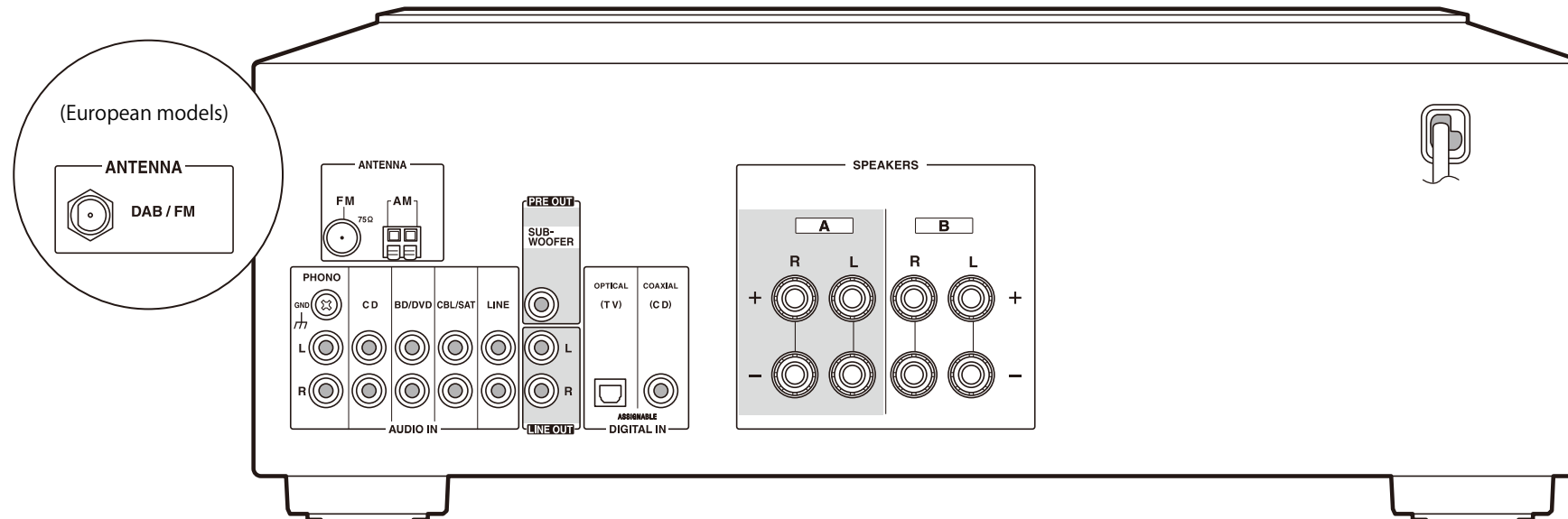
Front Panel



Remote Control Unit RC-962R



Rear Panel



Accessory

1. Remote controller (RC-962R) (1)
2. Batteries (AAA/R03) (2)
3. FM indoor antenna (1)
(North American models)
FM/DAB antenna (1)
(European models)
4. AM indoor antenna (1)
(North American models)

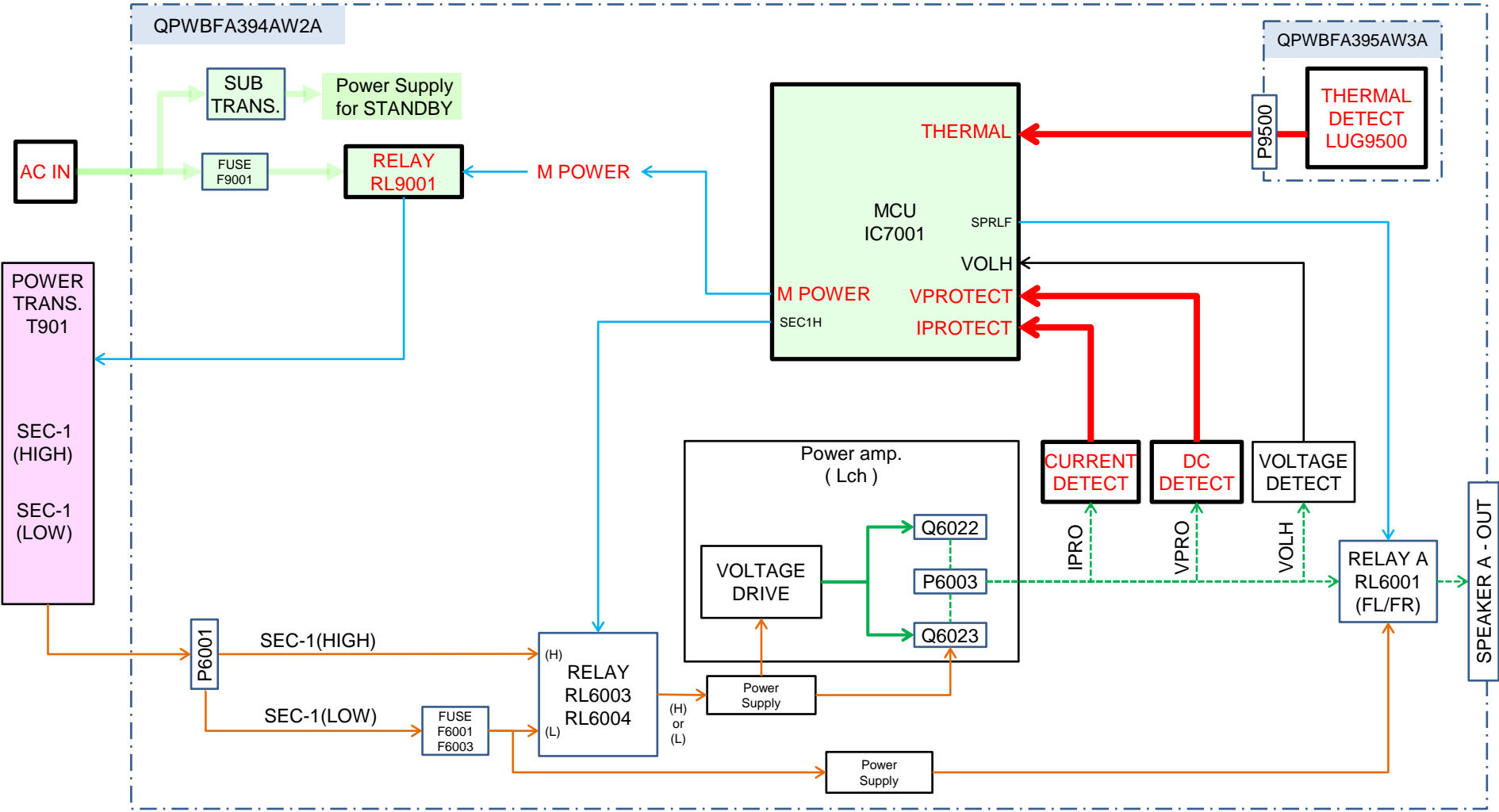
Dimensions (W x H x D) : 17-1/8" x 5-7/8" x 12-15/16" (435 mm x 149 mm x 328 mm)
Weight : 6.8 kg / 15 lbs (North American), 7 kg / 15.4 lbs (European)



PROTECT MODE

Protection

When the device detect either temperature, Electrical current and electrical voltage error, the device will be entered Stand-by mode. It means protect mode.



	1	2	3	4	5	6
	PROTECT FUNCTION					Protection
D	<p>This function is a function created to avoid the electrolytic capacitor rupture due to turning on the power again when the amplifier circuit breaks down and smoke ignition by transistor breakdown.</p>					
	Operating principle					
	<p>The MCU detect either current, voltage and temperature error in the device, the device will be shutdown and enter protect mode and enter standby mode.</p>					
C	<p>This mechanism of detect, Either VPROTECT、IPROTECT or THERMAL Signal occurred error, MCU will control RL6003 and RL6004 for power shut down and enter standby mode.</p> <p>*It will recovery to power on.</p>					
	Repare					
	<p>If the device detect errors, you test power on again. When the device enter standby mode again, you should exchange Main board and Final transistors. It is very difficult for find where is wrong..</p>					
B						
A						
						COMMON
	1	2	3	4	5	6

Model and Destination					
D	1. Volume 25.				
	2. Test Mode				
	[Tuning/Preset] + [Standby/On]				
C	Display “Test-_-__”.				
	3. [Input UP] → [>] → [>]				
	Show Model Name, Destination and Band Type.				
B					
A					
TX-8220					

No Sound

Hookup and Setting

■ No sound from connected player

- ☐ Chose input selector which is assigned to connected input terminal ?
- ☐ Isn't muting on ?

■ No sound from connected TV

- ☐ Chose wrong input selector ?
- ☐ Connect to this model's HDMI OUT terminal from TV by HDMI cable ?
- ☐ When TV supports ARC function, connect to his model's HDMI OUT terminal from TV's HDMI input terminal for ARC function ?
- ☐ When TV doesn't support ARC function, connect TV to this model with optical cable etc. ?
- ☐ Isn't muting on ?

■ No sound from some connected loudspeaker(s)

- ☐ No sound loudspeaker(s) config is enabled ?

■ No sound from all connected TV or Blu-ray player etc.

- ☐ After chose loudspeaker volume level setting, test tone is OK ?

■ No problem about above items

- ☐ Unplug power cord
After 10 seconds, connect power cord again
- ☐ Reset this model

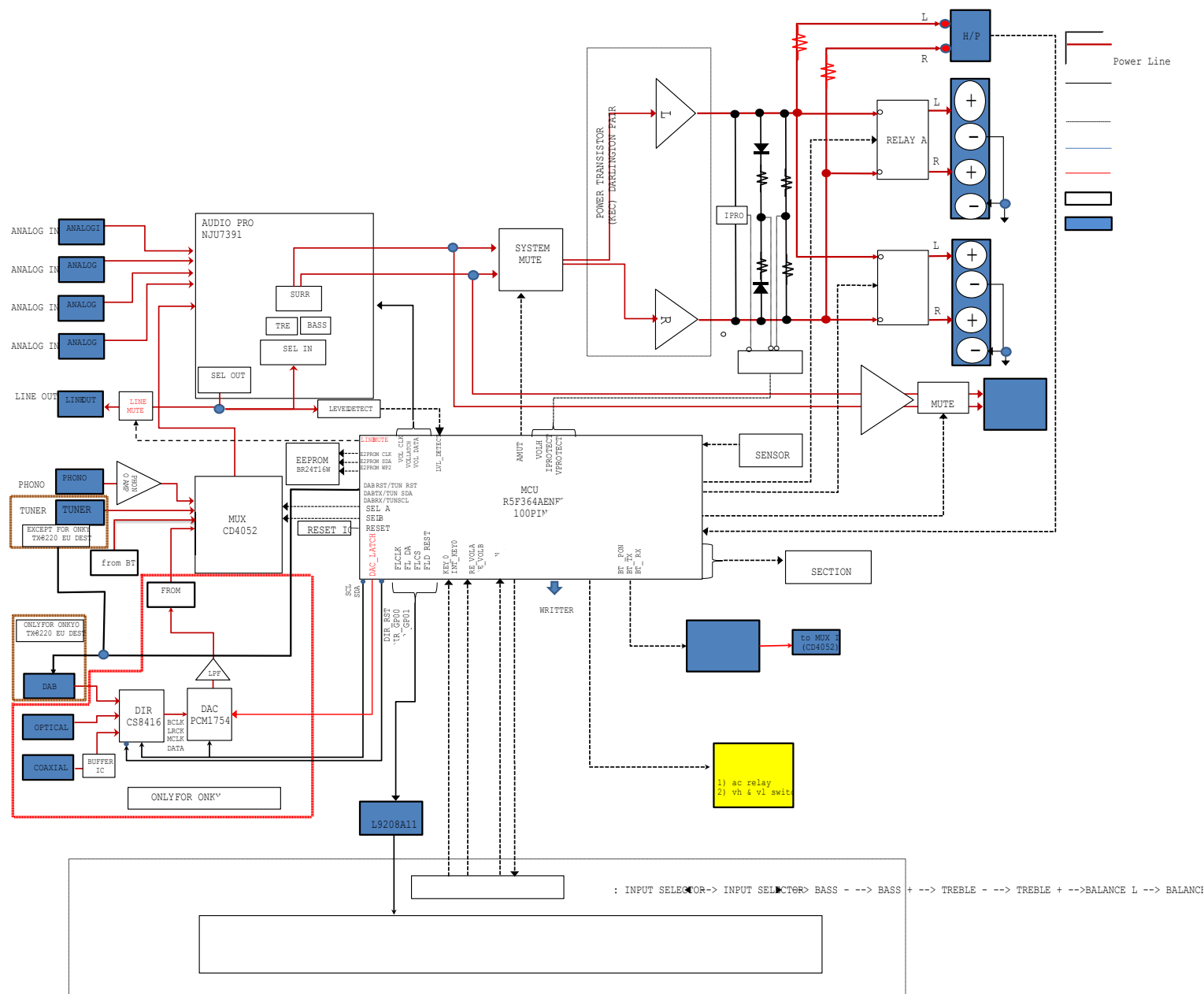
No Power

Hookup and Setting

- In general
 - ☐ Check if the connection cable is bent or twisted, damaged.
- There is time when indication on the front panel doesn't just light up.
 - ☐ Please check the connecting cord of a DISPLAY PCB.
- No problem about above items
 - ☐ Unplug power cord
 - After 10 seconds, connect power cord again
 - ☐ Reset this model

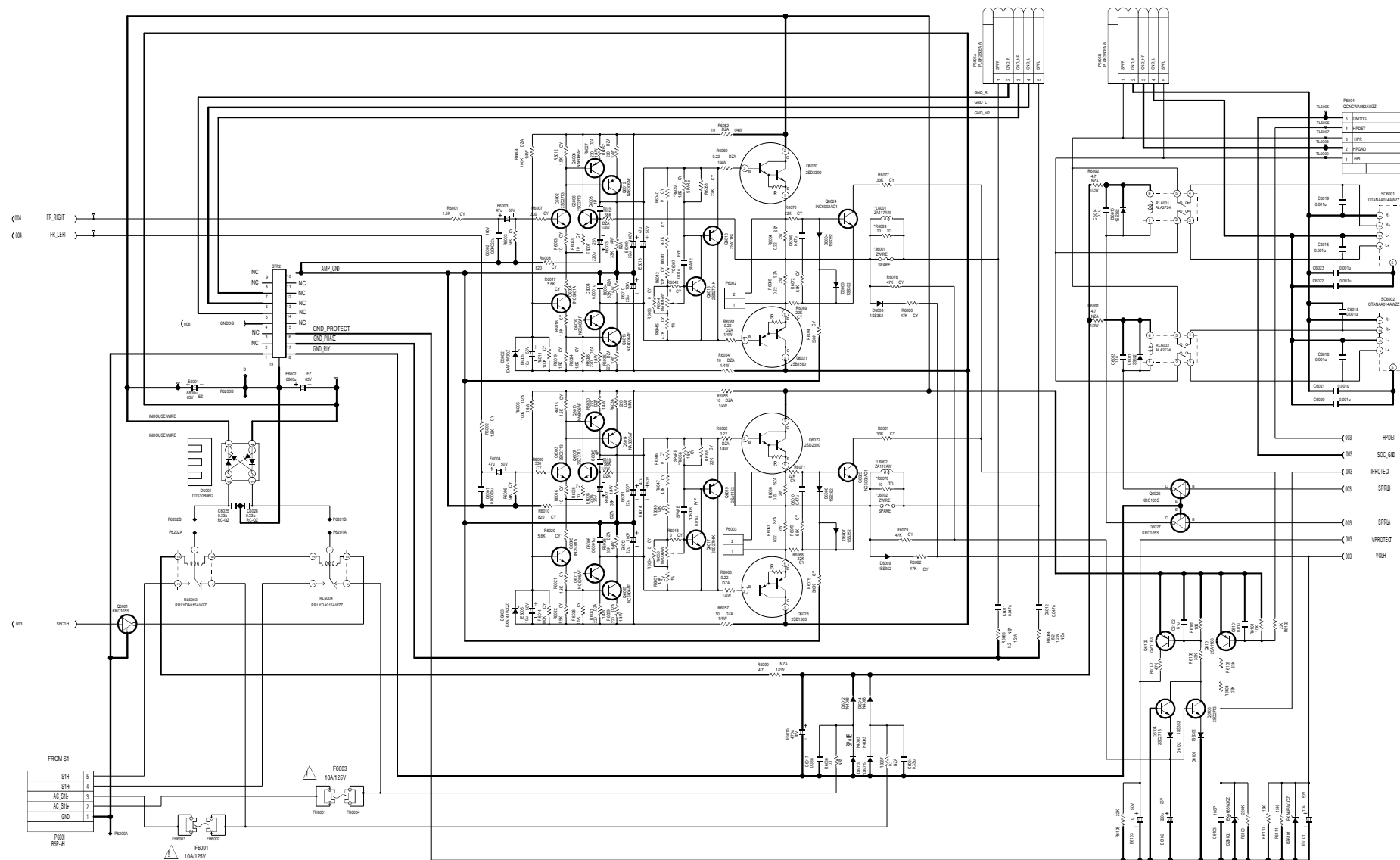
Block Diagram

Schematic Diagrams

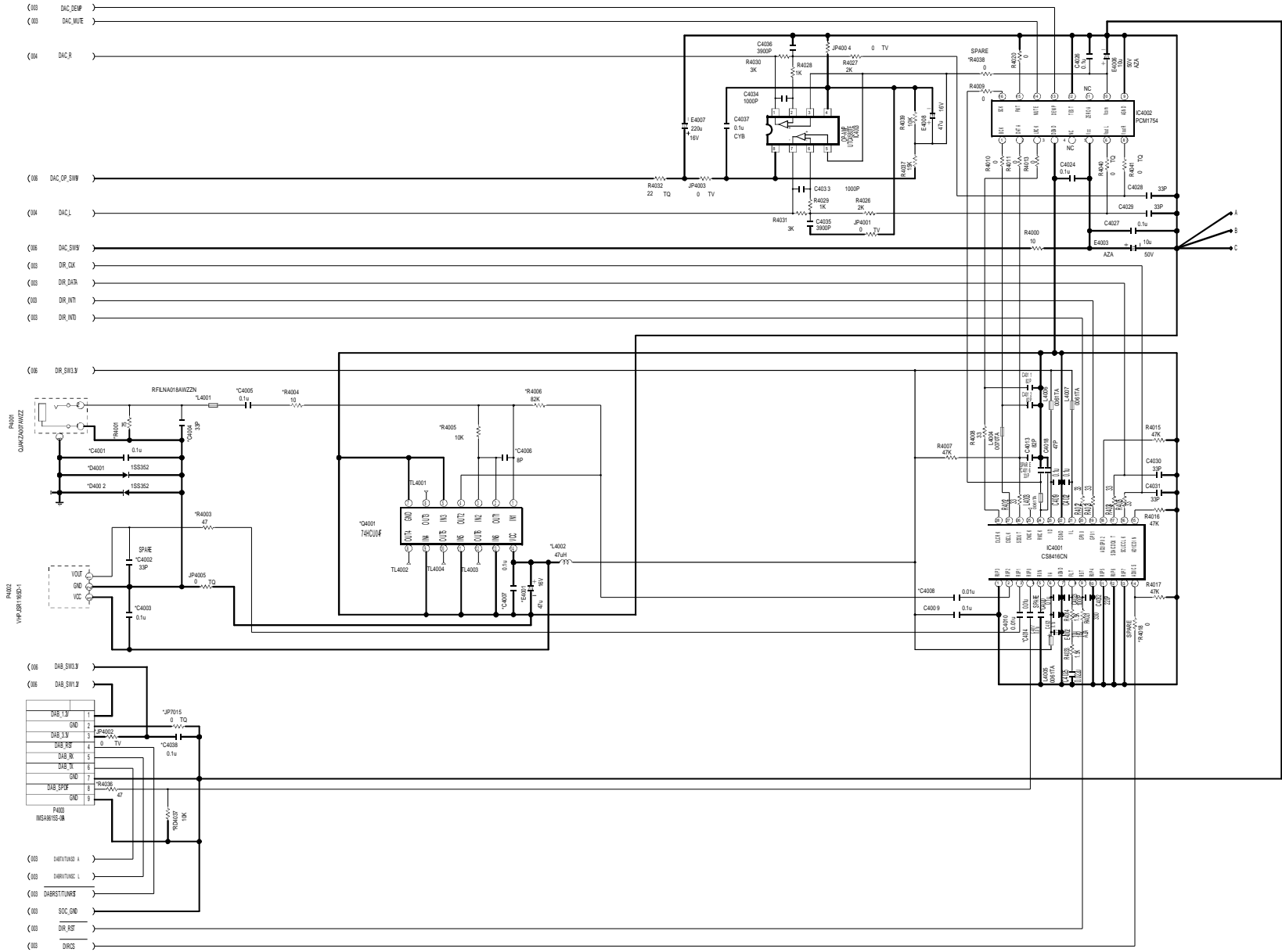


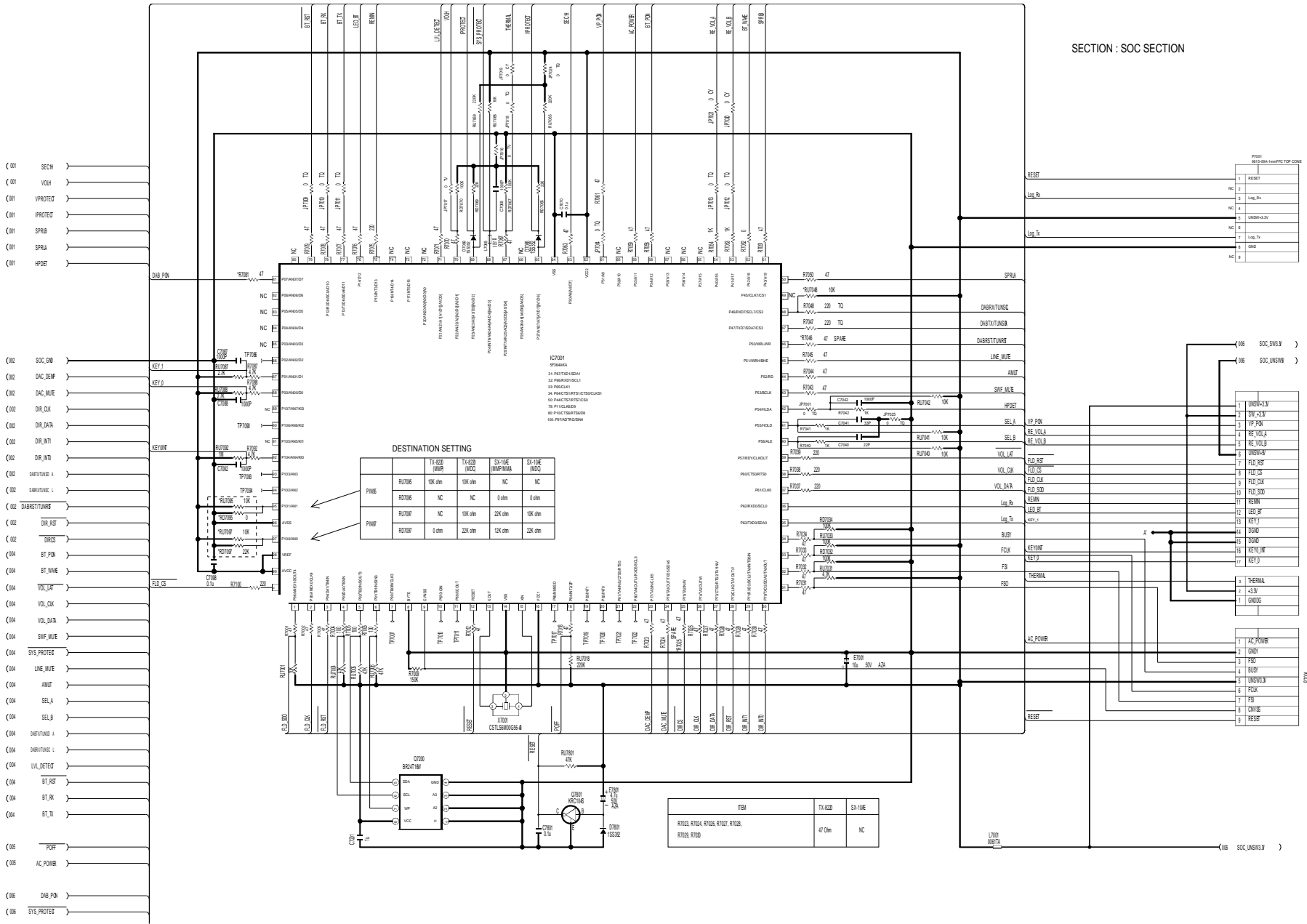
AMP Section

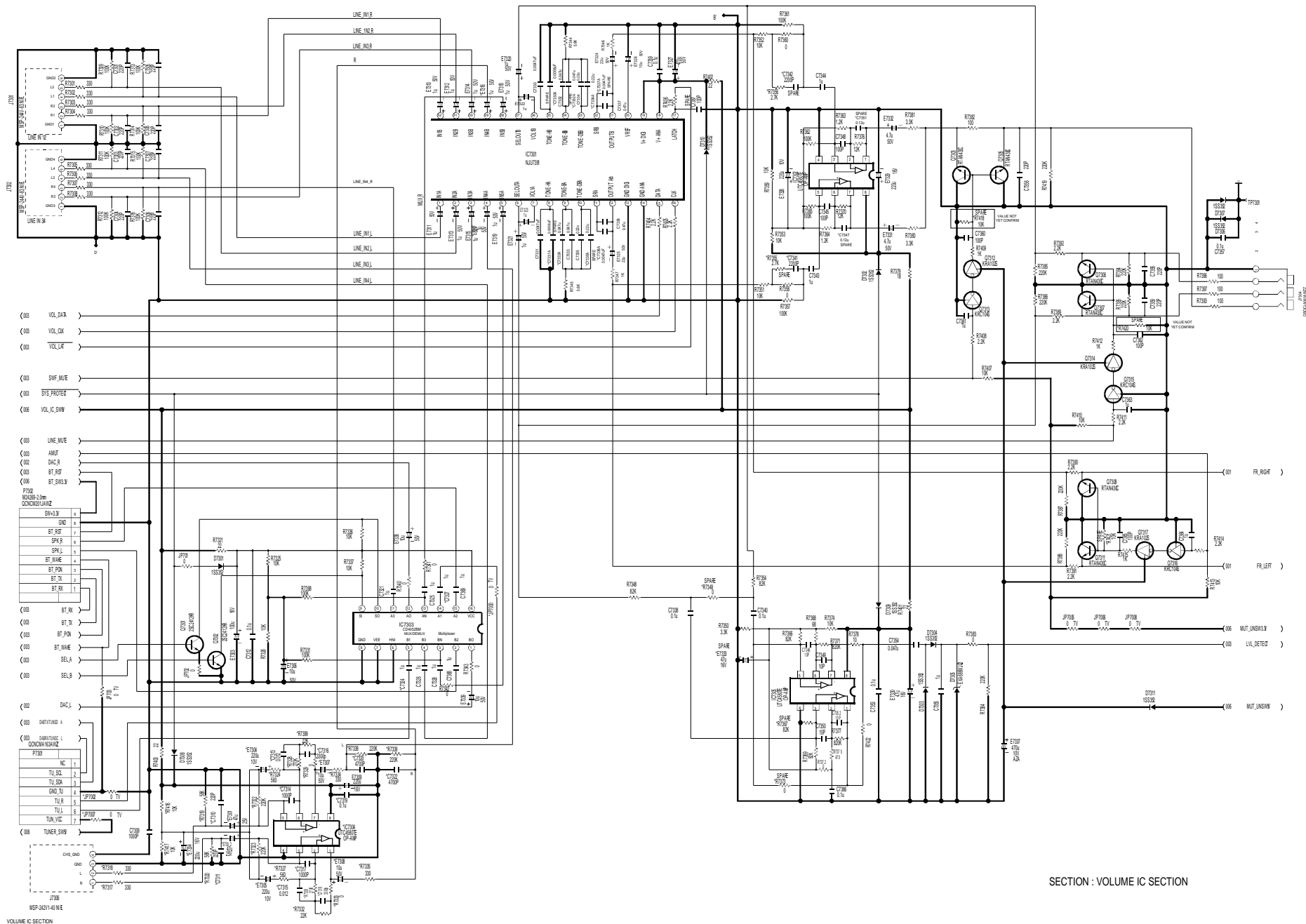
Schematic Diagrams



SECTION : AMP SECTION







SECTION : VOLUME IC SECTION





DAB Section

Schematic Diagrams

DAB_1.2V	9
GND	8
DAB_3.3V	7
DAB_RST	6
DAB_RX	5
DAB_TX	4
GND	3
DAB_SPDIF	2
GND	1

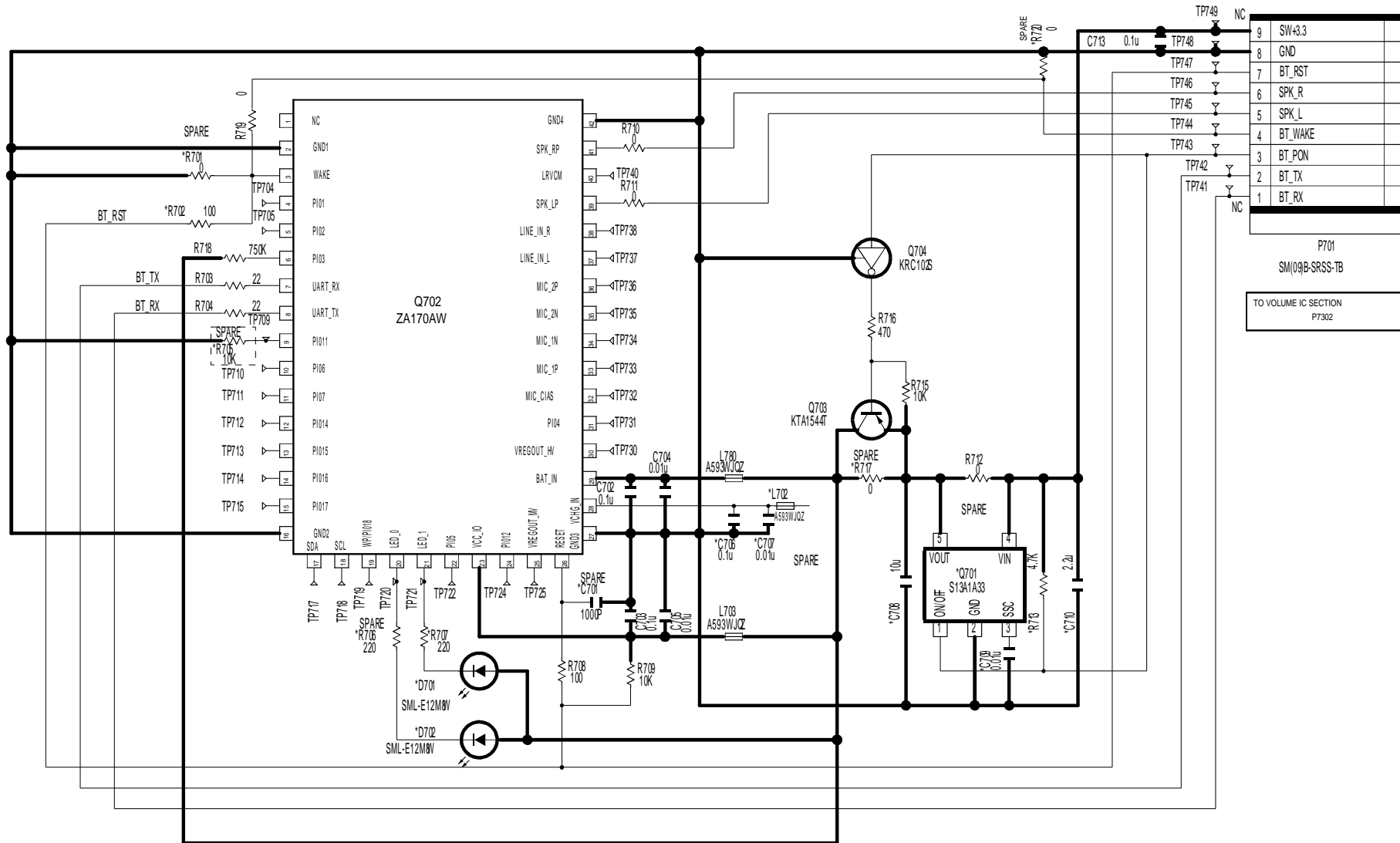
IMSA9615S-09A
P2000

TO DIR DAC SECTION
P4003

P2001
DS1023

1	NC
2	NC
3	GND
4	NC
5	NC
6	NC
7	GND
8	NC
9	NC
10	NC
11	NC
12	NC
13	DAB_RST
14	3.3V
15	GND
16	1.1V
17	DAB_RX
18	DAB_TX
19	NC
20	NC
21	NC
22	NC
23	NC
24	NC
25	GND
26	DAB_SPDIF

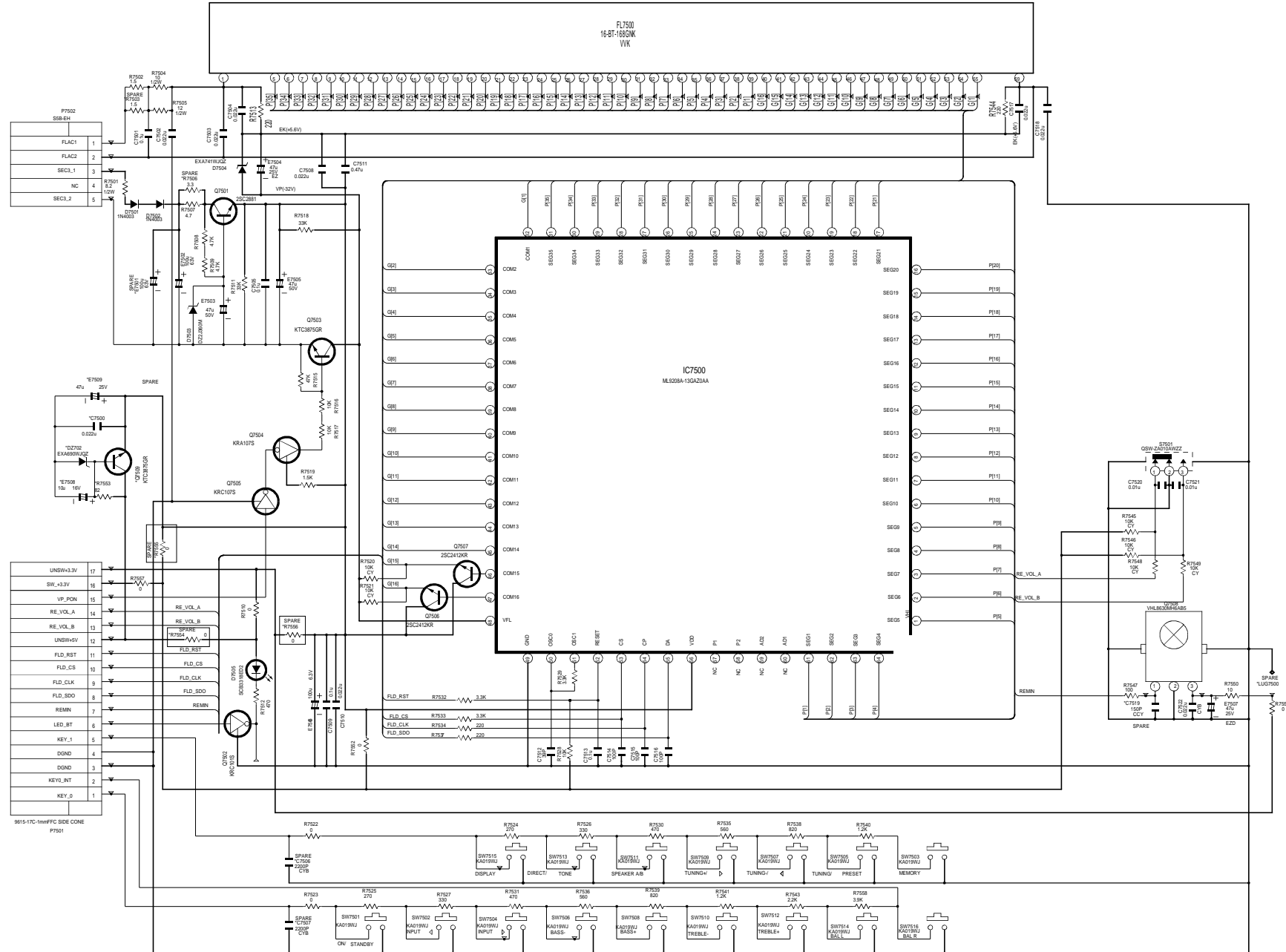
TO DAB MODULE

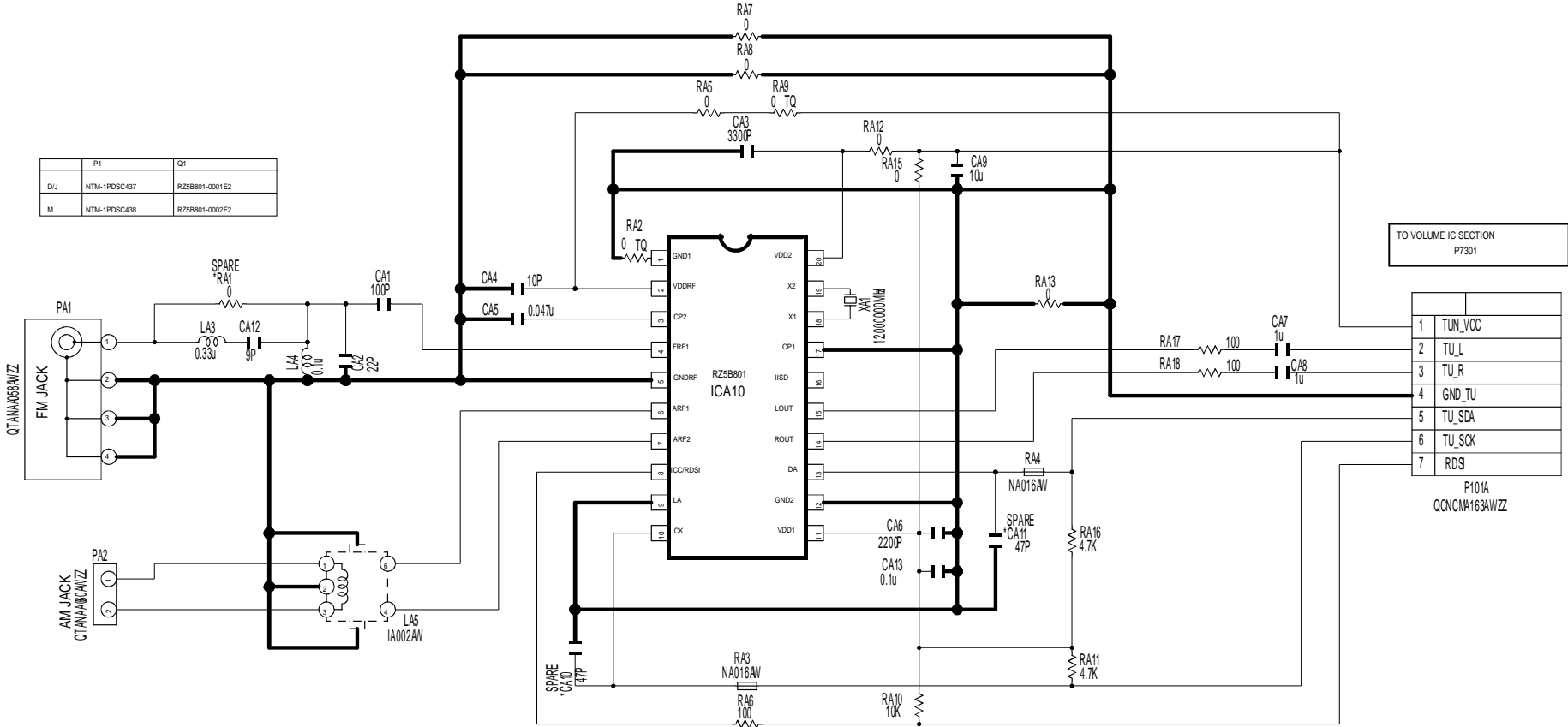


SECTION : BT SECTION

Display Section

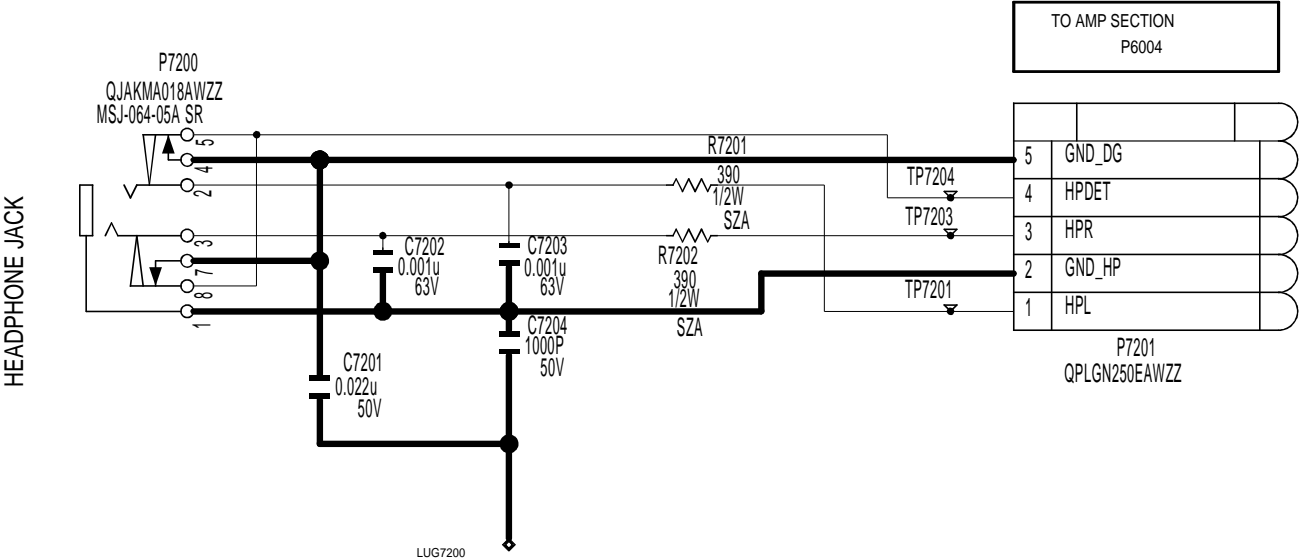
Schematic Diagrams

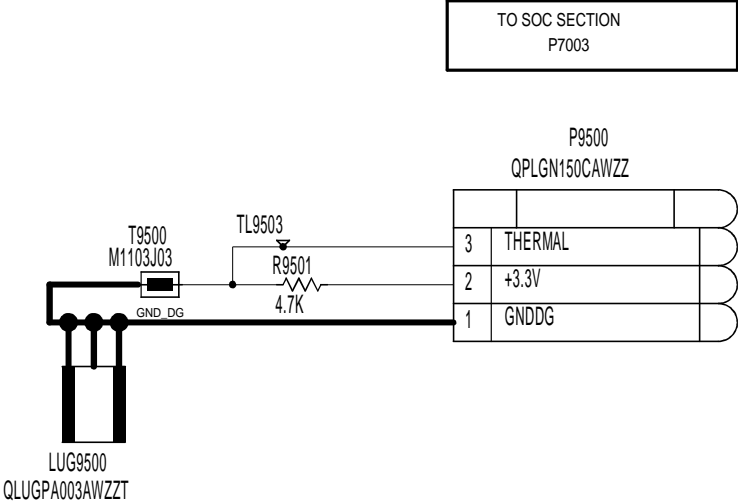




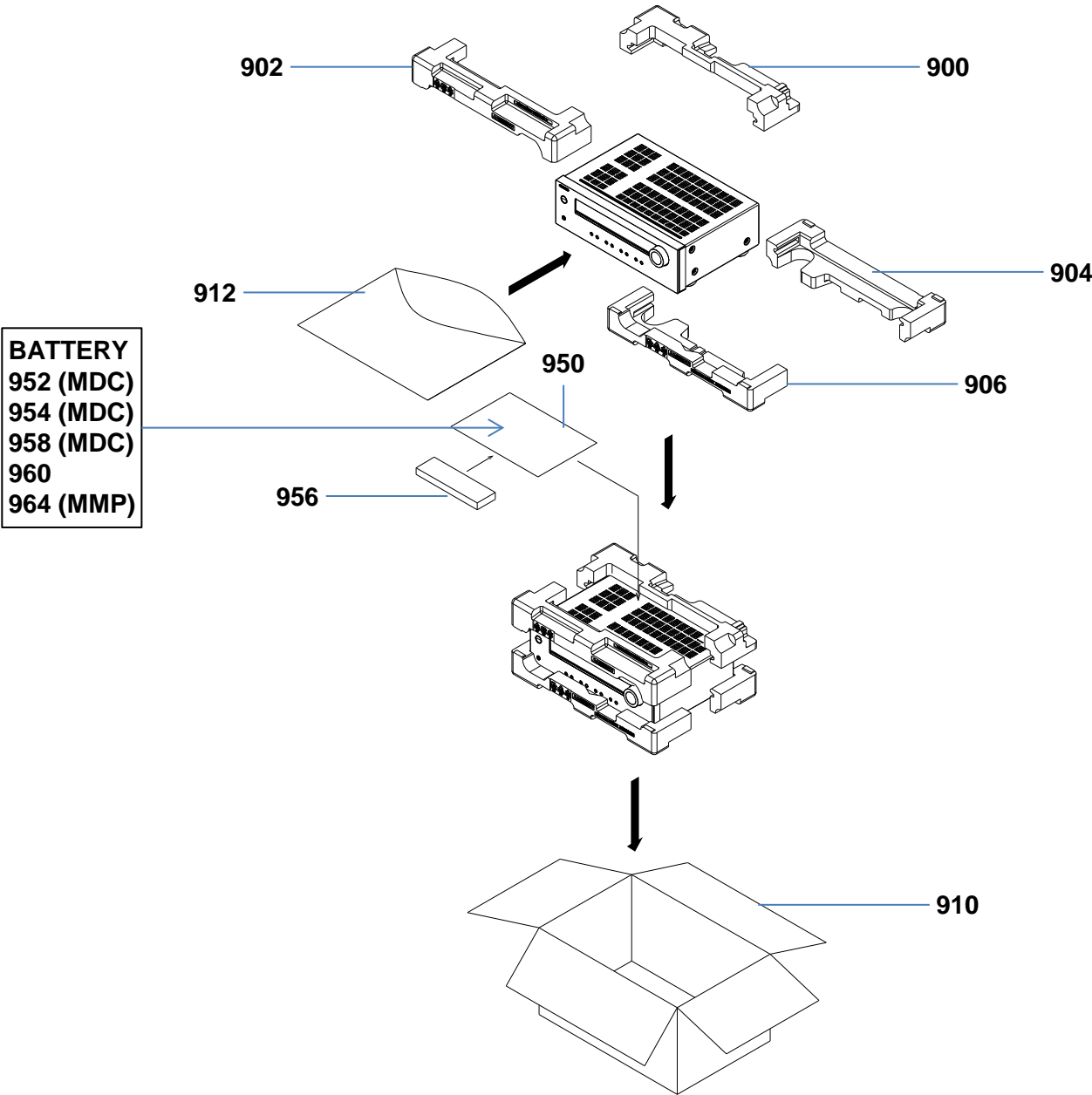
SECTION : TUNER SECTION

TUNER SECTION





SECTION : SENSOR

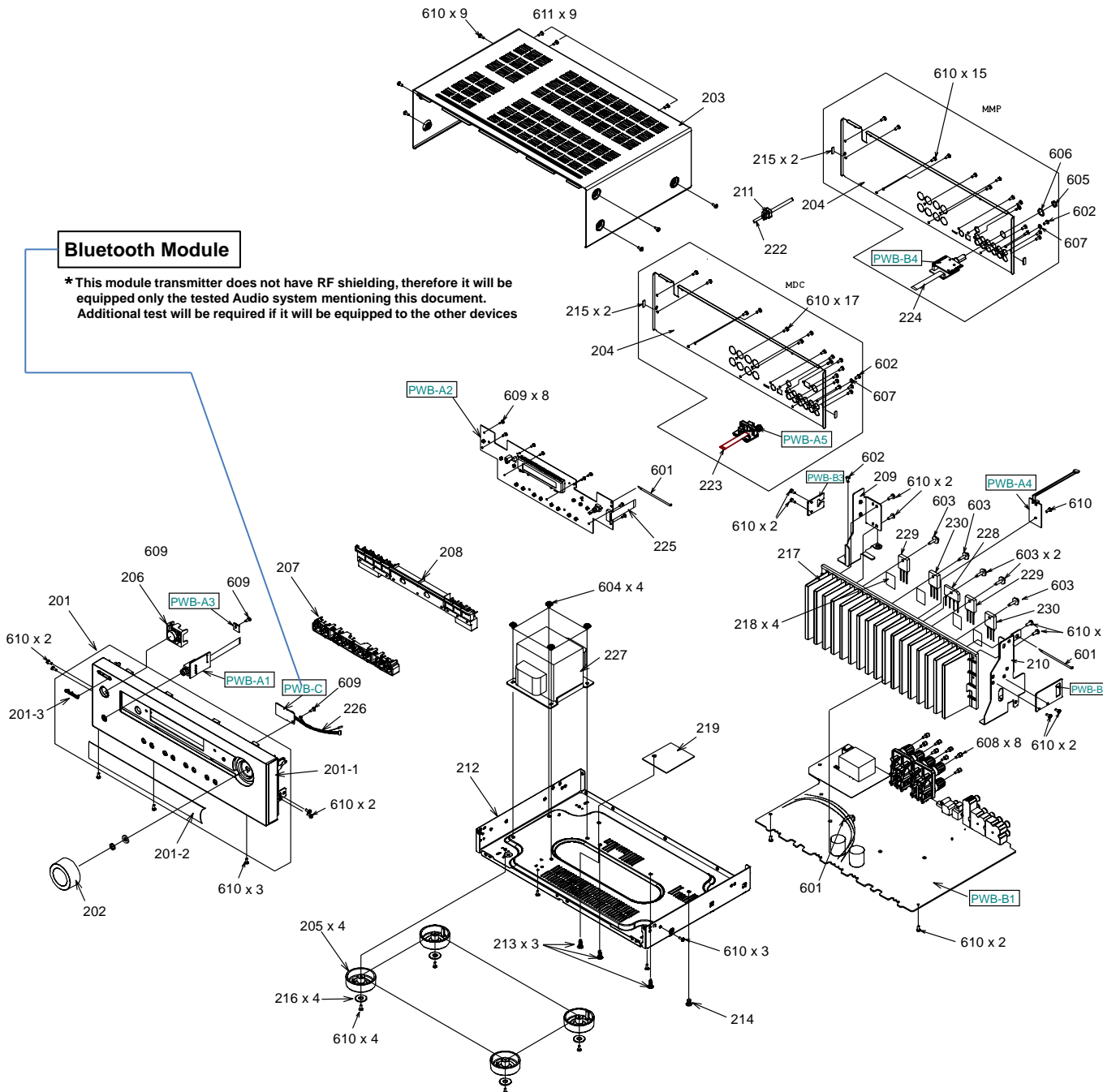


Overview

Exploded Views

Bluetooth Module

* This module transmitter does not have RF shielding, therefore it will be equipped only the tested Audio system mentioning this document.
Additional test will be required if it will be equipped to the other devices



* WiFi & Bluetooth Module has already been certificated by FCC and IC.

Information to the user.
Indicate "Contains FCC ID: UOW-AB152X", "Contains IC: 6777A-AB152X" and following information to the host device installed.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Describe the following sentence to a user's manual of the host device.

[For FCC]

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

[For IC]

CAN ICES-3 B/NMB-3 B

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement émet une énergie RF très faible qui est considérée conforme sans évaluation de l'exposition maximale autorisée. Cependant, cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le dispositif rayonnant et le corps (à l'exception des extrémités : mains, poignets, pieds et chevilles).

TX-8220(B)MDC

<Note>

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

(B) : Black color model

<MDC> : 120V

Canadian/USA/(Mexico) model

: NSP

REF. NO.	PART NAME	DESCRIPTION	Q'TY	PART NO. (SN)	REMARKS
[Exploded Views]					
201	Front Panel Ass'y		01	CPNLCA610AW01	
201-1	Front Panel		01	HPNLCA610AWSC	
201-2	Display Panel		01	HDECQA900AWSB	
201-3	Badge		01	28135338	
202	Volume Knob		01	CKNBKA144AW02	
203	Top Cover		01	28210089AZ	
204	Rear Panel		01	GITARB448AWSC	
205	Bottom Leg		04	27175464	
206	Knob (Stby)		01	28327234	
207	8 Key Button		01	JKNBZA475AWSB	
208	Knob (Inp)		01	28327158A	
209	Retainer (HL)		01	27142290A	
210	Retainer (HR)		01	27142223B	
211	AC Cord Bush		01	27300750	
212	Chassis		01	27100590B	
213	Holder KGLS-8RT		03	27190503A	
214	Holder NPS-8		01	27191387	
215	Cushion		02	28141799	
216	Cushion		04	28141900	
217	Heat Sink		01	27160698	
218	ISO Sheet		04	223024	
219	Insulator Sheet		01	PSHEZA477AWZZ	
222	AC Cord		01	QACCD A014AWZZ	
or					
222	AC Cord		01	253368BLTK	
223	FFC Wire (Tuner)		01	QCNWNC743AWPZ	
225	FFC Wire (Display)		01	QCNWNC747AWPZ	
226	Cone Wire 9 pin		01	QCNWNC750AWPZ	
227	Power Transformer		01	RTRNPA174AWZZ	
228	Power Diode		02	VHDT S10B06G-1	
or					
228	Power Diode		02	22380379	
229	Transistor		02	VS2SB1560/P-1	
230	Transistor		01	VS2SD2390/P-1	
601	Wire Tie		03	260208	
602	Screw (Round Tip)		02	801637	
603	Screw		05	801634	
604	Screw (Transformer)		04	801658	
605	Nut		01	LX-NZA010AWZZ	
or					
605	Nut		01	800562	

606	Washer		01	LX-WZA035AWZZ	
or					
606	Washer		01	870191	
607	Washer		01	87643010GR	
608	P-Rivet		08	PCOVPA011AWZZ	
or					
608	P-Rivet		08	880052	
609	Screw M2.6 x 8mm		10	838426088GR	
610	Screw M3 x 8mm		50	838430088GR	
[PCB]					
200	PARENT PC BOARD AS	PWB-A1 ~ A5	1	ISP9699DPL1//Z	Parent
↓	↓	↓	↓	↓	↓
200	PARENT PC BOARD AS	PWB-A1 ~ A5	1	92LPWB9699DPLS	Parent
PWB-A1	Phone pc board AS		1	ISP9699DPL1//Z-C1	Child
↓	↓		↓	↓	↓
PWB-A1	Phone pc board AS		1	92LPWB9699DPLS-C1	Child
PWB-A2	Display pc board AS		1	ISP9699DPL1//Z-C2	Child
↓	↓		↓	↓	↓
PWB-A2	Display pc board AS		1	92LPWB9699DPLS-C2	Child
PWB-A3	Washer Phone pc board AS		1	ISP9699DPL1//Z-C3	Child
↓	↓		↓	↓	↓
PWB-A3	Washer Phone pc board AS		1	92LPWB9699DPLS-C3	Child
PWB-A4	Heat Protect pc board AS		1	ISP9699DPL1//Z-C4	Child
↓	↓		↓	↓	↓
PWB-A4	Heat Protect pc board AS		1	92LPWB9699DPLS-C4	Child
PWB-A5	Tuner pc board AS		1	ISP9699DPL1//Z-C5	Child
↓	↓		↓	↓	↓
PWB-A5	Tuner pc board AS		1	92LPWB9699DPLS-C5	Child
250	PARENT PC BOARD AS	PWB-B1 ~ B4	1	ISP9699MAN1//Z	Parent
↓	↓	↓	↓	↓	↓
250	PARENT PC BOARD AS	PWB-B1 ~ B4	1	92LPWB9699MANS	Parent
PWB-B1	Main pc board AS		1	ISP9699MAN1//Z-C1	Child
↓	↓		↓	↓	↓
PWB-B1	Main pc board AS		1	92LPWB9699MANS-C1	Child
PWB-B2	Washer (HL) pc board AS		1	ISP9699MAN1//Z-C2	Child
↓	↓		↓	↓	↓
PWB-B2	Washer (HL) pc board AS		1	92LPWB9699MANS-C2	Child
PWB-B3	Washer (HR) pc board AS		1	ISP9699MAN1//Z-C3	Child
↓	↓		↓	↓	↓
PWB-B3	Washer (HR) pc board AS		1	92LPWB9699MANS-C3	Child
300	PARENT PC BOARD AS	PWB-C(24pcs.)	1	SCP9699BTH1//A	Parent
↓	↓	↓	↓	↓	↓
300	PARENT PC BOARD AS	PWB-C(24pcs.)	1	92LPWB9699BTHS	Parent
PWB-C	Bluetooth pc board AS		1	SCP9699BTH1//A-C1	Child
↓	↓		↓	↓	↓
PWB-C	Bluetooth pc board AS		1	92LPWB9699BTHS-C1	Child
[Packing]					
900	PAD	Packing Add, Top, Rear	1	SPAKAA638AWZZ	
or					
900	PAD	Packing Add, Top, Rear	1	29092796A	
902	PAD	Packing Add, Top, Front	1	SPAKAA638AWZZ	
or					

902	PAD	Packing Add, Top, Front	1	29092796A	
904	PAD	Packing Add, Bottom, Rear	1	SPAKAA639AWZZ	
or					
904	PAD	Packing Add, Bottom, Rear	1	29092799A	
906	PAD	Packing Add, Bottom, Front	1	SPAKAA639AWZZ	
or					
906	PAD	Packing Add, Bottom, Front	1	29092799A	
910	CARTON	Packing Case	1	SPAKCB609AWZZ	
912	BAG	Miramat Bag	1	29100267A	
[Accessories]					
950	POLY BAG	Polyethelene Bag, Accessories	1	29100272	
952	ANTENNA COIL	AM Loop Antenna	1	232216	
954	FM ANTENNA	FM Antenna	1	292191	
956	REMOTE CONTROL TRANSMITTER	Remote Control	1	RRMCGA410AWSA	
958	WARRANTY CARD	Warranty Card	1	29365156	
960	INSTRUCTION MANUAL(Eng/Fr/Spa)	Operation Manual	1	29403245	
964	INSTRUCTION MANUAL	Safety Manual	1	29403240	
966	BATTERY	Battery [Not Replacement Item]	1	-----	

REF. NO.	PART NAME	DESCRIPTION	Q'TY	PART NO. (SN)	REMARKS
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