

Service Manual

Blu-ray Disc Home Theater Sound System



Model No. **SA-BT230EB**

SA-BT230EE

SA-BT230EG

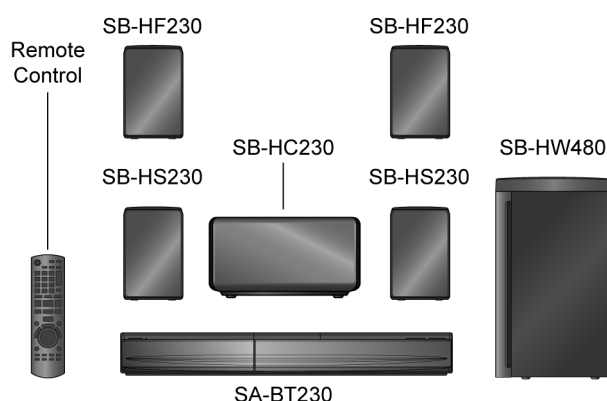
SA-BT230EP

SA-BT330EB

SA-BT330EG

SA-BT330EP

The illustration shows the image of unit SC-BT230.



Volume 1

Product Color: (K)...Black Type

Notes: 1) These model's BD Drive/Main P.C.B. Assembly are:-

- RFKNBT230EBA (For BT230EB);
- RFKNBT230EGA (For BT230EG);
- RFKNBT230EPA (For BT230EP);
- RFKNBT230EEA (For BT230EE);
- RFKNBT330EBA (For BT330EB);
- RFKNBT330EGA (For BT330EG);
- RFKNBT330EPA (For BT330EP).

2) Please refer to the original service manual for:

- Speaker system SB-BT230P-K (For SA-BT230EB/EG/EP/EE-K), Order No: PSG1001007CE.
- Speaker system SB-BT330P-K (For SA-BT330EB/EG/EP-K), Order No: PSG1001008CE.

Caution:

Pairing of BD Drive and Main P.C.B. as "BD Drive & Main P.C.B. Assembly" have to be replaced together. If either BD Drive or Main P.C.B. is changed, BD Drive unit has to carry out re-adjustment due to alignment data for BD Drive Unit is stored in the Main P.C.B.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

TABLE OF CONTENTS

	PAGE		PAGE
1 Safety Precautions -----	4	10.7. Disassembly of Rear Panel -----	50
1.1. GENERAL GUIDELINES -----	4	10.8. Disassembly of Front Panel Block Assembly-----	51
1.2. Before Repair and Adjustment-----	4	10.9. Dissassembly of Panel P.C.B. -----	52
1.3. Protection Circuitry-----	5	10.10. Dissassembly of Power Button P.C.B.-----	53
1.4. Safety Parts Information-----	6	10.11. Replacement of Cradle Lid-----	55
1.5. Caution for AC Cord (For EB only) -----	7	10.12. Disassembly of iPod Cradle Assembly-----	57
2 Warning -----	8	10.13. Disassembly of iPod/iPhone P.C.B. -----	58
2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices-----	8	10.14. Replacement of DVD Lid Unit -----	59
2.2. Precaution of Laser Diode -----	9	10.15. Disassembly of Front Shield Plate Unit -----	61
2.3. Service caution based on Legal restrictions-----	10	10.16. Disassembly of BD Drive -----	62
2.4. Handling Precautions for BD Drive -----	11	10.17. Disassembly of Main P.C.B.-----	68
3 Service Navigation -----	12	10.18. Disassembly of D-Amp P.C.B.-----	69
3.1. Service Information -----	12	10.19. Replacement of Digital Amplifier IC (IC5100/ IC5200)-----	71
3.2. Caution for Replacing Parts -----	13	10.20. Disassembly of Power P.C.B.-----	72
4 Specifications -----	14	10.21. Disassembly of SMPS P.C.B.-----	72
5 Location of Controls and Components -----	16	10.22. Replacement of Switching Regulator IC (IC5701)-----	74
5.1. Remote Control Key Button Operations-----	16	10.23. Replacement of Rectifier Diode (D5702) -----	75
5.2. Main Unit Key Button Operations -----	17	10.24. Replacement of Regulator Diode (D5802) -----	77
5.3. Using BD-LIVE BONUSVIEW in BD-Video-----	18	10.25. Replacement of Regulator Diode (D5803) -----	78
5.4. Using the iPod/iPhone -----	19	10.26. Disassembly of Fan -----	79
5.5. DLNA features -----	21	11 Service Position -----	81
5.6. Speaker Connections -----	23	11.1. Checking & Repairing Side B of Main P.C.B. -----	81
5.7. Disc Playability -----	24	11.2. Checking & Repairing Side A of Main P.C.B. -----	81
5.8. SD Information-----	26	11.3. Checking & Repairing D-Amp P.C.B. -----	83
5.9. File Extension Type Support (MP3/JPEG/ AVCHD/MPEG2 files)-----	27	11.4. Checking & Repairing SMPS P.C.B. -----	85
6 Operating Instructions -----	29	11.5. Checking & Repairing Panel P.C.B. -----	87
6.1. Removing of disc during abnormality -----	29	12 Voltage & Waveform Chart -----	89
7 Self-Diagnostic and Special Mode Setting -----	30	12.1. Main P.C.B. (1/3)-----	89
7.1. Special Mode Table 1 -----	30	12.2. Main P.C.B. (2/3)-----	90
7.2. Special Mode Table 2 -----	31	12.3. Main P.C.B. (3/3)-----	91
7.3. Error Code Table -----	32	12.4. Panel P.C.B. -----	92
7.4. Service Mode-----	34	12.5. Panel P.C.B. (For BT330EB/EG/EP only) -----	92
8 Troubleshooting Guide -----	39	12.6. D-Amp P.C.B. (1/2) -----	93
8.1. Troubleshooting Guide for F61 and/or F76-----	39	12.7. D-Amp P.C.B. (2/2) -----	94
9 Service Fixture & Tools -----	43	12.8. Power P.C.B. -----	94
9.1. Service Tools and Equipment -----	43	12.9. SMPS P.C.B. -----	95
10 Disassembly and Assembly Instructions -----	44	12.10. Waveform Table (1/2)-----	96
10.1. Disassembly Flow Chart-----	45	12.11. Waveform Table (2/2)-----	97
10.2. Main Components and P.C.B. Locations-----	46	13 Illustration of ICs, Transistor and Diode -----	98
10.3. Disassembly of Top Cabinet-----	47	14 Block Diagram -----	99
10.4. Disassembly of AC Inlet P.C.B. -----	48	14.1. Main(System Control) -----	99
10.5. Disassembly of Optical In P.C.B. -----	49	14.2. Main(Audio) -----	100
10.6. Disassembly of Wireless Adapter P.C.B.-----	49	14.3. Digital Audio-----	102

14.4. Power Supply(Main Section) -----	103
15 Wiring Diagram-----	105
16 Schematic Diagram Notes-----	107
17 Schematic Diagram-----	109
17.1. Main(Micon/Tuner) Circuit-----	109
17.2. Panel Circuit -----	116
17.3. D-Amp Circuit-----	118
17.4. SMPS Circuit -----	122
17.5. Power, Power Button & AC Inlet Circuit-----	124
17.6. iPod/iPhone, Optical In & Wireless Adapter Circuit-----	125
18 Printed Circuit Board-----	126
18.1. Main P.C.B.-----	126
18.2. Panel, Power, Power Button & AC Inlet P.C.B. -	128
18.3. D-Amp P.C.B. -----	129
18.4. SMPS P.C.B.-----	130
18.5. iPod/iPhone, Optical In & Wireless Adapter P.C.B. -----	131
19 Terminal Function of ICs-----	133
19.1. IC6001(C0HBB0000057): IC FL Driver -----	133
20 Exploded View and Replacement Parts List -----	135
20.1. Exploded View and Mechanical replacement Part List -----	135
20.2. Electrical Replacement Part List-----	141

1 Safety Precautions

1.1. GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, carry out the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1M\Omega$ and $5.2M\Omega$.
When the exposed metal does not have a return path to the chassis, the reading must be ∞

(This "Safety Precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

1.1.2. LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a $1.5k\Omega$, 10 watts resistor, in parallel with a $0.15\mu F$ capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

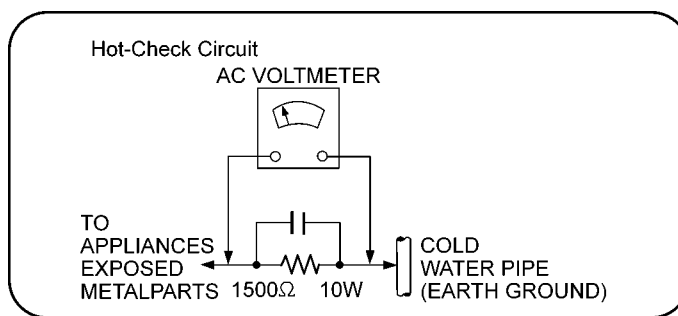


Figure 1

1.2. Before Repair and Adjustment

Disconnect AC power to discharge unit AC Capacitors as such (C5700, C5701, C5702, C5703, C5705, C5706) through a 10Ω , $10W$ resistor to ground.

Caution:

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.

After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

Current consumption at AC 240 V, 50 Hz in NO SIGNAL mode volume minimal should be ~ 600 mA (EB only).

Current consumption at AC 230 - 240 V, 50 Hz in NO SIGNAL mode volume minimal should be ~ 600 mA (EE/EG/EP only).

1.2.1. Caution for fuse replacement

CAUTION:

- i) Replace with the same type fuse:
(Manufacturer: LITTELFUSE, INC., Type: 215, F1, T4AH, 250V)

1.3. Protection Circuitry

The protection circuitry may have operated if either of the following conditions are noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

1.4. Safety Parts Information

Safety Parts List:

There are special components used in this equipment which are important for safety.

These parts are marked by (△) in the Schematic Diagrams & Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
△	2	REXX1030	1P BLACK WIRE (AC-SMPS)	
△	3	REXX1031	1P RED WIRE (AC-SMPS)	
△	20	RGRX1001K-A1	REAR PANEL	BT230EE
△	20	RGRX1001M-G2	REAR PANEL	BT230EB/EG
△	20	RGRX1001M-P	REAR PANEL	BT230EP
△	20	RGRX1001M-H2	REAR PANEL	BT330EB/EG
△	20	RGRX1001M-Q	REAR PANEL	BT330EP
△	29	RKMX1002-K2	TOP CABINET	
△	49	RFKNBT230EBA	BD DRIVE / MAIN P.C.B ASS'Y	BT230EB
△	49	RFKNBT230EGA	BD DRIVE / MAIN P.C.B ASS'Y	BT230EG
△	49	RFKNBT230EPA	BD DRIVE / MAIN P.C.B ASS'Y	BT230EP
△	49	RFKNBT230EEA	BD DRIVE / MAIN P.C.B ASS'Y	BT230EE
△	49	RFKNBT330EGA	BD DRIVE / MAIN P.C.B ASS'Y	BT330EG
△	49	RFKNBT330EBA	BD DRIVE / MAIN P.C.B ASS'Y	BT330EB
△	49	RFKNBT330EPA	BD DRIVE / MAIN P.C.B ASS'Y	BT330EP
△	A2	RFAX0024	AC CORD	EE/EG/EP
△	A2	RFAX1022	AC CORD	EB
△	A3	VQT2Q49	O/I BOOK (Ge)	EG
△	A3	VQT2Q50	O/I BOOK (It/Fr)	EG
△	A3	VQT2Q51	O/I BOOK (Sp/Du)	EG
△	A3	VQT2Q52	O/I BOOK (En)	EB/EP
△	A3	VQT2Q53	O/I BOOK (Po/Ce)	EP
△	A3	VQT2Q54	O/I BOOK (Ru/Ur)	BT230EE
△	A3	VQT2Q65	O/I BOOK (Da/Sw)	EG
△	A3	VQT2Q66	O/I BOOK (Hu)	EP
△	PCB2	REPX0793CA	MAIN P.C.B	EG
△	PCB6	REPX0803EA	SMPS P.C.B	(RTL)
△	PCB7	REPX0803EA	AC INLET P.C.B	(RTL)
△	PCB8	REPX0803ED	WIRELESS ADAPTER P.C.B	
△	DZ5701	ERZV10V511CS	ZNR	
△	L5702	ELF21N015A	LINE FILTER	
△	L5703	ELF21N015A	LINE FILTER	
△	T5701	ETS42BM1H6AC	TRANSFORMER	
△	T5751	ETS19AB2A6AG	TRANSFORMER	
△	T6100	G4D1A0000142	SUB TRANSFORMER	
△	PC5702	B3PBA0000402	PHOTO COUPLER	
△	PC5720	B3PBA0000402	PHOTO COUPLER	
△	PC5799	B3PBA0000402	PHOTO COUPLER	
△	RY701	K6B1AEA00003	POWER RELAY	
△	F1	K5D402BNA005	FUSE	
△	TH5702	D4CAA5R10001	THERMISTOR	
△	P5701	K2AA2B000011	AC INLET	
△	C5700	F1BAF1020020	1000pF	
△	C5701	F0CAF104A105	0.1uF	
△	C5702	F0CAF104A105	0.1uF	
△	C5703	F0CAF104A105	0.1uF	
△	C5705	F1BAF1020020	1000pF	
△	C5706	F1BAF471A013	470pF	

1.5. Caution for AC Cord (For EB only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as stated below.

If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral, Brown: Live.

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL  OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use

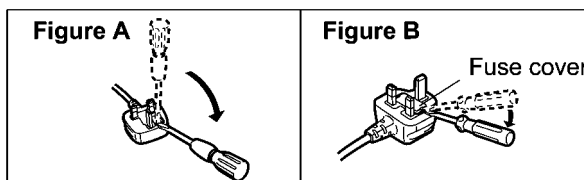
Remove the connector cover.

How to replace the fuse

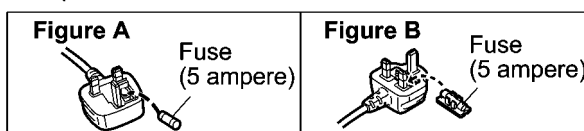
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.



2. Replace the fuse and close or attach the fuse cover.



2 Warning

2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static (ESD protected)” can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution:

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

2.2. Precaution of Laser Diode

CAUTION:

THIS PRODUCT UTILIZES A LASER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

Caution:

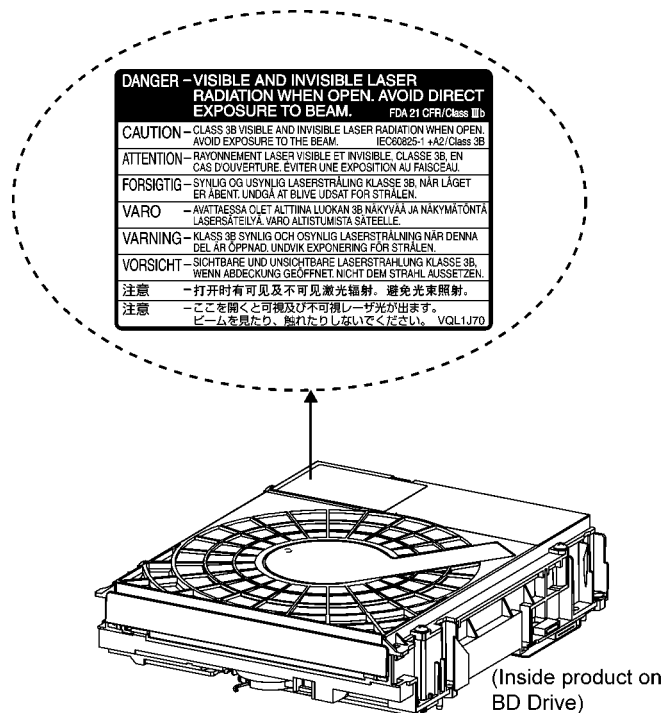
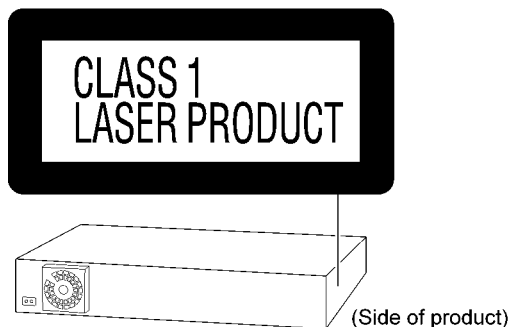
This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wavelength: 790 nm (CDs), 650 nm (DVDs), 405 nm (BDs)

Maximum output radiation power from pickup: 100 μ W/VDE

Laser radiation from the pickup unit is safety level, but be sure the followings:

1. Do not disassemble the pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.



2.3. Service caution based on Legal restrictions

2.3.1. General description about Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30 degrees C (86°F) more than that of the normal solder.

Definition of PCB Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the PCB using the lead free solder. (See right figure)	PbF
---	-----

Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.
(Definition: The letter of "PbF" is printed on the PCB using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the PCB cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30 degrees C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

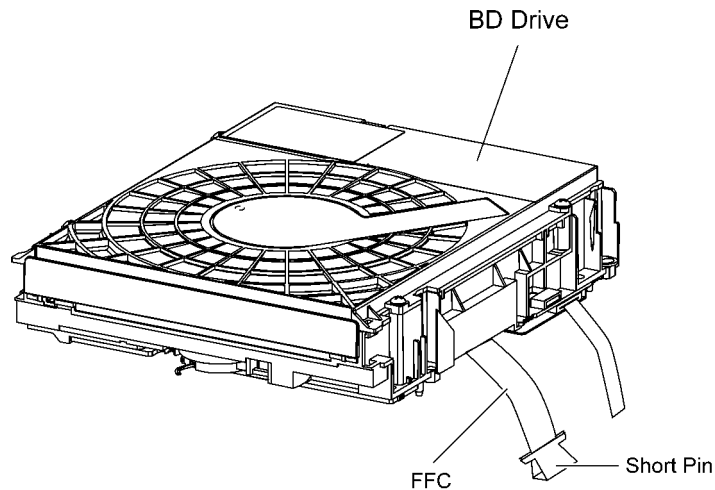
- The following 3 types of lead free solder are available through the service parts route.
RFKZ03D01K----- (0.3mm 100g Reel)
RFKZ06D01K----- (0.6mm 100g Reel)
RFKZ10D01K----- (1.0mm 100g Reel)

Note

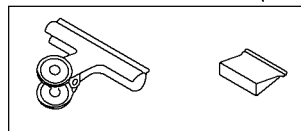
* Ingredient: tin (Sn), 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

2.4. Handling Precautions for BD Drive

The laser diode in the optical pickup unit may break down due to static electricity of clothes or human body. Special care must be taken avoid caution to electrostatic breakdown when servicing and handling the laser diode in the BD Drive.



[Caution]
Ground the cable with a clip or a short pin.



Clip or Short Pin

Figure 1

2.4.1. Grounding for electrostatic breakdown prevention

Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

2.4.1.1. Worktable grounding

1. Put a conductive material (sheet) or iron sheet on the area where the optical pickup is placed, and ground the sheet.

2.4.1.2. Human body grounding

1. Use the anti-static wrist strap to discharge the static electricity form your body.

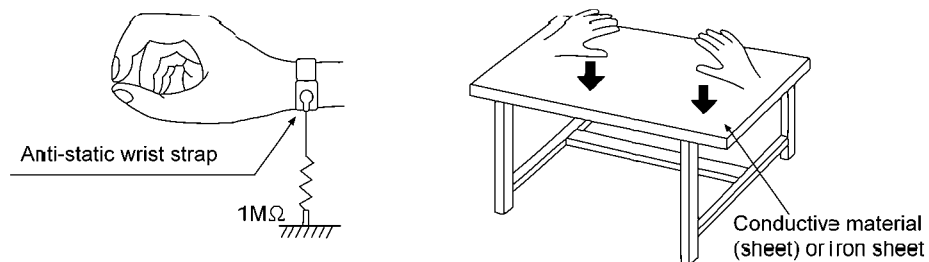


Figure 2

3 Service Navigation

3.1. Service Information

This service manual contains technical information which will allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with the original service manual.

- **BD Drive & Digital Circuitries:**

1) This service manual does not contain the following information, due to the impossibility of servicing at component level.

- Schematic Diagram, Block Diagram and Eletrical Replacement partlist for individual of Digital Circuitries.

2) The following category are recycle module part. Please send them to Central Repair Center.

- BD Drive & Main P.C.B. Assembly (BT230EB: RFKNBT230EBA)
(BT230EG: RFKNBT230EGA)
(BT230EP: RFKNBT230EPA)
(BT230EE: RFKNBT230EEA)
(BT330EB: RFKNBT330EBA)
(BT330EG: RFKNBT330EGA)
(BT330EP: RFKNBT330EPA)

- **Wireless system (optional)**

1) This model supports to wireless surround speaker (SH-FX71E-K).

2) For information of wireless system, please refer to original service manual (Order No.: PSG1002002CE)

3.2. Caution for Replacing Parts

3.2.1. Items that should be done after replacing parts

√: Necessary —: Unnecessary

Items that Should be done Replacing Parts	Updating Firmware (Note 1)
BD Drive/Main P.C.B.	√

Note 1:

Download latest Firmware and burn it on CD-R or CD-RW, and update Firmware.

3.2.2. Standard Inspection Specifications after Making Repairs

After making repairs, we recommend performing the following inspection, to check normal operation.

No.	Procedure	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert RAM disc.	The Panasonic RAM disc should be recognized.
4	Perform playback for one minute using the RAM disc.	No abnormality should be seen in the picture, sound or operation. *Panasonic DVD-RAM disc should be used when recording and playback.
5	Perform playback for one minute using the BD-Video disc.	No abnormality should be seen in the picture, sound or operation.
6	If a problem is caused by a BD-Video disc, VCD, DVD-R, DVD-Video, Audio-CD, or MP3, playback the test disc.	No abnormality should be seen in the picture, sound or operation.
7	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [UPD OK] appears in the FL displays. *[UNSUPPORT] display means the unit is already updated to newest same version. Then version up is not necessary.
8	Transfer [9][9] in the service mode setting, and initialize the service settings (return various settings and error information to their default values. The laser time is not included in this initialization).	Make sure that [CLR] appears in the FL display. After checking it, turn the power off.

Use the following checklist to establish the judgment criteria for the picture and sound.

Item	Contents	Check	Item	Contents	Check
Picture	Block noise		Sound	Distorted sound	
	Crosscut noise			Noise (static, background noise, etc.)	
	Dot noise			The sound level is too low.	
	Picture disruption			The sound level is too high.	
	Not bright enough			The sound level changes.	
	Too bright				
	Flickering color				
	Color fading				

4 Specifications

Main unit SA-BT230EB/EG/EP/EE, SA-BT330EB/EG/EP

●GENERAL

Power supply: AC 220 V to 240 V, 50 Hz
iPod/iPhone Connector: DC OUT 5V 500mA MAX
WIRELESS LAN Connector: DC OUT 5V 500mA MAX
 (USB 2.0 Standard)
Power consumption: 100 W
Power consumption in standby mode:

0.2 W (BT330)

0.1 W (BT230)

Dimensions (W×H×D): 430 mm×54 mm×287 mm

Mass (Weight): Approx. 3.1 kg

Operating temperature range: 0 °C to 40 °C

Operating humidity range: 35 % to 80 % RH
 (no condensation)

●AMPLIFIER SECTION

RMS TTL Power Output: 1000 W

1 kHz, 10 % total harmonic distortion

Front:

125 W per ch (3 Ω)

Center:

250 W per ch (6 Ω)

Surround:

125 W per ch (3 Ω)

100 Hz, 10 % total harmonic distortion

Subwoofer:

250 W per ch (6 Ω)

DIN TTL Power Output: 590 W

120 Hz to 20 kHz, 1.0 % total harmonic distortion

Front:

90 W per ch (3 Ω)

Center:

115 W per ch (6 Ω)

Surround:

90 W per ch (3 Ω)

100 Hz, 1.0 % total harmonic distortion

Subwoofer:

115 W per ch (6 Ω)

Audio input

AUX x1

Digital audio input

Optical: x2

Sampling frequency: 32 kHz, 44.1 kHz, 48 kHz

Audio Format: PCM, Dolby Digital

●FM TUNER SECTION

Present Memory: 30 Stations

Frequency range: 87.50 MHz to 108.00 MHz (50 kHz step)

Antenna terminals: 75 Ω (unbalanced)

●VIDEO SECTION

Signal system: PAL 625/50, PAL 525/60,
NTSC

Video output

Output level: 1.0 Vp-p (75 Ω)

Output connector: Pin jack (1 system)

HDMI AV output

Output format: 480p(525p)/ 1080i(1125i)/ 720p(750p)/ 1080p(1125p)

Output connector: Type A (19 pin)

HDMI (V.1.4, Content Type)

This unit supports "HDAVI Control 5" function.

LASER Specification

Class I LASER Product

Wave length:

790 nm (CDs)/650 nm (DVDs)/405 nm (BDs)

Laser power:

No hazardous radiation is emitted with the safety protection

TERMINAL SECTION

USB:

(Front)

USB Port Power:

Max 500 mA

Bit Rate:

Up to 4Mbps (DivX)

(Rear)

USB 2.0 (Uses for Wireless LAN Adaptor only)

Ethernet:

10BASE-T/100BASE-TX

1 system

SD card slot:

Connector : 1 system

Calibration Mic (BT330):

Sensitivity:

100 mV, 4.7 kΩ

Terminal:

Mono, 3.5 mm

Note:

- Specifications are subject to change without notice.
Mass and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

Solder:

This model uses lead free solder (PbF).

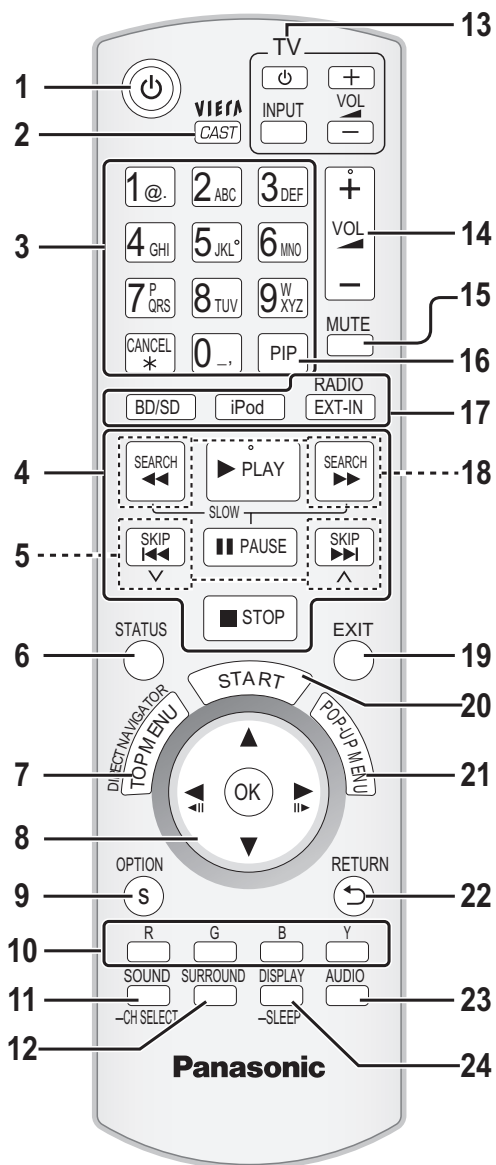
System	SC-BT230EB/EG/EP/EE-K	SC-BT330EB/EG/EP-K
Main unit	SA-BT230EB/EG/EP/EE-K	SA-BT330EB/EG/EP-K
Speaker system	SB-BT230P-K ^{*1}	SB-BT330P-K ^{*1}

Refer to their respective original service manuals for *1.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries.
Manufactured under license from Dolby Laboratories. Dolby, Pro Logic, and the double-D symbol are trademarks of Dolby Laboratories.
Manufactured under license under U.S. Patent #'s: 5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,226,616; 6,487,535; 7,392,195; 7,272,567; 7,333,929; 7,212,872 & other U.S. and worldwide patents issued & pending. DTS and the Symbol are registered trademarks, & DTS-HD, DTS-HD Master Audio Essential and the DTS logos are trademarks of DTS, Inc. Product includes software. © DTS, Inc. All Rights Reserved.
This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.
HDMI, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
This product is licensed under the AVC patent portfolio license and VC-1 patent portfolio license for the personal and non-commercial use of a consumer to (i) encode video in compliance with the AVC Standard and VC-1 Standard ("AVC/VC-1 Video") and/or (ii) decode AVC/VC-1 Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed to provide AVC/VC-1 Video. No license is granted or shall be implied for any other use. Additional information may be obtained from MPEG LA, LLC. See http://www.mpegla.com .
HDAVI Control™ is a trademark of Panasonic Corporation.
x.v.Color™ is a trademark.
VIERA CAST™ is a trademark of Panasonic Corporation.
"AVCHD" and the "AVCHD" logo are trademarks of Panasonic Corporation and Sony Corporation.
SDXC Logo is a trademark of SD-3C, LLC.
"Blu-ray Disc" is trademark.
"BD-LIVE" logo is trademark of Blu-ray Disc Association.
"BONUSVIEW" is trademark of Blu-ray Disc Association.
YouTube and Picasa are trademarks of Google, Inc.
"Made for iPod" means that an electronic accessory has been designed to connect specifically to iPod and has been certified by the developer to meet Apple performance standards.  "Works with iPhone" means that an electronic accessory has been designed to connect specifically to iPhone and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. iPod is a trademark of Apple Inc., registered in the U.S. and other countries. iPhone is a trademark of Apple Inc. 
DLNA®, the DLNA Logo and DLNA CERTIFIED™ are trademarks, service marks, or certification marks of the Digital Living Network Alliance.
Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

5 Location of Controls and Components

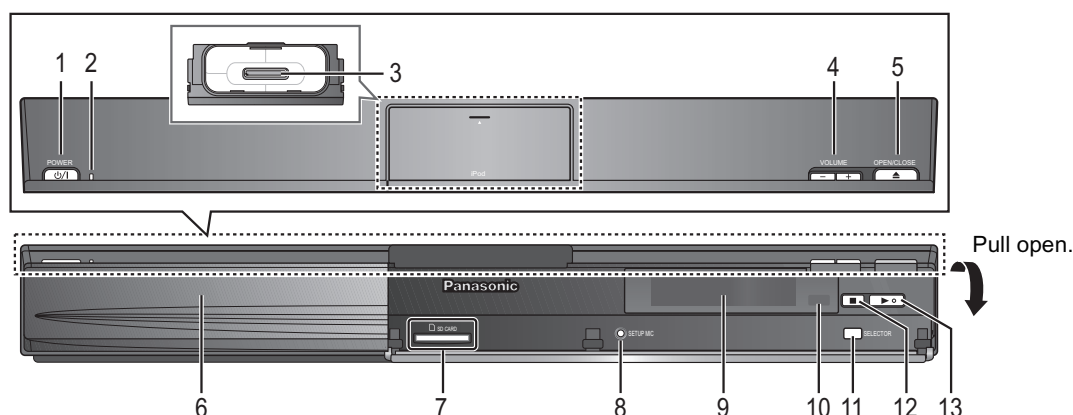
5.1. Remote Control Key Button Operations



- 1 Turn the unit on and off
- 2 Display the Home screen of VIERA CAST
- 3 Select title numbers, etc./Enter numbers or characters
[CANCEL]: Cancel
- 4 Basic playback control buttons
- 5 Select preset radio stations
- 6 Show status messages
- 7 Show Top Menu/Direct Navigator
- 8 [▲, ▼, ◀, ▶]: Menu selection
[OK]: Selection
[◀, ▶]: Select preset radio station
[◀] (◀◀), [▶] (▶▶): Frame-by-frame
- 9 Show option menu
- 10 These buttons are used when;
 - Operating a BD-Video disc that includes Java™ applications (BD-J).
 - Displaying Title View and Album View screens.
 - Operating contents of VIERA CAST
- 11 Set the sound mode/Select speaker channel
- 12 Select surround sound effects
- 13 TV operation buttons
[TV]: Turn the television on and off
[INPUT]: Input select
[+ - VOL]: Adjust the volume
- 14 Adjust the volume of the main unit
- 15 Mute the sound
 - MUTE flashes on the unit's display, while the function is on.
 - To cancel, press the button again or adjust the volume.
 - Muting is canceled if the unit is turned off.
- 16 Select the source
[BD/SD]: Select disc drive or SD card drive
[iPod]: Select iPod/iPhone as the source
[RADIO/EXT-IN]: Select FM Tuner, USB or external audio as the source
- 17 Switch on/ off Secondary video (Picture-in-picture)
- 18 Select radio stations manually
- 19 Exit the menu screen
- 20 Show START menu
- 21 Show Pop-up menu
- 22 Return to previous screen
- 23 Select audio
- 24 Show Playback menu/Set the sleep timer
 - ① Press and hold [SLEEP].
 - ② While SLEEP ** is displayed, press [SLEEP] several times to select the time (in minutes).
 - Timer selection is up to 120 minutes.
 - Select Off when cancelling the setting.
To confirm the remaining time
 - Press and hold the button again.

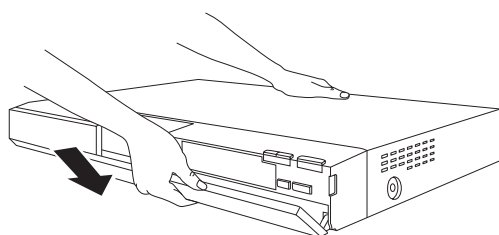
5.2. Main Unit Key Button Operations

Illustration shown is for SA-BT330



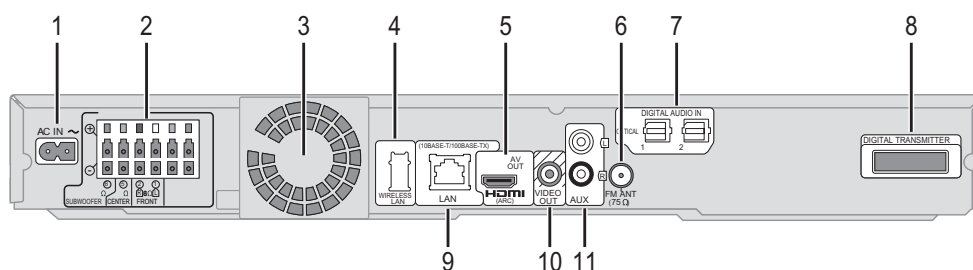
- | | |
|---|---|
| <ol style="list-style-type: none"> 1 Standby/on switch (POWER $\odot/\text{I}$)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power. 2 Power indicator
The indicator lights when this unit is turned on. 3 Connect iPod/iPhone 4 Adjust the volume of the main unit 5 Open or close the disc tray 6 Disc tray 7 SD card slot 8 USB Port | <ol style="list-style-type: none"> 9 [BT330] Connect Auto speaker setup microphone 10 Display (FL display) <ul style="list-style-type: none"> • SRD (SURROUND) lights when sound is output to the surround speakers. • The display is turned off when the volume is adjusted to 0. 11 Remote control signal sensor
Distance: Within approx. 7 m (23 ft.)
Angle: Approx. 20° up and down, 30° left and right 12 Select the source 13 Stop 14 Start play |
|---|---|

■ If the front cover comes off



- ① Hold rear side of main unit by one hand and match up left or right side protruding hook on the cover first with the corresponding slot on the unit.
- ② Push the hook firmly towards the unit until it clicks into place. Then push the succeeding hooks one by one until all have clicked into place.
- ③ Check that the cover now moves correctly.
 - If it does not, remove it and repeat the above procedure.

Main unit (Rear)



- | | |
|---|---|
| <ol style="list-style-type: none"> 1 AC IN terminal 2 Speaker terminals 3 Cooling fan 4 USB port for optional wireless adaptor 5 HDMI AV OUT terminal 6 FM radio antenna terminal | <ol style="list-style-type: none"> 7 DIGITAL AUDIO IN terminals
Terminal 1 is designated for connection with the TV. Terminal 2 can be used with equipment other than the STB. 8 Digital transmitter dock 9 LAN port 10 VIDEO OUT terminal 11 AUX terminal |
|---|---|

5.3. Using BD-LIVE BONUSVIEW in BD-Video

What is BONUSVIEW?

BONUSVIEW allows you to enjoy functions such as picture-in-picture or secondary audio etc.

What is BD-Live?

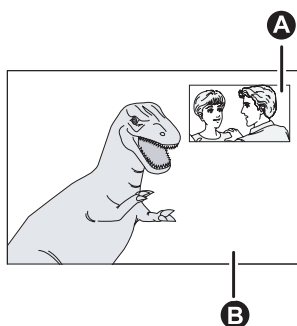
In addition to the BONUSVIEW function, BD-Live allows you to enjoy more functions such as subtitles, exclusive images and online games by connecting this unit to the Internet.

The usable functions and the operating method may vary with each disc, please refer to the instructions on the disc and/or visit their website.

Playing picture-in-picture

To turn on/off secondary video

- ① Press [DISPLAY].
- ② Press [▲, ▼] to select the "Disc" menu and press [▶].
- ③ Press [▲, ▼] to select the "Signal Type" menu and press [OK].
- ④ Press [▲, ▼] to select the "Video" under "Secondary Video" menu and press [▶].
- ⑤ Press [▲, ▼] to select the "On" or "Off".
- ⑥ Press [RETURN] to exit.



- A** Secondary video
- B** Primary video

To turn on/off secondary audio

- ① Press [DISPLAY].
- ② Press [▲, ▼] to select the "Disc" menu and press [▶].
- ③ Press [▲, ▼] to select the "Signal Type" menu and press [OK].
- ④ Press [▲, ▼] to select the "Soundtrack" under "Secondary Video" menu and press [▶].
- ⑤ Press [▲, ▼] to select the "On" or "Off".
When "On" is selected, press [▶] and then press [▲, ▼] to select the language.
- ⑥ Press [RETURN] to exit.



During search/slow-motion or frame-by-frame, only the primary video is displayed.
When "BD-Video Secondary Audio" in "Digital Audio Output" is set to "Off", secondary audio will not be played.

Enjoying BD-Live discs with Internet

Some BD-Live content available on the Blu-ray discs may require an Internet account to be created in order to access the BD-Live content. Follow the screen display or instruction manual of the disc for information on acquiring an account.

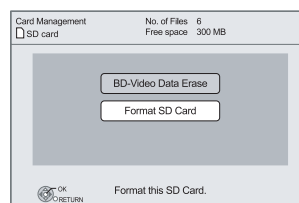
1 Connect to the network.

2 Insert an SD card (with 1 GB or more free space). SD card is used as the local storage.

3 Insert the disc.

■ Deleting data/Formatting SD cards

- ① Insert an SD card.
- ② Press [START].
- ③ Press [▲, ▼] to select "Other Functions" and press [OK].
- ④ Press [▲, ▼] to select "Card Management" and press [OK].
- ⑤ Press [▲, ▼] to select "BD-Video Data Erase" or "Format SD Card" and press [OK].



- ⑥ Press [◀, ▶] to select "Yes" and press [OK].
- ⑦ Press [◀, ▶] to select "Start" and press [OK].



To use the above functions, it is recommended that you format the card on this unit. If the SD card you use is formatted, all data on the card will be erased. It cannot be recovered.
"BD-Live Internet Access" may need to be changed for certain discs.

When discs supporting BD-Live are played back, the player or disc IDs may be sent to the content provider via the Internet.

5.4. Using the iPod/iPhone

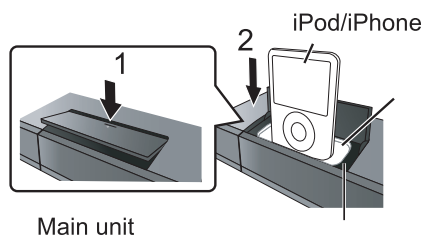
iPod/iPhone Connection

Preparation

- Before connecting/disconnecting the iPod/iPhone, turn the main unit off or reduce the volume of the main unit to its minimum.
- Make sure that the video connection is made to view photos/videos from the iPod/iPhone.

1 Push  to open the iPod/iPhone lid.

2 Connect the iPod/iPhone (not included) firmly.



A Dock adapter (not included)

- Attach the dock adapter until firmly fitting into the dock. The adapter should be supplied with your iPod/iPhone for the stable use.
If you need an adapter, consult your iPod/iPhone dealer.

B Dock for iPod/iPhone



About recharging the battery

- iPod/iPhone will start recharging regardless of whether this unit is on or off.
- "IPOD ✱" will be shown on the main unit's display during iPod/iPhone charging in main unit standby mode.
- Once fully recharged, additional recharging will not occur.

Compatible iPod/iPhone (as of December 2009)

- Compatibility depends on the software version of your iPod/iPhone.

Name	Memory size
iPhone 3GS	16 GB, 32 GB
iPhone 3G	8 GB, 16 GB
iPod nano 5th generation (video camera)	8 GB, 16 GB
iPod touch 2nd generation	8 GB, 16 GB, 32 GB, 64 GB
iPod classic	120 GB, 160 GB (2009)
iPod nano 4th generation (video)	8 GB, 16 GB
iPod classic	160 GB (2007)
iPod touch 1st generation	8 GB, 16 GB, 32 GB
iPod nano 3rd generation (video)	4 GB, 8 GB
iPod classic	80 GB
iPod nano 2nd generation (aluminum)	2 GB, 4 GB, 8 GB
iPod 5th generation (video)	60 GB, 80 GB
iPod 5th generation (video)	30 GB
iPod nano 1st generation	1 GB, 2 GB, 4 GB
iPod 4th generation (color display)	40 GB, 60 GB
iPod 4th generation (color display)	20 GB, 30 GB
iPod 4th generation	40 GB
iPod 4th generation	20 GB
iPod mini	4 GB, 6 GB

5.4.1. iPod /iPhone Playback

iPod/iPhone Playback

Preparation

- Make sure that the “IPOD” source is selected. Press [iPod] to select the source.
- **To view photos/videos from the iPod/iPhone**
Operate the iPod/iPhone menu to make the appropriate photo/video output settings for your TV.
- To display the picture, turn on the TV and select the appropriate video input mode.

Enjoy music/video

To use the iPod touch/iPhone features

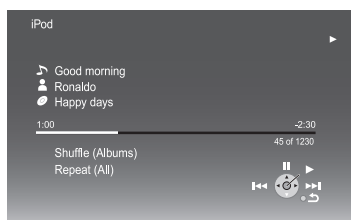
- ① Press the Home button on the iPod touch/iPhone.
- ② Select the iPod touch/iPhone features on the touch screen to operate.

- 1 Press [iPod] to select “IPOD”.**
- 2 Press [STATUS] several times to select the music menu or videos menu.**
- 3 Press [▲, ▼] to select an item and press [OK].**

Repeat this step until the selected title starts playback.

Press [◀, ▶] to display the previous or next page.

e.g., music playback screen



To exit, press [TOP MENU/DIRECT NAVIGATOR].

Enjoy photos

- 1 Press [iPod] to select “IPOD”.**
- 2 Press [STATUS] several times to select the All menu (iPod display).**
- 3 Switch the TV input to video in.**
- 4 Play a slideshow on your iPod/iPhone.**

The picture will be displayed on your TV.

You can use the remote control to operate the iPod/iPhone menu.

The operation may vary among iPod/iPhone models.

- [▲, ▼]: To navigate menu items
- [OK]: To go to the next menu.
- [RETURN]: To return to the previous menu.

Other methods of playback

- 1 Press [START].**
- 2 Press [▲, ▼] to select “Menu” and then press [OK].**
- 3 Press [▲, ▼] to select “Playback Mode” and then press [OK].**
- 4 Press [▲, ▼] to select an item and press [OK].**

Shuffle (For music playback only.)

Songs:

Play all songs on iPod/iPhone in random order.

Albums:

Play all songs on an album in random order.

Repeat

One:

Play a single song/video repeatedly.

All:

Play all songs/videos from selected items (e.g., Playlists, Albums, etc.) repeatedly.

- 5 Press [▲, ▼] to select the setting and press [OK].**



- The setting of the playback mode will be kept until changes are made on the same iPod/iPhone.

Basic controls

(For music and video playback only)

Buttons	Functions
[▶ PLAY]	Play
[■ STOP]	Pause
[PAUSE]	
[SKIP ◀◀, SKIP ▶▶]	Skip
(Press and hold) [SEARCH ◀◀, SEARCH ▶▶]	Search



- Surround sound effect and sound mode are available.

5.5. DLNA features

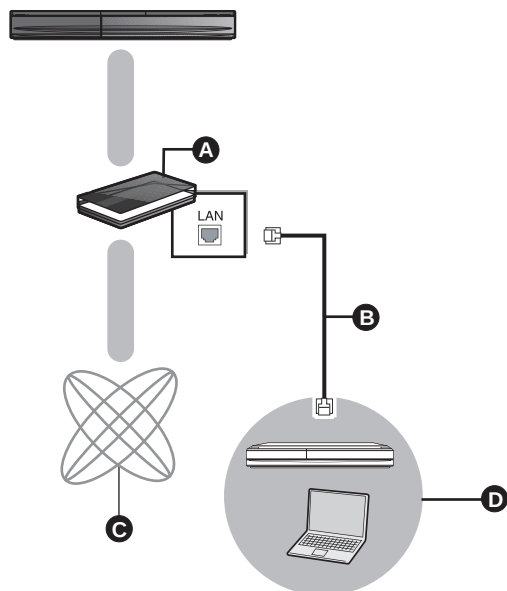
DLNA feature

You can enjoy music, video and picture contents saved on a DLNA Certified media server (such as a PC with Windows 7 installed etc.) connected to the home network with this unit. You also can enjoy viewing them with Panasonic DLNA compatible recorders (DIGA).

- The countries where DIGA is available are limited. Refer to following site for availability.
<http://panasonic.jp/support/global/cs/>
- For the operation of equipment connected to the network, refer their respective operating instructions.

Preparation

- ① Perform network connection and network setting.
- ② Connect a DLNA Certified media server to the network.



- A** Broadband router, Wireless router (Access point), etc.
- B** LAN Cable (Straight)
- C** Internet
- D** DLNA Certified media server

When connected to a Panasonic DLNA compatible recorder (DIGA)

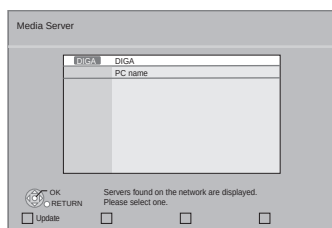
Perform the Home Network (DLNA) setup.

When a message requesting operation of the equipment to be registered is displayed, perform the operations in steps 1-4 of Enjoy contents on the equipment connected to this unit via the network .

Enjoy contents on the equipment connected to this unit via the network

- 1 Press [START].
- 2 Press [▲, ▼] to select **Network** and press [OK].
- 3 Press [▲, ▼] to select **Home Network (DLNA)** and press [OK].
 - A list of equipment connected via the network is displayed.
 - This list can be updated by pressing the red button on the remote control.

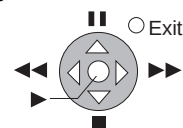
e.g.



- 4 Press [▲, ▼] to select the equipment to playback the contents, and press [OK].
- 5 Press [▲, ▼, ◀, ▶] to select the item to playback (folder), and press [OK].
 - Menu structure will be different depending on the equipment connected to this unit. Select the contents by repeating the operation.
 - Control Panel is displayed once the playback starts. Operation can be performed with [▲, ▼, ◀, ▶], [OK], [RETURN] and [EXIT].

Control Panel

e.g.



- Press [OK] if the Control Panel is not displayed.

- Discs cannot be played back. Also, depending on the equipment, playback of pictures may not be possible.
- Items displayed in grey on the display cannot be played back by this unit. This unit cannot be played back via connected equipment.
- Depending on the performance of the connected PC, video frames may be dropped during playback, or it may not playback at all.

Useful functions for when playing back pictures

The following operations are possible when playing back pictures from connected equipment.

While picture list screen or folder with picture list screen is displayed

- ① Press [OPTION].
- ② Select an item, then press [OK].

Start Slideshow	You can display still pictures one by one at a constant interval.
Slideshow Settings	Display Interval Change the display interval. Repeat Play Repeat slideshow. Press [▲ , ▼ , ◀ , ▶] to select Set and press [OK].

While playing

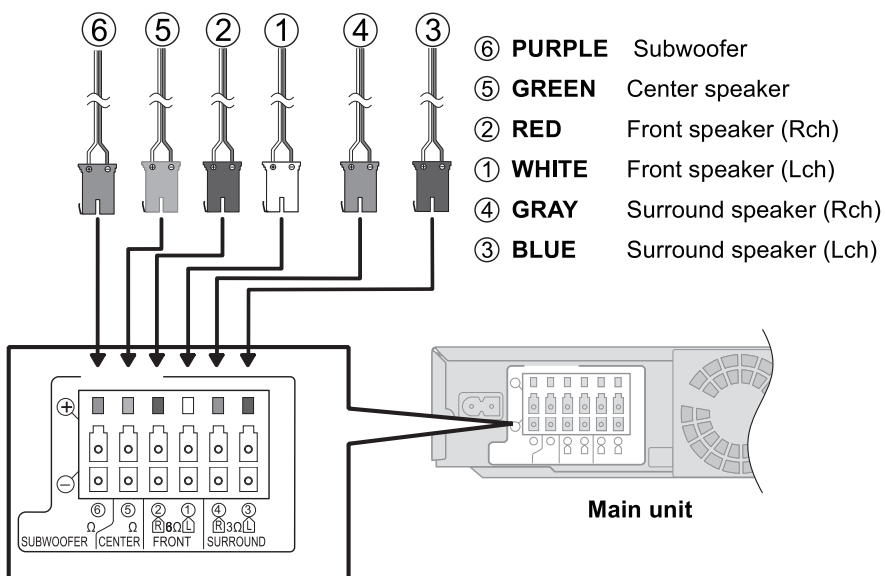
- ① Press [OPTION].
- ② Select an item, then press [OK].

Status	Show the picture properties.
Rotate RIGHT (except for slideshow)	Rotate the still picture.
Rotate LEFT (except for slideshow)	

5.6. Speaker Connections

Turn off all equipment before connection and read the appropriate operating instructions.

Do not connect the AC power supply cord until all other connections are complete.



When using the optional wireless system, do not attempt to connect any extra surround or surround back speakers to the main unit.

5.7. Disc Playability

Type	Logo examples	Type detail	Playable contents
BD		BD-Video	Video
		BD-RE	Video JPEG
		BD-R	Video DivX ^{fi}
DVD		DVD-Video	Video
		DVD-RAM	Video AVCHD JPEG
		DVD-R	Video AVCHD
		DVD-R DL	DivX MP3 JPEG
		DVD-RW	Video AVCHD
		+R/+RW/+R DL	
CD		Music CD	Music [CD-DA]
		CD-R CD-RW	DivX Music [CD-DA] MP3 JPEG
SD		SD Memory Card (8 MB to 2 GB) (Includes miniSD Card and microSD Card) SDHC Memory Card (4 GB to 32 GB) (Includes microSDHC Card) SDXC Memory Card (48 GB, 64 GB) (Includes microSDXC Card) (as of December 2009)	MPEG2 AVCHD JPEG
USB		USB device (up to 128 GB)	DivX MP3 JPEG

■ Discs that cannot be played in this unit

Any other disc that is not specifically supported or previously described.

- 2.6 GB and 5.2 GB DVD-RAM
- DVD-RAM that cannot be removed from cartridge
- Super Audio CD
- Photo CD
- DVD-Audio
- Video CD and Super Video CD
- WMA discs
- DivX discs
- PAL discs
- HD DVD
- BD-Video discs recorded at a rate of 50 fields/sec

■ Region management information

BD-Video

This unit plays BD-Video marked with labels containing the region code A.

Example:



DVD-Video

This unit plays DVD-Video marked with labels containing the region number 1 or ALL.

Example:



■ Finalize

DVD-R/RW/R DL, +R/+RW/+R DL and CD-R/RW recorded by a recorder, etc. needs to be finalized by the recorder to play on this unit. Please refer to the recorder's instructions.

■ BD-Video

This unit supports high bit rate audio (Dolby Digital Plus, Dolby TrueHD, DTS-HD High Resolution Audio and DTS-HD Master Audio) adopted in BD-Video. In order to enjoy these audio formats, refer to page 36.

■ Music CD

- Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.
- The digital audio content side of a DualDisc does not meet the technical specifications of the Compact Disc Digital Audio (CD-DA) format so playback may not be possible.

5.8. SD Information

■ SD card

- MiniSD Cards, microSD Cards, microSDHC Cards and microSDXC Cards can be used, but must be used with an adaptor card. These are usually supplied with such cards, or otherwise customer provided.
- Keep the Memory Card out of reach of children to prevent swallowing.
- To protect the card's contents, move the record prevention tab (on the SD card) to "LOCK".
- This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT12 and FAT16 formats, as well as SDHC Memory Cards in FAT32 format (Does not support long file name.) and SDXC Memory Cards in exFAT.
- If the SD card is used with incompatible computers or devices, recorded contents may be erased due to the card being formatted etc.
- Useable memory may be slightly less than the card capacity.



- It may not be possible to play the above media in some cases due to the type of media, the condition of the recording, the recording method and how the files were created.
- The producers of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.

5.9. File Extension Type Support (MP3/JPEG/AVCHD/MPEG2 files)

MP3

File format	MP3
Extension	Files must have the extension .mp3 or .MP3 .
Compression rate	32 kbps to 320 kbps
Sampling rate	44.1 kHz/48 kHz
Reference	ID3 tags: version 1, 2.2, 2.3, 2.4 (Only titles and the names of artists)

JPEG

File format	JPEG
Extension	Files must have the extension .jpg or .JPG .
Picture resolution	between 34k 34 and 8192k 8192 pixels (sub sampling is 4:2:2 or 4:2:0)
Reference	JPEG conforming DCF* is supported. • MOTION JPEG and Progressive JPEG is not supported.

- * Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).
- DVD-RAM must conform to UDF 2.0.
 - BD-RE must conform to UDF 2.5.

DivX

File format	DivX
Extension	Files must have the extension .DIVX , .divx , .AVI or .avi .
Picture resolution	Up to 1920k 1080 pixels
Reference	• DivX certified to play DivX video up to HD 1080p, including premium content. Video Number of stream: Up to 1 Codec: DIV3, DIV4, DIVX, DX50, DIV6 FPS (Frame Per Second): Up to 60 fps Audio Number of stream: Up to 8 Format: MP3, MPEG, Dolby Digital Multi channel: Dolby Digital is possible. MPEG multi is 2 ch conversion. • GMC (Global Motion Compensation) is not supported.

- DVD-R and DVD-R DL must conform to UDF 1.02 without ISO9660 and UDF 1.5 with ISO9660.
- BD-R must conform to UDF 2.5.

Subtitles text file of DivX

File format	Subtitles text file of DivX
File format	MicroDVD, SubRip, or TMLPlayer
Extension	Files must have the extension .SRT , .srt , .SUB , .sub , .TXT , or .txt
Reference	• The DivX video file and subtitles text file are inside the same folder, and the file names are the same except for the file extensions. • Depending on the methods used to create the file or the state of the recording, only parts of the subtitles may be displayed, or the subtitles may not be displayed at all.

AVCHD

File format	AVCHD format (V1.0) used on High Definition Video Camera (Panasonic and some other s)
Codec	MPEG-4 AVC/H.264
	• Discs must conform to UDF 2.5.

MPEG2

File format	SD-Video format* used on Standard Definition Video Camera (Panasonic and some other s)
Codec	MPEG2
	* SD-Video Entertainment Video Profile

- With certain recording states and folder structures, the play order may differ or playback may not be possible.
- CD-R, CD-RW: ISO9660 level 1 or 2 (except for extended formats), Joliet
This unit is compatible with multi-session.
This unit is not compatible with packet writing.
- DVD-R, DVD-R DL (except for AVCHD): ISO9660 level 1 or 2 (except for extended formats), Joliet, UDF bridge (UDF 1.02/ISO9660)
This unit is not compatible with multi-session.
This unit is not compatible with packet writing.

Structure of folders that can be played in this unit

You can play files on this unit by structure of folders as shown below. However depending on the method of writing data (writing software), play may not be in the order you numbered the folders.

 : Folder which can be displayed with this unit

*** : Numbers

XXX: Letters

*1 ***: from 001 to 999

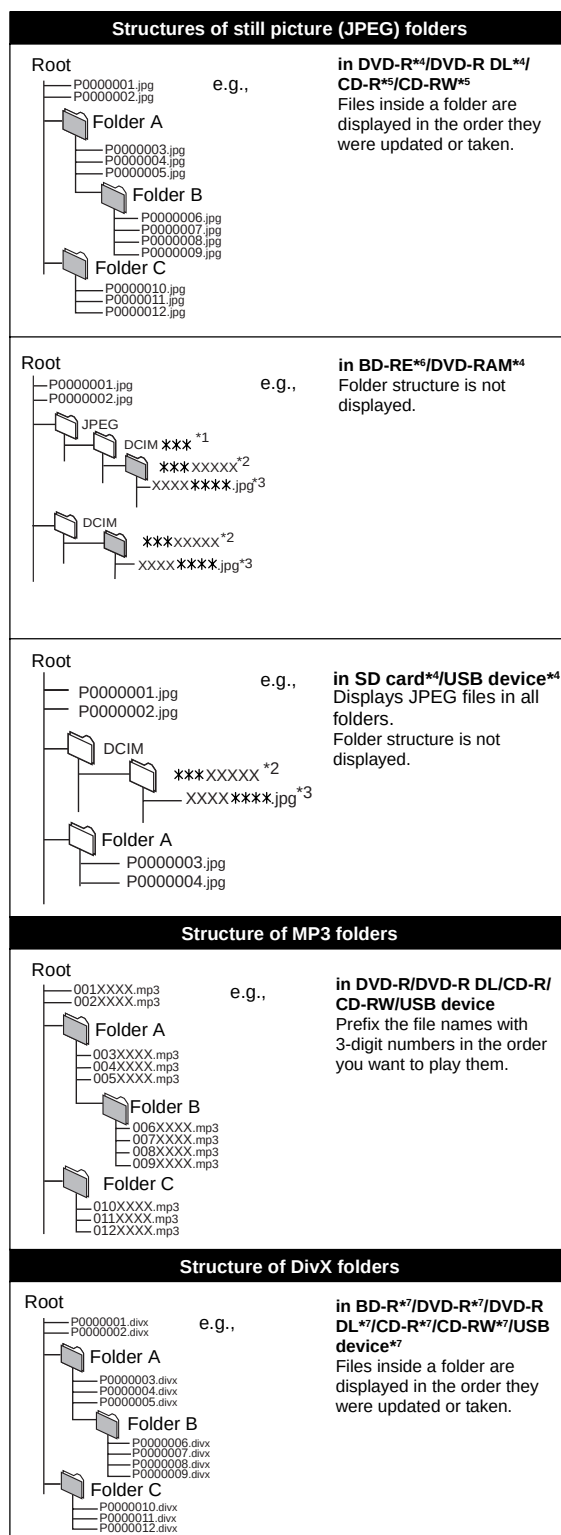
*2 ***: from 100 to 999

XXXXX: 5 figures

*3 ****: from 0001 to 9999

XXXX: 4 figures

5.9.1. File Folders Structures



^{*4} The total combined maximum number of recognizable picture contents and folders: 3000 picture contents and 300 folders.

^{*5} The total combined maximum number of recognizable picture contents and folders: 999 picture contents and 99 folders.

^{*6} The total combined maximum number of recognizable picture contents and folders: 9999 picture contents and 300 folders.

^{*7} The total combined maximum number of recognizable file contents and folders: 200 file contents and 300 folders.

6 Operating Instructions

6.1. Removing of disc during abnormality

6.1.1. Using main unit key buttons.

6.1.1.1. When the power can be turned off.

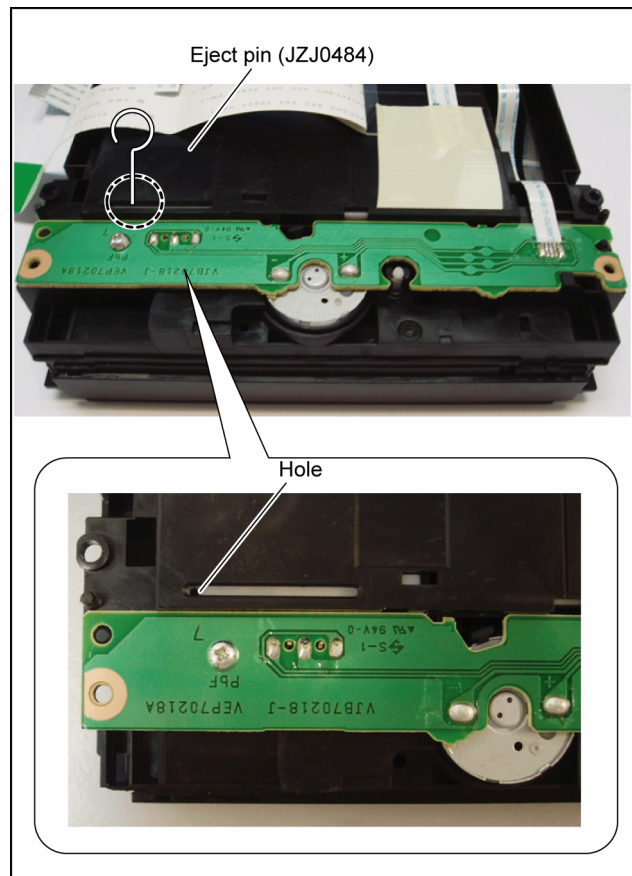
1. Turn off the power and press & hold [SKIP FWD] button on remote and [OPEN/CLOSE] button on main unit for 5 seconds.

6.1.1.2. When the power cannot be turned off.

1. Press & hold the [POWER] button to turn off the power forcibly, then press & hold [SKIP FWD] button on remote and [OPEN/CLOSE] button on main unit for 5 seconds.

6.1.2. Using service eject pin.

1. Turn off the power and remove AC cord.
2. Remove the Top Cabinet.
3. Remove BD Drive.
4. Insert Eject Pin (JZJ0484) into the hole on the bottom of BD Drive and slide the eject Pin in the direction of the arrow to eject tray slightly.
5. Remove disc.



7 Self-Diagnostic and Special Mode Setting

7.1. Special Mode Table 1

Self-Diagnostic Function provides information for error to service personnel by Self-Diagnosis Display when any error has occurred.

U, H** and F** are stored in my memory and held.**

- You can check latest error code by transmitting [0] [1] of Remote Control in Service Mode.

Automatic Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Item		FL display	Key operation
Mode name	Description		Front Key
Initialize Mode	*All the main unit's parameters are initialized. 1) Unit power-up 2) FL shows "Hello" then "goodbye" 3) Unit power-down 4) Unplug & plug AC Cord	-----	Press & hold [VOL+], [OPEN/CLOSE] follow by [POWER] button in sequence during power off.
Rating password	The audiovisual level setting password is initialized to Level 8 .	INIT	Press [SKIP REV] on remote control, follow by [PLAY] on main unit simultaneously for five seconds when power-on.
Service Mode	Setting every kind of modes for servicing. *Details are described in 7.3.1. Service Mode at a glance .	SERV	Press & hold [VOL+], [OPEN/CLOSE] & [PLAY] on main unit for 3S or more during power off.
BD-ROM history cleaning	< Persistent Storage > of BD-ROM standard is cleaned. Screen display: [The player's history data has been cleared] is displayed for five seconds.	***** Same display as before execution.	When power on press [STOP] on main unit & [POWER] on remote control.
Forced disc eject	Removing a disc that cannot be ejected. The tray will open and unit will shift to P-off mode. While Demonstration Lock is being set, this Forced disc eject function is not accepted.	The display before execution leaves. *****	When power is off, press [SKIP FWD] on remote control & [OPEN/CLOSE] key on main unit simultaneously for 5 seconds or more.
Forced power-off	When the power button is not effective while power is ON, turn off the power forcibly.	Display in P-off mode.	Press [POWER] over than 10 seconds.
Aging	Perform sequence of modes as * Aging Description shown below continually.	Display following the mode.	When the power is ON, press [SKIP FW], [PLAY] & [OPEN/CLOSE] simultaneously for over 5 seconds and less than 10 seconds. NOTE1: If Unit has not turned into Aging mode by operations shown above, execute TEST MODE once and re-execute operation shown above. (*All the main unit's parameters include tuner are initialized by TEST mode.) NOTE2: If the unit has hung-up because of pressing keys for over 10 seconds, once turn off the power, and re-execute this command. *When releasing Aging mode, press [POWER] key over 10 seconds.

7.2. Special Mode Table 2

Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by Main unit initialization of service mode.	*When lock the tray. LOCK LOCK is displayed for 3 seconds.	When the power is on, press [PLAY] and [OPEN/CLOSE] keys simultaneously for 5 seconds. Note: When a disc is not in tray, this setting is not effective.
		*When unlock the tray. UNLOCK UNLOCK is displayed for 3 seconds.	When the power is on, press [PLAY] and [OPEN/CLOSE] keys simultaneously for 5 seconds.
		*When press OPEN/CLOSE key while the tray being locked. LOCK Display LOCK for 3 seconds.	Press [OPEN/CLOSE] key while the tray is being locked.
Progressive initialization	The progressive setting is initialized to Interlace.	The display before execution leaves. *****	When the power is on (SS mode), press [STOP] and [PLAY] simultaneously for 5 seconds.
Micro-P version check	To check for main & sub firmware version no., model no. & date of production.	FL Display (i) M-XXXX -> Main Firmware Version (ii) S-YYYY -> Sub Firmware Version (iii) AA/BB/CC -> Date (iv) ZZZZZZ -> Model No.	When the power is on, press & hold [SKIP REV] on remote control follow by [POWER] on main unit.

7.3. Error Code Table

7.3.1. Error Code Table (For BD)

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U30	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	SET * * is remote controller code of the main unit. Display for 5 seconds.
U59	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70 C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. (Fan motor operates at the highest speed for the first 5 minutes. For the remaining 25 minutes, fan motor is also stopped.) The event is saved in memory as well.	No display	U59 U59 is displayed for 30 minutes.
U71	HDMI incompatible error (HDCP incompatible)	Display this error when the equipment (compatible with DVI such as TV, amplifier etc.) connected to the unit by HDMI is incompatible with HDCP. *HDCP=High-bandwidth Digital Content Protection	No display	U71
U72	HDMI connection error (communication error)	This error is displayed when there are any communication problems with the unit and the equipments (TV, amplifier etc.) connected to the unit by HDMI. (or when there is a problem with the HDMI cable)	No display	U72 U72 display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
U73	HDMI connection error (authentication error)	when authentication error occurs while the equipments (TV, amplifier etc.) are connected by HDMI. (or when there is a problem with the HDMI cable)	No display	U73 U73 display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
F99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor	No display	F99 Displayed is left until the [POWER] key is pressed.
H19	Inoperative fan motor	When inoperative fan motor is detected after powered on, the power is turned off automatically. The event is saved in memory.	No display	No display
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization.)	No display	No display
F34	Initialization error when main microprocessor is started up for program recording	When initialization error is detected after starting up main microprocessor the power is turned off automatically. The event is saved in memory.	No display	No display
F58	Drive hardware error	When drive unit error is detected, the event is saved in memory.	No display	No display
UNSUPPORT	Unsupported disc error	*An unsupported format disc was played, although the drive starts normally. *The data format is not supported, although the media type is supported. *Exceptionally in case of the disc is dirty.	This disc is incompatible.	UNSUPPORT
NO READ	Disc read error	*A disc is flawed or dirty. *A poor quality failed to start. *The track information could not be read.	Cannot read disc. Please check the disc.	NOREAD
HARD ERR	Drive error	The drive detected a hard error.	DVD drive error.	HARD ERR The character indication flows sideways.

7.3.2. Error Code Table 2 (For BD)

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
SELF CHECK	Restoration operation	Since the power cord fell out during a power failure or operation, it is under restoration operation. *It will OK, if a display disappears automatically. If a display does not disappear, there is the possibility that defective Digital P.C.B. / DVD drive.	No display	SELF CHECK
PLEASE WAIT	Unit is in termination process	Unit is in termination process now. B Y E is displayed and power will be turned off.	No display	PLEASE WAIT The character indication flows sideways.
UNFORMAT	Unformatted disc error	You have inserted an unformatted DVD-RAM or DVD-RW that is unformatted or recorded on other equipment.	The disc is not formatted properly.	UNFORMAT
No PLAY	When there is a viewing restriction on a BD-Video or DVD-Video.	Rating password is set.	No display	No PLAY

7.3.3. Error Code Table 3 (Power Supply & Digital Amplifier)

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
F61	The abnormalities in an output or power supply circuit of POWER AMP	In normal operation, when DCDT2 goes to "L" (Low) (Not during POWER OFF condition), F61 appears on FLDisplay for 1 second and PCONT goes to "L" (Low). This is due to speaker output has DC voltage or fan is not working.	F 6 1	Press [■ STOP] on main unit for next error.
F76	Abnormality in the output voltage of stabilized power supply	In normal operation when DCDT1 is detected "L" (Low) for two consecutive times, F76 is displayed on FL for 1 second and after that PCONT will be turned to "L" (Low). This is due to any of the DC voltages (+9V, +7V, -7V, +5V, +5.3V etc.) C22 not available.	F 7 6	Press [■ STOP] on main unit for next error.
H19	Fan Unit & its circuitries	Fan Unit is not operating properly	H 1 9	Press [■ STOP] on main unit for next error.

7.4. Service Mode

To enter service mode: While the power is off, press & hold [VOL+] & [OPEN/CLOSE] button on main unit for 3 secs or more follow by [PLAY] button on main unit.

7.4.1. Service Mode Table 1

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERV	Press [0] [0] or [Return] in service mode.
Error Code Display	Last Error Code of U/H/F held by Timer is displayed on FL. *Details are described in 7.1.1. Self-Diagnostic Functions.	♣ □ □ *♣ shows U/H/F. □ □ shows number. If any error history dose not exist, [F00] is displayed.	Press [0] [1] in service mode
ROM Version Display	1. Region code (displayed for 5 sec.) 2. Main firm version (displayed for 5 sec.) 3. Timer firm version (displayed for 5 sec.) 4. Drive firm version (displayed for 5 sec.) 5. ROM correction version (left displayed)	1. NO\$% \$: Region of DVD (Example: 1,2.....) %: Region of BD (Example: A,B.....) 2. **** 3. **** 4. **** 5. *** * are version displays.	Press [0] [2] in service mode
Drive check	Simple quality of BD/DVD drive.	When BD/DVD drive is OK DRV OK When BD/DVD drive is NG DRV NG *If the date of the present or the trouble occurred time is incorrect, it may be not able to judge correctly.	Press [3] [8] in service mode.

7.4.2. Service Mode Table 2

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Laser Used Time Indication	Check laser used time (hours) of drive.	***** (***** is the used time display in hour. Laser used time of BD/DVD/CD in Playback/Recording mode is Counted. 1. Blu-ray Playback: BP **** 2. Blu-ray Recording: BR **** 3. DVD Playback: DP **** 4. DVD Recording: DR **** 5. CD: CD ****	Press [4] [1] in service mode.

7.4.3. Service Mode Table 3

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
BD/DVD drive last error	BD/DVD drive error code display.	1. Error Number is displayed for 5 seconds. NO **** 2. Time when the error has occurred is display for 5 seconds. DDhhmm DD : Day hh : Hour mm : Minute 3. Last drive error (1/2) is displayed for 5 seconds. ***** 00 : Bad disc 03 : Bad disc 04 : Bad disc or drive malfunction 4. Last drive error (2/2) is displayed for five seconds. ***** 5. Error occurring disc type is displayed for 5 seconds. DVD-RW DVDRW CD-R CDR CD-RW CDRW DVD+R DVDPR DVD+RW DVDPRW BD-ROM BDRW	Press [4] [2] in service mode.

7.4.4. Service Mode Table 4

Item		FL display	Key operation												
Mode name	Description		(Remote controller key)												
		BD-RE BDRE BD-R BDR DVD ROM DVD CD CD RAM (2.6GB) RAM26 RAM (4.7GB) RAM47 DVD-R DVDR Others MEDIA* * is displayed the resposed value from RTSC. 6. Disc maker ID is displayed for 5 seconds. ***** 7. Factor of drive error (hexadecimal) occurring is left displayed. * * + + □ □ * * : Error occurring operation code (This is not used) + + : Error occurring disc type <table><tr><td>0</td><td>DVD-ROM</td></tr><tr><td>1</td><td>CD</td></tr><tr><td>2</td><td>2.6GB DVD-RAM</td></tr><tr><td>3</td><td>4.7GB DVD-RAM</td></tr><tr><td>4</td><td>DVD-R</td></tr><tr><td>After 5</td><td>Others</td></tr></table>	0	DVD-ROM	1	CD	2	2.6GB DVD-RAM	3	4.7GB DVD-RAM	4	DVD-R	After 5	Others	In case that the maker cannot be identified, display is black out.
0	DVD-ROM														
1	CD														
2	2.6GB DVD-RAM														
3	4.7GB DVD-RAM														
4	DVD-R														
After 5	Others														

7.4.5. Service Mode Table 5

Item		FL display	Key operation (Remote controller key)																																																																																									
Mode name	Description																																																																																											
		□□: Error occurring disc situation <table><tr><th rowspan="2">Display</th><th colspan="4">Detail</th></tr><tr><th>Disc distinction</th><th>With or without Cartridge</th><th>Disc cart-ridge state</th><th>Size</th></tr><tr><td>00</td><td>OK</td><td>With</td><td>Not opened</td><td>12cm</td></tr><tr><td>10</td><td>OK</td><td>With</td><td>Not opened</td><td>8cm</td></tr><tr><td>20</td><td>OK</td><td>With</td><td>Opened</td><td>12cm</td></tr><tr><td>30</td><td>OK</td><td>With</td><td>Opened</td><td>8cm</td></tr><tr><td>40</td><td>OK</td><td>Without</td><td>Not opened</td><td>12cm</td></tr><tr><td>50</td><td>OK</td><td>Without</td><td>Not opened</td><td>8cm</td></tr><tr><td>60</td><td>OK</td><td>Without</td><td>Opened</td><td>12cm</td></tr><tr><td>70</td><td>OK</td><td>Without</td><td>Opened</td><td>8cm</td></tr><tr><td>80</td><td>NG</td><td>With</td><td>Not opened</td><td>12cm</td></tr><tr><td>90</td><td>NG</td><td>With</td><td>Not opened</td><td>8cm</td></tr><tr><td>A0</td><td>NG</td><td>With</td><td>Opened</td><td>12cm</td></tr><tr><td>B0</td><td>NG</td><td>With</td><td>Opened</td><td>8cm</td></tr><tr><td>C0</td><td>NG</td><td>Without</td><td>Not opened</td><td>12cm</td></tr><tr><td>D0</td><td>NG</td><td>Without</td><td>Not opened</td><td>8cm</td></tr><tr><td>E0</td><td>NG</td><td>Without</td><td>Opened</td><td>12cm</td></tr><tr><td>F0</td><td>NG</td><td>Without</td><td>Opened</td><td>8cm</td></tr></table>	Display	Detail				Disc distinction	With or without Cartridge	Disc cart-ridge state	Size	00	OK	With	Not opened	12cm	10	OK	With	Not opened	8cm	20	OK	With	Opened	12cm	30	OK	With	Opened	8cm	40	OK	Without	Not opened	12cm	50	OK	Without	Not opened	8cm	60	OK	Without	Opened	12cm	70	OK	Without	Opened	8cm	80	NG	With	Not opened	12cm	90	NG	With	Not opened	8cm	A0	NG	With	Opened	12cm	B0	NG	With	Opened	8cm	C0	NG	Without	Not opened	12cm	D0	NG	Without	Not opened	8cm	E0	NG	Without	Opened	12cm	F0	NG	Without	Opened	8cm	
Display	Detail																																																																																											
	Disc distinction	With or without Cartridge	Disc cart-ridge state	Size																																																																																								
00	OK	With	Not opened	12cm																																																																																								
10	OK	With	Not opened	8cm																																																																																								
20	OK	With	Opened	12cm																																																																																								
30	OK	With	Opened	8cm																																																																																								
40	OK	Without	Not opened	12cm																																																																																								
50	OK	Without	Not opened	8cm																																																																																								
60	OK	Without	Opened	12cm																																																																																								
70	OK	Without	Opened	8cm																																																																																								
80	NG	With	Not opened	12cm																																																																																								
90	NG	With	Not opened	8cm																																																																																								
A0	NG	With	Opened	12cm																																																																																								
B0	NG	With	Opened	8cm																																																																																								
C0	NG	Without	Not opened	12cm																																																																																								
D0	NG	Without	Not opened	8cm																																																																																								
E0	NG	Without	Opened	12cm																																																																																								
F0	NG	Without	Opened	8cm																																																																																								
CEC (H) output	Check of the CEC terminal high output of HDMI.	When the check is OK CECHOK When the check is NG CECHNG	Press [5] [5] in service mode.																																																																																									
CEC (L) output	Check of the CEC terminal low output of HDMI.	When the check is OK CECLOK When the check is NG CECLNG	Press [5] [6] in service mode.																																																																																									
Tray OPEN/CLOSE Test	The DVD drive tray is opened and closed repeatedly.	***** * is number of open/close cycle times.	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button of Remote Controller more than 10 seconds.																																																																																									
Delete the Laser Used Time	Laser used time stored in the memory of the unit is deleted.	CLR	Press [9] [5] in service mode.																																																																																									
Delete the Last Drive Error	Delete the Last Drive Error information stored on the DVD Drive.	CLR	Press [9] [6] in service mode.																																																																																									
Delete the Error History	Delete Error History information stored on the unit.	CLR	Press [9] [7] in service mode.																																																																																									
Error code initialization	Initialization of the last error code held by timer (Write in F00)	CLR	Press [9] [8] in service mode.																																																																																									
Initialize Service	Last Drive Error, Error history and Error Codes stored on the unit are initialized to factory setting.	CLR	Press [9] [9] in service mode.																																																																																									
Finishing service mode	Release Service Mode.	Display in STOP (SS) mode. *****	Press power button on the front panel or Remote controller in service mode.																																																																																									

8 Troubleshooting Guide

8.1. Troubleshooting Guide for F61 and/or F76

Symptom	Checking items		Possible Fault(s)		Remarks
Set cannot ON	1	AC Cord	1	Faulty AC Cord, Loose connection	Refer to SMPS P.C.B. Fig 1.
	2	AC Inlet P5701	2	P5701 solder crack, dry joint, etc.	
	3	Fuse F1	3	F1 fuse open	
	4	Photocoupler PC5702, PC5799	4	PC5702/PC5799 solder crack, dry joint, short circuit, open circuit, etc	
	5	Switching IC IC5701	5	Faulty IC5701	
	6	Switching IC IC5799	6	Faulty IC5799	
Set can ON then F76	1	Transformer T5701	1a	Short circuit between Pin 14 and pin 16	Refer to Power P.C.B. Fig 2.
			1b	Short circuit between Pin 15 and pin 16	
			1c	Short circuit between Pin 16 and 17	
	2	Power P.C.B.	2a	Check connection between Power P.C.B (CN2916 & CN2917) and SMPS P.C.B (CN5802 & CN5803)	
			2b	L2902 Open (No input to IC2901)	
			2c	Faulty IC2901 (No output voltage at pin 10 & 11)	
			2d	Faulty Q2902 & Q2903 (Regulator)	
			2e	L2907 open (No DC +12v)	
			2f	L2908 open (No DC+5v)	
	3		3	Check cable connection between main (CN2004) and SMPS	Refer to Main P.C.B. Fig 3.
	4		4a	Faulty IC2302	
			4b	LB2301 Open	
	5	Photocoupler PC5720	5	PC5720 solder crack dry joint, short circuit, open circuit, etc	Refer to SMPS P.C.B.
Set can ON working normally for some time then F76	1	Rectifier D5802	1a	Improper contact between D5802 to heatsink	Fig 1.
			1b	Set trigger temperature protection	

8.1.1. SMPS P.C.B.

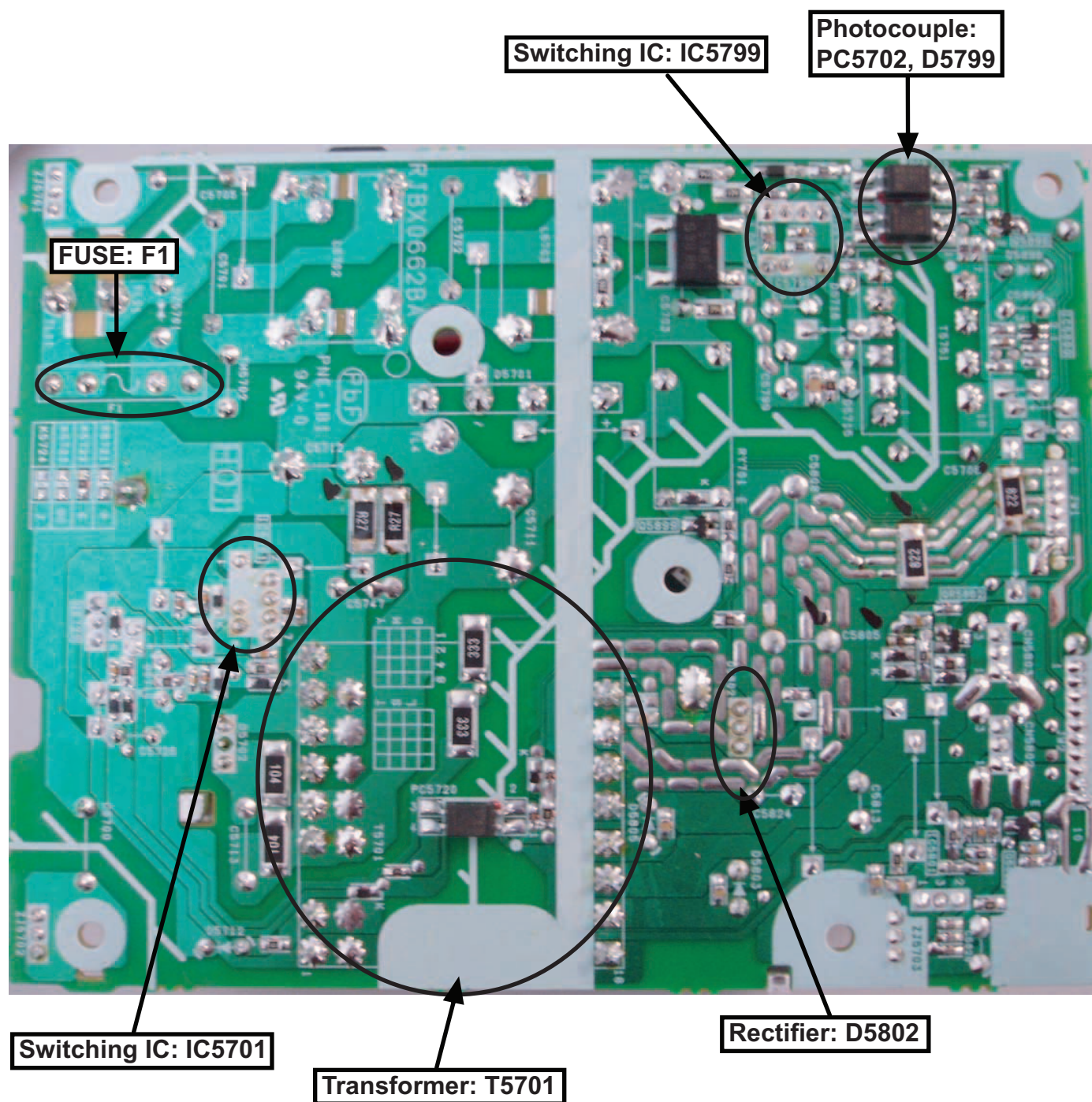
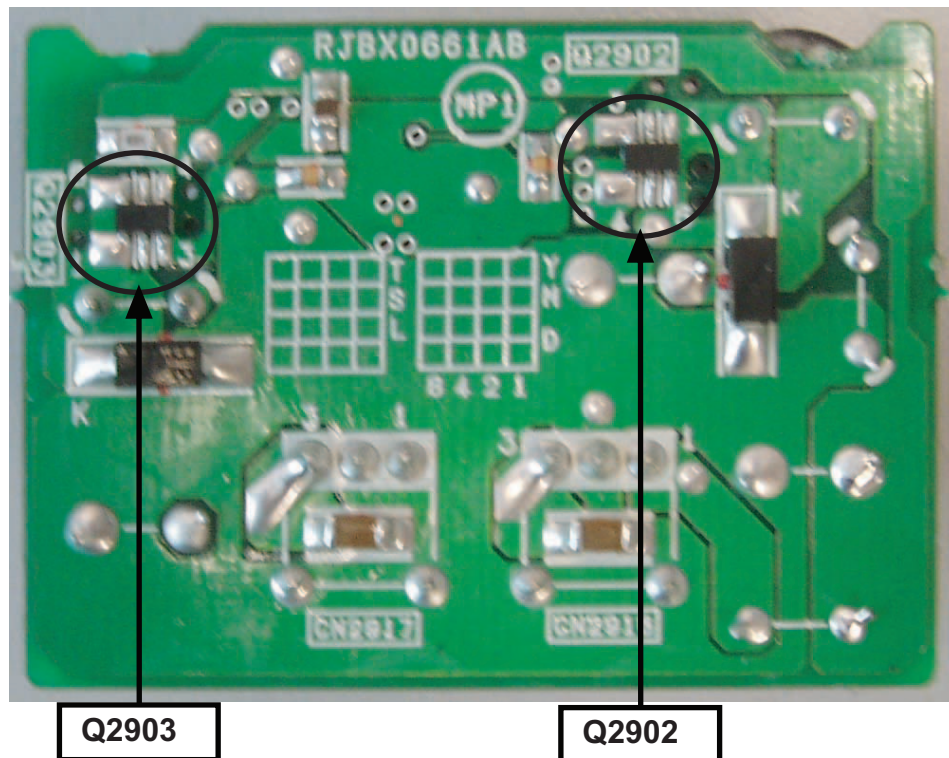


Figure 1. SMPS P.C.B.

8.1.2. Power P.C.B.

(Side A of Power P.C.B.)



(Side B of Power P.C.B.)

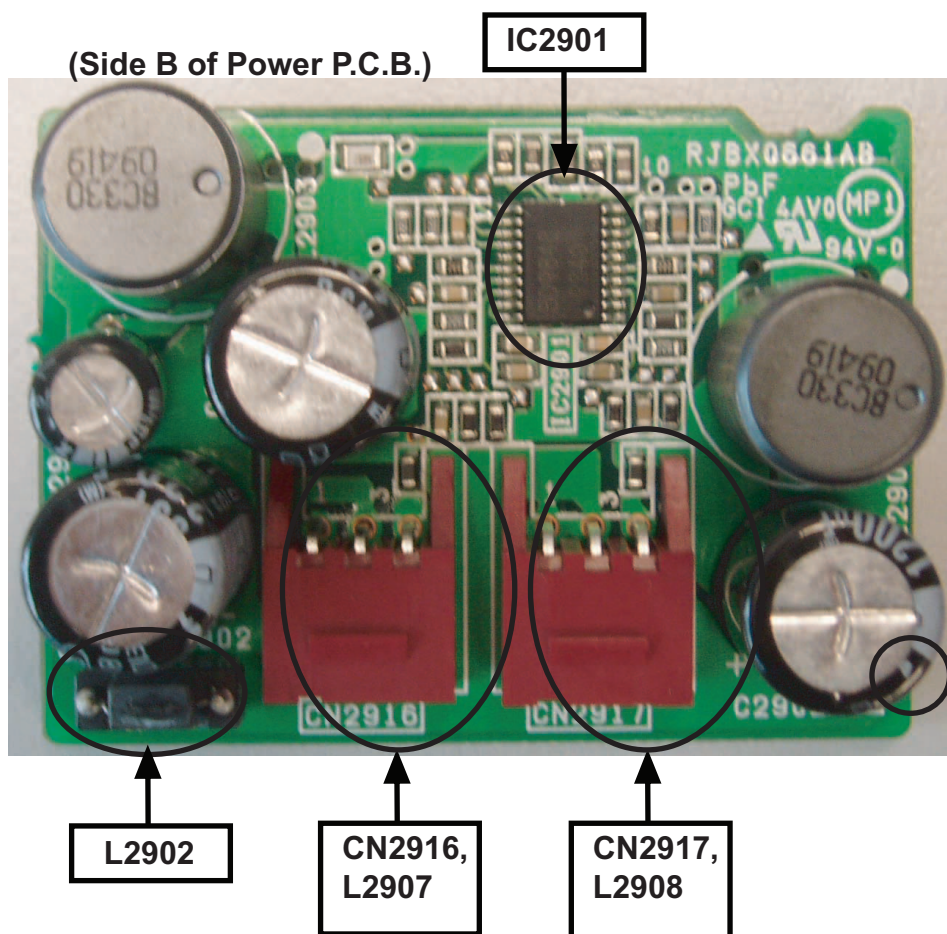


Fig 2. Power P.C.B.

8.1.3. Main P.C.B.

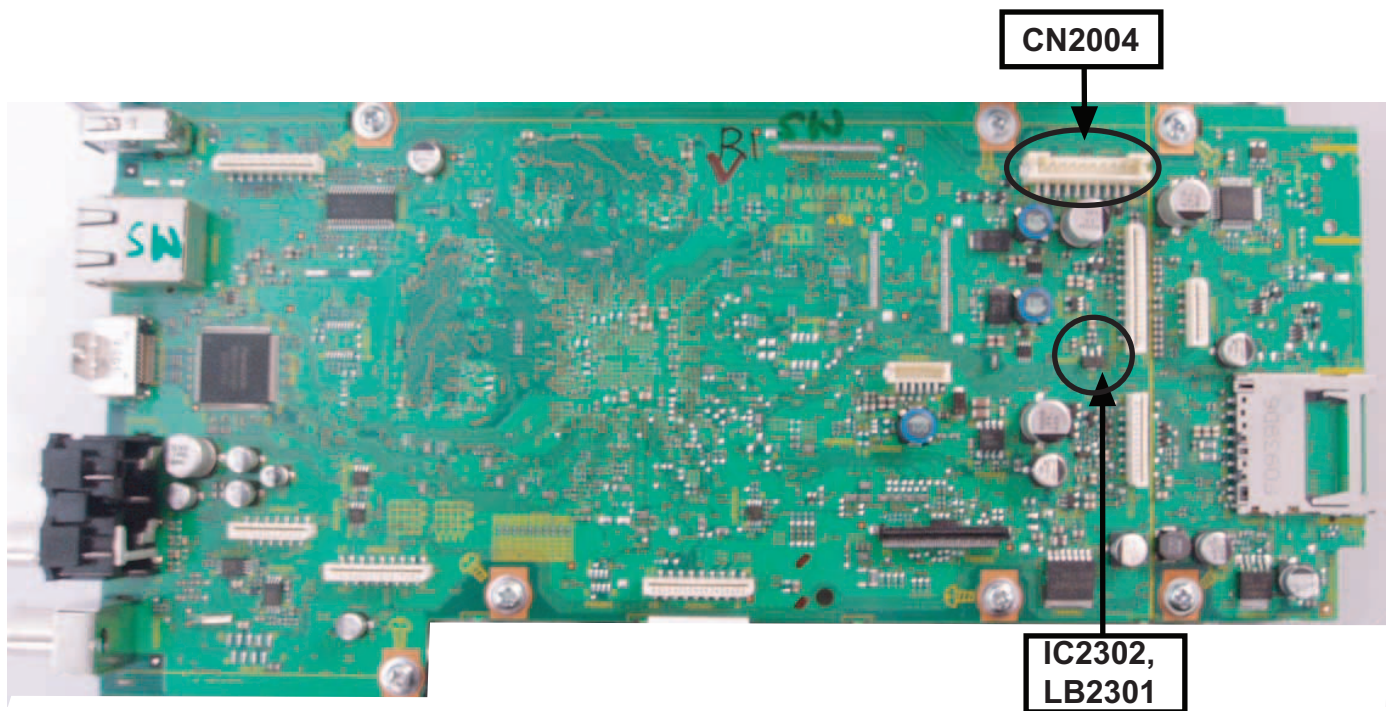


Fig 3. Main P.C.B.

9 Service Fixture & Tools

9.1. Service Tools and Equipment

Prepare service tools before process service position.

Service Tools		Remarks
SMPS P.C.B. (JW2*) - Main P.C.B. (CN2004)	REXX1037 (10P Cable)	
Main P.C.B. (CN2006) - D-Amp P.C.B. (CN5402)	RFKZBT230P (18P FFC)	

10 Disassembly and Assembly Instructions

Caution Note:

- This section describes the disassembly and/or assembly procedures for all major printed circuit boards & main components for the unit. (You may refer to the section of “Main components and P.C.B Locations” as described in the service manual)
- Before carrying out the disassembly process, please ensure all the safety precautions & procedures are followed.
- During the disassembly and/or assembly process, please handle with care as there may be chassis components with sharp edges.
- Avoid touching heatsinks due to its high temperature after prolong use. (See caution as described below)

**CAUTION: HOT!!
PLEASE DO NOT
TOUCH THE HEAT SINK**

- During disassembly and assembly, please ensure proper service tools, equipments or jigs is being used.
- During replacement of component parts, please refer to the section of “Replacement Parts List” as described in the service manual.
- Select items from the following indexes when disassembly or replacement are required.
- Disassembly of Top Cabinet
- Disassembly of AC Inlet P.C.B.
- Disassembly of Optical In P.C.B.
- Disassembly of Wireless Adapter P.C.B.
- Disassembly of Rear Panel
- Disassembly of Front Panel Block Assembly
- Disassembly of Panel P.C.B.
- Disassembly of Power Button P.C.B.
- Disassembly of Cradle Lid
- Disassembly of iPod Cradle Assembly
- Disassembly of iPod/iPhone P.C.B.
- Disassembly of DVD Lid Unit
- Disassembly of Front Shield Plate Unit
- Disassembly of BD Drive
- Disassembly of Main P.C.B.
- Disassembly of D-Amp P.C.B.
- Disassembly of Digital Amplifier IC (IC5100/IC5200)
- Disassembly of Power P.C.B.
- Disassembly of SMPS P.C.B.
- Replacement of Switching Regulator IC (IC5701)
- Replacement of Rectifier Diode (D5702)
- Replacement of Regulator Diode (D5802)
- Replacement of Regulator Diode (D5803)
- Disassembly of Fan

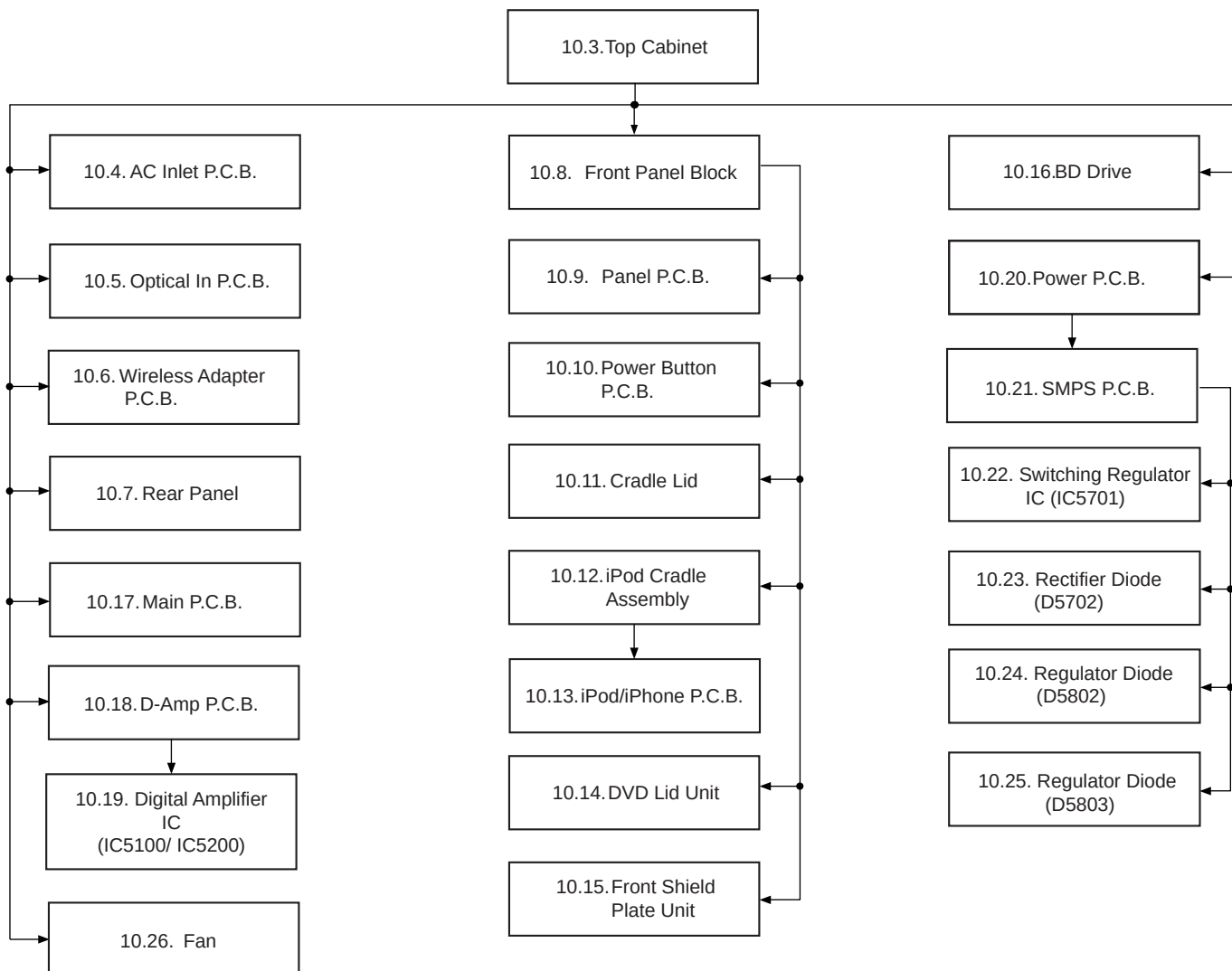
CAUTION NOTE:

Please use original screw and at correct locations.

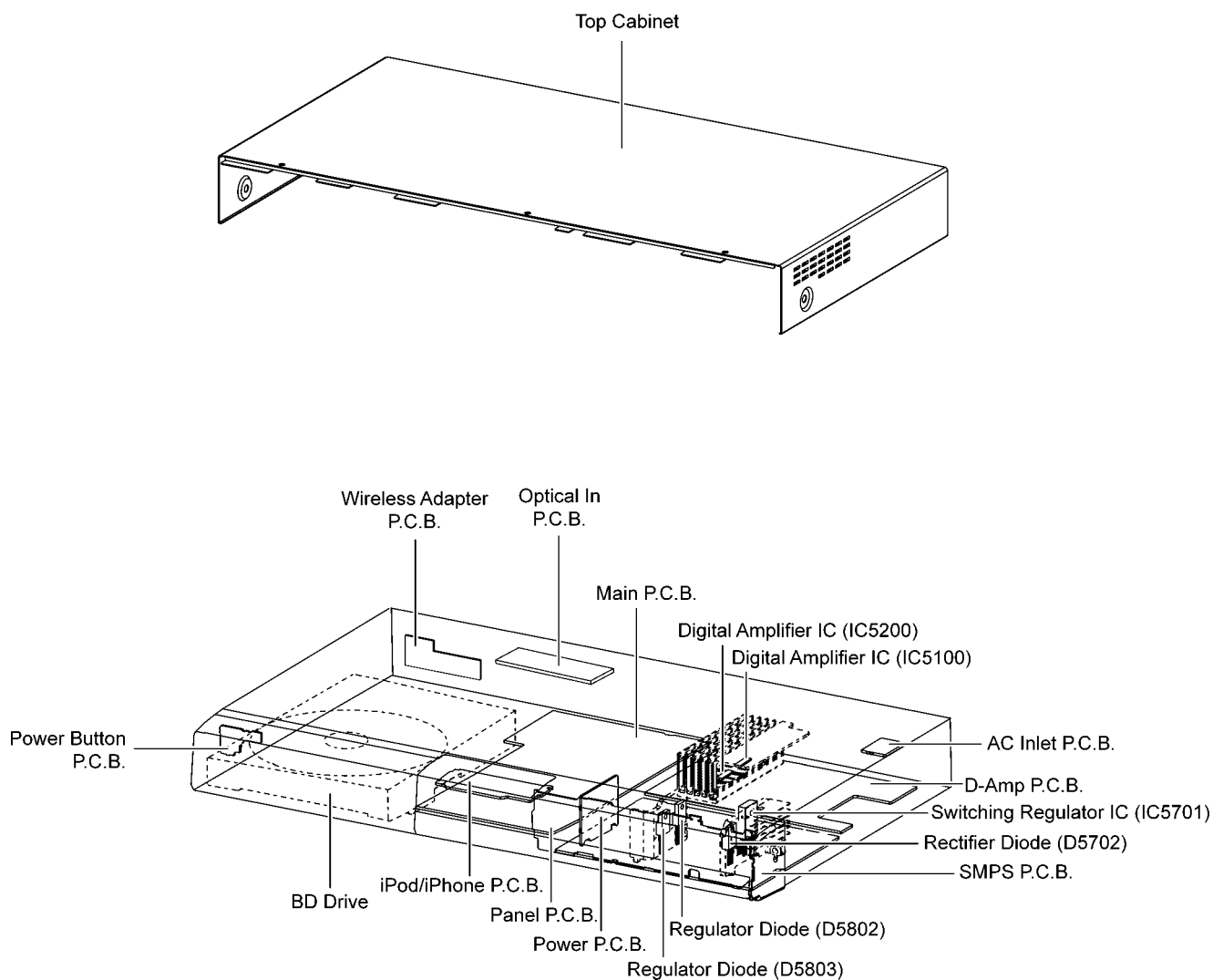
Below shown is part no. of different screw types used:

- | | |
|------------------------|----------------------|
| a :RHD30007-K2J | f :RHDX301003 |
| b :RHD30119-S | g :RHDX261002 |
| c :RHD30102-1 | h :XTV6+10GFJ |
| d :RHD26046 | i :VHD1518-1 |
| e :VHD1224-1 | j :VHD1653-1 |

10.1. Disassembly Flow Chart

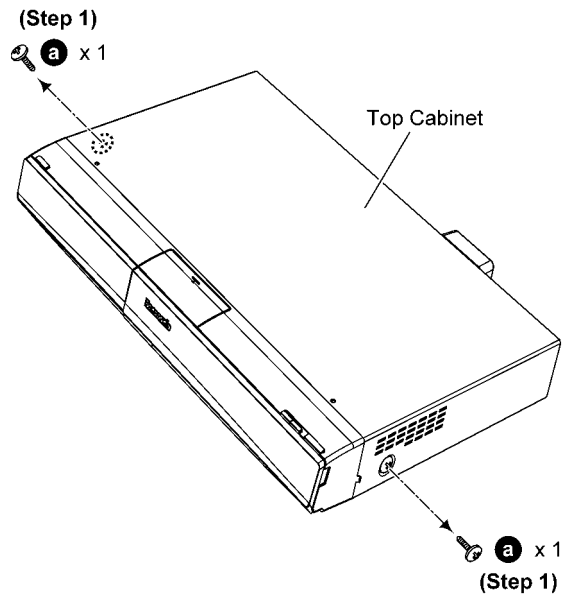


10.2. Main Components and P.C.B. Locations

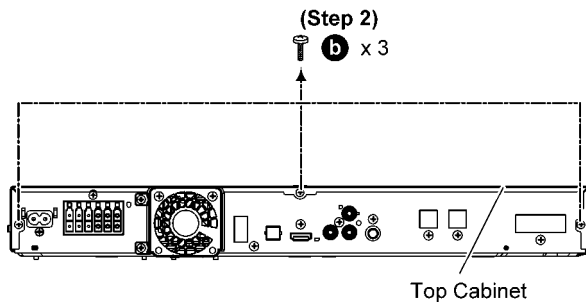


10.3. Disassembly of Top Cabinet

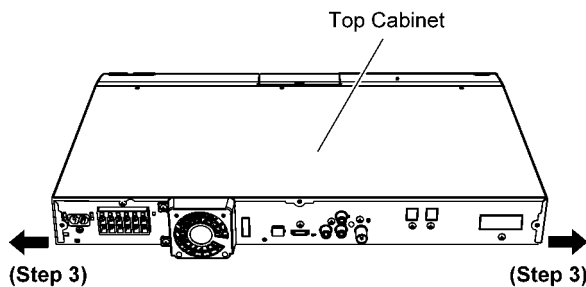
Step 1 Remove 2 screws.



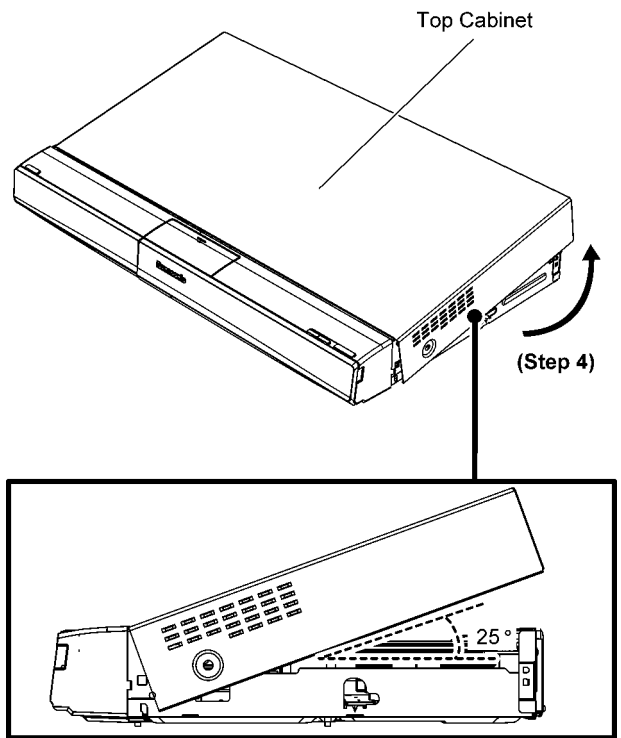
Step 2 Remove 3 screws.



Step 3 Slightly pull outwards both side of Top Cabinet.

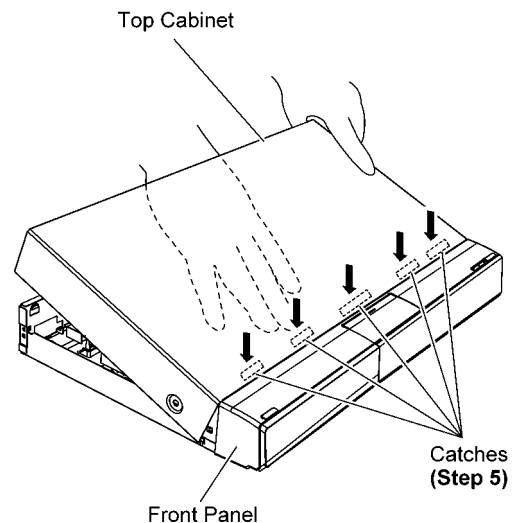


Step 4 Slightly lift both side of Top Cabinet in an outward direction about 25°.

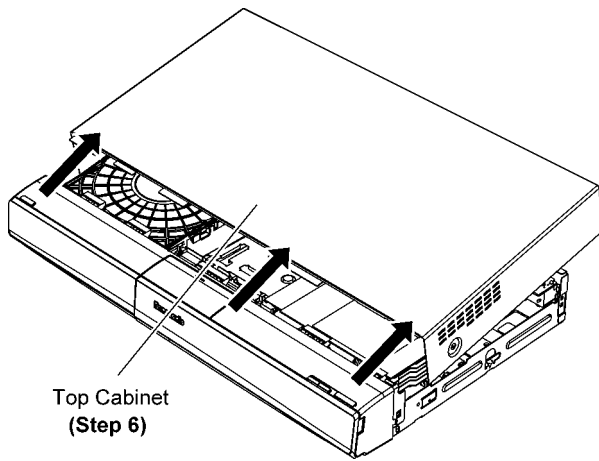


Step 5 Press down the catches one by one.

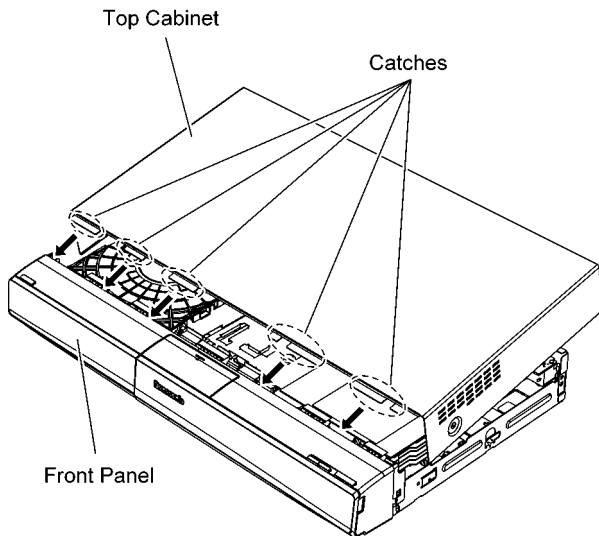
Caution: To avoid shocked by electricity & injured by high temperature. DO NOT TOUCH electrical components when insert hand under the Top Cabinet.



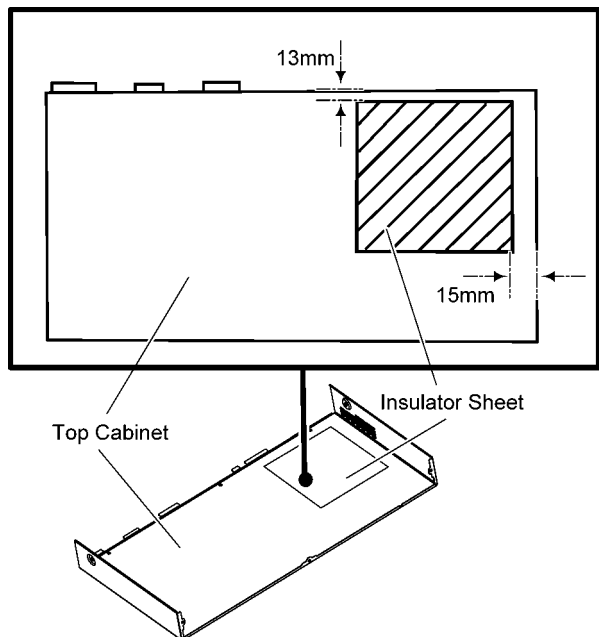
Step 6 Remove Top Cabinet as arrow shown.



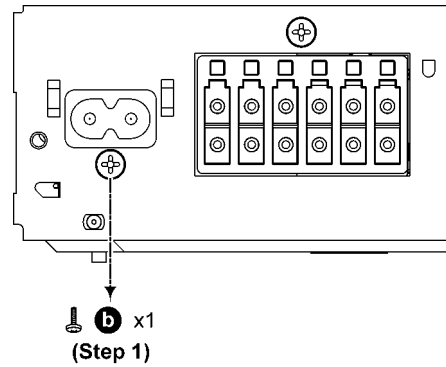
Caution: During assembling, ensure that catches of Top Cabinet is insert into Front Panel properly.



Caution: Replace Top Cabinet insulator sheet if broken & ensure it is pasted properly at Top Cabinet.



Step 1 Remove 1 screw.

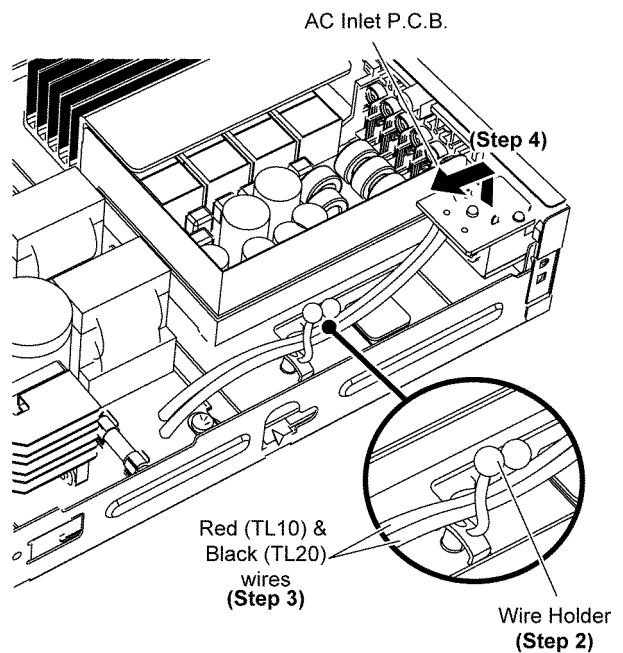


Step 2 Twist the Wire Holder.

Step 3 Release Red(TL10) & Black(TL20) wires from the Wire Holder.

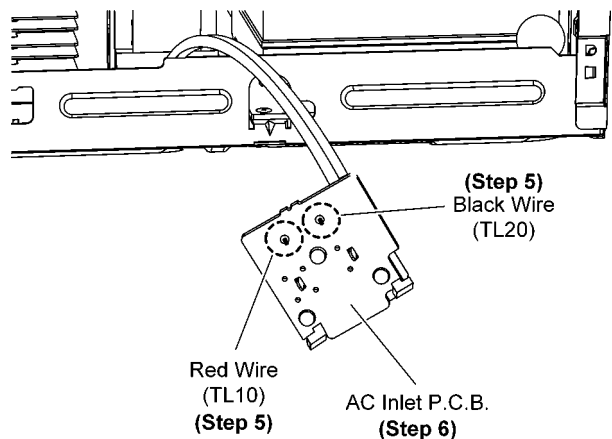
Caution: During assembling, ensure that Red (TL10) & Black(TL20) wires are dressed into Wire Holder.

Step 4 Lift up the AC Inlet P.C.B. from the rear panel.



Step 5 Desolder Red (TL10) & Black (TL20) wires on AC Inlet P.C.B..

Step 6 Remove AC Inlet P.C.B..



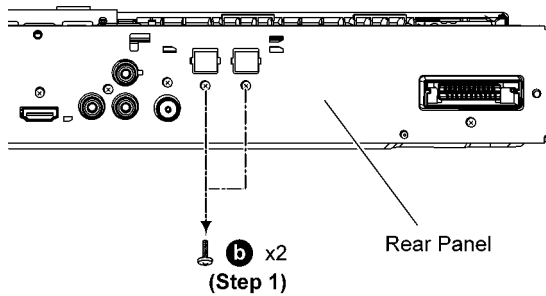
10.4. Disassembly of AC Inlet P.C.B.

- Refer to "Disassembly of Top Cabinet".

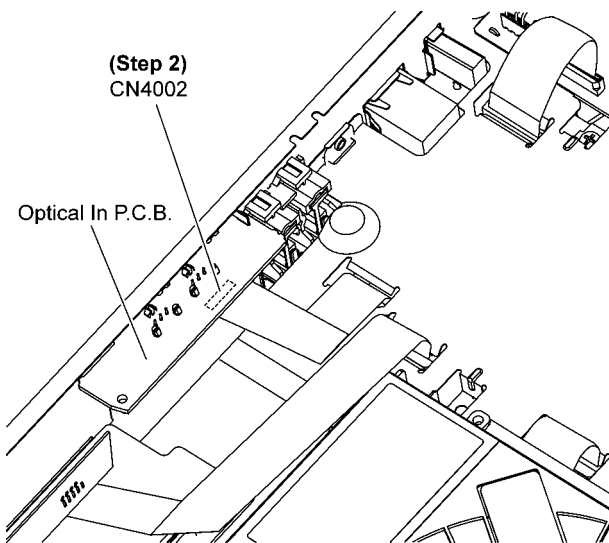
10.5. Disassembly of Optical In P.C.B.

• Refer to “Disassembly of Top Cabinet”.

Step 1 Remove 2 screws.



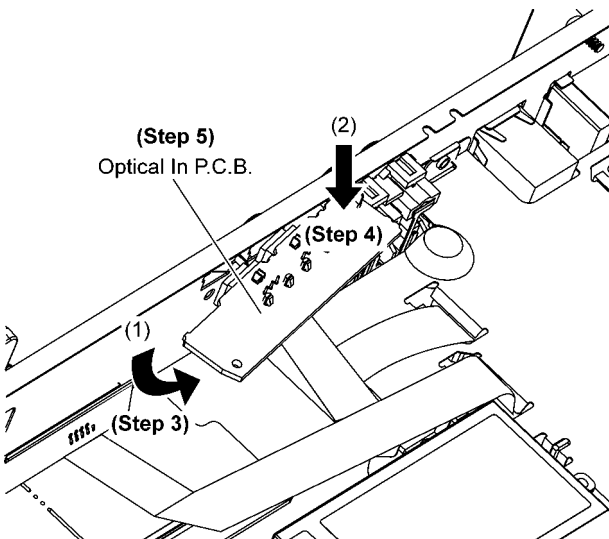
Step 2 Detach 13P FFC at the connector (CN4002) on Optical In P.C.B..



Step 3 Slightly pull Optical In P.C.B. outwards as arrow (1) shown.

Step 4 Press Optical In P.C.B. downwards to release it from the locator as arrow (2) shown.

Step 5 Remove Optical In P.C.B..



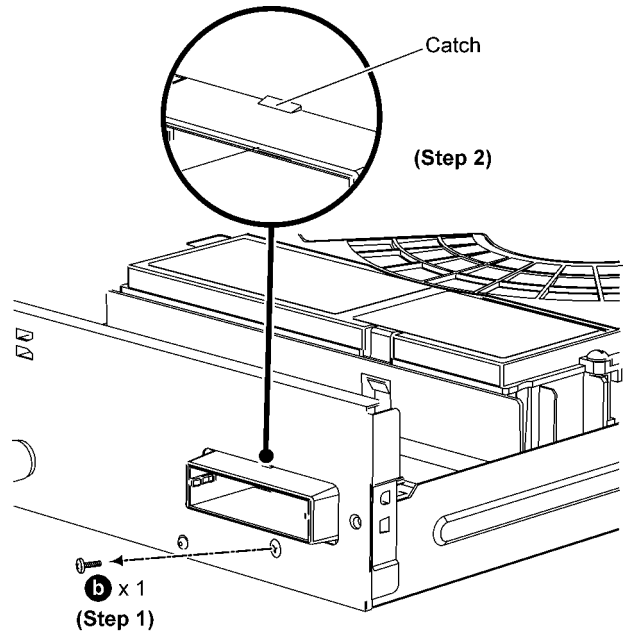
10.6. Disassembly of Wireless Adapter P.C.B.

• Refer to “Disassembly of Top Cabinet”.

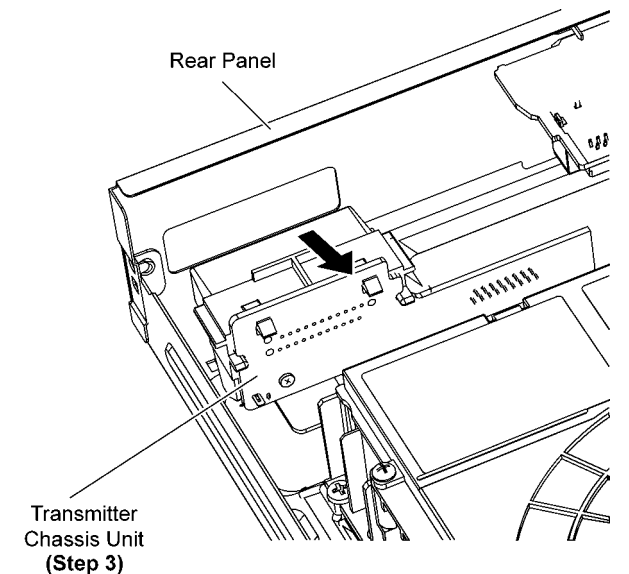
Step 1 Remove 1 screw.

Step 2 Press the Transmitter Chassis Unit downward to release from the catch.

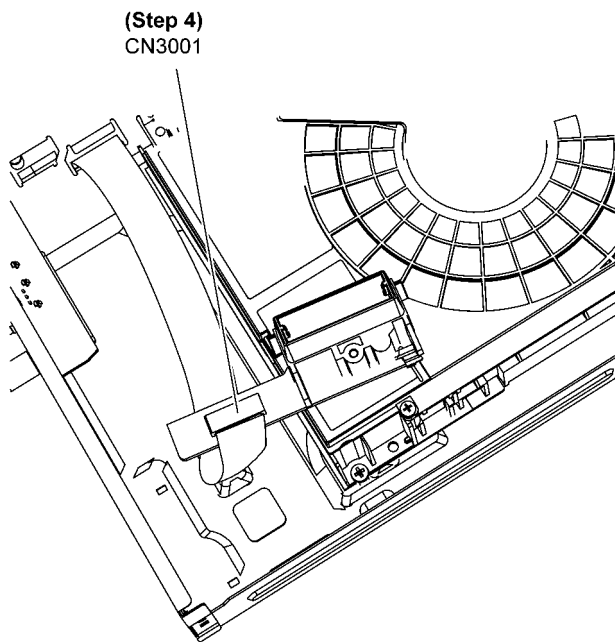
Caution: During assembling, ensure that Transmitter Chassis Unit is properly inserted & fully caught onto Rear Panel before screwing.



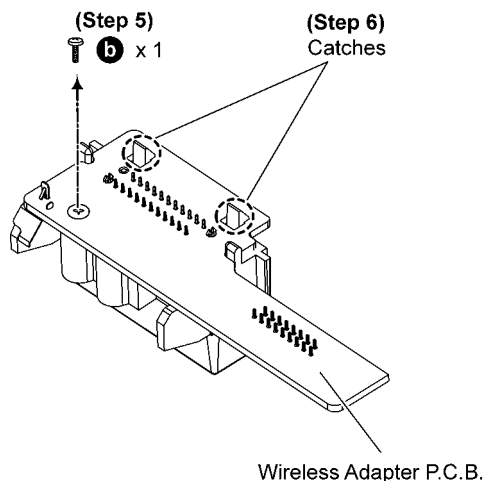
Step 3 Detach Transmitter Chassis Unit from rear panel.



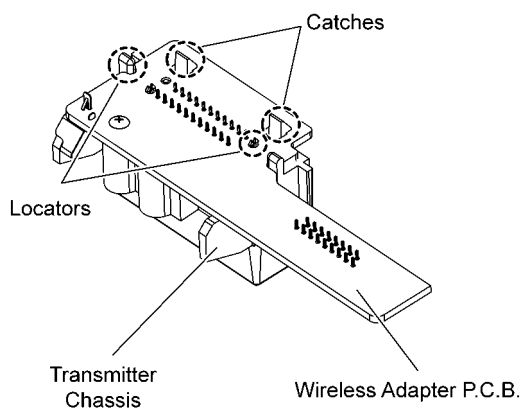
Step 4 Detach 17P FFC at the connector (CN3001) on Wireless Adapter P.C.B..



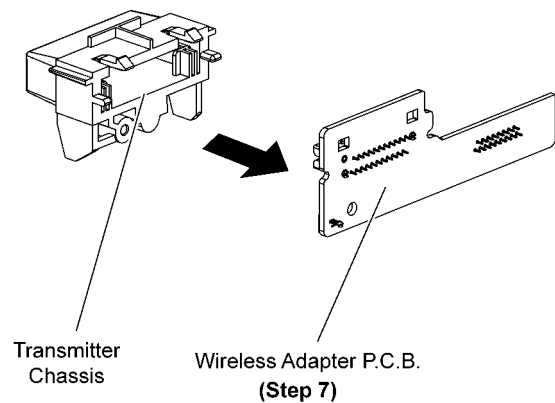
Step 5 Remove 1 screw.
Step 6 Release 2 catches.



Caution: During assembling, ensure that Wireless Adapter P.C.B. is seated properly at the locators & fully caught onto Transmitter Chassis.



Step 7 Remove Wireless Adapter P.C.B..

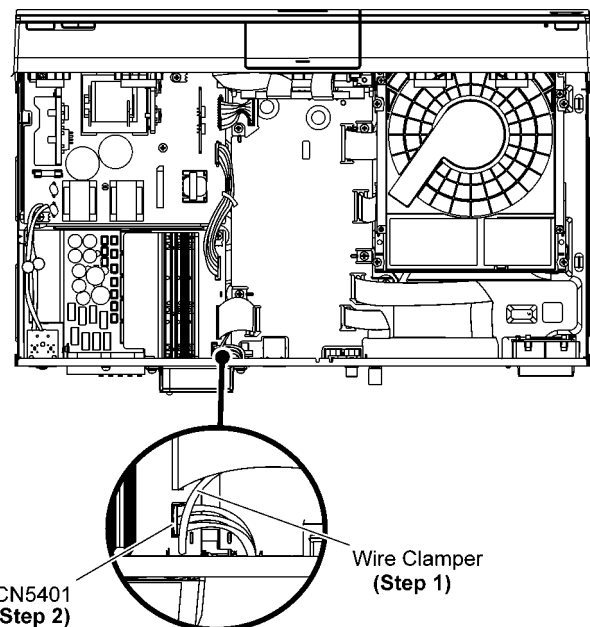


10.7. Disassembly of Rear Panel

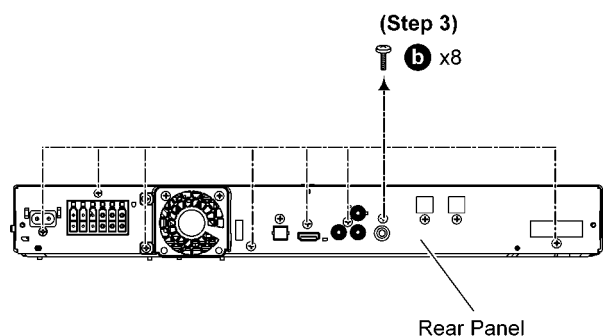
• Refer to “Disassembly of Optical In P.C.B.”.

Step 1 Lift up the Wire Clamper.

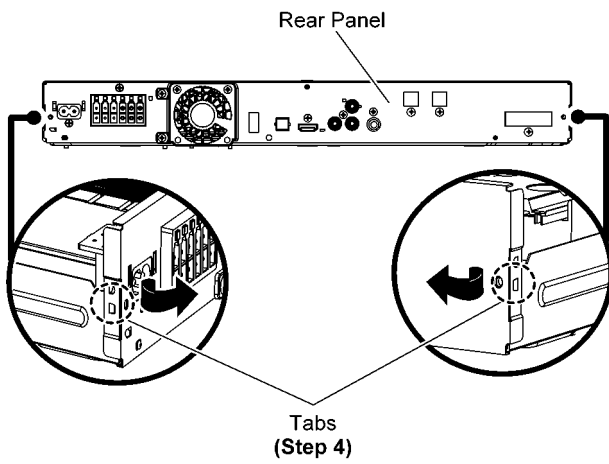
Step 2 Detach the fan unit connector (CN5401) on D-Amp P.C.B..



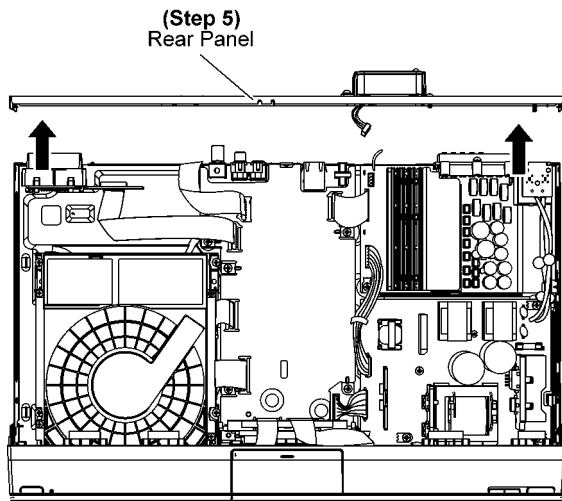
Step 3 Remove 8 screws.



Step 4 Release the tabs on both side of the Rear Panel in the direction of arrow.



Step 5 Remove Rear Panel.



10.8. Disassembly of Front Panel Block Assembly

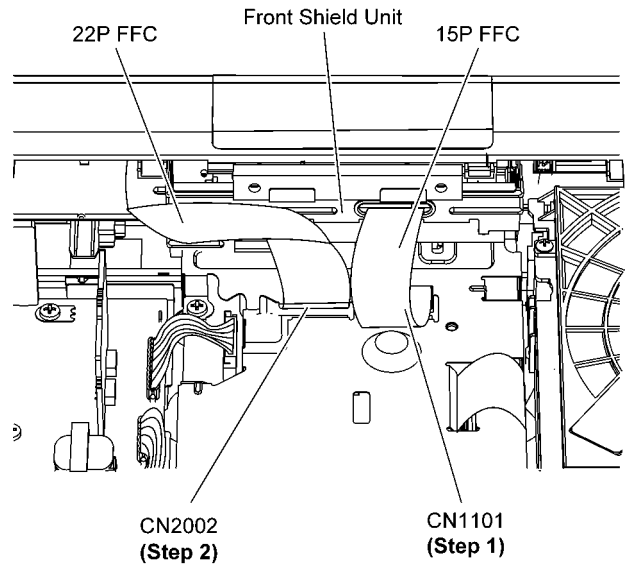
• Refer to “Disassembly of Top Cabinet”.

Step 1 Detach 15P FFC at the connector (CN1101) on Main P.C.B..

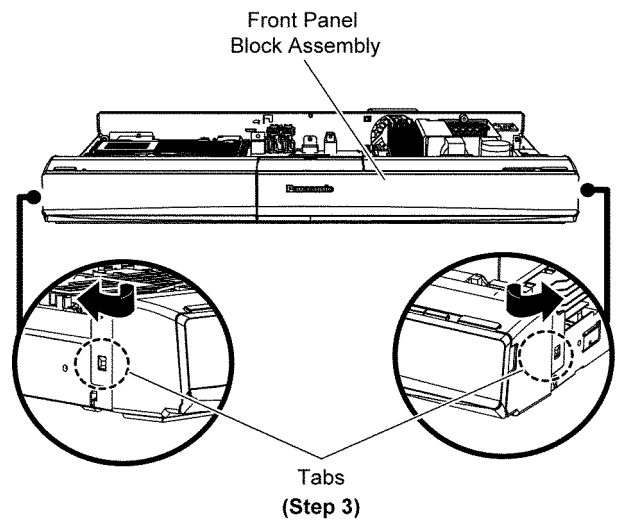
Step 2 Detach 22P FFC at the connector (CN2002) on Main P.C.B..

Caution: During assembling, ensure that 22P FFC is dressed away from Power P.C.B. when insertion to Main P.C.B..

Caution: During assembling, ensure that 15P FFC is dressed through Front Shield.

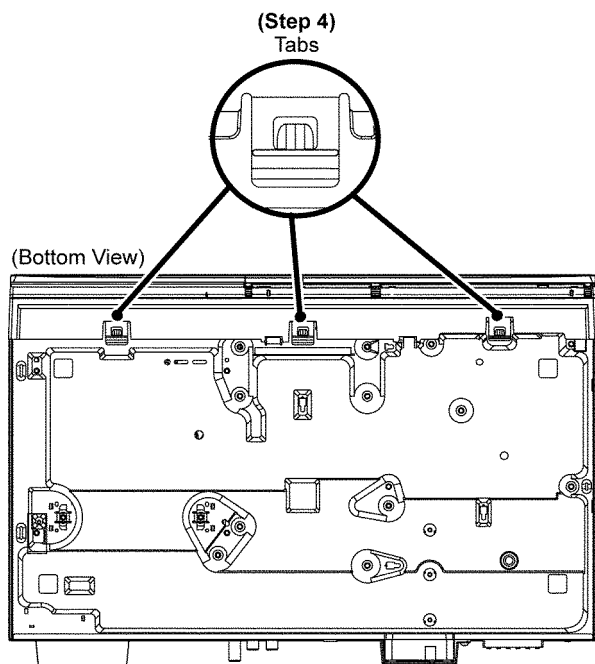


Step 3 Release the tabs on both side of the Front Panel Block Assembly in the direction of arrow.

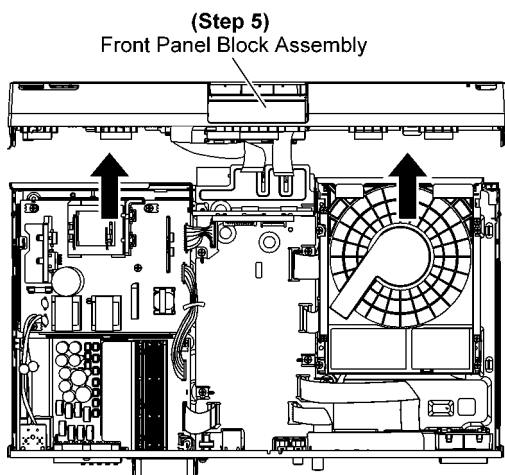


Step 4 Release 3 tabs.

Caution: Do not exert strong force when releasing the tabs.



Step 5 Detach the Front Panel Block Assembly.

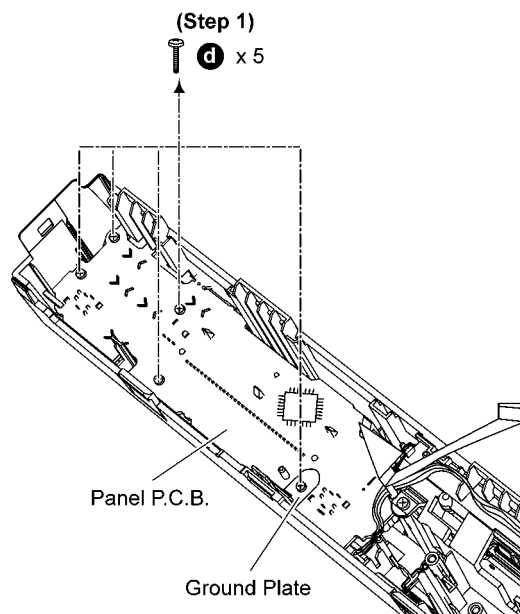


10.9. Dissassembly of Panel P.C.B.

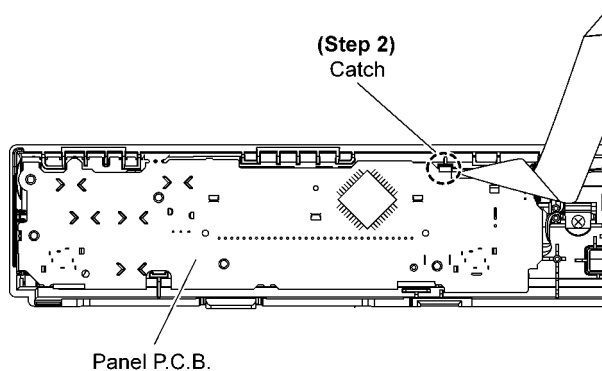
• Refer to “Disassembly of Front Panel Block Assembly”.

Step 1 Remove 5 screws.

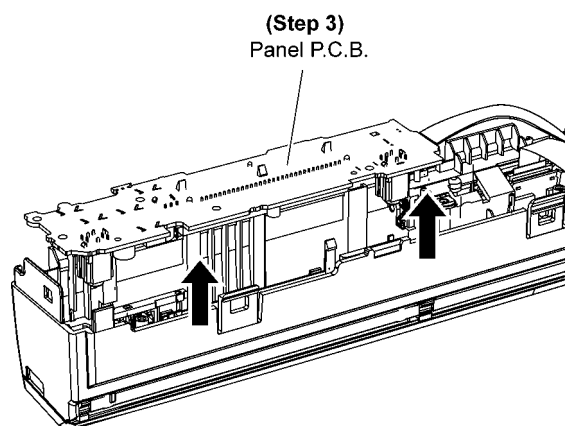
Caution: Keep the Ground Plate in safe place, place it back during assembling.



Step 2 Release 1 catch.

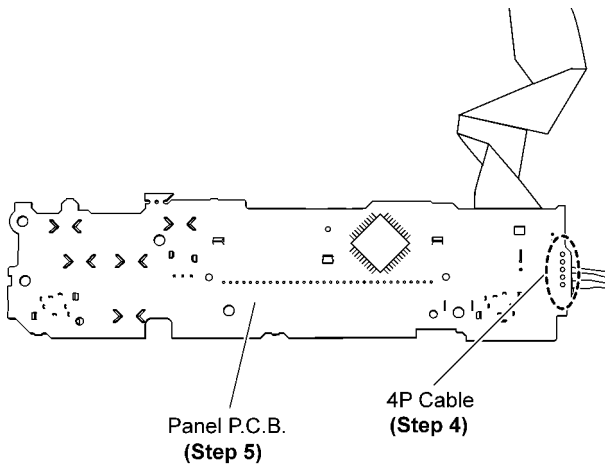


Step 3 Lift up the Panel P.C.B..



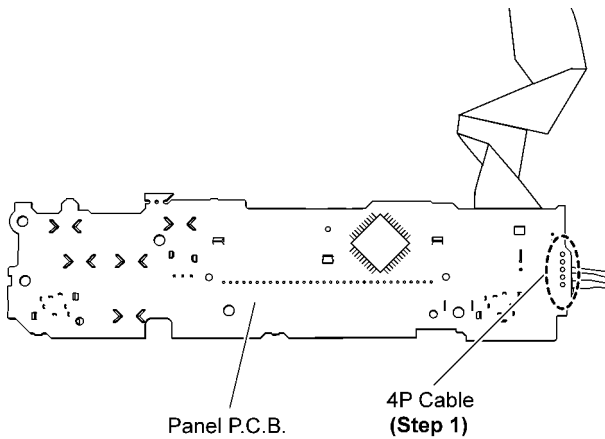
Step 4 Desolder the 4P cable at the connector (CN6001) on Panel P.C.B..

Step 5 Remove Panel P.C.B..



• Assembly of Panel P.C.B

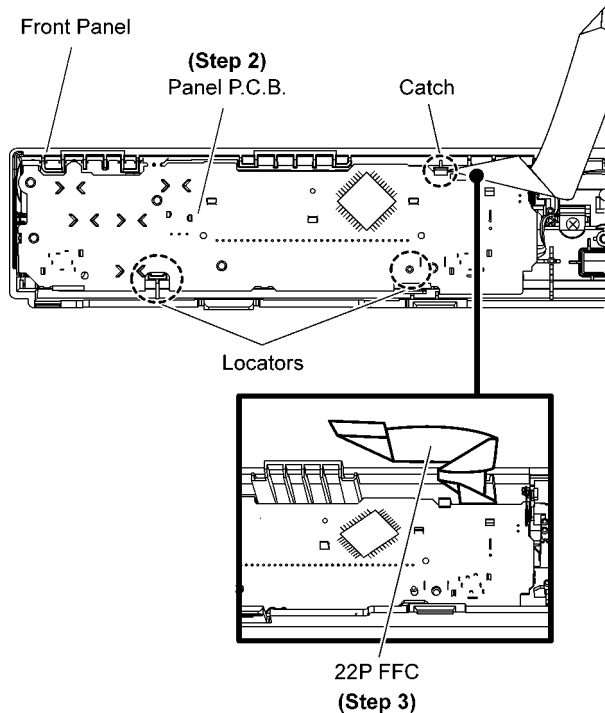
Step 1 Solder the 4P cable to the connector (CN6001) on Panel P.C.B..



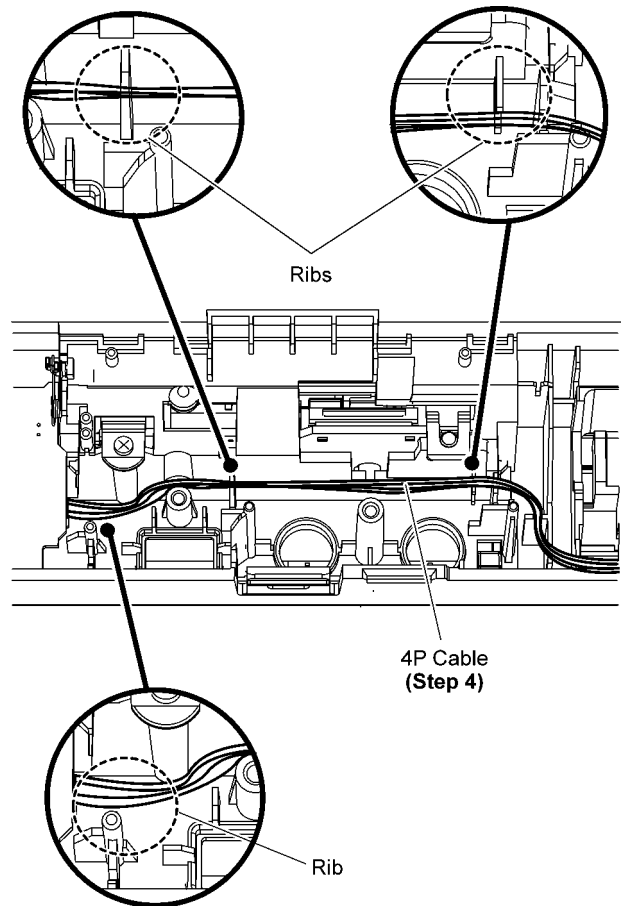
Step 2 Place the Panel P.C.B. onto the Front Panel.

Step 3 Dress 22P FFC according to diagram shown.

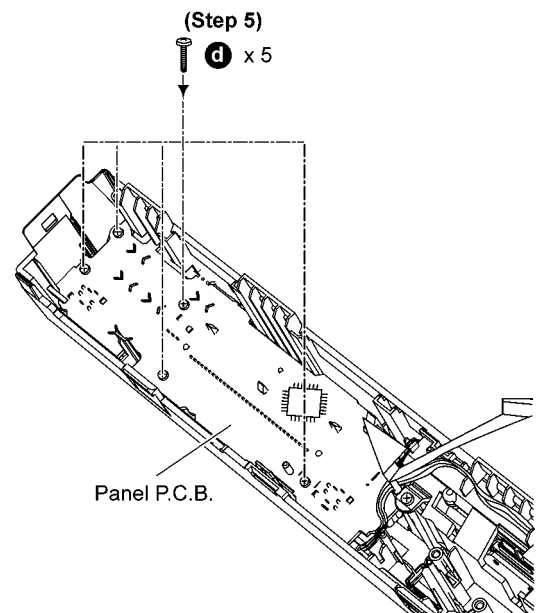
Caution: Ensure that it is properly located & fully caught.



Step 4 Dress 4P cable into the Front Panel's ribs according to diagram shown.



Step 5 Fix 5 screws.

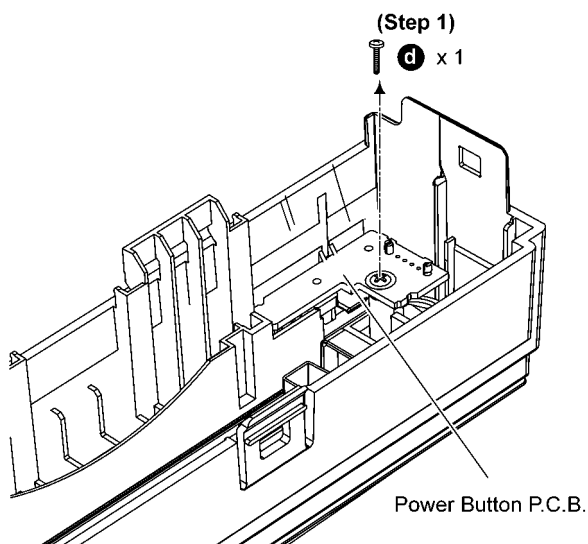


10.10. Disassembly of Power Button P.C.B.

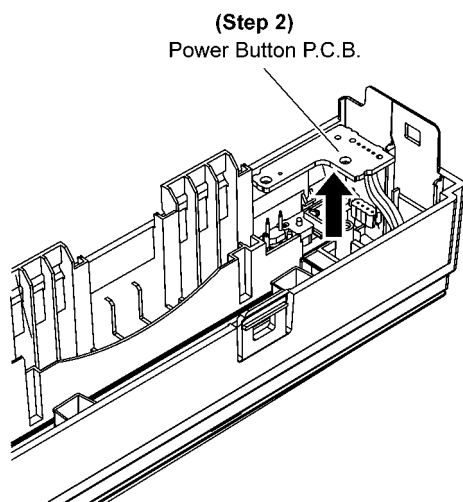
• Refer to "Disassembly of Front Panel Block Assembly".

• Disassembly of Power Button P.C.B.

Step 1 Remove 1 screw.

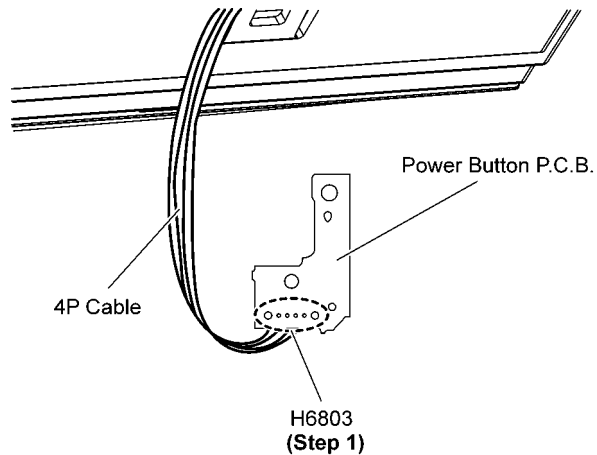
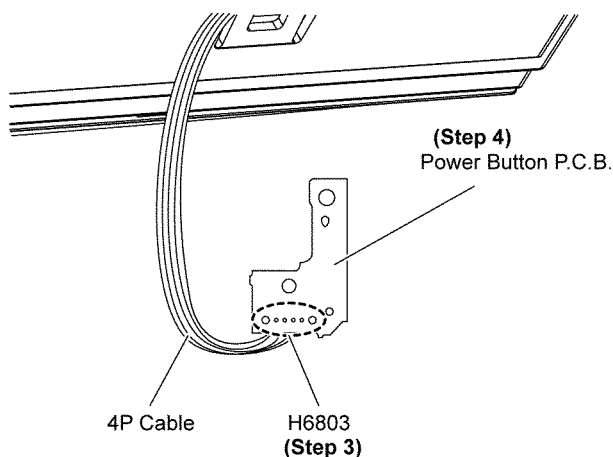


Step 2 Lift up the Power Button P.C.B..



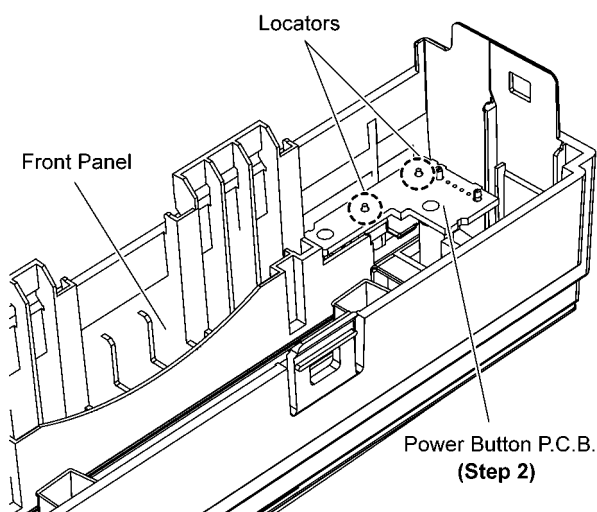
Step 3 Desolder the 4P Cable (H6803) on Power Button P.C.B..

Step 4 Remove Power Button P.C.B..

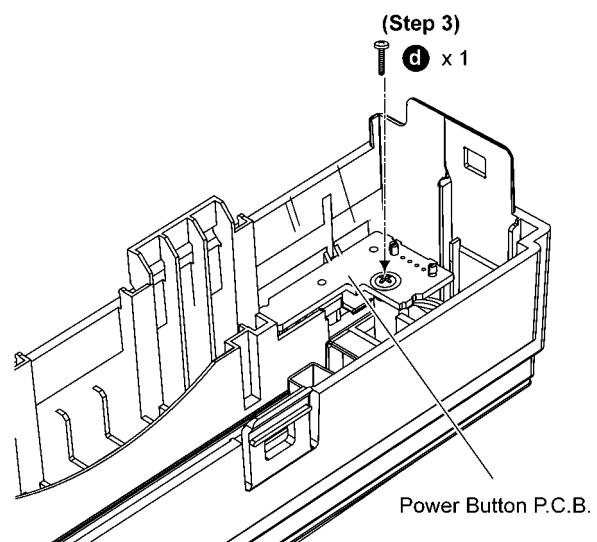


Step 2 Fix the Power Button P.C.B. onto the Front Panel.

Caution: Ensure that it is properly located & seated properly.



Step 3 Fix 1 screw.



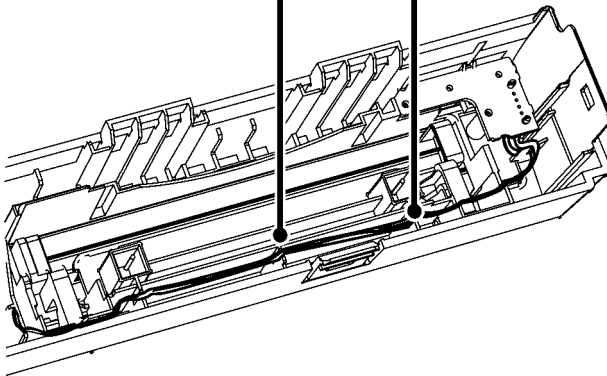
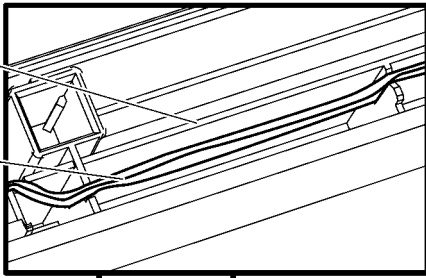
Step 4 Dress 4P cable in between Front Panel's ribs as shown.

• Assembly of Power Button P.C.B.

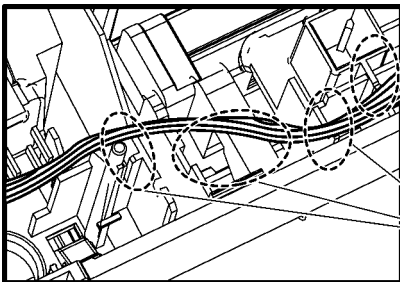
Step 1 Solder 4P cable at (H6803) onto Power Button P.C.B..

Top Wall
of Front Panel

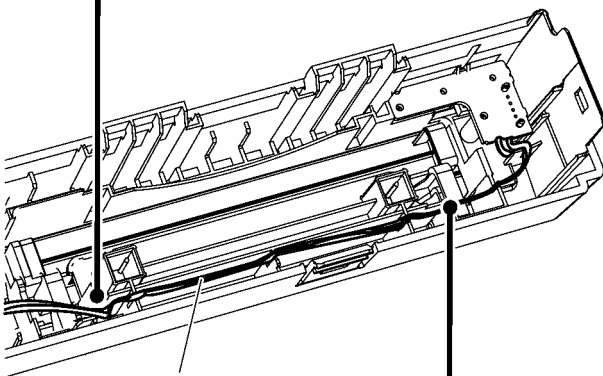
4P Cable
(Step 4)



Step 5 Dress 4P cable into Front Panel's ribs & screw Boss according to diagram shown.

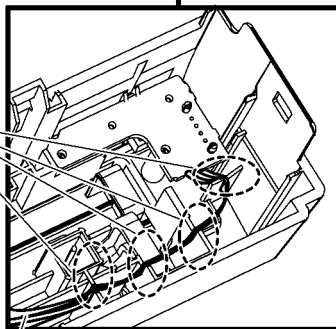


Ribs



4P Cable
(Step 5)

Ribs



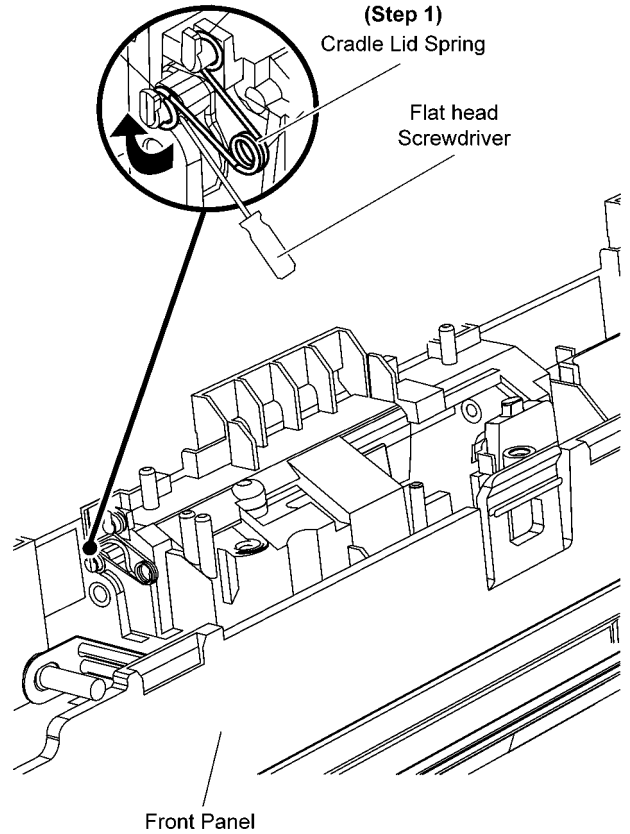
4P Cable
(Step 5)

10.11. Replacement of Cradle Lid

• Refer to "Disassembly of Front Panel Block Assembly".

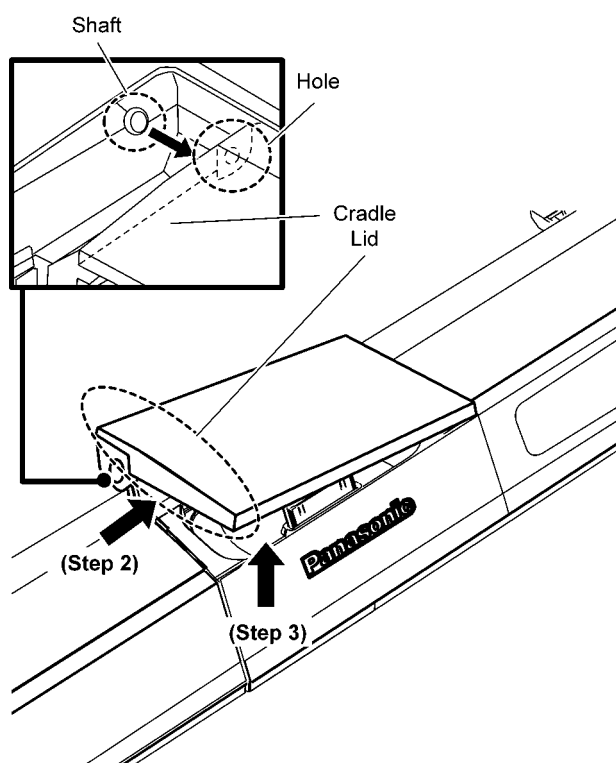
10.11.1. Disassembly of Cradle Lid

Step 1 Release the Cradle Lid Spring by using a flat head screw driver in the direction of arrow.



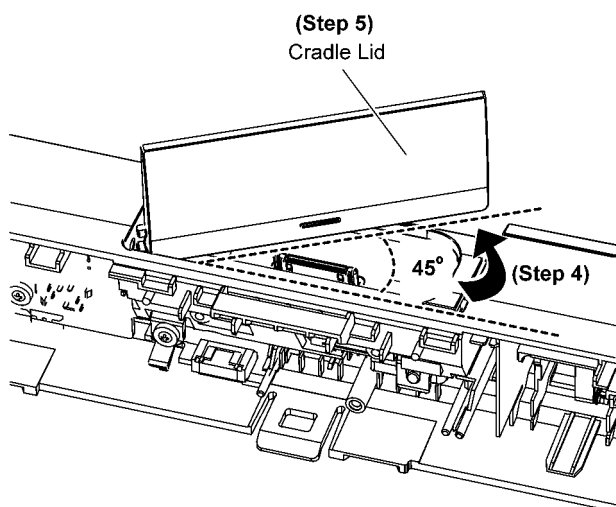
Step 2 Slightly push the Cradle Lid inwards.

Step 3 Slightly lift up the Cradle Lid.



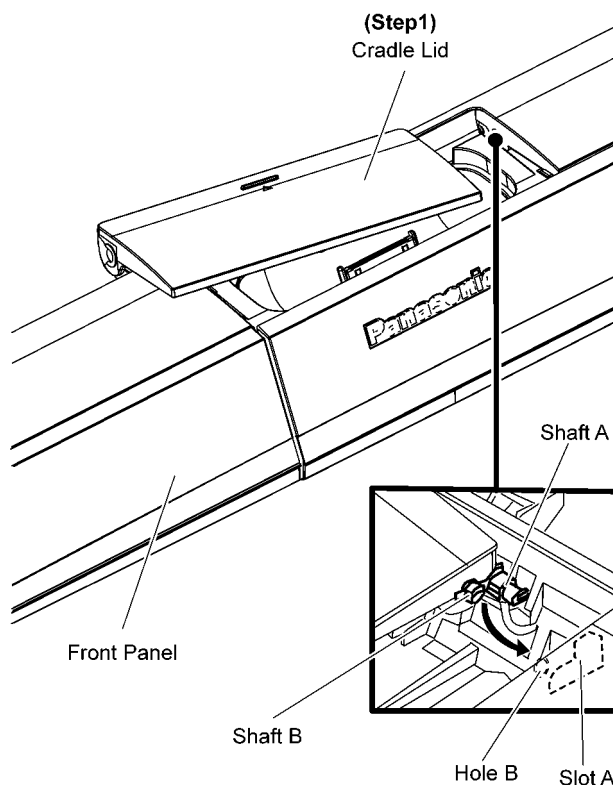
Step 4 Rotate the Cradle Lid about 45° according to the diagram shown.

Step 5 Remove Cradle Lid.



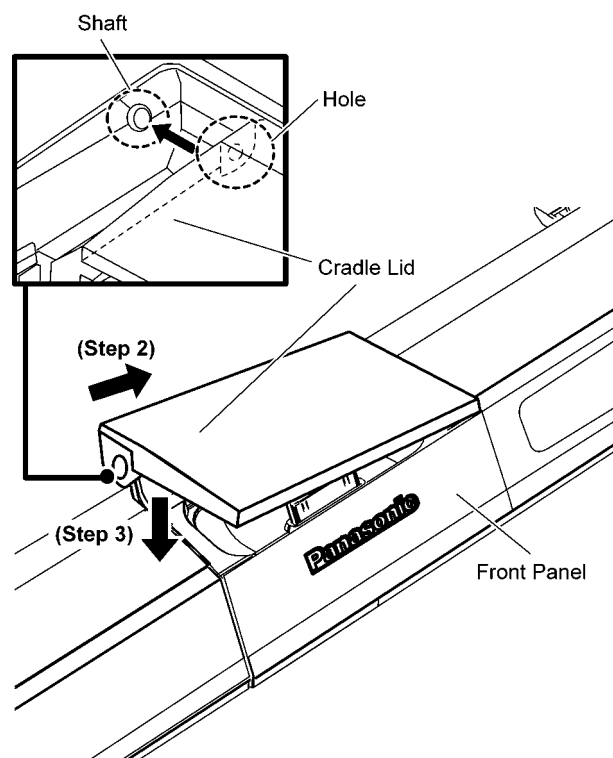
10.11.2. Assembly of Cradle Lid

Step 1 Insert the Cradle Lid (Shaft A) into the Front Panel (Slot A & hole B).

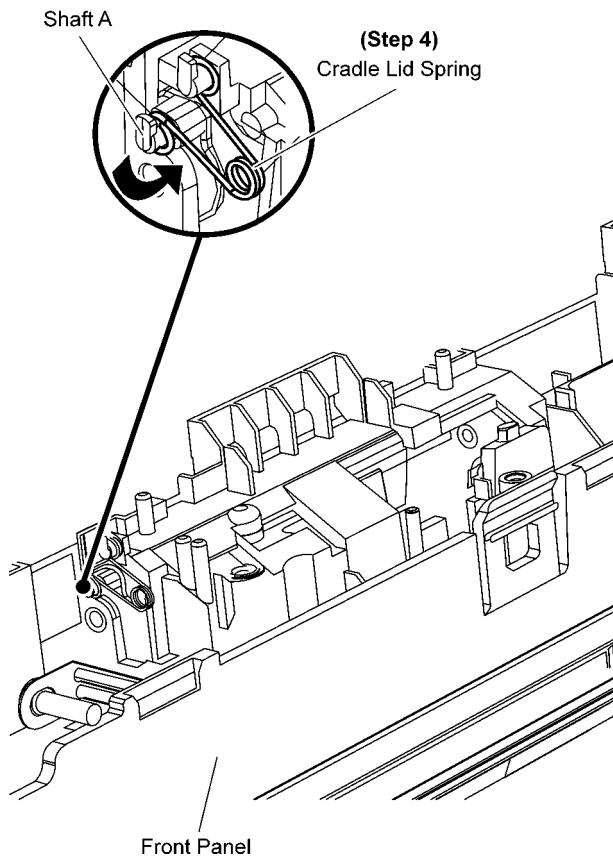


Step 2 Slightly push the Cradle Lid inwards.

Step 3 Press the Cradle Lid downward.



Step 4 Fix the Cradle Lid Spring onto Cradle Lid's Shaft A.

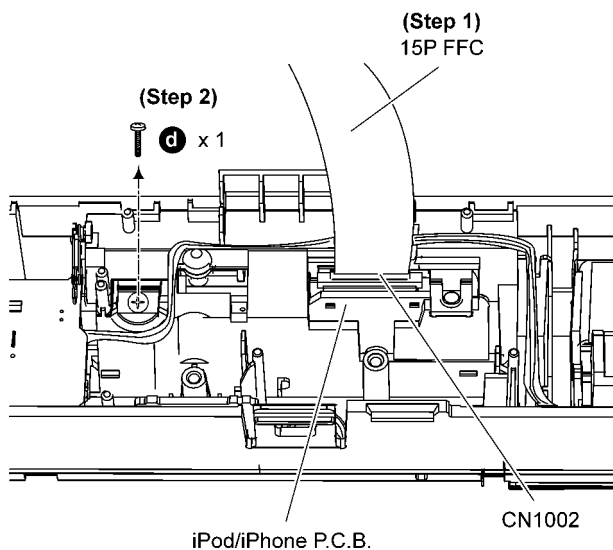


10.12. Disassembly of iPod Cradle Assembly

- Refer to “Disassembly of Front Panel Block Assembly”.

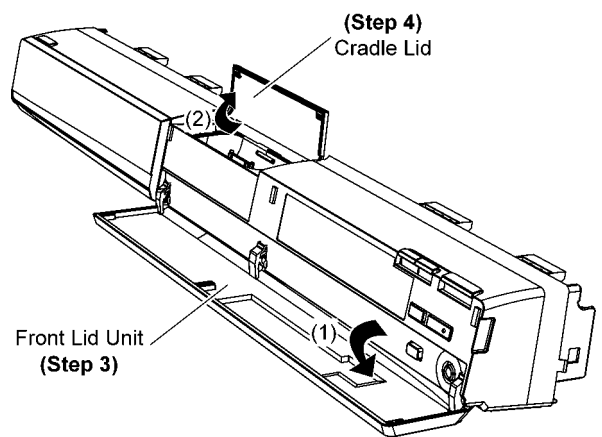
Step 1 Detach 15P FFC at the connector (CN1002) on iPod/iPhone P.C.B..

Step 2 Remove 1 screw.

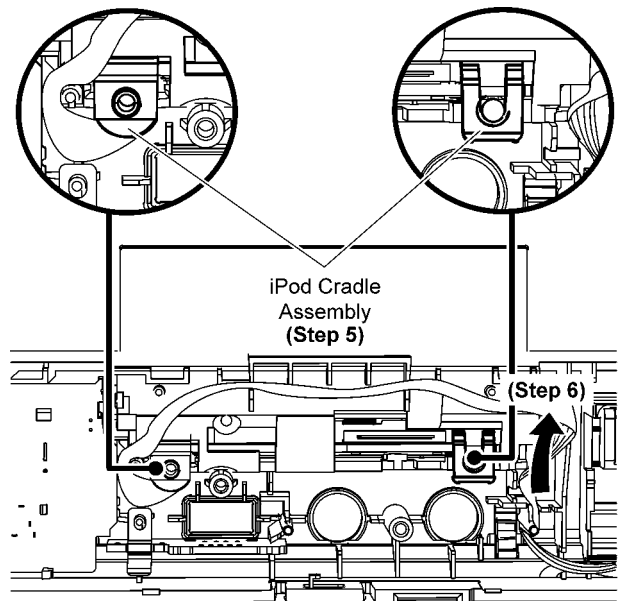


Step 3 Open the Front Lid Unit.

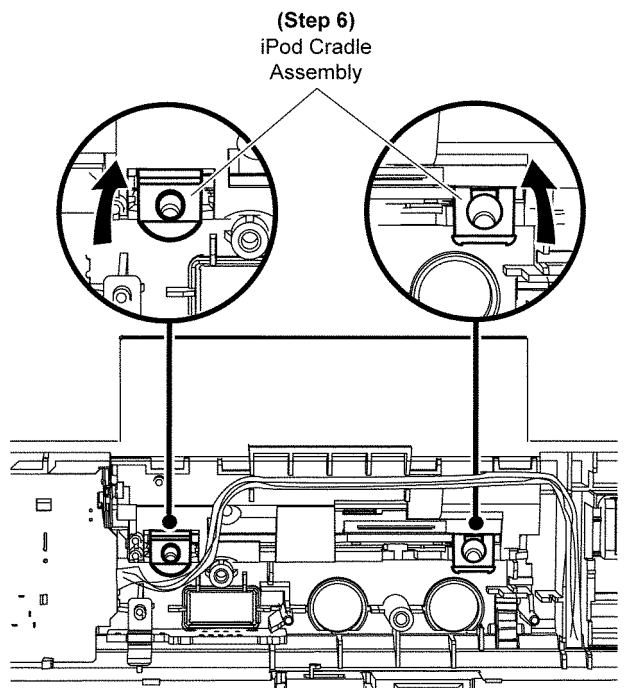
Step 4 Open the Cradle Lid.



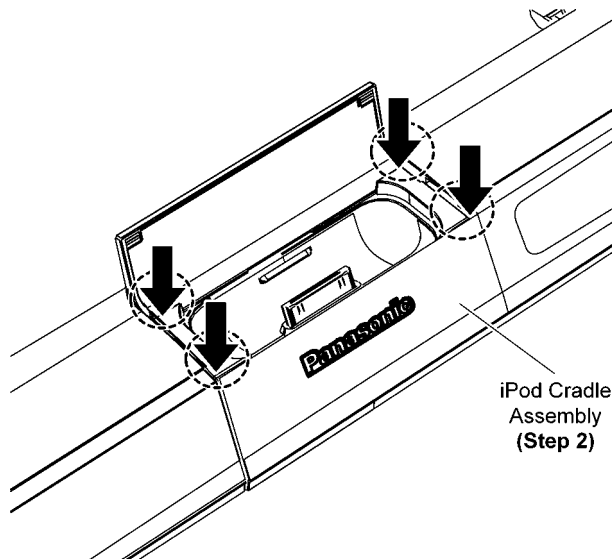
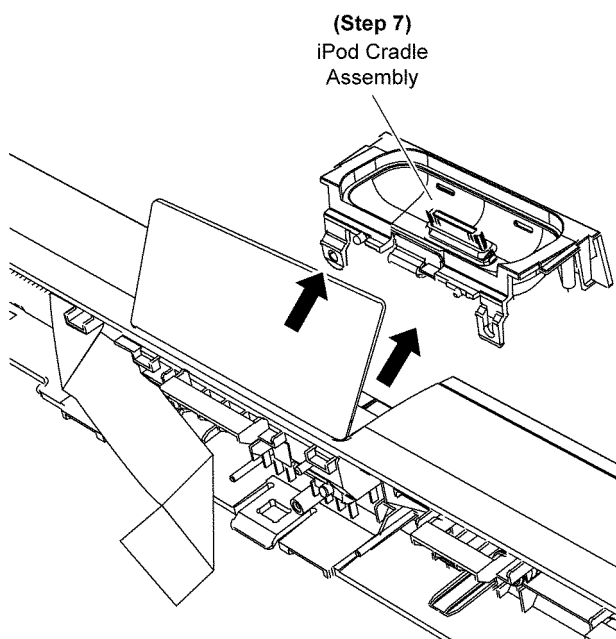
Step 5 Lift up the iPod Cradle Assembly on both sides.



Step 6 Press to release iPod Cradle Assembly from Front Panel as arrow shown.



Step 7 Remove iPod Cradle Assembly.

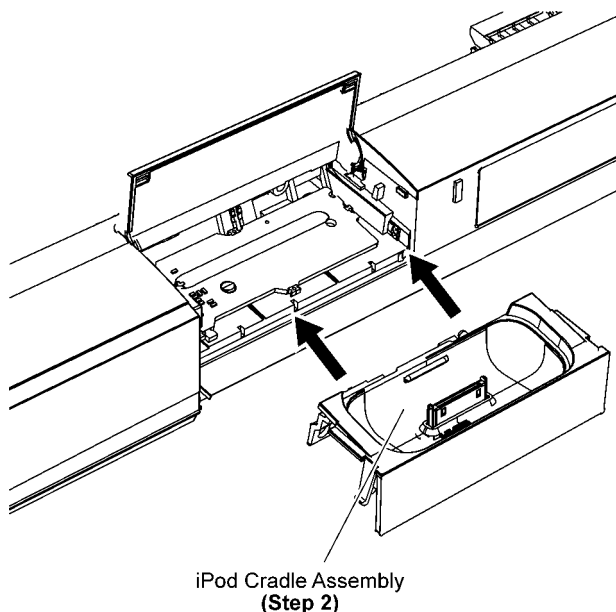


Step 3 Press the catch on the iPod Cradle Assembly.

Step 4 Fix 1 screw.

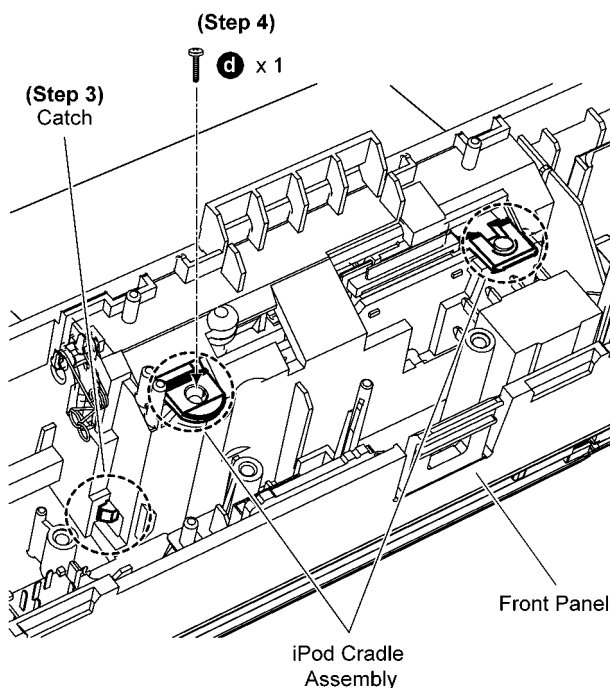
• Assembly of iPod Cradle Assembly

Step 1 Fix the iPod Cradle Assembly to Front Panel.



Step 2 Press the iPod Cradle Assembly downwards.

Note: A "click" sound can be heard when the iPod Cradle Assembly is fixed onto the Front Panel properly.

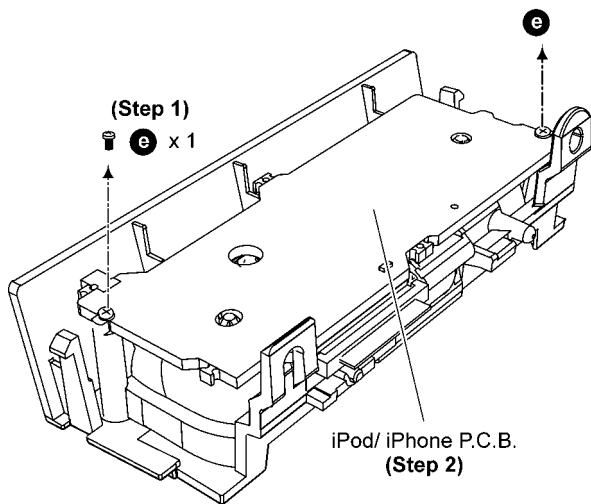


10.13. Disassembly of iPod/iPhone P.C.B.

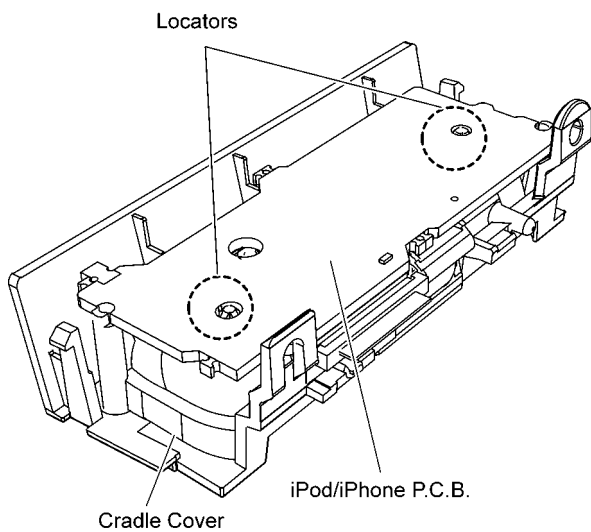
• Refer to "Disassembly of iPod Cradle Assembly".

Step 1 Remove 2 screws.

Step 2 Remove iPod/iPhone P.C.B..



Caution: During assembling, ensure that iPod/iPhone P.C.B. is seated properly at the locators.

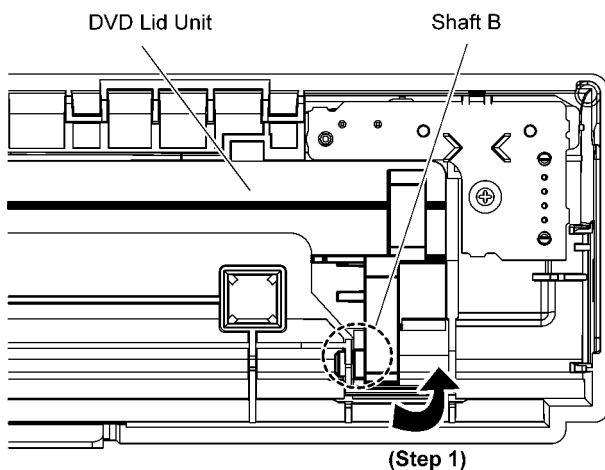


10.14. Replacement of DVD Lid Unit

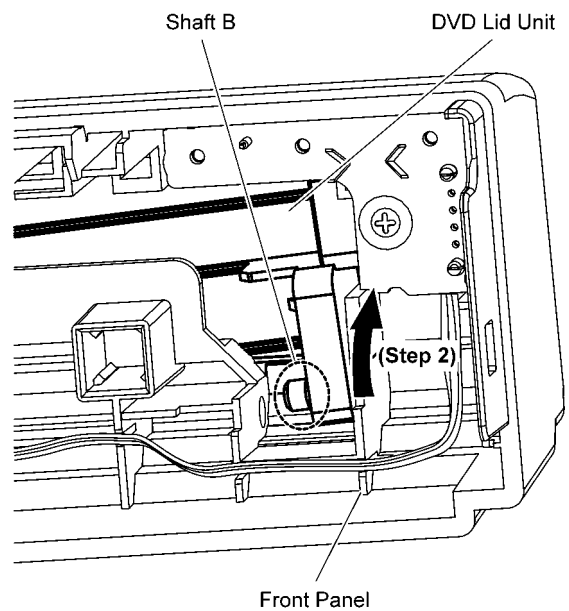
• Refer to “Disassembly of Front Panel Block Assembly”.

10.14.1. Disassembly of DVD Lid Unit

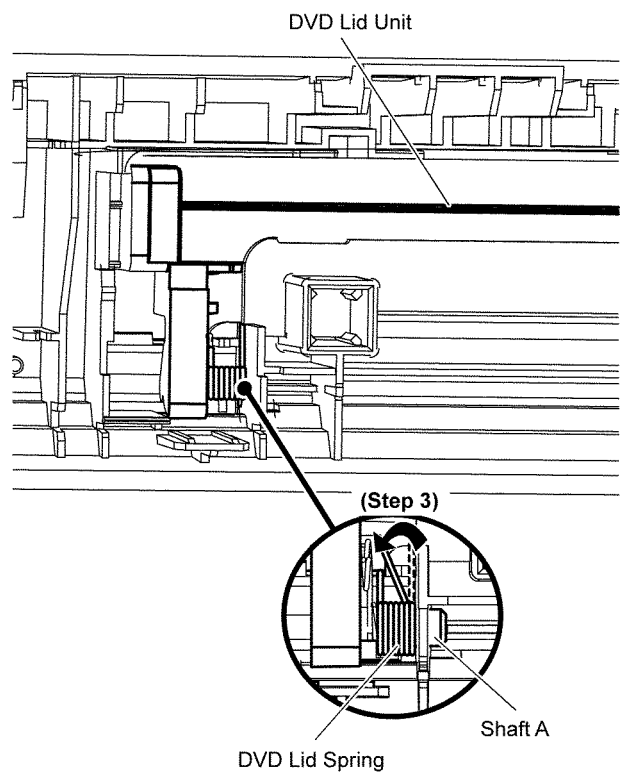
Step 1 Push backward the Shaft B of the DVD Lid Unit in the direction of arrow.



Step 2 Push forward the Shaft B of the DVD Lid Unit in the direction of arrow.

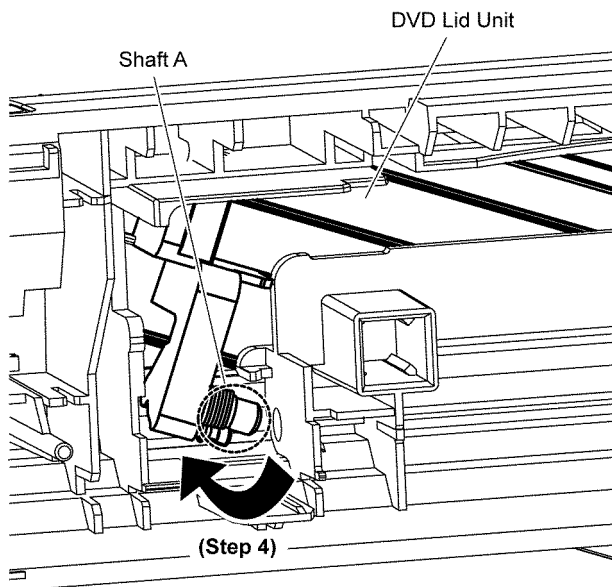


Step 3 Lift the DVD Lid Spring at Shaft A in the direction of arrow.

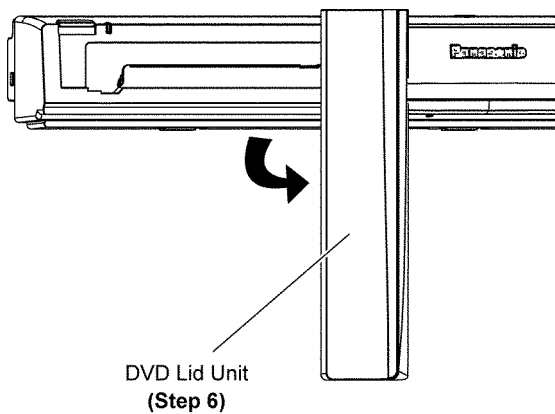


Step 4 Move the Shaft A of the DVD Lid Unit in the direction of arrow.

Step 5 Remove DVD Lid Unit.



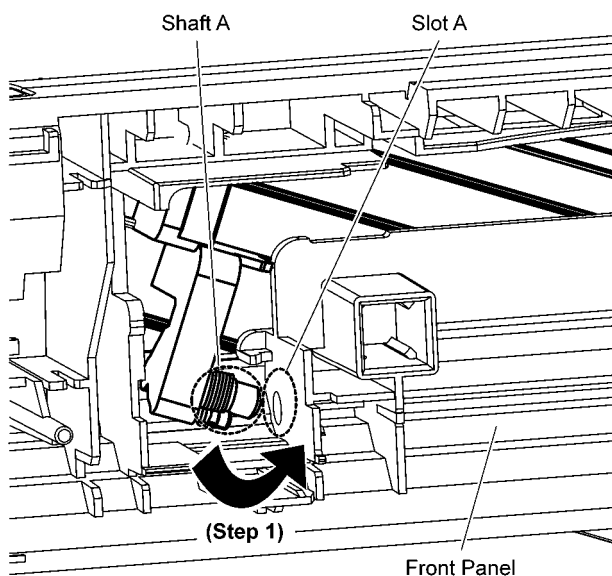
Step 6 Move the DVD Lid Unit to remove from Front Panel.



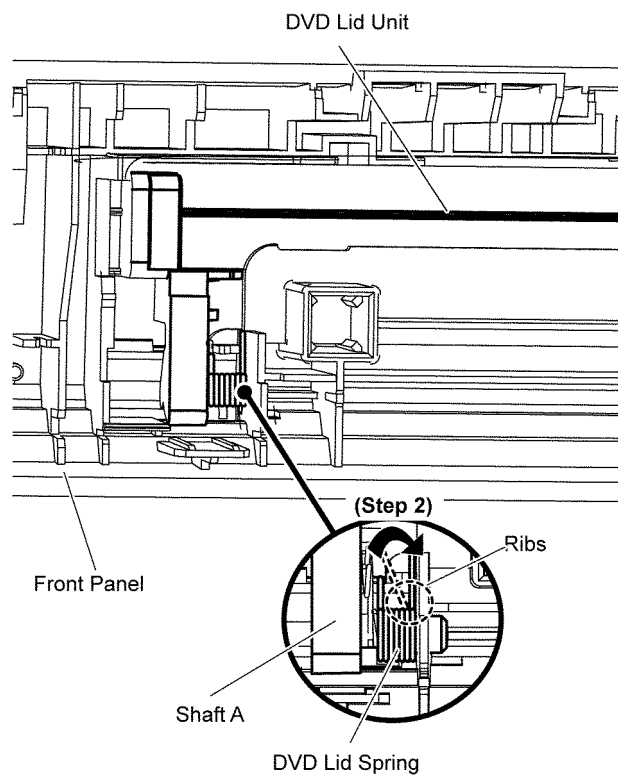
10.14.2. Assembly of DVD Lid Unit

Step 1 Insert the DVD Lid Unit into the Front Panel as arrow shown.

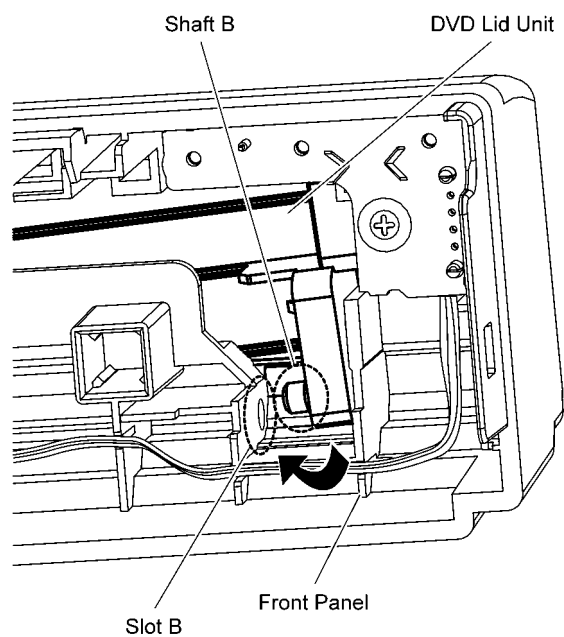
Caution: Ensure that Shaft A of DVD Lid Unit is fully inserted into Slot A of Front Panel.



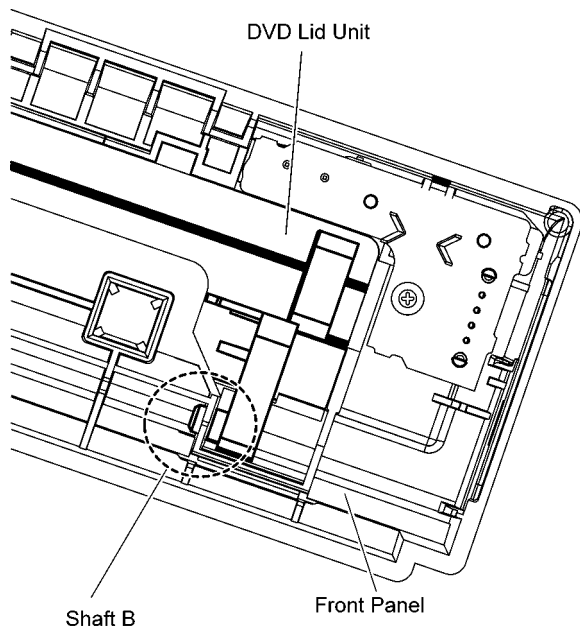
Step 2 Locate DVD Lid Spring in between ribs of Front Panel.



Step 3 Insert the DVD Lid Unit (Shaft B) into the Front Panel (Slot B) as arrow shown.



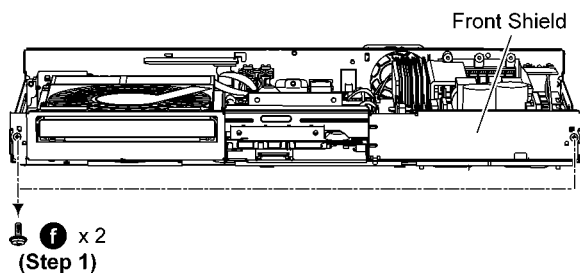
Caution: Ensure that the Shaft B of DVD Lid Unit is fully inserted into Slot B of Front Panel.



10.15. Disassembly of Front Shield Plate Unit

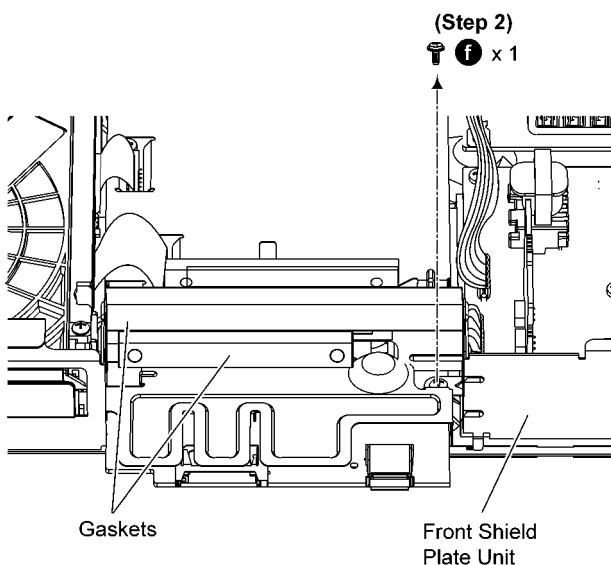
• Refer to “Disassembly of Front Panel Block Assembly”.

Step 1 Remove 2 screws.



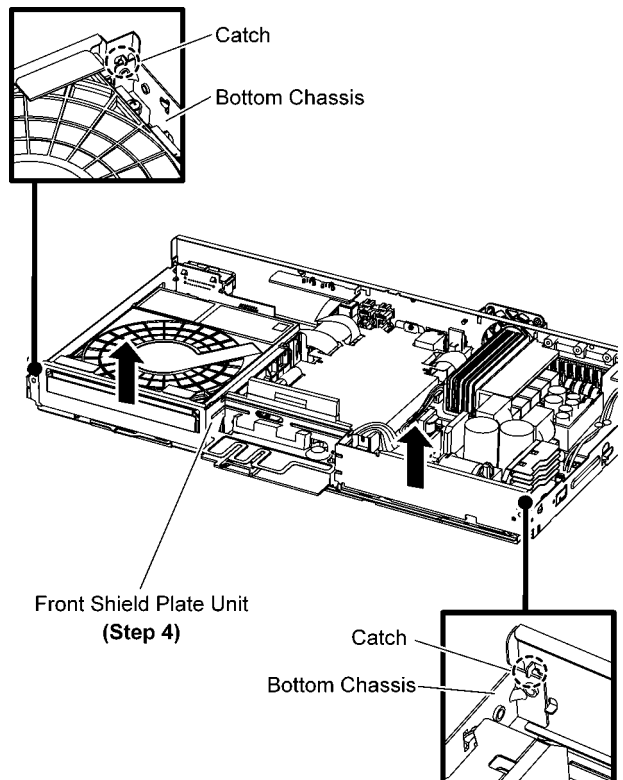
Step 2 Remove 1 screw.

Note: Replace the Gaskets if broken.

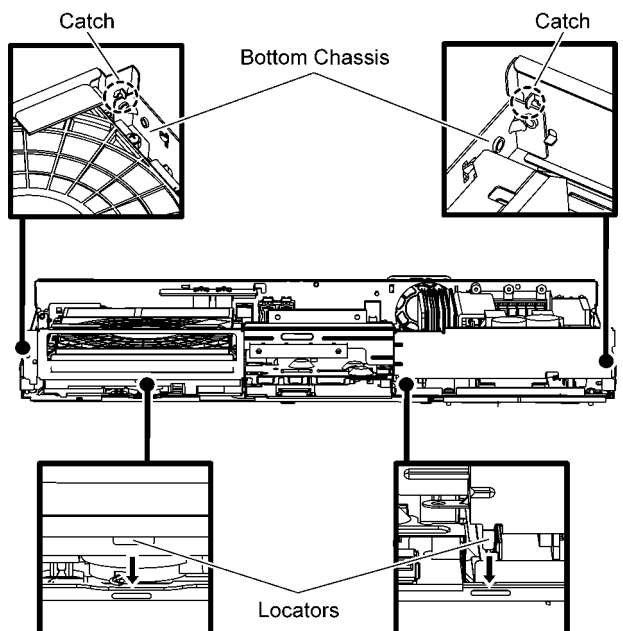


Step 3 Slightly lift up the Front Shield Plate Unit to release 2 catches at both sides.

Step 4 Remove Front Shield Plate Unit.



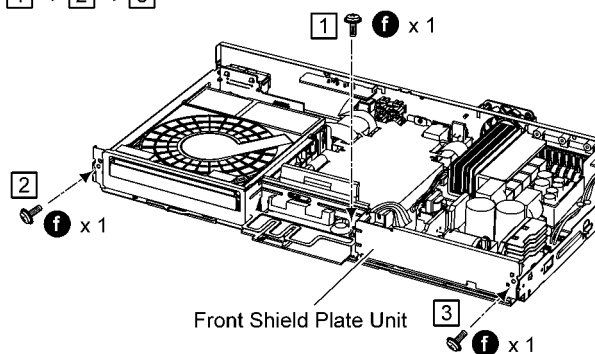
Caution: During assembling, ensure that Front Shield is properly inserted & fully fixed onto the Bottom Chassis.



Caution: During assembling, ensure that screwing sequence is strictly followed to illustration shown.

Screwing Sequence:

1 → 2 → 3



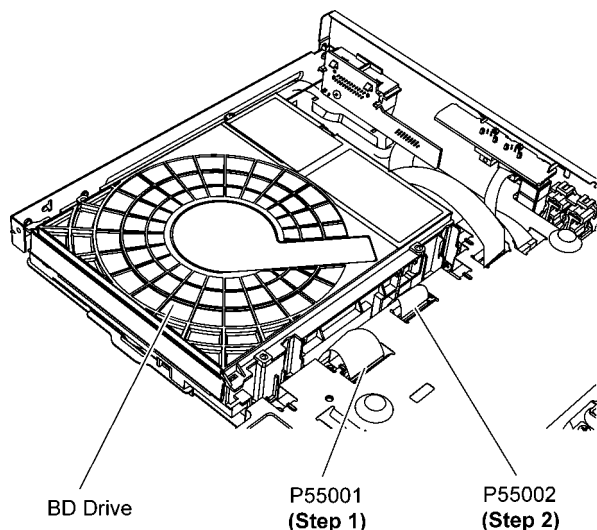
10.16. Disassembly of BD Drive

- Refer to “Disassembly of Top Cabinet Assembly”.
- Refer to “Disassembly of Front Panel Block Assembly”.
- Refer to “Disassembly of Front Shield Plate Unit”.

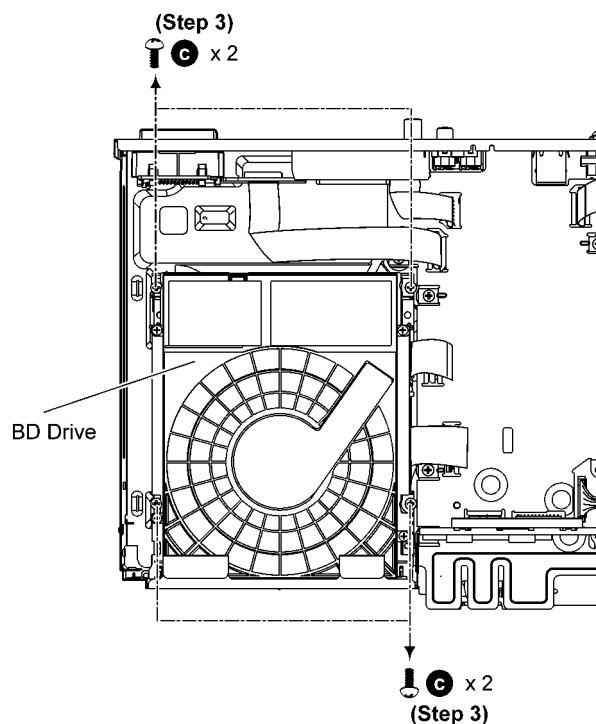
Caution: Pairing of BD Drive and Main P.C.B. as “BD Drive & Main P.C.B. Assembly” have to be replaced together. If either BD Drive or Main P.C.B. is changed, BD Drive unit has to carry out re-adjustment due to alignment data for BD Drive Unit is stored in the Main P.C.B.

Step 1 Detach 45P FFC at the connector (P55001) on Main P.C.B..

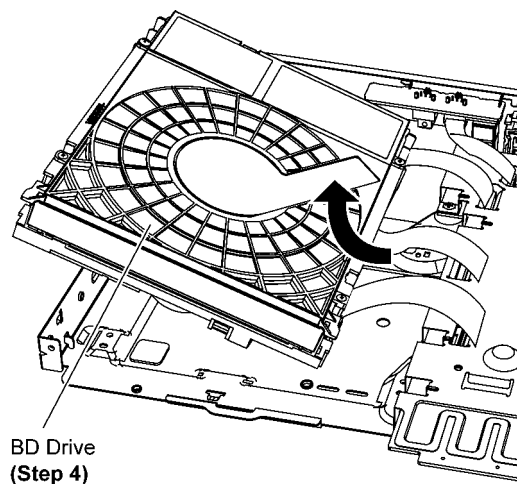
Step 2 Detach 18P FFC at the connector (P55002) on Main P.C.B..



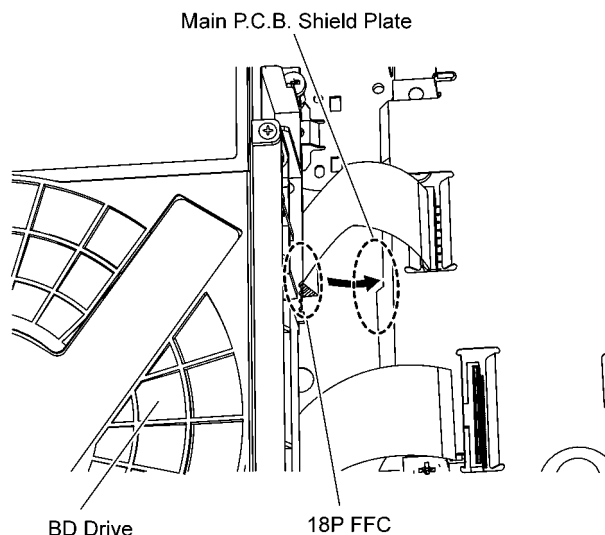
Step 3 Remove 4 screws.



Step 4 Lift up to remove the BD Drive.



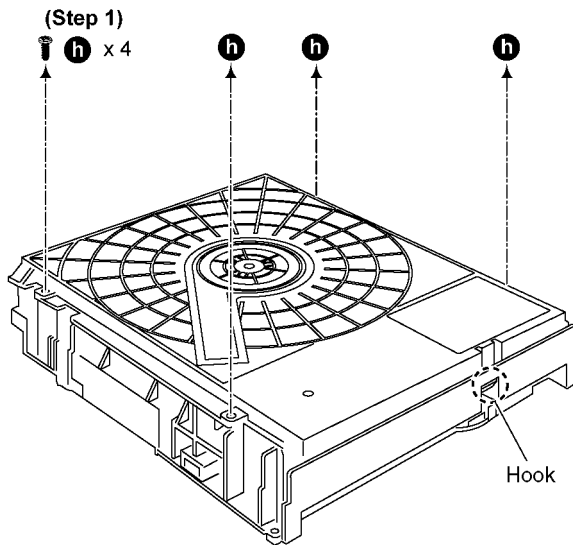
Caution: During assembling, ensure that 18P FFC is inserted under Main P.C.B. Shield properly.



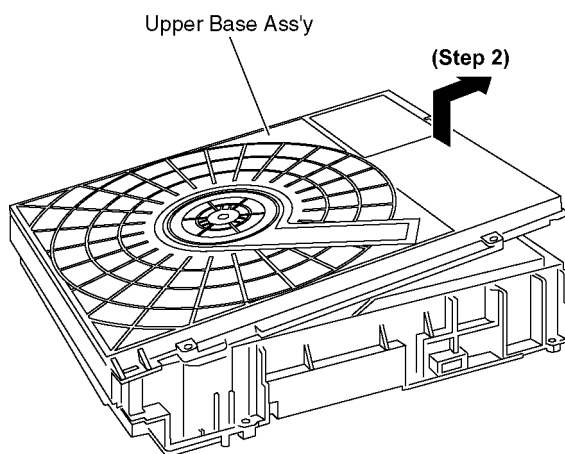
10.16.1. Replacement of Upper Base Ass'y

- Refer to "Disassembly of BD Drive".

Step 1 Remove the 4 screws, and push the Hook in.



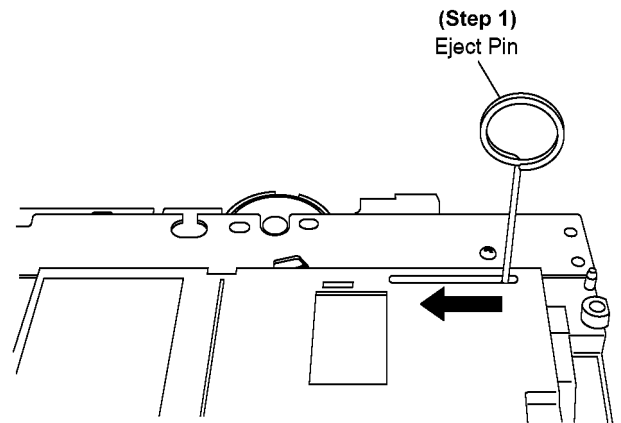
Step 2 Lift up the Upper Base Ass'y, and pull it out to the direction of arrow.



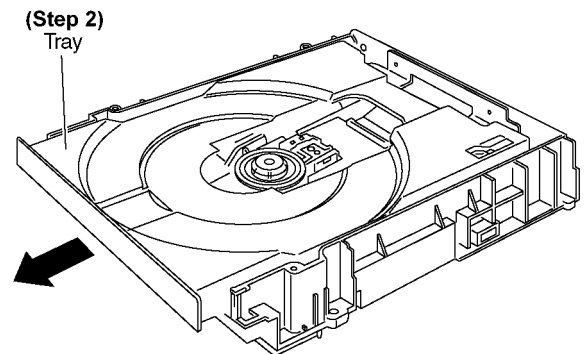
10.16.2. Replacement of Tray

- Refer to "Disassembly of BD Drive".
- Refer to "Disassembly of Upper Base Assembly".

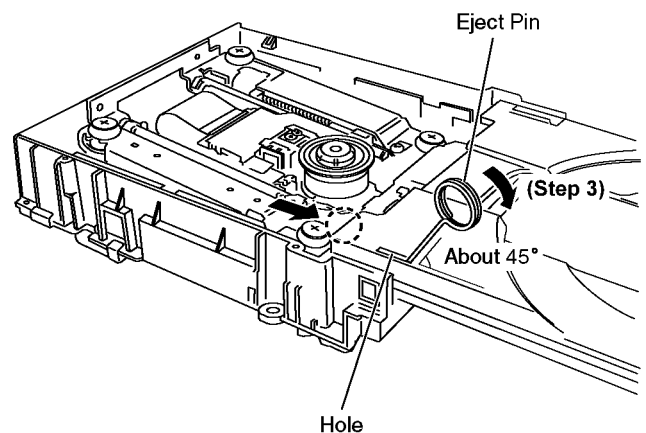
Step 1 Insert the Eject Pin into the hole of the bottom side, and slide it to the direction of arrow until it can be.



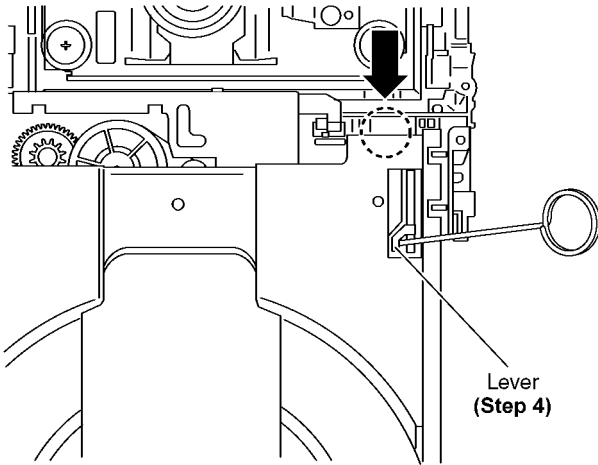
Step 2 Pull the Tray to the direction of arrow until it can be.



Step 3 Insert the Eject Pin into the hole of the Tray at 45 degrees, and lean it to the direction of arrow with pushing the dotted point of the tray forward. Then the one side of the tray is come off from the Drive.



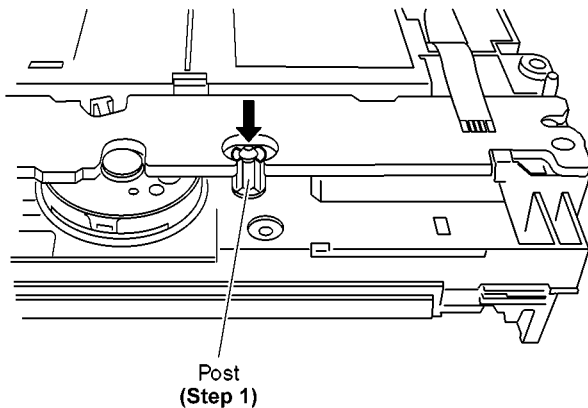
Step 4 Insert the Eject Pin into the Tray as below figure, lift up the lever using the Eject Pin while pushing the dotted point of the Tray. And remove the Tray.



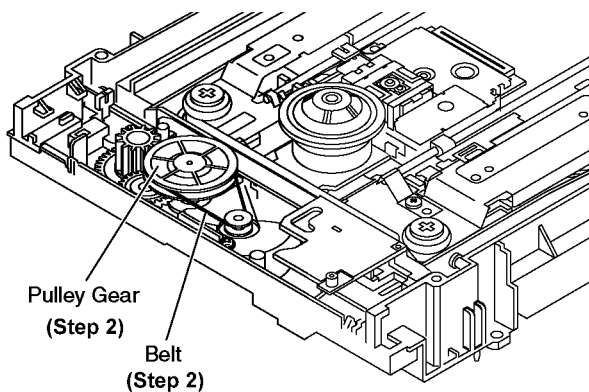
10.16.3. Replacement of Pulley Gear & Belt

- Refer to “Disassembly of BD Drive”.
- Refer to “Disassembly of Upper Base Assembly”.
- Refer to “Disassembly of Tray”.

Step 1 Push the Post to the direction of arrow by using the slotted screwdriver.



Step 2 Remove the Pulley Gear and Belt.



10.16.4. Replacement Slide Cam

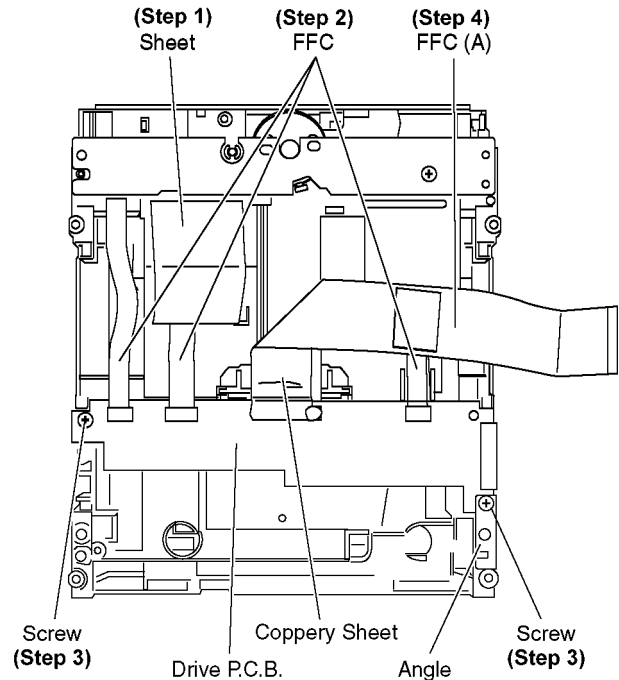
- Refer to “Disassembly of BD Drive”.
- Refer to “Disassembly of Upper Base Assembly”.
- Refer to “Disassembly of Tray”.
- Refer to “Disassembly of Pulley Gear & Belt”.

Step 1 Remove the Sheet.

Step 2 Disconnect the 3 FFCs.

Step 3 Remove the 2 Screws and the Angle.

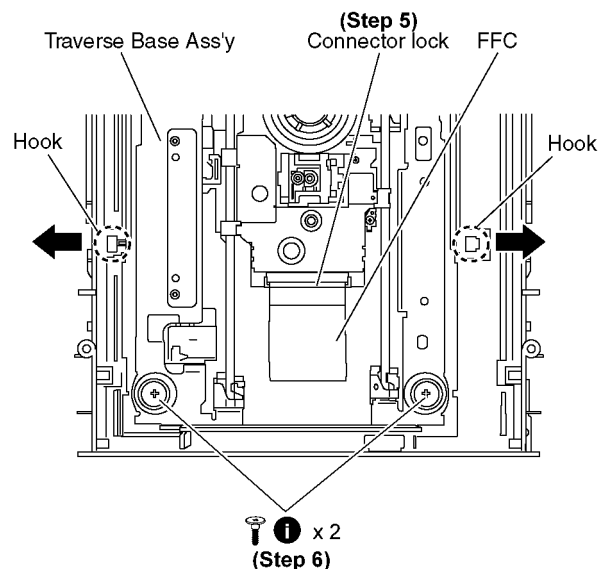
Step 4 Peel off Coppery Sheet from FFC (A) and remove the Drive P.C.B..



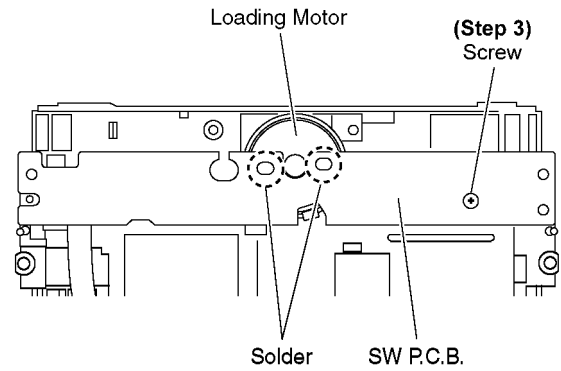
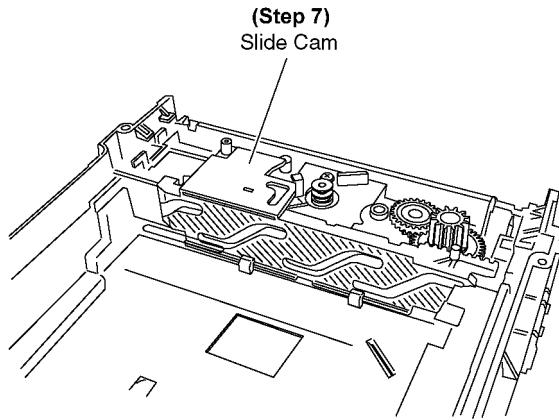
Caution: Though the Drive P.C.B. is not supplied as replacement parts, it must be removed for after disassembling.

Step 5 Open the connector lock, and disconnect the FFC.

Step 6 Remove the 2 Screws, and remove the Traverse Base Ass'y with spreading the 2 hooks to the direction of arrows.



Step 7 Remove the Slide Cam.

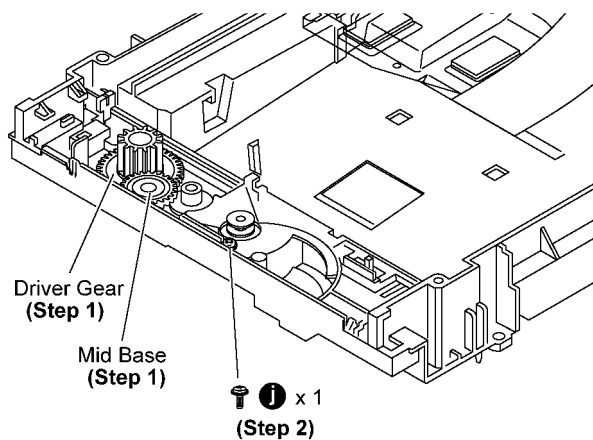


10.16.5. Replacement of Mid Base, Driver Gear and Loading Motor

- Refer to "Disassembly of BD Drive".
- Refer to "Disassembly of Upper Base Assembly".
- Refer to "Disassembly of Tray".
- Refer to "Disassembly of Pulley Gear & Belt".
- Refer to "Disassembly of Slide Cam".

Step 1 Remove the Mid Base and Driver Gear.

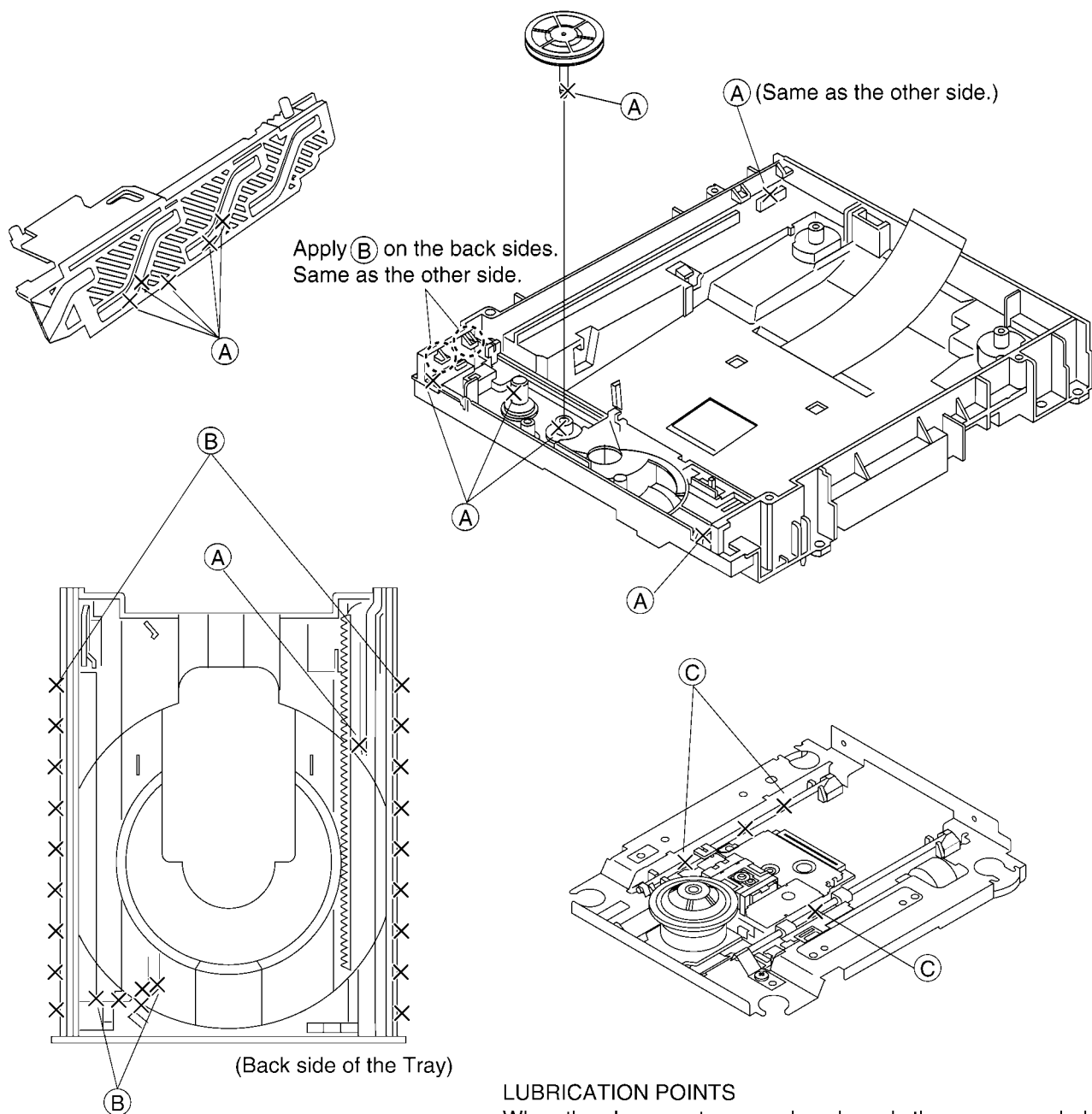
Step 2 Remove the Screw to remove the Loading Motor.



Step 3 Remove the Screw , and remove the SW P.C.B. with the Loading Motor.

Remove the 2 soldering points, and remove the Loading Motor.

10.16.6. Applying of Grease

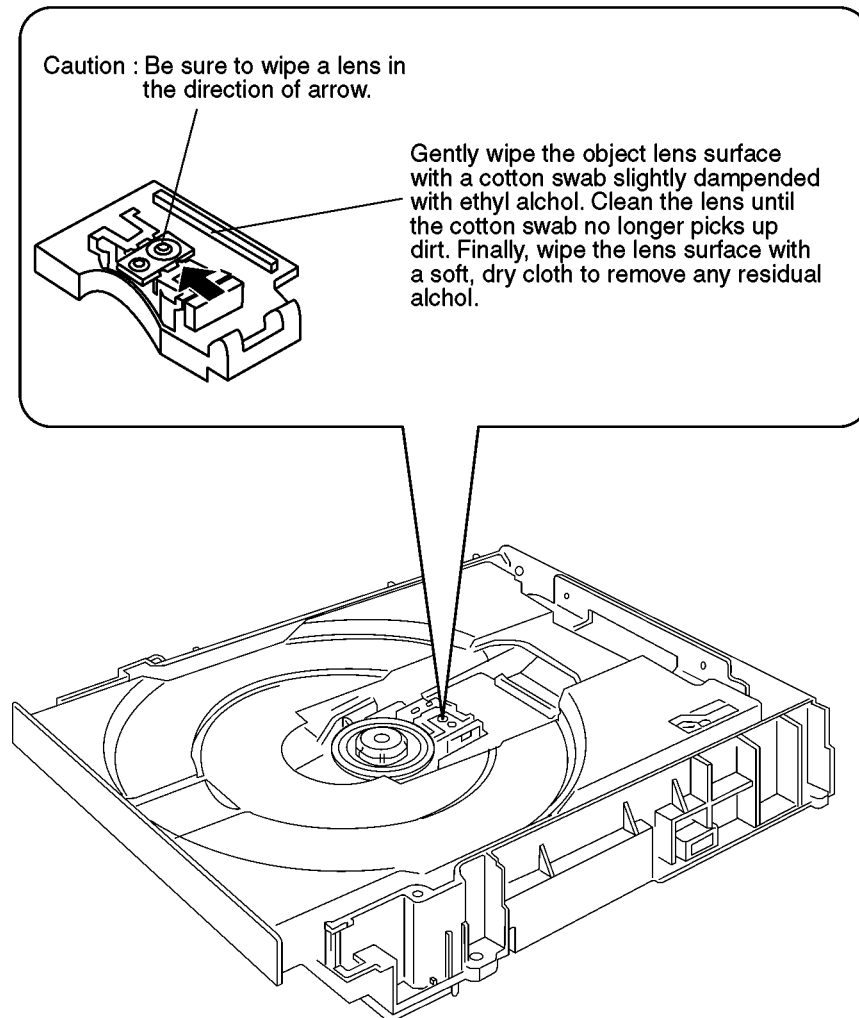


LUBRICATION POINTS
When the above parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of lubricant	Part No.
A	Grease	RFKZ0484
B	Hanarl	RFKZ0441
C	Grease	RFKXPG641

10.16.7. Cleansing the Lens of Optical Pick-Up Unit

- Refer to “Disassembly of BD Drive”.
- Refer to “Disassembly of Upper Base Assembly”.



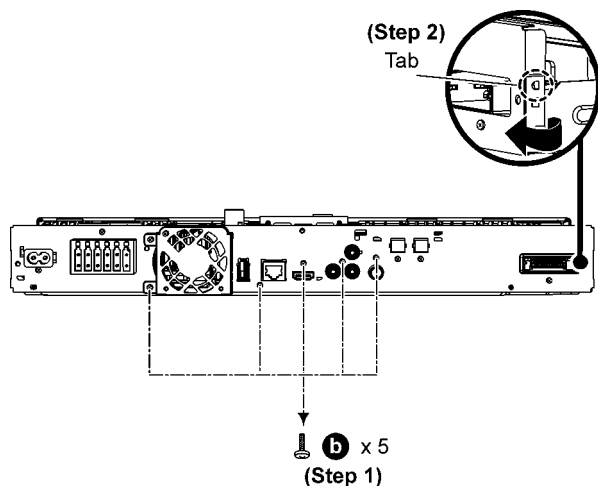
10.17. Disassembly of Main P.C.B.

- Refer to “Disassembly of Top Cabinet Assembly”.
- Refer to “Disassembly of Front Panel Block Assembly”.
- Refer to “Disassembly of Front Shield Plate Unit”.

Caution: Pairing of BD Drive and Main P.C.B. as “BD Drive & Main P.C.B. Assembly” have to be replaced together. If either BD Drive or Main P.C.B. is changed, BD Drive unit has to carry out re-adjustment due to alignment data for BD Drive Unit is stored in the Main P.C.B.

Step 1 Remove 5 screws.

Step 2 Release the tab at the right side of Rear Panel in the direction of arrow.



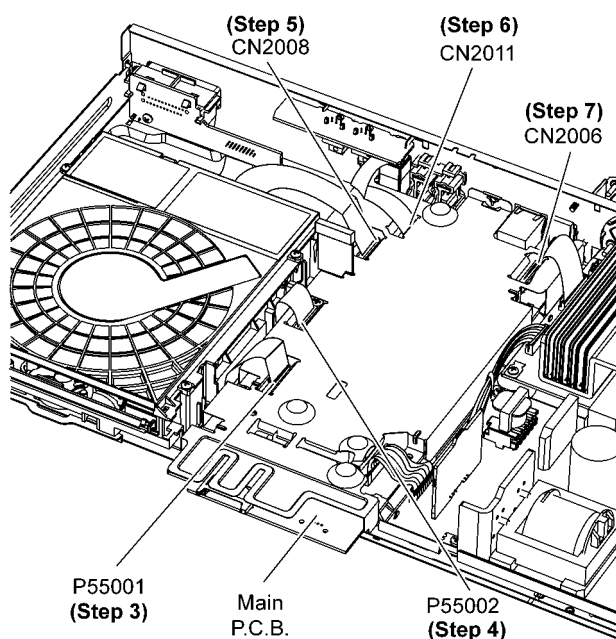
Step 3 Detach 45P FFC at the connector (P55001) on Main P.C.B..

Step 4 Detach 18P FFC at the connector (P55002) on Main P.C.B..

Step 5 Detach 17P FFC at the connector (CN2008) on Main P.C.B..

Step 6 Detach 13P FFC at the connector (CN2011) on Main P.C.B..

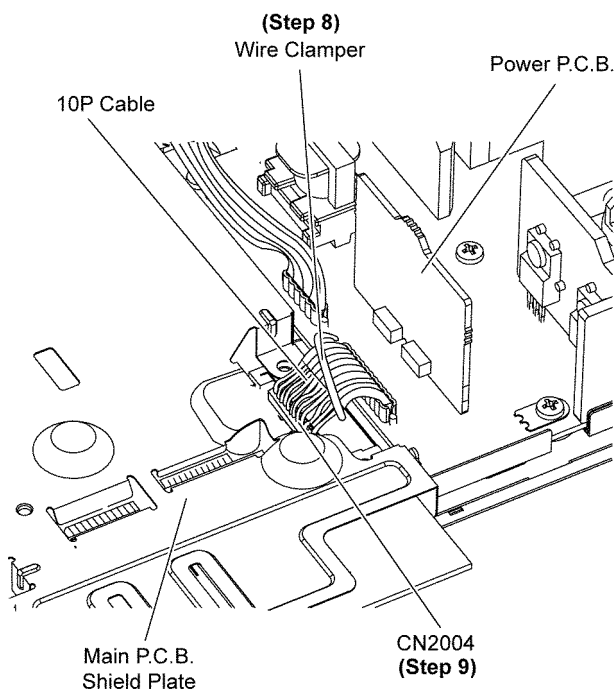
Step 7 Detach 18P FFC at the connector (CN2006) on Main P.C.B..



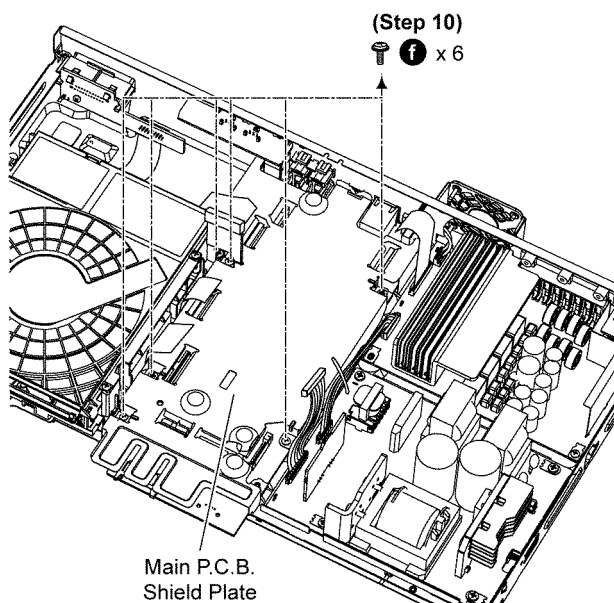
Step 8 Lift up the Wire Clamper.

Step 9 Detach 10P cable at the connector (CN2004) on Main P.C.B..

Caution: During assembling, ensure that 10P cable is properly bend down onto Main P.C.B. Shield Plate according to diagram shown.

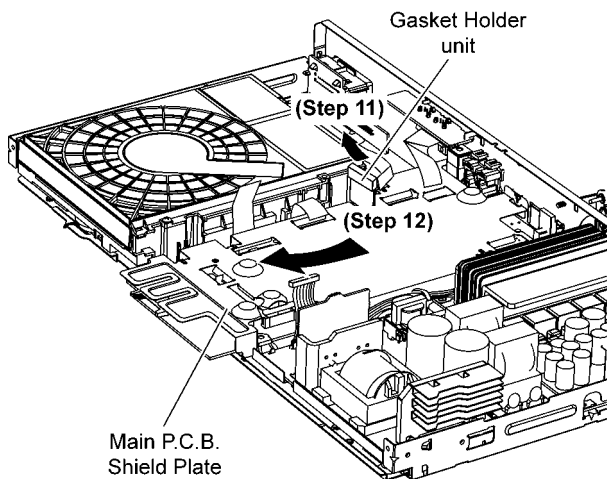


Step 10 Remove 6 screws.

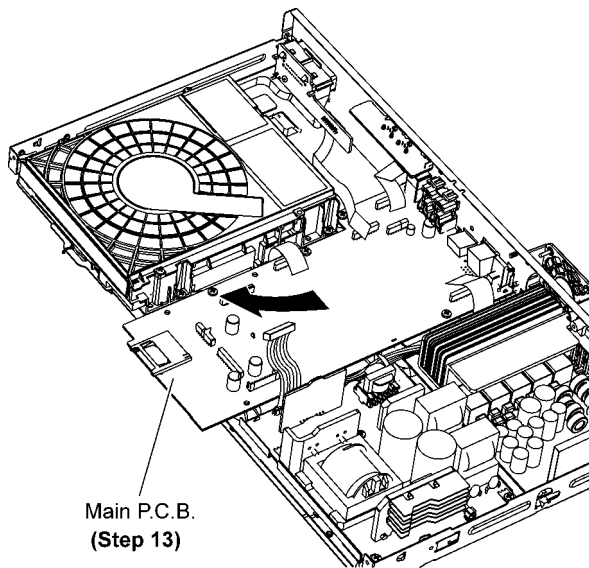


Step 11 Remove Gasket Holder unit as arrow shown.

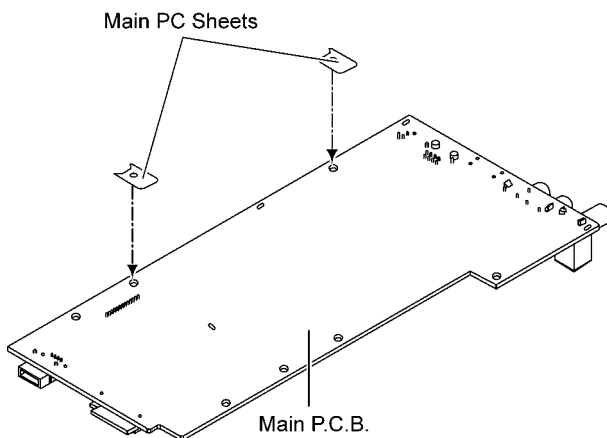
Step 12 Remove Main P.C.B. Shield Plate.



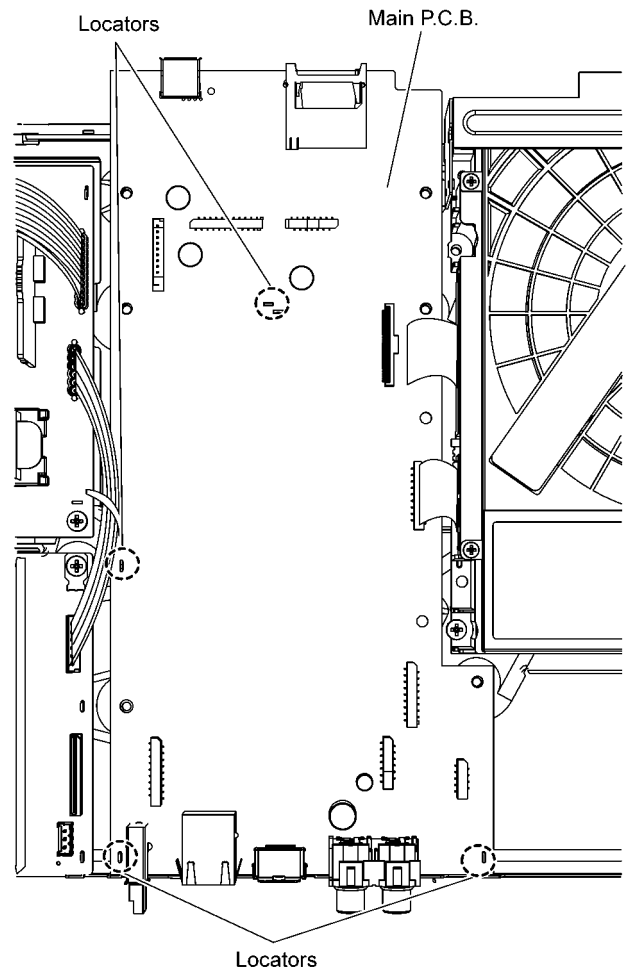
Step 13 Lift up to remove Main P.C.B..



Note: During assembling, replace the Main PC sheets if broken.



Caution: During assembling, ensure that Main P.C.B. is seated properly at the locators.



10.18. Disassembly of D-Amp P.C.B.

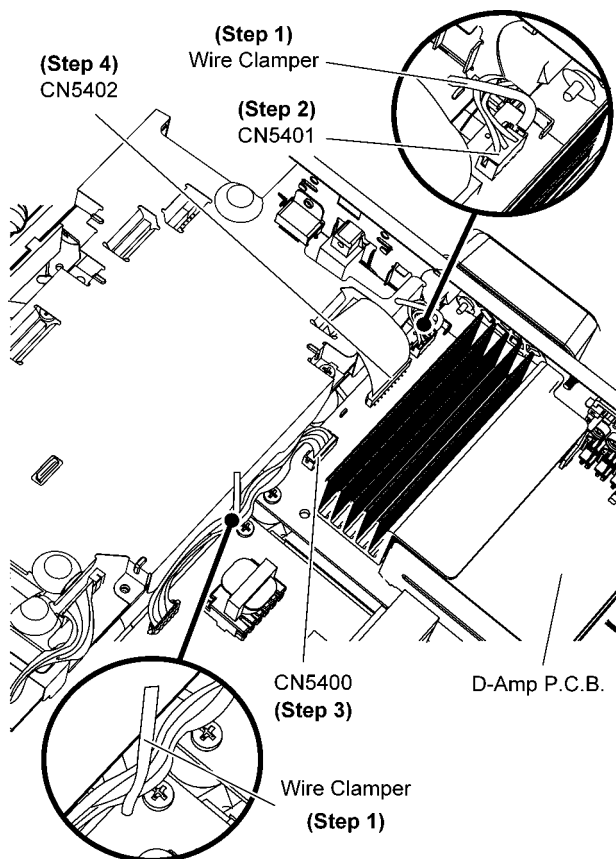
- Refer to "Disassembly of Top Cabinet Assembly".
- Refer to "Disassembly of AC Inlet Assembly".

Step 1 Lift Up 2 Wire Clampers.

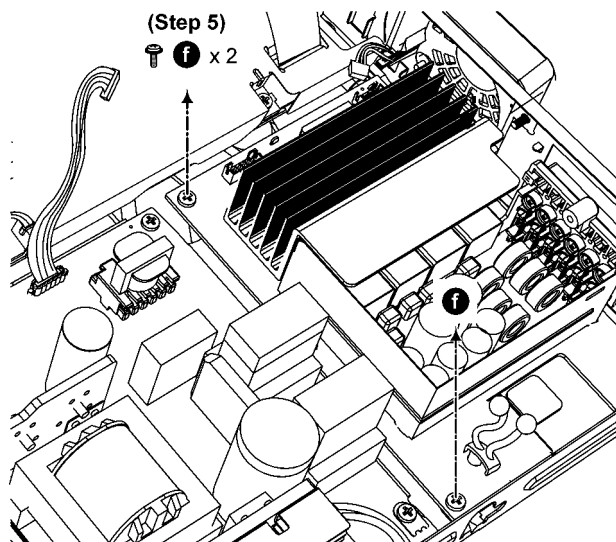
Step 2 Detach 3P Wire at the connector (CN5401) on D-Amp P.C.B..

Step 3 Detach 6P Cable at the connector (CN5400) on D-Amp P.C.B..

Step 4 Detach 18P FFC at the connector (CN5402) on D-Amp P.C.B..

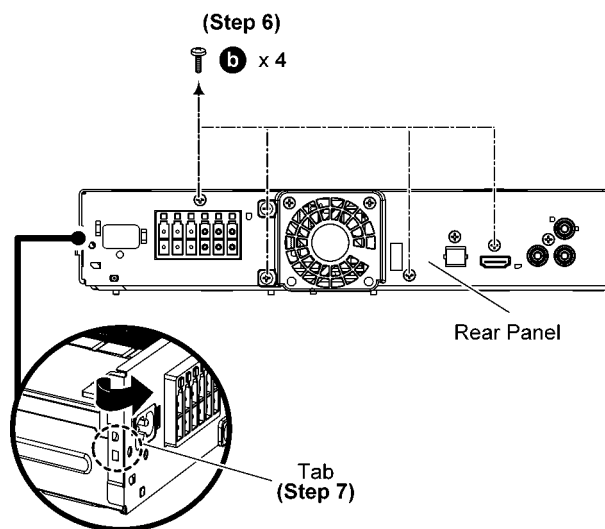


Step 5 Remove 2 screws on D-Amp P.C.B..

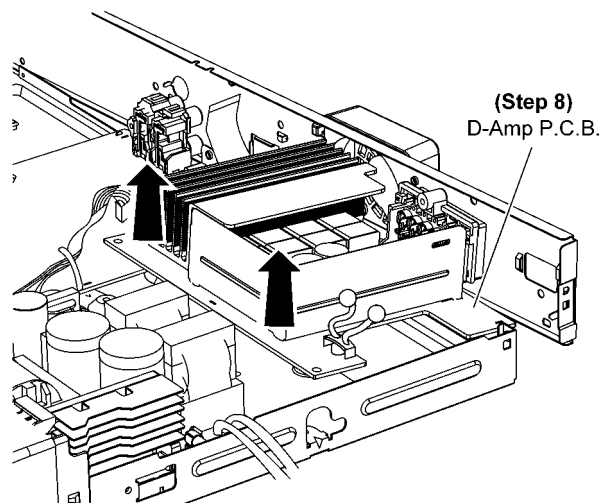


Step 6 Remove 4 screws.

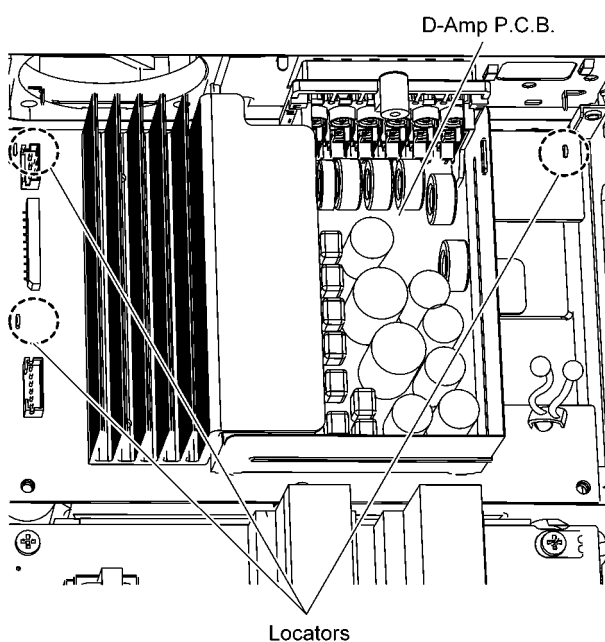
Step 7 Release the tab of the side of the Rear Panel in the direction of arrow.



Step 8 Remove D-Amp P.C.B. according to direction of arrow shown.



Caution: During assembling, ensure that D-Amp P.C.B. is seated properly at the locators.



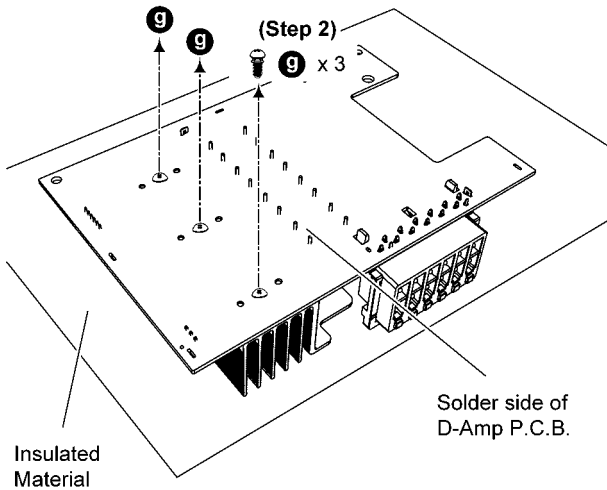
10.19. Replacement of Digital Amplifier IC (IC5100/IC5200)

- Refer to “Disassembly of D-Amp P.C.B.”.

10.19.1. Disassembly of Digital Amplifier IC (IC5100/IC5200)

Step 1 Place the D-Amp P.C.B. on an insulated material.

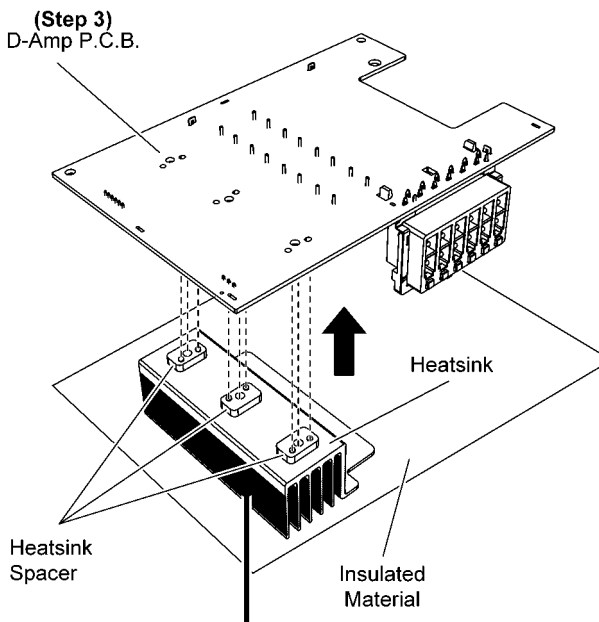
Step 2 Remove 3 screws.



Step 3 Lift up the D-Amp P.C.B..

Step 4 Upset the D-Amp P.C.B..

Caution: Keep the Heatsink Spacer in safe place. Place it back during assembling.

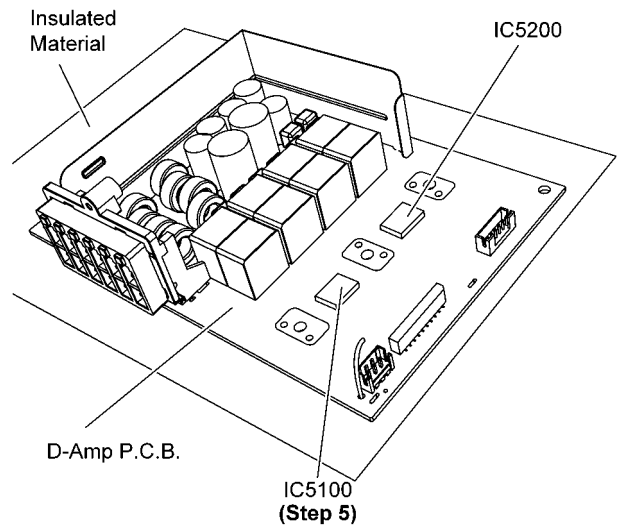


**CAUTION: HOT!!
PLEASE DO NOT
TOUCH THE HEAT SINK**

Step 5 Desolder pins of Digital Amplifier IC (IC5100).

Step 6 Remove Digital Amplifier IC (IC5100).

Note: For disassembling of Digital Amplifier IC (IC5200), repeat the (Step 1) to (Step 4) of 10.19.1.



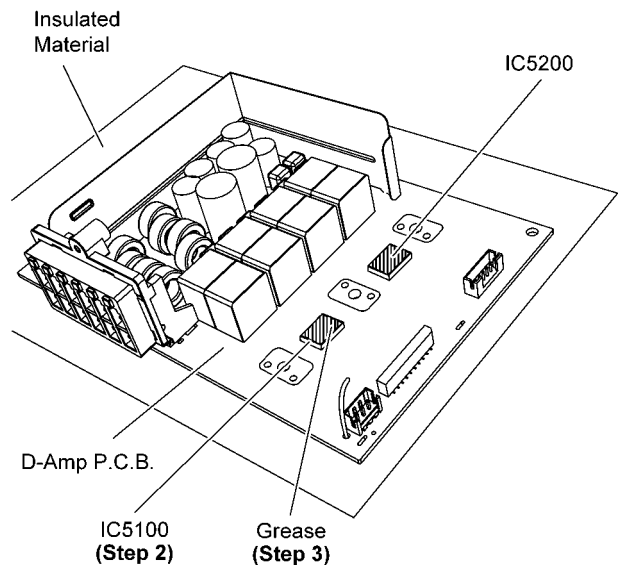
10.19.2. Assembly of Digital Amplifier IC (IC5100/IC5200)

Step 1 Mount the Digital Amplifier IC (IC5100) onto the D-Amp P.C.B..

Step 2 Solder pins of Digital Amplifier IC (IC5100).

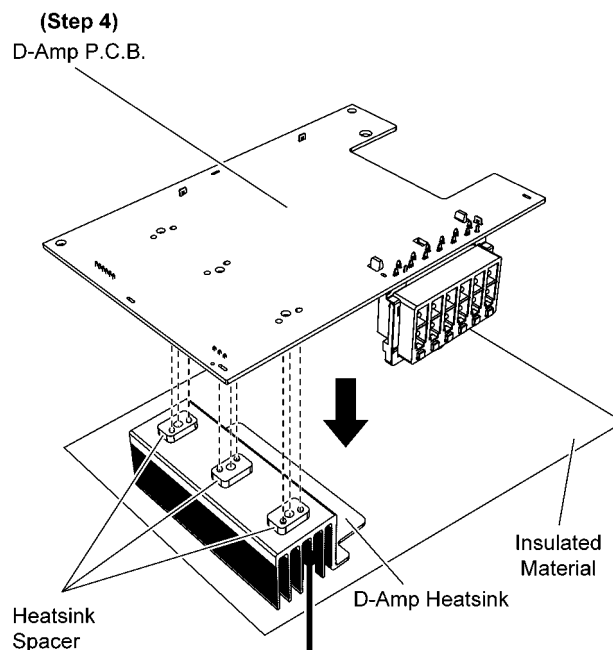
Caution: Ensure that the pins of Digital Amplifier IC (IC5100) is positioned correctly on D-Amp P.C.B. before soldering check solderability.

Step 3 Apply grease onto the top side of the Digital Amplifier IC (IC5100).



Step 4 Upset the D-Amp P.C.B..

Caution: During assembling, ensure that heatsink spacer is seated properly onto Amp Heatsink.



**CAUTION: HOT!!
PLEASE DO NOT
TOUCH THE HEAT SINK**

Caution: Ensure that D-Amp P.C.B. is properly located and fixed on to Amp Heatsink before screwing.

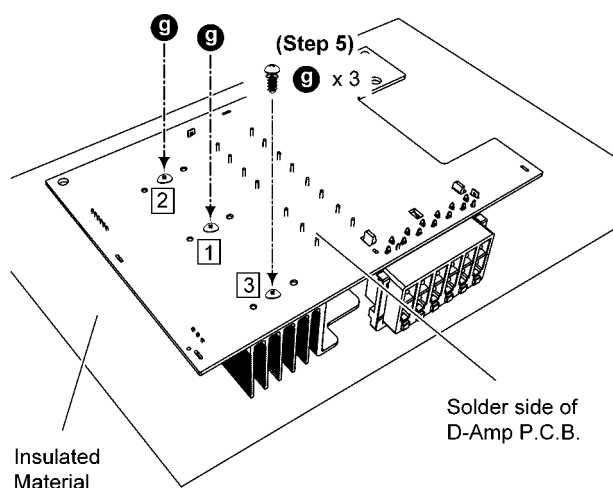
Step 5 Fix 3 screws.

Caution: During assembling, ensure that screwing sequence is strictly follow to the illustration shown.

Note: For assembling of others Digital Amplifier IC (IC5200), repeat the (Step 1) to (Step 5) of 10.19.2.

Screwing sequence:

1 → 2 → 3



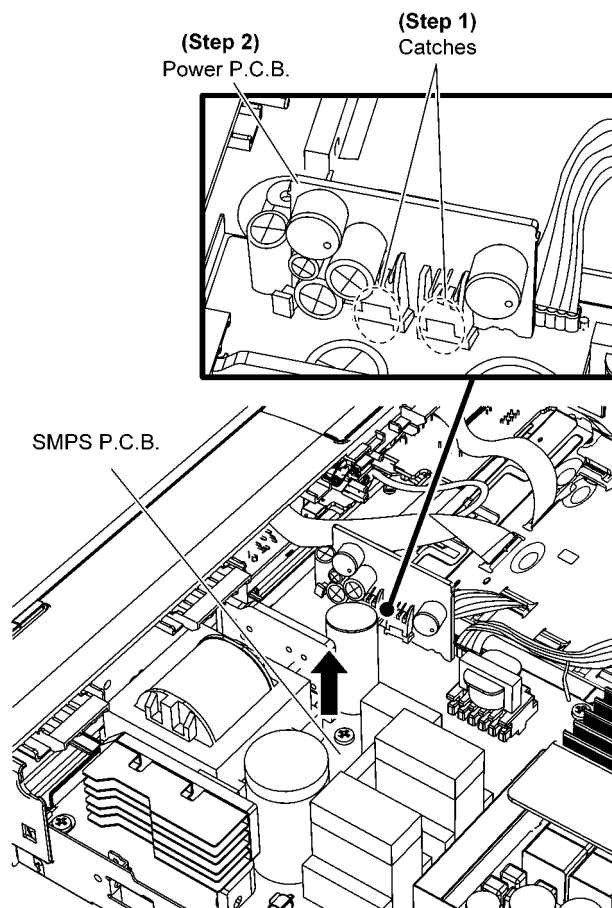
10.20. Disassembly of Power P.C.B.

• Refer to "Disassembly of Top Cabinet".

Step 1 Release 2 catches.

Step 2 Remove Power P.C.B. in the direction of arrow.

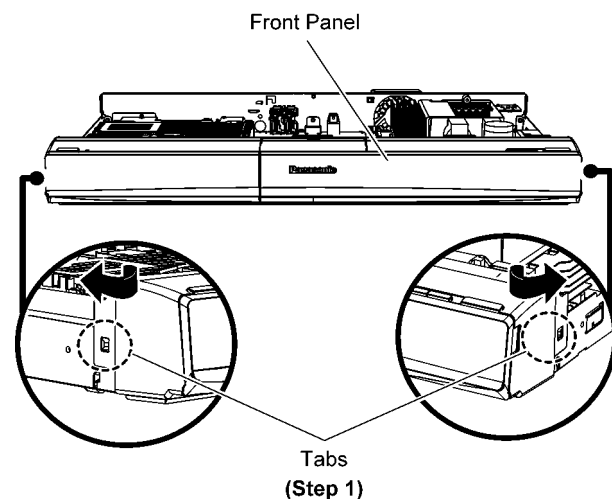
Caution: During assembling, ensure that Power P.C.B. is properly inserted & fully connected to SMPS P.C.B..



10.21. Disassembly of SMPS P.C.B.

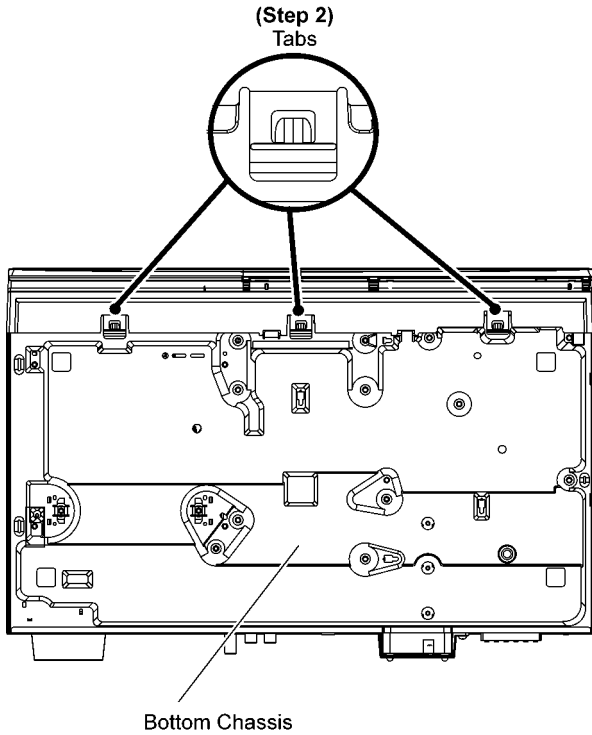
• Refer to "Disassembly of Power P.C.B.".

Step 1 Release the 2 tabs at each side of the Front Panel in the direction of arrow.

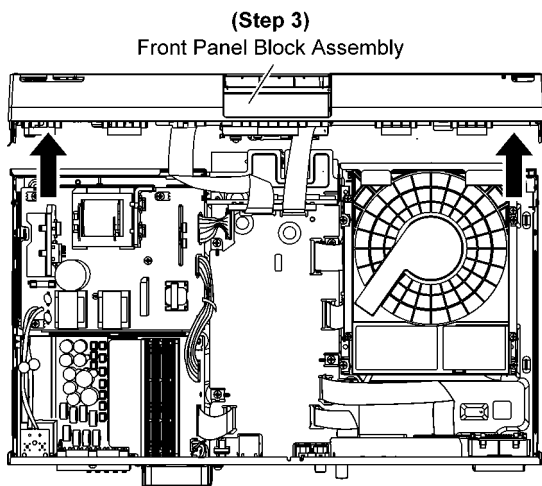


Step 2 Release the 3 tabs at the Bottom Chassis.

Caution: Do not exert strong force when releasing the tabs.



Step 3 Detach the Front Panel Block Assembly slightly forward.

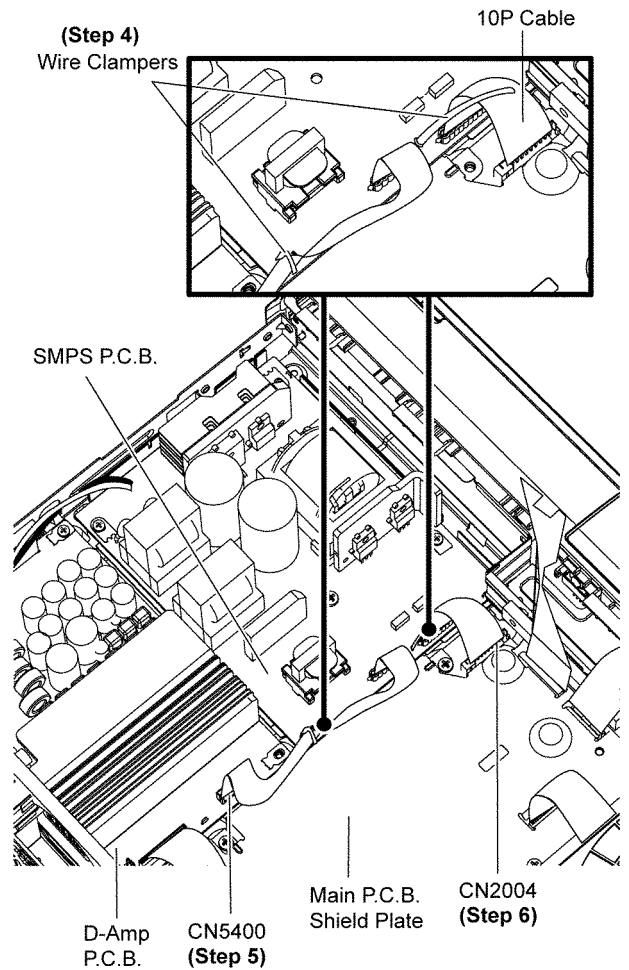


Step 4 Lift up the Wire Clampers.

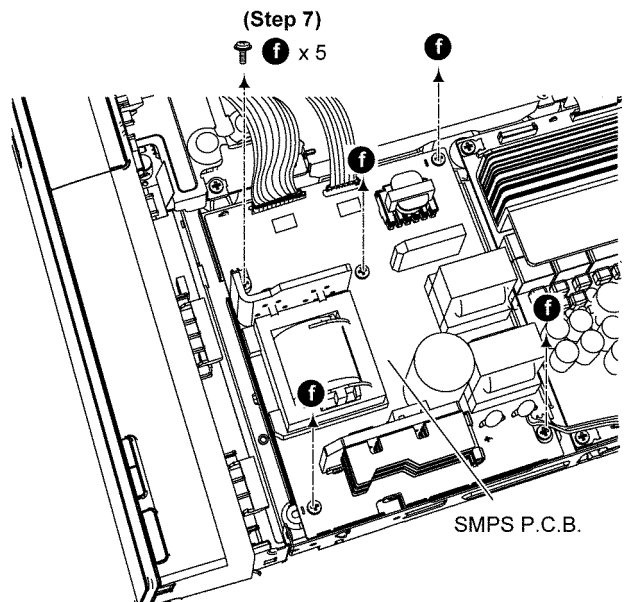
Step 5 Detach 6P Cable at the connector (CN5400) on D-Amp P.C.B..

Step 6 Detach 10P Cable at the connector (CN2004) on Main P.C.B..

Caution: During assembling, ensure that 10P cable is bend down properly as diagram shown.

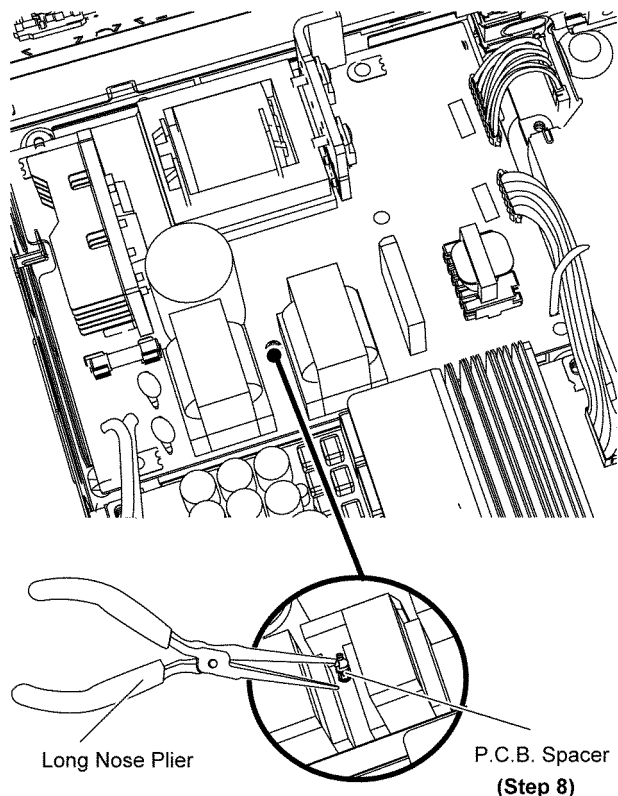


Step 7 Remove 5 screws.

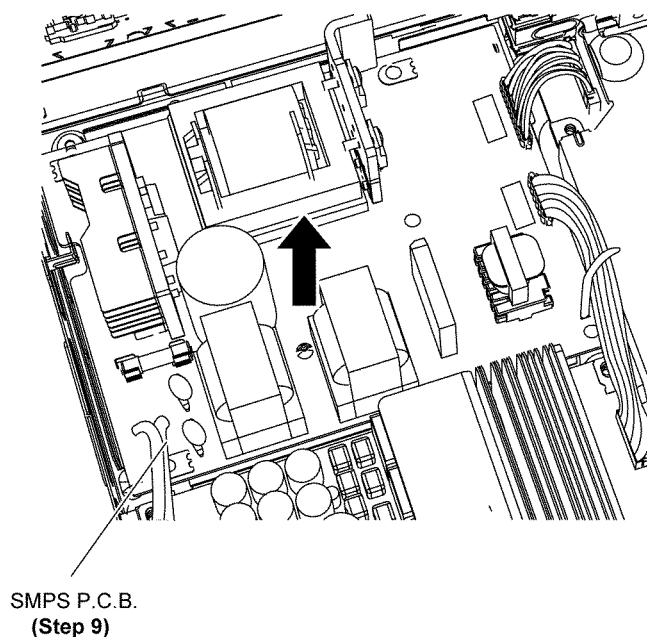


Step 8 Release P.C.B. Spacer by using long nose plier.

Caution: During releasing P.C.B. Spacer, as it may lead to electric shock or injuries due to high temperature avoid touching surrounding electrical parts.



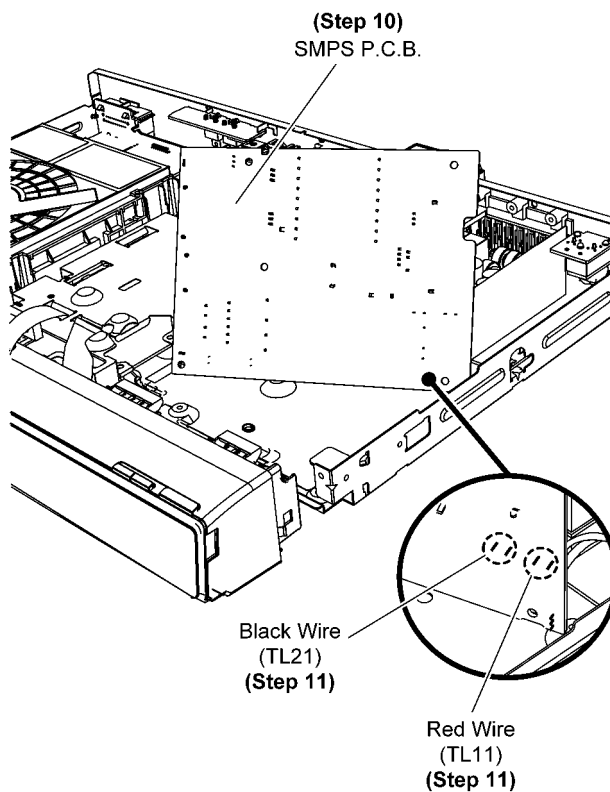
Step 9 Lift up SMPS P.C.B..



Step 10 Upset the SMPS P.C.B. according to diagram shown.

Step 11 Desolder Black Wire (TL21) and Red Wire (TL11) on solder side of SMPS P.C.B..

Step 12 Remove SMPS P.C.B..

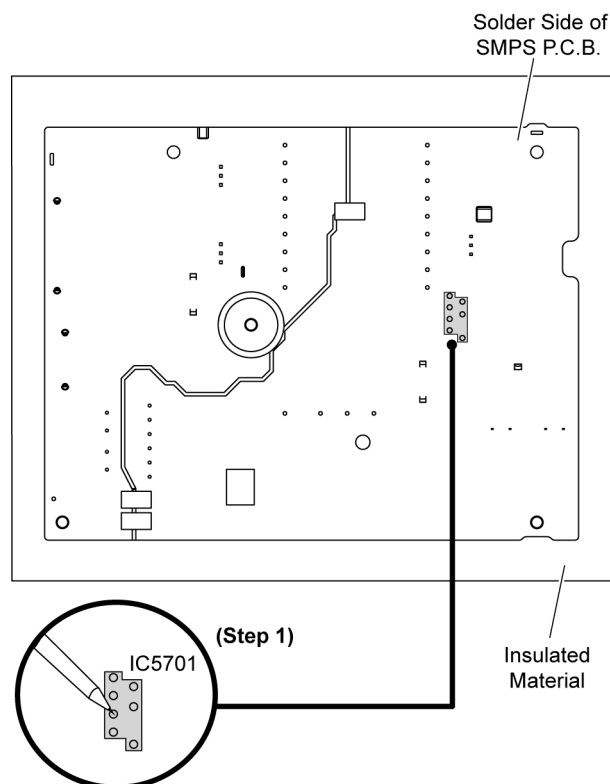


10.22. Replacement of Switching Regulator IC (IC5701)

• Refer to “Disassembly of SMPS P.C.B.”.

10.22.1. Disassembly of Switching Regulator IC (IC5701)

Step 1 Desolder pins of the Switching Regulator IC (IC5701) on the solder side of SMPS P.C.B..

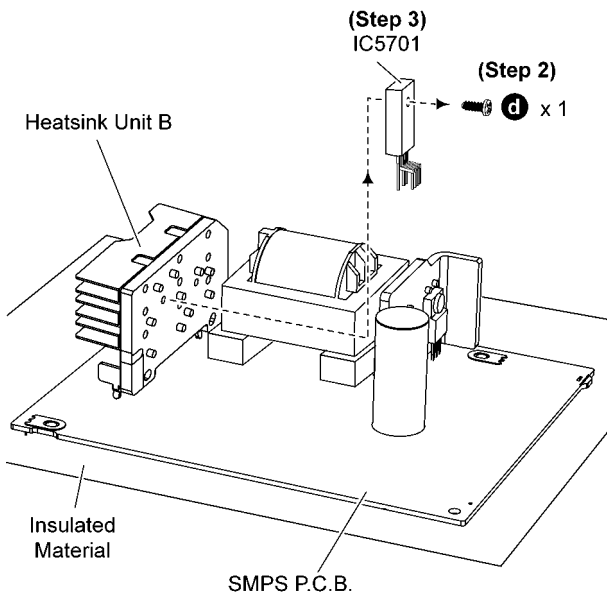


Step 2 Remove 1 screw from the Switching Regulator IC (IC5701).

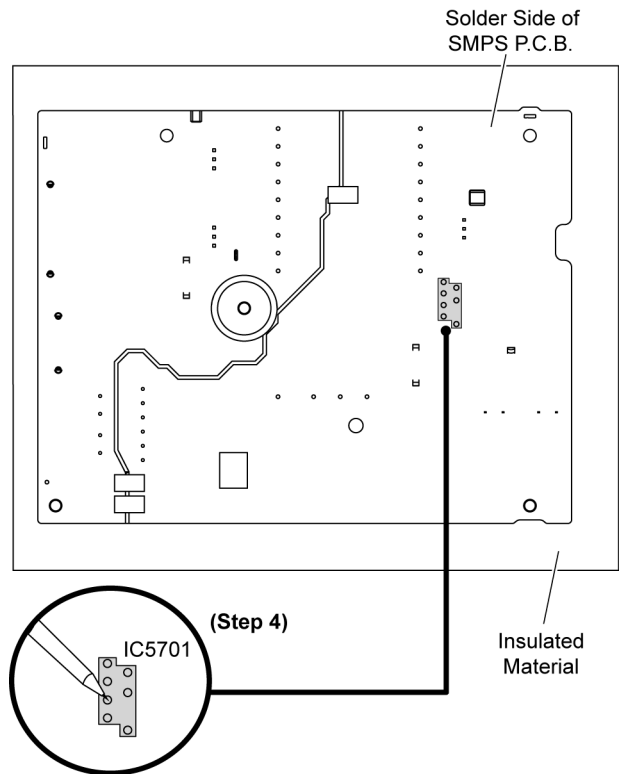
Step 3 Remove the Switching Regulator IC (IC5701).

Caution: Avoid touching the Heatsink Unit B due to its high temperature after prolonged use. Touching it may lead to injuries.

Note: Refer to the diagrams of SMPS P.C.B. (Item 18.4) for location of the part.



Caution: Ensure pins of the Switching Regulator IC (IC5701) are properly seated and soldered on SMPS P.C.B..



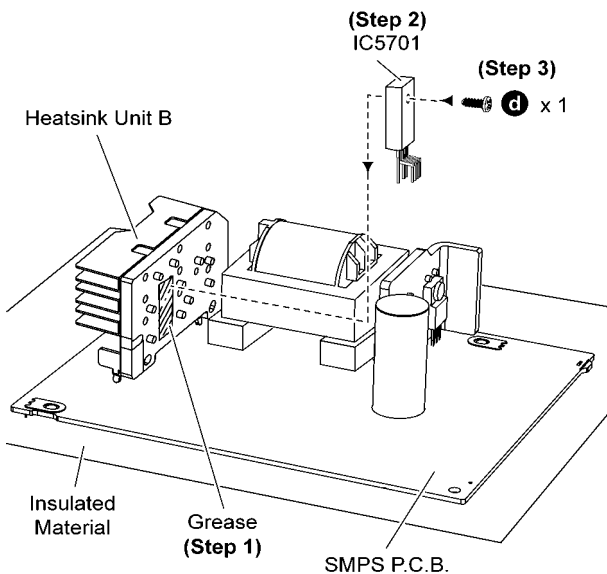
10.22.2. Assembly of Switching Regulator IC (IC5701)

Step 1 Apply grease to the Heatsink Unit B.

Step 2 Fix the Switching Regulator IC (IC5701) onto the SMPS P.C.B..

Step 3 Fix and screw the Switching Regulator IC (IC5701) to the Heatsink Unit B

Caution: Ensure the Switching Regulator IC (IC5701) is tightly screwed to the Heatsink Unit B.



Step 4 Solder pins of the Switch Regulator IC (IC5701) on the solder side of SMPS P.C.B..

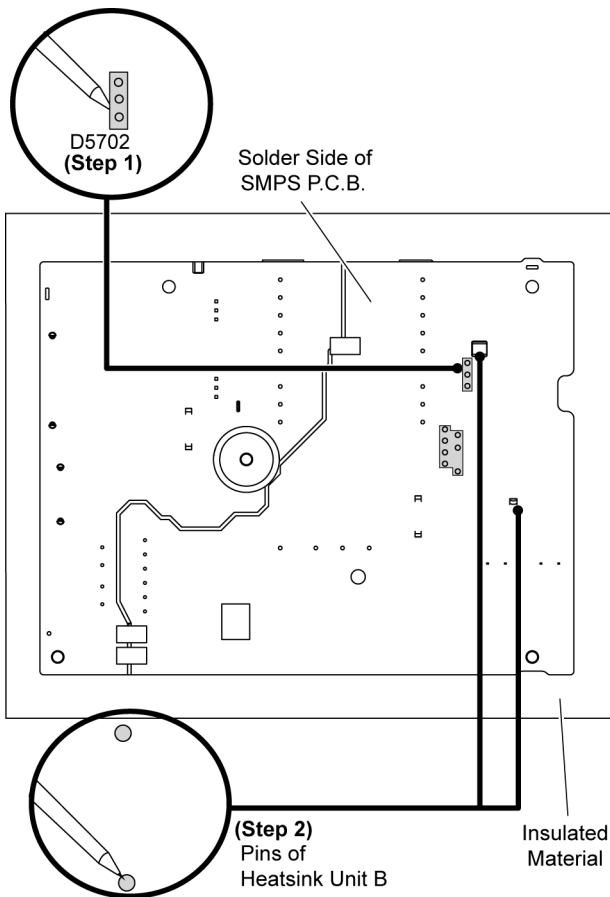
10.23. Replacement of Rectifier Diode (D5702)

• Refer to “Disassembly of SMPS P.C.B.”.

10.23.1. Disassembly of Rectifier Diode (D5702)

Step 1 Desolder pins of the Rectifier Diode (D5702) on the solder side of SMPS P.C.B..

Step 2 Desolder pins of the Heatsink Unit B.



10.23.2. Assembly of Rectifier Diode (D5702)

Step 1 Apply grease to the Heatsink Unit B.

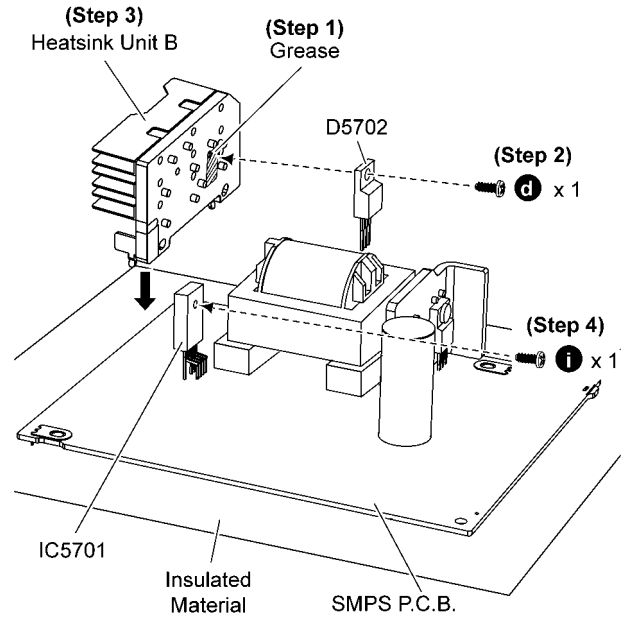
Step 2 Fix and screw the Rectifier Diode (D5702) to the Heatsink Unit B.

Caution: Ensure the Rectifier Diode (D5702) is tightly screwed to the Heatsink Unit B.

Step 3 Fix the Heatsink Unit B with Rectifier Diode (D5702) onto SMPS P.C.B..

Caution: Ensure the Heatsink Unit B with Rectifier Diode (D5702) are properly seated on SMPS P.C.B..

Step 4 Fix and screw the Switching Regulator IC (IC5701) to the Heatsink Unit B.



Step 5 Solder pins of the Rectifier Diode (D5702) on the solder side of SMPS P.C.B..

Step 6 Solder pins of the Heatsink Unit B on the solder side of SMPS P.C.B..

Step 3 Remove 1 screw from the Switching Regulator IC (IC5701).

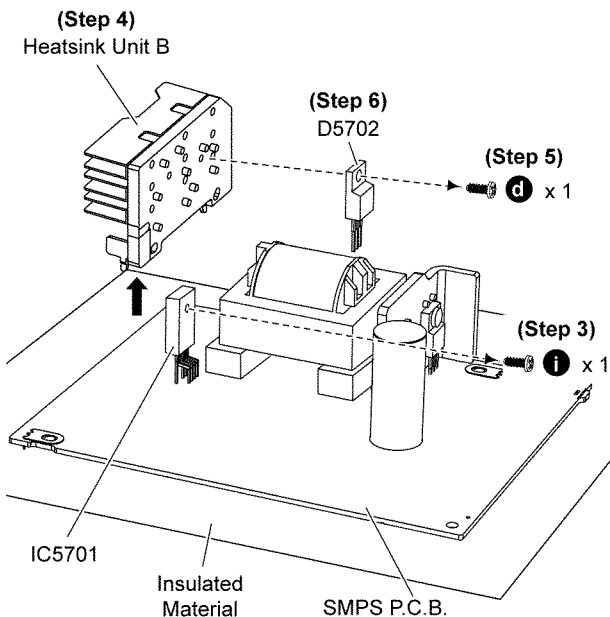
Step 4 Remove the Heatsink Unit B together with Rectifier Diode (D5702).

Step 5 Remove 1 screw from the Rectifier Diode (D5702).

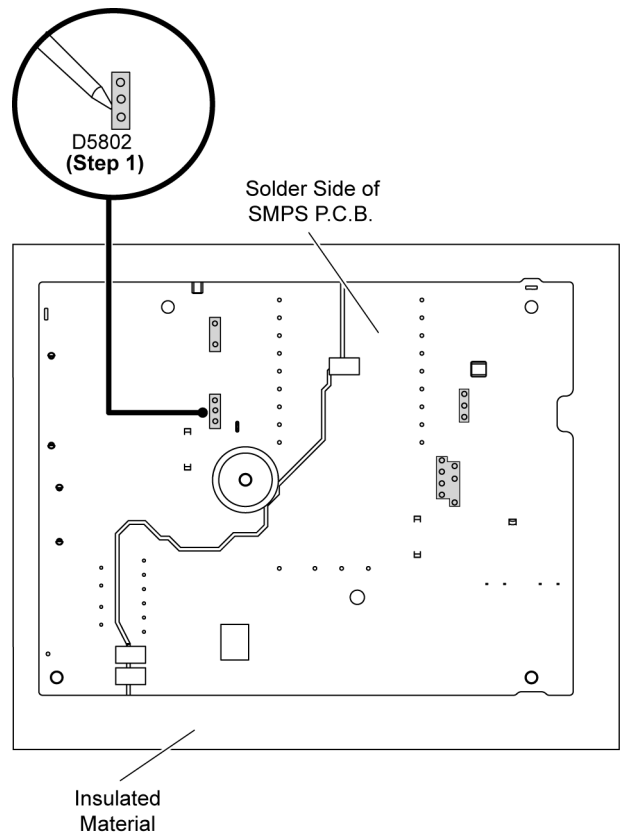
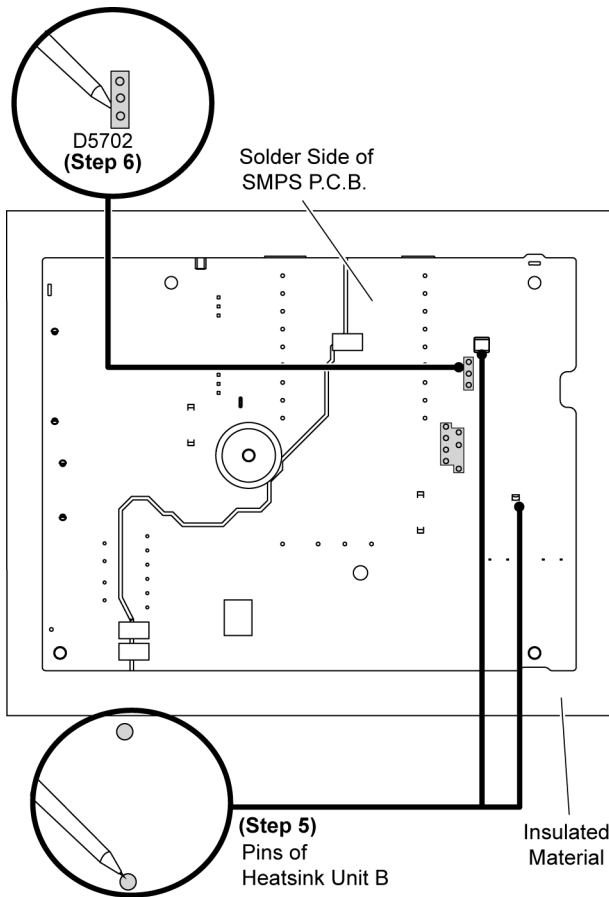
Step 6 Remove the Rectifier Diode (D5702) from the Heatsink Unit B.

Caution: Avoid touching the Heatsink Unit B due to its high temperature after prolonged use. Touching it may lead to injuries.

Note: Refer to the diagrams of SMPS P.C.B. (Item 18.4) for location of the part.



Caution: Ensure pins of the Rectifier Diode (D5702) are properly seated before soldered onto SMPS P.C.B..



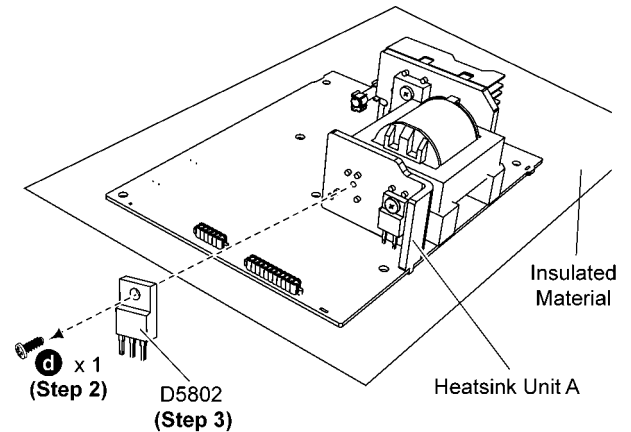
10.24. Replacement of Regulator Diode (D5802)

- Refer to “Disassembly of SMPS P.C.B.”.

10.24.1. Disassembly of Regulator Diode (D5802)

Step 1 Desolder pins of the Regulator Diode (D5802) on the solder side of SMPS P.C.B..

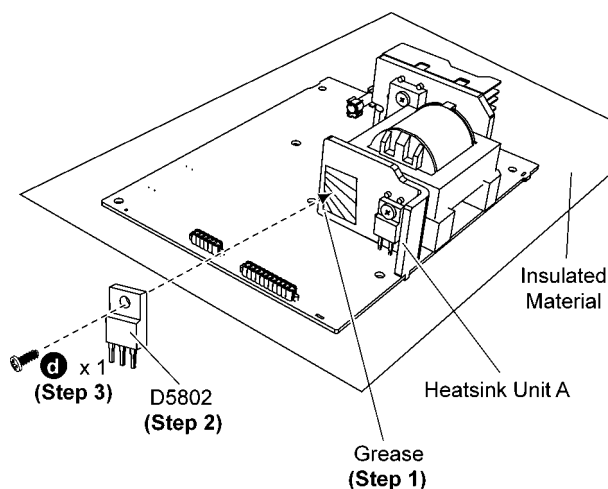
Step 2 Remove 1 screw from the Regulator Diode (D5802).
Step 3 Remove the Regulator Diode (D5802) from the SMPS P.C.B..
Caution: Avoid touching the Heatsink Unit A due to its high temperature after prolonged use. Touching it may lead to injuries.
Note: Refer to the diagrams of SMPS P.C.B. (Item 18.4) for location of the electrical components.



10.24.2. Assembly of Regulator Diode (D5802)

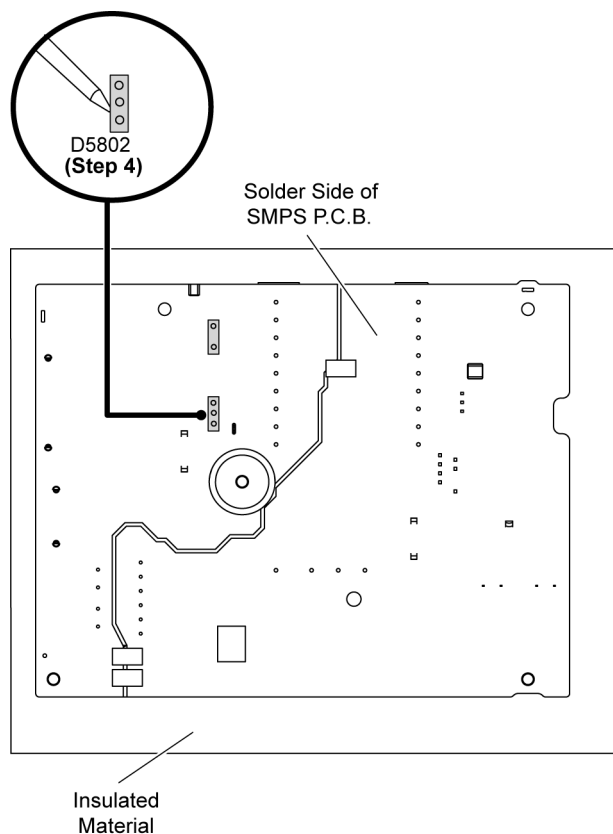
Step 1 Apply grease to the Heatsink Unit A.
Step 2 Mount the Regulator Diode (D5802) on to SMPS P.C.B..
Caution: Ensure pins of the Regulator Diode (D5802) are properly seated on SMPS P.C.B..
Step 3 Fix and screw the Regulator Diode (D5802) to the Heat-sink Unit A.

Caution: Ensure the Regulator Diode (D5802) is tightly screwed to the Heatsink Unit A.



Step 4 Solder pins of the Regulator Diode (D5802) on the solder side of SMPS P.C.B..

Caution: Ensure pins of the Regulator Diode (D5802) are properly seated before soldered onto SMPS P.C.B..

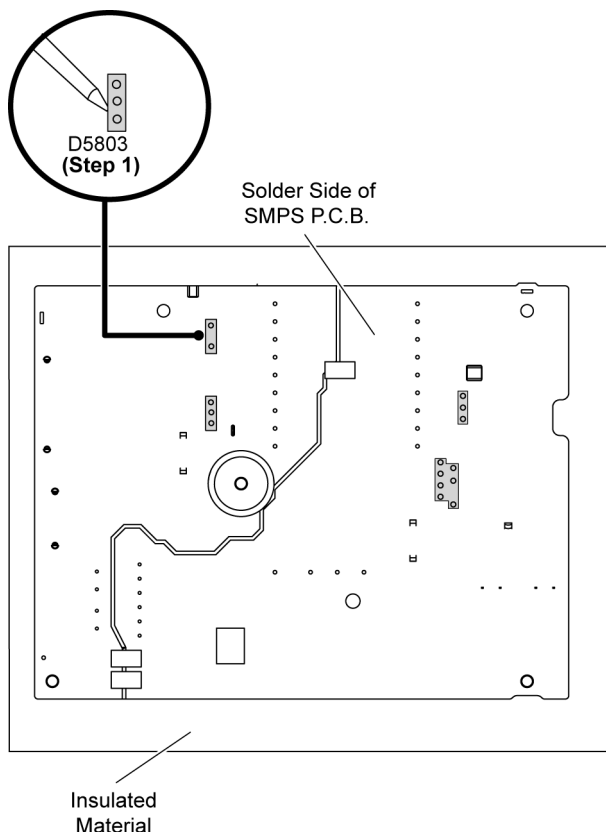


10.25. Replacement of Regulator Diode (D5803)

• Refer to “Disassembly of SMPS P.C.B.”.

10.25.1. Disassembly of Regulator Diode (D5803)

Step 1 Desolder pins of the Regulator Diode (D5803) on the solder side of SMPS P.C.B..

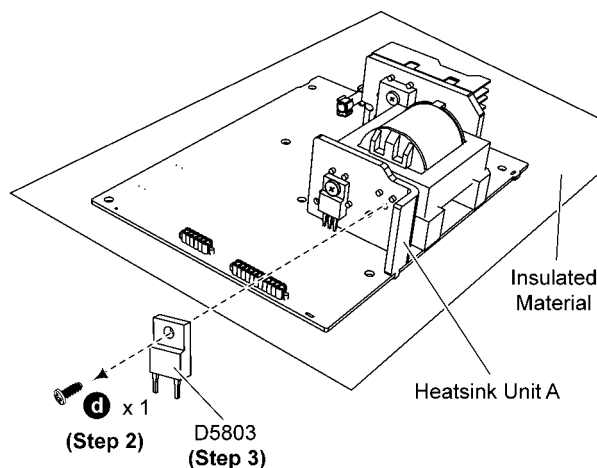


Step 2 Remove 1 screw from the Regulator Diode (D5803).

Step 3 Remove the Regulator Diode (D5803) from the SMPS P.C.B..

Caution: Avoid touching the Heatsink Unit A due to its high temperature after prolonged use. Touching it may lead to injuries.

Note: Refer to the diagrams of SMPS P.C.B. (Item 18.4) for location of the electrical components.



10.25.2. Assembly of Regulator Diode (D5803)

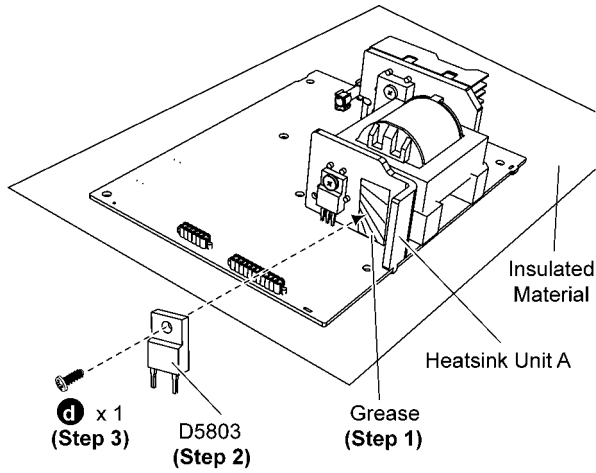
Step 1 Apply grease to the Heatsink Unit A.

Step 2 Mount the Regulator Diode (D5803) on SMPS P.C.B..

Caution: Ensure pins of the Regulator Diode (D5803) are properly seated onto SMPS P.C.B..

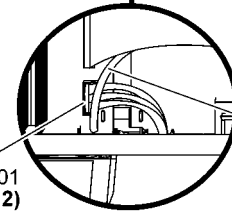
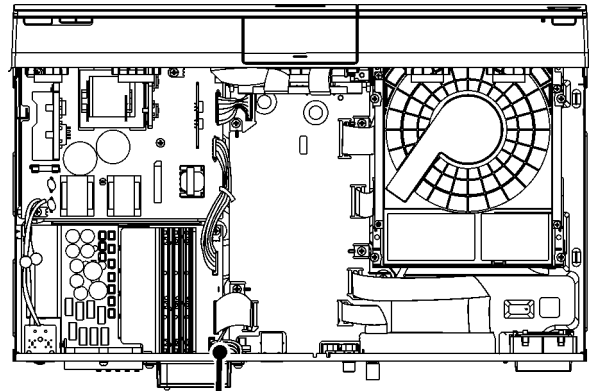
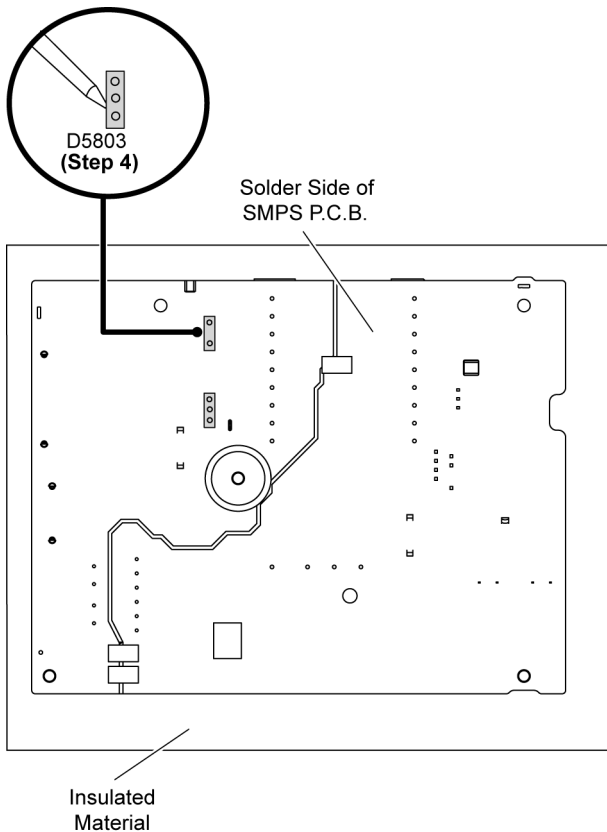
Step 3 Fix and screw the Regulator Diode (D5803) to the Heatsink Unit A.

Caution: Ensure the Regulator Diode (D5803) is tightly screwed to the Heatsink Unit A.



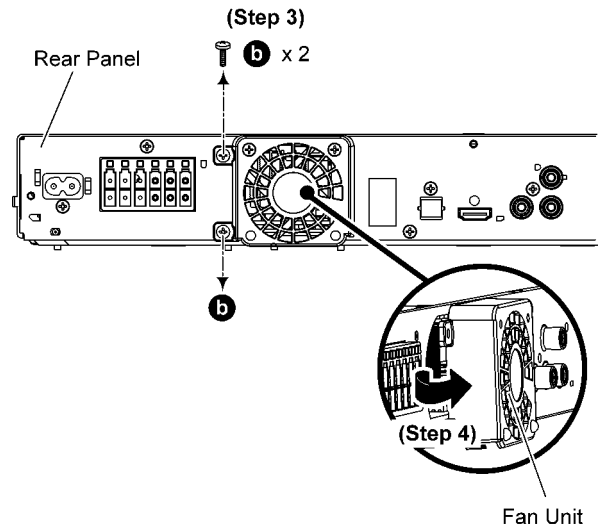
Step 4 Solder pins of the Regulator Diode (D5803) on the solder side of SMPS P.C.B..

Caution: Ensure pins of the Regulator Diode (D5803) are properly seated before soldered onto SMPS P.C.B..



Step 3 Remove 2 screws.

Step 4 Remove Fan Unit.



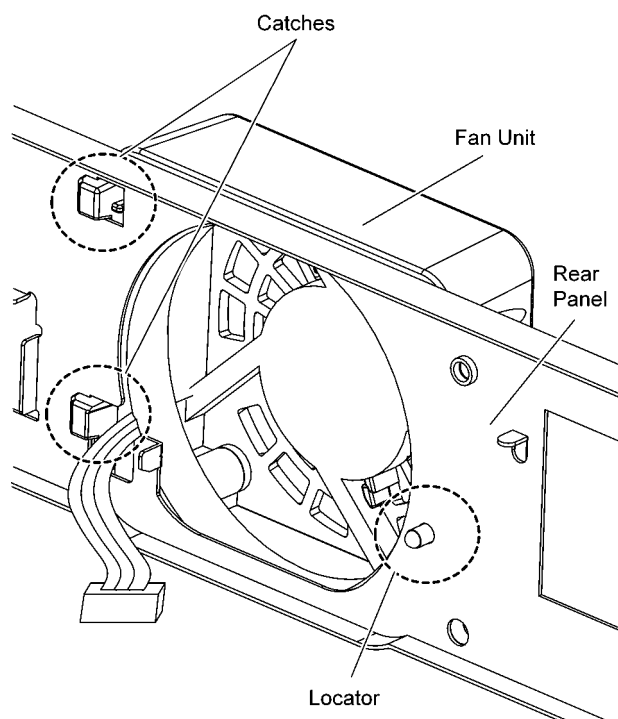
10.26. Disassembly of Fan

• Refer to “Disassembly of Top Cabinet”.

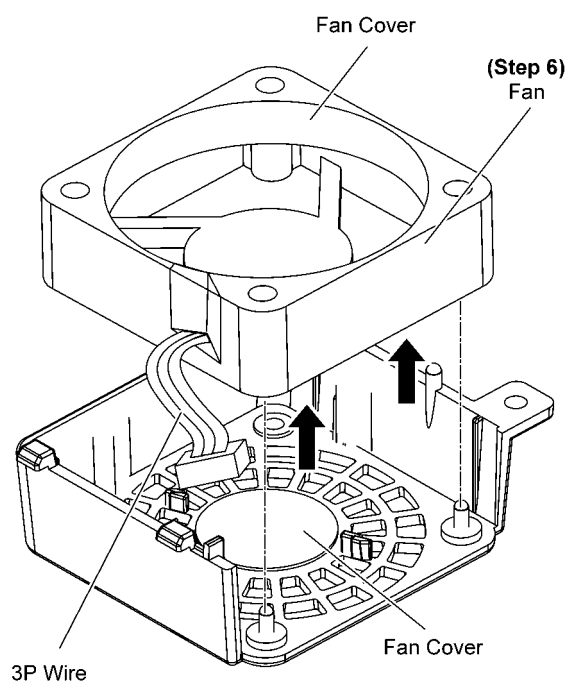
Step 1 Lift up the Wire Clamper.

Step 2 Detach the fan unit connector (CN5401) on D-Amp P.C.B..

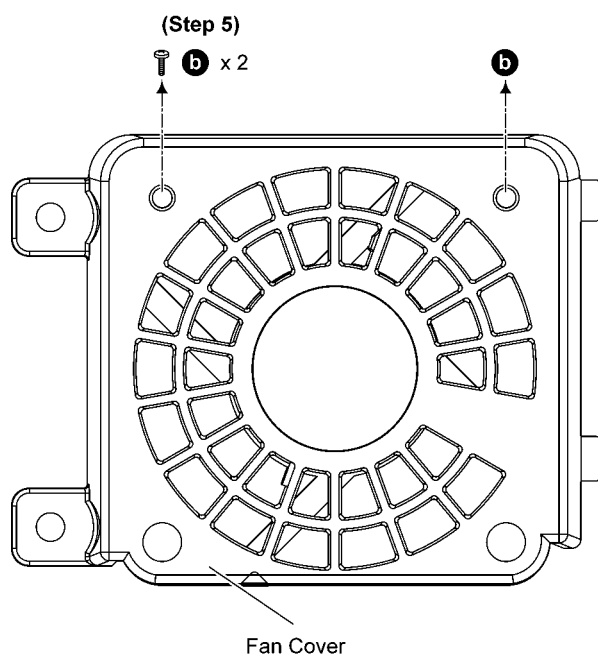
Caution: During assembling, ensure Fan Unit is properly located & fully caught onto Rear Panel.



Caution: During assembling, ensure that 3P Wire is positioned as diagram shown.



Step 5 Remove 2 screws.



Step 6 Lift up to remove Fan.

11 Service Position

Note: For description of the disassembly procedures, see the Section 10.

11.1. Checking & Repairing Side B of Main P.C.B.

Caution:

Pairing of BD Drive and Main P.C.B. as “BD Drive & Main P.C.B. Assembly” have to be replaced together. If either BD Drive or Main P.C.B. is changed, BD Drive unit has to carry out re-adjustment due to alignment data for BD Drive Unit is stored in the Main P.C.B.

Step 1 Remove Top Cabinet.

Step 2 Remove Front Panel Block Assembly.

Step 3 Remove Front Shield Plate Unit.

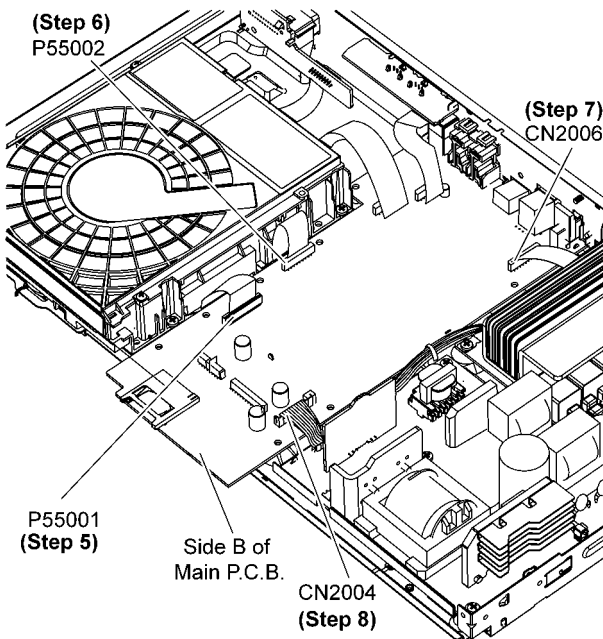
Step 4 Remove Main P.C.B. Shield plate.

Step 5 Connect 45P FFC at the connector (P55001) on Main P.C.B..

Step 6 Connect 18P FFC at the connector (P55002) on Main P.C.B..

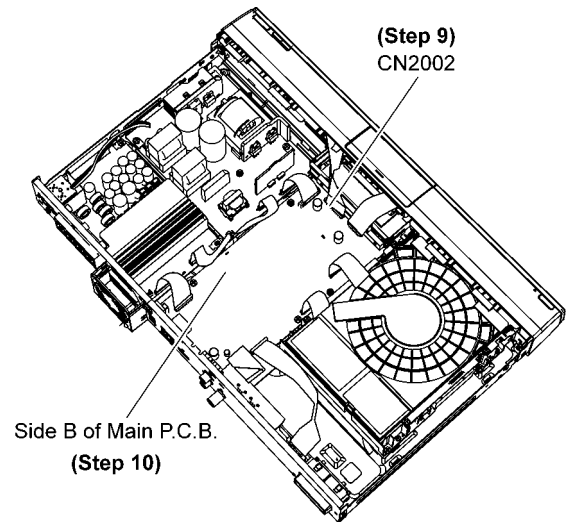
Step 7 Connect 18P FFC at the connector (CN2006) on Main P.C.B..

Step 8 Connect 10P FFC at the connector (CN2004) on Main P.C.B..



Step 9 Connect 22P FFC at the connector (CN2002) on Main P.C.B..

Step 10 Proceed to check and repair Side B of Main P.C.B..



11.2. Checking & Repairing Side A of Main P.C.B.

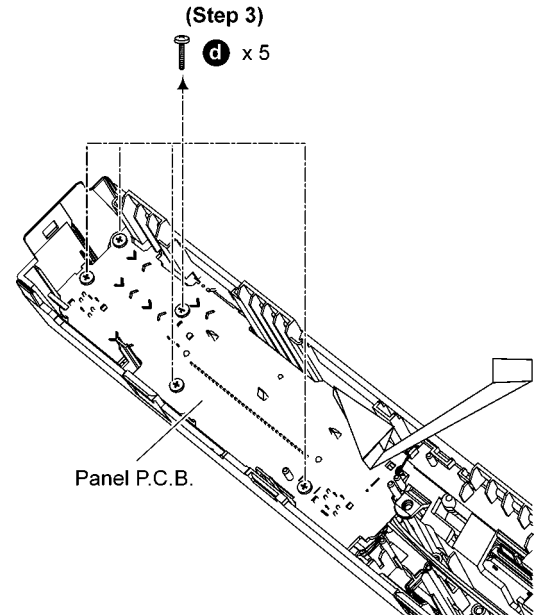
Caution:

Pairing of BD Drive and Main P.C.B. as “BD Drive & Main P.C.B. Assembly” have to be replaced together. If either BD Drive or Main P.C.B. is changed, BD Drive unit has to carry out re-adjustment due to alignment data for BD Drive Unit is stored in the Main P.C.B.

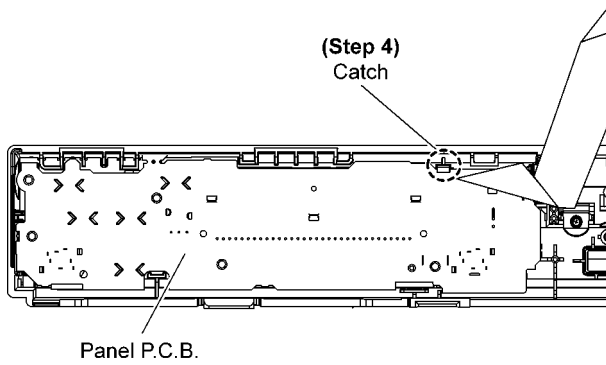
Step 1 Remove Top Cabinet.

Step 2 Remove Front Panel Block Assembly.

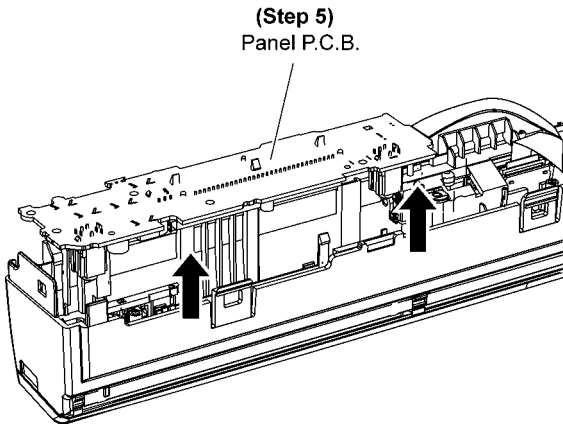
Step 3 Remove 5 screws.



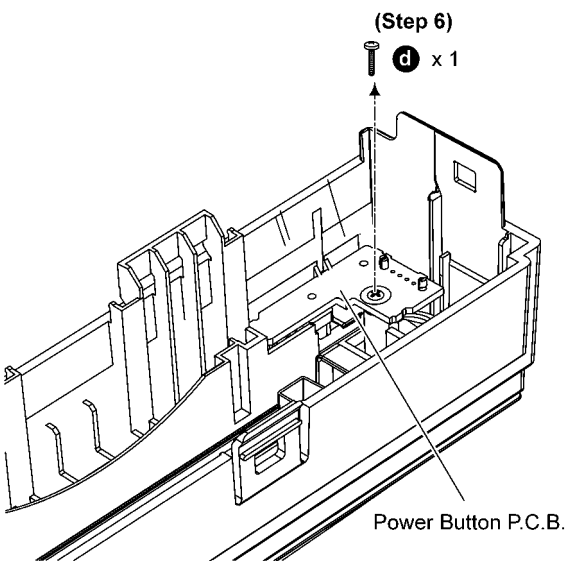
Step 4 Release 1 catch.



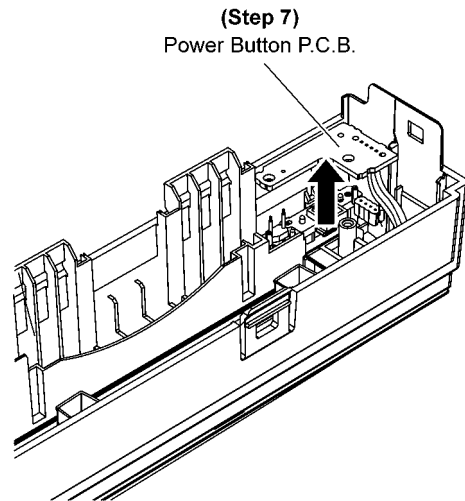
Step 5 Lift up Panel P.C.B..



Step 6 Remove 1 screws.



Step 7 Lift up Power Button P.C.B..



Step 8 Remove Front Shield plate Unit.

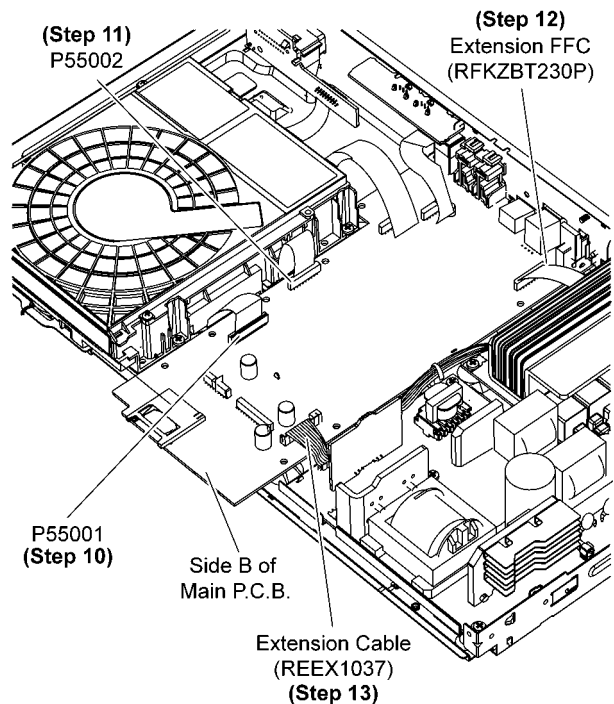
Step 9 Remove Main P.C.B. Shield Plate.

Step 10 Connect 45P FFC at the connector (P55001) on Main P.C.B..

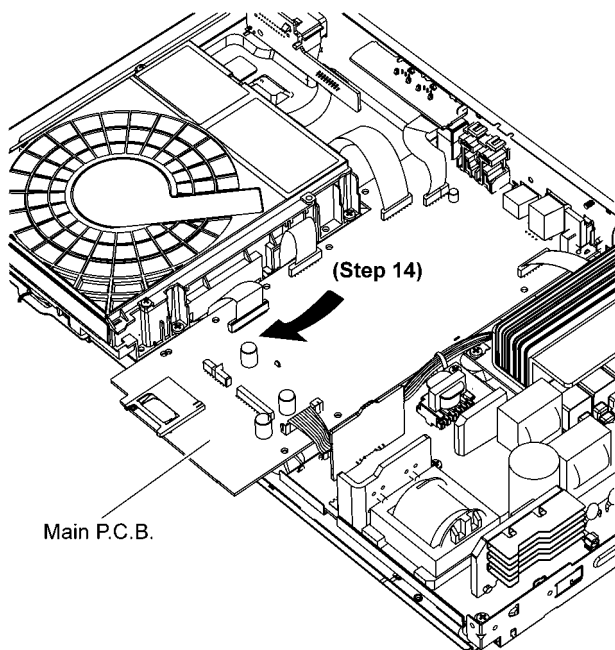
Step 11 Connect 18P FFC at the connector (P55002) on Main P.C.B..

Step 12 Connect extension 18P FFC RFKZBT230P from CN2006 to CN5402.

Step 13 Connect extension 10P cable REXX1037 from CN2004 to JW2.

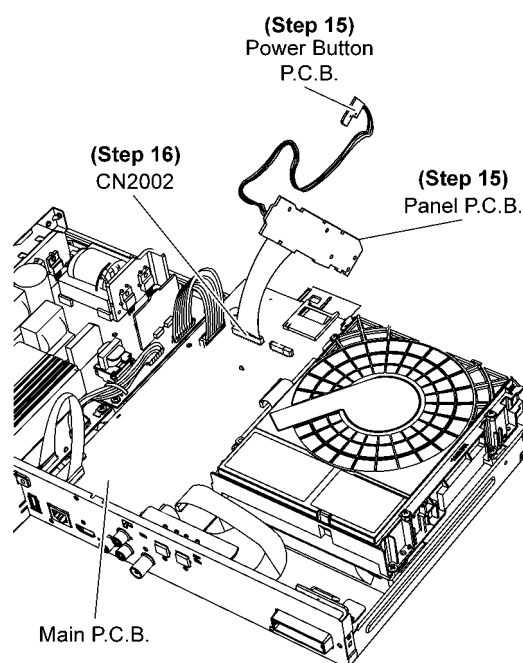


Step 14 Slightly lift up Main P.C.B. according to diagram shown.



Step 15 Position Panel P.C.B. & Power Button P.C.B. as diagram shown.

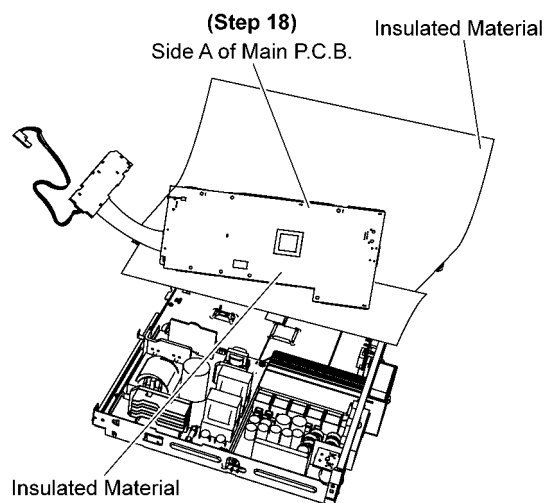
Step 16 Connect 22P FFC at the connector (CN2002) on Main P.C.B..



Step 17 Flip Main P.C.B. as diagram shown.

Step 18 Proceed to check and repair Side A of Main P.C.B..

Caution: Insulated material is required to insulate Main P.C.B. from other parts.



11.3. Checking & Repairing D-Amp P.C.B.

11.3.1. Checking & Repairing of Side B of D-Amp P.C.B.

Step 1 Remove Top Cabinet.

Step 2 Remove D-Amp P.C.B..

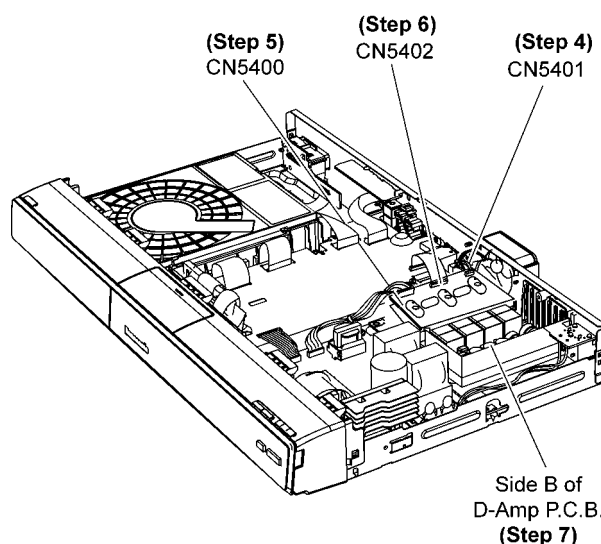
Step 3 Remove D-Amp Heatsink.

Step 4 Connect 3P wire at connector (CN5401) on D-Amp P.C.B..

Step 5 Connect 6P wire at connector (CN5400) on D-Amp P.C.B..

Step 6 Connect 18P wire at connector (CN5402) on D-Amp P.C.B..

Step 7 Proceed to check & repair side B of D-Amp P.C.B..

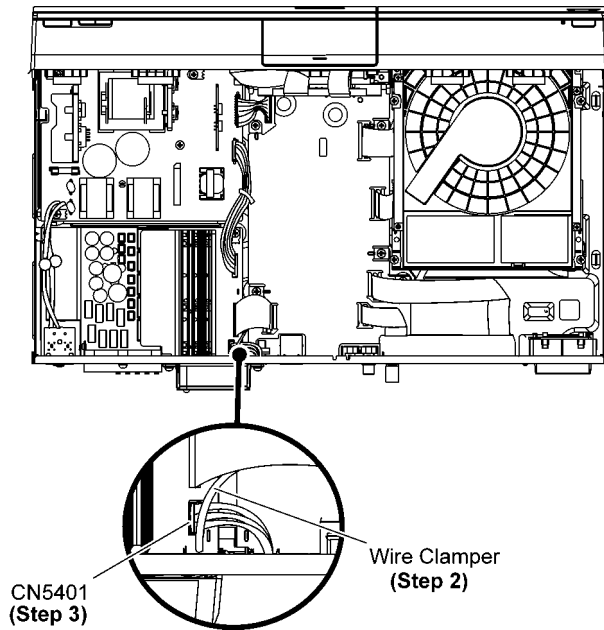


11.3.2. Checking & Repairing of Side A of D-Amp P.C.B.

Step 1 Remove Top Cabinet.

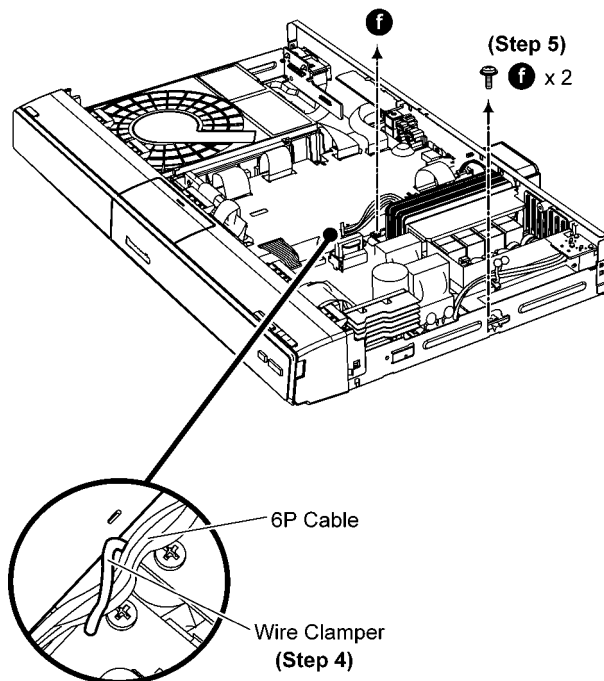
Step 2 Lift up the Wire Clamper.

Step 3 Detach the Fan Unit connector (CN5401) on D-Amp P.C.B..



Step 4 Twist the Wire Clamper to release 6P Cable.

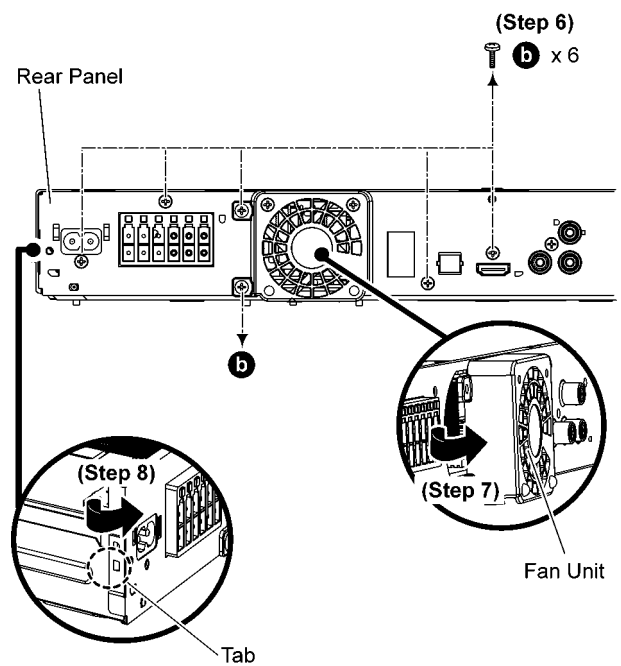
Step 5 Remove 2 screws.



Step 6 Remove 6 screws.

Step 7 Remove Fan Unit according to arrow shown.

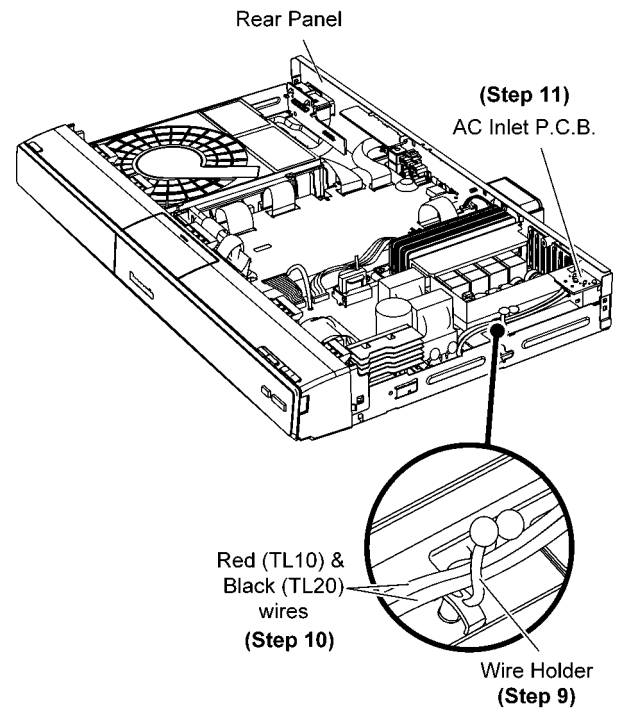
Step 8 Release tab at the side of the Rear Panel in the direction of arrow.



Step 9 Twist the Wire Holder.

Step 10 Release Red (TL10) & Black (TL20) wires from the Wire Holder.

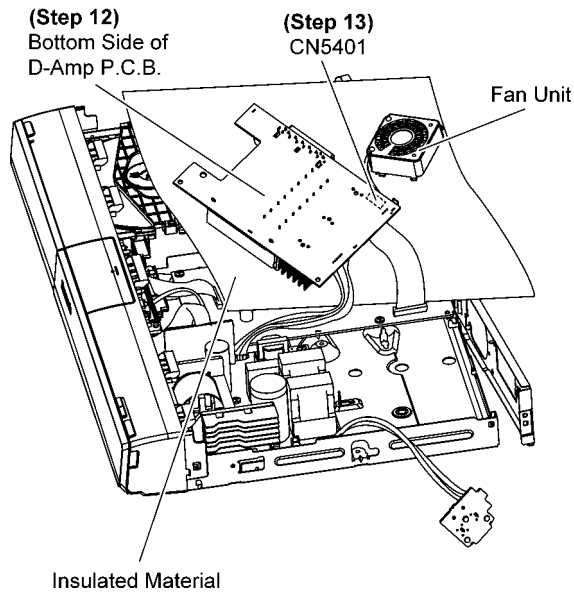
Step 11 Remove AC Inlet P.C.B..



Step 12 Flip the D-Amp P.C.B. and position it according to diagram shown.

Step 13 Connect Fan Unit to connector (CN5401) on D-Amp P.C.B..

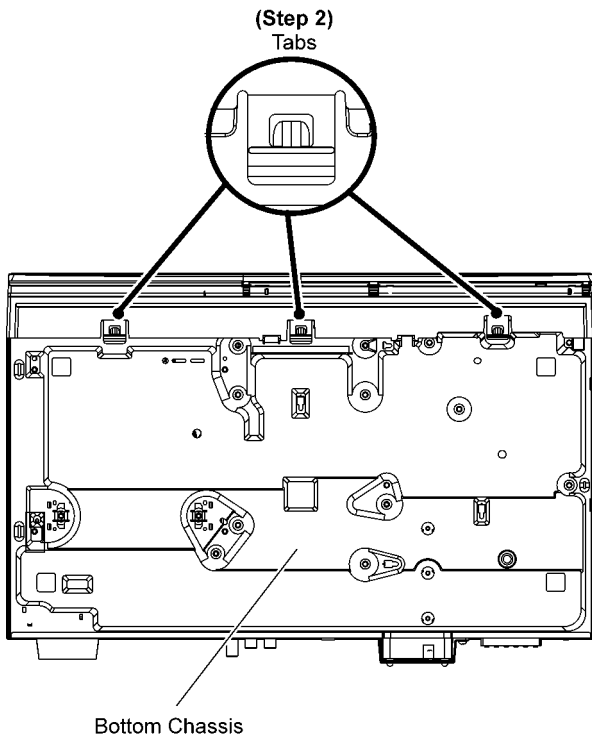
Step 14 Proceed to check and repair Side A of D-Amp P.C.B..



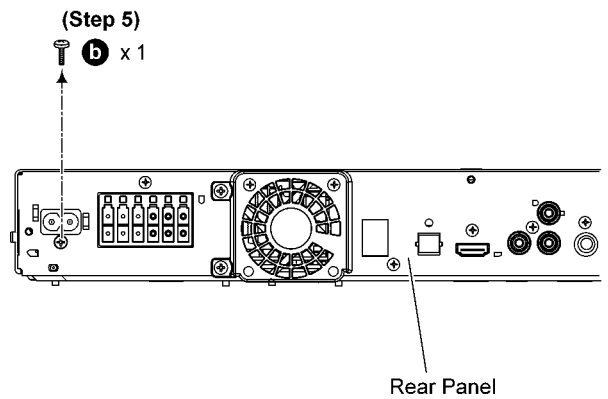
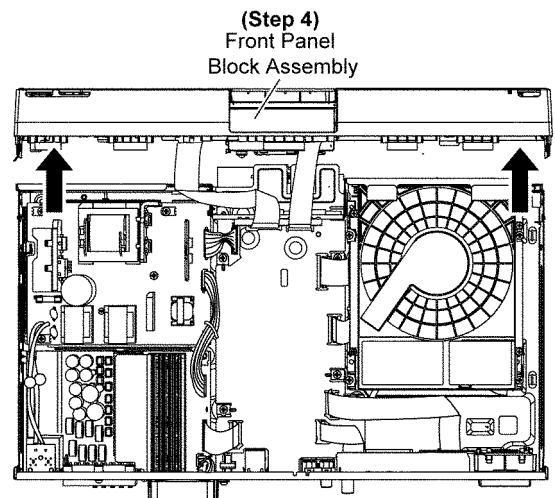
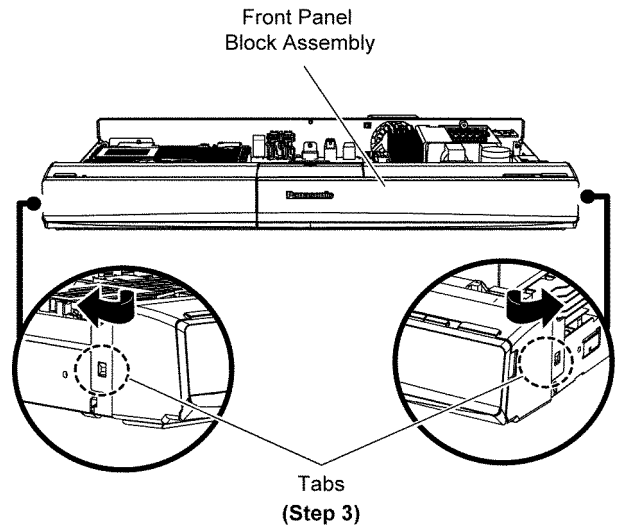
11.4. Checking & Repairing SMPS P.C.B.

Step 1 Remove Top Cabinet.

Step 2 Release the 3 tabs.

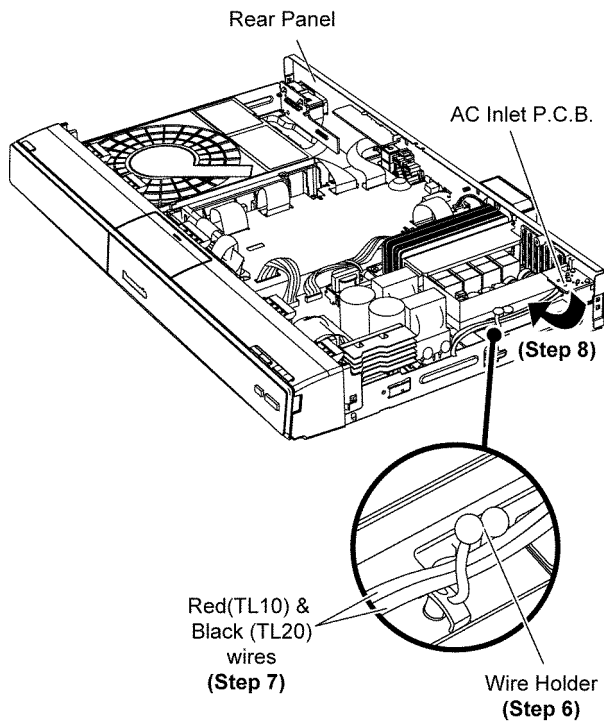


Step 3 Release the 2 tabs at each side of the Front Panel Block Assembly in the direction of arrow.

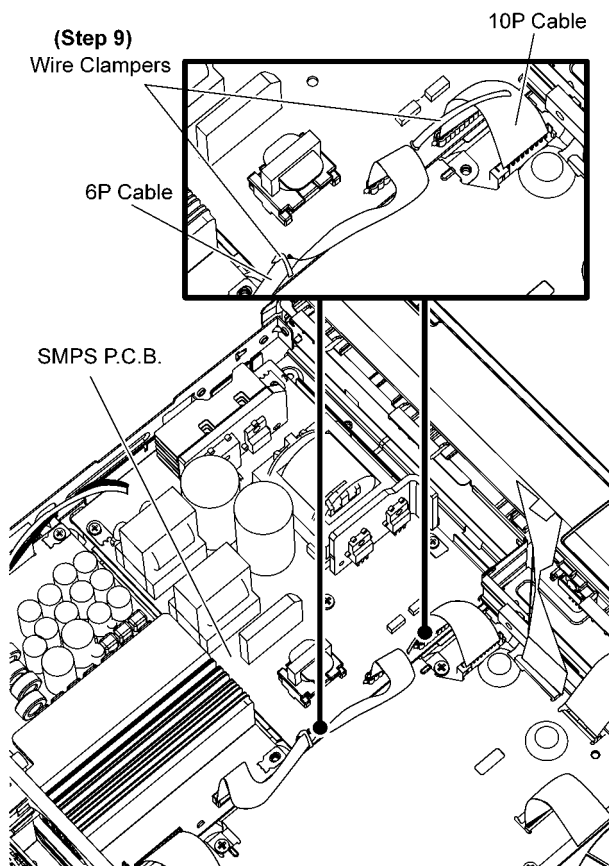


Step 7 Release Red(TL10) & Black (TL20) wires from the Wire Holder.

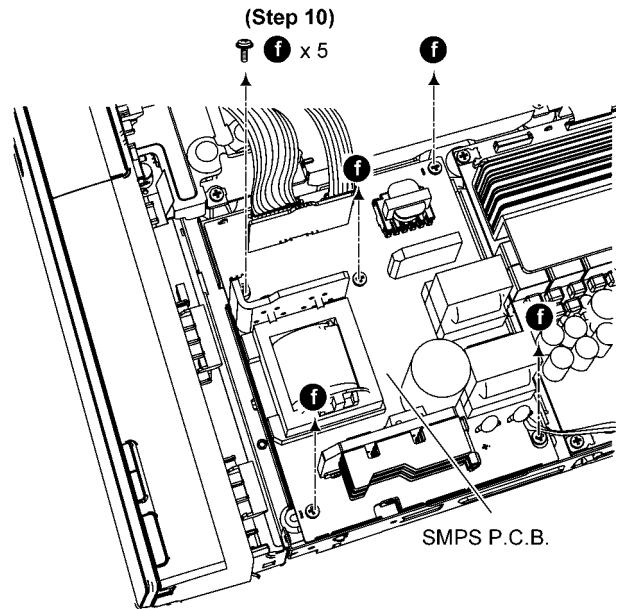
Step 8 Remove AC Inlet P.C.B. from Rear Panel.



Step 9 Twist the Wire Clampers to release 6P cable (SMPS P.C.B. to D-Amp P.C.B.) & 10P cable (SMPS P.C.B. to Main P.C.B.).

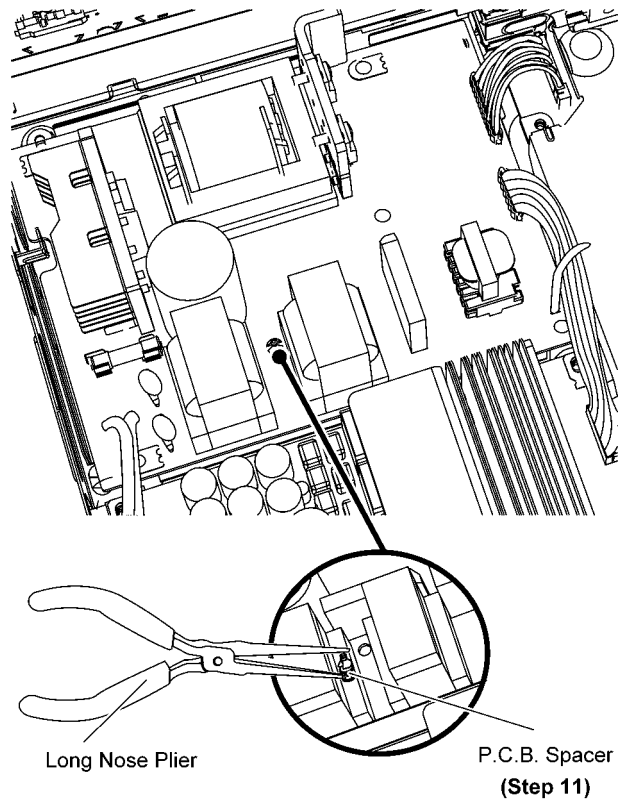


Step 10 Remove 5 screws.



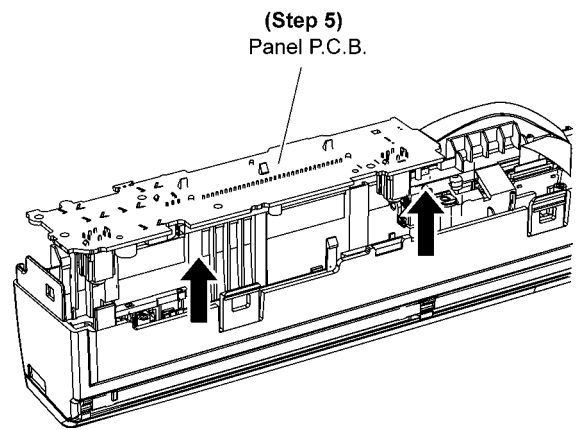
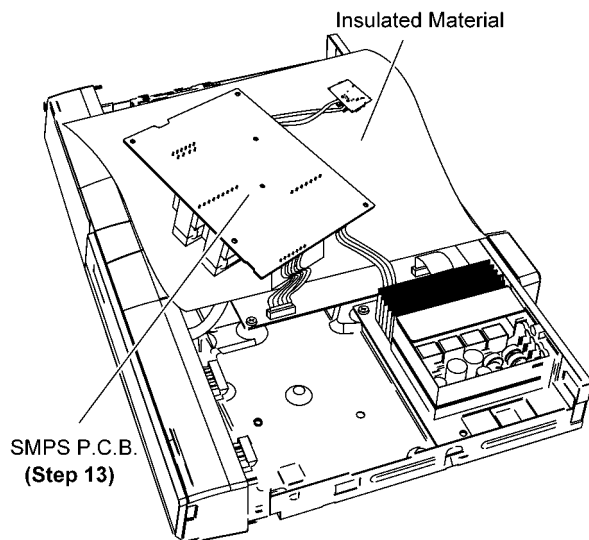
Caution: During releasing of the P.C.B. Spacer, avoid touching the electrical components.

Step 11 Release P.C.B. Spacer by using long nose plier.



Step 12 Flip the SMPS P.C.B. and position it according to diagram shown.

Step 13 Proceed to check and repair SMPS P.C.B..



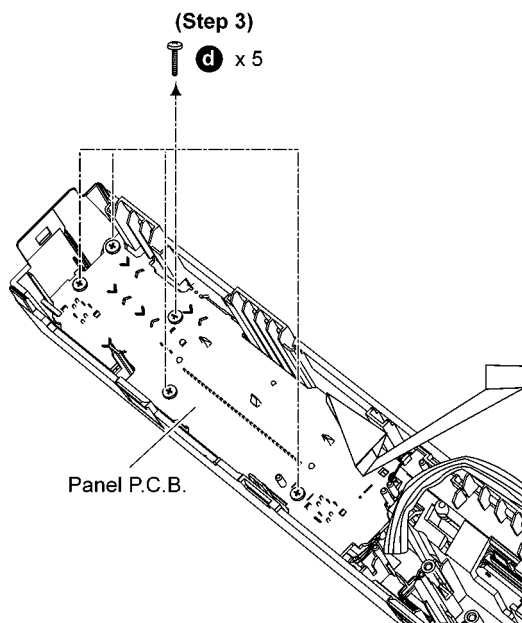
Step 6 Remove 1 screws.

11.5. Checking & Repairing Panel P.C.B.

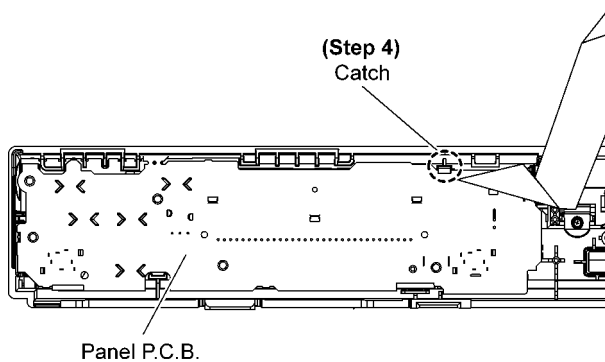
Step 1 Remove Top Cabinet.

Step 2 Remove Front Panel Block Assembly.

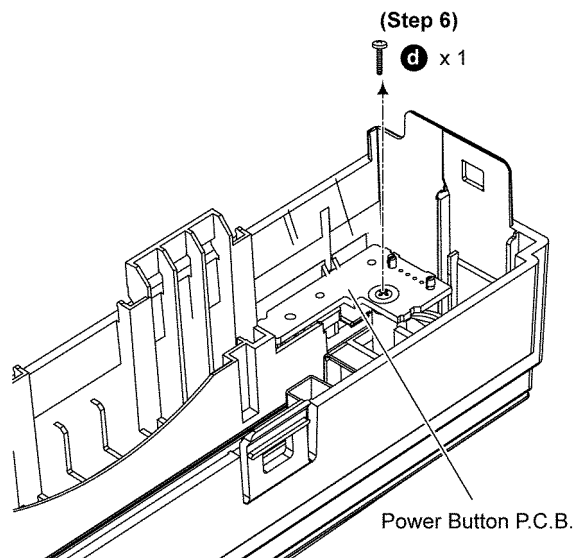
Step 3 Remove 5 screws.



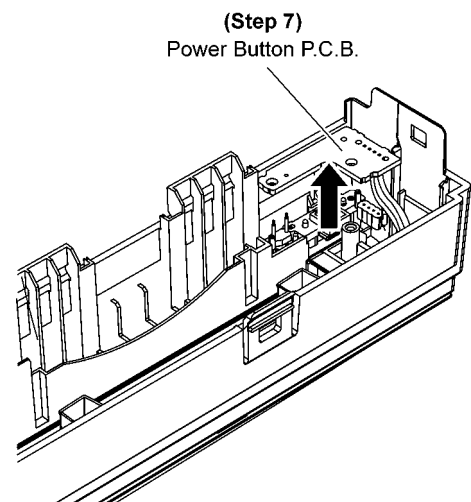
Step 4 Release 1 catch.



Step 5 Lift up Panel P.C.B..

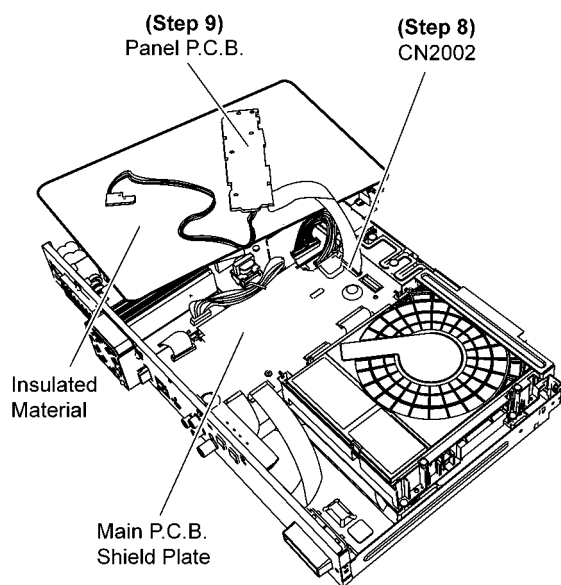


Step 7 Lift up Power Button P.C.B..



Step 8 Connect 22P FFC to the connector (CN2002) on Main P.C.B..

Step 9 Proceed to check and repair Panel P.C.B..



12 Voltage & Waveform Chart

Note:

- Indication Voltage Values are in standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
Therefore, there may exist some errors in voltage values, depending on the internal impedance of the DC circuit tester.
- Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point because it may differ from actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

12.1. Main P.C.B. (1/3)

REF NO.	IC1001																			
MODE	1	2	3	4	5															
CD PLAY	5.2	0	0	3.3	5.2															
STANDBY	5.2	0	0	3.3	5.2															

REF NO.	IC1101																			
MODE	1	2	3	4	5															
CD PLAY	0	0	5.0	1.7	1.7															
STANDBY	0	0	5.0	1.7	1.7															

REF NO.	IC1102																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-6.8	0	0	0	6.7												
STANDBY	0	0	0	-6.8	0	0	0	6.7												

REF NO.	IC2001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.7	0	1.2	0	0	0.1	0	0	0	0	0	3.3	3.3	3.3	3.3	3.3	1.7	0	3.3	0
STANDBY	1.7	0	1.2	0	0	0.1	0	0	0	0	0	3.3	0	3.3	3.3	3.3	1.7	0	3.3	0

REF NO.	IC2001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	0	0	0	1.5	1.5	0	0	3.3	0.7	0	0	0	0	0	0.6	1.7	1.7	1.2	3.3	1.7
STANDBY	0	0	0	1.5	1.5	0	0	3.3	0.7	0	0	0	0	0	0	1.7	1.7	0	3.3	1.7

REF NO.	IC2071																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	0	0	0	0	3.4												
STANDBY	0.1	0	0	0	0	0	0	3.4												

REF NO.	IC2201																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-6.8	0	0	0	6.7												
STANDBY	0	0	0	-6.8	0	0	0	6.7												

REF NO.	IC2202																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-6.8	0	0	0	6.7												
STANDBY	0	0	0	-6.8	0	0	0	6.7												

REF NO.	IC2300																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	3.3	2.8	3.3	0	3.3	0	3.3	0	0	0.8	1.6	3.3	1.6	0	0	3.3	3.3	1.8	2.1	3.4
STANDBY	3.3	2.8	3.3	0	3.3	0	3.3	0	0	0.8	1.6	3.3	1.6	0	0	3.3	3.3	1.8	2.1	3.4

REF NO.	IC2300																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	3.3	0.1	0	0.1	3.2	3.9	2.7	3.3	3.3	2.7	3.3	1.2	0	3.3	0	0	0	0	0	0
STANDBY	3.3	0.1	0	0.1	3.2	3.9	2.7	3.3	3.3	2.7	3.3	1.2	0	3.3	0	0	0	0	0	0

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP MAIN P.C.B.

12.2. Main P.C.B. (2/3)

REF NO.	IC2300																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	0	0	3.3	3.3	0	3.3	3.4	3.4	3.3	3.2	0.9	0.9	3.3	3.3	3.3	0	0	0.9	0	3.3
STANDBY	0	0	3.3	3.3	0	3.3	3.4	3.4	3.3	3.2	0.9	0.9	3.3	3.3	3.3	0	0	0.9	0	3.3
REF NO.	IC2300																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	3.3	3.3	0	0	0	0	3.3	0	3.3	3.3	3.3	0	0	3.3	0	3.4	3.3	3.3	3.3	3.3
STANDBY	3.3	3.3	0	0	0	0	3.3	0	3.3	3.3	3.3	0	0	3.3	0	3.4	3.3	3.3	3.3	3.3
REF NO.	IC2300																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	1.2	0	3.3	3.3	3.3	3.3	0	0	0	0	1.9	1.9	1.0	0	0	0	0	3.3	3.3	3.3
STANDBY	1.2	0	3.3	3.3	3.3	3.3	0	0	0	0	1.9	1.9	1.0	0	0	0	0	3.3	3.3	3.3
REF NO.	IC2301																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	0	3.3	3.3	0	3.3												
STANDBY	0	0	0	0	3.3	3.3	0	3.3												
REF NO.	IC2302																			
MODE	1	2	3																	
CD PLAY	3.3	0	6.0																	
STANDBY	3.3	0	6.0																	
REF NO.	IC2400																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STANDBY	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REF NO.	IC2800																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
CD PLAY	0	0	0	0	0	0	-6.8	0	0	6.7	0	0	0	0	0	0				
STANDBY	0	0	0	0	0	0	-6.8	0	0	6.7	0	0	0	0	0	0				
REF NO.	IC2952																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0.3	0	0	3.3	3.3	3.3	3.3	1.5	3.3	3.3	0	0.3	0.3	0.3	0	0.3	3.3	0	0
STANDBY	0	0.3	0	0	3.3	3.3	3.3	3.3	1.5	3.3	3.3	0	0.3	0.3	0.3	0	0.3	3.3	0	0
REF NO.	IC7002																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	3.3	0	0	1.9	5.0	0	0	5.2												
STANDBY	3.3	0	0	1.9	5.0	0	0	5.2												
REF NO.	IC7003																			
MODE	1	2	3	4	5															
CD PLAY	5.0	0	1.4	5.2	5.2															
STANDBY	5.0	0	1.3	5.2	5.2															
SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP MAIN P.C.B.																				

12.3. Main P.C.B. (3/3)

REF NO.	IC54900																		
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
CD PLAY	2.5	2.5	0	0	0	5.1	3.3	0	1.2	1.7	1.6	1.7	3.4	0	0	0			
STANDBY	2.5	2.5	0	0	0	5.1	3.3	0	1.2	1.7	1.6	1.7	3.4	0	0	0			
REF NO.	IC57000																		
MODE	1	2	3	4	5	6	7	8											
CD PLAY	0.9	1.0	0	0	0	0	0	3.4											
STANDBY	1.2	1.1	0	0	3.4	0	0	3.4											
REF NO.	IC57001																		
MODE	1	2	3	4	5	6	7	8											
CD PLAY	3.4	0	0	0	3.4	0	0	3.3											
STANDBY	3.4	3.4	0	0	3.4	0	0	3.3											
REF NO.	Q1101				Q1102				Q1103				Q1104				Q1105		
MODE	E	C	B		E	C	B		E	C	B		S	D	G		S	D	G
CD PLAY	0	3.3	0		0	0	0		0	0	0		0	1.7	0		0	1.6	0
STANDBY	0	3.3	0		0	0	0		0	0	0		0	1.7	0		0	1.6	0
REF NO.	Q2800				Q2805				Q7004				Q7005				Q7006		
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B
CD PLAY	0	6.7	0		0	6.7	0		-6.8	-9.8	-7.4		0	-7.4	-0.6		0	11.4	7.3
STANDBY	0	6.7	0		0	6.7	0		-6.8	-9.8	-7.4		0	-7.4	-0.6		0	11.4	7.3
REF NO.	Q7007				Q7008				Q7050				Q7071				QR1101		
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B
CD PLAY	0	3.2	-3.0		0	3.2	-1.6		0	3.2	-1.6		11.4	11.4	10.7		0	0	3.0
STANDBY	0	3.2	-3.0		0	3.2	-1.6		0	3.2	-1.6		11.4	11.4	10.7		0	0	3.0
REF NO.	QR1102				Q56004				Q56005				QR7001				QR7014		
MODE	E	C	B		S	D	G		S	D	G		E	C	B		E	C	B
CD PLAY	0	0	3.0		3.3	3.4	3.3		3.3	3.4	3.3		0	3.2	0		0	0	3.0
STANDBY	0	0	3.0		3.3	3.4	3.3		3.3	3.4	3.3		0	3.2	0		0	0	3.0
REF NO.	QR7019				QR7071				QR7081										
MODE	E	C	B		E	C	B		E	C	B								
CD PLAY	0	0	3.2		0	0	3.2		0	0	3.2								
STANDBY	0	0	3.2		0	0	3.2		0	0	3.2								

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP MAIN P.C.B.

12.4. Panel P.C.B.

REF NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0	0	0	1.9	0	1.4	2.9	2.1	0	0	0	3.3	-23.4	-23.4	-23.4	-21.2	-16.9	-16.9	-21.2
STANDBY	0	0	0	0	1.9	0	1.4	2.9	2.2	0	0	0	3.3	-23.4	-23.4	-23.4	-23.4	-14.8	-16.9	-21.2

REF NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	-23.4	-23.4	-23.4	-17.0	-17.0	-23.4	-23.4	-17.0	-17.0	-23.8	-14.9	-23.6	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4
STANDBY	-21.2	-23.4	-21.2	-14.8	-14.8	-21.2	-23.4	-14.8	-12.6	-23.9	-17.1	-23.6	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4	-21.4

REF NO.	IC6001																			
MODE	41	42	43	44																
CD PLAY	-21.4	-21.4	3.3	0																
STANDBY	-21.4	-21.4	3.3	0																

REF NO.	Q6100				Q6800															
MODE	E	C	B		E	C	B													
CD PLAY	0	8.4	8.4		0	0	5.0													
STANDBY	0	8.4	8.4		0	0	5.0													

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP PANEL P.C.B.

12.5. Panel P.C.B. (For BT330EB/EG/EP only)

REF NO.	IC6531																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-7.0	0	0	0	7.0												
STANDBY	0	0	0	-7.0	0	0	0	7.0												

REF NO.	Q6531				Q6532				Q6533				Q6534							
MODE	E	C	B		E	C	B		E	C	B		E	C	B					
CD PLAY	0	0	0		0	0	0		3.3	0	0		0	0	3.3					
STANDBY	0	0	0		0	0	0		3.3	0	0		0	0	3.3					

SA-BT330EB/EG/EP(ONLY) PANEL P.C.B.

12.6. D-Amp P.C.B. (1/2)

REF NO.	IC5100																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	11.5	3.3	3.3	1.6	3.1	1.6	1.1	0	0	3.5	3.5	0	0	1.5	3.1	1.5	11.6	11.4	11.5	31.9
STANDBY	11.5	3.3	3.3	1.6	3.1	1.6	1.1	0	0	3.5	3.5	0	0	1.5	3.1	1.5	11.6	11.4	11.5	31.9
REF NO.	IC5100																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
CD PLAY	42.4	0	0	0	0	42.4	31.9	31.9	42.4	0	0	0	0	42.4	31.9	11.4				
STANDBY	42.4	0	0	0	0	42.4	31.9	31.9	42.4	0	0	0	0	42.4	31.9	11.4				
REF NO.	IC5200																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	11.5	3.2	3.3	1.6	3.2	1.6	1.1	0	0	3.2	0	0	3.2	1.6	3.2	1.6	11.6	11.5	11.5	31.8
STANDBY	11.5	3.2	3.3	1.6	3.2	1.6	1.1	0	0	3.2	0	0	3.2	1.6	3.2	1.6	11.6	11.5	11.5	31.8
REF NO.	IC5200																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
CD PLAY	42.4	0	0	0	0	42.4	31.9	31.7	42.4	0	0	0	0	42.4	31.8	11.5				
STANDBY	42.4	0	0	0	0	42.4	31.9	31.7	42.4	0	0	0	0	42.4	31.8	11.5				
REF NO.	IC5301																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.7	3.2	0	0	0.8	0.9	0	1.6	3.2	3.1	3.1	0	0	1.1	1.8	3.2	3.2	3.2	1.5	1.5
STANDBY	1.7	3.2	0	0	0.8	0.9	0	1.6	3.2	3.1	3.1	0	0	1.1	1.8	3.2	3.2	3.2	1.5	1.5
REF NO.	IC5301																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		
CD PLAY	0	0	0	0	0.6	1.2	0	0	0	1.8	3.1	3.1	1.6	1.6	1.5	1.5	1.5	1.5		
STANDBY	0	0	0	0	0.6	1.2	0	0	0	1.8	3.1	3.1	1.6	1.6	1.5	1.5	1.5	1.5		
REF NO.	IC5400																			
MODE	1	2	3	4	5															
CD PLAY	13.1	13.1	0	11.6	1.1															
STANDBY	13.1	13.1	0	11.6	1.1															
REF NO.	IC5401																			
MODE	1	2	3	4	5															
CD PLAY	3.2	3.2	0	0	0															
STANDBY	3.2	3.2	0	0	0															
REF NO.	IC5402																			
MODE	1	2	3	4	5															
CD PLAY	3.2	3.2	0	3.2	3.2															
STANDBY	3.2	3.2	0	3.2	3.2															
REF NO.	IC5404																			
MODE	1	2	3	4	5	6														
CD PLAY	1.5	0	1.5	1.6	3.1	1.6														
STANDBY	1.5	0	1.5	1.6	3.1	1.6														
SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP D-AMP P.C.B.																				

12.7. D-Amp P.C.B. (2/2)

REF NO.	IC5405																			
MODE	1	2	3	4	5															
CD PLAY	3.2	3.2	0	3.2	3.1															
STANDBY	3.2	3.2	0	3.2	3.1															

REF NO.	Q5400				Q5401				Q5402				Q5403				Q5404			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	12.0	18.0	12.0		18.0	12.0	0		0	2.9	0		0	2.9	0		0	7.5	0.7	
STANDBY	12.0	18.0	12.0		18.0	12.0	0		0	2.9	0		0	2.9	0		0	7.5	0.7	

REF NO.	Q5405				Q5408				Q5409				Q5412				Q5413			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	3.7	0.1		0	0	0		0	0	0		0	3.3	0		42.4	4.3	0	
STANDBY	0	3.7	0.1		0	0	0		0	0	0		0	3.3	0		42.4	4.3	0	

REF NO.	Q5414				QR5400				QR5401											
MODE	E	C	B		E	C	B		E	C	B									
CD PLAY	0	0	0		0	0	0		12.0	0	5.0									
STANDBY	0	0	0		0	0.1	5.0		12.0	0	5.0									

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP D-AMP P.C.B.

12.8. Power P.C.B.

REF NO.	IC2901																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.7	2.5	2.0	1.0	1.6	0	0	16.4	11.2	14.9	14.3	16.5	16.5	0	15.8	1.6	1.0	2.0	2.4	2.5
STANDBY	1.7	2.5	2.0	1.0	1.6	0	0	16.4	11.2	14.9	14.3	16.5	16.5	0	15.8	1.6	1.0	2.0	2.4	2.5

REF NO.	Q2902							Q2903												
MODE	1	2	3	4	5	6		1	2	3	4	5	6							
CD PLAY	12.0	12.0	16.1	17.8	12.0	12.0		5.0	5.0	16.2	17.8	5.0	5.0							
STANDBY	12.0	12.0	16.1	17.8	12.0	12.0		5.0	5.0	16.2	17.8	5.0	5.0							

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP POWER P.C.B.

12.9. SMPS P.C.B.

REF NO.	IC5701																		
MODE	1	2	3	4	5	6	7												
CD PLAY	19.5	-11.6	-11.6	-8.1	-11.6	-11.3	-11.5												
STANDBY	19.5	-11.6	-11.6	-8.1	-11.6	-11.3	-11.5												

REF NO.	IC5799																		
MODE	1	2	3	4	5	6	7	8											
CD PLAY	-14.0	-15.0	-14.6	-13.0	-15.1	0	-15.1	-15.1											
STANDBY	-14.0	-15.0	-14.6	-13.1	-15.1	0	-15.0	-15.0											

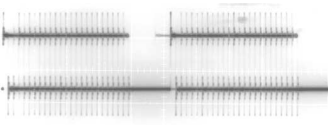
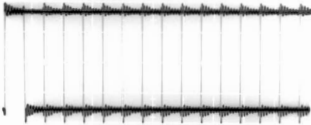
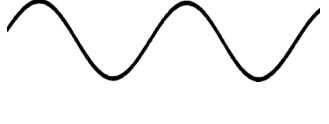
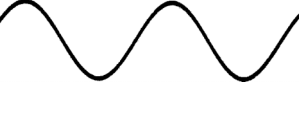
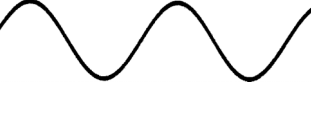
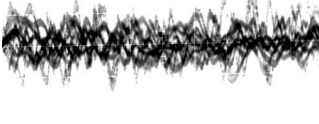
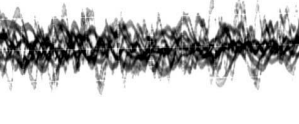
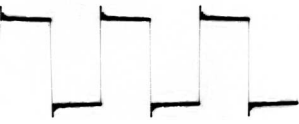
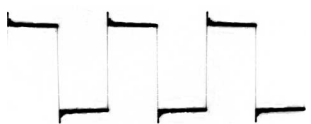
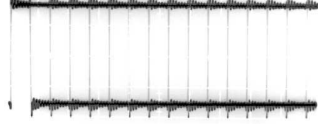
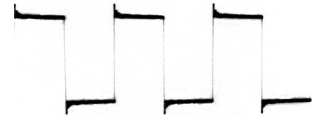
REF NO.	IC5801																		
MODE	1	2	3																
CD PLAY	18.3	2.5	0																
STANDBY	18.3	2.5	0																

REF NO.	IC5899																		
MODE	1	2	3	4															
CD PLAY	0	0	3.8	2.3															
STANDBY	0	0	3.8	2.3															

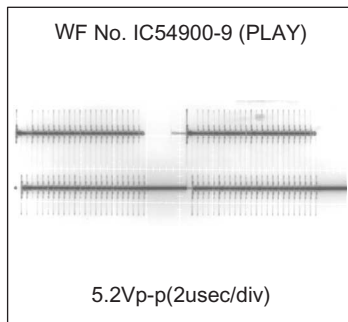
REF NO.	Q5720				Q5863				Q5898				Q5899				QR5862			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	-10.3	-9.9	-10.2		0	0.6	0		0	1.9	0.4		0	0.1	0.7		0	3.1	0	
STANDBY	-10.3	-9.9	-10.2		0	0.6	0		0	1.9	0.4		0	0.1	0.7		0	3.1	0	

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP SMPS P.C.B.

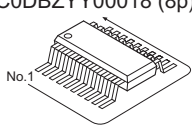
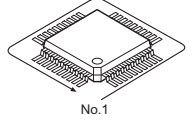
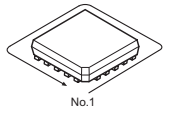
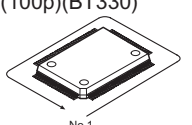
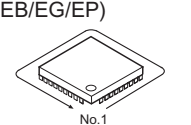
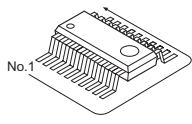
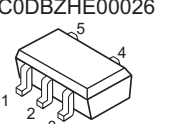
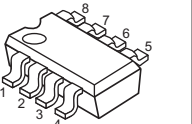
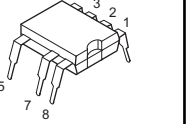
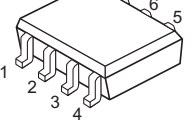
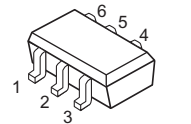
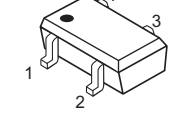
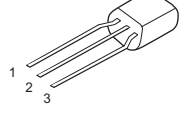
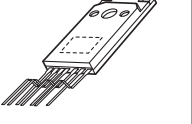
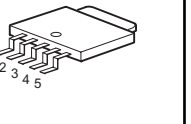
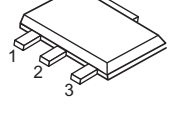
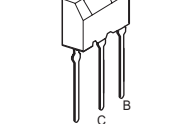
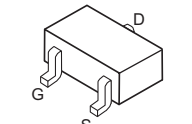
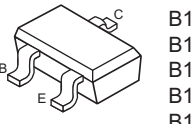
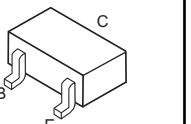
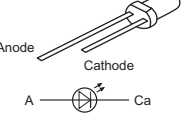
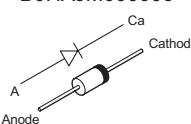
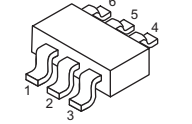
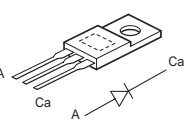
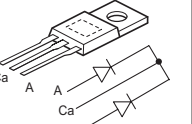
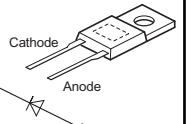
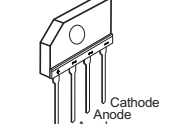
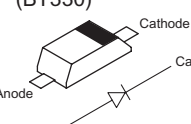
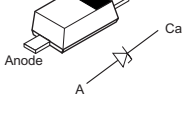
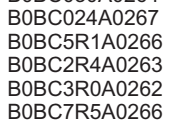
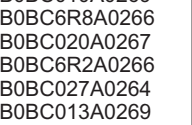
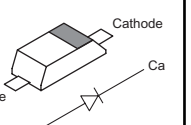
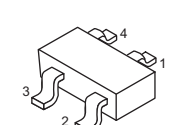
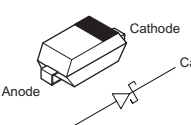
12.10. Waveform Table (1/2)

WF No. IC2001-3 (PLAY)  5.6Vp-p(2usec/div)	WF No. IC2001-35 (PLAY)  4Vp-p(5usec/div)	WF No. IC2001-38 (PLAY)  4.4Vp-p(500nsec/div)	WF No. IC2300-10 (PLAY)  1Vp-p(10usec/div)
WF No. IC2300-11 (PLAY)  3Vp-p(10usec/div)	WF No. IC2300-13 (PLAY)  3.6Vp-p(50nsec/div)	WF No. IC2300-15 (PLAY)  2Vp-p(50nsec/div)	WF No. IC2800-1,12 (PLAY)  0.24Vp-p(1msec/div)
WF No. IC2800-2,3,13,15 (PLAY)  2.2Vp-p(1msec/div)	WF No. IC2952-2,13,14 (PLAY)  0.24Vp-p(1msec/div)	WF No. IC5100-4,6,14,16 (PLAY)  5.2Vp-p(1usec/div)	WF No. IC5100-22,25,30,33 (PLAY)  80Vp-p(1usec/div)
WF No. IC5200-4,14 (PLAY)  5.6Vp-p(1usec/div)	WF No. IC5200-6,16 (PLAY)  6.8Vp-p(1usec/div)	WF No. IC5200-22,25,30,33 (PLAY)  76Vp-p(1usec/div)	WF No. IC5301-24,25,26 (PLAY)  3.6Vp-p(500nsec/div)
WF No. IC5301-33,34,35,36,37,38 (PLAY)  6Vp-p(1usec/div)	WF No. IC6001-5 (PLAY)  1.5Vp-p(2usec/div)	WF No. IC6001-8 (PLAY)  3.2Vp-p(2usec/div)	WF No. IC54900-1,2 (PLAY)  1Vp-p(5usec/div)

12.11. Waveform Table (2/2)

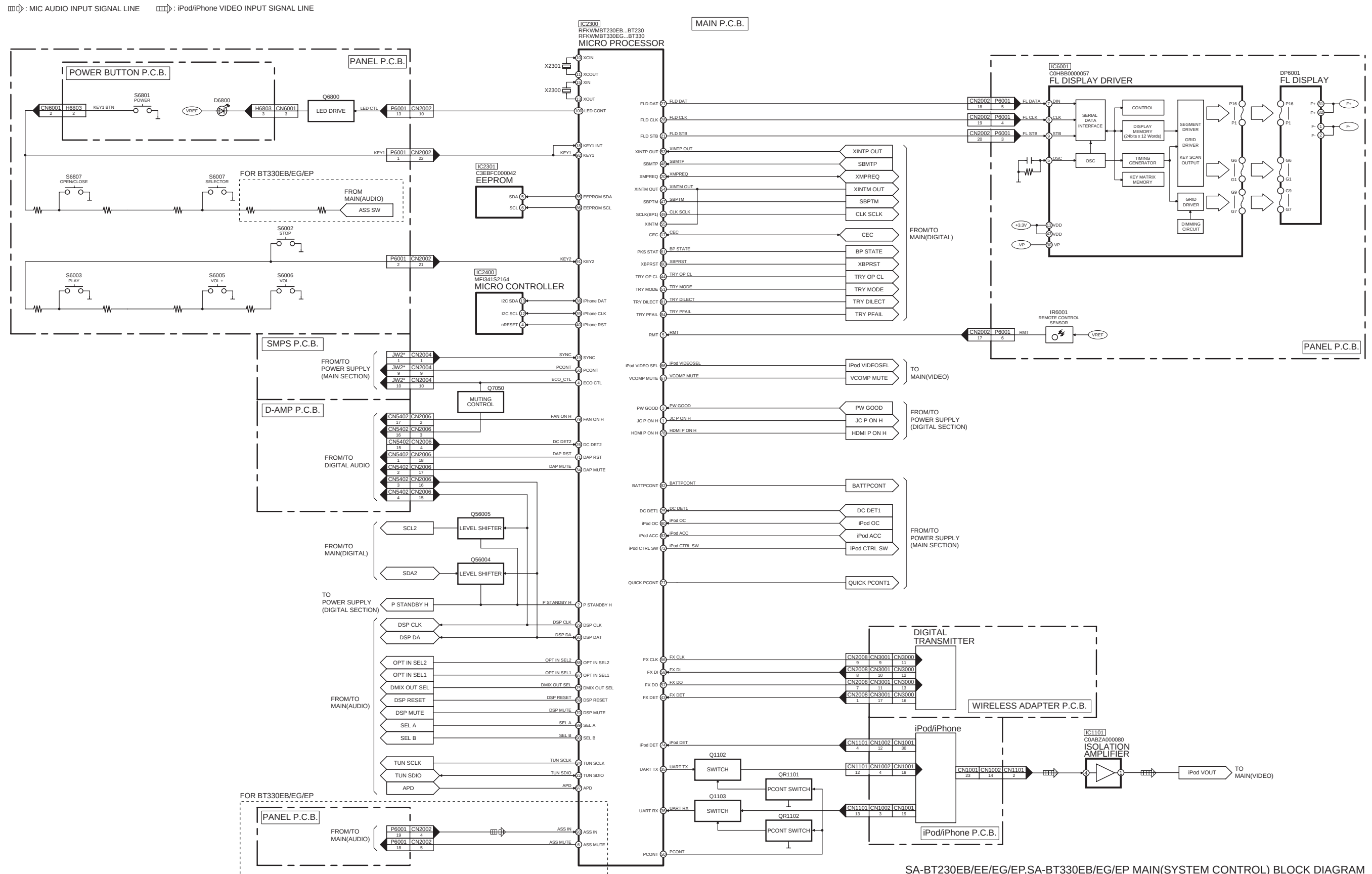


13 Illustration of ICs, Transistor and Diode

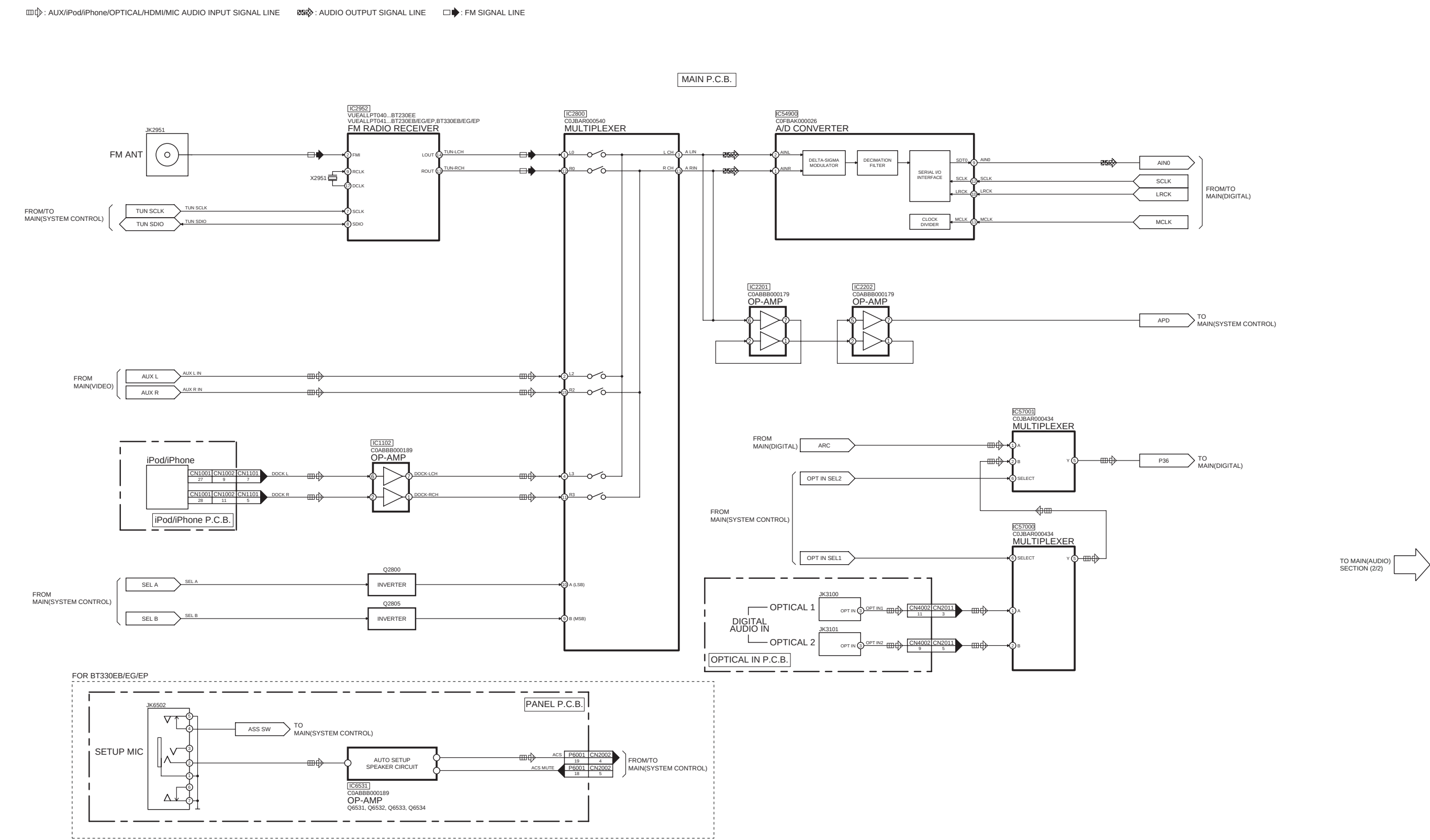
C0ABBB000189 (8p) C0ABBB000179 (8p) C0DBZYY00018 (8p) 	C0FBAK000026 (16p) C0JBAR000540 (16p) C0DBAYY00729 (20p) C1AB00002461 (30p) C1AB00003260 (36p)	C0HBB0000057 (44p) 	MFI341S2164 (20p) 	RFKWMBT230EB (100p)(BT230) RFKWMBT330EG (100p)(BT330) 	VUEALLPT040 (20p) (EE) VUEALLPT041 (20p) (EB/EG/EP) 	
C2HBCA000001 (40p) 	C0ABZA000080 C0JBAA000501 C0EBE0000456 C0DBZHE00026 	C3EBFC000042 (8p) 	MIP2F20MSSCF 	C0JBAR000434 	C0JBAB000837 C0JBAB000986 	
C0DBZMC00006 	C0DABFC00002 	C5HACYY00003 (7p) 	C0DBEKG00004 	C0CBABC00117 	B1BABK000001 B1BAAJ000003 	
B1CFHA000002 	B1ABEB000002 B1ABMF000020 B1ADNB000003 	B1GBCFNN0038 B1ADBL000010 B1ABCF000176 B1ADCE000012 B1GBCFJJ0051 B1GBCFGG0030 B1ABGC000001 B1GDCFGA0018 (BT330)		B1ABCF000011 	B3ABA0000187 	B0EAMM000057 B0HAMP000094 B0HAJM000005 
B1CHPD000003 	B0ZAZ0000052 	B0HBSM000054 	B0HFRJ000012 	B0FBAR000043 	B0ACCK000005 B0ACCK000012 (BT330) 	
	B0BC7R5A0268 B0BC030A0264 B0BC024A0267 B0BC5R1A0266 B0BC2R4A0263 B0BC3R0A0262 B0BC7R5A0266 	B0BC012A0269 B0BC010A0269 B0BC6R8A0266 B0BC020A0267 B0BC6R2A0266 B0BC027A0264 B0BC013A0269 	B0JCMD000010 MA2YF8000L 	B0EDKT000009 	B0JCPCG000005 B0HCSP000001 	

14 Block Diagram

14.1. Main(System Control)

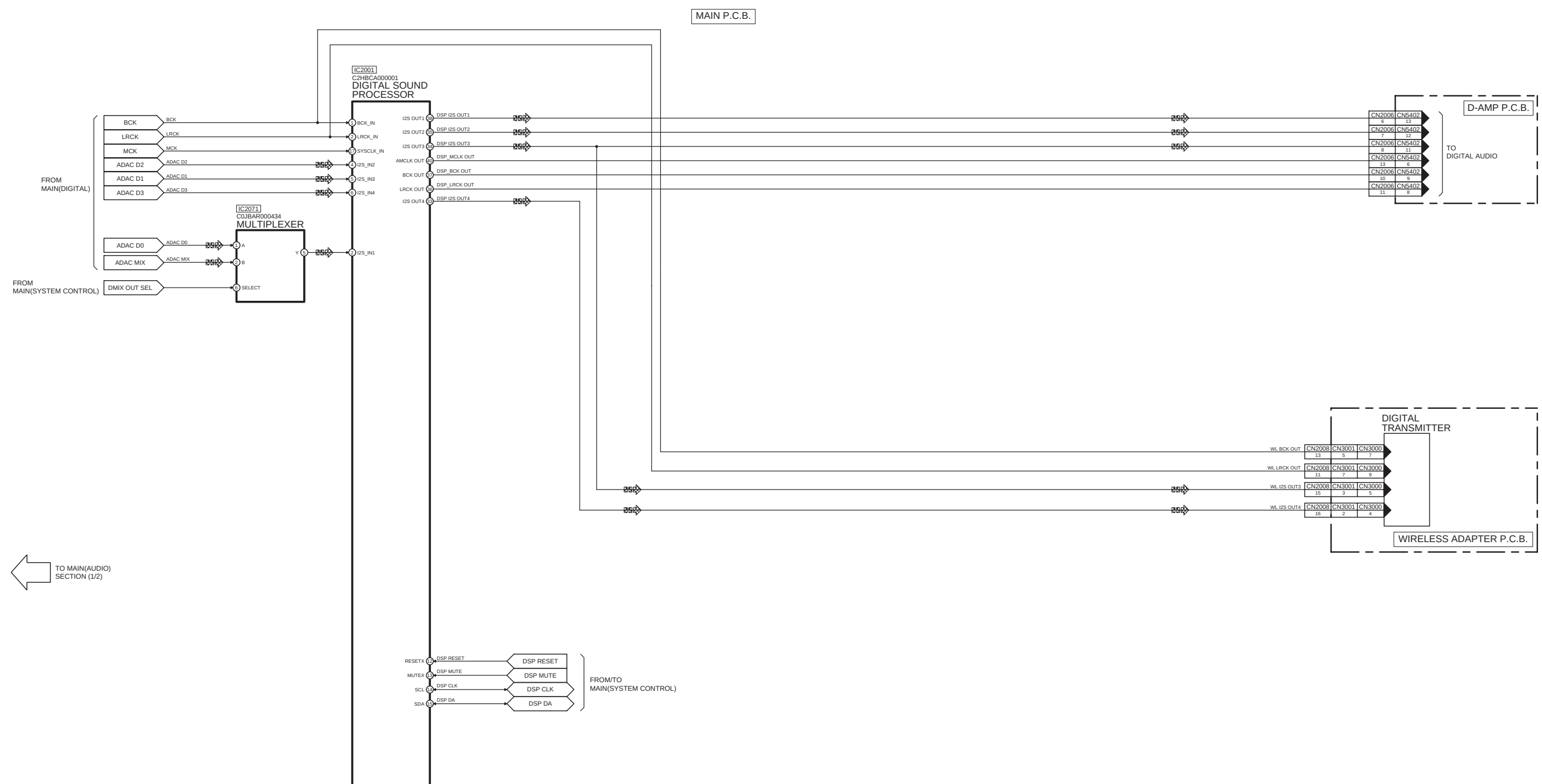


14.2. Main(Audio)



SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP MAIN(AUDIO) (1/2) BLOCK DIAGRAM

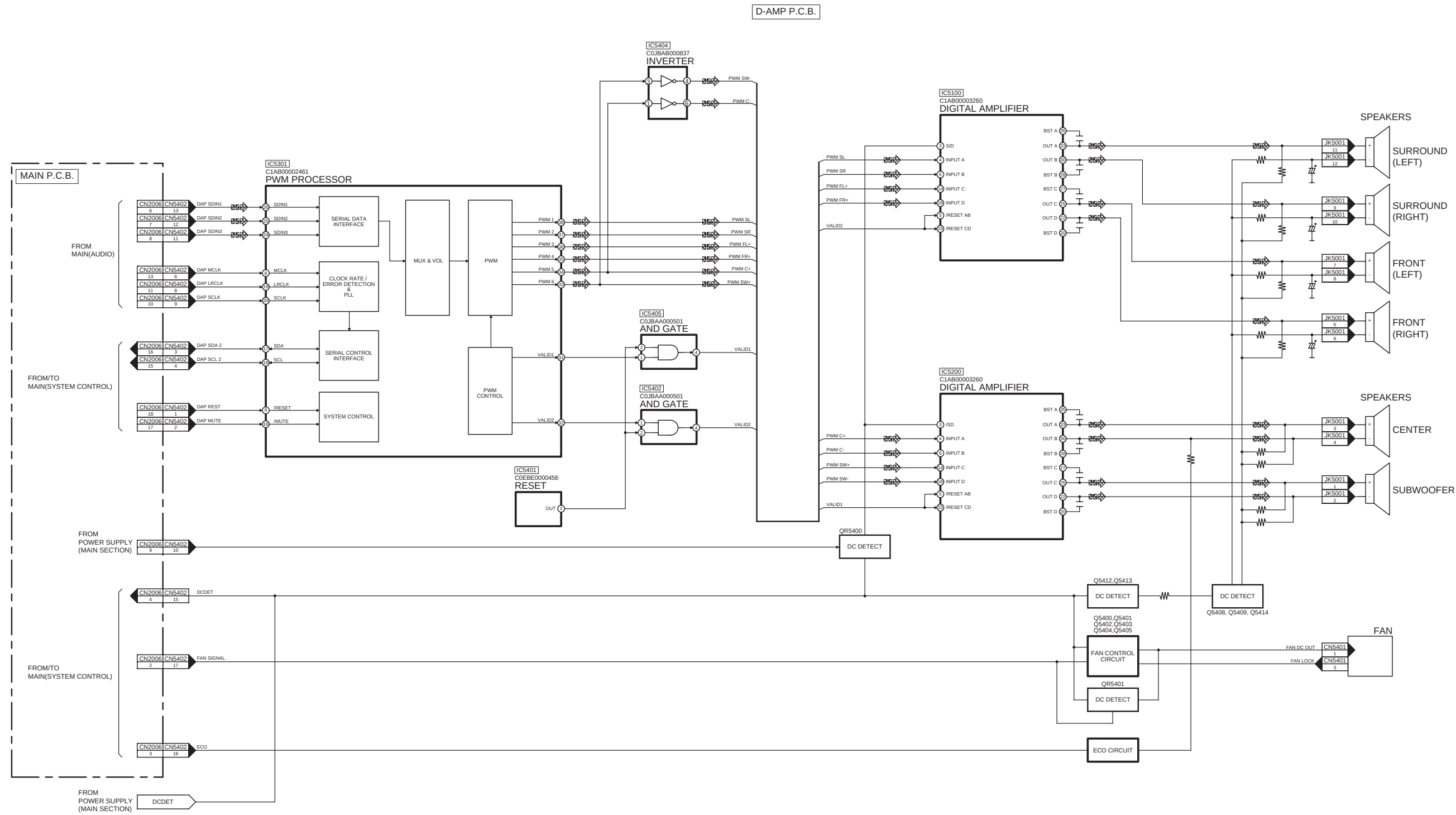
 : AUX/iPod/iPhone/OPTICAL/HDMI/MIC AUDIO INPUT SIGNAL LINE
  : AUDIO OUTPUT SIGNAL LINE
  : FM SIGNAL LINE



SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP MAIN(AUDIO) (2/2) BLOCK DIAGRAM

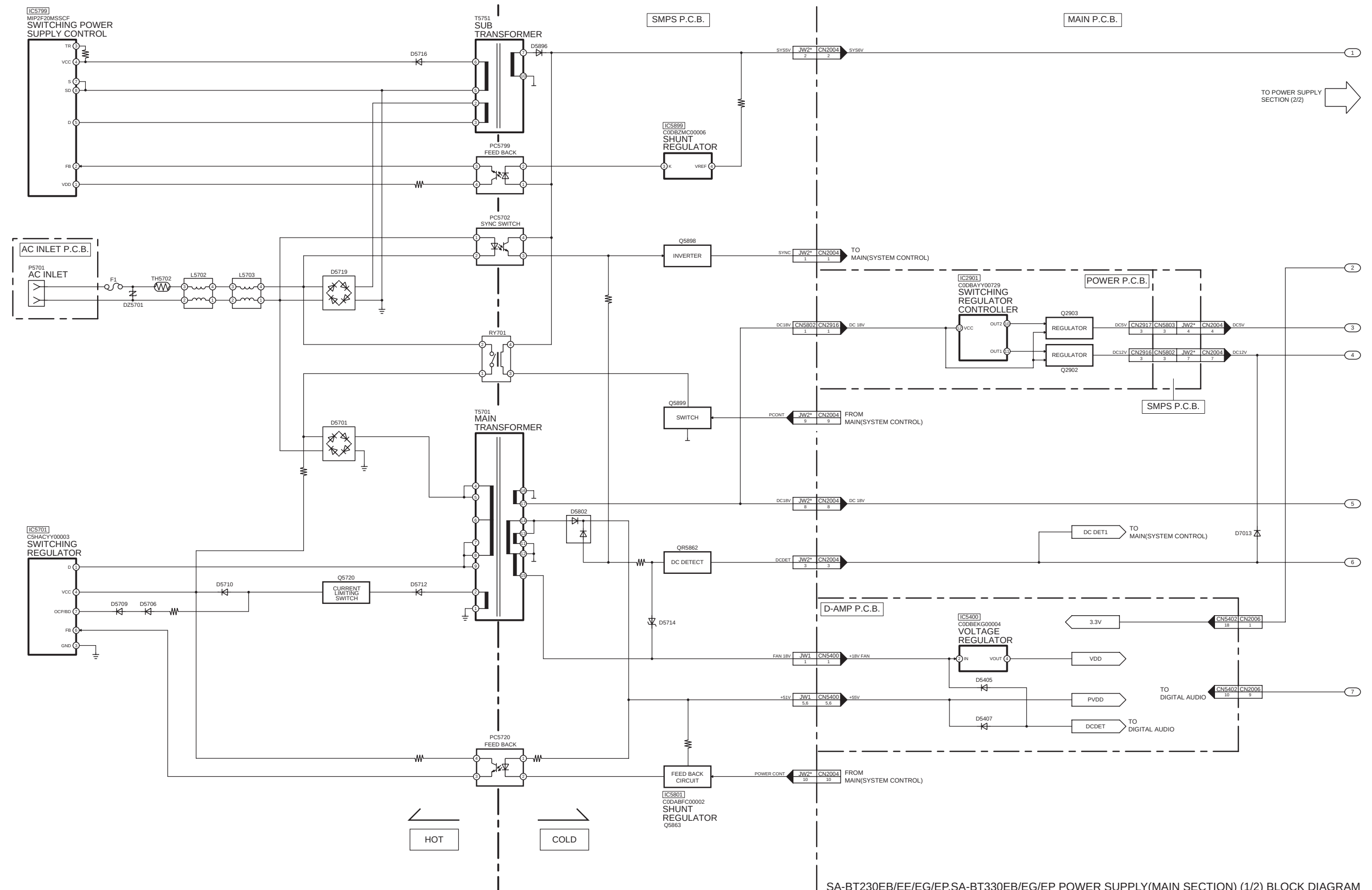
14.3. Digital Audio

🔌 : AUDIO OUTPUT SIGNAL LINE

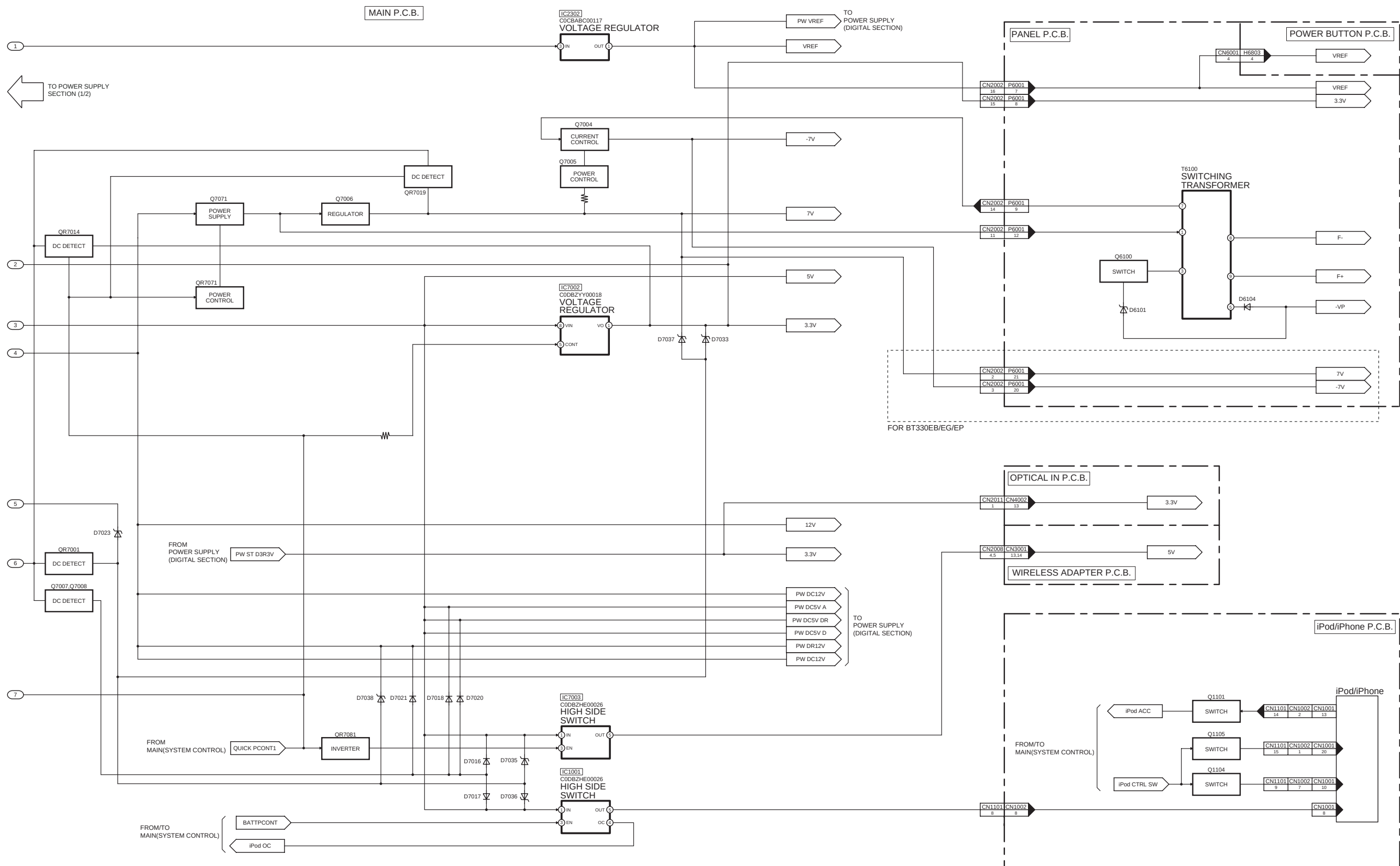


SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP DIGITAL AUDIO BLOCK DIAGRAM

14.4. Power Supply(Main Section)

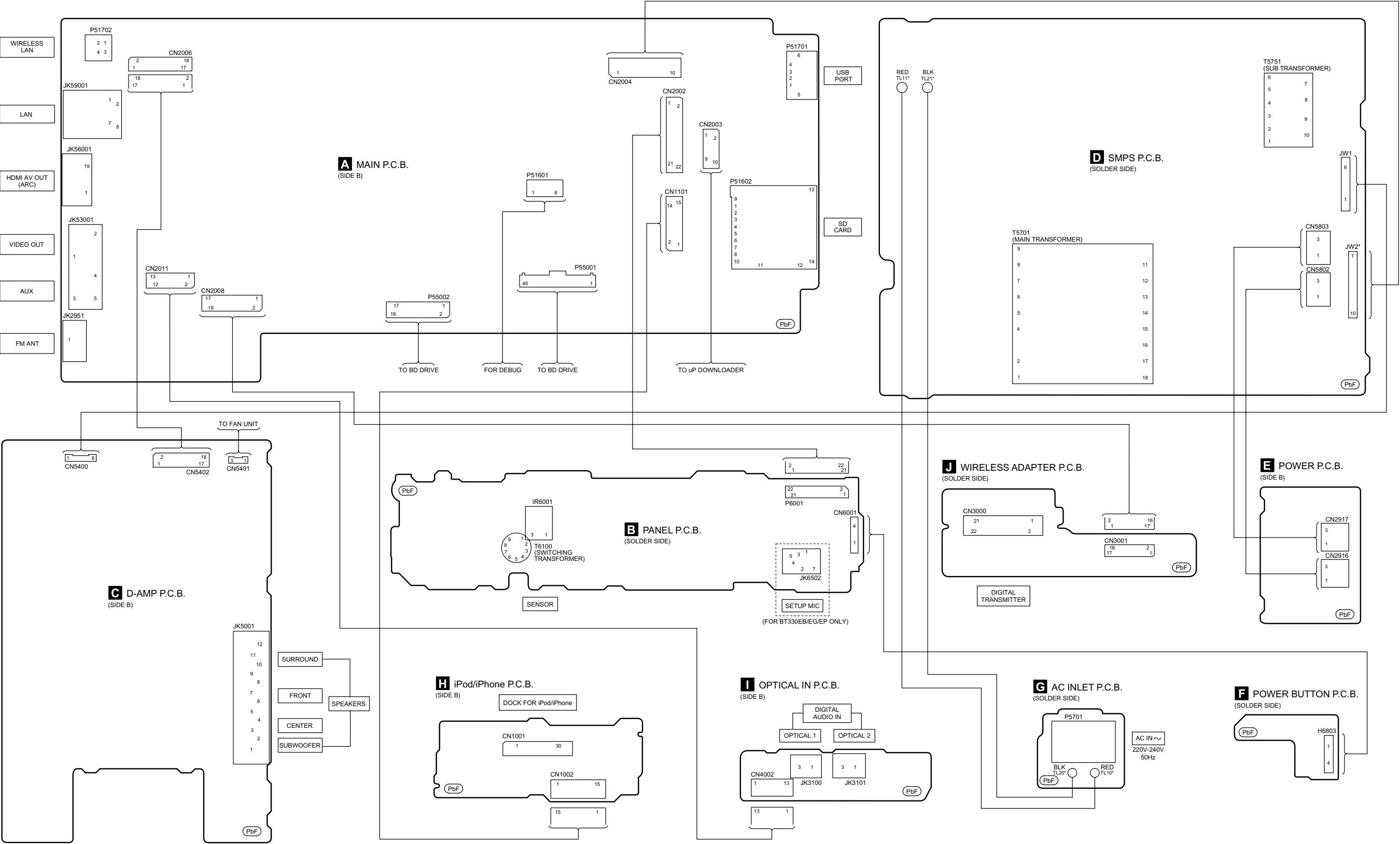


SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP POWER SUPPLY(MAIN SECTION) (1/2) BLOCK DIAGRAM



SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP POWER SUPPLY(MAIN SECTION) (2/2) BLOCK DIAGRAM

15 Wiring Diagram



NOTE: " * " REF IS FOR INDICATION ONLY.

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP WIRING CONNECTION

16 Schematic Diagram Notes

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

S6002:	Stop switch (■).
S6003:	Play switch (▶).
S6005:	Vol (+).
S6006:	Vol (-).
S6007:	Selector switch.
S6801:	Power switch (⏻/⏻).
S6807:	Open/Close switch (▲).

- Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high quality sound (capacitors), low-noise (resistors), etc are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- In case of AC rated voltage Capacitors, the part no. and values will be indicated in the Schematic Diagram.

AC rated voltage capacitors:

C5700, C5701, C5702, C5703, C5705, C5706

- Resistor

Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).

- Capacitor

Unit of capacitance is μ F, unless otherwise noted. F=Farads, pF=pico-Farad.

- Coil

Unit of inductance is H, unless otherwise noted.

- *

Ref. is for indication only.

- Voltage and signal line

— :+B signal line

— :-B signal line

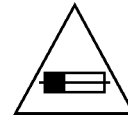
⦿ :Audio output signal line

⦿ :iPod/iPhone Video input signal line

⦿ :iPod/iPhone/Mic/AUX/Optical/HDMI Audio input signal line

⦿ :FM signal Line

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE F1 T4AH 250V FUSE



RISK OF FIRE-REPLACE FUSE AS MARKED.

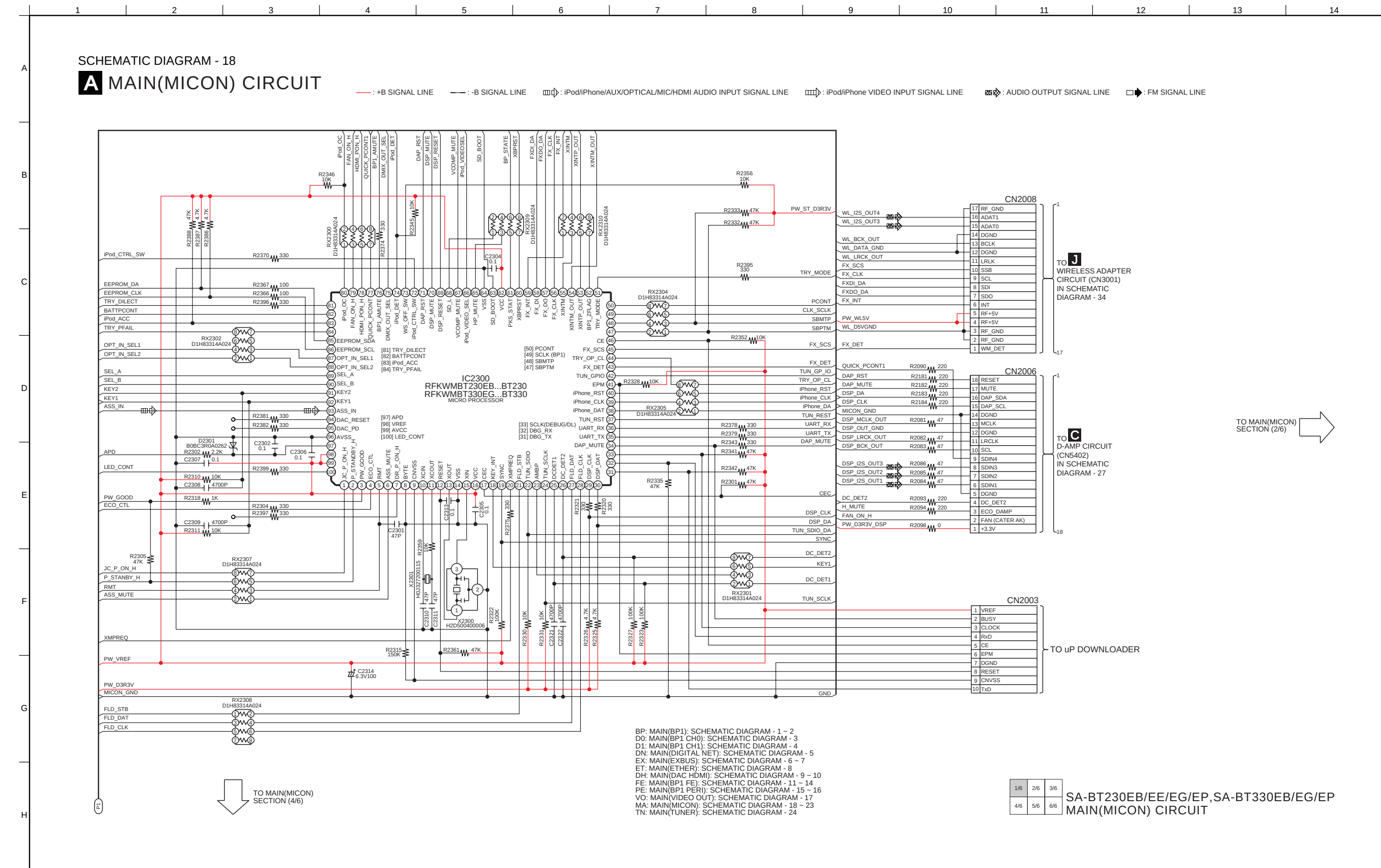
FUSE CAUTION



These symbols located near the fuse indicates that the fuse used is a fast operating type. For continued protection against fire hazard, replace with the same type fuse. For rating, refer to the marking adjacent to the symbol.

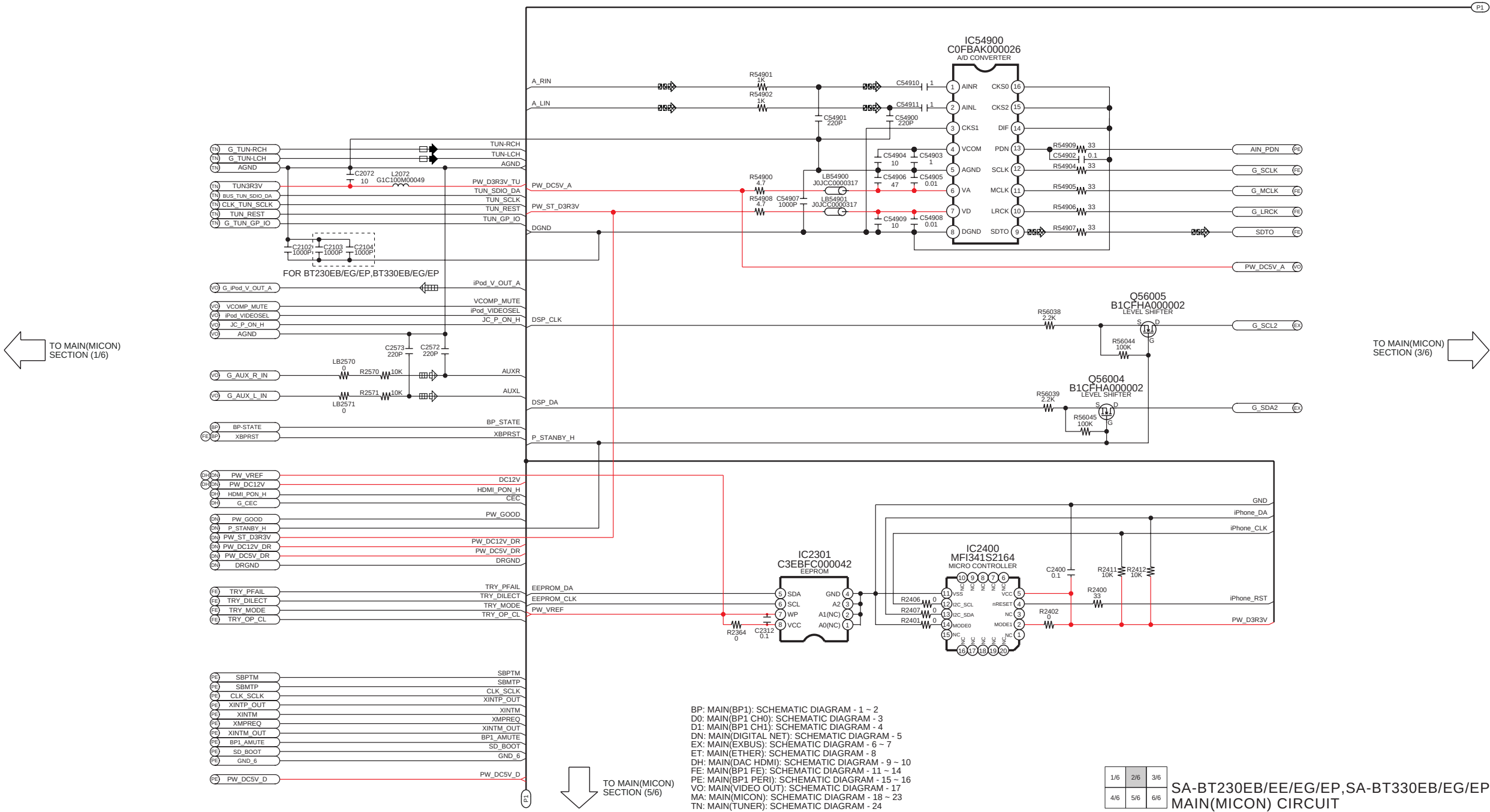
17 Schematic Diagram

17.1. Main(Micon/Tuner) Circuit



SCHEMATIC DIAGRAM - 19
A MAIN(MICON) CIRCUIT

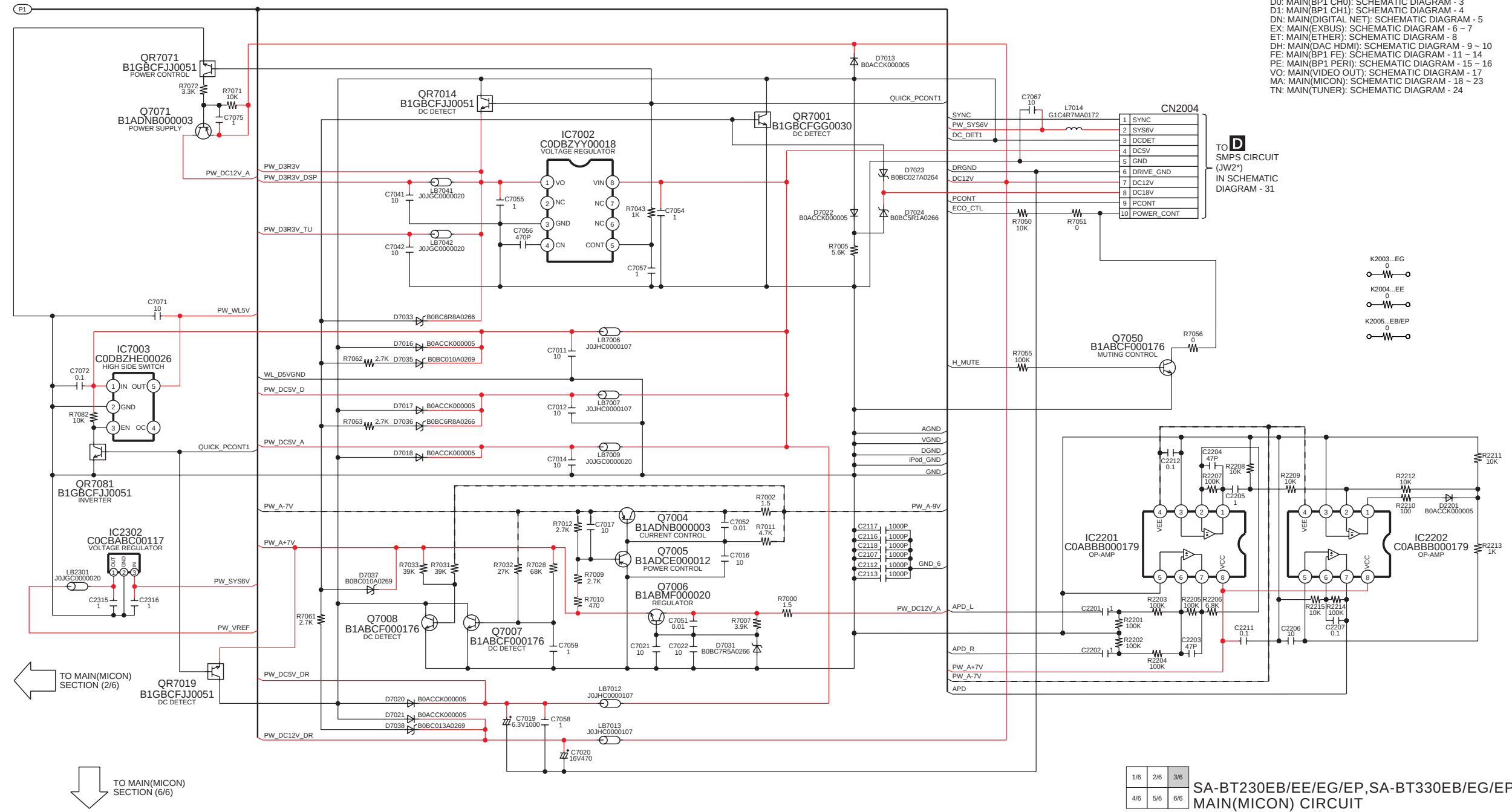
— : +B SIGNAL LINE — : -B SIGNAL LINE : iPod/iPhone/AUX/OPTICAL/MIC/HDMI AUDIO INPUT SIGNAL LINE : iPod/iPhone VIDEO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : FM SIGNAL LINE



SCHEMATIC DIAGRAM - 20

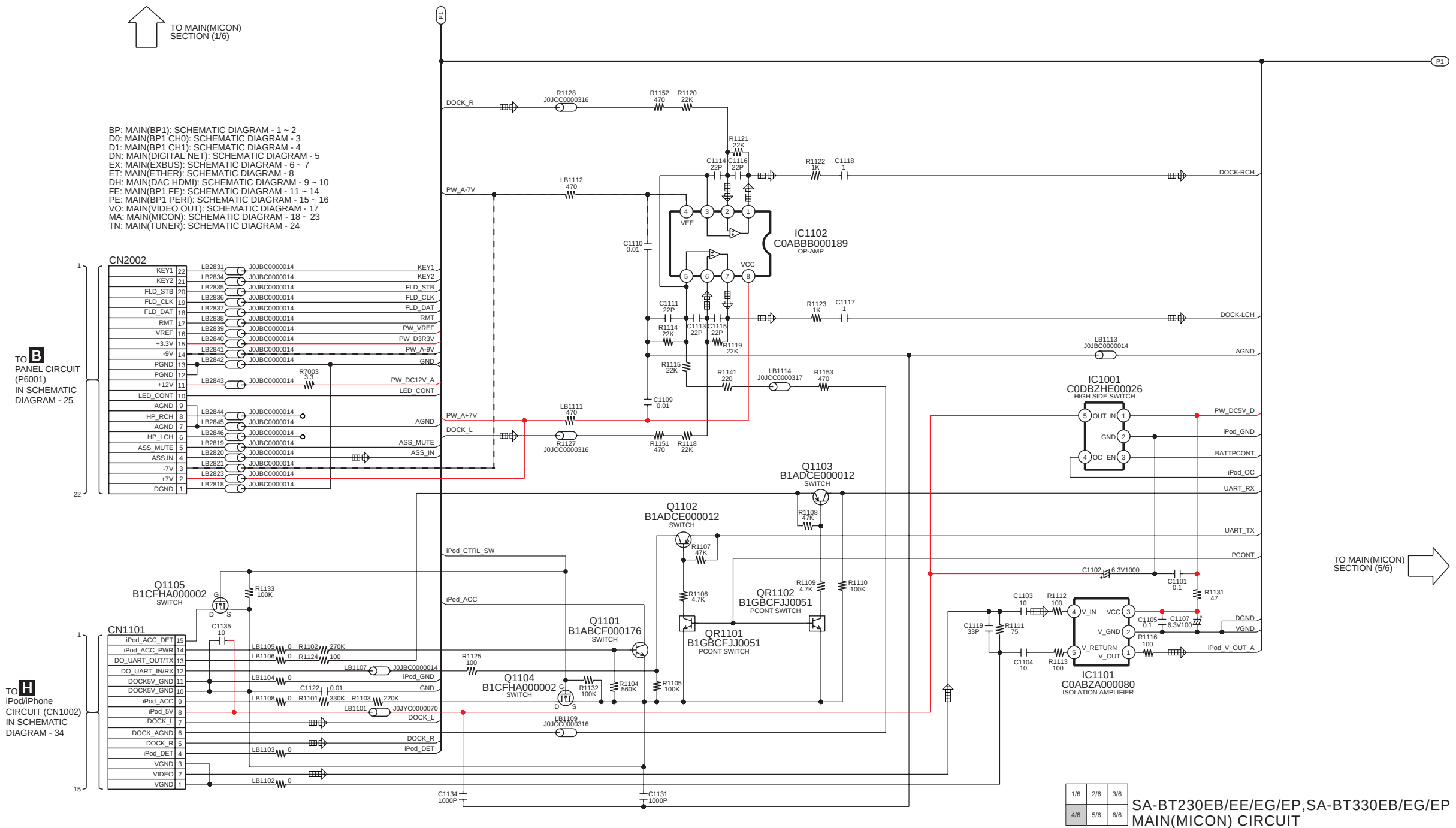
A MAIN(MICON) CIRCUIT

— : +B SIGNAL LINE — : -B SIGNAL LINE : iPod/iPhone/AUX/OPTICAL/MIC/HDMI AUDIO INPUT SIGNAL LINE : iPod/iPhone VIDEO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : FM SIGNAL LINE



SCHEMATIC DIAGRAM - 21
A MAIN(MICON) CIRCUIT

— : +B SIGNAL LINE — : -B SIGNAL LINE : iPod/iPhone/AUX/OPTICAL/MIC/HDMI AUDIO INPUT SIGNAL LINE : iPod/iPhone VIDEO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : FM SIGNAL LINE



1/6	2/6	3/6
4/6	5/6	6/6

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
MAIN(MICON) CIRCUIT

A MAIN(MICON) CIRCUIT



TO MAIN(MICON
SECTION (6/6)

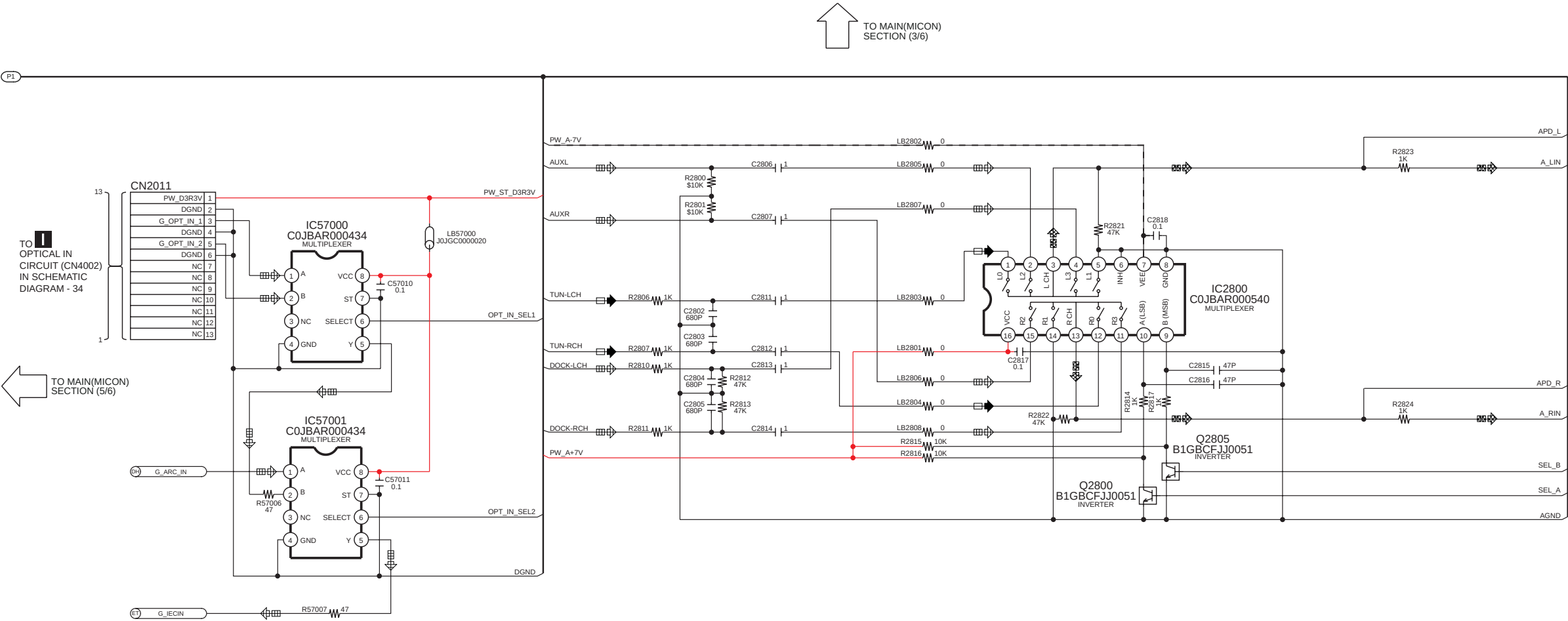
BP: MAIN(BP1): SCHEMATIC DIAGRAM - 1 ~ 2
D0: MAIN(BP1 CH0): SCHEMATIC DIAGRAM - 3
D1: MAIN(BP1 CH1): SCHEMATIC DIAGRAM - 4
D2: MAIN(DIGITAL NET): SCHEMATIC DIAGRAM - 5
EX: MAIN(EXBUS): SCHEMATIC DIAGRAM - 6 ~ 7
ET: MAIN(ETHER): SCHEMATIC DIAGRAM - 8
FD: MAIN(DAC FDM): SCHEMATIC DIAGRAM - 9 ~ 10
FE: MAIN(BP1 FE): SCHEMATIC DIAGRAM - 11 ~ 14
PE: MAIN(BP1 PERI): SCHEMATIC DIAGRAM - 15 ~ 16
VO: MAIN(VIDEO OUT): SCHEMATIC DIAGRAM - 17
MA: MAIN(MICRON): SCHEMATIC DIAGRAM - 18 ~ 23
TN: MAIN(TUNER): SCHEMATIC DIAGRAM - 24

1/6	2/6	3/6
4/6	5/6	6/6

SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP
MAIN(MICON) CIRCUIT

SCHEMATIC DIAGRAM - 23
A MAIN(MICON) CIRCUIT

— : +B SIGNAL LINE — : -B SIGNAL LINE : iPod/iPhone/AUX/OPTICAL/MIC/HDMI AUDIO INPUT SIGNAL LINE : iPod/iPhone VIDEO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : FM SIGNAL LINE



BP: MAIN(BP1): SCHEMATIC DIAGRAM - 1 ~ 2
D0: MAIN(BP1 CH0): SCHEMATIC DIAGRAM - 3
D1: MAIN(BP1 CH1): SCHEMATIC DIAGRAM - 4
DN: MAIN(DIGITAL NET): SCHEMATIC DIAGRAM - 5
EX: MAIN(EXBUS): SCHEMATIC DIAGRAM - 6 ~ 7
ET: MAIN(ETHER): SCHEMATIC DIAGRAM - 8
DH: MAIN(DAC HDMI): SCHEMATIC DIAGRAM - 9 ~ 10
FE: MAIN(BP1 FE): SCHEMATIC DIAGRAM - 11 ~ 14
PE: MAIN(BP1 PERI): SCHEMATIC DIAGRAM - 15 ~ 16
VO: MAIN(VIDEO OUT): SCHEMATIC DIAGRAM - 17
MA: MAIN(MICON): SCHEMATIC DIAGRAM - 18 ~ 23
TN: MAIN(TUNER): SCHEMATIC DIAGRAM - 24

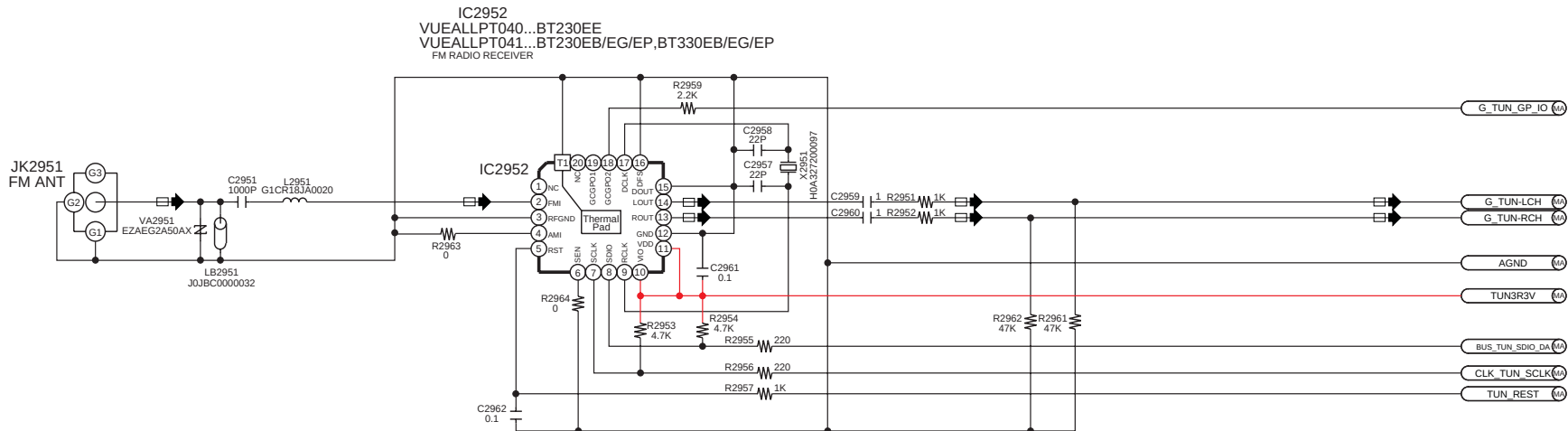
1/6	2/6	3/6
4/6	5/6	6/6

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
MAIN(MICON) CIRCUIT

SCHEMATIC DIAGRAM - 24

A MAIN(TUNER) CIRCUIT

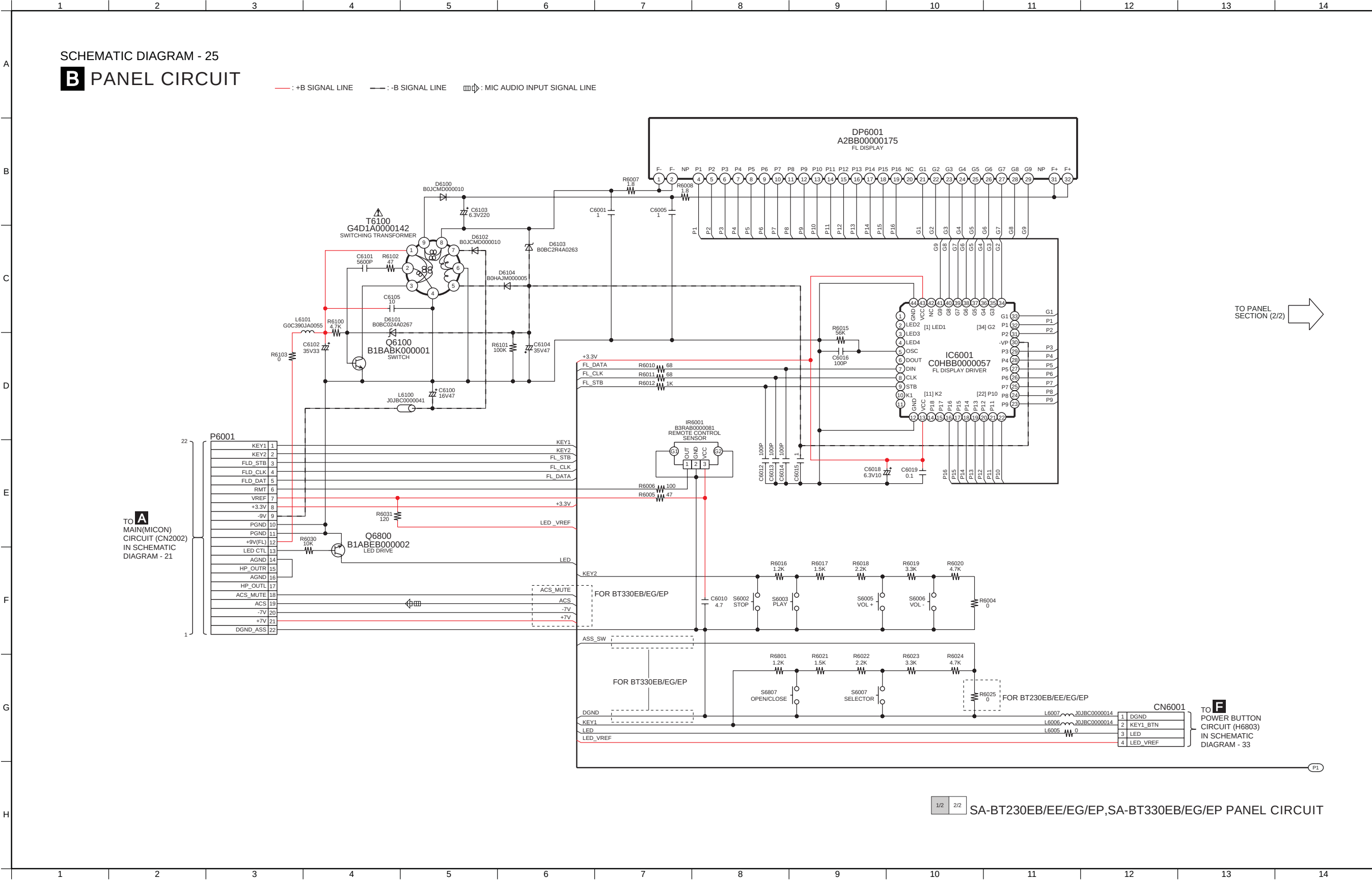
— : +B SIGNAL LINE ◻▶ : FM SIGNAL LINE



BP: MAIN(BP1): SCHEMATIC DIAGRAM - 1 ~ 2
D0: MAIN(BP1 CH0): SCHEMATIC DIAGRAM - 3
D1: MAIN(BP1 CH1): SCHEMATIC DIAGRAM - 4
DN: MAIN(DIGITAL NET): SCHEMATIC DIAGRAM - 5
EX: MAIN(EXBUS): SCHEMATIC DIAGRAM - 6 ~ 7
ET: MAIN(ETHER): SCHEMATIC DIAGRAM - 8
DH: MAIN(DAC HDMI): SCHEMATIC DIAGRAM - 9 ~ 10
FE: MAIN(BP1 FE): SCHEMATIC DIAGRAM - 11 ~ 14
PE: MAIN(BP1 PERI): SCHEMATIC DIAGRAM - 15 ~ 16
VO: MAIN(VIDEO OUT): SCHEMATIC DIAGRAM - 17
MA: MAIN(MICON): SCHEMATIC DIAGRAM - 18 ~ 23
TN: MAIN(TUNER): SCHEMATIC DIAGRAM - 24

SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP MAIN(TUNER) CIRCUIT

17.2. Panel Circuit

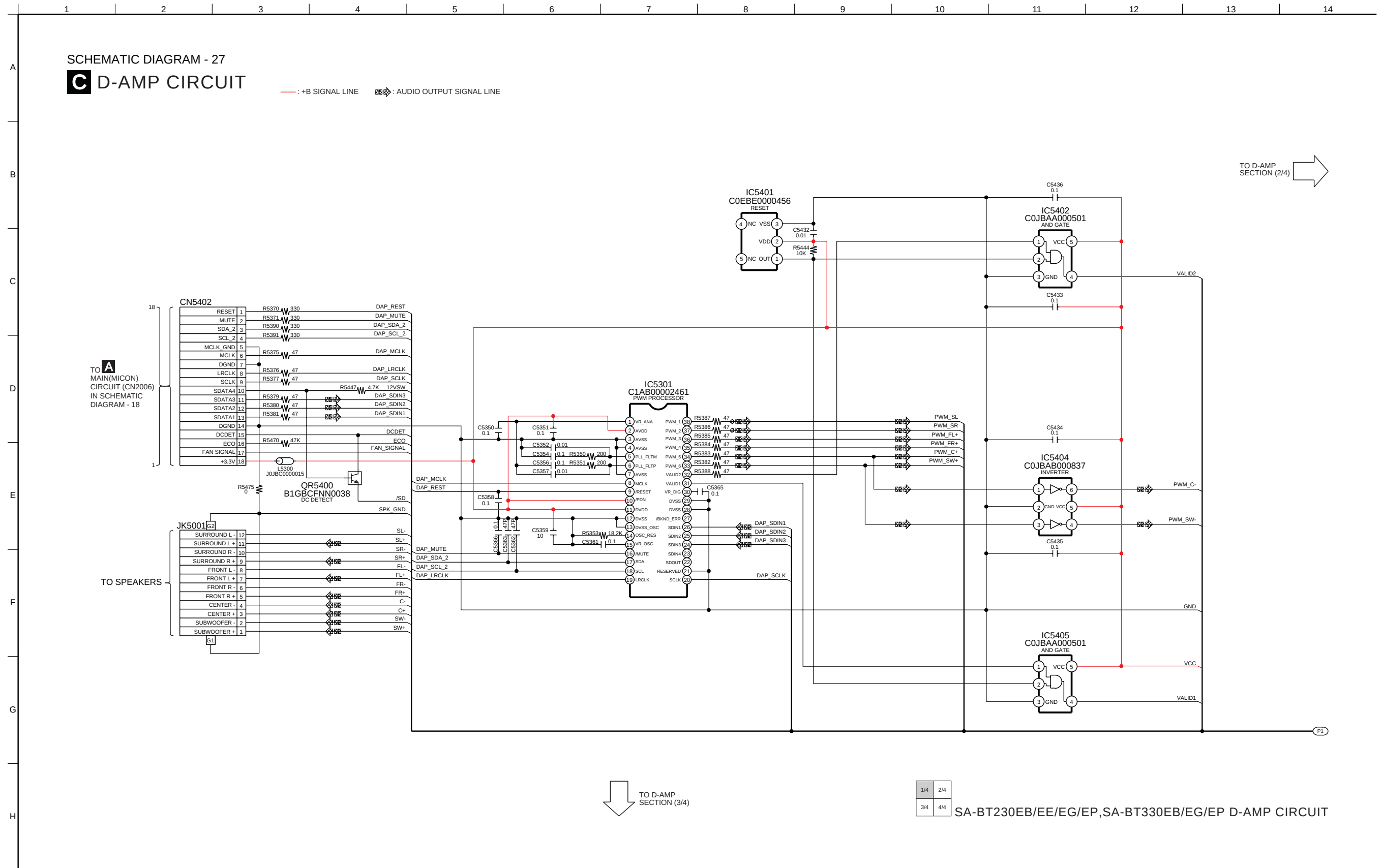


B PANEL CIRCUIT

TO PANEL
SECTION (1/2)

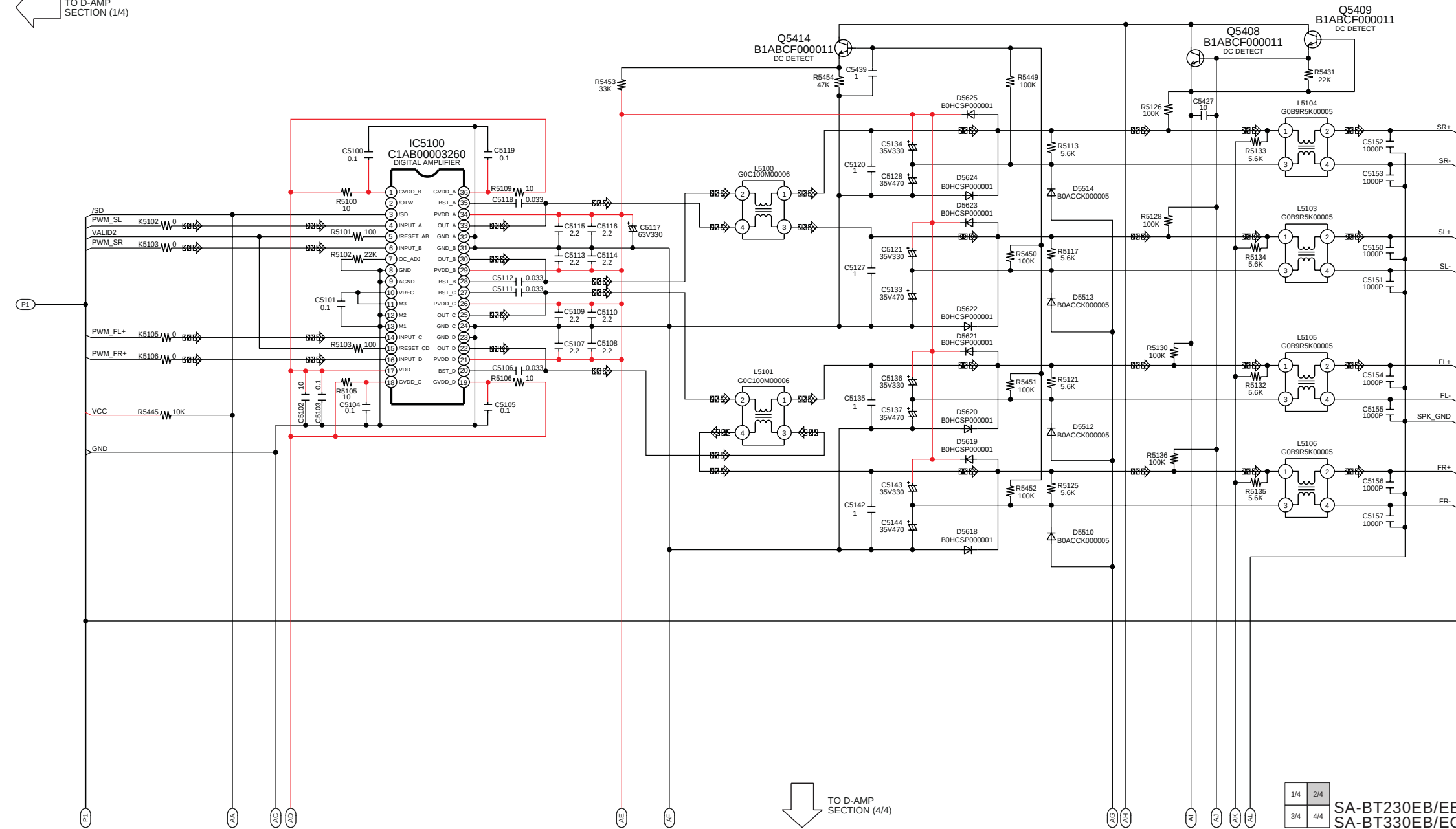


17.3. D-Amp Circuit



C D-AMP CIRCUIT

← TO D-AMP
SECTION (1/4)

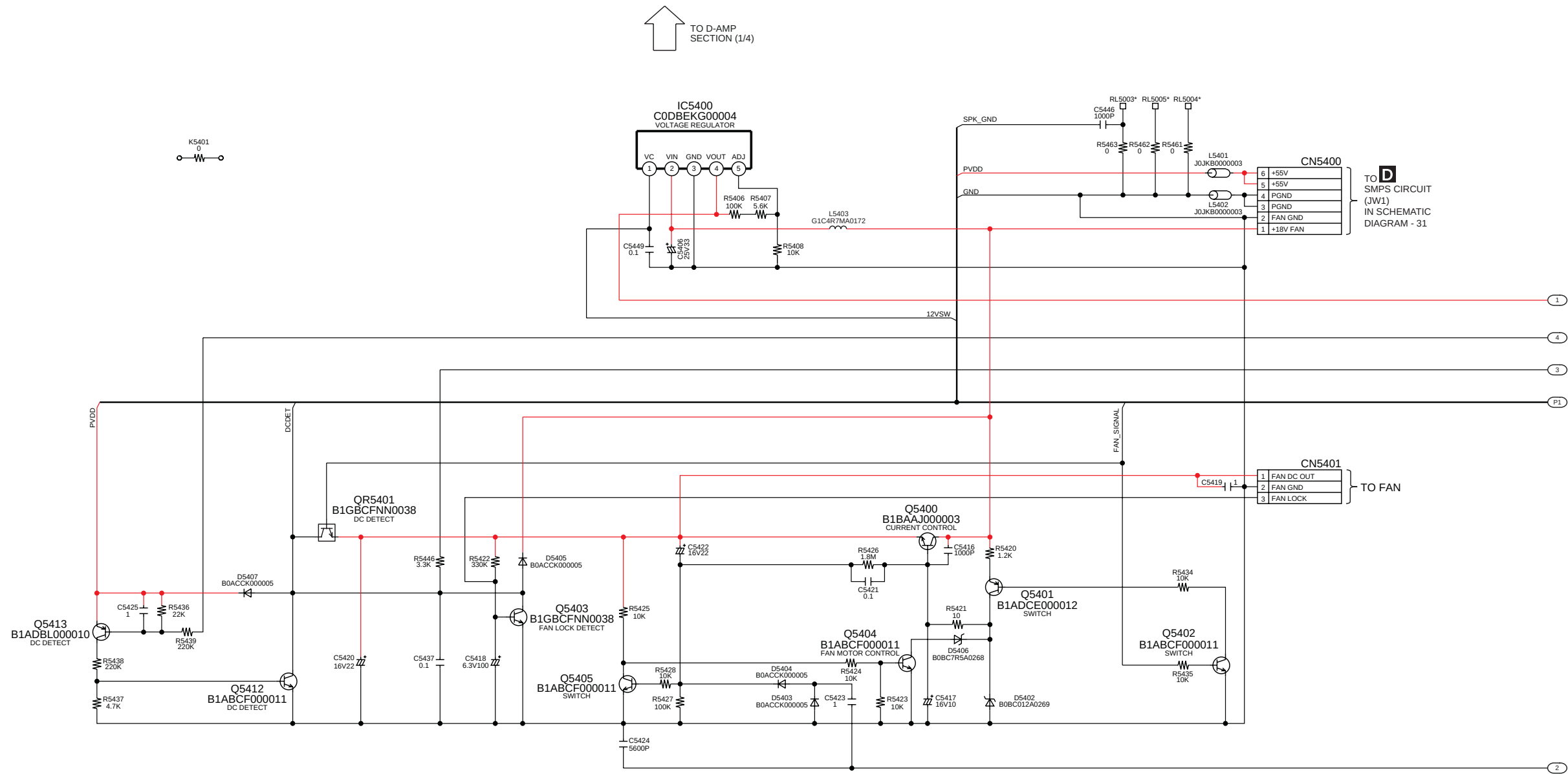


SA-BT230EB/EE/EG/EP,
SA-BT330EB/EG/EP D-AMP CIRCUIT

SCHEMATIC DIAGRAM - 29

C D-AMP CIRCUIT

— : +B SIGNAL LINE  : AUDIO OUTPUT SIGNAL LINE

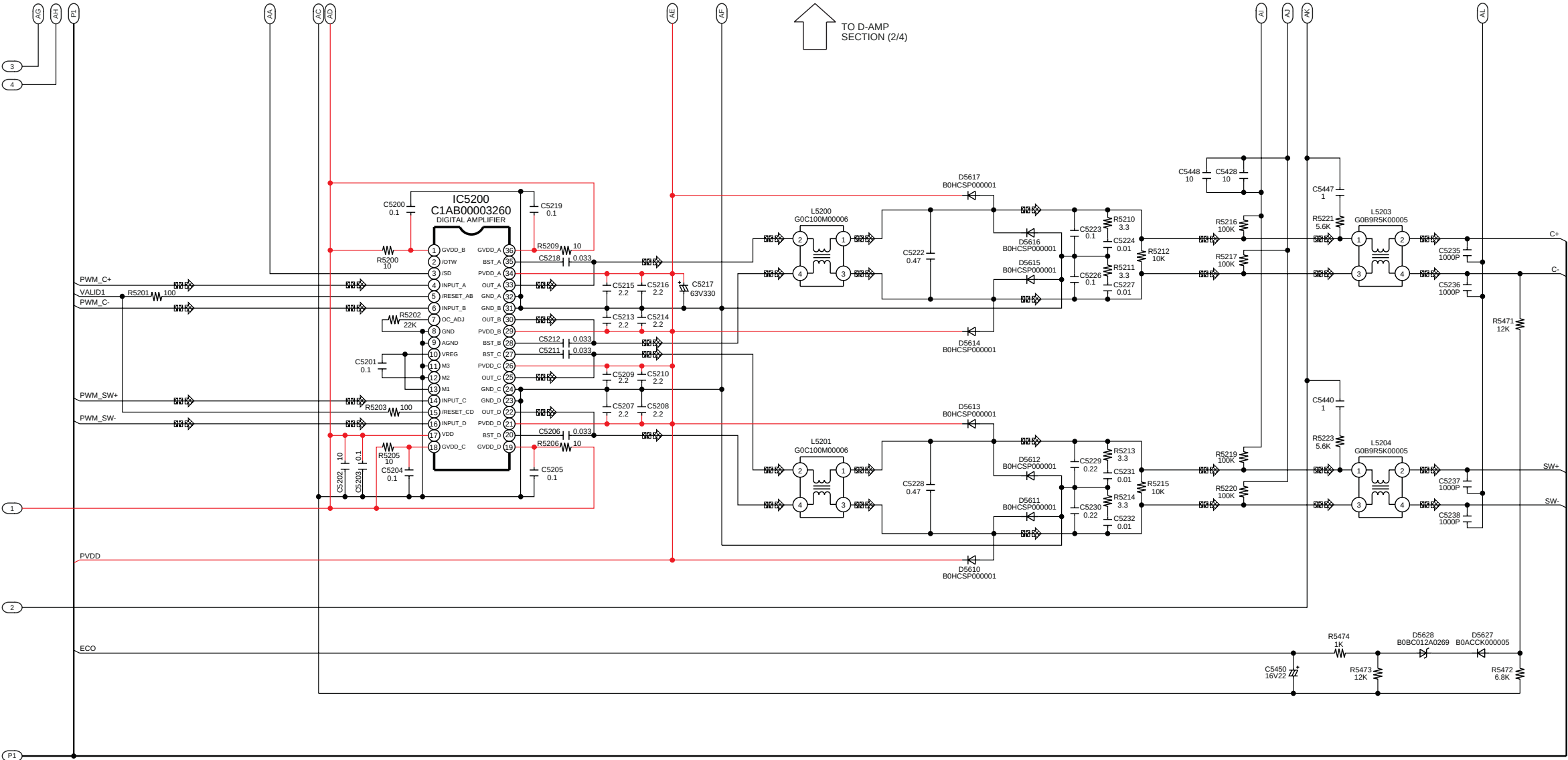


1/4 2/4
3/4 4/4 SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP D-AMP CIRCUIT

SCHEMATIC DIAGRAM - 30

C D-AMP CIRCUIT

— : +B SIGNAL LINE  : AUDIO OUTPUT SIGNAL LINE

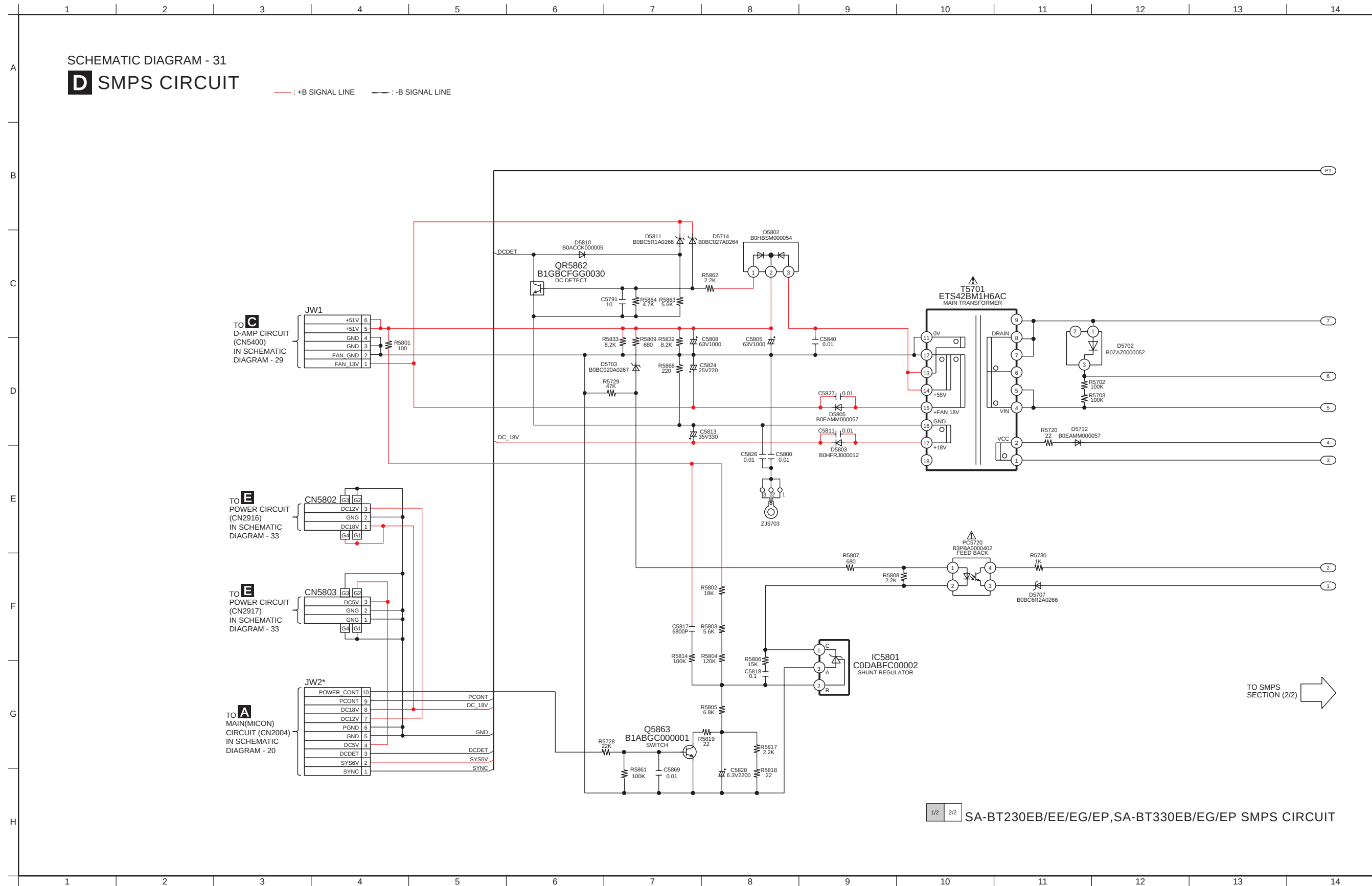


TO D-AMP SECTION (3/4)

1/4	2/4
3/4	4/4

SA-BT230EB/EE/EG/EP,SA-BT330EB/EG/EP D-AMP CIRCUIT

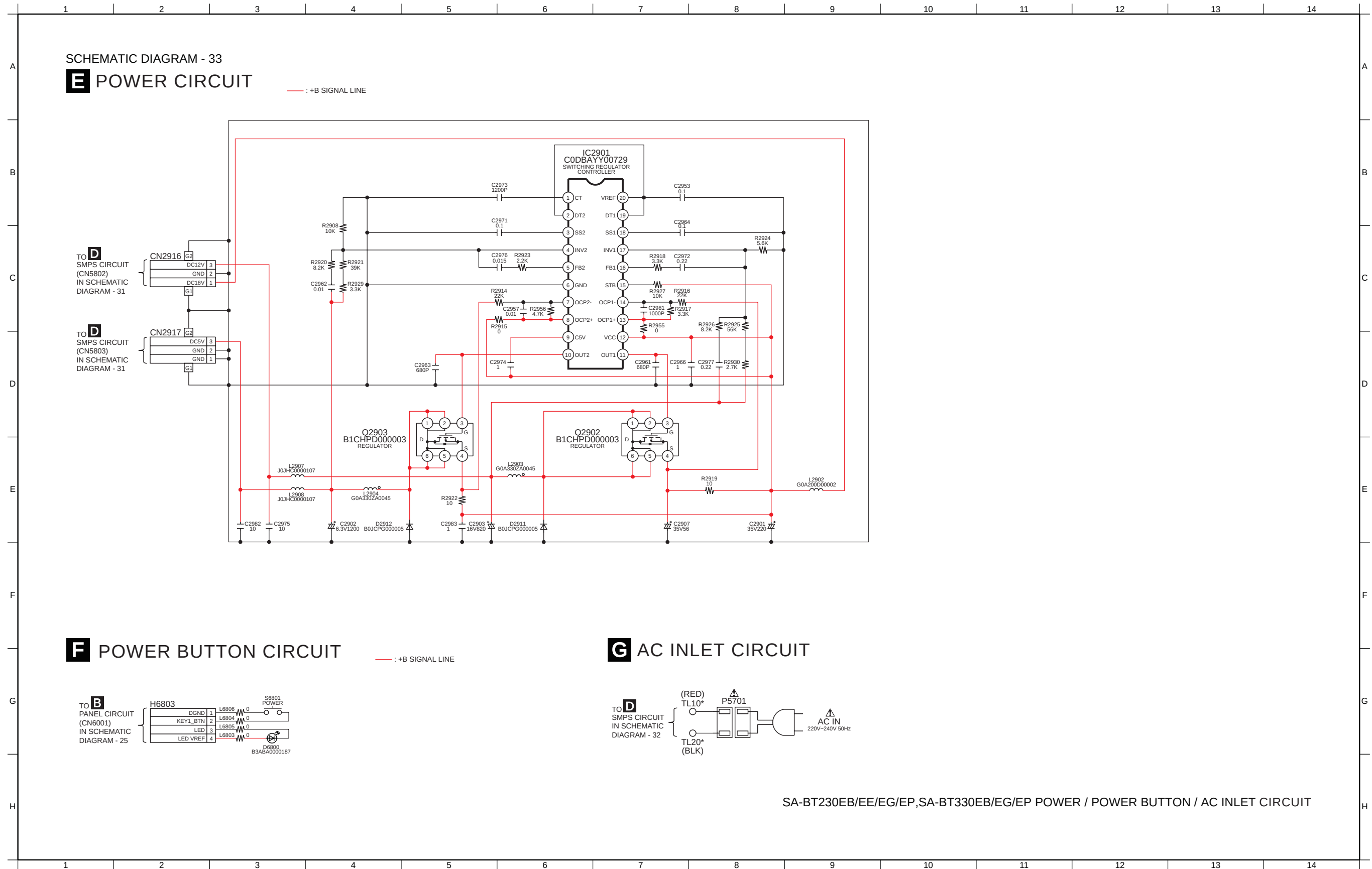
17.4. SMPS Circuit



SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP SMPS CIRCUIT

1/2 2/2

17.5. Power, Power Button & AC Inlet Circuit

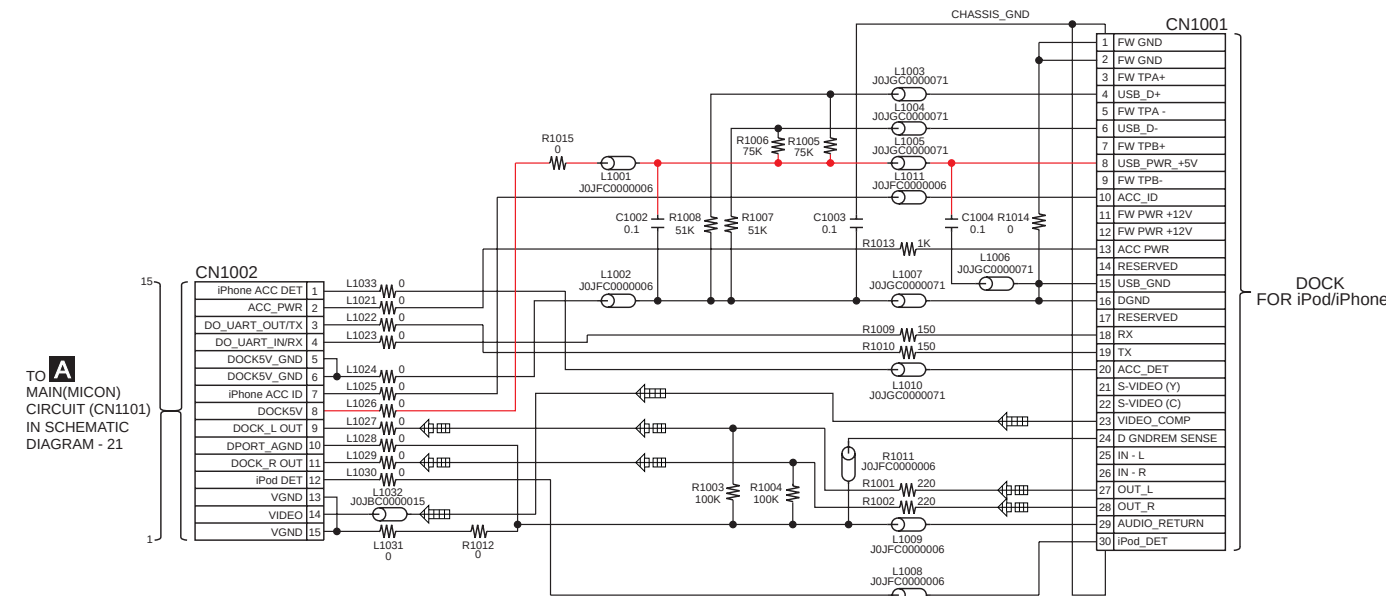


17.6. iPod/iPhone, Optical In & Wireless Adapter Circuit

SCHEMATIC DIAGRAM - 34

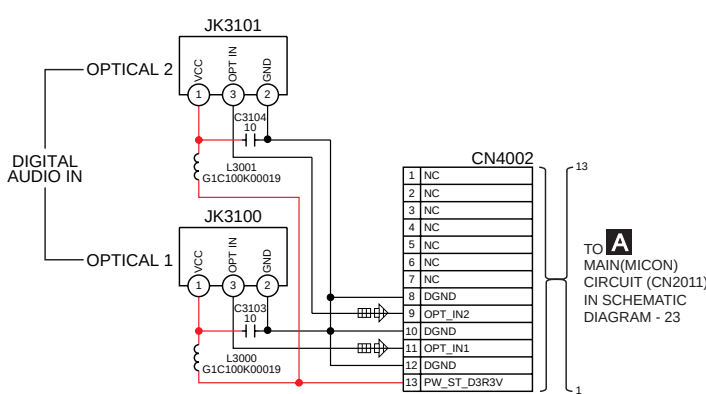
H iPod/iPhone CIRCUIT

—: +B SIGNAL LINE : iPod/iPhone AUDIO INPUT SIGNAL LINE : iPod/iPhone VIDEO INPUT SIGNAL LINE



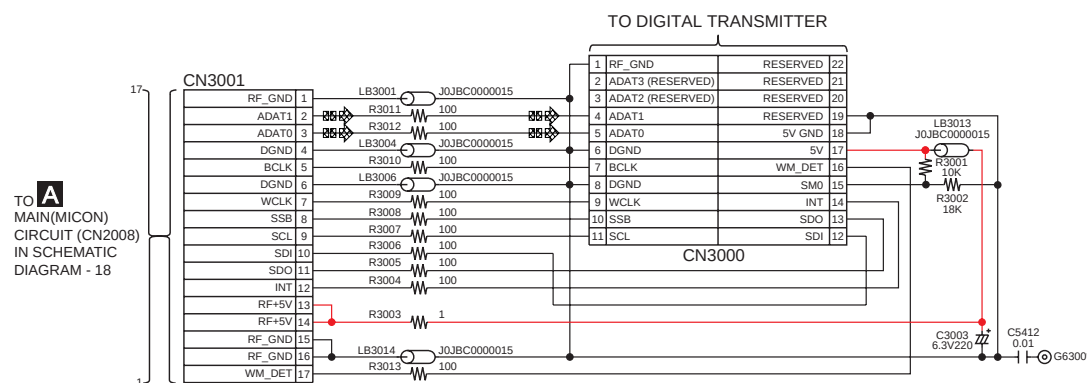
I OPTICAL IN CIRCUIT

—: +B SIGNAL LINE : OPTICAL AUDIO INPUT SIGNAL LINE



J WIRELESS ADAPTER CIRCUIT

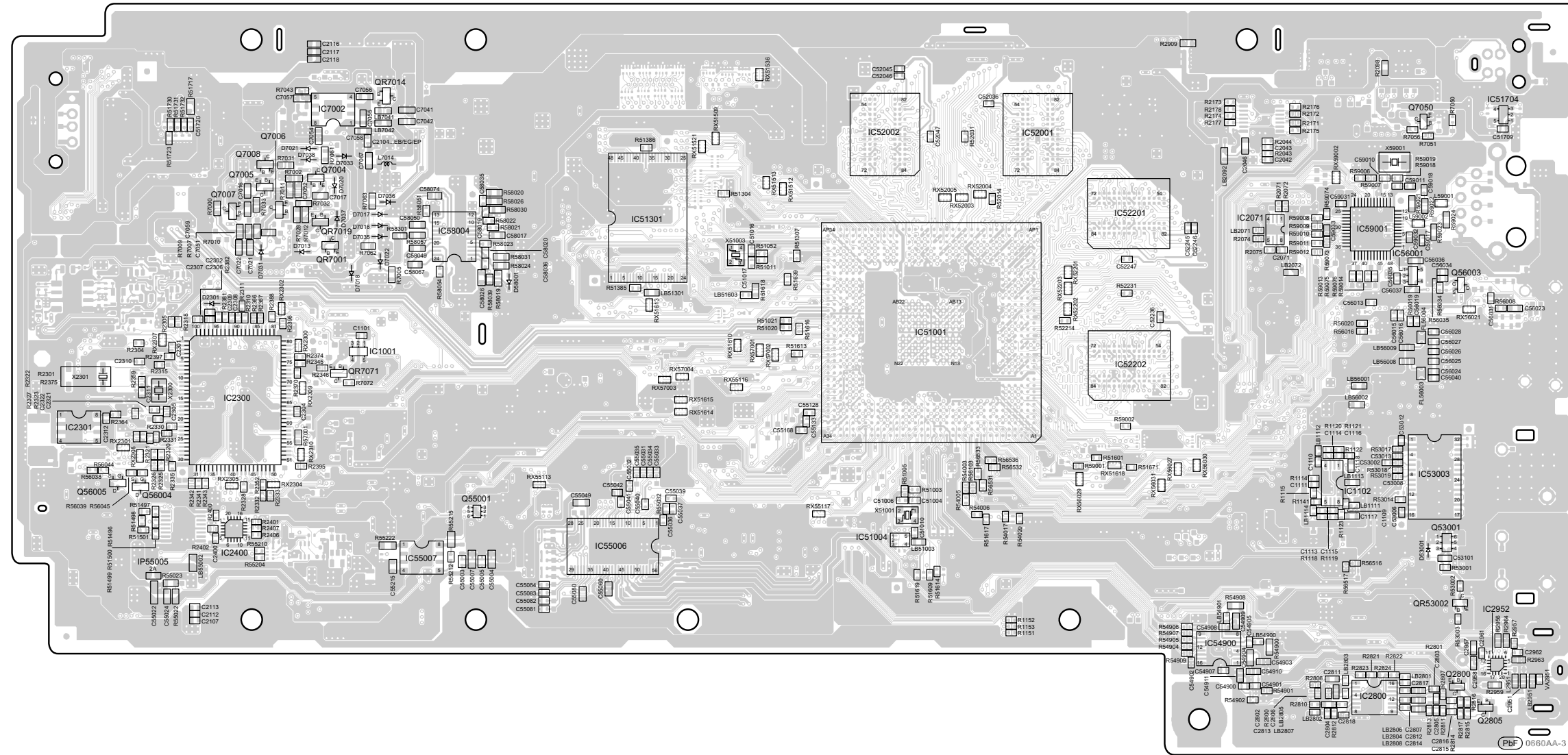
—: +B SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE



SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP iPod/iPhone / OPTICAL IN / WIRELESS ADAPTER CIRCUIT

18.1. Main P.C.B.

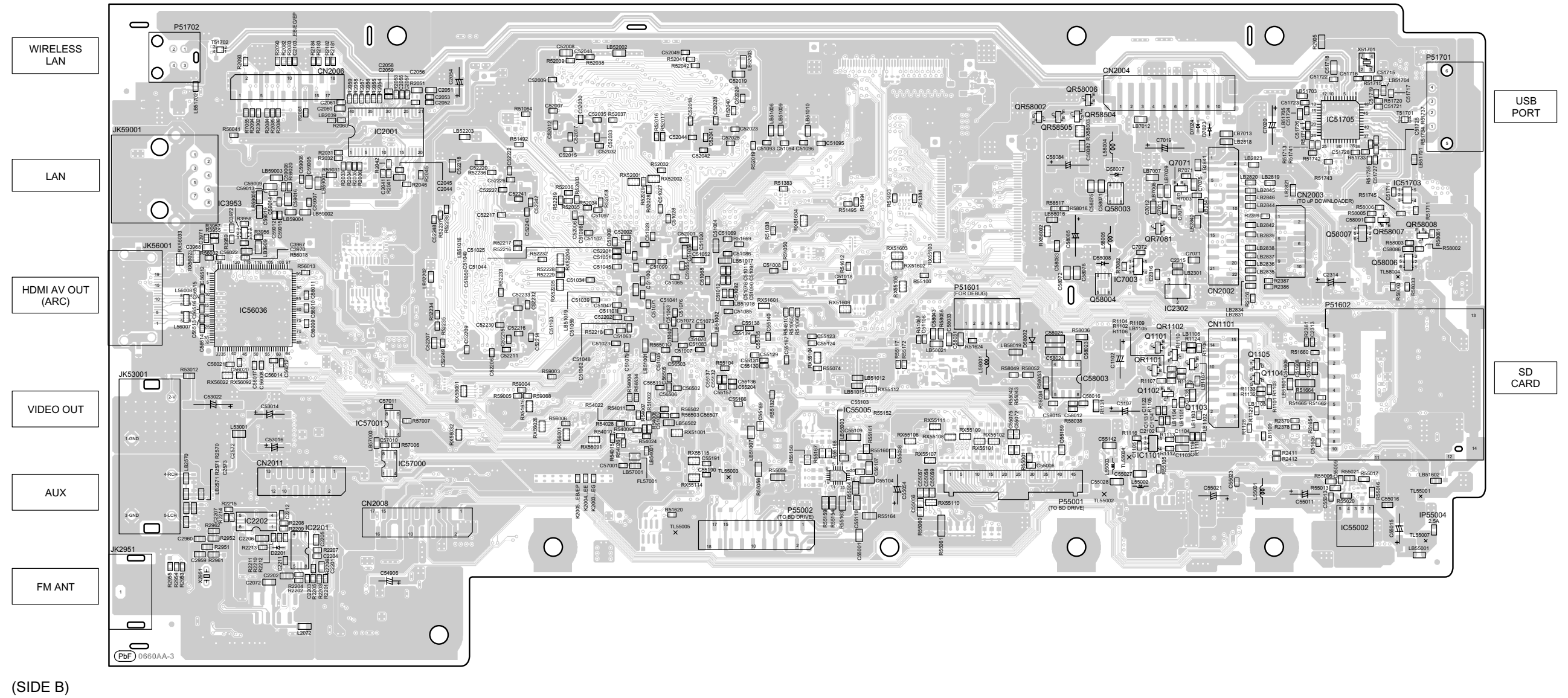
A MAIN P.C.B. (RFKNBT230EBA...BT230EB) (RFKNBT230EPA...BT230EP) (RFKNBT330EPA...BT330EP)
(RFKNBT230EEA...BT230EE) (RFKNBT330EBA...BT330EB)
(RFKNBT230EGA...BT230EG) (RFKNBT330EGA...BT330EG)



(SIDE A)

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
MAIN P.C.B.

A MAIN P.C.B. (RFKNBT230EBA...BT230EB) (RFKNBT230EPA...BT230EP) (RFKNBT330EPA...BT330EP)
 (RFKNBT230EEA...BT230EE) (RFKNBT330EBA...BT330EB)
 (RFKNBT230EGA...BT230EG) (RFKNBT330EGA...BT330EG)



A vertical scale with labels A, B, C, D, E, F, G, H from bottom to top.

[illegible]

Q2903

R2922

D2912

C2942

C2963

C2983

C2975

C2961

Q2902

D2911

PbF 08681AD

P5701

W104
W103
W102
W101

BLK TL20"

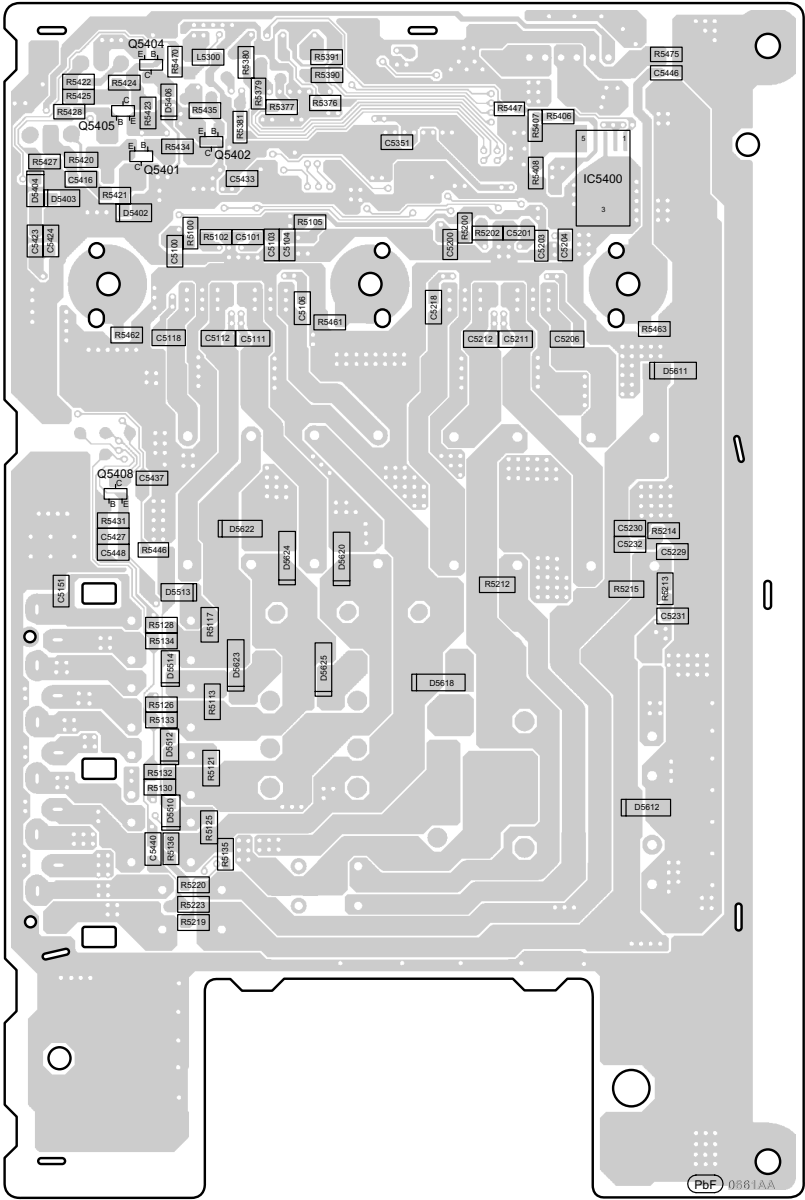
RED TL10"

PdF 06628C-B

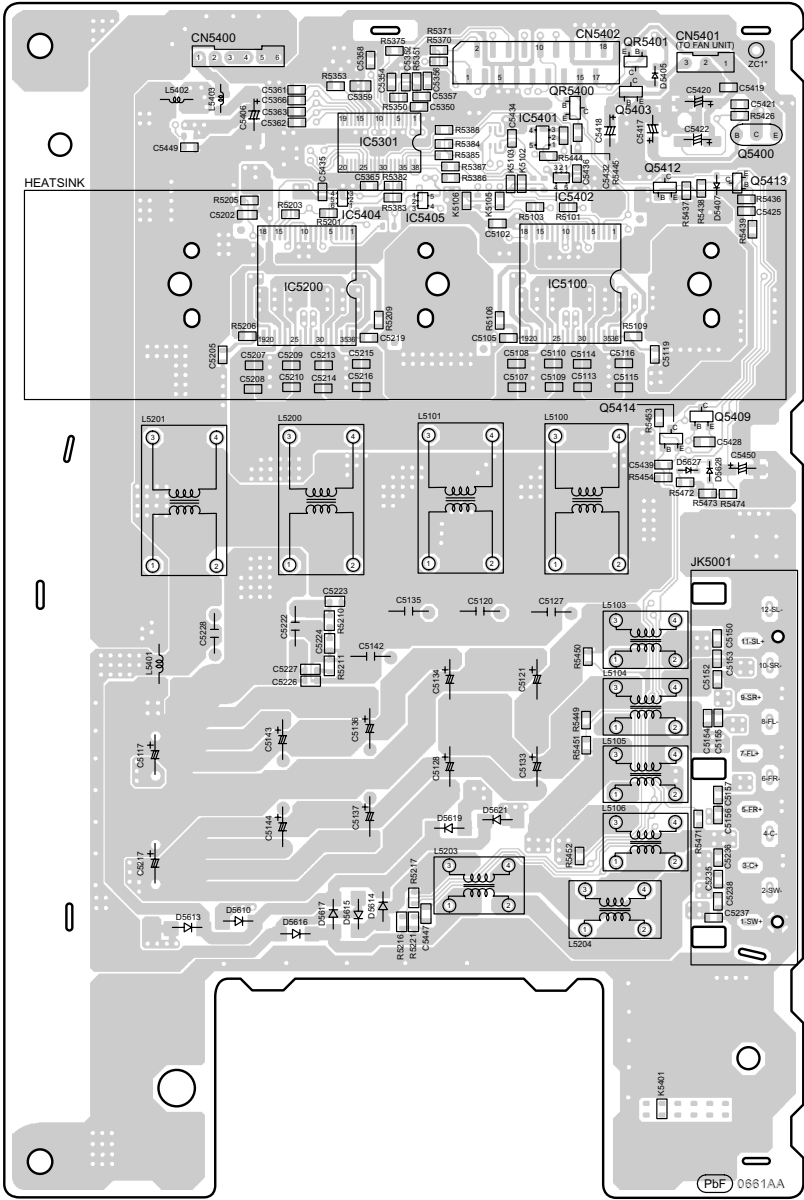
SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
PANEL / POWER / POWER BUTTON / AC INLET P.C.B.

18.3. D-Amp P.C.B.

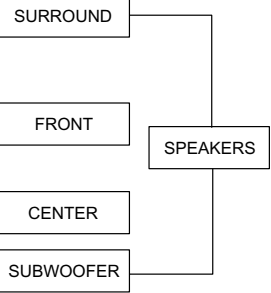
C D-AMP P.C.B. (REPX0799AA)



(SIDE A)



(SIDE B)

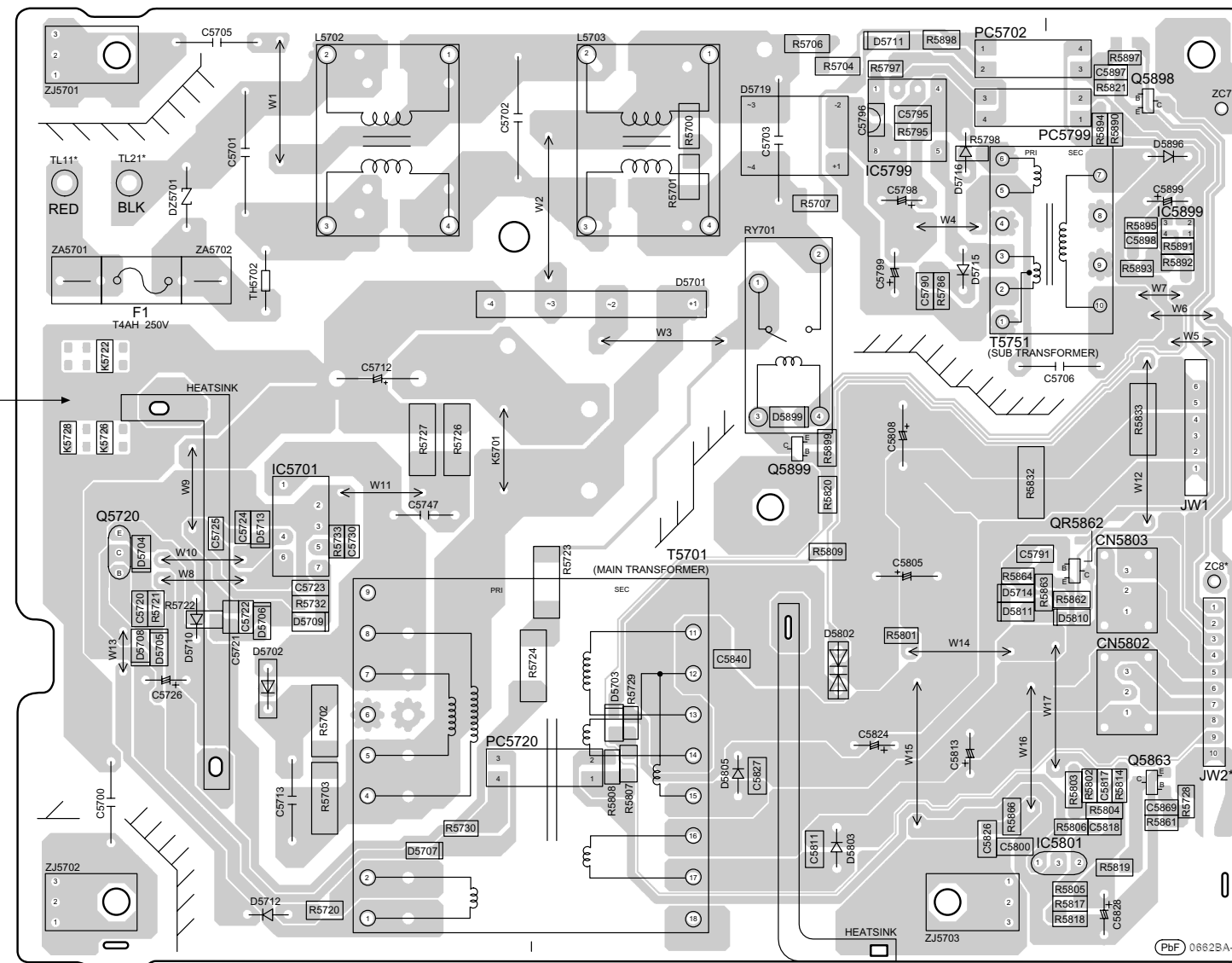


NOTE: " " REF IS FOR INDICATION ONLY.

SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
D-AMP P.C.B.

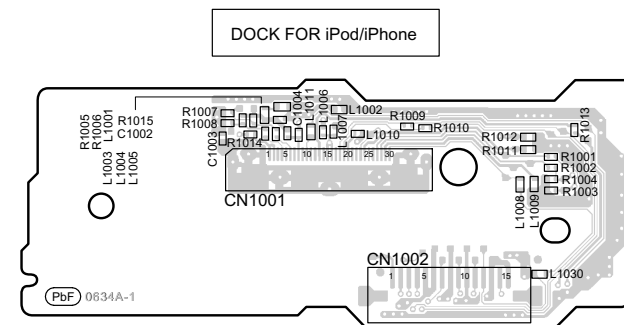
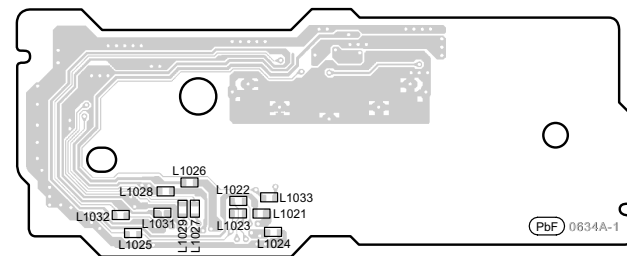
A vertical number line with tick marks labeled A, B, C, D, E, F, G, and H from bottom to top.

CAUTION
RISK OF ELECTRIC SHOCK
AC VOLTAGE LINE.
PLEASE DO NOT TOUCH THIS P.C.B

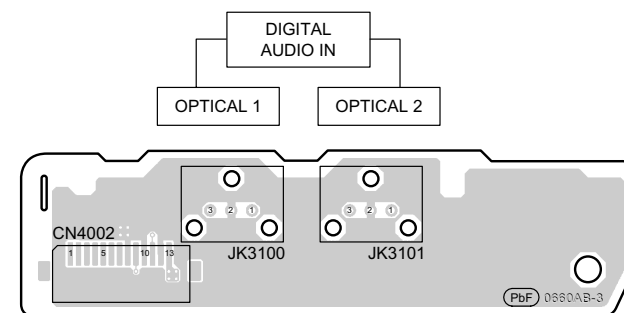
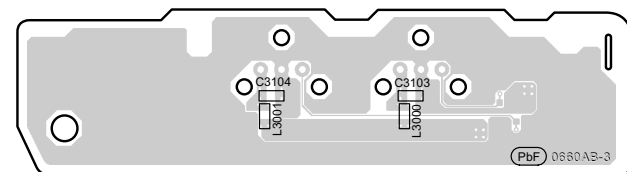
SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
SMPS P.C.B.

18.5. iPod/iPhone, Optical In & Wireless Adapter P.C.B.

H iPod/iPhone P.C.B. (REPX0790B)

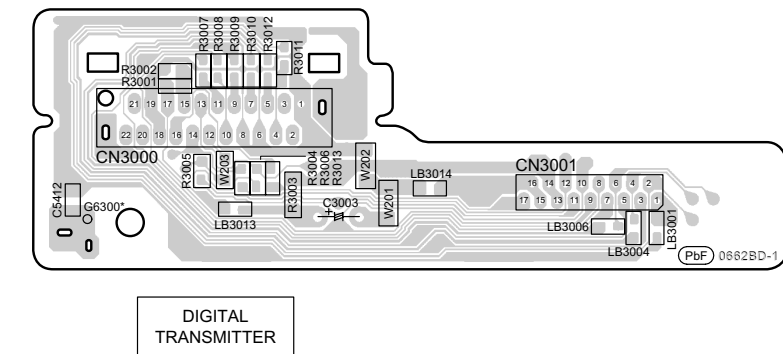


I OPTICAL IN P.C.B. (REPX0793CB...EG)
(REPX0793DB...EE)
(REPX0793EB...EB/EP)



NOTE: " * " REF IS FOR INDICATION ONLY.

J WIRELESS ADAPTER P.C.B. (REPX0803ED)



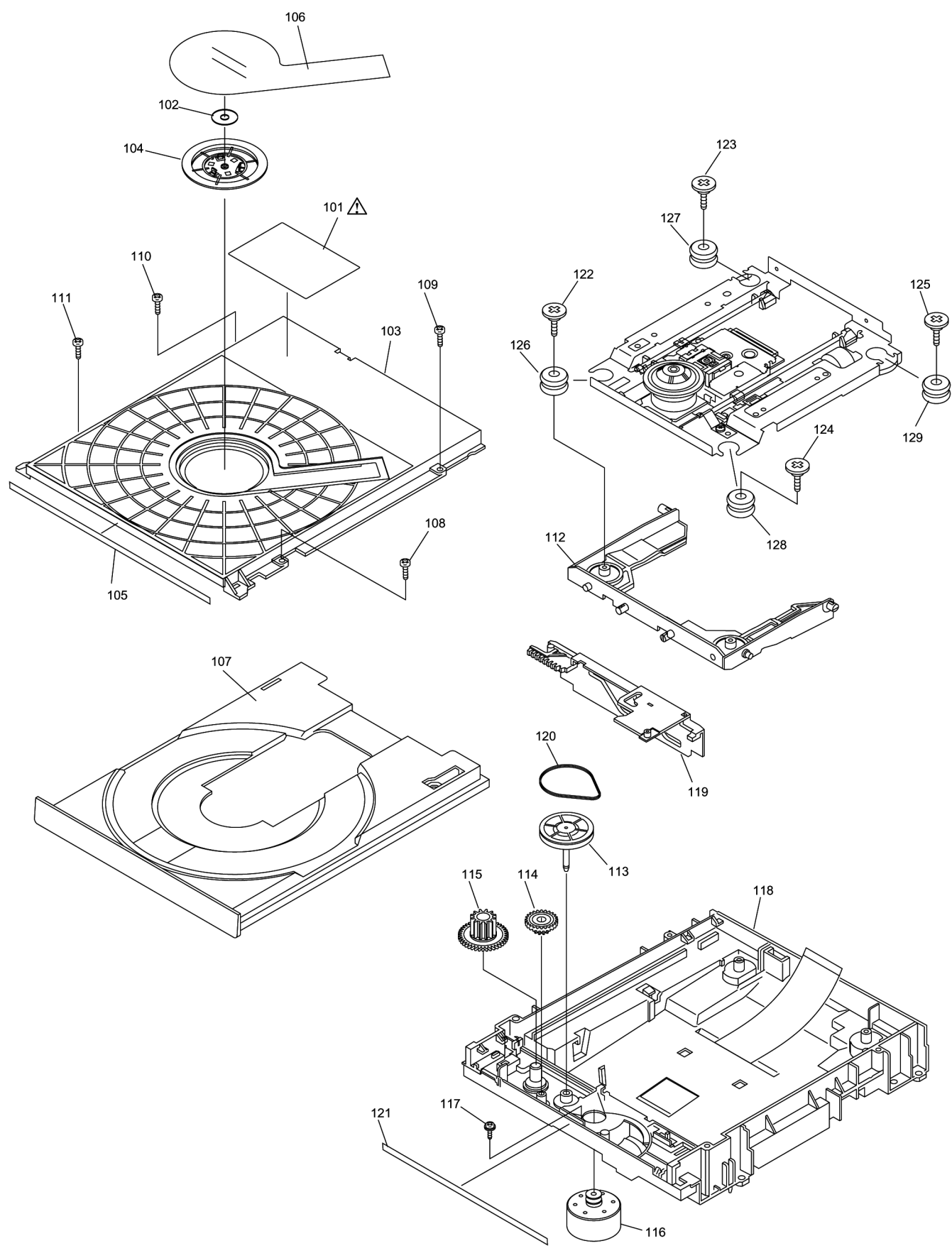
SA-BT230EB/EE/EG/EP, SA-BT330EB/EG/EP
iPod/iPhone / OPTICAL IN / WIRELESS ADAPTER P.C.B.

19 Terminal Function of ICs

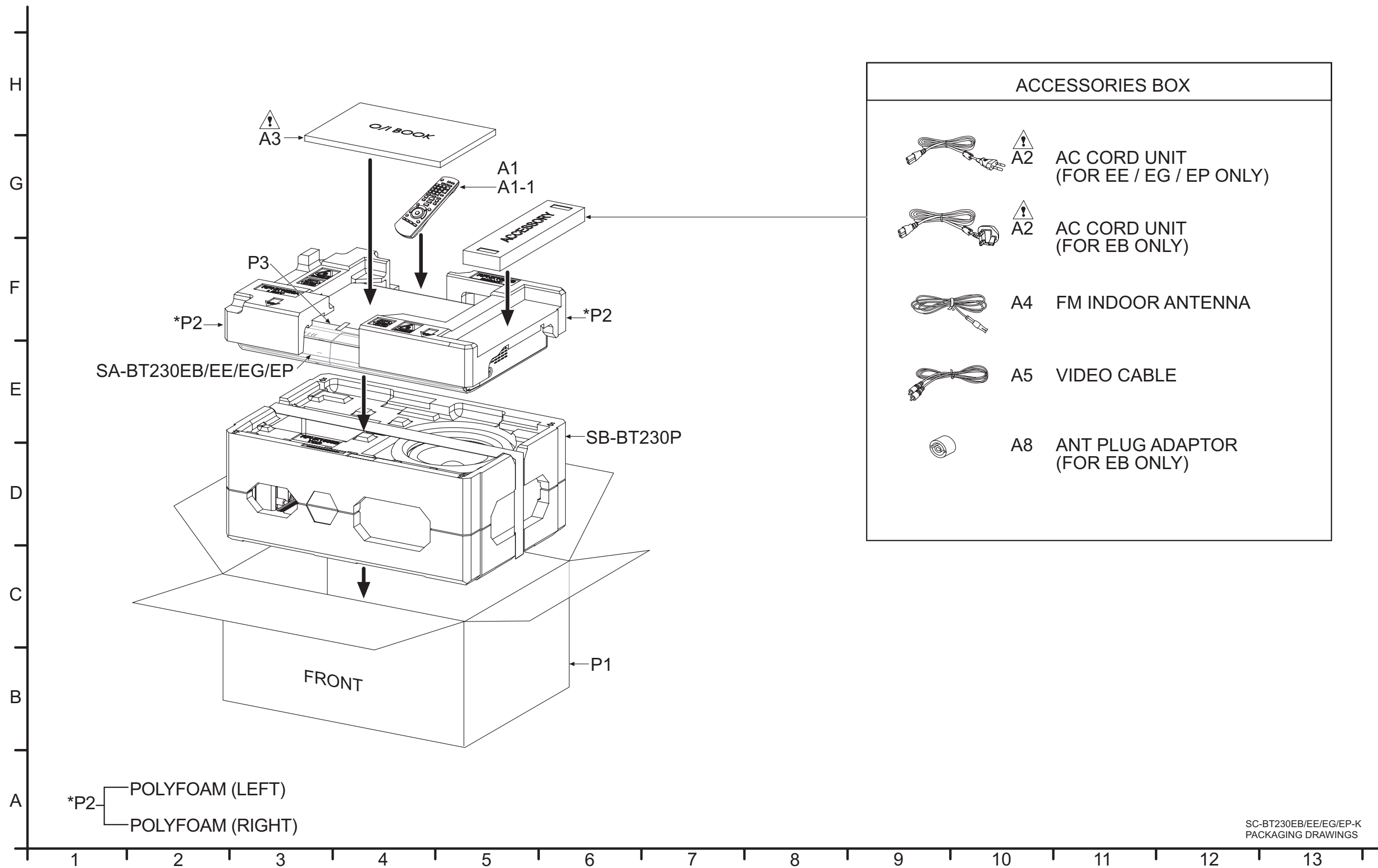
19.1. IC6001(C0HBB0000057): IC FL Driver

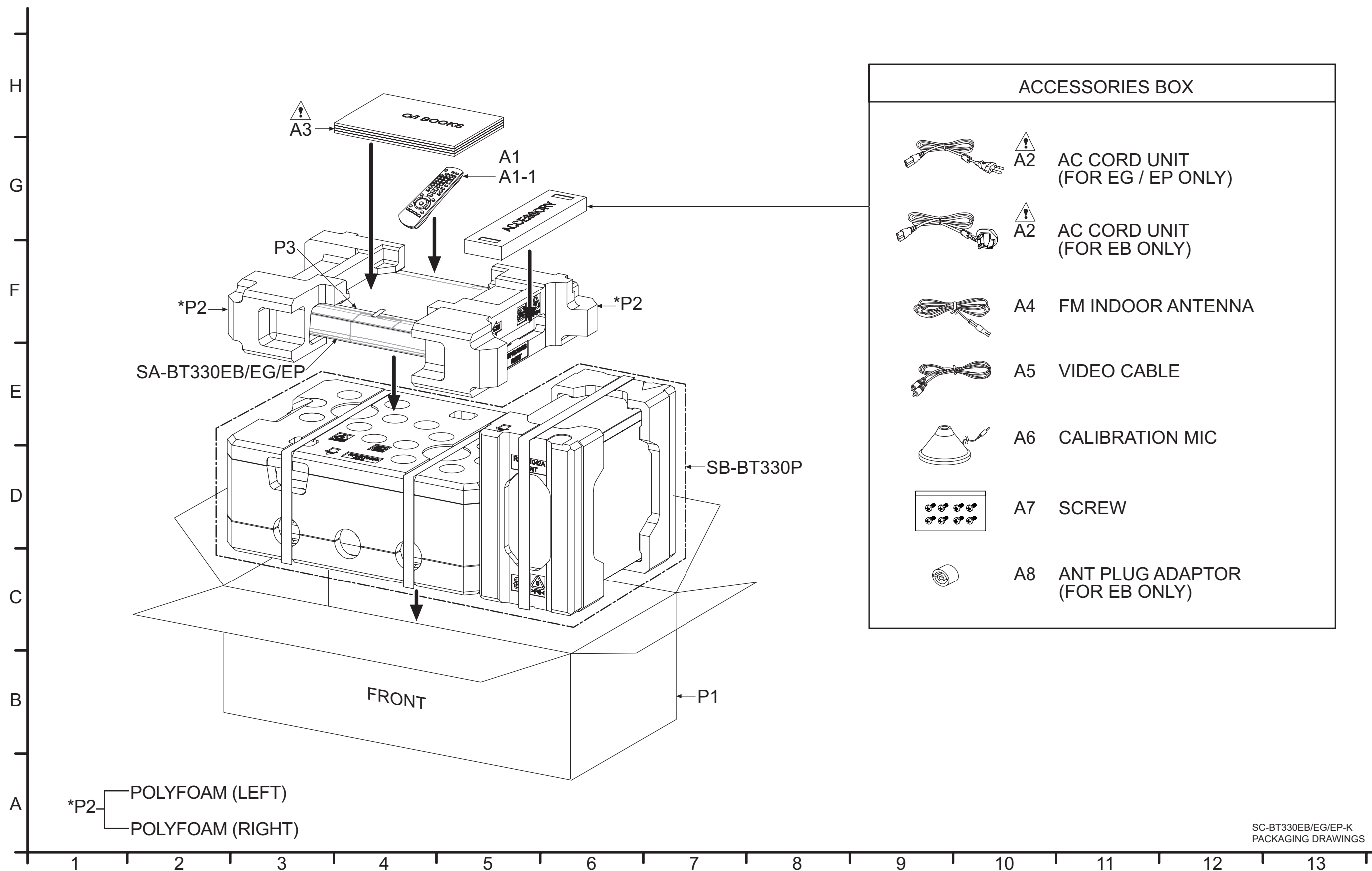
Pin No.	Terminal Name	I/O	Function
1	NC	O	No Connection
2	NC	-	No Connection
3	NC	-	No Connection
4	NC	-	No Connection
5	OSC	I	Oscillator Input
6	NC	-	No Connection
7	DIN	I	Data Input
8	CLK	I	Clock Input
9	STB	I	Serial Interface Strobe
10	NC	-	No Connection
11	NC	-	No Connection
12	GND	-	GND
13	VCC	-	Power Supply (+5V)
14	P18	O	Segment Output 18
15	P17	O	Segment Output 17
16	P16	O	Segment Output 16
17	P15	O	Segment Output 15
18	P14	O	Segment Output 14
19	P13	O	Segment Output 13
20	P12	O	Segment Output 12
21	P11	O	Segment Output 11
22	P10	O	Segment Output 10
23	P9	O	Segment Output 9
24	P8	O	Segment Output 8
25	P7	O	Segment Output 7
26	P6	O	Segment Output 6
27	P5	O	Segment Output 5
28	P4	O	Segment Output 4
29	P3	O	Segment Output 3
30	-VP	-	Voltage Supply
31	P2	O	Segment Output 2
32	P1	O	Segment Output 1
33	G1	O	Grid Segment Output 1
34	G2	O	Grid Segment Output 2
35	G3	O	Grid Segment Output 3
36	G4	O	Grid Segment Output 4
37	G5	O	Grid Segment Output5
38	G6	O	Grid Segment Output 6
39	G7	O	Grid Segment Output7
40	G8	O	Grid Segment Output 8
41	G9	O	Grid Segment Output 9
42	G10	O	Grid Segment Output 10
43	VCC	-	Voltage Supply (+5V)
44	GND	-	GND

20.1.2. Mechanism BD Drive



20.1.3. Packaging





SC-BT330EB/EG/EP-K
PACKAGING DRAWINGS

20.1.4. Mechanical Replacement Part List

Important Safety Notice

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

RTL (Retention Time Limited)

Note: The marking (RTL) indicates that the Retention Time is Limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

Note:

- When replacing any of these components, be sure to use only manufacturer's specified parts shown in the replacement part list.
- The parenthesized indications on the Remarks column specify the destination & product color (Refer to the cover page for the information).
- Parts without these indications shall be used for all areas.
- This product uses a laser diode. Refer to "Precaution of Laser Diode".
- All parts mentioned are supplied by PAVCSG unless indicated likewise.
- Parts mentioned [SPG] in the Remarks column are supplied by PAVC-CSG.
- Reference for O/I book languages are as follows:

Ar:	Arabic	Du:	Dutch	It:	Italian	Sp:	Spanish
Cf:	Canadian French	En:	English	Ko:	Korean	S:	Swedish
Cz:	Czech	Fr:	French	Po:	Polish	Co:	Traditional Chinese
Da:	Danish	Ge:	German	Ru:	Russian	Cn:	Simplified Chinese
Pe:	Persian	Ur:	Ukraine	Pr:	Portuguese		

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
			CABINET AND CHASSIS		
	1	L6FAYYYH0079	FAN UNIT	1	
Δ	2	REXX1030	1P BLACK WIRE (AC-SMPS)	1	
Δ	3	REXX1031	1P RED WIRE (AC-SMPS)	1	
	4	REXX1036	6P CABLE WIRE (DAMP-SMPS)	1	
	5	REXX1037	10P CABLE WIRE (MAIN-SMPS)	1	
	6	REZ1998	FFC (MAIN - BD)	1	
	7	REZ2006	18P FFC WIRELESS - DIGITAL	1	
	8	RGKX1003-K	CRADLE LID	1	
	9	REZ1997	FFC (MAIN - PANEL)	1	
	10	RMXX1008	WIRELESS GROUND SPRING	1	
	11	VHD1224-1	SCREW	2	
	12	RYF0894-K	FL LID UNIT	1	BT230
	12	RYF0894A-K	FL LID UNIT	1	BT330
	12-1	RMG0796-K	LID CUSHION	3	
	13	RFKGBT230EBK	FRONT PANEL ASS'Y	1	BT230EB /EG/EP
	13	RFKGBT230EEK	FRONT PANEL ASS'Y	1	BT230EE
	13	RFKGBT330EBK	FRONT PANEL ASS'Y	1	BT330
	14	RGUX1001-K	OPEN CLOSE BUTTON	1	
	15	RGUX1003-K	POWER BUTTON	1	
	16	RGUX1005-K	PLAY STOP BUTTON	1	
	17	RGUX1006-K1	SELECTOR BUTTON	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	18	RYF0893-K	TRAY LID UNIT	1	
	18-1	RMG0796-K	LID CUSHION	2	
	19	RMXX1003-K	TRANSMITTER HOLDER	1	
Δ	20	RGRX1001K-A1	REAR PANEL	1	BT230EE
Δ	20	RGRX1001M-G2	REAR PANEL	1	BT230EB /EG
Δ	20	RGRX1001M-P	REAR PANEL	1	BT230EP
Δ	20	RGRX1001M-H2	REAR PANEL	1	BT330EB /EG
Δ	20	RGRX1001M-Q	REAR PANEL	1	BT330EP
	21	RHD26046	SCREW	12	
	22	RHD30102-1	SCREW	4	
	23	RHD30119-S	SCREW	17	
	24	RHD301003	SCREW	16	
	25	RSC0854	RADIATOR SHEET B	1	
	26	RXQX1042	MAIN PCB SHIELD PLATE	1	
	27	RXQX1026	TOP CABINET INSULATED SHEET	1	
	28	RXQX1011-1	BOTTOM CHASSIS ASSY	1	
	28-1	RKAX0028-K	LEG CUSHION	4	
	28-2	RMNX1026	PCB SUPPORT	1	
	28-3	RXQX1013	SMPS BOTTOM PC SHEET UNIT	1	
Δ	29	RKMX1002-K2	TOP CABINET	1	
	30	RMXX1012	DVD LID SPRING	1	
	31	RMXX1002	CRADLE LID SPRING	1	
	32	RMXX1003	FRONT LID SPRING PLATE	1	
	33	RMGX1002	CRADLE LID DAMPER	2	
	34	RMNX0329	FL HOLDER	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	35	RMNX1025	WIRE HOLDER	1	
	36	RMQX1037-L	BOTTOM GASKET	1	
	37	RMQX1006-K	FAN COVER	1	
	38	RMVX1003-K	CRADLE KEY	1	
	39	RMVX1004E-K	CRADLE COVER	1	BT230
	39	RMVX1004F-K	CRADLE COVER	1	BT330
	40	RSCX1014-1	D-AMP PCB SHIELD	1	
	41	RHD30007-K2J	SCREW	2	
	42	RWJ1104390XX	4P CABLE WIRE (POWER BTN-PANEL)	1	
	43	RHDX261002	SCREW	3	
	45	RMZX1011	HEAT SINK SPACER	3	
	47	REEX1116	18P FFC (MAIN-DAMP)	1	
	48	RSC0839	RADIATOR SHEET A	1	
△	49	RFKNBT230EBA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT230EB
△	49	RFKNBT230EGA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT230EG
△	49	RFKNBT230EPA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT230EP
△	49	RFKNBT230EEA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT230EE
△	49	RFKNBT330EGA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT330EG
△	49	RFKNBT330EBA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT330EB
△	49	RFKNBT330EPA	BD DRIVE / MAIN P.C.B ASS'Y	1	BT330EP
	50	REEX1114	15P FFC (iPod-MAIN)	1	
	51	REZ2014	13P FFC (MAIN-OPTICAL IN)	1	
	52	RXQ1863-1	FRONT SHIELD PLATE UNIT	1	
	53	RSQ0111	TOP GASKET	1	
	54	RSQ0112	GASKET	1	
	55	RMA2265	GASKET HOLDER	1	
	56	RMN0941	AC INLET HOLDER	1	
	57	RMCX1004	GROUNDING SPRING	1	BT330EG/EP
	58	RMNX1031	MAIN PC SHEET	2	
	101	VQL1V70-J	LASER CAUTION LABEL	1	
	102	VMA0V86	YOKE	1	
	103	VMD5751	UPPER BASE	1	
	104	VMD5752	CLAMPER	1	
	105	VMT1876-J	DUST COVER A	1	
	106	VMZ3737-J	CLAMP COVER	1	
	107	VXA8619	TRAY ASS'Y	1	
	108	XTV26+10GFJ	SCREW	1	
	109	XTV26+10GFJ	SCREW	1	
	110	XTV26+10GFJ	SCREW	1	
	111	XTV26+10GFJ	SCREW	1	
	112	VMD5753	MID BASE	1	
	113	VDG1713	PULLEY GEAR	1	
	114	VDG1714	MID BASE	1	
	115	VDG1715	DRIVER GEAR	1	
	116	VEM0867	LOADING MOTOR U	1	
	117	VHD1653-1	SCREW	1	
	118	VMD5748-1	MECHA CHASSIS	1	
	119	VMD5749	SLIDE CAM	1	
	120	VMG1809	BELT	1	
	121	VMT1877-J	DUST COVER B	1	
	122	VHD1518-1	SCREW	1	
	123	VHD1518-1	SCREW	1	
	124	VHD1518-1	SCREW	1	
	125	VHD1518-1	SCREW	1	
	126	VMG1883	DAMPER	1	
	127	VMG1883	DAMPER	1	
	128	VMG1883	DAMPER	1	
	129	VMG1883	DAMPER	1	
			PACKING MATERIALS		

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	P1	RPGX3176	PACKING CASE	1	BT230EG
	P1	RPGX3177	PACKING CASE	1	BT230EB
	P1	RPGX3178	PACKING CASE	1	BT230EP
	P1	RPGX3179	PACKING CASE	1	BT230EE
	P1	RPGX3187	PACKING CASE	1	BT330EG
	P1	RPGX3188	PACKING CASE	1	BT330EB
	P1	RPGX3189	PACKING CASE	1	BT330EP
	P2	RPNX1026	POLYFOAM	1	BT230
	P2	RPNX1043	POLYFOAM	1	BT330
	P3	RPF1012	MIRAMAT SHEET	1	
			ACCESSORIES		
	A1	N2QAKB000090	REMOTE CONTROL	1	
	A1-1	RKK-PT470EBK	R/C BATTERY COVER	1	
△	A2	RFAX0024	AC CORD UNIT	1	EE/EG/EP
△	A2	RFAX1022	AC CORD UNIT	1	EB
△	A3	VQT2Q49	O/I BOOK (Ge)	1	EG
△	A3	VQT2Q50	O/I BOOK (It/Fr)	1	EG
△	A3	VQT2Q51	O/I BOOK (Sp/Du)	1	EG
△	A3	VQT2Q52	O/I BOOK (En)	1	EB/EP
△	A3	VQT2Q53	O/I BOOK (Po/Cz)	1	EP
△	A3	VQT2Q54	O/I BOOK (Ru/Uk)	1	BT230EE
△	A3	VQT2Q65	O/I BOOK (Da/Sw)	1	EG
△	A3	VQT2Q66	O/I BOOK (Hu)	1	EP
	A4	RSAX0002	FM INDOOR ANTENNA	1	
	A5	K2KA2BA00001	VIDEO CABLE	1	BT330EB/EG/EP
	A6	L0CBAY000051	CALIBRATION MIC	1	BT330EB/EG/EP
	A7	XTN5+10FFJK	SCREW	8	
	A8	K1YZ02000013	ANTENNA PLUG ADAPTER	1	

20.2. Electrical Replacement Part List

Important Safety Notice

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

RTL (Retention Time Limited)

Note: The marking (RTL) indicates that the Retention Time is Limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

Note:

- When replacing any of these components, be sure to use only manufacturer's specified parts shown in the replacement part list.
- The parenthesized indications on the Remarks column specify the destination & product color (Refer to the cover page for the information).
- Parts without these indications shall be used for all areas.
- This product uses a laser diode. Refer to "Precaution of Laser Diode".
- Capacitor value are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F=Farads.
- Resistance values are in ohms, unless specified otherwise, 1K=1000 (OHM).
- All parts mentioned are supplied by PAVCSG unless indicated likewise.
- Parts mentioned [SPG] in the Remarks column are supplied by PAVC-CSG.

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
			PRINTED CIRCUIT BOARDS		
	PCB1	REPX0790B	iPod/iPhone P.C.B	1	
Δ	PCB2	RFXNBT230EBA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT230EB
Δ	PCB2	RFXNBT230EGA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT230EG
Δ	PCB2	RFXNBT230EEA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT230EE
Δ	PCB2	RFXNBT230EPA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT230EP
Δ	PCB2	RFXNBT330EBA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT330EB
Δ	PCB2	RFXNBT330EGA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT330EG
Δ	PCB2	RFXNBT330EPA	BD DRIVE/MAIN P.C.B. ASS'Y	1	BT330EP
	PCB3	REPX0793CB	OPTICAL P.C.B	1	EG
	PCB3	REPX0793DB	OPTICAL P.C.B	1	EE
	PCB3	REPX0793EB	OPTICAL P.C.B	1	EB/EP
	PCB4	REPX0799AA	D-AMP P.C.B	1	(RTL)
	PCB5	REPX0799AB	POWER P.C.B	1	(RTL)
Δ	PCB6	REPX0803EA	SMPS P.C.B	1	(RTL)
Δ	PCB7	REPX0803EA	AC INLET P.C.B	1	(RTL)
Δ	PCB8	REPX0803ED	WIRELESS ADAPTER P.C.B	1	
	PCB9	REPX0825AA	PANEL P.C.B	1	BT230 (RTL)
	PCB9	REPX0825BA	PANEL P.C.B	1	BT330 (RTL)
	PCB10	REPX0825AD	POWER BUTTON P.C.B	1	BT230 (RTL)
	PCB10	REPX0825BD	POWER BUTTON P.C.B	1	BT330 (RTL)
			INTEGRATED CIRCUITS		
	IC1001	C0DBZHE00026	IC	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	IC1101	C0ABZA000080	IC	1	
	IC1102	C0ABBB000189	IC	1	
	IC2001	C2HBCA000001	IC	1	
	IC2071	C0JBAR000434	IC	1	
	IC2201	C0ABBB000179	IC	1	
	IC2202	C0ABBB000179	IC	1	
	IC2300	RFXWMBT230EB	IC	1	BT230
	IC2300	RFXWMBT330EG	IC	1	BT330
	IC2301	C3EBFC000042	IC	1	
	IC2302	C0CBABC00117	IC	1	
	IC2400	MFI341S2164	IC	1	
	IC2800	C0JBAR000540	IC	1	
	IC2901	C0DBAYY00729	IC	1	
	IC2952	VUEALLPT040	IC	1	EE [SPG]
	IC2952	VUEALLPT041	IC	1	EB/EG/EP [SPG]
	IC5100	C1AB00003260	IC	1	
	IC5200	C1AB00003260	IC	1	
	IC5301	C1AB00002461	IC	1	
	IC5400	C0DBEKG00004	IC	1	
	IC5401	C0EBE0000456	IC	1	
	IC5402	C0JBAA000501	IC	1	
	IC5404	C0JBAB000837	IC	1	
	IC5405	C0JBAA000501	IC	1	
	IC5701	C5HACY000003	IC	1	
	IC5799	MIP2F20MSSCF	IC	1	
	IC5801	C0DABFC00002	IC	1	
	IC5899	C0DBZMC00006	IC	1	
	IC6001	C0HBB0000057	IC	1	
	IC6531	C0ABBB000189	IC	1	BT330
	IC7002	C0DBZYY00018	IC	1	
	IC7003	C0DBZHE00026	IC	1	
	IC54900	C0FBAK000026	IC	1	
	IC57000	C0JBAR000434	IC	1	
	IC57001	C0JBAR000434	IC	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
			TRANSISTORS		
	Q1101	B1ABCF000176	TRANSISTOR	1	
	Q1102	B1ADCE000012	TRANSISTOR	1	
	Q1103	B1ADCE000012	TRANSISTOR	1	
	Q1104	B1CFHA000002	TRANSISTOR	1	
	Q1105	B1CFHA000002	TRANSISTOR	1	
	Q2800	B1GBCFJJ0051	TRANSISTOR	1	
	Q2805	B1GBCFJJ0051	TRANSISTOR	1	
	Q2902	B1CHPD000003	TRANSISTOR	1	
	Q2903	B1CHPD000003	TRANSISTOR	1	
	Q5400	B1BAAJ000003	TRANSISTOR	1	
	Q5401	B1ADCE000012	TRANSISTOR	1	
	Q5402	B1ABCF000011	TRANSISTOR	1	
	Q5403	B1GBCFNN0038	TRANSISTOR	1	
	Q5404	B1ABCF000011	TRANSISTOR	1	
	Q5405	B1ABCF000011	TRANSISTOR	1	
	Q5408	B1ABCF000011	TRANSISTOR	1	
	Q5409	B1ABCF000011	TRANSISTOR	1	
	Q5412	B1ABCF000011	TRANSISTOR	1	
	Q5413	B1ADBL000010	TRANSISTOR	1	
	Q5414	B1ABCF000011	TRANSISTOR	1	
	Q5720	B1BAAJ000003	TRANSISTOR	1	
	Q5863	B1ABGC000001	TRANSISTOR	1	
	Q5898	B1ABCF000176	TRANSISTOR	1	
	Q5899	B1ABCF000176	TRANSISTOR	1	
	Q6100	B1BABK000001	TRANSISTOR	1	
	Q6531	B1ABEB000002	TRANSISTOR	1	BT330
	Q6532	B1ADCE000012	TRANSISTOR	1	BT330
	Q6533	B1GDCFGA0018	TRANSISTOR	1	BT330
	Q6534	B1GDCFGA0018	TRANSISTOR	1	BT330
	Q6800	B1ABEB000002	TRANSISTOR	1	
	Q7004	B1ADNB000003	TRANSISTOR	1	
	Q7005	B1ADCE000012	TRANSISTOR	1	
	Q7006	B1ABMF000020	TRANSISTOR	1	
	Q7007	B1ABCF000176	TRANSISTOR	1	
	Q7008	B1ABCF000176	TRANSISTOR	1	
	Q7050	B1ABCF000176	TRANSISTOR	1	
	Q7071	B1ADNB000003	TRANSISTOR	1	
	Q56004	B1CFHA000002	TRANSISTOR	1	
	Q56005	B1CFHA000002	TRANSISTOR	1	
	QR1101	B1GBCFJJ0051	TRANSISTOR	1	
	QR1102	B1GBCFJJ0051	TRANSISTOR	1	
	QR5400	B1GBCFNN0038	TRANSISTOR	1	
	QR5401	B1GBCFNN0038	TRANSISTOR	1	
	QR5862	B1GBCFGG0030	TRANSISTOR	1	
	QR7001	B1GBCFGG0030	TRANSISTOR	1	
	QR7014	B1GBCFJJ0051	TRANSISTOR	1	
	QR7019	B1GBCFJJ0051	TRANSISTOR	1	
	QR7071	B1GBCFJJ0051	TRANSISTOR	1	
	QR7081	B1GBCFJJ0051	TRANSISTOR	1	
			DIODES		
	D2201	B0ACCK000005	DIODE	1	
	D2301	B0BC3R0A0262	DIODE	1	
	D2911	B0JCPG000005	DIODE	1	
	D2912	B0JCPG000005	DIODE	1	
	D5402	B0BC012A0269	DIODE	1	
	D5403	B0ACCK000005	DIODE	1	
	D5404	B0ACCK000005	DIODE	1	
	D5405	B0ACCK000005	DIODE	1	
	D5406	B0BC7R5A0268	DIODE	1	
	D5407	B0ACCK000005	DIODE	1	
	D5510	B0ACCK000005	DIODE	1	
	D5512	B0ACCK000005	DIODE	1	
	D5513	B0ACCK000005	DIODE	1	
	D5514	B0ACCK000005	DIODE	1	
	D5610	B0HCSP000001	DIODE	1	
	D5611	B0HCSP000001	DIODE	1	
	D5612	B0HCSP000001	DIODE	1	
	D5613	B0HCSP000001	DIODE	1	
	D5614	B0HCSP000001	DIODE	1	
	D5615	B0HCSP000001	DIODE	1	
	D5616	B0HCSP000001	DIODE	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	D5617	B0HCSP000001	DIODE	1	
	D5618	B0HCSP000001	DIODE	1	
	D5619	B0HCSP000001	DIODE	1	
	D5620	B0HCSP000001	DIODE	1	
	D5621	B0HCSP000001	DIODE	1	
	D5622	B0HCSP000001	DIODE	1	
	D5623	B0HCSP000001	DIODE	1	
	D5624	B0HCSP000001	DIODE	1	
	D5625	B0HCSP000001	DIODE	1	
	D5627	B0ACCK000005	DIODE	1	
	D5628	B0BC012A0269	DIODE	1	
	D5701	B0FBAR000043	DIODE	1	
	D5702	B0ZAZ0000052	DIODE	1	
	D5703	B0BC020A0267	DIODE	1	
	D5704	B0BC020A0267	DIODE	1	
	D5705	B0BC020A0267	DIODE	1	
	D5706	B0ACCK000005	DIODE	1	
	D5707	B0BC6R2A0266	DIODE	1	
	D5708	B0ACCK000005	DIODE	1	
	D5709	B0ACCK000005	DIODE	1	
	D5710	B0EAMM000057	DIODE	1	
	D5711	MA2YF8000L	DIODE	1	
	D5712	B0EAMM000057	DIODE	1	
	D5713	B0BC030A0264	DIODE	1	
	D5714	B0BC027A0264	DIODE	1	
	D5715	B0HAMP000094	DIODE	1	
	D5716	B0EAMM000057	DIODE	1	
	D5719	B0EDKT000009	DIODE	1	
	D5802	B0HBSM000054	DIODE	1	
	D5803	B0HFRJ000012	DIODE	1	
	D5805	B0EAMM000057	DIODE	1	
	D5810	B0ACCK000005	DIODE	1	
	D5811	B0BC5R1A0266	DIODE	1	
	D5896	B0EAMM000057	DIODE	1	
	D5899	B0ACCK000005	DIODE	1	
	D6100	B0JCMD000010	DIODE	1	
	D6101	B0BC024A0267	DIODE	1	
	D6102	B0JCMD000010	DIODE	1	
	D6103	B0BC2R4A0263	DIODE	1	
	D6104	B0HAJM000005	DIODE	1	
	D6531	B0ACCK000012	DIODE	1	BT330
	D6532	B0ACCK000012	DIODE	1	BT330
	D6533	B0BC3R0A0262	DIODE	1	BT330
	D6800	B3ABA0000187	DIODE	1	
	D7013	B0ACCK000005	DIODE	1	
	D7016	B0ACCK000005	DIODE	1	
	D7017	B0ACCK000005	DIODE	1	
	D7018	B0ACCK000005	DIODE	1	
	D7020	B0ACCK000005	DIODE	1	
	D7021	B0ACCK000005	DIODE	1	
	D7022	B0ACCK000005	DIODE	1	
	D7023	B0BC027A0264	DIODE	1	
	D7024	B0BC5R1A0266	DIODE	1	
	D7031	B0BC7R5A0266	DIODE	1	
	D7033	B0BC6R8A0266	DIODE	1	
	D7035	B0BC010A0269	DIODE	1	
	D7036	B0BC6R8A0266	DIODE	1	
	D7037	B0BC010A0269	DIODE	1	
	D7038	B0BC013A0269	DIODE	1	
⚠	DZ5701	ERZV10V511CS	ZNR	1	
			INDUCTORS		
	LB1101	J0JYC0000070	INDUCTOR	1	
	LB1107	J0JBC0000014	INDUCTOR	1	
	LB1109	J0JCC0000316	INDUCTOR	1	
	LB1113	J0JBC0000014	INDUCTOR	1	
	LB1114	J0JCC0000317	INDUCTOR	1	
	LB2039	J0JCC0000396	INDUCTOR	1	
	LB2071	J0JCC0000396	INDUCTOR	1	
	LB2072	J0JGC0000020	INDUCTOR	1	
	LB2092	J0JGC0000020	INDUCTOR	1	
	LB2301	J0JGC0000020	INDUCTOR	1	
	LB2818	J0JBC0000014	INDUCTOR	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	LB2819	J0JBC0000014	INDUCTOR	1	
	LB2820	J0JBC0000014	INDUCTOR	1	
	LB2821	J0JBC0000014	INDUCTOR	1	
	LB2823	J0JBC0000014	INDUCTOR	1	
	LB2831	J0JBC0000014	INDUCTOR	1	
	LB2834	J0JBC0000014	INDUCTOR	1	
	LB2835	J0JBC0000014	INDUCTOR	1	
	LB2836	J0JBC0000014	INDUCTOR	1	
	LB2837	J0JBC0000014	INDUCTOR	1	
	LB2838	J0JBC0000014	INDUCTOR	1	
	LB2839	J0JBC0000014	INDUCTOR	1	
	LB2840	J0JBC0000014	INDUCTOR	1	
	LB2841	J0JBC0000014	INDUCTOR	1	
	LB2842	J0JBC0000014	INDUCTOR	1	
	LB2843	J0JBC0000014	INDUCTOR	1	
	LB2844	J0JBC0000014	INDUCTOR	1	
	LB2845	J0JBC0000014	INDUCTOR	1	
	LB2846	J0JBC0000014	INDUCTOR	1	
	LB2951	J0JBC0000032	INDUCTOR	1	
	LB3001	J0JBC0000015	INDUCTOR	1	
	LB3004	J0JBC0000015	INDUCTOR	1	
	LB3006	J0JBC0000015	INDUCTOR	1	
	LB3013	J0JBC0000015	INDUCTOR	1	
	LB3014	J0JBC0000015	INDUCTOR	1	
	LB3909	J0JHC0000045	INDUCTOR	1	
	LB7006	J0JHC0000107	INDUCTOR	1	
	LB7007	J0JHC0000107	INDUCTOR	1	
	LB7009	J0JGC0000020	INDUCTOR	1	
	LB7012	J0JHC0000107	INDUCTOR	1	
	LB7013	J0JHC0000107	INDUCTOR	1	
	LB7041	J0JGC0000020	INDUCTOR	1	
	LB7042	J0JGC0000020	INDUCTOR	1	
	LB51701	J0JGC0000020	INDUCTOR	1	
	LB54900	J0JCC0000317	INDUCTOR	1	
	LB54901	J0JCC0000317	INDUCTOR	1	
	LB56502	J0JFC0000008	INDUCTOR	1	
	LB57000	J0JGC0000020	INDUCTOR	1	
			VARISTORS		
	VA2951	EZAEG2A50AX	ESD SUPPRESSOR	1	
			SWITCHES		
	S6002	EVQ21405R	SW	1	
	S6003	EVQ21405R	SW	1	
	S6005	EVQ21405R	SW	1	
	S6006	EVQ21405R	SW	1	
	S6007	EVQ21405R	SW	1	
	S6801	EVQ21405R	SW	1	
	S6807	EVQ21405R	SW	1	
			CONNECTORS		
	CN1001	MF1514S0117	30P CONNECTOR	1	
	CN1002	K1MN15BA0139	15P CONNECTOR	1	
	CN1101	K1MN15AA0046	15P CONNECTOR	1	
	CN2002	K1MN22AA0046	22P CONNECTOR	1	
	CN2003	K1MN10AA0076	10P CONNECTOR	1	
	CN2004	K1KA10AA00430	10P CONNECTOR	1	
	CN2006	K1MN18AA0046	18P CONNECTOR	1	
	CN2008	K1MN17AA0076	17P CONNECTOR	1	
	CN2011	K1MN13AA0076	13P CONNECTOR	1	
	CN2916	K1KA03BA0116	3P CONNECTOR	1	
	CN2917	K1KA03BA0116	3P CONNECTOR	1	
	CN3000	K1MY22A00003	22P CONNECTOR	1	
	CN3001	K1MN17BA0005	17P CONNECTOR	1	
	CN4002	K1MN13BA0147	13P CONNECTOR	1	
	CN5400	K1KA06AA00452	6P CONNECTOR	1	
	CN5401	K1KA03AA0301	3P CONNECTOR	1	
	CN5402	K1MN18AA0046	18P CONNECTOR	1	
	CN5802	K1KA03AA0292	3P CONNECTOR	1	
	CN5803	K1KA03AA0292	3P CONNECTOR	1	
	CN6001	K1YZ04000002	4P CABLE HOLDER	1	
	JW1	K1YZ06000002	6P CONNECTOR	1	
	P6001	K1MN22AA0004	22P CONNECTOR	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
			COILS AND INDUCTORS		
	L1001	J0JFC0000006	INDUCTOR	1	
	L1002	J0JFC0000006	INDUCTOR	1	
	L1003	J0JGC0000071	INDUCTOR	1	
	L1004	J0JGC0000071	INDUCTOR	1	
	L1005	J0JGC0000071	INDUCTOR	1	
	L1006	J0JGC0000071	INDUCTOR	1	
	L1007	J0JGC0000071	INDUCTOR	1	
	L1008	J0JFC0000006	INDUCTOR	1	
	L1009	J0JFC0000006	INDUCTOR	1	
	L1010	J0JGC0000071	INDUCTOR	1	
	L1011	J0JFC0000006	INDUCTOR	1	
	L1032	J0JBC0000015	INDUCTOR	1	
	L2072	G1C100M00049	INDUCTOR	1	
	L2902	G0A200D00002	CHOKE COIL	1	
	L2903	G0A330ZA0045	CHOKE COIL	1	
	L2904	G0A330ZA0045	CHOKE COIL	1	
	L2907	J0JHC0000107	INDUCTOR	1	
	L2908	J0JHC0000107	INDUCTOR	1	
	L2951	G1CR18JA0020	INDUCTOR	1	
	L3000	G1C100K00019	INDUCTOR	1	
	L3001	G1C100K00019	INDUCTOR	1	
	L5100	G0C100M00006	INDUCTOR	1	
	L5101	G0C100M00006	INDUCTOR	1	
	L5103	G0B9R5K00005	LINE FILTER	1	
	L5104	G0B9R5K00005	LINE FILTER	1	
	L5105	G0B9R5K00005	LINE FILTER	1	
	L5106	G0B9R5K00005	LINE FILTER	1	
	L5200	G0C100M00006	INDUCTOR	1	
	L5201	G0C100M00006	INDUCTOR	1	
	L5203	G0B9R5K00005	LINE FILTER	1	
	L5204	G0B9R5K00005	LINE FILTER	1	
	L5300	J0JBC0000015	INDUCTOR	1	
	L5401	J0JKB0000003	INDUCTOR	1	
	L5402	J0JKB0000003	INDUCTOR	1	
	L5403	G1C4R7MA0172	INDUCTOR	1	
⚠	L5702	ELF21N015A	LINE FILTER	1	
⚠	L5703	ELF21N015A	LINE FILTER	1	
	L6006	J0JBC0000014	INDUCTOR	1	
	L6007	J0JBC0000014	INDUCTOR	1	
	L6100	J0JBC0000041	INDUCTOR	1	
	L6101	G0C390JA0055	INDUCTOR	1	
	L6504	J0JBC0000019	INDUCTOR	1	BT330
	L6505	J0JBC0000019	INDUCTOR	1	BT330
	L7014	G1C4R7MA0172	INDUCTOR	1	
			TRANSFORMERS		
⚠	T5701	ETS42BM1H6AC	TRANSFORMER	1	
⚠	T5751	ETS19AB2A6AG	TRANSFORMER	1	
⚠	T6100	G4D1A0000142	SUB TRANSFORMER	1	
			PHOTO COUPLERS		
⚠	PC5702	B3PBA0000402	PHOTO COUPLER	1	
⚠	PC5720	B3PBA0000402	PHOTO COUPLER	1	
⚠	PC5799	B3PBA0000402	PHOTO COUPLER	1	
			EARTH TERMINALS		
	ZJ5701	K4CZ01000027	TERMINAL	1	
	ZJ5702	K4CZ01000027	TERMINAL	1	
	ZJ5703	K4CZ01000027	TERMINAL	1	
			OSCILLATORS		
	X2300	H2D500400006	CRYSTAL OSCILLATOR	1	
	X2301	H0J327200115	CRYSTAL OSCILLATOR	1	
	X2951	H0A327200097	CRYSTAL OSCILLATOR	1	
			COMPONENT COMBINATION		

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	IR6001	B3RAB0000081	REMOTE CONTROL SENSOR	1	
			RELAY		
△	RY701	K6B1AEA00003	POWER RELAY	1	
			FUSE		
△	F1	K5D402BNA005	FUSE	1	
			FL DISPLAY		
	DP6001	A2BB00000175	LCD DISPLAY	1	
			CABLE HOLDER		
	H6803	K1YZ04000002	4P CABLE HOLDER	1	
			FUSE HOLDERS		
	ZA5701	K3GE1ZZ00001	FUSE HOLDER	1	
	ZA5702	K3GE1ZZ00001	FUSE HOLDER	1	
			THERMISTOR		
△	TH5702	D4CAA5R10001	THERMISTOR	1	
			JACKS		
	JK2951	K4ZZ01000276	JK FM ANT	1	
	JK3100	B3RAB0000056	JK DIGITAL AUDIO OPTICAL 1	1	
	JK3101	B3RAB0000056	JK DIGITAL AUDIO OPTICAL 2	1	
	JK5001	K4AZ12A00005	JK SPEAKER	1	
	JK6502	K2HC103A0031	JK HEADPHONE	1	BT330
△	P5701	K2AA2B000011	AC INLET	1	
			CHIP JUMPERS		
	K2003	ERJ2GE0R00X	0 1/16W	1	EG
	K2004	ERJ2GE0R00X	0 1/16W	1	BT230EE
	K2005	ERJ2GE0R00X	0 1/16W	1	BT230/330EB/EP
	K5102	D0GBR00JA008	0 1/16W	1	
	K5103	D0GBR00JA008	0 1/16W	1	
	K5105	D0GBR00JA008	0 1/16W	1	
	K5106	D0GBR00JA008	0 1/16W	1	
	K5401	D0GBR00JA008	0 1/16W	1	
	K5722	D0GBR00JA008	0 1/16W	1	
	K5726	D0GBR00JA008	0 1/16W	1	
	K5728	D0GBR00JA008	0 1/16W	1	
	K6531	D0GBR00JA008	0 1/16W	1	BT330
	L1021	D0GBR00JA008	0 1/16W	1	
	L1022	D0GBR00JA008	0 1/16W	1	
	L1023	D0GBR00JA008	0 1/16W	1	
	L1024	D0GBR00JA008	0 1/16W	1	
	L1025	D0GBR00JA008	0 1/16W	1	
	L1026	D0GBR00JA008	0 1/16W	1	
	L1027	D0GBR00JA008	0 1/16W	1	
	L1028	D0GBR00JA008	0 1/16W	1	
	L1029	D0GBR00JA008	0 1/16W	1	
	L1030	D0GBR00JA008	0 1/16W	1	
	L1031	D0GBR00JA008	0 1/16W	1	
	L1033	D0GBR00JA008	0 1/16W	1	
	L6005	D0GBR00JA008	0 1/16W	1	
	L6803	D0GBR00JA008	0 1/16W	1	
	L6804	D0GBR00JA008	0 1/16W	1	
	L6805	D0GBR00JA008	0 1/16W	1	
	L6806	D0GBR00JA008	0 1/16W	1	
	LB1102	ERJ2GE0R00X	0 1/16W	1	
	LB1103	ERJ2GE0R00X	0 1/16W	1	
	LB1104	ERJ2GE0R00X	0 1/16W	1	
	LB1105	ERJ2GE0R00X	0 1/16W	1	
	LB1106	ERJ2GE0R00X	0 1/16W	1	
	LB1108	ERJ2GE0R00X	0 1/16W	1	
	LB2570	D0GBR00JA008	0 1/16W	1	
	LB2571	D0GBR00JA008	0 1/16W	1	
	LB2801	ERJ2GE0R00X	0 1/16W	1	
	LB2802	ERJ2GE0R00X	0 1/16W	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	LB2803	ERJ2GE0R00X	0 1/16W	1	
	LB2804	ERJ2GE0R00X	0 1/16W	1	
	LB2805	ERJ2GE0R00X	0 1/16W	1	
	LB2806	ERJ2GE0R00X	0 1/16W	1	
	LB2807	ERJ2GE0R00X	0 1/16W	1	
	LB2808	ERJ2GE0R00X	0 1/16W	1	
	W201	D0GFR00JA017	0 1/10W	1	
	W202	D0GFR00JA017	0 1/10W	1	
	W203	D0GDR00JA017	0 1/10W	1	
	W6051	D0GDR00JA017	0 1/10W	1	
	W6052	D0GDR00JA017	0 1/10W	1	
	W6054	D0GDR00JA017	0 1/10W	1	
	W6056	D0GDR00JA017	0 1/10W	1	
	W6057	D0GBR00JA008	0 1/16W	1	
	W6058	D0GDR00JA017	0 1/10W	1	
	W6059	D0GBR00JA008	0 1/16W	1	
	W6060	D0GDR00JA017	0 1/10W	1	
	W6061	D0GBR00JA008	0 1/16W	1	
	W6062	D0GBR00JA008	0 1/16W	1	
	W6063	D0GDR00JA017	0 1/10W	1	
	W6064	D0GDR00JA017	0 1/10W	1	
	W6065	D0GDR00JA017	0 1/10W	1	
	W6066	D0GDR00JA017	0 1/10W	1	
	W6077	D0GDR00JA017	0 1/10W	1	
	W6078	D0GDR00JA017	0 1/10W	1	
	W6079	D0GBR00JA008	0 1/16W	1	
	W6080	D0GDR00JA017	0 1/10W	1	
	W6081	D0GBR00JA008	0 1/16W	1	
			RESISTORS		
	LB1111	D0GA471JA023	470 1/16W	1	
	LB1112	D0GA471JA023	470 1/16W	1	
	R1001	D0GA221JA023	220 1/16W	1	
	R1002	D0GA221JA023	220 1/16W	1	
	R1003	D0GA104JA023	100K 1/16W	1	
	R1004	D0GA104JA023	100K 1/16W	1	
	R1005	D0GA753JA015	75K 1/16W	1	
	R1006	D0GA753JA015	75K 1/16W	1	
	R1007	ERJ2GEJ513X	51K 1/16W	1	
	R1008	ERJ2GEJ513X	51K 1/16W	1	
	R1009	ERJ2GEJ151X	150 1/16W	1	
	R1010	ERJ2GEJ151X	150 1/16W	1	
	R1011	J0JFC0000006	INDUCTOR	1	
	R1012	D0GBR00JA008	0 1/16W	1	
	R1013	D0GA102JA023	1K 1/16W	1	
	R1014	ERJ2GE0R00X	0 1/16W	1	
	R1015	D0GBR00JA008	0 1/16W	1	
	R1101	ERJ3RED334V	330K 1/16W	1	
	R1102	ERJ2GEJ274X	270K 1/16W	1	
	R1103	ERJ3RED224V	220K 1/16W	1	
	R1104	ERJ2GEJ564X	560K 1/16W	1	
	R1105	D0GA104JA023	100K 1/16W	1	
	R1106	D0GA472JA023	4.7K 1/16W	1	
	R1107	D0GA473JA023	47K 1/16W	1	
	R1108	D0GA473JA023	47K 1/16W	1	
	R1109	D0GA472JA023	4.7K 1/16W	1	
	R1110	D0GA104JA023	100K 1/16W	1	
	R1111	ERJ2GEJ750X	75 1/16W	1	
	R1112	D0GA101JA023	100 1/16W	1	
	R1113	D0GA101JA023	100 1/16W	1	
	R1114	D0GA223JA023	22K 1/16W	1	
	R1115	D0GA223JA023	22K 1/16W	1	
	R1116	D0GA101JA023	100 1/16W	1	
	R1118	D0GA223JA023	22K 1/16W	1	
	R1119	D0GA223JA023	22K 1/16W	1	
	R1120	D0GA223JA023	22K 1/16W	1	
	R1121	D0GA223JA023	22K 1/16W	1	
	R1122	D0GA102JA023	1K 1/16W	1	
	R1123	D0GA102JA023	1K 1/16W	1	
	R1124	D0GA101JA023	100 1/16W	1	
	R1125	D0GA101JA023	100 1/16W	1	
	R1127	J0JCC0000316	INDUCTOR	1	
	R1128	J0JCC0000316	INDUCTOR	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R1131	D0GD470JA017	47 1/10W	1	
	R1132	D0GA104JA023	100K 1/16W	1	
	R1133	D0GA104JA023	100K 1/16W	1	
	R1141	D0GA221JA023	220 1/16W	1	
	R1151	D0GA471JA023	470 1/16W	1	
	R1152	D0GA471JA023	470 1/16W	1	
	R1153	D0GA471JA023	470 1/16W	1	
	R2031	D0GA330JA023	33 1/16W	1	
	R2032	D0GA330JA023	33 1/16W	1	
	R2033	D0GA330JA023	33 1/16W	1	
	R2034	D0GA330JA023	33 1/16W	1	
	R2035	D0GA330JA023	33 1/16W	1	
	R2036	D0GA330JA023	33 1/16W	1	
	R2041	D0GA221JA023	220 1/16W	1	
	R2042	D0GA221JA023	220 1/16W	1	
	R2043	D0GA221JA023	220 1/16W	1	
	R2044	D0GA221JA023	220 1/16W	1	
	R2045	D0GA470JA023	47 1/16W	1	
	R2046	D0GA103JA023	10K 1/16W	1	
	R2051	ERJ2GE0R00X	0 1/16W	1	
	R2053	D0GA152JA023	1.5K 1/16W	1	
	R2054	D0GA470JA023	47 1/16W	1	
	R2055	D0GA470JA023	47 1/16W	1	
	R2056	D0GA470JA023	47 1/16W	1	
	R2057	D0GA470JA023	47 1/16W	1	
	R2058	D0GA470JA023	47 1/16W	1	
	R2059	D0GA470JA023	47 1/16W	1	
	R2060	D0GA470JA023	47 1/16W	1	
	R2071	D0GA330JA023	33 1/16W	1	
	R2072	D0GA330JA023	33 1/16W	1	
	R2074	D0GA470JA023	47 1/16W	1	
	R2075	D0GA470JA023	47 1/16W	1	
	R2081	D0GA470JA023	47 1/16W	1	
	R2082	D0GA470JA023	47 1/16W	1	
	R2083	D0GA470JA023	47 1/16W	1	
	R2084	D0GA470JA023	47 1/16W	1	
	R2085	D0GA470JA023	47 1/16W	1	
	R2086	D0GA470JA023	47 1/16W	1	
	R2090	D0GA221JA023	220 1/16W	1	
	R2093	D0GA221JA023	220 1/16W	1	
	R2094	D0GA221JA023	220 1/16W	1	
	R2098	D0GBR00JA008	0 1/16W	1	
	R2171	D0GA330JA023	33 1/16W	1	
	R2172	D0GA330JA023	33 1/16W	1	
	R2173	D0GA330JA023	33 1/16W	1	
	R2174	D0GA330JA023	33 1/16W	1	
	R2175	ERJ2GE0R00X	0 1/16W	1	
	R2176	ERJ2GE0R00X	0 1/16W	1	
	R2177	ERJ2GE0R00X	0 1/16W	1	
	R2178	ERJ2GE0R00X	0 1/16W	1	
	R2181	D0GA221JA023	220 1/16W	1	
	R2182	D0GA221JA023	220 1/16W	1	
	R2183	D0GA221JA023	220 1/16W	1	
	R2184	D0GA221JA023	220 1/16W	1	
	R2201	D0GA104JA023	100K 1/16W	1	
	R2202	D0GA104JA023	100K 1/16W	1	
	R2203	D0GA104JA023	100K 1/16W	1	
	R2204	D0GA104JA023	100K 1/16W	1	
	R2205	D0GA104JA023	100K 1/16W	1	
	R2206	D0GA682JA023	6.8K 1/16W	1	
	R2207	D0GA104JA023	100K 1/16W	1	
	R2208	D0GA103JA023	10K 1/16W	1	
	R2209	D0GA103JA023	10K 1/16W	1	
	R2210	D0GA101JA023	100 1/16W	1	
	R2211	D0GA103JA023	10K 1/16W	1	
	R2212	D0GA103JA023	10K 1/16W	1	
	R2213	D0GA102JA023	1K 1/16W	1	
	R2214	D0GA104JA023	100K 1/16W	1	
	R2215	D0GA103JA023	10K 1/16W	1	
	R2301	D0GA473JA023	47K 1/16W	1	
	R2302	D0GA222JA023	2.2K 1/16W	1	
	R2304	D0GA331JA023	330 1/16W	1	
	R2305	D0GA473JA023	47K 1/16W	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R2310	D0GA103JA023	10K 1/16W	1	
	R2311	D0GA103JA023	10K 1/16W	1	
	R2315	ERJ2GEJ154X	150K 1/16W	1	
	R2318	D0GA102JA023	1K 1/16W	1	
	R2320	D0GA331JA023	330 1/16W	1	
	R2321	D0GA331JA023	330 1/16W	1	
	R2322	D0GA104JA023	100K 1/16W	1	
	R2323	D0GA104JA023	100K 1/16W	1	
	R2325	D0GA472JA023	4.7K 1/16W	1	
	R2326	D0GA472JA023	4.7K 1/16W	1	
	R2327	D0GA104JA023	100K 1/16W	1	
	R2328	D0GA103JA023	10K 1/16W	1	
	R2330	D0GA103JA023	10K 1/16W	1	
	R2331	D0GA103JA023	10K 1/16W	1	
	R2332	D0GA473JA023	47K 1/16W	1	
	R2333	D0GA473JA023	47K 1/16W	1	
	R2335	D0GA473JA023	47K 1/16W	1	
	R2341	D0GA473JA023	47K 1/16W	1	
	R2342	D0GA473JA023	47K 1/16W	1	
	R2343	D0GA331JA023	330 1/16W	1	
	R2345	D0GA103JA023	10K 1/16W	1	
	R2346	D0GA103JA023	10K 1/16W	1	
	R2352	D0GA103JA023	10K 1/16W	1	
	R2356	D0GA103JA023	10K 1/16W	1	
	R2359	D0GA103JA023	10K 1/16W	1	
	R2361	D0GA473JA023	47K 1/16W	1	
	R2364	ERJ2GE0R00X	0 1/16W	1	
	R2366	D0GA101JA023	100 1/16W	1	
	R2367	D0GA101JA023	100 1/16W	1	
	R2370	D0GA331JA023	330 1/16W	1	
	R2374	D0GA331JA023	330 1/16W	1	
	R2375	D0GA331JA023	330 1/16W	1	
	R2378	D0GA331JA023	330 1/16W	1	
	R2379	D0GA331JA023	330 1/16W	1	
	R2381	D0GA331JA023	330 1/16W	1	
	R2382	D0GA331JA023	330 1/16W	1	
	R2386	D0GA472JA023	4.7K 1/16W	1	
	R2387	D0GA472JA023	4.7K 1/16W	1	
	R2388	D0GA473JA023	47K 1/16W	1	
	R2395	D0GA331JA023	330 1/16W	1	
	R2396	D0GA331JA023	330 1/16W	1	
	R2397	D0GA331JA023	330 1/16W	1	
	R2399	D0GA331JA023	330 1/16W	1	
	R2400	D0GA330JA023	33 1/16W	1	
	R2401	ERJ2GE0R00X	0 1/16W	1	
	R2402	ERJ2GE0R00X	0 1/16W	1	
	R2406	ERJ2GE0R00X	0 1/16W	1	
	R2407	ERJ2GE0R00X	0 1/16W	1	
	R2411	D0GA103JA023	10K 1/16W	1	
	R2412	D0GA103JA023	10K 1/16W	1	
	R2570	D0GB103JA008	10K 1/16W	1	
	R2571	D0GB103JA008	10K 1/16W	1	
	R2800	D0GA103JA023	10K 1/16W	1	
	R2801	D0GA103JA023	10K 1/16W	1	
	R2806	D0GA102JA023	1K 1/16W	1	
	R2807	D0GA102JA023	1K 1/16W	1	
	R2810	D0GA102JA023	1K 1/16W	1	
	R2811	D0GA102JA023	1K 1/16W	1	
	R2812	D0GA473JA023	47K 1/16W	1	
	R2813	D0GA473JA023	47K 1/16W	1	
	R2814	D0GA102JA023	1K 1/16W	1	
	R2815	D0GA103JA023	10K 1/16W	1	
	R2816	D0GA103JA023	10K 1/16W	1	
	R2817	D0GA102JA023	1K 1/16W	1	
	R2821	D0GA473JA023	47K 1/16W	1	
	R2822	D0GA473JA023	47K 1/16W	1	
	R2823	D0GA102JA023	1K 1/16W	1	
	R2824	D0GA102JA023	1K 1/16W	1	
	R2905	D0GBR00JA008	0 1/16W	1	
	R2908	ERJ3RBD1002V	10 1/16W	1	
	R2914	D0GB223JA008	22K 1/16W	1	
	R2915	D0GBR00JA008	0 1/16W	1	
	R2916	D0GB223JA008	22K 1/16W	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R2917	D0GB332JA008	3.3K 1/16W	1	
	R2918	D0GB332JA008	3.3K 1/16W	1	
	R2919	D1BDR1000003	10 1/10W	1	
	R2920	D0GB822JA008	8.2K 1/16W	1	
	R2921	ERJ3RBD3902V	39 1/16W	1	
	R2922	D1BDR1000003	10 1/10W	1	
	R2923	D0GB222JA008	2.2K 1/16W	1	
	R2924	ERJ3RBD5601V	56 1/16W	1	
	R2925	ERJ3RBD5602V	56 1/16W	1	
	R2926	D0GB822JA008	8.2K 1/16W	1	
	R2927	D0GB103JA008	10K 1/16W	1	
	R2929	ERJ3RBD3301V	33 1/16W	1	
	R2930	ERJ3RBD2701V	27 1/16W	1	
	R2951	D0GB102JA008	1K 1/16W	1	
	R2952	D0GB102JA008	1K 1/16W	1	
	R2953	D0GA472JA023	4.7K 1/16W	1	
	R2954	D0GA472JA023	4.7K 1/16W	1	
	R2955	D0GA221JA023	220 1/16W	1	
	R2955	D0GBR00JA008	0 1/16W	1	
	R2956	D0GB221JA007	220 1/10W	1	
	R2956	D0GB472JA008	4.7K 1/16W	1	
	R2957	D0GA102JA023	1K 1/16W	1	
	R2959	D0GB222JA008	2.2K 1/16W	1	
	R2961	D0GB473JA008	47K 1/16W	1	
	R2962	D0GB473JA008	47K 1/16W	1	
	R2963	D0GBR00JA008	0 1/16W	1	
	R2964	D0GBR00JA008	0 1/16W	1	
	R3001	D0GB103JA008	10K 1/16W	1	
	R3002	D0GB183JA008	18K 1/16W	1	
	R3003	ERJ8GEYJ1R0V	1.0 1/4W	1	
	R3004	D0GB101JA008	100 1/16W	1	
	R3005	D0GB101JA008	100 1/16W	1	
	R3006	D0GB101JA008	100 1/16W	1	
	R3007	D0GB101JA008	100 1/16W	1	
	R3008	D0GB101JA008	100 1/16W	1	
	R3009	D0GB101JA008	100 1/16W	1	
	R3010	D0GB101JA008	100 1/16W	1	
	R3011	D0GB101JA008	100 1/16W	1	
	R3012	D0GB101JA008	100 1/16W	1	
	R3013	D0GB101JA008	100 1/16W	1	
	R5100	D0GB100JA008	10 1/16W	1	
	R5101	D0GB101JA008	100 1/16W	1	
	R5102	D0GB223JA008	22K 1/16W	1	
	R5103	D0GB101JA008	100 1/16W	1	
	R5105	D0GB100JA008	10 1/16W	1	
	R5106	D0GB100JA008	10 1/16W	1	
	R5109	D0GB100JA008	10 1/16W	1	
	R5113	D0GD562JA017	5.6K 1/10W	1	
	R5117	D0GD562JA017	5.6K 1/10W	1	
	R5121	D0GD562JA017	5.6K 1/10W	1	
	R5125	D0GD562JA017	5.6K 1/10W	1	
	R5126	D0GB104JA008	100K 1/16W	1	
	R5128	D0GB104JA008	100K 1/16W	1	
	R5130	D0GB104JA008	100K 1/16W	1	
	R5132	D0GB562JA008	5.6K 1/16W	1	
	R5133	D0GB562JA008	5.6K 1/16W	1	
	R5134	D0GB562JA008	5.6K 1/16W	1	
	R5135	D0GB562JA008	5.6K 1/16W	1	
	R5136	D0GB104JA008	100K 1/16W	1	
	R5200	D0GB100JA008	10 1/16W	1	
	R5201	D0GB101JA008	100 1/16W	1	
	R5202	D0GB223JA008	22K 1/16W	1	
	R5203	D0GB101JA008	100 1/16W	1	
	R5205	D0GB100JA008	10 1/16W	1	
	R5206	D0GB100JA008	10 1/16W	1	
	R5209	D0GB100JA008	10 1/16W	1	
	R5210	ERJ3GEYJ3R3V	3.3 1/10W	1	
	R5211	ERJ3GEYJ3R3V	3.3 1/10W	1	
	R5212	D0GD103JA017	10K 1/10W	1	
	R5213	ERJ3GEYJ3R3V	3.3 1/10W	1	
	R5214	ERJ3GEYJ3R3V	3.3 1/10W	1	
	R5215	D0GD103JA017	10K 1/10W	1	
	R5216	D0GB104JA008	100K 1/16W	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R5217	D0GB104JA008	100K 1/16W	1	
	R5219	D0GB104JA008	100K 1/16W	1	
	R5220	D0GB104JA008	100K 1/16W	1	
	R5221	D0GB562JA008	5.6K 1/16W	1	
	R5223	D0GB562JA008	5.6K 1/16W	1	
	R5350	ERJ3GEYJ201V	200 1/10W	1	
	R5351	ERJ3GEYJ201V	200 1/10W	1	
	R5353	ERJ3EKF1822V	1.8K 1W	1	
	R5370	D0GB331JA008	330 1/16W	1	
	R5371	D0GB331JA008	330 1/16W	1	
	R5375	D0GB470JA008	47 1/16W	1	
	R5376	D0GB470JA008	47 1/16W	1	
	R5377	D0GB470JA008	47 1/16W	1	
	R5379	D0GB470JA008	47 1/16W	1	
	R5380	D0GB470JA008	47 1/16W	1	
	R5381	D0GB470JA008	47 1/16W	1	
	R5382	D0GB470JA008	47 1/16W	1	
	R5383	D0GB470JA008	47 1/16W	1	
	R5384	D0GB470JA008	47 1/16W	1	
	R5385	D0GB470JA008	47 1/16W	1	
	R5386	D0GB470JA008	47 1/16W	1	
	R5387	D0GB470JA008	47 1/16W	1	
	R5388	D0GB470JA008	47 1/16W	1	
	R5390	D0GB331JA008	330 1/16W	1	
	R5391	D0GB331JA008	330 1/16W	1	
	R5406	ERJ3RBD104V	100K 1/16W	1	
	R5407	ERJ3RBD562V	5.6K 1/16W	1	
	R5408	ERJ3RBD103V	10K 1/16W	1	
	R5420	D0GD122JA017	1.2K 1/10W	1	
	R5421	D0GB100JA008	10 1/16W	1	
	R5422	D0GB334JA008	330K 1/16W	1	
	R5423	D0GB103JA008	10K 1/16W	1	
	R5424	D0GB103JA008	10K 1/16W	1	
	R5425	D0GB103JA008	10K 1/16W	1	
	R5426	ERJ3GEYJ185V	1.8M 1/10W	1	
	R5427	D0GB104JA008	100K 1/16W	1	
	R5428	D0GB103JA008	10K 1/16W	1	
	R5431	D0GB223JA008	22K 1/16W	1	
	R5434	D0GB103JA008	10K 1/16W	1	
	R5435	D0GB103JA008	10K 1/16W	1	
	R5436	D0GB223JA008	22K 1/16W	1	
	R5437	D0GB472JA008	4.7K 1/16W	1	
	R5438	D0GB224JA008	220K 1/16W	1	
	R5439	D0GB224JA008	220K 1/16W	1	
	R5444	D0GB103JA008	10K 1/16W	1	
	R5445	D0GB103JA008	10K 1/16W	1	
	R5446	D0GB332JA008	3.3K 1/16W	1	
	R5447	D0GB472JA008	4.7K 1/16W	1	
	R5449	D0GB104JA008	100K 1/16W	1	
	R5450	D0GB104JA008	100K 1/16W	1	
	R5451	D0GB104JA008	100K 1/16W	1	
	R5452	D0GB104JA008	100K 1/16W	1	
	R5453	D0GB333JA008	33K 1/16W	1	
	R5454	D0GB473JA008	47K 1/16W	1	
	R5461	D0GBR00JA008	0 1/16W	1	
	R5462	D0GBR00JA008	0 1/16W	1	
	R5463	D0GBR00JA008	0 1/16W	1	
	R5470	D0GB473JA008	47K 1/16W	1	
	R5471	D0GB123JA008	12K 1/16W	1	
	R5472	D0GB682JA008	6.8K 1/16W	1	
	R5473	D0GB123JA008	12K 1/16W	1	
	R5474	D0GB102JA008	1K 1/16W	1	
	R5475	D0GBR00JA008	0 1/16W	1	
	R5700	ERJ8GEYJ155V	1.5M 1/4W	1	
	R5701	ERJ8GEYJ155V	1.5M 1/4W	1	
	R5702	ERJ1TYJ104V	100K 1/2W	1	
	R5703	ERJ1TYJ104U	100K 1/2W	1	
	R5704	ERJ8GEYJ124V	120K 1/4W	1	
	R5706	ERJ8GEYJ274V	270K 1/4W	1	
	R5707	D0GF394JA017	390K 1/4W	1	
	R5720	D0GD220JA017	22 1/10W	1	
	R5721	D0GD103JA017	10K 1/10W	1	
	R5722	D0GD222JA017	2.2K 1/10W	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R5723	ERJ1TYJ333U	33K 1/2W	1	
	R5724	ERJ1TYJ333U	33K 1/2W	1	
	R5726	ERJ1TRQJR27U	0.27 1/2W	1	
	R5727	ERJ1TRQJR27U	0.27 1/2W	1	
	R5728	D0GB223JA008	22K 1/16W	1	
	R5729	D0GB473JA008	47K 1/16W	1	
	R5730	D0GB102JA008	1K 1/16W	1	
	R5732	ERJ6GEYJ221V	220 1/8W	1	
	R5733	D0GB473JA008	47K 1/16W	1	
	R5786	D0GD224JA017	220K 1/10W	1	
	R5795	D0GD474JA017	470K 1/10W	1	
	R5797	D0GB153JA008	15K 1/16W	1	
	R5798	D0GB101JA008	100 1/16W	1	
	R5801	D0GB101JA008	100 1/16W	1	
	R5802	D0HB183JA002	18K 1/16W	1	
	R5803	D0GD562JA017	5.6K 1/10W	1	
	R5804	ERJ6RED124V	120K 1/10W	1	
	R5805	ERJ3RBD682V	6.8K 1/16W	1	
	R5806	D0GB220JA008	22 1/16W	1	
	R5807	D0GD681JA017	680 1/10W	1	
	R5808	D0GB222JA008	2.2K 1/16W	1	
	R5809	D0GD681JA017	680 1/10W	1	
	R5814	D0GB104JA008	100K 1/16W	1	
	R5817	ERJ3RBD222V	2.2K 1/16W	1	
	R5818	D0GB220JA008	22 1/16W	1	
	R5819	D0GD220JA017	22 1/10W	1	
	R5820	D0GD272JA017	2.7K 1/10W	1	
	R5821	D0GB104JA008	100K 1/16W	1	
	R5832	ERJ1TYJ822U	8.2K 1/2W	1	
	R5833	ERJ1TYJ822U	8.2K 1/2W	1	
	R5861	D0GB104JA008	100K 1/16W	1	
	R5862	D0GD222JA017	2.2K 1/10W	1	
	R5863	D0GD562JA017	5.6K 1/10W	1	
	R5864	D0GB472JA008	4.7K 1/16W	1	
	R5866	ERJ6GEYJ221V	220 1/8W	1	
	R5890	D0GB222JA008	2.2K 1/16W	1	
	R5891	ERJ3RBD333V	33K 1/16W	1	
	R5892	ERJ3RBD332V	3.3K 1/16W	1	
	R5893	ERJ3RBD333V	33K 1/16W	1	
	R5894	D0GB102JA008	1K 1/16W	1	
	R5895	D0GB153JA008	15K 1/16W	1	
	R5897	D0GB101JA008	100 1/16W	1	
	R5898	D0GD824JA017	820K 1/10W	1	
	R5899	D0GD473JA017	47K 1/10W	1	
	R6004	D0GBR00JA008	0 1/16W	1	
	R6005	D0GB470JA008	47 1/16W	1	
	R6006	D0GB101JA008	100 1/16W	1	
	R6007	ERJ8GEYJ1R8V	1.8 1/4W	1	
	R6008	ERJ8GEYJ1R8V	1.8 1/4W	1	
	R6010	D0GB680JA008	68 1/16W	1	
	R6011	D0GB680JA008	68 1/16W	1	
	R6012	D0GB102JA008	1K 1/16W	1	
	R6015	D0GB563JA008	56K 1/16W	1	
	R6016	D0GB122JA008	1.2K 1/16W	1	
	R6017	D0GB152JA008	1.5K 1/16W	1	
	R6018	D0GB222JA008	2.2K 1/16W	1	
	R6019	D0GB332JA008	3.3K 1/16W	1	
	R6020	D0GB472JA008	4.7K 1/16W	1	
	R6021	D0GB152JA008	1.5K 1/16W	1	
	R6022	D0GB222JA008	2.2K 1/16W	1	
	R6023	D0GB332JA008	3.3K 1/16W	1	
	R6024	D0GB472JA008	4.7K 1/16W	1	
	R6025	D0GBR00JA008	0 1/16W	1	BT230
	R6030	D0GB103JA008	10K 1/16W	1	
	R6031	D0GB121JA008	120 1/16W	1	
	R6100	D0GB472JA008	4.7K 1/16W	1	
	R6101	D0GB104JA008	100K 1/16W	1	
	R6102	D0GB470JA008	47 1/16W	1	
	R6103	D0GBR00JA008	0 1/16W	1	
	R6531	D0GB221JA007	220 1/10W	1	BT330
	R6532	D0GB101JA008	100 1/16W	1	BT330
	R6533	D0GB473JA008	47K 1/16W	1	BT330
	R6535	D0GB184JA008	180K 1/16W	1	BT330

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	R6536	D0GB102JA008	1K 1/16W	1	BT330
	R6537	D0GB332JA008	3.3K 1/16W	1	BT330
	R6538	D0GB222JA008	2.2K 1/16W	1	BT330
	R6539	D0GB223JA008	22K 1/16W	1	BT330
	R6540	D0GB222JA008	2.2K 1/16W	1	BT330
	R6541	D0GB222JA008	2.2K 1/16W	1	BT330
	R6543	D0GB273JA008	27K 1/16W	1	BT330
	R6544	D0GB563JA008	56K 1/16W	1	BT330
	R6545	D0GB154JA008	150K 1/16W	1	BT330
	R6546	D0GB182JA008	1.8K 1/16W	1	BT330
	R6547	D0GB103JA008	10K 1/16W	1	BT330
	R6548	D0GB472JA008	4.7K 1/16W	1	BT330
	R6801	D0GB122JA008	1.2K 1/16W	1	
	R7000	D0GB1R5JA040	1.5 1/10W	1	
	R7002	D0GB1R5JA040	1.5 1/10W	1	
	R7003	ERJ3GEYJ3R3V	3.3 1/10W	1	
	R7005	D0GB562JA008	5.6K 1/16W	1	
	R7007	D0GB392JA008	3.9K 1/16W	1	
	R7009	D0GB272JA008	2.7K 1/16W	1	
	R7010	D0GB471JA008	470 1/16W	1	
	R7011	D0GB472JA008	4.7K 1/16W	1	
	R7012	D0GB272JA008	2.7K 1/16W	1	
	R7028	D0GB683JA008	68K 1/16W	1	
	R7031	D0GB393JA008	39K 1/16W	1	
	R7032	D0GB273JA008	27K 1/16W	1	
	R7033	D0GB393JA008	39K 1/16W	1	
	R7043	D0GA102JA023	1K 1/16W	1	
	R7050	D0GA103JA023	10K 1/16W	1	
	R7051	ERJ2GEOR00X	0 1/16W	1	
	R7055	D0GA104JA023	100K 1/16W	1	
	R7056	ERJ2GEOR00X	0 1/16W	1	
	R7061	D0GB272JA008	2.7K 1/16W	1	
	R7062	D0GB272JA008	2.7K 1/16W	1	
	R7063	D0GB272JA008	2.7K 1/16W	1	
	R7071	D0GA103JA023	10K 1/16W	1	
	R7072	D0GA332JA023	3.3K 1/16W	1	
	R7082	D0GA103JA023	10K 1/16W	1	
	R54900	D0GD4R7JA017	4.7 1/10W	1	
	R54902	D0GA102JA023	1K 1/16W	1	
	R54904	D0GA330JA023	33 1/16W	1	
	R54905	D0GA330JA023	33 1/16W	1	
	R54906	D0GA330JA023	33 1/16W	1	
	R54907	D0GA330JA023	33 1/16W	1	
	R54908	D0GD4R7JA017	4.7 1/10W	1	
	R54909	D0GA330JA023	33 1/16W	1	
	R57006	D0GA470JA023	47 1/16W	1	
	R57007	D0GA470JA023	47 1/16W	1	
			RESISTOR NET- WORKS		
	RX2300	D1H83314A024	RESISTOR NETWORK	1	
	RX2301	D1H83314A024	RESISTOR NETWORK	1	
	RX2302	D1H83314A024	RESISTOR NETWORK	1	
	RX2304	D1H83314A024	RESISTOR NETWORK	1	
	RX2305	D1H83314A024	RESISTOR NETWORK	1	
	RX2307	D1H83314A024	RESISTOR NETWORK	1	
	RX2308	D1H83314A024	RESISTOR NETWORK	1	
	RX2309	D1H83314A024	RESISTOR NETWORK	1	
	RX2310	D1H83314A024	RESISTOR NETWORK	1	
				1	
			CAPACITORS	1	
	C1002	F1G1C104A083	0.1uF 16V	1	
	C1003	F1G1C104A083	0.1uF 16V	1	
	C1004	F1G1C104A083	0.1uF 16V	1	
	C1101	F1G1A1040006	0.1uF 10V	1	
	C1102	EEEFK0J102P	1000uF 6.3V	1	
	C1103	F1J1A106A043	10uF 10V	1	
	C1104	F1J1A106A043	10uF 10V	1	
	C1105	F1G1A1040006	0.1uF 10V	1	
	C1107	F2G0J101A083	100uF 6.3V	1	
	C1109	F1G1C1030007	0.01uF 16V	1	
	C1110	F1G1C1030007	0.01uF 16V	1	
	C1111	F1G1H2200001	22pF 50V	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	C1113	F1G1H2200001	22pF 50V	1	
	C1114	F1G1H2200001	22pF 50V	1	
	C1115	F1G1H2200001	22pF 50V	1	
	C1116	F1G1H2200001	22pF 50V	1	
	C1117	F1H1A105A025	1uF 10V	1	
	C1118	F1H1A105A025	1uF 10V	1	
	C1119	F1G1H330A565	33pF 50V	1	
	C1122	F1G1C1030007	0.01uF 16V	1	
	C1131	F1G1E1020001	1000pF 25V	1	
	C1134	F1G1E1020001	1000pF 25V	1	
	C1135	F1J1A106A043	10uF 10V	1	
	C2041	F1G1A1040006	0.1uF 10V	1	
	C2042	F1G1H470A444	47pF 50V	1	
	C2043	F1G1H470A444	47pF 50V	1	
	C2044	F1H1A105A025	1uF 10V	1	
	C2045	F1G1C1030007	0.01uF 16V	1	
	C2046	F1J1A106A043	10uF 10V	1	
	C2051	F1H1A105A025	1uF 10V	1	
	C2052	F1G1C1030007	0.01uF 16V	1	
	C2053	F1G1E1020001	1000pF 25V	1	
	C2054	F2G0J101A083	100uF 6.3V	1	
	C2055	F1G1E1020001	1000pF 25V	1	
	C2056	F1H1A105A025	1uF 10V	1	
	C2057	F1G1C1030007	0.01uF 16V	1	
	C2058	F1G1C273A081	0.027uF 16V	1	
	C2059	F1G1E2720001	2700pF 25V	1	
	C2060	F1H1A105A025	1uF 10V	1	
	C2061	F1G1C1030007	0.01uF 16V	1	
	C2071	F1G1A1040006	0.1uF 10V	1	
	C2072	F1J1A106A043	10uF 10V	1	
	C2102	F1G1E1020001	1000pF 25V	1	
	C2103	F1G1E1020001	1000pF 25V	1	EB/EG/EP
	C2104	F1G1E1020001	1000pF 25V	1	EB/EG/EP
	C2107	F1G1E1020001	1000pF 25V	1	
	C2112	F1G1E1020001	1000pF 25V	1	
	C2113	F1G1E1020001	1000pF 25V	1	
	C2116	F1G1E1020001	1000pF 25V	1	
	C2117	F1G1E1020001	1000pF 25V	1	
	C2118	F1G1E1020001	1000pF 25V	1	
	C2201	F1H1A105A025	1uF 10V	1	
	C2202	F1H1A105A025	1uF 10V	1	
	C2203	F1G1H470A444	47pF 50V	1	
	C2204	F1G1H470A444	47pF 50V	1	
	C2205	F1H1A105A025	1uF 10V	1	
	C2206	F1J1A106A043	10uF 10V	1	
	C2207	F1G1A1040006	0.1uF 10V	1	
	C2211	F1G1A1040006	0.1uF 10V	1	
	C2212	F1G1A1040006	0.1uF 10V	1	
	C2301	F1G1H470A444	47pF 50V	1	
	C2302	F1G1A1040006	0.1uF 10V	1	
	C2304	F1G1A1040006	0.1uF 10V	1	
	C2305	F1G1A1040006	0.1uF 10V	1	
	C2306	F1G1A1040006	0.1uF 10V	1	
	C2307	F1G1A1040006	0.1uF 10V	1	
	C2308	F1G1E4720002	4700pF 25V	1	
	C2309	F1G1E4720002	4700pF 25V	1	
	C2310	F1G1H470A444	47pF 50V	1	
	C2311	F1G1H470A444	47pF 50V	1	
	C2312	F1G1A1040006	0.1uF 10V	1	
	C2313	F1G1A1040006	0.1uF 10V	1	
	C2314	F2G0J101A083	100uF 6.3V	1	
	C2315	F1H1A105A025	1uF 10V	1	
	C2316	F1H1A105A025	1uF 10V	1	
	C2321	F1G1E4720002	4700pF 25V	1	
	C2322	F1G1E4720002	4700pF 25V	1	
	C2400	F1G1A1040006	0.1uF 10V	1	
	C2572	F1H1H2210001	220pF 50V	1	
	C2573	F1H1H2210001	220pF 50V	1	
	C2802	F1G1E6810001	680pF 25V	1	
	C2803	F1G1E6810001	680pF 25V	1	
	C2804	F1G1E6810001	680pF 25V	1	
	C2805	F1G1E6810001	680pF 25V	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	C2806	F1H1A105A025	1uF 10V	1	
	C2807	F1H1A105A025	1uF 10V	1	
	C2811	F1H1A105A025	1uF 10V	1	
	C2812	F1H1A105A025	1uF 10V	1	
	C2813	F1H1A105A025	1uF 10V	1	
	C2814	F1H1A105A025	1uF 10V	1	
	C2815	F1G1H470A444	47pF 50V	1	
	C2816	F1G1H470A444	47pF 50V	1	
	C2817	F1G1A1040006	0.1uF 10V	1	
	C2818	F1G1A1040006	0.1uF 10V	1	
	C2901	F2A1V2210049	220uF 35V	1	
	C2902	F2A0J1220028	1200uF 6.3V	1	
	C2903	F2A1C8210008	820uF 16V	1	
	C2907	F2A1V5600013	56uF 35V	1	
	C2951	F1H1H102A219	1000pF 50V	1	
	C2953	F1H1H104A013	0.1uF 50V	1	
	C2957	F1H1H103A219	0.01uF 50V	1	
	C2957	F1H1H220A230	22pF 50V	1	
	C2958	F1H1H220A230	22pF 50V	1	
	C2959	F1H1A105A025	1uF 10V	1	
	C2960	F1H1A105A025	1uF 10V	1	
	C2961	F1G1C104A077	0.1uF 16V	1	
	C2961	F1H1H681A013	680pF 50V	1	
	C2962	F1G1C104A077	0.1uF 16V	1	
	C2962	F1H1H103A219	0.01uF 50V	1	
	C2963	F1H1H681A013	680pF 50V	1	
	C2964	F1H1H104A013	0.1uF 50V	1	
	C2966	F1J1V1050001	1uF 35V	1	
	C2971	F1H1H104A013	0.1uF 50V	1	
	C2972	F1H1C224A068	0.22uF 16V	1	
	C2973	F1H1H122A013	1200pF 50V	1	
	C2974	F1H1A105A025	1uF 10V	1	
	C2975	F1K1C1060001	10uF 16V	1	
	C2976	F1H1H153A219	0.015uF 50V	1	
	C2977	F1H1C224A068	0.22uF 16V	1	
	C2981	F1H1H102A219	1000pF 50V	1	
	C2982	F1K1C1060001	10uF 16V	1	
	C2983	F1J1V1050001	1uF 35V	1	
	C3003	F2A0J221A245	220uF 6.3V	1	
	C3103	F1J1A106A043	10uF 10V	1	
	C3104	F1J1A106A043	10uF 10V	1	
	C5100	F1H1H104A013	0.1uF 50V	1	
	C5101	F1H1H104A013	0.1uF 50V	1	
	C5102	F1J1C106A059	10uF 16V	1	
	C5103	F1H1H104A013	0.1uF 50V	1	
	C5104	F1H1H104A013	0.1uF 50V	1	
	C5105	F1H1H104A013	0.1uF 50V	1	
	C5106	F1J2A333A024	0.033uF 100V	1	
	C5107	F1L2A2250002	2.2uF 100V	1	
	C5108	F1L2A2250002	2.2uF 100V	1	
	C5109	F1L2A2250002	2.2uF 100V	1	
	C5110	F1L2A2250002	2.2uF 100V	1	
	C5111	F1J2A333A024	0.033uF 100V	1	
	C5112	F1J2A333A024	0.033uF 100V	1	
	C5113	F1L2A2250002	2.2uF 100V	1	
	C5114	F1L2A2250002	2.2uF 100V	1	
	C5115	F1L2A2250002	2.2uF 100V	1	
	C5116	F1L2A2250002	2.2uF 100V	1	
	C5117	F2A1J3310032	330uF 63V	1	
	C5118	F1J2A333A024	0.033uF 100V	1	
	C5119	F1H1H104A013	0.1uF 50V	1	
	C5120	F0C1J1050003	1uF 63V	1	
	C5121	F2A1V3310040	330uF 35V	1	
	C5127	F0C1J1050003	1uF 63V	1	
	C5128	F2A1V4710076	470uF 35V	1	
	C5133	F2A1V4710076	470uF 35V	1	
	C5134	F2A1V3310040	330uF 35V	1	
	C5135	F0C1J1050003	1uF 63V	1	
	C5136	F2A1V3310040	330uF 35V	1	
	C5137	F2A1V4710076	470uF 35V	1	
	C5142	F0C1J1050003	1uF 63V	1	
	C5143	F2A1V3310040	330uF 35V	1	
	C5144	F2A1V4710076	470uF 35V	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	C5150	F1H2A102A009	1000pF 100V	1	
	C5151	F1H2A102A009	1000pF 100V	1	
	C5152	F1H2A102A009	1000pF 100V	1	
	C5153	F1H2A102A009	1000pF 100V	1	
	C5154	F1H2A102A009	1000pF 100V	1	
	C5155	F1H2A102A009	1000pF 100V	1	
	C5156	F1H2A102A009	1000pF 100V	1	
	C5157	F1H2A102A009	1000pF 100V	1	
	C5200	F1H1H104A013	0.1uF 50V	1	
	C5201	F1H1H104A013	0.1uF 50V	1	
	C5202	F1J1C106A059	10uF 16V	1	
	C5203	F1H1H104A013	0.1uF 50V	1	
	C5204	F1H1H104A013	0.1uF 50V	1	
	C5205	F1H1H104A013	0.1uF 50V	1	
	C5206	F1J2A333A024	0.033uF 100V	1	
	C5207	F1L2A2250002	2.2uF 100V	1	
	C5208	F1L2A2250002	2.2uF 100V	1	
	C5209	F1L2A2250002	2.2uF 100V	1	
	C5210	F1L2A2250002	2.2uF 100V	1	
	C5211	F1J2A333A024	0.033uF 100V	1	
	C5212	F1J2A333A024	0.033uF 100V	1	
	C5213	F1L2A2250002	2.2uF 100V	1	
	C5214	F1L2A2250002	2.2uF 100V	1	
	C5215	F1L2A2250002	2.2uF 100V	1	
	C5216	F1L2A2250002	2.2uF 100V	1	
	C5217	F2A1J3310032	330uF 63V	1	
	C5218	F1J2A333A024	0.033uF 100V	1	
	C5219	F1H1H104A013	0.1uF 50V	1	
	C5222	ECQV1H474JL3	0.47uF 50V	1	
	C5223	F1H2A1040001	100V 0.1uF	1	
	C5224	F1H1H103A219	0.01uF 50V	1	
	C5226	F1H2A1040001	100V 0.1uF	1	
	C5227	F1H1H103A219	0.01uF 50V	1	
	C5228	ECQV1H474JL3	0.47uF 50V	1	
	C5229	F1K2A224A106	100V 0.22uF	1	
	C5230	F1K2A224A106	100V 0.22uF	1	
	C5231	F1H1H103A219	0.01uF 50V	1	
	C5232	F1H1H103A219	0.01uF 50V	1	
	C5235	F1H2A102A009	1000pF 100V	1	
	C5236	F1H2A102A009	1000pF 100V	1	
	C5237	F1H2A102A009	1000pF 100V	1	
	C5238	F1H2A102A009	1000pF 100V	1	
	C5350	F1H1H104A013	0.1uF 50V	1	
	C5351	F1H1H104A013	0.1uF 50V	1	
	C5352	F1H1H103A219	0.01uF 50V	1	
	C5354	F1H1H104A013	0.1uF 50V	1	
	C5356	F1H1H104A013	0.1uF 50V	1	
	C5357	F1H1H103A219	0.01uF 50V	1	
	C5358	F1H1H104A013	0.1uF 50V	1	
	C5359	F1J1A106A043	10uF 10V	1	
	C5361	F1H1H104A013	0.1uF 50V	1	
	C5362	F1H1H470A004	47pF 50V	1	
	C5363	F1H1H470A004	47pF 50V	1	
	C5365	F1H1H104A013	0.1uF 50V	1	
	C5366	F1H1H104A013	0.1uF 50V	1	
	C5406	EEE1EA330WR	33uF 25V	1	
	C5412	F1H1H103A219	0.01uF 50V	1	
	C5416	F1H1H102A219	1000pF 50V	1	
	C5417	EEE1CA100SR	10uF 16V	1	
	C5418	EEE0JA101WR	100uF 6.3V	1	
	C5419	F1H1E105A116	1uF 25V	1	
	C5420	EEE1CA220WR	22uF 16V	1	
	C5421	F1H1H104A013	0.1uF 50V	1	
	C5422	EEE1CA220WR	22uF 16V	1	
	C5423	F1J1V1050001	1uF 35V	1	
	C5424	F1H1H562A219	5600pF 50V	1	
	C5425	F1H1C105A097	1uF 16V	1	
	C5427	F1J1A106A043	10uF 10V	1	
	C5428	F1J1A106A043	10uF 10V	1	
	C5432	F1H1H103A219	0.01uF 50V	1	
	C5433	F1H1H104A013	0.1uF 50V	1	
	C5434	F1H1H104A013	0.1uF 50V	1	
	C5435	F1H1H104A013	0.1uF 50V	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	C5436	F1H1H104A013	0.1uF 50V	1	
	C5437	F1H1H104A013	0.1uF 50V	1	
	C5439	F1H1C105A097	1uF 16V	1	
	C5440	F1J1V1050001	1uF 35V	1	
	C5446	F1H2A102A009	1000pF 100V	1	
	C5447	F1J1V1050001	1uF 35V	1	
	C5448	F1J1A106A043	10uF 10V	1	
	C5449	F1H1H104A013	0.1uF 50V	1	
	C5450	EEE1CA220WR	22uF 16V	1	
⚠	C5700	F1BAF1020020	1000pF	1	
⚠	C5701	F0CAF104A105	0.1uF	1	
⚠	C5702	F0CAF104A105	0.1uF	1	
⚠	C5703	F0CAF104A105	0.1uF	1	
⚠	C5705	F1BAF1020020	1000pF	1	
⚠	C5706	F1BAF471A013	470pF	1	
	C5712	F2A2G1810002	180uF 400V	1	
	C5713	F0C2J1030005	0.01uF 630V	1	
	C5720	F1H1H101A230	100pF 50V	1	
	C5721	F1H1H2210001	220pF 50V	1	
	C5722	F1H1H102A219	1000pF 50V	1	
	C5723	F1H1H471A219	470pF 50V	1	
	C5724	F1H1H102A219	1000pF 50V	1	
	C5725	F1H1H104A013	0.1uF 50V	1	
	C5726	F2A1H100A454	10uF 50V	1	
	C5730	F1H1E105A116	1uF 25V	1	
	C5747	F1B3A821A009	820pF 1000V	1	
	C5790	F1K2J2220002	2200pF 630V	1	
	C5791	F1J0J106A020	10uF 6.3V	1	
	C5795	F1H1H102A219	1000pF 50V	1	
	C5796	F1H1H104A013	0.1uF 50V	1	
	C5798	F2A1H100A454	10uF 50V	1	
	C5799	F2B2G6R80001	6.8uF 400V	1	
	C5800	F1J2E1030004	0.01uF 250V	1	
	C5805	F2A1J1020045	1000uF 63V	1	
	C5808	F2A1J1020045	1000uF 63V	1	
	C5811	F1J2E1030004	0.01uF 250V	1	
	C5813	F2A1V331B150	330uF 35V	1	
	C5817	F1H2A682A002	6800pF 100V	1	
	C5818	F1H1H104A013	0.1uF 50V	1	
	C5824	F2A1E221B422	220uF 25V	1	
	C5826	F1J2E1030004	0.01uF 250V	1	
	C5827	F1J2E1030004	0.01uF 250V	1	
	C5828	F2A0J222A247	2200uF 6.3V	1	
	C5840	F1J2E1030004	0.01uF 250V	1	
	C5869	F1H1H103A219	0.01uF 50V	1	
	C5897	F1H1H104A013	0.1uF 50V	1	
	C5898	F1H1H104A013	0.1uF 50V	1	
	C5899	F2A1A2210063	220uF 10V	1	
	C6001	F1J1V1050001	1uF 35V	1	
	C6005	F1J1V1050001	1uF 35V	1	
	C6010	F1J1A4750002	4.7uF 10V	1	
	C6012	F1H1H1010005	100pF 50V	1	
	C6013	F1H1H1010005	100pF 50V	1	
	C6014	F1H1H1010005	100pF 50V	1	
	C6015	F1J1V1050001	1uF 35V	1	
	C6016	F1H1H1010005	100pF 50V	1	
	C6018	F2A0J1000008	10uF 6.3V	1	
	C6019	F1H1H104A013	0.1uF 50V	1	
	C6100	F2A1C470A630	47uF 16V	1	
	C6101	F1H1H562A219	5600pF 50V	1	
	C6102	F2A1V330A921	33uF 35V	1	
	C6103	F2A0J221A024	220uF 6.3V	1	
	C6104	F2A1V470A942	47uF 35V	1	
	C6105	F1J1C106A059	10uF 16V	1	
	C6522	F1H1C104A042	0.1uF 16V	1	BT330
	C6523	F1H1H103A219	0.01uF 50V	1	BT330
	C6530	F1H1H103A219	0.01uF 50V	1	BT330
	C6531	F1H1C105A097	1uF 16V	1	BT330
	C6532	F1H1H101A230	100pF 50V	1	BT330
	C6533	F1H1C104A042	0.1uF 16V	1	BT330
	C6534	F1H1C105A097	1uF 16V	1	BT330
	C6535	F1H1H104A013	0.1uF 50V	1	BT330
	C6536	F1H1C105A097	1uF 16V	1	BT330

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	C6537	F1H1H151A792	150pF 50V	1	BT330
	C6538	F1J0J106A014	10uF 6.3V	1	BT330
	C6539	F1H1C105A097	1uF 16V	1	BT330
	C7011	F1J1A106A043	10uF 10V	1	
	C7012	F1J1A106A043	10uF 10V	1	
	C7014	F1J1A106A043	10uF 10V	1	
	C7016	F1J1A106A043	10uF 10V	1	
	C7017	F1J1A106A043	10uF 10V	1	
	C7019	EEEFK0J102P	1000uF 6.3V	1	
	C7020	EEEFK1C471P	470uF 16V	1	
	C7021	F1J1A106A043	10uF 10V	1	
	C7022	F1J1A106A043	10uF 10V	1	
	C7041	F1J1A106A043	10uF 10V	1	
	C7042	F1J1A106A043	10uF 10V	1	
	C7051	F1H1H103A219	0.01uF 50V	1	
	C7052	F1H1H103A219	0.01uF 50V	1	
	C7054	F1H1E105A116	1uF 25V	1	
	C7055	F1H1E105A116	1uF 25V	1	
	C7056	F1H1H471A971	470pF 50V	1	
	C7057	F1H1E105A116	1uF 25V	1	
	C7058	F1H1E105A116	1uF 25V	1	
	C7059	F1H1E105A116	1uF 25V	1	
	C7067	F1J1A106A043	10uF 10V	1	
	C7071	F1J1A106A043	10uF 10V	1	
	C7072	F1G1A1040006	0.1uF 10V	1	
	C7075	F1H1E105A116	1uF 25V	1	
	C51711	F1G1A1040006	0.1uF 10V	1	
	C54900	F1G1H221A541	220pF 50V	1	
	C54901	F1G1H221A541	220pF 50V	1	
	C54902	F1G1A1040006	0.1uF 10V	1	
	C54903	F1H1A105A025	1uF 10V	1	
	C54904	F1J0J106A020	10uF 6.3V	1	
	C54905	F1G1C1030007	0.01uF 16V	1	
	C54906	F2G0J4700010	47uF 6.3V	1	
	C54907	F1G1E1020001	1000pF 25V	1	
	C54908	F1G1C1030007	0.01uF 16V	1	
	C54909	F1J0J106A020	10uF 6.3V	1	
	C54910	F1H1A105A025	1uF 10V	1	
	C54911	F1H1A105A025	1uF 10V	1	
	C57010	F1G1A1040006	0.1uF 10V	1	
	C57011	F1G1A1040006	0.1uF 10V	1	

MMH1003