

Service Manual

DVD Stereo System



Model No. **SA-VK680GA**
SA-VK680GC
SA-VK680GS

Product Color: (K)...Black Type



Please file and use this service manual together with the service manual for CR14D, Order No. PSG0905054AE

⚠ 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	2.1. Prevention of Electrostatic Discharge (ESD)	
1.1. GENERAL GUIDELINES-----	4	to Electrostatic Sensitive (ES) Devices-----	7
1.2. Safety Precaution for AC Power Supply Cord		2.2. Precaution of Laser Diode -----	8
(For GS only)-----	5	2.3. Service caution based on Legal restrictions -----	9
1.3. Before Use (For GA/GS only)-----	5	2.4. Handling Precautions for Traverse Unit -----	10
1.4. Before Repair and Adjustment-----	5	3 Service Navigation -----	12
1.5. Protection Circuitry-----	5	3.1. Service Information-----	12
1.6. Safety Parts Information-----	6	4 Specifications -----	13
2 Warning -----	7	5 Location of Controls and Components -----	15
		5.1. Main Unit Key Button Operation-----	15

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5.2. Remote Control Key Button Operation -----	16	11 Service Positions -----	91
5.3. Disc Information -----	17	11.1. Checking and Repairing of Main P.C.B. -----	91
5.4. Using the Music Port -----	19	11.2. Checking and Repairing Panel P.C.B., Deck P.C.B., Volume P.C.B., Music Port P.C.B. and Mic P.C.B. -----	91
5.5. DivX VOD Content -----	20	11.3. Checking and Repairing of D-Amp P.C.B. -----	93
5.6. USB - Play and Recording -----	21	11.4. Checking and Repairing of AC Inlet P.C.B. & SMPS P.C.B. -----	95
6 Self-Diagnosis and Special Mode Setting -----	23	12 Procedure for Checking Operation of Deck Mechanism Unit -----	97
6.1. Service Mode Summary Table -----	23	12.1. Operation Check with Cassette Tape -----	97
6.2. Doctor Mode Table -----	25	12.2. Operation Check without Cassette Tape -----	97
6.3. Self-Diagnosis Mode Table -----	26	13 Measurements and Adjustments -----	99
6.4. Service Mode Table (For DVD) -----	27	13.1. Cassette Deck -----	99
6.5. DVD Self Diagnostic Function-Error Code -----	35	13.2. Tape Speed Adjustment -----	99
6.6. Sales Demonstration Lock Function -----	40	13.3. Bias Voltage Check -----	100
7 Troubleshooting Guide -----	41	13.4. Bias Frequency Check -----	100
7.1. Troubleshooting Guide for F61 and/or F76 -----	41	14 Voltage & Waveform Chart -----	101
7.2. Basic Troubleshooting Guide for Traverse Unit (DVD Module P.C.B.) -----	47	14.1. DVD Module P.C.B. (1/3) -----	101
7.3. Basic Troubleshooting Guide for HDMI AV Output -----	48	14.2. DVD Module P.C.B. (2/3) -----	102
8 Service Fixture & Tools -----	50	14.3. DVD Module P.C.B. (3/3) -----	103
8.1. Service Tools and Equipment -----	50	14.4. Main P.C.B. (1/3) -----	104
9 Disassembly and Assembly Instructions -----	51	14.5. Main P.C.B. (2/3) -----	105
9.1. Disassembly flow chart -----	53	14.6. Main P.C.B. (3/3) -----	106
9.2. Main Components and P.C.B. Location -----	54	14.7. Panel P.C.B. -----	107
9.3. Disassembly of Top Cabinet -----	55	14.8. Deck P.C.B. -----	107
9.4. Disassembly of DVD Mechanism Unit (CR14D) -----	56	14.9. Mic P.C.B. -----	107
9.5. Disassembly of DVD Module P.C.B. -----	58	14.10. D-Amp P.C.B. -----	108
9.6. Disassembly of Rear Panel -----	58	14.11. SMPS P.C.B. -----	109
9.7. Disassembly of Front Panel Assembly -----	59	14.12. Deck Mechanism P.C.B. -----	109
9.8. Disassembly of Mic P.C.B. -----	60	14.13. Volume P.C.B. -----	109
9.9. Disassembly of Panel P.C.B., Volume P.C.B. & Remote Sensor P.C.B. , Side Bar (L) LED P.C.B. and Side Bar (R) LED P.C.B. -----	61	14.14. Waveform Table (1/3) -----	110
9.10. Disassembly of USB P.C.B. -----	63	14.15. Waveform Table (2/3) -----	111
9.11. Disassembly of Music Port P.C.B. -----	64	14.16. Waveform Table (3/3) -----	112
9.12. Disassembly of CD Lid -----	64	15 Illustration of ICs, Transistor and Diode -----	113
9.13. Disassembly of Deck Mechanism Unit -----	65	16 Block Diagram -----	115
9.14. Disassembly of Deck P.C.B. -----	66	16.1. DVD (Audio) -----	115
9.15. Disassembly of Deck Mechanism P.C.B. -----	66	16.2. DVD (Servo) -----	116
9.16. Disassembly of Deck Mechanism -----	67	16.3. System Control -----	117
9.17. Disassembly of Cassette Lid -----	76	16.4. Audio -----	118
9.18. Rectification for Tape Jam Problem -----	76	16.5. Video -----	119
9.19. Disassembly of D-Amp P.C.B. -----	77	16.6. Deck -----	120
9.20. Replacement of Audio Digital Power Amp IC (IC5000) -----	78	16.7. D-Amp -----	121
9.21. Replacement of Audio Digital Power Amp IC (IC5200) -----	79	16.8. Power -----	122
9.22. Disassembly of Main P.C.B. -----	79	17 Wiring Connection Diagram -----	123
9.23. Disassembly of SMPS P.C.B. -----	80	18 Schematic Diagram Notes -----	125
9.24. Replacement of Switching Regulator IC (IC5701) -----	82	19 Schematic Diagram -----	127
9.25. Replacement of Rectifier Diode (D5702) -----	83	19.1. DVD Module Circuit -----	127
9.26. Replacement of Regulator Diode (D5801) -----	84	19.2. Main Circuit -----	131
9.27. Replacement of Regulator Diode (D5802) -----	85	19.3. Panel Circuit -----	137
9.28. Replacement of Regulator Diode (D5803) -----	85	19.4. Volume, Music Port, Remote Sensor & Mic Circuit -----	138
9.29. Disassembly of AC Inlet P.C.B. -----	86	19.5. Deck Circuit -----	139
9.30. Disassembly of Voltage Selector P.C.B. (For GA/GS Only) -----	87	19.6. D-Amp Circuit -----	140
10 Disassembling and Assembling of Traverse Unit -----	89	19.7. SMPS Circuit -----	142
10.1. Disassembly Procedures -----	89	19.8. USB, Deck Mechanism, AC Inlet Circuit & Voltage Selector (For GA/GS only) Circuit -----	144
10.2. Assembly Procedures -----	90	20 Printed Circuit Board -----	145
		20.1. DVD Module P.C.B. -----	145
		20.2. Main P.C.B. -----	146

20.3. Panel, Side Bar (L) LED & Side Bar (R) LED P.C.B. -----	147
20.4. Volume, Music Port, Remote Sensor, Mic & USB P.C.B. -----	148
20.5. Deck, Deck Mechanism, AC Inlet P.C.B. & Voltage Selector (For GA/GS only) P.C.B. -----	149
20.6. D-Amp P.C.B. -----	150
20.7. SMPS P.C.B. -----	151
21 Terminal Function of ICs -----	153
21.1. IC2801 (RFKWMVK680GC): IC MICROPROCESSOR -----	153
21.2. IC6601(C0HBB0000057): IC FL Driver -----	153
22 Exploded View and Replacement Parts List -----	155
22.1. Exploded View and Mechanical Replacement Part List -----	155
22.2. Electrical Replacement Part List -----	161

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 $1\text{M}\Omega$ and $5.2\text{M}\Omega$.
When the exposed metal does not have a return path to the chassis, the reading must be ∞

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 $1.5\text{k}\Omega$, 10 watts resistor, in parallel with a $0.15\mu\text{F}$ 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.

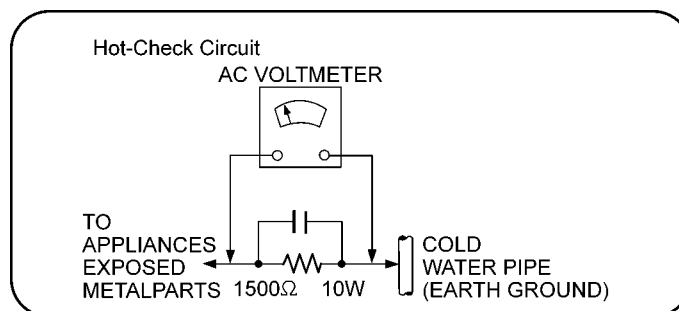


Figure 1

1.2. Safety Precaution for AC Power Supply Cord (For GS only)

For Saudi Arabia and Kuwait

(GS area code model 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

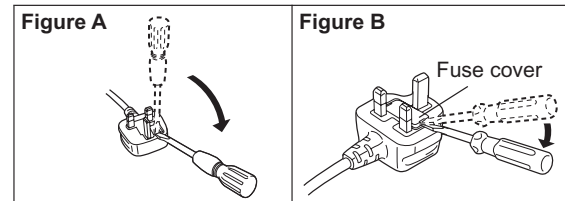
Remove the connector cover.

How to replace the fuse

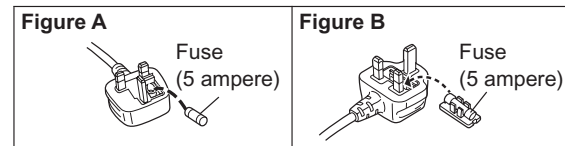
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

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.



1.3. Before Use (For GA/GS only)

Be sure to disconnect the mains cord before adjusting the voltage selector.

Use a minus(-) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used. (If the power supply in your area is 117V or 120V, set to the "117V or 120V" position.)

Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries, the correct voltage is already set.)

1.4. Before Repair and Adjustment

Disconnect AC power to discharge unit AC Capacitors as such (C5700, C5701, C5703, C5704, C5705, C5706, C5707) through a 10 Ω , 10 W 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 110V~127V, 50/60 Hz at power on (in FM Tuner, no signal at volume minimum) should be ~ 750 mA.

Current consumption at AC 220V~240V, 50/60 Hz at power on (in FM Tuner, no signal at volume minimum) should be ~ 500 mA.

1.4.1. Caution for fuse replacement

CAUTION:

i) Replace with the same type fuse:

(Manufacturer: LITTELFUSE, INC, Type: 215, F1, T5AH, 250V)(GC only)

ii) Replace with the same type fuse:

(Manufacturer: LITTELFUSE, INC, Type: 215, F1, T8AH, 250V)(GS/GA only)

1.5. 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.

1.6. 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
	4	REZX0023-1	BLACK WIRE (AC INLET-SMPS)	GA/GS
	5	REZX0024-1	RED WIRE (AC INLET-SMPS)	GA/GS
	15	RGRX0070M-D1	REAR PANEL	GS
	15	RGRX0070M-E1	REAR PANEL	GA
	15	RGRX0070N-C1	REAR PANEL	GC
	41	RMZ0339	ZNR COVER	GA/GS
	53	REXX0686-1	WHT WIRE (VOLTAGE SELECTOR-SMPS)	GA/GS
	54	REXX0687-1	BLU WIRE (VOLTAGE SELECTOR-SMPS)	GA/GS
	62	REXX0684-1	BLACK WIRE (AC INLET-SMPS)	GC
	63	REXX0685-1	RED WIRE (AC INLET-SMPS)	GC
	69	RKM0144A-K	TOP CABINET	
	340	RD-DDTX004-V	TRAVERSE ASS'Y	(RTL)
	A2	K2CP2CA00001	AC CORD	GA
	A2	K2CQ2CA00007	AC CORD	
	A2	K2CZ3YY00005	AC CORD	GS
	A3	RQTX0281-G	O/I BOOK (En/Pe/Ar)	GC/GS
	A3	RQTX0282-L	O/I BOOK (En/Cn)	GA
	PCB12	REPX0751C	SMPS P.C.B	(RTL) GC
	PCB12	REPX0751D	SMPS P.C.B	(RTL) GA/GS
	PCB13	REPX0751C	AC INLET P.C.B	(RTL) GC
	PCB13	REPX0751D	AC INLET P.C.B	(RTL) GA/GS
	PCB14	REPX0751D	VOLTAGE SELECTOR P.C.B	(RTL) GA/GS
	DZ5701	ERZV10V511CS	ZNR	
	S5701	K0ABCA000007	SW VOLTAGE SELECTOR	GA/GS
	L5701	ELF15N035AN	LINE FILTER	GC
	L5703	ELF21N015A	LINE FILTER	
	T2900	G4D1A0000117	SWITCHING TRANSFORMER	
	T5701	ETS42BN1A6AD	MAIN TRANSFORMER	
	T5751	ETS19AB256AG	BACKUP TRANSFORMER	
	PC5701	B3PBA0000402	PHOTO COUPLER	
	PC5702	B3PBA0000402	PHOTO COUPLER	
	PC5720	B3PBA0000402	PHOTO COUPLER	
	PC5799	B3PBA0000402	PHOTO COUPLER	
	F1	K5D502BNA005	FUSE	GC
	F1	K5D802BNA005	FUSE	GA/GS
	FP2901	K5G401A00008	FUSE PROTECTOR	
	TH5701	D4CAC8R00002	THERMISTOR	GC
	TH5702	D4CAA2R20001	THERMISTOR	GA/GS
	TH5860	D4CC11040013	THERMISTOR	
	P5701	K2AA2B000017	AC INLET	
	C5700	F1BAF1020020	1000pF	
	C5701	F0CAF334A087	0.33uF	
	C5703	F0C2H1040001	0.1uF 500V	
	C5704	F1BAF1020020	1000pF	
	C5705	F1BAF1020020	1000pF	
	C5706	F1BAF1020020	1000pF	
	C5707	F1BAF1020020	1000pF	

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:

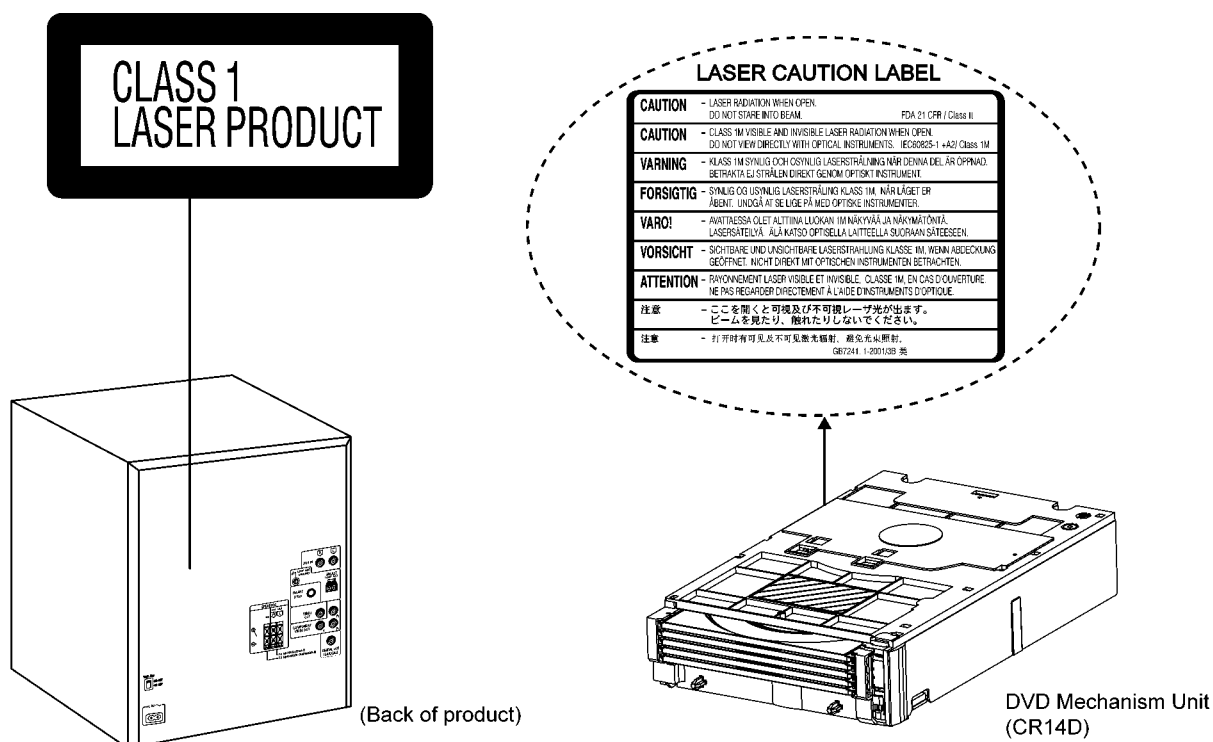
This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wavelength: 655nm (DVD) / 785 nm (CD)

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 Traverse Unit

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 traverse unit.

2.4.1. Cautions to Be Taken in Handling the Optical Pickup Unit

The laser diode in the optical pickup unit may be damaged due to electrostatic discharge generating from clothes or human body. Special care must be taken avoid caution to electrostatic discharge damage when servicing the laser diode.

1. Do not give a considerable shock to the optical pickup unit as it has an extremely high-precise structure.
2. To prevent the laser diode from the electrostatic discharge damage, the flexible cable of the optical pickup unit removed should be short-circuited with a short pin or a clip.
3. The flexible cable may be cut off if an excessive force is applied to it. Use caution when handling the flexible cable.
4. The antistatic FPC is connected to the new optical pickup unit. After replacing the optical pickup unit and connecting the flexible cable, cut off the antistatic FPC.

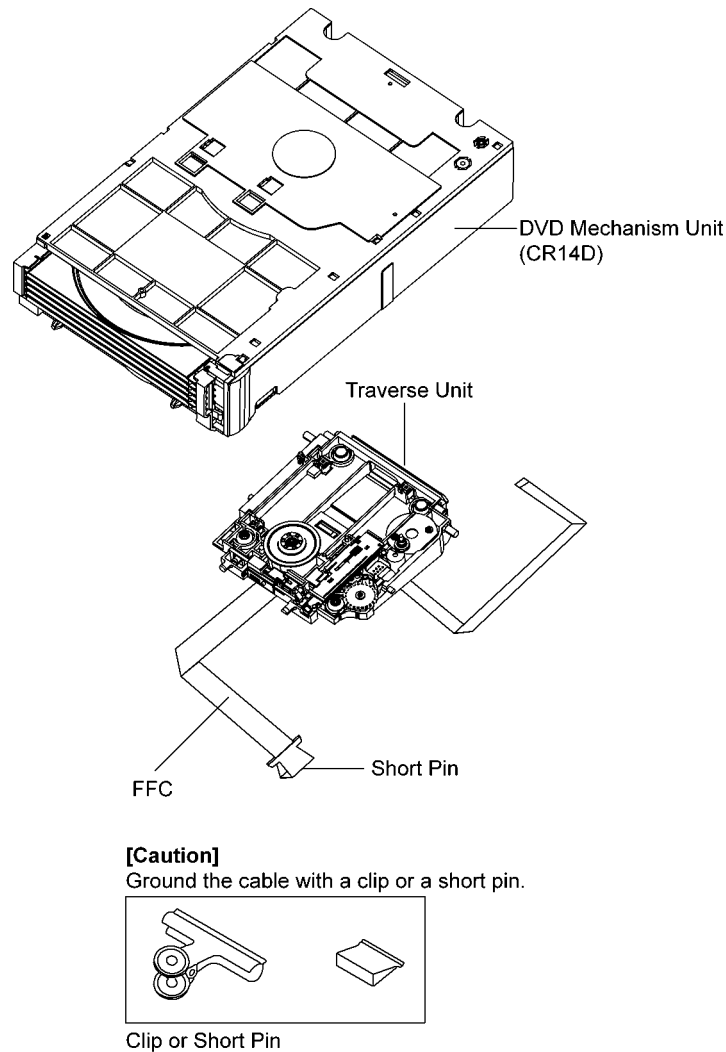


Figure 1

2.4.2. 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.

2.4.2.1. Worktable grounding

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

2.4.2.2. Human body grounding

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

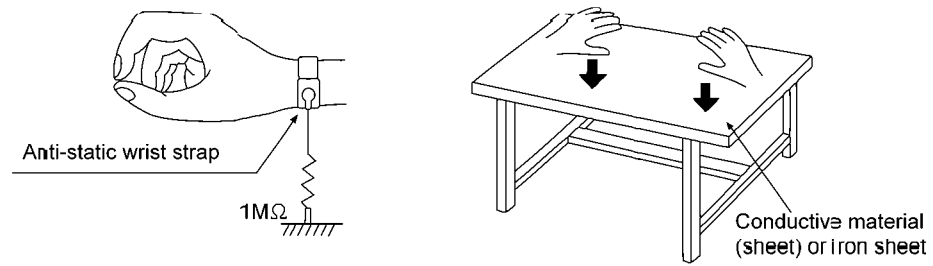


Figure 2

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 original service manual.

- **DVD Mechanism unit (CR14D):**

1) This model uses DVD Mechanism Unit (CR14D).

- **Printed Circuit Boards:**

1) The following category are supplied as an assembled module.

- DVD Module P.C.B. (RFKBX0681D-C)(GC/GS)
- DVD Module P.C.B. (RFKBX0681E-C)(GA)

- **Micro-processor & EEPROM IC:**

1) The following components are supplied as an assembled part.

- Micro-processor IC, IC2801 (RFKWMVK680GC)
- EEPROM IC, IC2802 (RFKWEVK680GC)
- EEPROM IC, IC8611 (RFKBX0681D-C)(GC/GS), (RFKBX0681E-C)(GA)

- **Speaker system:**

1) The information, please refer to original service manual, SB-PF680GC-K (PSG0905027CE)

- **Subwoofer system:**

1) For information, please refer to original service manual, SB-WAK780PN-K (PSG0905028CE).

Notes:

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

This product is licensed under the MPEG-4 Visual patent portfolio license for the personal and non-commercial use of a consumer for (i) encoding video in compliance with the MPEG-4 Visual Standard ("MPEG-4 Video") and/or (ii) decoding MPEG-4 Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed by MPEG LA to provide MPEG-4 Video. No license is granted or shall be implied for any other use. Additional information including that relating to promotional, internal and commercial uses and licensing may be obtained from MPEG LA, LLC. See <http://www.mpegla.com>.

U.S. Patent Nos. 6,836,549; 6,381,747; 7,050,698; 6,516,132; and 5,583,936.

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5 Location of Controls and Components

5.1. Main Unit Key Button Operation

1 AC supply indicator (AC IN)

This indicator lights when the unit is connected to the AC mains supply.

2 Standby/on switch (⏻/⏻)

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.

3 [● REC, USB]

4 Using surround effect

5 Adjusting subwoofer level

6 [● REC, TAPE]

7 USB port

8 Deck [⏮, OPEN]

9 MUSIC PORT jack

10 Headphone jack

Reduce the volume level and connect the headphones. Headphones plug type: 3.5 mm stereo (not included).
Avoid listening for prolonged periods of time to prevent hearing damage. Excessive sound pressure from earphones and headphones can cause hearing loss.

Remote control signal sensor



Disc trays 11

[⏮, OPEN/CLOSE] 12

[⏮, EXCHANGE] 13
[1 ▶] to [5 ▶]
(disc direct play)

Enhancing bass sound 14

Selecting Manual EQ, adjusting its BASS level 15

[MIN, MIC VOL, MAX] 16

Microphone 17
(MIC 1, MIC 2) jacks

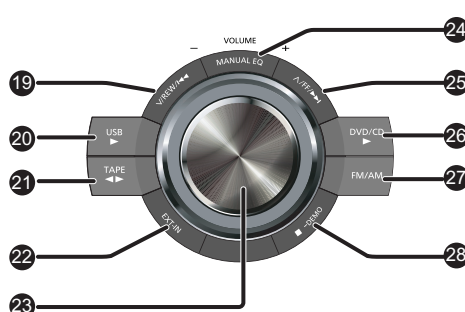
Cassette holder 18

19 25 Skip, rewind, fast forward, Tape Program Sensor, sound quality adjustment, time adjustment

20 USB selector and playback

21 Tape playback and direction

22 MUSIC PORT/AUX selection



[- VOLUME +] 23

[MANUAL EQ] 24

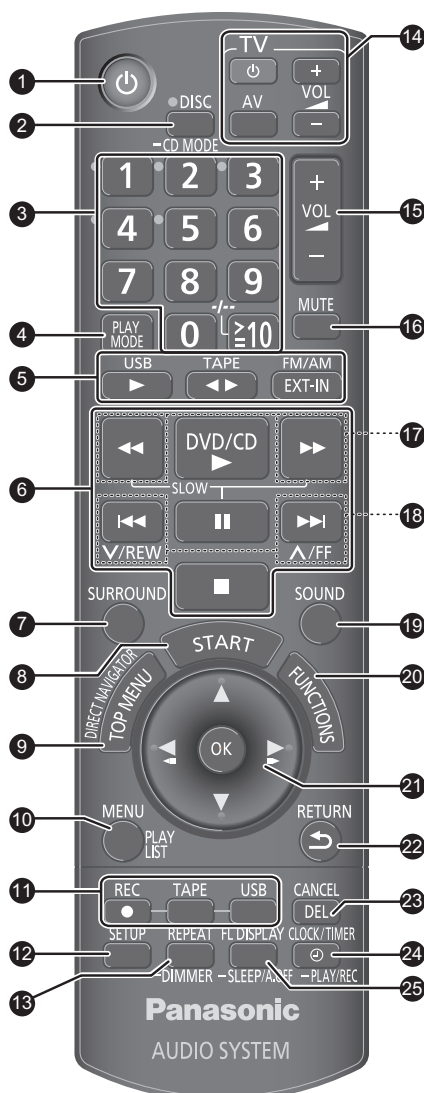
DVD/CD selector and playback 26

FM/AM selection 27

Stop, DEMO function 28

5.2. Remote Control Key Button Operation

- 1 Turn the unit on/off
- 2 Show disc information/Select a disc
Play loaded discs in order
- 3 Select channels and title numbers etc./Enter numbers
- 4 Random play, Program play
Tape: Reverse mode selection
Radio: Band mode selection
- 5 Source select
[▶, **USB**] selector and playback
[◀▶, **TAPE**] Tape playback and direction
EXT-IN, FM/AM:
FM/AM selection
MUSIC PORT/AUX selection
- 6 Basic operations for play
- 7 Select surround sound effects
- 8 Show **START** menu
- 9 Show a disc top menu or program list
- 10 Show a disc menu or playlist
- 11 Tape and USB recording functions
- 12 Change the player settings
- 13 Repeat play
Dim the display panel



- TV operations 14**
(Aim the remote control to a Panasonic TV and press the button. Only works with some models)
[⏻]: turn the TV on/off
[AV]: change the TV's video input mode
[+, -, VOL]: adjust the TV volume
- Adjust the volume of the main unit 15
- Mute the sound 16
- Slow motion, search, tuning 17
- Skip, rewind, fast forward, Tape 18
Program Sensor, sound quality adjustment, preset channel selection, time adjustment
- Select sound mode 19
- Show on-screen menu 20
- Frame-by-frame/Select or register 21
menu items
- Return to previous screen 22
- Cancel an item 23
Deleting an item
- Clock and timer setting 24
PLAY/REC timer on/off
- Changes the unit's display 25
Sleep timer, Auto off operation setting

5.3. Disc Information

5.3.1. Disc Playability (Media)

- Commercial discs

Disc	Logo	Indicated in these instructions by	Remarks
DVD-Video		DVD-V	High quality movie and music discs.
Video CD		VCD	Music discs with video. Including SVCD (Conforming to IEC62107).
CD		CD	Music discs.

- Recorded discs (O: Playable, -: Not playable)

Disc	Logo	Recorded on a DVD video recorder, etc.		Recorded on a personal computer, etc.					Finalizing ^{*8}
		DVD-VR ^{*2}	DVD-V ^{*4}	WMA	MP3	JPEG	MPEG4 ^{*6}	DivX ^{*7}	
DVD-RAM		O	-	-	O	O	O	O	Not necessary
DVD-R/RW		O	O	-	O	O	O	O	Necessary
DVD-R DL		O ^{*3}	O	-	-	-	-	-	Necessary
4 R/4 RW	-	-	(O) ^{*5}	-	-	-	-	-	Necessary
4 R DL	-	-	(O) ^{*5}	-	-	-	-	-	Necessary
CD-R/RW ^{*1}	-	-	-	O	O	O	O	O	Necessary ^{*9}

It may not be possible to play all the above-mentioned discs in some cases due to the type of disc, the condition of the recording, the recording method, or how the files were created (→ 5.3.2 Tips for Making Data Disc)

^{*1} This unit can play CD-R/RW recorded with CD-DA or Video CD format.

^{*2} Discs recorded on DVD video recorders or DVD video cameras, etc. using Version 1.1 of the Video Recording Format (a unified video recording standard).

^{*3} Discs recorded on DVD video recorders or DVD video cameras using Version 1.2 of the Video Recording Format (a unified video recording standard).

^{*4} Discs recorded on DVD video recorders or DVD video cameras using DVD-Video Format.

^{*5} Recorded using a format different from DVD-Video Format, therefore, some functions cannot be used.

^{*6} MPEG4 data recorded with the Panasonic SD multi cameras or DVD video recorders [conforming to SD VIDEO specifications (ASF standard)/MPEG4 (Simple Profile) video system/G.726 audio system].

^{*7} Functions added with DivX Ultra are not supported.

^{*8} A process that allows play on compatible equipment. To play a disc that is displayed as Necessary on this unit, the disc must first be finalized on the device it was recorded on.

^{*9} Closing the session will also work.

Note about using a DualDisc

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.

- Video systems

- This unit can play PAL and NTSC, but your television must match the system used on the disc.
- PAL discs cannot be correctly viewed on an NTSC television.
- This unit can convert NTSC signals to PAL 60 for viewing on a PAL television.

- Discs that cannot be played

Blu-ray, HD DVD, AVCHD discs, DVD-RW version 1.0, DVD-Audio, DVD-ROM, CD-ROM, CDV, CD-G, SACD, Photo CD, DVD-RAM that cannot be removed from their cartridges, 2.6-GB and 5.2-GB DVD-RAM, and Chaoji VCD available on the market including CVD, DVCD and SVCD that do not conform to IEC62107.

5.3.2. Tips for Making Data Disc

- When there are more than eight groups, the eighth group onwards will be displayed on one vertical line in the menu screen.
- There may be differences in the display order on the menu screen and computer screen.
- This unit cannot play files recorded using packet write.

DVD-RAM

- Discs must conform to UDF 2.0.

DVD-R/RW

- Discs must conform to UDF bridge (UDF 1.02/ISO9660).
- This unit does not support multi-session. Only the default session is played.

CD-R/RW

- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- This unit supports multi-session but if there are many sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.

Naming folders and files

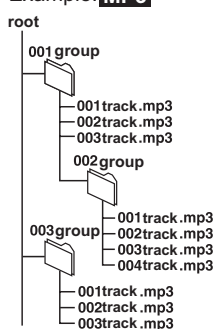
Files are treated as contents and folders are treated as groups on this unit.

At the time of recording, prefix folder and file names. This should be with numbers that have an equal number of digits, and should be done in the order you want to play them (this may not work at times). Files must have the extension (? below).

WMA (Extension: .WMA or .wma)

- Compatible compression rate: between 48 kbps and 320 kbps.
- You cannot play WMA files that are copy-protected.
- This unit does not support Multiple Bit Rate (MBR).

Example: **MP3**



MP3 (Extension: .MP3 or .mp3)

- This unit does not support ID3 tags.
- Sampling frequency and compression rate:
DVD-RAM, DVD-R/RW: 11.02, 12, 22.05, 24 kHz (8 to 160 kbps), 44.1 and 48 kHz (32 to 320 kbps)
CD-R/RW: 8, 11.02, 12, 16, 22.05, 24 kHz (8 to 160 kbps), 32, 44.1 and 48 kHz (32 to 320 kbps)

JPEG (Extension: .JPG, .jpg, .JPEG or .jpeg)

- JPEG files taken on a digital camera that conform to DCF Standard (Design rule for Camera File system) Version 1.0 are displayed. Files that have been altered, edited or saved with computer picture editing software may not be displayed.
- This unit cannot display moving pictures, MOTION JPEG and other such formats, and still pictures other than JPEG (Example: TIFF), or play pictures with attached audio.

MPEG4 (Extension: .ASF or .asf)

- You can play MPEG4 data [conforming to SD VIDEO specifications (ASF standard)/MPEG4 (Simple Profile) video system/G.726 audio system] recorded with Panasonic SD multi cameras or DVD video recorders with this unit.
- The recording date may differ from that of the actual date.

DivX (Extension: .DIVX, .divx, .AVI or .avi)

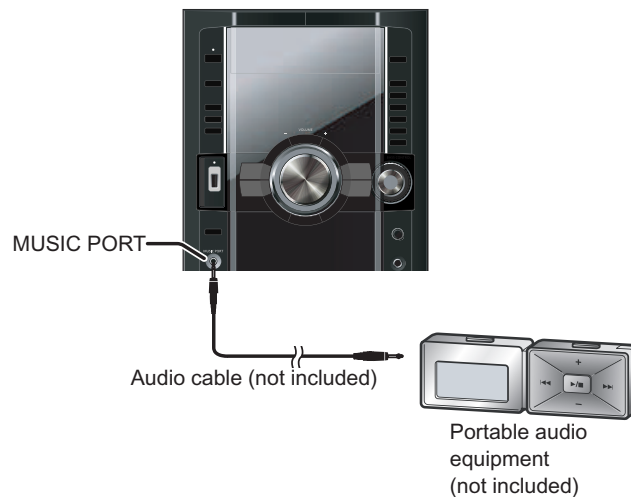
- You can play all versions of DivX[®] video (including DivX[®] 6) [DivX video system/MP3, Dolby Digital or MPEG audio system] with standard playback of DivX[®] media files. Functions added with DivX Ultra are not supported.
- DivX files greater than 2 GB or have no index may not be played properly on this unit.
- This unit supports all resolutions up to maximum of 720 x 480 (NTSC)/720 x 576 (PAL).
- You can select up to eight types of audio and subtitles on this unit.

5.4. Using the Music Port

You can playback sound from portable audio equipment.
Sound from the speaker may be distorted if the portable audio equipment's equalizer (if any) is turned on. Turn it off before you plug into the MUSIC PORT jack.

Preparation

Reduce the volume of the unit and portable audio equipment before connecting or disconnecting.



1 Connect the portable audio equipment.

Plug type: 3.5 mm stereo

2 Press [EXT-IN] to select MUSIC PORT .

Every time you press the button:

→ FM → AM → MUSIC PORT → AUX →

3 For listening : Proceed to step 4.

For recording : Press [● REC, TAPE] on the main unit to start recording.

Press [● REC, USB] on the main unit to start recording.

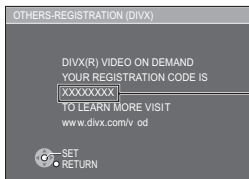
4 Playback the portable audio equipment.

(For details, refer to the external unit's instruction manual.)

5.5. DivX VOD Content

This DivX® Certified device must be registered in order to play DivX Video-on-Demand (VOD) content. First generate the DivX VOD registration code for your device and submit it during the registration process. [Important: DivX VOD content is protected by a DivX DRM (Digital Rights Management) system that restricts playback to registered DivX Certified devices. If you try to play DivX VOD content not authorized for your device, the message **Authorization Error** will be displayed and your content will not play.] Learn more at www.divx.com/vod.

Display the unit's registration code



8 alphanumeric characters

- We recommend that you make a note of this code for future reference.
- After playing DivX VOD content for the first time, another registration code is then displayed in **REGISTRATION (DIVX)**. Do not use this registration code to purchase DivX VOD content. If you use this code to purchase DivX VOD content, and then play the content on this unit, you will no longer be able to play any content that you purchased using the previous code.
- If you purchase DivX VOD content using a registration code different from this unit's code, you will not be able to play this content. (**AUTHORIZATION ERROR** is displayed.)

Regarding DivX content that can only be played a set number of times

Some DivX VOD content can only be played a set number of times. When you play this content, the remaining number of plays is displayed. You cannot play this content when the number of remaining plays is zero. (**RENTED MOVIE EXPIRED** or **RENTAL EXPIRED** is displayed.)

When playing this content

- The number of remaining plays is reduced by one if you press [⏏] or press [SETUP].
 - you press [■]. [Press [⏏] (pause) to pause play.]
 - you press [⏮, ⏭] (skip) or [⏪, ⏩] (search) etc. and arrive at another content or the start of the content being played.
- The **Resume** function.

5.6. USB - Play and Recording



Play

The USB connectivity enables you to connect and play tracks or files from USB mass storage class devices.

Typically, USB memory devices. (Bulk only transfer)

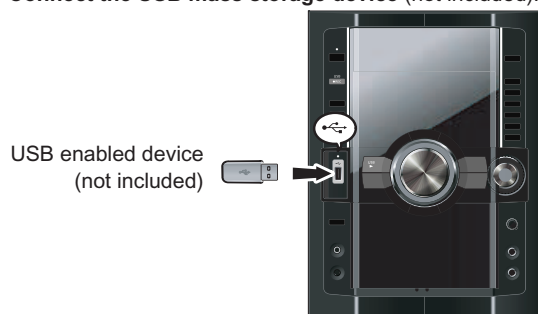
Preparation

Before connecting any USB mass storage device to the unit, ensure that the data stored therein has been backed up.

It is not recommended to use a USB extension cable.

The USB device is not recognised by this unit.

1 Connect the USB mass storage device (not included).



2 Press [▶, USB] to begin playback.

3 Press [MENU] to display the USB menu.

4 Press [▲, ▼] and then [OK] to select the desired item.

For other operating functions, they are similar as those described in DISC OPERATIONS .

• Compatible Devices

Devices which are defined as USB mass storage class:

USB devices that support bulk only transfer.

USB devices that support USB 2.0 full speed.

• Supported Formats

	File name	File extension
Still pictures	JPG ¹	.jpg .jpeg
Music	MP3 WMA	.mp3 .wma
Video	MPEG4 ²	.asf

¹ It may not be possible to play all the files due to the condition on how they were created.

² For Panasonic D-Snap/DIGA

Note

Maximum number of folders	255
Maximum number of files	4000
Maximum length of folder name	28
Maximum length of file name	28

- CBI (Control/Bulk/Interrupt) is not supported.
- Digital Cameras that use PTP protocol or which require additional program installation when connected to a PC are not supported.
- A device using NTFS file system is not supported. [Only FAT 12/16/32 (File Allocation Table 12/16/32) file system is supported].
- Depending on the sector size, some files may not work.
- It will not operate with Janus enabled MTP (Media Transfer Protocol) devices.
- Only one memory card will be selected when connecting a multi-port USB card reader. Typically the first memory card inserted.

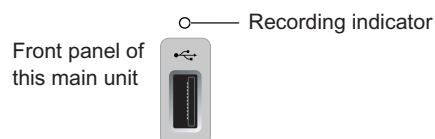


Recording

You can record sound or music tracks from the disc, radio, tape and other music sources to a USB mass storage device.

Note

- This function does not work during any RANDOM and REPEAT mode selection.
- A new folder is created each time you perform a recording. Depending on the USB s memory, the folder s sequence may change once the recording has completed.
- All tracks are recorded to .mp3 format.
- Do not remove the device or plug out the AC mains lead while recording, data could be lost.
- Voice mixing with CD from microphone cannot be recorded.
- Recording indicator blinks while recording in progress.



Recording of MP3 tracks

1 Connect the USB mass storage device.

2 Insert the disc(s) you want to record.

3 Press [DVD/CD ▶] and then [■] twice.

- If the disc contains mixed media.
- Recording specific disc(s) or tracks

4 Press and hold [●, REC] followed by [USB] (main unit: [● REC, USB]) to start recording.

- READING (blinking) → DISCXXX → REC (blinking) will be displayed.
- PGM is displayed if recording in Program mode.
- Folder and file created will be named DISCXXX , TRKXXXXX respectively.

5 Press [■] to stop recording.

WRITING is displayed for a few seconds.

Note

- MP3 file needs to be selected before recording can begin. All files in the current folder will be recorded.
- Non-MP3 files will be skipped.
- Files in subfolder will be ignored.
- No sound is output during recording. MUTE will be displayed if volume is adjusted.

Recording from audio disc (CDDA)

- 1 Connect the USB mass storage device
- 2 Insert the disc(s) you want to record.
- 3 Press [DVD/CD ►] and then [■] twice.
Recording specific disc(s) or tracks
- 4 Press and hold [●, REC] followed by [USB] (main unit: [● REC, USB]) to start recording.
 - READING (blinking) - DISCXXX - elapsed time will be displayed.
 - PGM is displayed if recording in Program mode.
 - Folder and file created will be named DISCXXX , TRKXXXXX respectively.
- 5 Press [■] to stop recording.
WRITING is displayed for a few seconds.

Note

- Recording is prohibited for disc encoded with copyright protection, COPYRIGHT PROTECTED will be displayed.
- When CD MODE is selected;
 - Select an audio disc, otherwise recording will not start.
 - Program mode is not applicable.
 - Non audio discs will be ignored.

Recording from other sources

Tape	1 Connect the USB mass storage device 2 Insert tape into the deck. 3 Search the desired position and then [■] Use TPS function for faster search (- Cassette tapes Play and Recording, page 24) 4 Press and hold [●, REC] followed by [USB] (main unit: [● REC, USB]) to start recording. ↔ automatically changes to ↔ when you start recording. 5 Press [■] to stop recording. WRITING is displayed for a few seconds.
Radio	Tune to the required station.
Music Port	- Using the Music Port, page 31
AUX	- Using an external unit, page 32

Note

This unit will analyse the USB device before recording.
READING will blink on FL display.

Track Divide

This function allows you to divide between tracks. You can choose;

- AUTO 5M, track is automatically divided every 5 minutes.
- MANUAL, press [OK] during recording to activate track divide. If the track is not divided manually, every 60 minutes, track will be divided automatically.

- 1 Select FM , AM , MUSIC PORT , AUX or TAPE selector and press [SETUP]. TRDIVIDE will be displayed at FL display.
- 2 Press [▲, ▼] to choose between AUTO 5M or MANUAL . AUTO 5M is default setting.
- 3 Press [OK] to activate at any time of recording.
 - Recording track by track from tape.
 - Skip unnecessary noise by making new track.

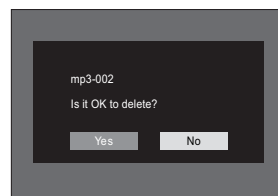
Note

If you press [OK] while using AUTO 5M mode during recording, the 5 minutes counts will be reset.

Erasing the recorded items

This function allows you to erase unwanted tracks quickly and easily.

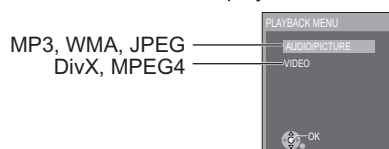
- 1 Press [►, USB] and then [■] twice.
- 2 Press [▲, ▼] to select.
- 3 Press [DEL] and a confirmation page will appear.



- 4 Press [◀, ▶] to choose Yes or No then press [OK].
File will be deleted if you choose Yes and DELETING will blink on the FL display.

Erasing items in order (Playback Menu)

While PLAYBACK MENU is displayed



- 1 Press [▲, ▼] to select AUDIO/PICTURE or VIDEO and press [OK]. When either one is selected, other file will become invisible and cannot be deleted.
- 2 Press [DEL] to delete.
- 3 Repeat step 2 until all files are deleted.
- 4 Re-insert the device to continue.
RE-INSERT USB DEVICE will be displayed.

Note

- USB WRITE PROTECTED is displayed if the device is locked.
- Folders containing subfolders or unsupported files cannot be deleted.

6 Self-Diagnosis and Special Mode Setting

This unit is equipped with features of self-diagnosis & special mode setting for checking the function & reliability.

Special Note: Checking of the reliability (ageing) & changer operation must be carry out to ensure good working condition in unit.

6.1. Service Mode Summary Table

6.1.1. Doctor Mode Summary Table

Main unit buttons	Remote control unit buttons	Application	Note
[■-DEMO]	[4], [7]	Enter into doctor mode.	(Refer to the section "6.2. Doctor Mode Table" for more information.)
(In Doctor Mode)	[●DISC] or [0133] (For Special Remote Control only)	Changer check	

6.1.2. Self-Diagnosis Mode Summary Table

Main buttons	Remote control unit buttons	Application	Note
[STOP] + [△/FF/▶▶]	-	Entering into self-diagnostic mode.	(Refer to the section "6.3.1. Self-Diagnosis Mode Table 1" for more information.)
(In self-diagnostic mode) + [1▶]	-	Servicing the mechanism unit.	
(In self-diagnostic mode) + [2▶]	-	Servicing the traverse unit.	
In Self-diagnosis mode	[2]	Reliability 2 (Cycle)	(Refer to the section "6.3.2. Self-Diagnosis Mode Table 2" for more information.)
	[3]	Reliability 3 (Combi)	

6.1.3. Service Mode Summary Table (For DVD)

The service modes can be activated by pressing various button combination on the main unit and remote control unit.

Below is the summary for the various modes for checking:

Main buttons	Remote control unit buttons	Application	Note
[STOP]	[0]	Error code display.	(Refer to the section "6.4.1. Service Mode Table 1" for more information.)
	[5]	Jitter checking.	
	[PAUSE]	Initial setting of laser drive current.	
	[FUNCTIONS]	DVD laser drive current check.	(Refer to the section "6.4.2. Service Mode Table 2" for more information.)
	[3]	CD laser drive current check.	
	[6]	Region display and mode.	(Refer to the section "6.4.3. Service Mode Table 3" for more information.)
	[7]	Micro-processor firmware version check.	
	≥10	Initialization of the player (factory setting is restored). Used after replacement of Micro-processor (DV5 LSI) IC, FLASH ROM IC (IC8651), EEPROM IC (IC8611) and DVD Module P.C.B.	
	[8]	DVD Module P.C.B. firmware version check.	(Refer to the section "6.4.4. Service Mode Table 4" for more information.)
	[DISC]	CPPM/CPRM keys check.	
	[ENTER]	DVD Module P.C.B. reset.	(Refer to the section "6.4.5. Service Mode Table 5" for more information.)
	▲	Timer 1 check.	
	▼	Timer 1 reset.	
	▶	Timer 2 check.	
	◀	Timer 2 reset.	

Note:

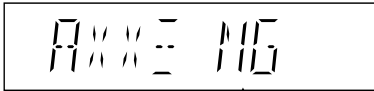
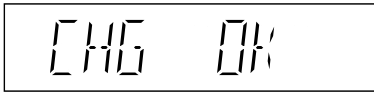
An error code will be canceled if a power supply is turned OFF.

*1: CPPM is the copy guard function beforehand written in the disk for protection of copyrights.

*2: CEC is the consumer electronic control used for high-level user control of HDMI-connected devices.

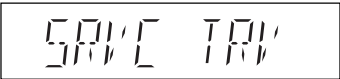
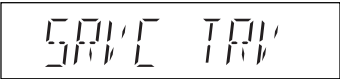
*3: HDCP is the specification developed to control digital audio & video contents transmission for DVI or HDMI connections.

6.2. Doctor Mode Table

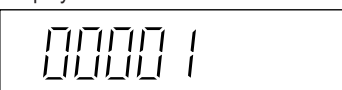
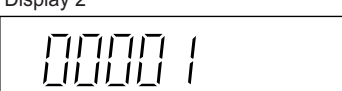
Item		FL Display	Key Operation
Mode Name	Description		Front Key
Doctor Mode	To enter into Doctor Mode for checking of variuos items and displaying EEPROM and firmware version. Note: The micro-processor version as shown is an example. It will be revise when there is an update. FL Display sequence: Display 1→2.	(Display 1)  1. The check Sum of EPPROM and firmware version will be display. * ROM correction. * Firmware Version No: checksum: (Condition 1):  If there is no EEPROM Correction. checksum: (Condition 2):  If the EEPROM version matches, checksum [YYYY] is displayed. checksum: (Condition 3):  If the version of the EEPROM does not match or not working properly [NG] is displayed	In CD Mode: 1. Press [■-DEMO] button on main unit follow by [4] and [7] on remote control. To exist, press [ok] button on remote control or press [⏻/I, POWER] button on main unit or remote control.
CR14D Inspection	To check the function operation of mechanism unit		In Doctor mode: 1. Press [●DISC] button on remote control. OR [0133] on Special Remote Control. To exist, press any key

6.3. Self-Diagnosis Mode Table

6.3.1. Self-Diagnosis Mode Table 1

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Self-Diagnostic Mode	To enter into self-diagnostic checking for CR14 mechanism.		In DVD/CD mode (ensure no disc is inserted): Press and hold [STOP] button for five seconds, followed by [^/FF/▶▶] button on the main unit. To exit, press [⏻/AC IN] button on main unit or remote control unit.
Service Mode 1	To unlock the mechanism unit for service. In this mode, the disassembly of CR14 can be carry out. (Refer to original service manual for CR14) 1. All trays are set to "STOCK" position. 2. Mechanism set to tray 1. 3. Cam gear set to "HOME" position.		In self-diagnostic mode, press [1] button on main unit. To exit, power off the main unit Press [EXCHANGE] on main unit for error code.
Service Mode 2	To unlock the traverse unit for service. In this mode, traverse unit can be disassembled. (Refer to original service manual for CR14) 1. Tray 5 set to "Play" position. 2. Mechanism set to tray 5. 3. Cam gear set to "HOME" position.		In self-diagnostic mode, press [2] button on main unit. To exit, power off the main unit Press [EXCHANGE] on main unit for error code. (Refer to section 8.6.1. for information)

6.3.2. Self-Diagnosis Mode Table 2

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Reliability 2 (Traverse Cycle Test)	To determine playability operation.	Display 1  Display 2  The counter will increment by one. When reach 99999 will change to 00000	In self-diagnostic mode, press [2] button on remote control. To exit, press [⏮/I] button on the main unit or remote control unit.
Reliability 3 (Combi Cycle Test)	The combine test for both load & traverse cycle test.	Display 1  Display 2  The counter will increment by one. When reach 99999 will change to 00000	In self-diagnostic mode, press [3] button on remote control. To exit, press [⏮/I] button on the main unit or remote control unit.

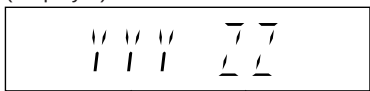
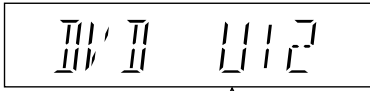
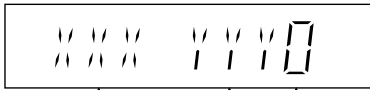
6.4. Service Mode Table (For DVD)

By pressing various button combinations on the main unit and remote control unit, you can activate the various service modes for checking.

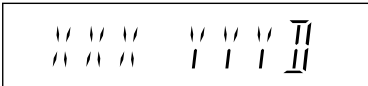
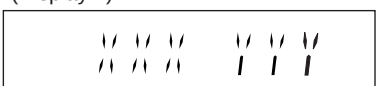
Special Note:

- Due to the limitations of the no. characters that can be shown on the FL Display, the “FL Display” button on the remote control unit can be used to show the two display pages. (Display 1 / Display 2).
- Refer to Section 5.2 for the section on “Remote Control Key Buttons Operations”.

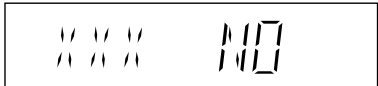
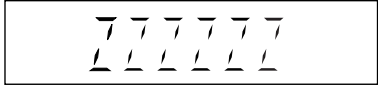
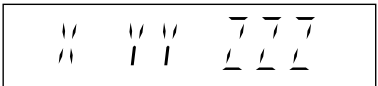
6.4.1. Service Mode Table 1

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Jitter check	Jitter check. Jitter rate is measured and displayed. Measurement is repeatedly done in the cycle of one second. Read error counter starts from zero upon mode setting. When target block data failed to be read out, the counter advances by one increment. When the failure is caused by minor error, it may be corrected when retried to enable successful reading. In this case, the counter advances by one. When the error persists even after retry, the counter may jump by two or more. FL Display sequence: Display 1→2.	(Display 1)  Jitter Check Mode Jitter Rate Jitter rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation. (Display 2)  Lead Error Counter Focus Drive Value	In STOP (no disc) mode, press [STOP] button on the main unit, and [5] button on the remote control unit. Press [STOP] button to exit. Press [FL Display] on remote control unit for next page (FL Display).
Error code display	Error code check The latest error code stored in the EEPROM IC is displayed. Note: Refer to "Section 8.4 DVD Self Diagnostic Function-Error Code" for more detailed information on the error codes.	 U / H / F Error code (play_err) is expressed in the following convention. Error code = 0 x DAXX is expressed: → DVDnn U12 Error code = 0 x DBXX is expressed: → DVDnn H12 Error code = 0 x DXXX is expressed: → DVDnn F123 Error code = 0 x 0000 is expressed: → DVDnn F--- * "xx" denotes the error code	In STOP (no disc) mode, press [STOP] button on the main unit, and [0] button on the remote control unit. * With pointing of cursor up and down on display. Cancelled automatically 5 seconds later. To exit, press [POWER] button on main unit or remote control.
Initial setting of laser drive current	Initial setting of laser drive current. Initial current value for the DVD laser and CD laser is separately saved in the EEPROM IC. FL Display sequence: Display 1→2.	(Display 1)  Laser Current Measurement Mode The value denotes the current in decimal notation. (Display 2)  CD Laser DVD Laser Identify as LDO mode The above example shows the initial current is XXXmA and YYYmA for CD laser and DVD laser respectively when the laser is switched on.	In STOP (no disc) mode, press [STOP] button on the main unit, and [PAUSE] button on the remote control unit. Cancelled automatically 5 seconds later. Press [FL Display] on remote control unit for next page (FL Display) on values of laser drive current.

6.4.2. Service Mode Table 2

Item		FL Display	Key Operation
Mode Name	Description		Front Key
DVD laser drive current measurement	DVD laser drive current measurement. DVD laser drive current is measured and the result is displayed together with the initial value stored in the EEPROM IC. After the measurement, DVD laser emission is kept on. It is turned off when POWER key is switched off. FL Display sequence: Display 1→2.	(Display 1)  ↑ DVD laser current measurement mode The value denotes the current in decimal notation. (Display 2)  ↑ ↑ ↑ DVD Laser Initial Value DVD Laser Value Identify as LDD mode The above example shows the initial current is XXXmA and the measured value is YYYmA.	In STOP (no disc) mode, press [STOP] button on the main unit, and [FUNCTIONS] button on the remote control unit. Cancelled automatically 5 seconds later. Press [FL Display] on remote control unit for next page (FL Display) on values of dvd drive current.
CD laser drive current measurement	CD laser drive current measurement. CD laser drive current is measured and the result is displayed together with the initial value stored in the EEPROM IC. After the measurement, CD laser emission is kept on. It is turned off when POWER key is switched off. FL Display sequence: Display 1→2.	(Display 1)  ↑ CD Laser Current Measurement Mode The value denotes the current in decimal notation. (Display 2)  ↑ ↑ CD Laser Initial Value CD Laser Value The above example shows the initial current is XXXmA and the measured value is YYYmA.	In STOP (no disc) mode, press [STOP] button on the main unit, and [3] button on the remote control unit. Cancelled automatically 5 seconds later. Press [FL Display] on remote control unit for next page. (FL Display)

6.4.3. Service Mode Table 3

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Micro-processor firmware version display & EEPROM checksum display.	Micro-processor firmware version display & EEPROM checksum display. EEPROM checksum is only available due to existence of EEPROM IC. Note: Condition 1/2/3 shows the state of EEPROM IC. It is indicated in Display 2. FL Display sequence: Display 1→2→3.	(Display 1)  (Display 2)  ↑ Opecon Version ↑ EEPROM Checksum (If applicable, refer below.) (Condition1)  If the version of the EEPROM does not match, [NG] is displayed. (Condition 2)  (a) If there is NO EEPROM header string OR (b) If there is no EEPROM (no data is received by Micro-processor), [NO] is displayed. (Condition 3)  If the EEPROM version matches, checksum [YYYY] is displayed. (Display 3) 	In STOP (no disc) mode, press [STOP] button on the main unit, and [7] button on the remote control unit. Cancelled automatically 5 seconds later. Press [FL Display] button on remote control unit for next page. (FL Display)
Initialization mode	Initialization. User settings are cancelled and player is initialized to factory setting. It is necessary when after replacement of Micro-processor (DV5 LSI) IC, FLASH ROM IC (IC8651), EEPROM IC (IC8611) & DVD Module P.C.B.		In STOP (no disc) mode, press [STOP] button on the main unit, and [≥10] button on the remote control unit. Cancelled automatically 5 seconds later.
Region display	Region code display, TV broadcasting system & the model no. information. Note: Refer to Fig. 8.1 for "Video Design Information".	 ↑ ↑ ↑ ↑ ↑ Model No. Information N: NTSC / 6: PAL60 N: no PAL / P: PAL Region No.: 0-8	In STOP (no disc) mode, press [STOP] button on the main unit, and [6] button on the remote control unit. Cancelled automatically 5 seconds later.

Model Series	Country Region	Region Code	TV Broadcasting System	Product			
				Signal System (Default)	Region Display (Default)	OSD Default	OSD Menu Language
P, PC, PX	USA, Canada, PX	1	NTSC	NTSC (*A)	1PN	English	English, Spanish, Canadian, French
(S)	Japan	2	NTSC	NTSC (*A)	2PN	Japanese	Japanese, English
EP	Europe	2	PAL	PAL (*C)	2P6	English	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
EB, EG	Europe	2	PAL	PAL (*C)	2P6	English	English, French, German, Italian, Spanish, Polish, Swedish, Dutch
GC, GS	Middle East	2	PAL	PAL (*C)	2P6	English	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
GA, GD, GT, GJ	Hong Kong, South East Asia, Thailand, Korea, Taiwan	3	PAL NTSC	NTSC (*B)	3PN	English	English, Traditional Chinese
GN	New Zealand, Australia	4	PAL	PAL (*C)	4P6	English	English, French, German, Italian, Spanish, Polish, Swedish, Dutch
PN, PH, PU, PR	Central/South/Latin America	4	NTSC	NTSC (*D)	4PN	English	English, Spanish, French, Brazilian Portuguese
EE	CIS	5	SECAM	PAL (*C)	5P6	English	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
GK	China	6	PAL	NTSC (*B)	6PN	English	English, Simplified Chinese

NTSC (*A)

Source	Output
Screen Saver	NTSC
NTSC disc	NTSC
PAL disc	PAL (DVD-V)
	NTSC (DVD-A/VCD)

NTSC (*B)

Source	Output
Screen Saver	NTSC
NTSC disc	NTSC (default)
	PAL60
PAL disc	PAL

PAL (*C)

Source	Output
Screen Saver	PAL
NTSC disc	PAL60 (default)
	NTSC
PAL disc	PAL

NTSC (*D)

Source	Output
Screen Saver	NTSC
NTSC disc	NTSC
PAL disc	NTSC

Explanation of Display

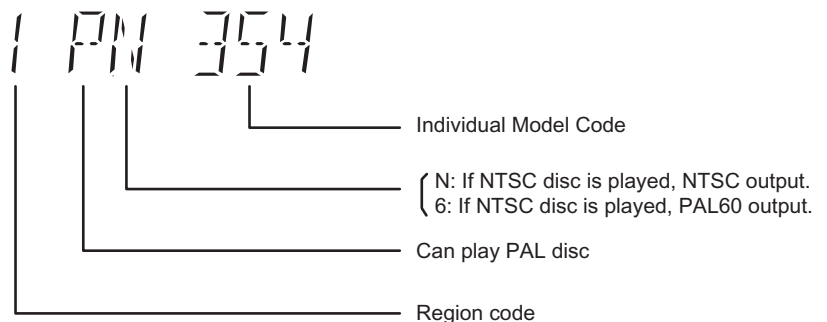
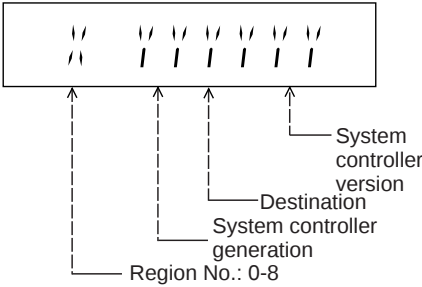
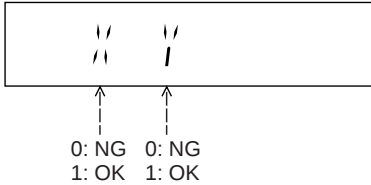
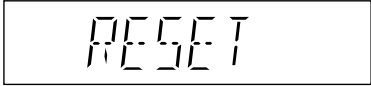
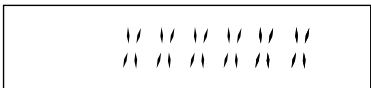
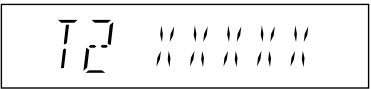


Figure 1 Video Design Information

6.4.4. Service Mode Table 4

Mode Name	Item	FL Display	Key Operation
	Description		Front Key
DVD Module P.C.B. firmware version display	DVD Module P.C.B. firmware version is displayed on the FL Display. The firmware version can be updated using recovery disc. Note: It is necessary to check for firmware version before carrying out the version up using the disc.		In STOP (no disc) mode, press [STOP] button on the main unit, and [8] button on the remote control unit. Cancelled automatically 5 seconds later.
CPPM/CRM Keys Check	CPPM/CRM refers to the Content Protection for Recordable Media and Pre-Recorded Media. It displays the existence of the keys as "1" or "0". OK: Existing of keys. NG: Non existing of keys.		In STOP (no disc) mode, press [STOP] button on the main unit, and [DISC] button on the remote control unit. Cancelled automatically 5 seconds later.
DVD Module P.C.B. Reset	To reset DVD Module P.C.B. This process is used when the DVD Module P.C.B. or FLASH ROM IC is replaced with a new one.		While in initialization mode, press & hold [STOP] button on the main unit, follow by [OK] button on the remote control unit. Cancelled automatically 5 seconds later.

6.4.5. Service Mode Table 5

	Item	FL Display	Key Operation
Mode Name	Description		Front Key
Timer 1 check	Timer 1 check Laser operation timer is measured separately for DVD laser and CD laser. FL Display sequence: Display 1→2.	(Display 1)  ↑ DVD laser usage time Shown to the above is DVD laser usage time, and to the below is CD laser usage time. Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999". (DVD laser) (Display 2)  ↑ CD laser usage time Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999". (CD laser)	In STOP (no disc) mode, press [STOP] button on the main unit, and [▲] button on the remote control unit. Cancelled automatically 5 seconds later. Press [FL Display] button for next page of FL Display.
Timer 1 reset	Timer 1 reset Laser operation timer of both DVD laser and CD laser is reset all at once.	 Time is shown in 4 digits of decimal notation in a unit of 10 hours. It will clear to "0000" upon reset.	While displaying Timer 1 data, press [STOP] button on the main unit, and [▼] button on the remote control unit. Cancelled automatically 5 seconds later
Timer 2 check	Timer 2 check Spindle motor operation timer	 Time is shown in 5 digits of decimal notation in a unit of 1 hour. "00000" will follow "99999".	In STOP (no disc) mode, press [STOP] button on the main unit, and [▶] button on the remote control unit. Cancelled automatically 5 seconds later.
Timer 2 reset	Timer 2 reset Spindle motor operation timer	 Time is shown in 5 digits of decimal notation in a unit of 1 hour. It will be cleared to "00000" upon activating this.	While displaying Timer 2 data, press [STOP] button on the main unit, and [◀] button on the remote control unit. Cancelled automatically 5 seconds later.

6.4.6. Optical Pick-up Self-Diagnosis

The optical pickup self-diagnosis function and tilt adjustment check function have been included in this unit. When repairing, use the following procedure for effective self-diagnosis and tilt adjustment. Be sure to use the self-diagnosis function before replacing the optical pickup when "NO DISC" is displayed. As a guideline, you should replace the optical pickup when the value of the laser drive current is more than the specified value.

Note:
Press the power button to turn on the power, and check the value within three minutes before the unit warms up. (Otherwise, the result will be incorrect.)

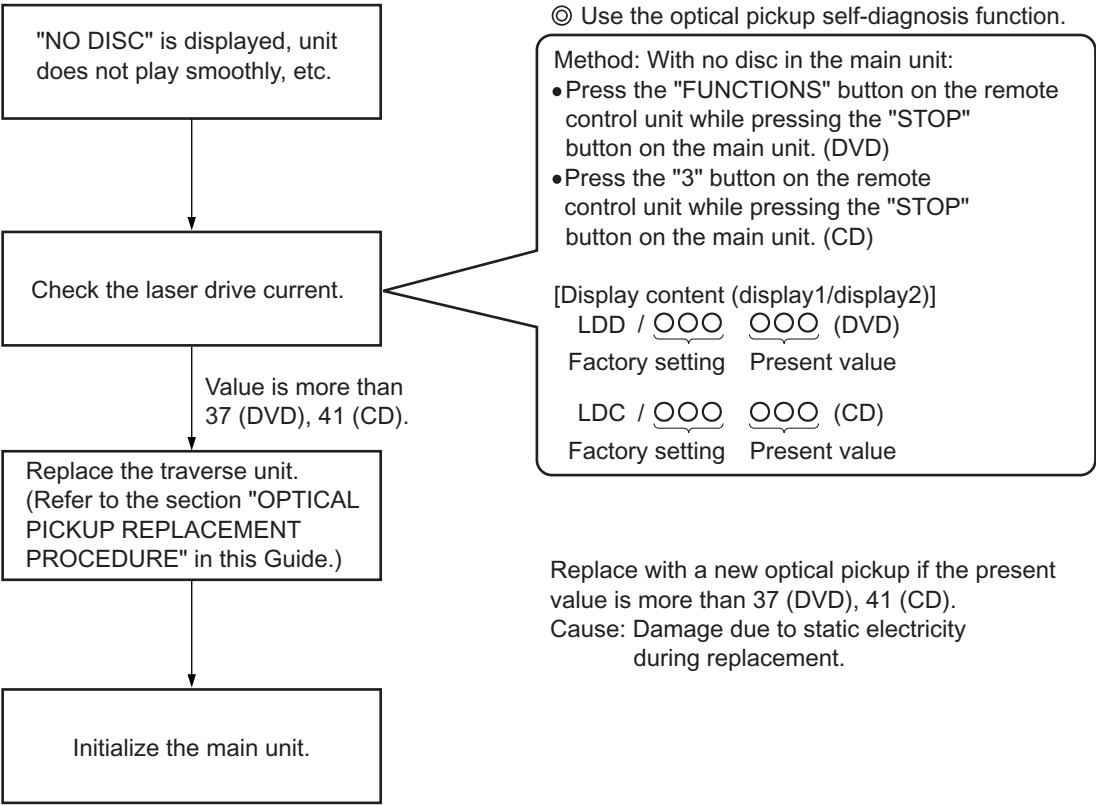
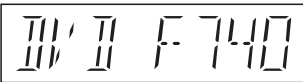
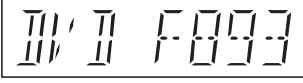
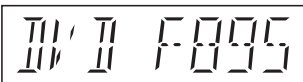
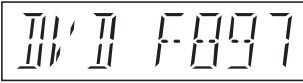
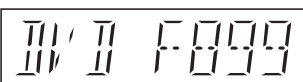


Figure 2

6.5. DVD Self Diagnostic Function-Error Code

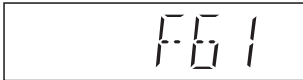
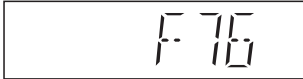
6.5.1. DVD Module Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
U702	HDMI/DVI I2C communication error	The communication error of I2C when connecting it with HDMI/DVI. For instance, when EDID information to which information on the TV set side has been described cannot be read, it is generated.		Press [■STOP] on main unit for next error.
U703	HDMI/DVI attestation error	When attestation (HDCP) with the TV side fails when connecting it with HDMI/DVI, it is generated.		Press [■STOP] on main unit for next error.
U704	HDMI/DVI SRM Riborcerar	It is generated at the equipment to which the TV set is Riborced when connecting it with HDMI/DVI.		Press [■STOP] on main unit for next error.
U705	HDMI/DVI SRM disk falsification check error	It is generated at the time of it is time when illegal the SRM data of the reproducing disk (verify error), when connecting it with HDMI/DVI.		Press [■STOP] on main unit for next error.
F740	HDMI device key	I2C error when writing HDMI Key device into transmitter.		Press [■STOP] on main unit for next error.
F893	FLASH ROM IC data falsification error	Firmware error, DV5.0 LSI IC (IC8651) error.		Press [■STOP] on main unit for next error.
F894	EEPROM IC abnormality error	When failing in the access to EEPROM IC located in the DVD Module P.C.B. (IC8611).		Press [■STOP] on main unit for next error.
F895	Language area abnormal	Firmware version agreement check for factory preset setting failure prevention.		Press [■STOP] on main unit for next error.
F897	Initialization error	Incomplete initialization after writing of new firmware (Factory preset setting failure prevention)		Press [■STOP] on main unit for next error.
F899	The communication specification disagreement between micro-processor	Unsuitable combination of number of system com and panel com used. (Frimware)		Press [■STOP] on main unit for next error.

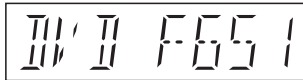
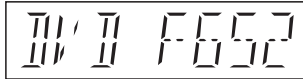
6.5.2. DVD Mechanism Unit (CR14D) Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
H01	Tray loading error	The tray opening and closing is abnormal. CLOSE and OPEN of the tray cannot be carried out properly. Loading motor error, DV5 LSI IC (IC8001) error.		Press [■ STOP] on main unit for next error. (OPEN time: OPEN→CLOSE→OPEN→H01 at CLOSE: CLOSE→OPEN→CLOSE→H01)
H02	Spindle servo error	The spindle servo/motor is abnormal. The FG pulse is abnormal. CLV servo error.		Press [■ STOP] on main unit for next error.
H03	Traverse servo error	The traverse is abnormal. (Traverse servo, DV5 LSI IC (IC8001), TRV motor error.)		Press [■ STOP] on main unit for next error.
H04	Tracking servo error	Tracking coil NG (OPU unit abnormal), DV5 LSI IC (IC8001) error.		Press [■ STOP] on main unit for next error.
H05	Seek time out error	It is not possible to access the disc. TOC cannot read. Abnormal disc etc. Pickup abnormal or disk is dirty. (TRV motor error, DV5 LSI IC (IC8001) error.)		Press [■ STOP] on main unit for next error.
H07	Driver IC thermal shut down	The spindle motor is abnormal. (short between brushes)		Press [■ STOP] on main unit for next error.
H15	Disc tray open detection switch failure	The disc tray cannot be opened & it closes spontaneously.		Press [■ STOP] on main unit for next error.
H16	Disc tray close detection switch failure	The disc tray cannot be closed & it opens spontaneously.		Press [■ STOP] on main unit for next error.
U11	Focus servo error	Focus coil, FE signal error.		Press [■ STOP] on main unit for next error. (Unfinalized DVD-R is likely to become U11.)
U15	Unfinalized DVD-R			
F500	DSC error	DV5 LSI IC (IC8001) stops in the occurrence of servo error (startup, focus error, etc)		Press [■ STOP] on main unit for next error.
F506	Invalid media	Disc is flipped over, TOC unreadable, incompatible disc.		Press [■ STOP] on main unit for next error.
F620	OPU unit abnormality temperature	Laser protection at high temperature.		Press [■ STOP] on main unit for next error.
F621	OPU unit circuitry temperature	Laser protection at circuit failure.		Press [■ STOP] on main unit for next error.

6.5.3. Power Supply & Digital Amplifier Error Code Table

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 DCDET2 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.		Press [■ STOP] on main unit for next error.
F76	Abnormality in the output voltage of stabilized power supply	In normal operation when DCDET1 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.		Press [■ STOP] on main unit for next error.

6.5.4. USB Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
F650	USB device: Devices other than mass storage	Devices other than the mass storage class are connected.		Press [■ STOP] on main unit for next error.
F651	USB device: Non-Full Speed Device	The device that the transfer rate did not correspond to Full Speed was connected.		Press [■ STOP] on main unit for next error.
F652	USB device: Interface NG	The device in the interface (subclass) outside correspondence was connected. (correspondence interface) 001b: Reduced Block Commands (RBC) 010b: SFF-8020i. MMC-2 (ATAPI) 110b: SCSI transparent command set.		Press [■ STOP] on main unit for next error.
F655	USB device: Overcurrent detection	The overcurrent of 500mA or more was detected in VDD USB, and the USB device driver function was intercepted. (To intercept the current.)		Press [■ STOP] on main unit for next error.

6.5.5. DVD Changer Mechanism Unit (CR14D) Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
LOAD	Load operation faulty	The load operation cannot complete when time out occurs.	LOAD	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
UNLD	Unload operation faulty	The unload operation cannot complete when time out occurs.	UNLD	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
UP	Exchange open operation faulty	The exchange open operation cannot complete when time out occurs.	UP	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
DOWN	Down operation faulty	The down operation cannot complete when time out occurs.	DOWN	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
OPEN	Open operation faulty	The open operation cannot complete when time out occurs.	OPEN	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
CLOSE	Close operation faulty	The open operation cannot complete when time out occurs.	CLOSE	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
MODEL	Mode change to up/down operation faulty	The mode change to up/down operation cannot complete when time out occurs. It changes to up/down.	MODEL	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
MODEH	Mode change to horizontal operation faulty	The mode change to horizontal operation cannot complete when time out occurs.	MODEH	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.
INITIALIZE	Initialize operation faulty	The initialize operation cannot complete.	INIT	For DVD Mechanism unit (CR14). Press [EXCHANGE] on main unit for next error.

6.5.6. Deck Mechanism Error Code Table

Error Code	Diagnosis Contents	Description of Error	Automatic FL Display	Remarks
H01	Mode SW, plunger and capstan motor abnormal	Normal operation during mecha transition, MODE SW abnormal is memorized. The content of abnormality can be confirmed in the abnormal detection mode explained in the later section.		For deck mechanism unit. Press [STOP, ■] on main unit for next error.
H02	Rec INH SW abnormal	The content of abnormality can be confirmed in the abnormal detection mode explained in the later section.		For deck mechanism unit. Press [STOP, ■] on main unit for next error.
H03	HALF SW abnormal			For deck mechanism unit. Press [STOP, ■] on main unit for next error.
F01	Reel pulse abnormal			For deck mechanism unit. Press [STOP, ■] on main unit for next error.

6.6. Sales Demonstration Lock Function

This function prevents discs from being lost when the unit is used for sales demonstrations by disabling the disc eject function. "LOCKED" is displayed on the unit, and ordinary operation is disabled.

6.6.1. Setting

• Prohibiting removal of disc

- 1. Select the DVD/CD function.
- 2. At POWER ON condition, press and hold down the  button and the power button on the main unit for at least three seconds. (The message, "LOCKED" appears when the function is activated.)

Note:

OPEN/CLOSE  button is invalid and the main unit displays "LOCKED" while the lock function mode is entered.

• Prohibiting operation of selector and disc

- 1. Select the DVD/CD function.
- 2. At POWER ON condition, press and hold down the  button and the power button on the main unit for at least three seconds. (The message, "LOCKED" appears when the function is activated.)

Note:

The following buttons are invalid and the main unit displays "LOCKED" while the lock function mode is entered.

Main unit	 OPEN/CLOSE,  /-TUNE MODE/-FM MODE, SELECTOR,   /    
Remote controller unit	iPod/USB, FM/EXT-IN, NUMERIC KEYS 0~9, ≥ 10 ,   ,   ,   ,   , RETURN, FUNCTIONS, FL DISPLAY/SLEEP, MUTING

6.6.2. Cancellation

The lock can be cancelled by the same procedure as used in setting. ("UNLOCKED" is displayed on cancellation. Disconnecting the power cable from power outlet does not cancel the lock.)

7 Troubleshooting Guide

7.1. Troubleshooting Guide for F61 and/or F76

This section illustrates the checking procedures when upon detecting the error of “F61” and/or “F76” after power up of the unit. It is for purpose of troubleshooting and checking in SMPS, D-Amp & Main P.C.B.

7.1.1. Block Diagram

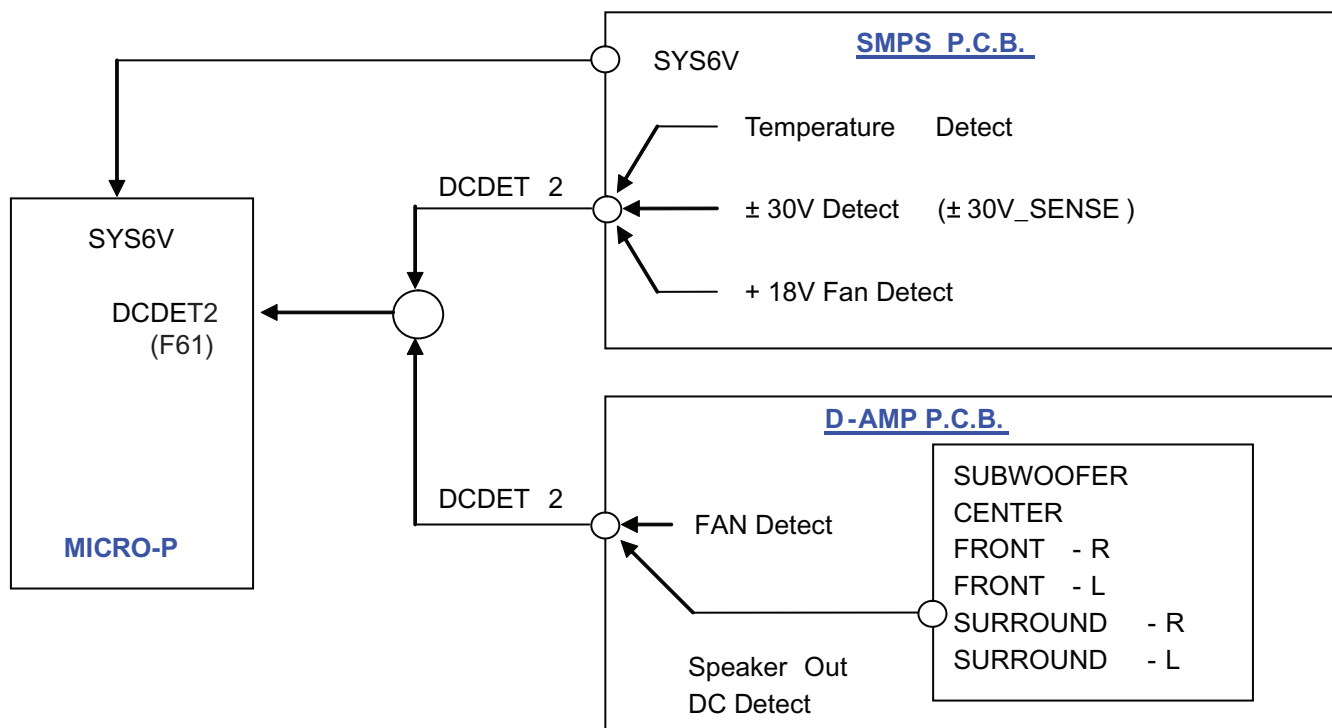


Figure 1

7.1.2. Troubleshooting Guide

Symptom	Checking Items	Repair Items	Remarks
FL display blinking with abnormal segment when power ON the set or "F61"	Check the soldering of the SMPS P. C.B. - Is there any solder crack at area (Q5860, Q5861, Q5862, TH5860, QR5801) - Check all the supply line $\pm 30V$ - Is there any solderability at area of feedback circuit - Check feedback circuit (IC5801, Q5802, D5806, PC5720, D5725)	Touch-up the solder crack area/ Change the defective parts. - Q5860, Q5861, Q5862, TH5860 (Temperature Detect) - QR5801 & QR5802 ($\pm 30V$ Detect) - Touch-up the necessary areas - IC5801, D5806, PC5720, D5725	SMPS P. C.B. Refer to Figure 2
First Power ON Display immediate show "F61".	Check Speaker output by using multi-meter, - If there is a DC Voltage around $\pm 30V$ - Check Output IC (Pin 10 & 14) which have DC Voltage at Speaker output short to $\pm V_{dd}/V_{ss}$ - If shorted that means D-Amp damage already.	Change the defective parts. D-AMP IC: IC5000/IC5200 P/N = C1BA00000487 For Configuration Refer to Figure 5	D-AMP P. C.B. Refer to Figure 3
Power ON for a while then only trigger "F61". (Symptom always happen)	Check the fan connection & feedback loop: - If the fan not proper connected, "F61" will trigger when the volume increase. - If the fan is not working, check for fan circuit. Check the soldering of the SMPS P. C.B. - Is there any solder crack at area (Q5860, Q5861, Q5862, TH5860, QR5801) - Check all the supply line $\pm 30V$	Re-connect the Fan to CN2810 Fan circuit: Q2942, Q2943, Q2948 & Q2949 Touch-up the solder crack area/ Change the defective parts. - Q5860, Q5861, Q5862, TH5860 (Temperature Detect) - QR5801 & QR5802 ($\pm 30V$ Detect) Feedback Circuit: IC5801, PC5720, D5725	Main P. C.B. Refer to Figure 4 D-Amp P. C.B. Refer to Figure 3
Power ON for a while and then trigger "F76"	Check all supply voltages as follows: Step 1: Check for supply voltages from SMPS P. C.B to Power Supply P. C.B at pin 2,5,6,7,8,9 of CN5802. If there are supply voltages, proceed to Step 2. If no voltages detected, check wire connection and circuitry connection from SMPS P. C.B. Step 2: Check if there is supply voltages for $-V_p$, FL1 & FL2 CN2807 - If there is supply voltages of +5V, +2.7V (For DVD), +6V (SYS6V), +9V & +18V at CN2807 - If there is supply voltages of $\pm 9V$ at CN6001	Check and change the possible defective parts. - FP2901 (Fuse Protector), T2900, D2901, D2906, D2908, D2909 - IC4000 (DC-DC Converter IC) & related regulator circuit components - IC4001 (DC-DC Converter IC) & related regulator circuit components	Main P. C.B. Refer to Figure 4

7.1.3. Part Location

7.1.3.1. SMPS P.C.B.

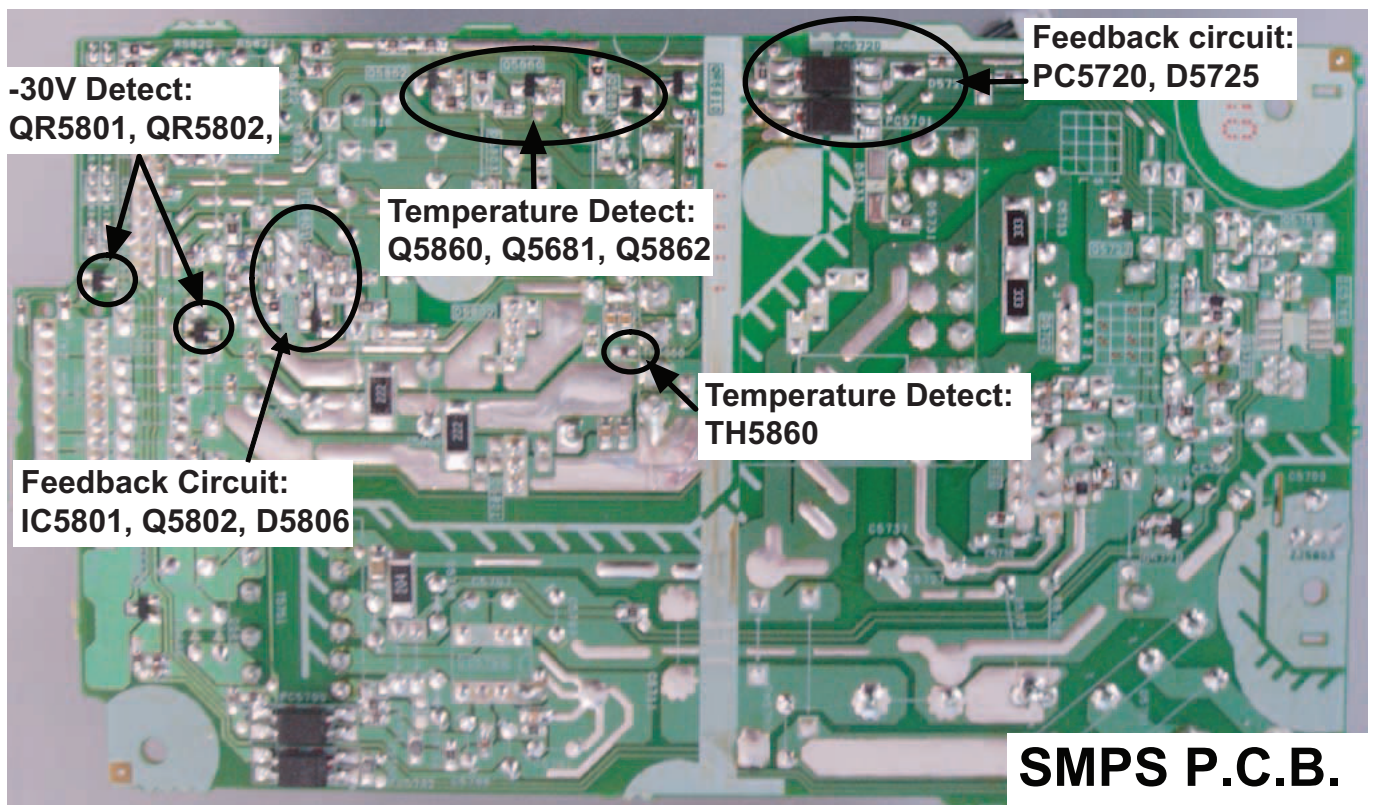


Figure 2 SMPS P.C.B.

7.1.3.2. D-Amp P.C.B.

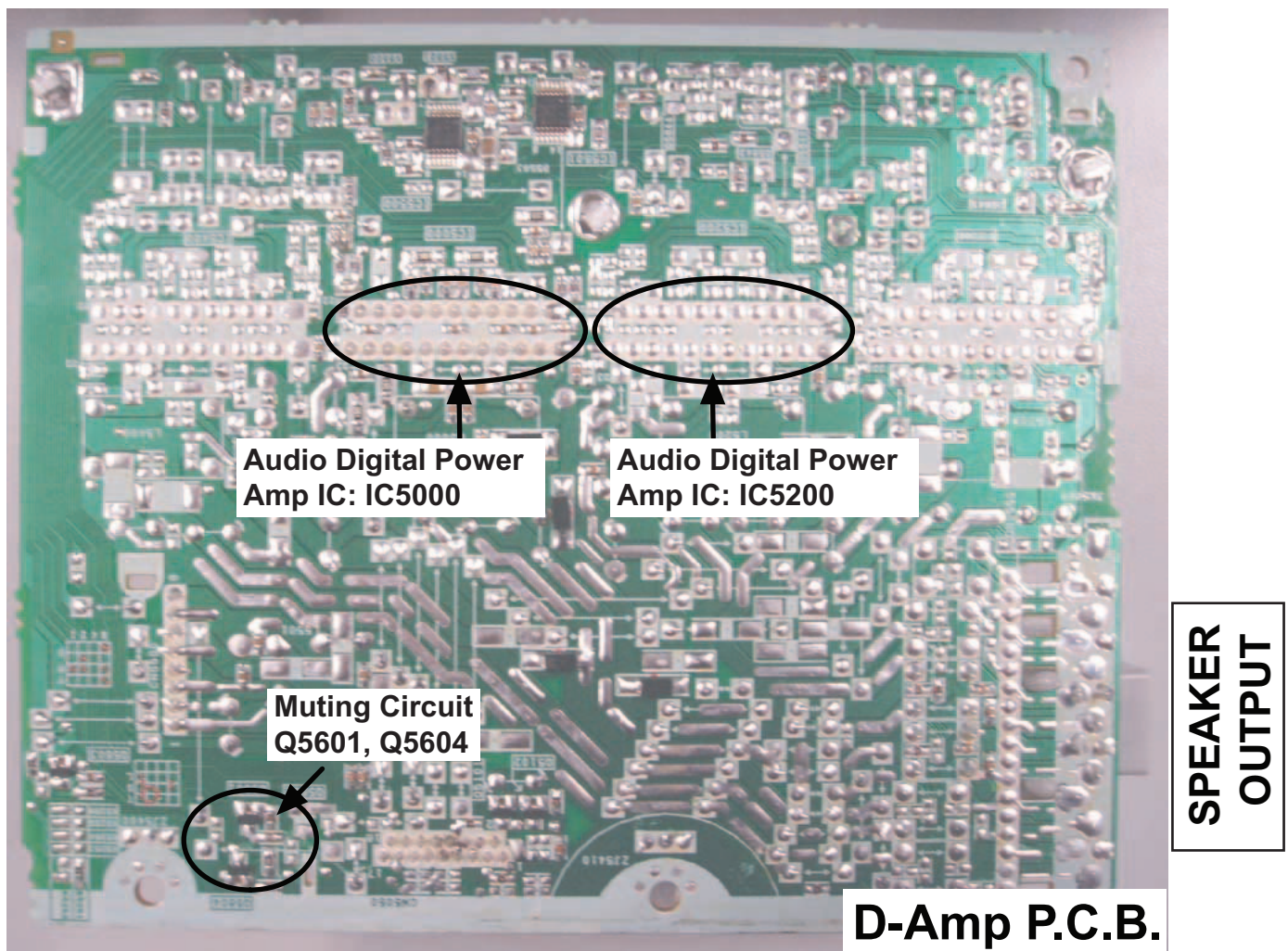


Figure 3 D-Amp P.C.B.

7.1.3.3. Main P.C.B.

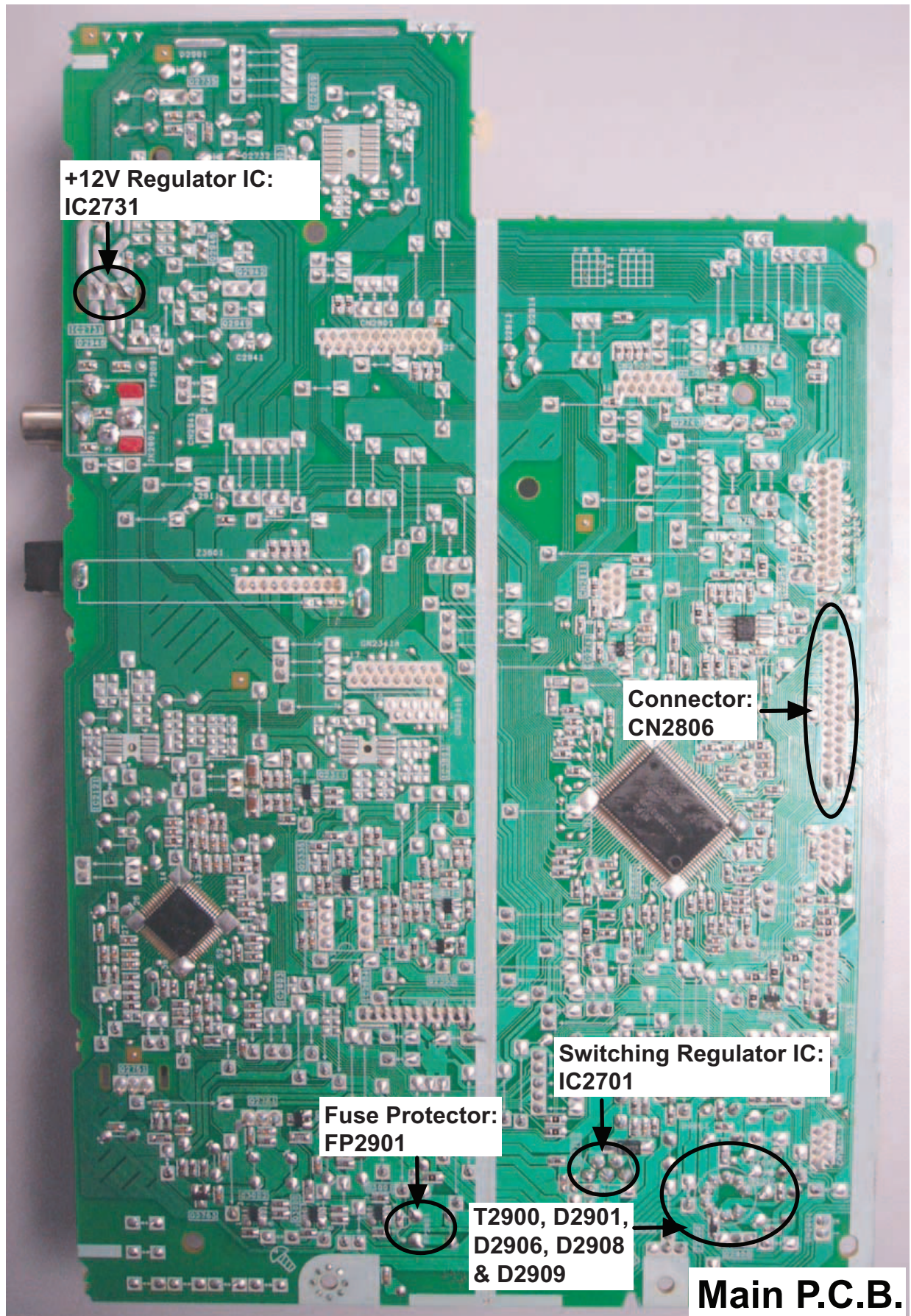


Figure 4 Main P.C.B.

7.1.3.4. D-Amp IC Configuration

		VK680GC/GS/GA
IC5200	Pin (10)	Woofer +
	Pin (14)	Woofer
IC5000	Pin (10)	Front Right
	Pin (14)	Front Left

Figure 5 D-Amp IC Configuration

7.2. Basic Troubleshooting Guide for Traverse Unit (DVD Module P.C.B.)

Problems	Checking Points	Checking components
1) Distorted picture or abnormal sound is heard during the initialization	a) Check SDRAM address, data bus, CLK and other control signals waveform	IC8051
	b) Check video signals (Y,C)	LB8301, R8321, R8323, LB8302, R8325, R8327
	c) Check audio DAC circuitry * Compare the above with OK condition DVD Module P.C.B	IC8421 (Pin 9 to 11 & 17 to 22) LB8425, LB8426, LB8427, LB8428, LB8429, LB8431 *Check for solder short and/or component missing/damaged
2) No TOC/Long TOC	a) Check motor driver circuitry (+5V)	IC8251 Pin 8, 21
	b) Check laser drive circuitry (Voltages & current)	Q8551, Q8552 (For DVD), Q8561, Q8562 (For CD)
	c) Check LSI IC connection to motor drive circuitry * Compare the above with OK condition DVD Module P.C.B.	IC8001 Pin 66, 67 IC8251 Pin 15 to 16 * Check for solder short and/or component missing/damaged
3) Disc not spinning 4) Traverse not moving 5) Traverse and spindle abnormal movement	a) Check connection from DVD Module to Traverse unit	FP8251
	b) Check motor driver circuitry on the voltages and control signals * Compare the above with OK condition DVD Module P.C.B.	IC8251 * Check for solder short and/or component damaged
6) Cannot read the disc but spindle motor is spinning - Cannot read CD/DVD	a) Check laser drive circuitry (voltages and current) - Check CD Laser Drive - Check DVD Laser Drive * Check voltages and LD current and compare with OK condition DVD Module P.C.B.	Q8551, Q8552, LB8551 (For DVD Laser Drive current) Q8561, Q8562, LB8561 (For CD Laser Drive current)
7) Block Noise during play	a) Check SDRAM address and data bus signal	IC8051
8) Jitter out of specification	a) Check LD current b) Check OPU (Change to other unit and confirmed operating condition)	OPU Unit (Traverse unit), FPC connection (FP8531 & FP8251)

7.3. Basic Troubleshooting Guide for HDMI AV Output

Problems	Checking Points	Checking components
1) TV does not have any display. Set FL display shows U702/U703	1) Check setting of the set in Setup Menu whether the HDMI Video output is turned ON	* This year HDMI always ON. No need check Setup Menu. If no resolution selection GUI, then only check SETUP.
	2) +5V Supply to the TV	IC3952 (Pin 4)
	3) HDMI Connector Solderability condition	P3901
	4) HDMI Output TDMS signal lines (IC3901) - Data (TX0P/M => 14, 16) - Data (TX1P/M => 18, 20) - Data (TX2P/M => Pin 22, 24) - Clock (TXCP/TXCM => Pin 10, 12)	L3905 L3904 L3903 L3906
	5) HDMI Transmitter communication lines to TV - Data, SDA (Pin 120, IC3901) - Clock, SCL (Pin 121, IC3901)	LB3905, R3905, Q3902, R3904 LB3904, R3907, Q3903, R3906
	6) HDMI Transmitter communication from LSI (IC8001) (I2C_SCL/I2C_SDA signals)	RX3901
	7) Local Port Slave Address setting resistor at Pin 99 of HDMI Transmitter LSI IC (IC3901) for LPSA signal	R3921
	8) HDMI Transmitter LSI IC (IC3901) +3.3V Supply	LB3901, LB3902, IC3901 (Pin 9, 13, 17, 21, 25, 124)
	9) HDMI Transmitter LSI IC (IC3901) +1.2V Supply	IC3901 (Pin 5, 26, 42, 47, 55, 75, 85, 102, 109, 116, 123), LB3908, IC8151 (Pin 4), LB8001, IC8001 (Pin 20, 44, 83, 158, 187, 211)
	10) HDMI Up-Con +3.3V Supply	LB3901
	11) HDMI Pixel Clock Output from Up-Con to HDMI Transmitter (VCLK)	LB8901
	12) Up-Con IC I2C Data and Clock Line	RX3901

Problems	Checking Points	Checking components
1) TV does not have any display. Set FL display shows U702/U703	13) Hot-Plug Signal	LB3906, R3902, R3903, Q3901, D3901
	14) TDMS Output swing amplitude control resistor	R3901
	15) Host Interface External Input Clock from LSI (IC8001) to Up-Con IC (IC3901) - OSC27M	LB8702
	16) Video Data Lines from LSI (IC8001) to Up-Con (IC3901)	RX3707, RX3708, IC3901 (Pin 92 to 95, Pin 87 to 90)
2) When switching the video output mode from 480P to 720p/1080i, TV display becomes blank	1) Supply for Up-Con (IC3901) - Pin 9,124 2) GND for Up-Con - Pin 7,125 3) Check for capacitor short to GND	LB3902 C3902, C3928, C3925
3) Color Problem. TV Screen is White/Blue/Purple	1) Check digital video data line from LSI(IC8001) to Up-Converter (IC3901), VOUT0-VOUT7.	RX3707, RX3708
4) HDMI got no audio output	1) Audio data lines 2) Check setting of the set in Setup Menu whether the HDMI Audio output is turned On	R8402, RX8402 * Check for solder short and/or component missing/damaged as well as signal condition.

8 Service Fixture & Tools

8.1. Service Tools and Equipment

Prepare service tools before process service position.

Service Tools		Remarks
Main P.C.B. (CN2808) - D-Amp P.C.B. (CN5050)	REEX0930 (17P FFC)	[M]
Main P.C.B. (ZJ2701) - SMPS P.C.B. (CN5802)	REXX0680 (11P Cable)	[M]
SMPS P.C.B. (H5801) - D-Amp P.C.B. (CN5500)	REXX0683 (8P Cable)	[M]

9 Disassembly and Assembly Instructions

“ATTENTION SERVICER”

Be careful when disassembling and servicing.

Some chassis components may have sharp edges.

Special Note:

1. This section describes the disassembly procedures for all the major printed circuit boards and main components.
2. Before the disassembly process was carried out, do take special note that all safety precautions are to be carried out.
(Ensure that no AC power supply is connected during disassembling.)
3. For assembly after operation checks or replacement, reverse the respective procedures.
Special reassembly procedures are described only when required.
4. Do take note of the locators on each printed circuit board during reassembling procedures.
5. The Switch Regulator IC may have high temperature after prolonged use.
6. Use caution when removing the top cabinet and avoid touching heat sinks located in the unit.

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

7. Select items from the following index when checks or replacement are required.

- Disassembly of Top Cabinet
- Disassembly of DVD Mechanism Unit (CR14D)
- Disassembly of Rear Panel
- Disassembly of Front Panel Assembly
- Disassembly of Panel P.C.B., Volume P.C.B., Remote Sensor P.C.B., Side Bar (L/R) LED P.C.B.
- Disassembly of Mic P.C.B.
- Disassembly of USB P.C.B.
- Disassembly of Music Port P.C.B.
- Disassembly of CD Lid
- Disassembly of Deck Mechanism Unit
- Disassembly of Deck P.C.B.
- Disassembly of Deck Mechanism
- Disassembly of Deck Mechanism P.C.B.
- Disassembly of Cassette Lid
- Rectification for Tape Jam Problem
- Disassembly of D-Amp P.C.B.
- Replacement of Audio Digital Power Amp IC (IC5000)
- Replacement of Audio Digital Power Amp IC (IC5200)
- Disassembly of Main P.C.B.
- Disassembly of SMPS P.C.B.
- Replacement for Switch Regulator IC (IC5701)
- Replacement for Switch Regulator Diode (D5702)
- Replacement for Regulator Diode (D5801)
- Replacement for Regulator Diode (D5802)
- Replacement for Regulator Diode (D5803)
- Disassembly of AC Inlet P.C.B.
- Disassembly of Voltage Selector P.C.B. (For GA/GS only)
- Disassembly of DVD Module P.C.B.
- Disassembling and Assembling of Traverse Unit.

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

CAUTION NOTE:

Please use original screw and at correct locations.

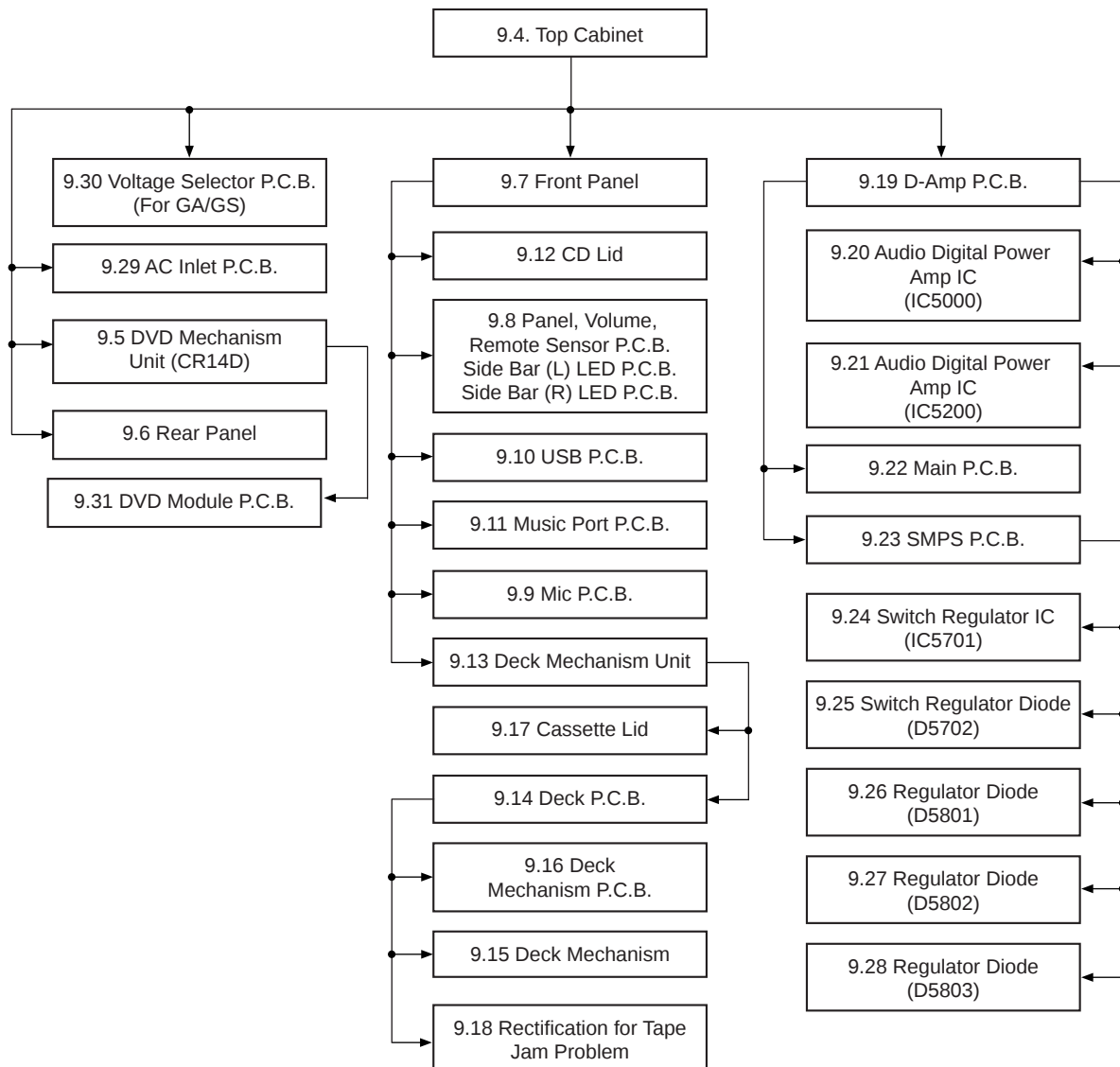
Below shown is part no. of different screw types used:

- | | |
|------------------------|-----------------------|
| a :RHD30007-K2J | i :XTB3+10JFJ |
| b :RHD30119-S | j :XTW3+8TFJ |
| c :XTW3+12TFJ | k :XYC2+JF17FJ |
| d :RHD26043-1 | l :XTW2+5LFJ |
| e :RHD30111-31 | n :XTW26+10SFJ |
| f :RHD26046-L | o :RHD26022-1 |
| g :RHD30008 | |
| h :XTV3+10GFJ-M | |

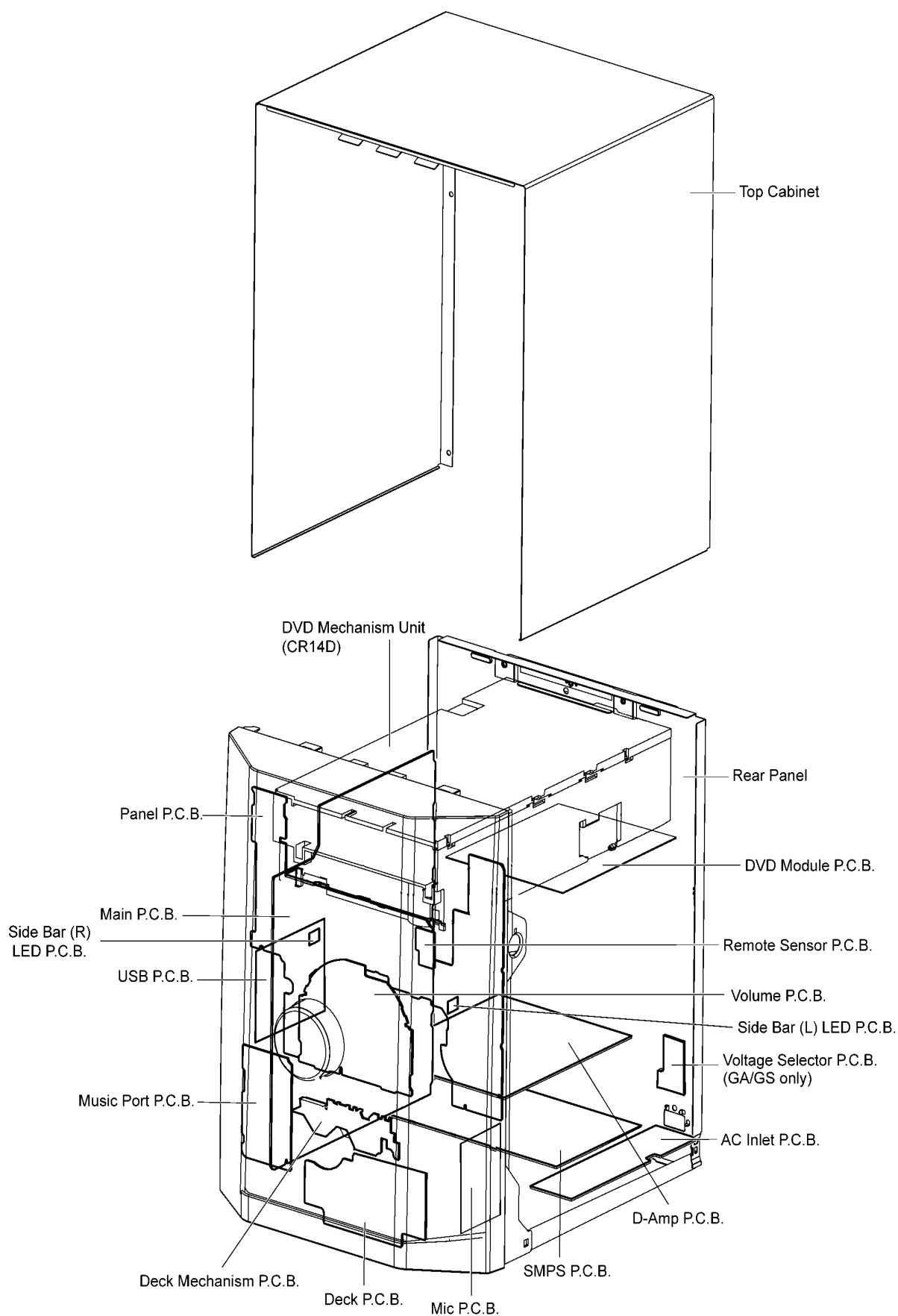
9.1. Disassembly flow chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart as below.

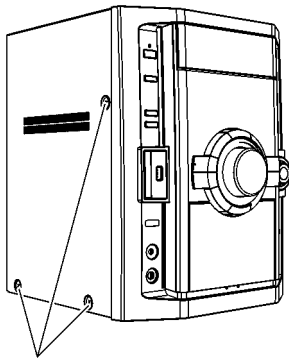


9.2. Main Components and P.C.B. Location



9.3. Disassembly of Top Cabinet

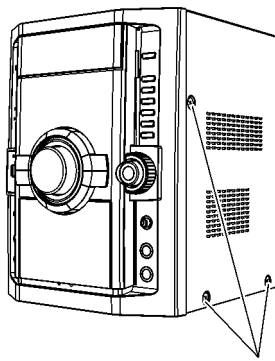
(Left View)



(Step 1)

⚙️ **a** x 3

(Right View)



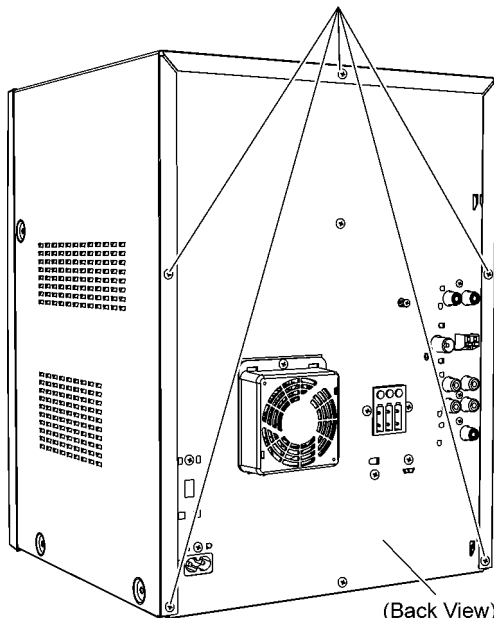
(Step 1)

⚙️ **a** x 3

Step 1 Remove 3 screws on each side of the main unit.

(Step 2)

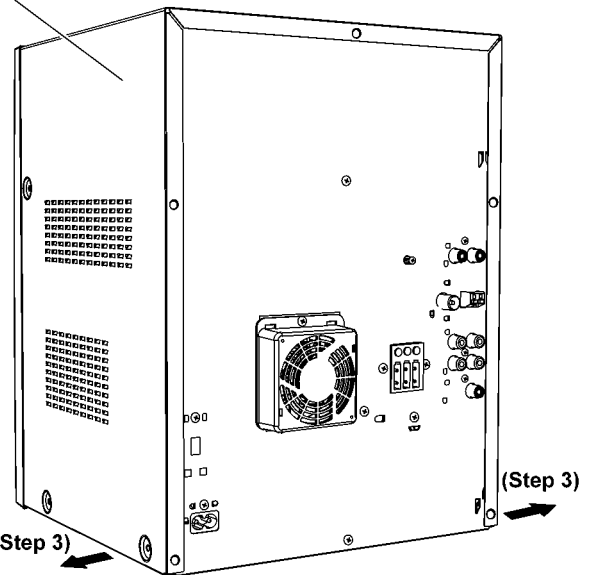
⚙️ **b** x 5



(Back View)

Step 2 Remove 5 screws.

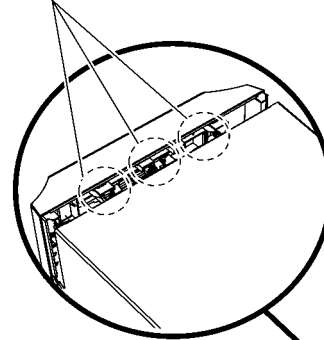
Top Cabinet



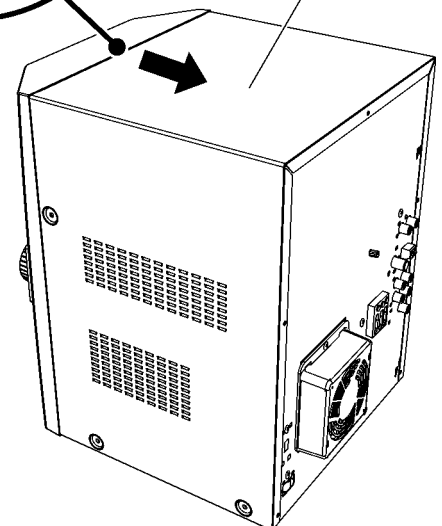
Step 3 Lift the sides of top cabinet outwards as arrow shown.

(Step 4)

Catches

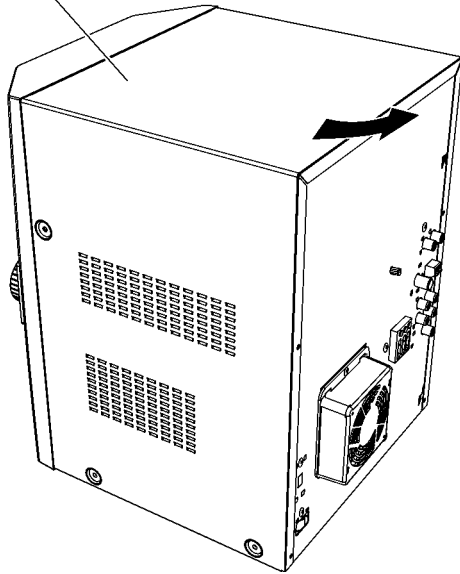


Top Cabinet



Step 4 Push the top cabinet backwards as arrow shown to release the catches.

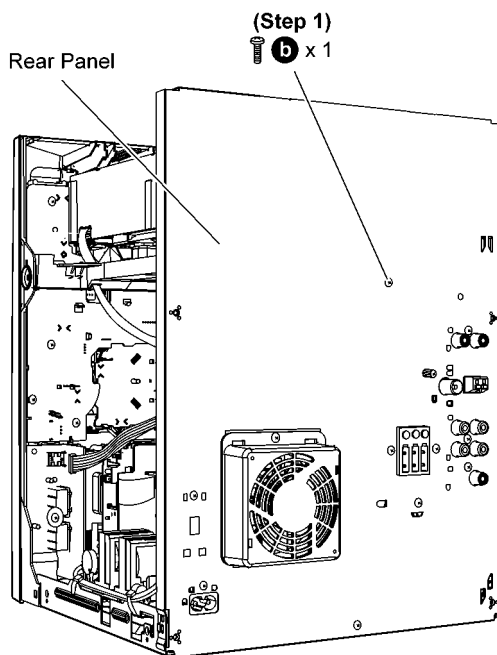
(Step 5)
Top Cabinet



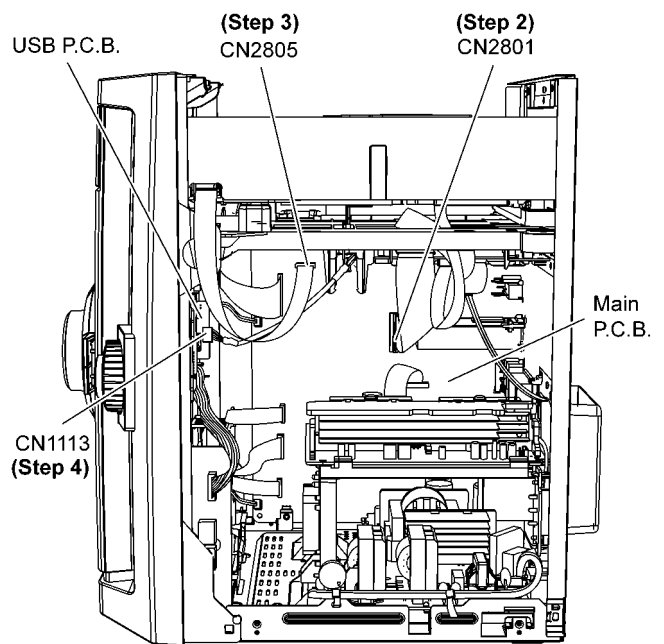
Step 5 Remove the top cabinet.

9.4. Disassembly of DVD Mechanism Unit (CR14D)

- Follow the (Step 1) to (Step 5) of Item 9.3



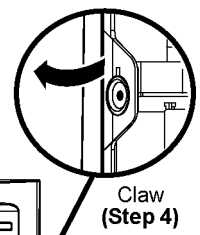
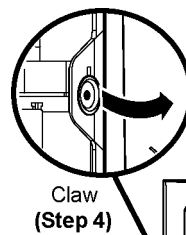
Step 1 Remove 1 screw at rear panel.



Step 2 Detach 50P FFC cable at the connector (CN2801) on Main P.C.B.

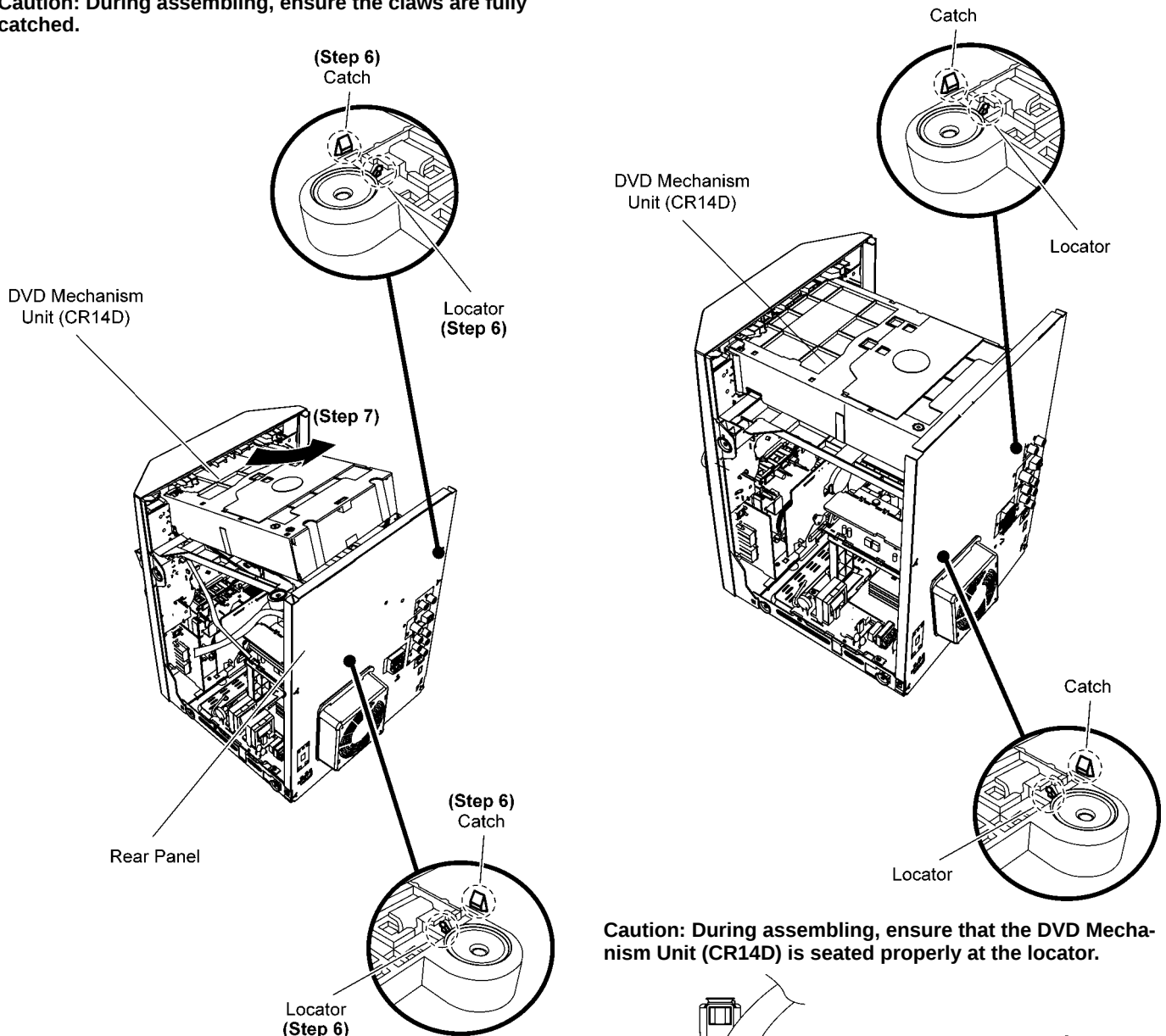
Step 3 Detach 11P FFC cable at the connector (CN2805) on Main P.C.B.

Step 4 Detach 5P cable at the connector (CN1113) on USB P.C.B.



Step 5 Release the claws outwards on both sides.

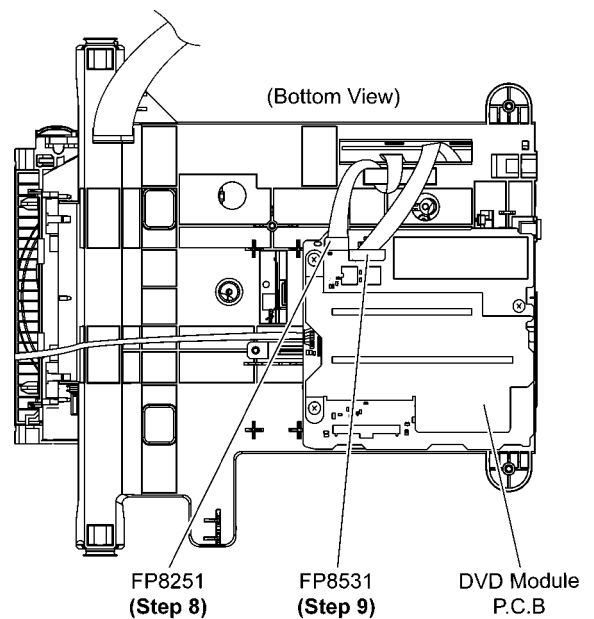
Caution: During assembling, ensure the claws are fully caught.



Step 6 Release the DVD Mechanism Unit (CR14D) from the catches and locators.

Step 7 Lift up DVD Mechanism Unit (CR14D) in the direction of arrow.

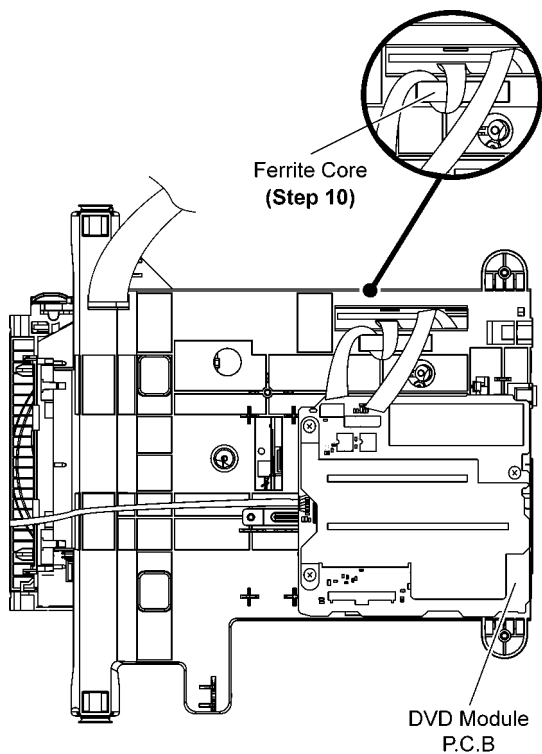
Caution: During assembling, ensure that the DVD Mechanism Unit (CR14D) is seated properly at the locator.



Step 8 Detach 7P FFC at the connector (FP8251).

Step 9 Detach 26P FFC at the connector (FP8531).

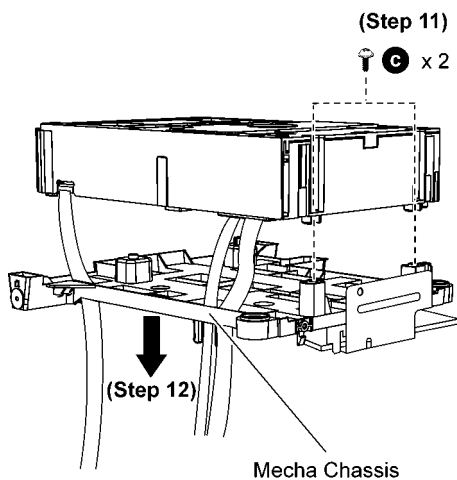
• For GC only



Step 10 Remove 7P FFC from the Ferrite Core.

Caution: Ensure that 7P FFC is properly slot through the Ferrite Core.

- Disassembly of Mecha Chassis

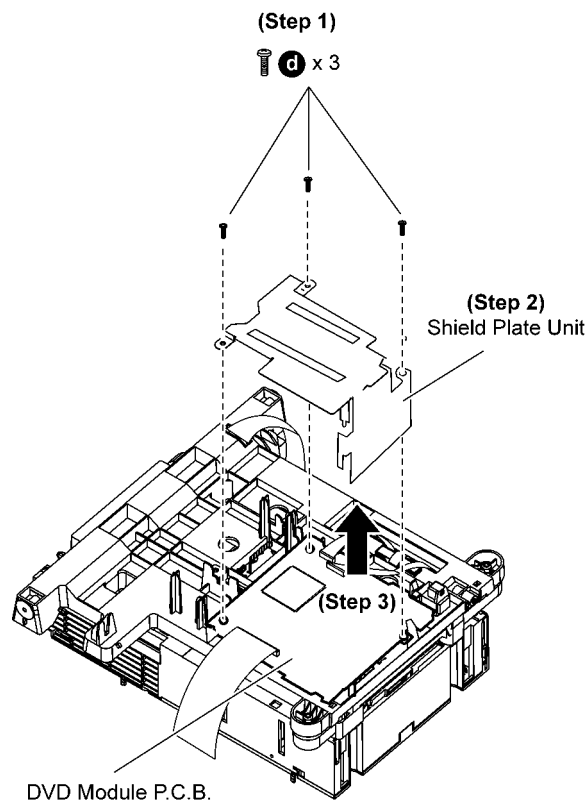


Step 11 Remove 2 screws.

Step 12 Remove Mecha Chassis as arrow shown.

9.5. Disassembly of DVD Module P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 9) of Item 9.4



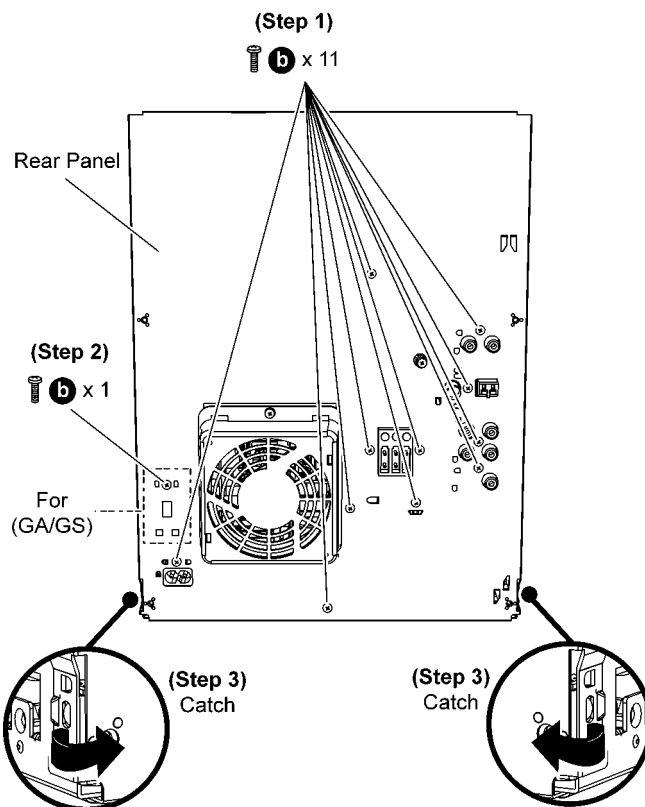
Step 1 Remove 3 screws.

Step 2 Remove the shield plate unit.

Step 3 Remove DVD Module P.C.B..

9.6. Disassembly of Rear Panel

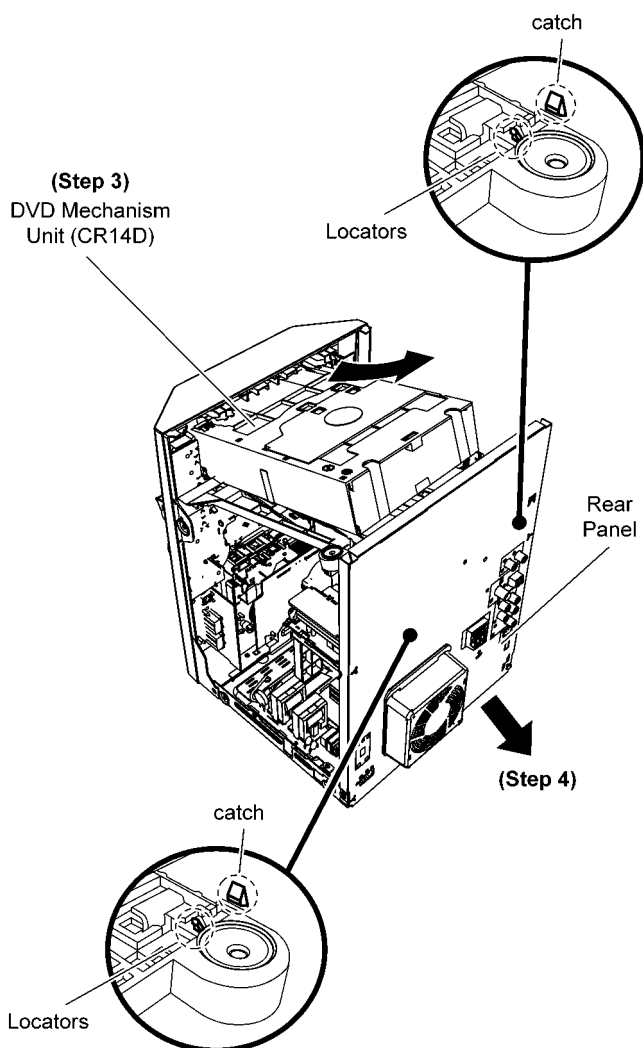
- Follow the (Step 1) to (Step 5) of Item 9.3



Step 1 Remove 11 screws at rear panel.

Step 2 Remove 1 screw at rear panel (GA/GS only).

Step 3 Release 2 catches from the each side of the rear panel.

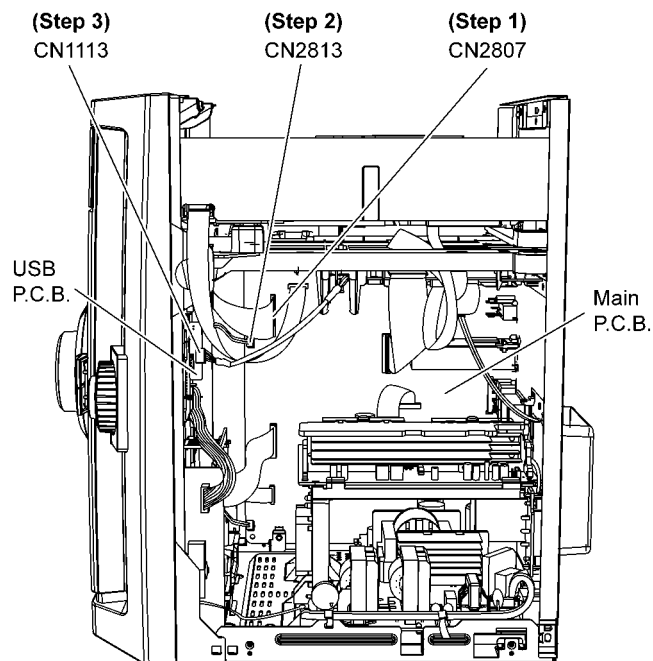


Step 3 Slightly lift up the DVD Mechanism Unit (CR14D) to release from the two locators.

Step 4 Remove rear panel in the direction of arrow.

9.7. Disassembly of Front Panel Assembly

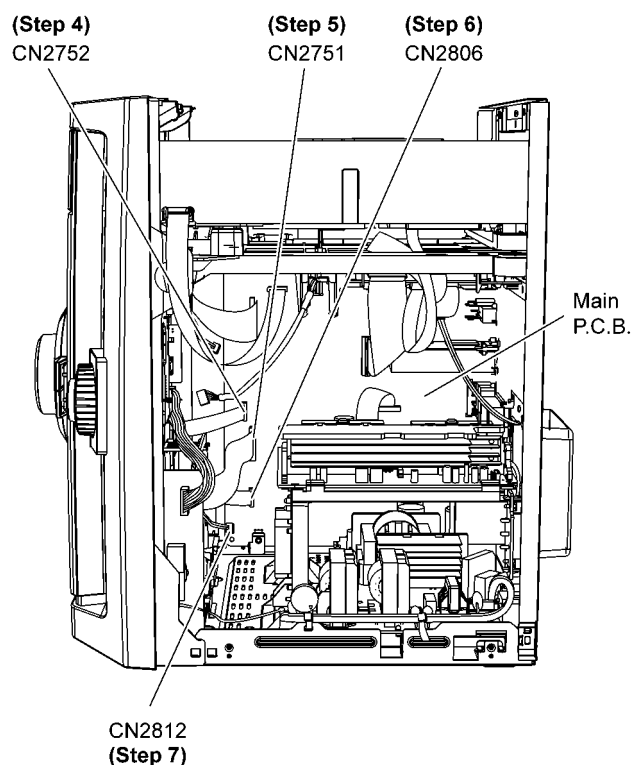
- Follow the (Step 1) to (Step 5) of Item 9.3



Step 1 Detach 27P FFC at the connector (CN2807) on Main P.C.B..

Step 2 Detach 2P cable at the connector (CN2813) on Main P.C.B..

Step 3 Detach 5P cable at the connector (CN1113) on USB P.C.B..

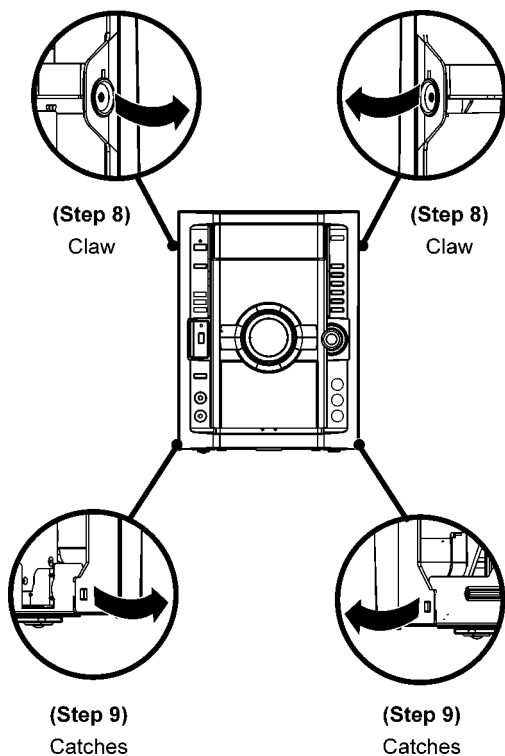


Step 4 Detach 10P FFC at the connector (CN2752) on Main P.C.B..

Step 5 Detach 12P FFC at the connector (CN2751) on Main P.C.B..

Step 6 Detach 10P FFC at the connector (CN2806) on Main P.C.B..

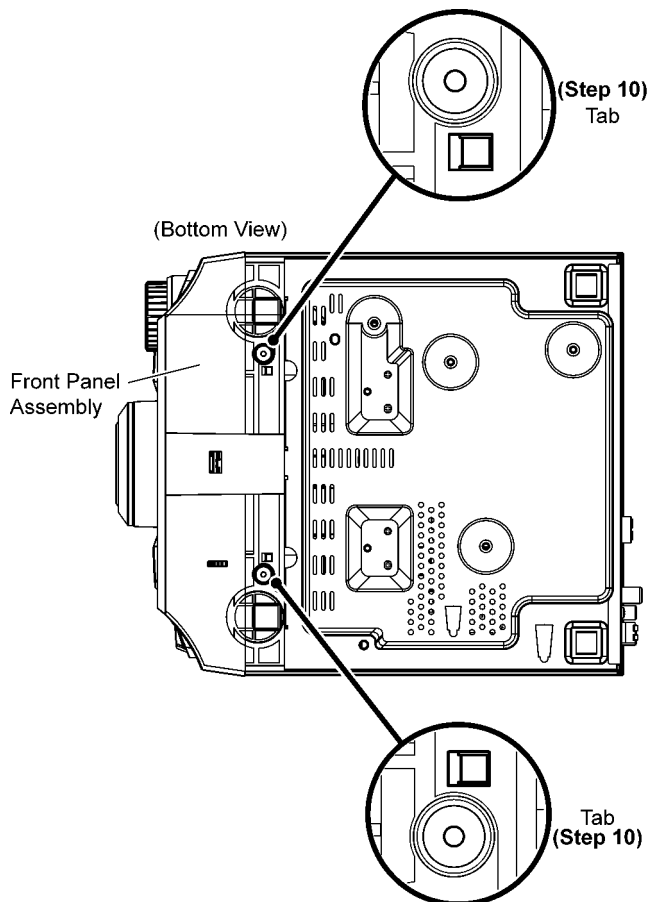
Step 7 Detach 2P cable at the connector (CN2812) on Main P.C.B..



Step 8 Release the claws on both sides.

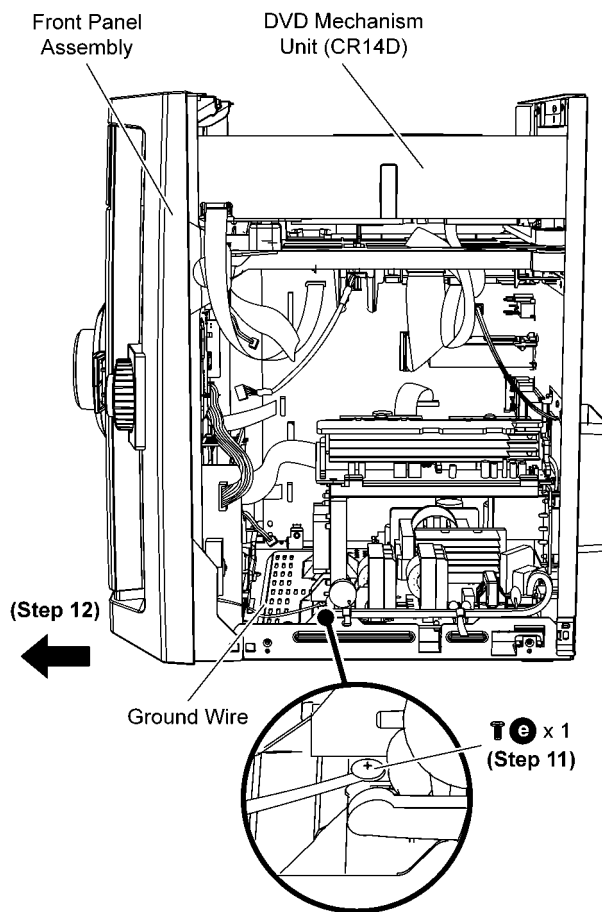
Step 9 Release catches at both side.

Caution: During assembling, ensure that both claws and catches are fully caught.



Step 10 Release the tabs at the bottom.

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

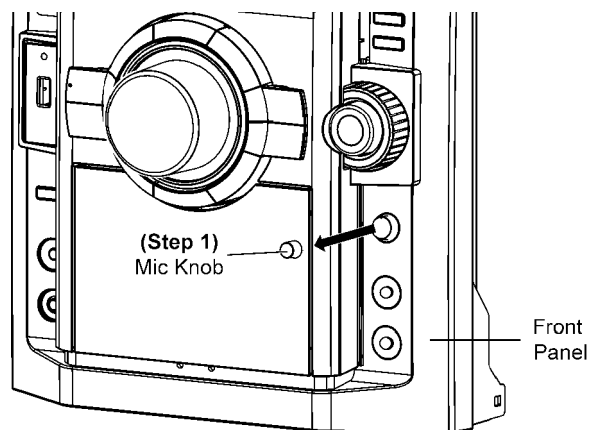


Step 11 Remove 1 screw to remove ground wire.

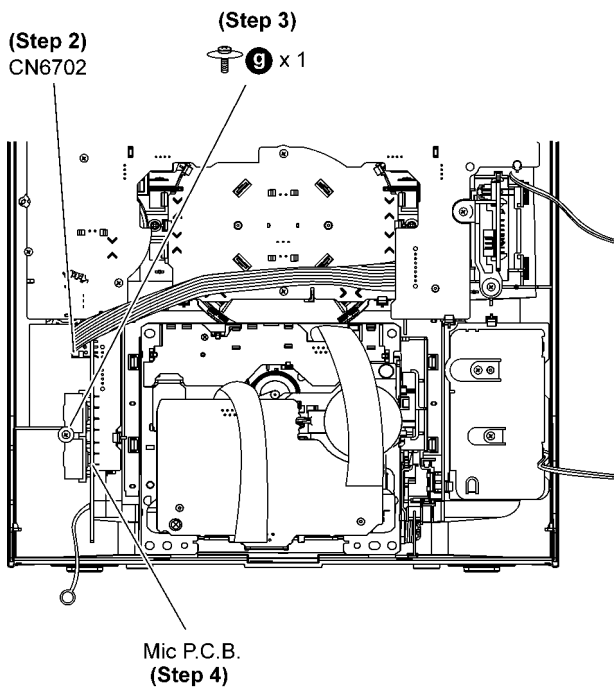
Step 12 Remove front panel assembly in the direction of arrow.

9.8. Disassembly of Mic P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7



Step 1 Remove Mic knob.



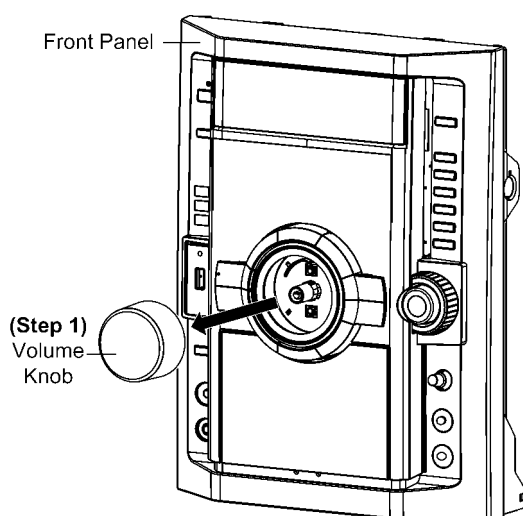
Step 2 Detach 7P cable at the connector (CN6702) on Mic P.C.B..

Step 3 Remove 1 screw on Mic P.C.B..

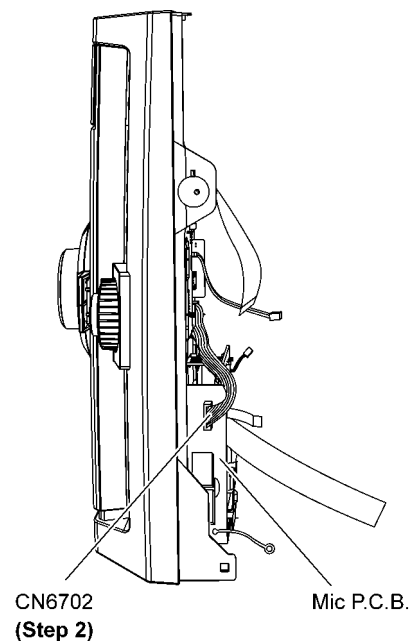
Step 4 Remove the Mic P.C.B..

9.9. Disassembly of Panel P.C.B., Volume P.C.B. & Remote Sensor P.C.B. , Side Bar (L) LED P.C.B. and Side Bar (R) LED P.C.B.

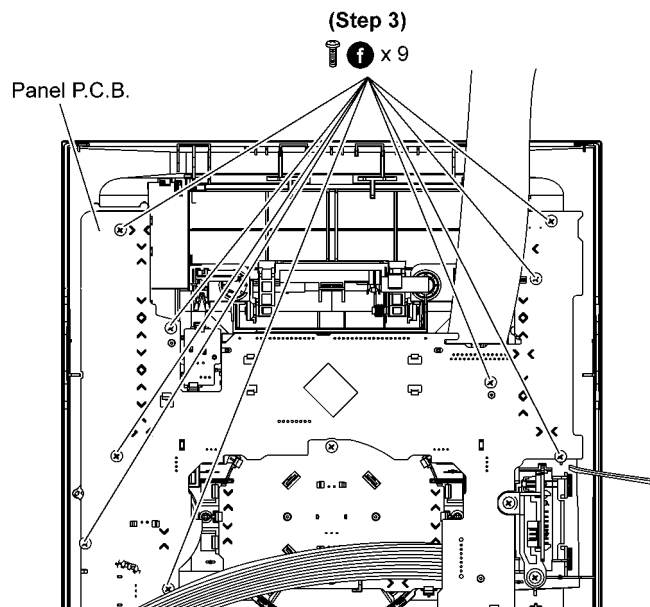
- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7
- Follow the (Step 2) of Item 9.8



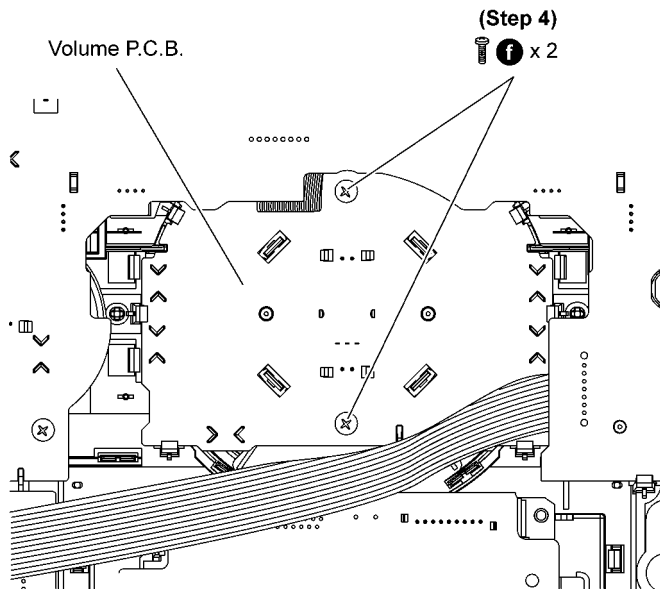
Step 1 Remove volume knob.



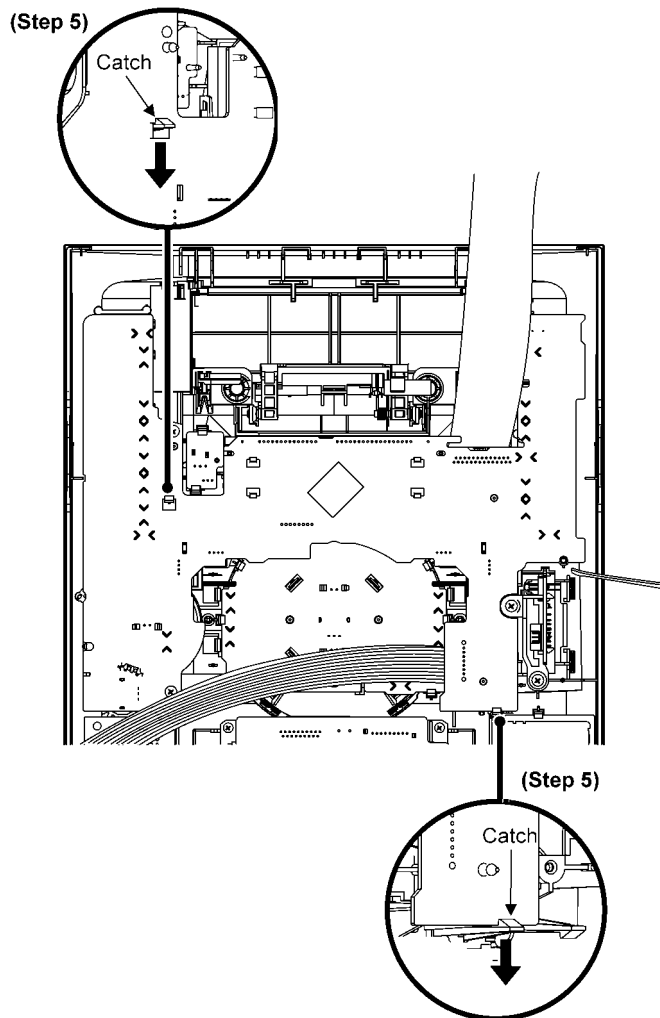
Step 2 Detach 7P cable at the connector (CN6702) on Mic P.C.B..



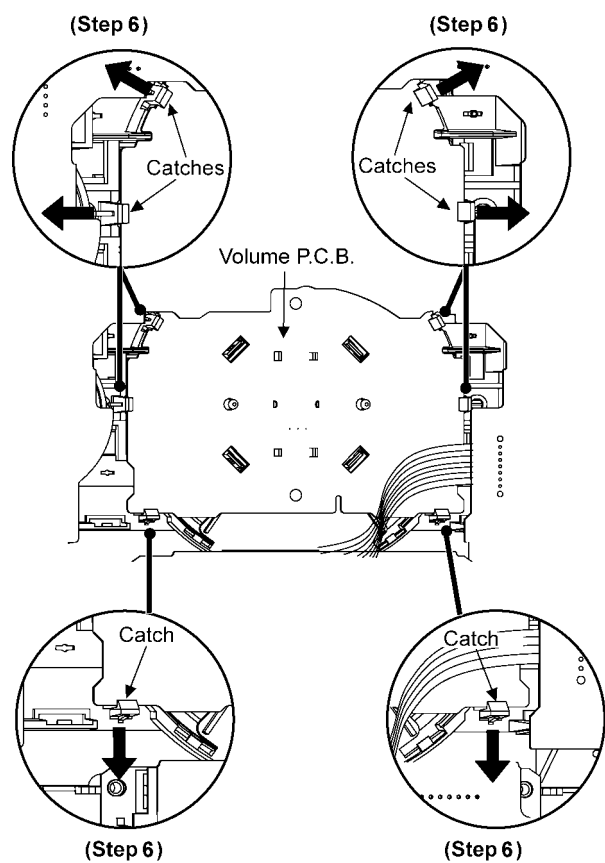
Step 3 Remove 9 screws at Panel P.C.B..



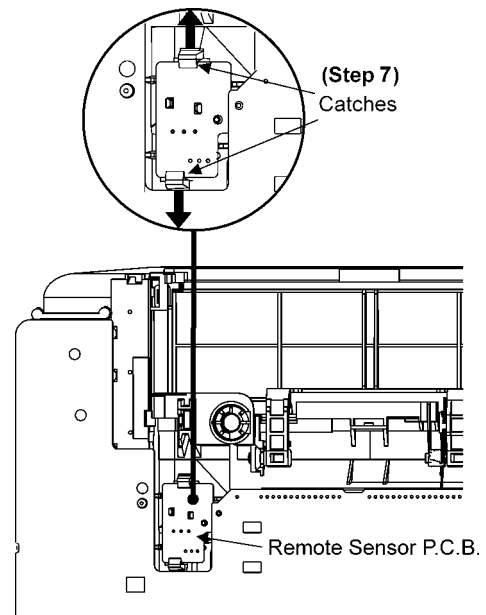
Step 4 Remove 2 screws on Volume P.C.B..



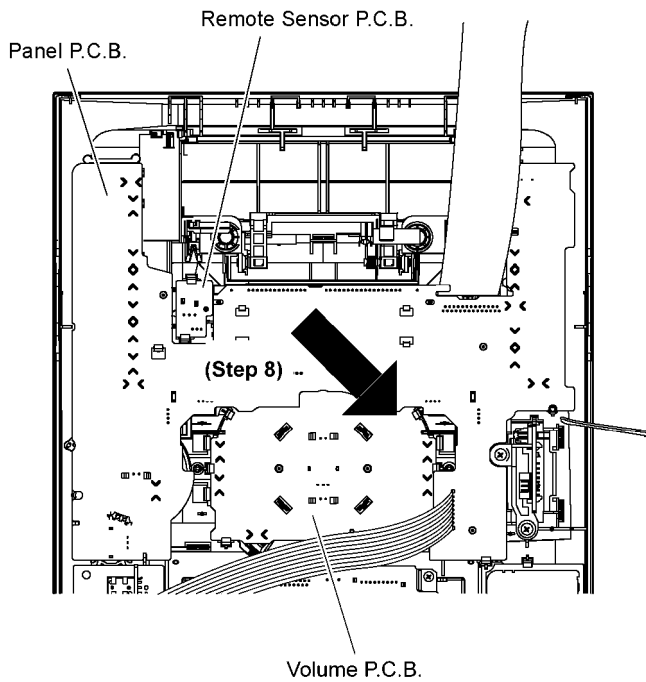
Step 5 Release 2 catches at Panel P.C.B..



Step 6 Release 6 catches at Volume P.C.B..

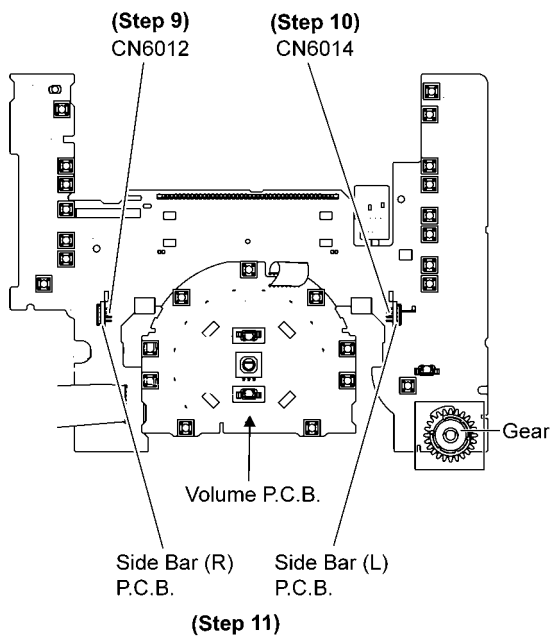


Step 7 Release 2 catches at Remote Sensor P.C.B..



Step 8 Lift up the Panel P.C.B., Volume P.C.B. & Remote Sensor P.C.B. altogether as arrow shown.

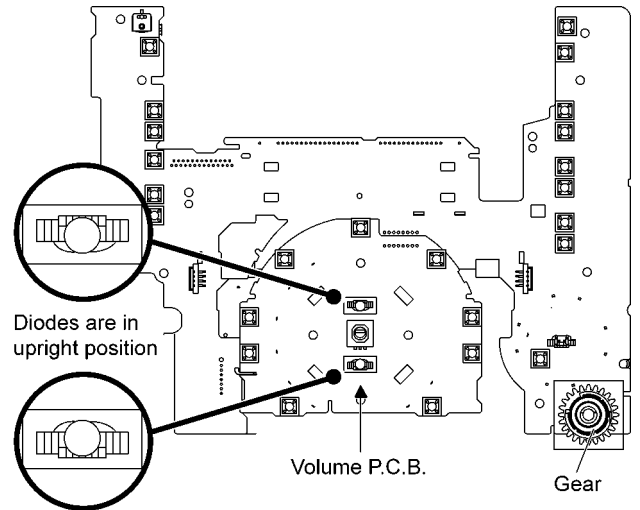
• **Disassembly of Side Bar (L) Led P.C.B. and Side Bar (R) P.C.B.**



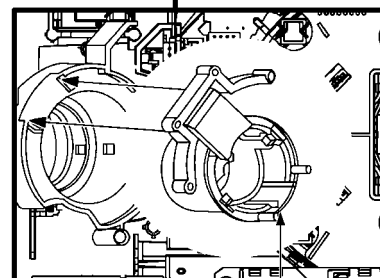
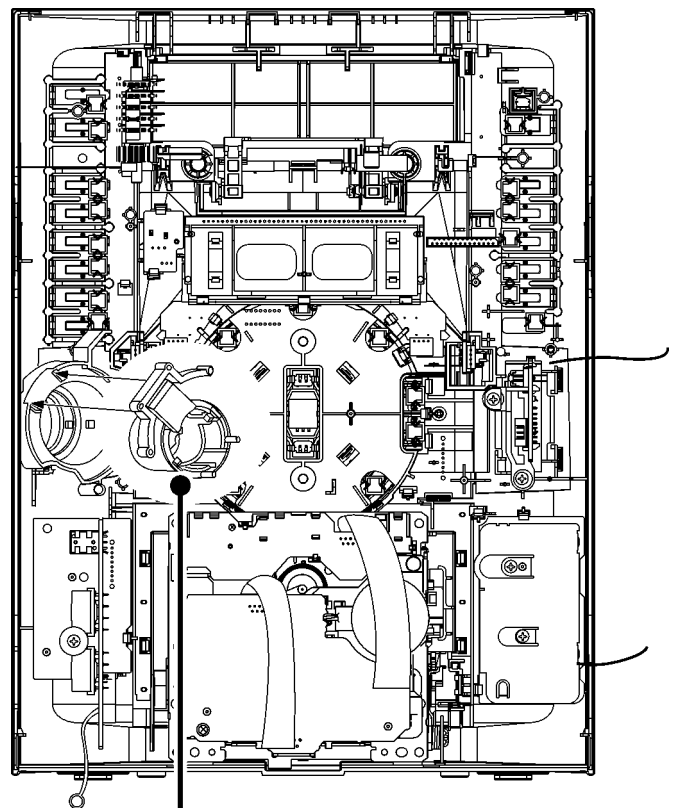
Step 9 Detach Side Bar (L) P.C.B at the connector (CN6014) on Panel P.C.B..

Step 10 Detach Side Bar (R) P.C.B at the connector (CN6012) on Panel P.C.B..

Step 11 Remove the Side Bar (L) P.C.B. and Side Bar (R) P.C.B..



Caution: During assembling, ensure that the diodes shown on Volume P.C.B. are in upright position.



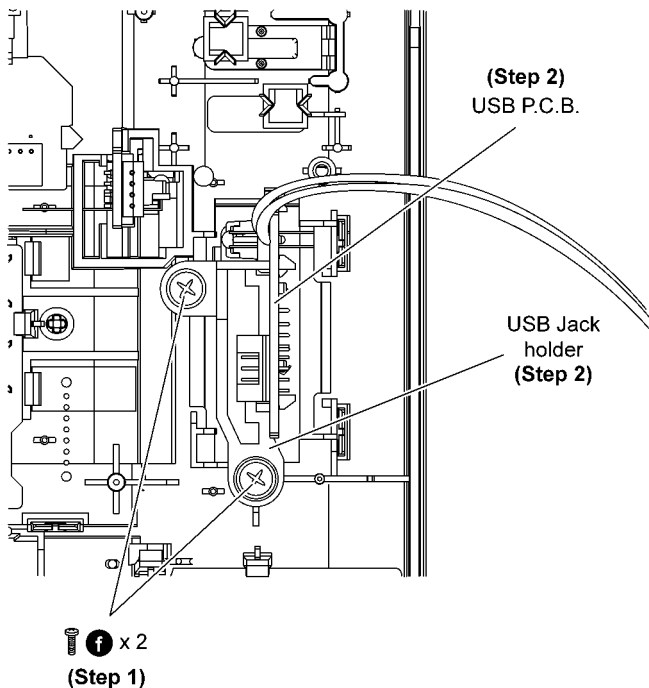
Dynamic Bass Button

Caution: During assembling, ensure that Dynamic Bass Button is seated properly.

9.10. Disassembly of USB P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7

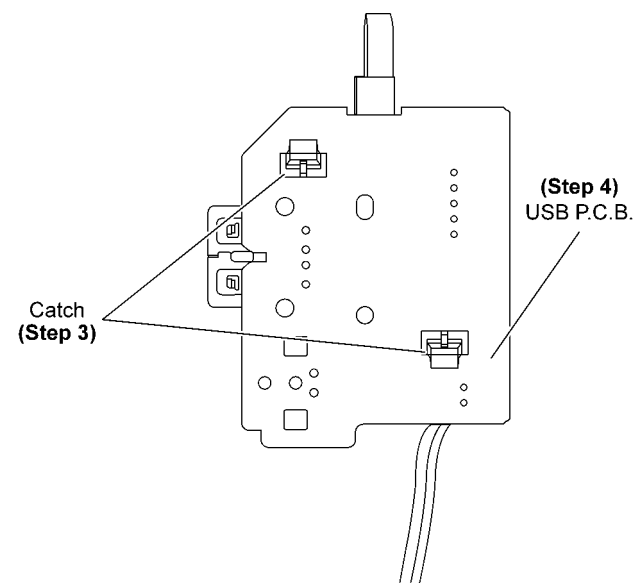
• Disassembly of USB Jack holder.



Step 1 Remove 2 screws at USB Jack holder.

Step 2 Remove the USB Jack holder together with USB P.C.B..

• Disassembly of USB P.C.B..

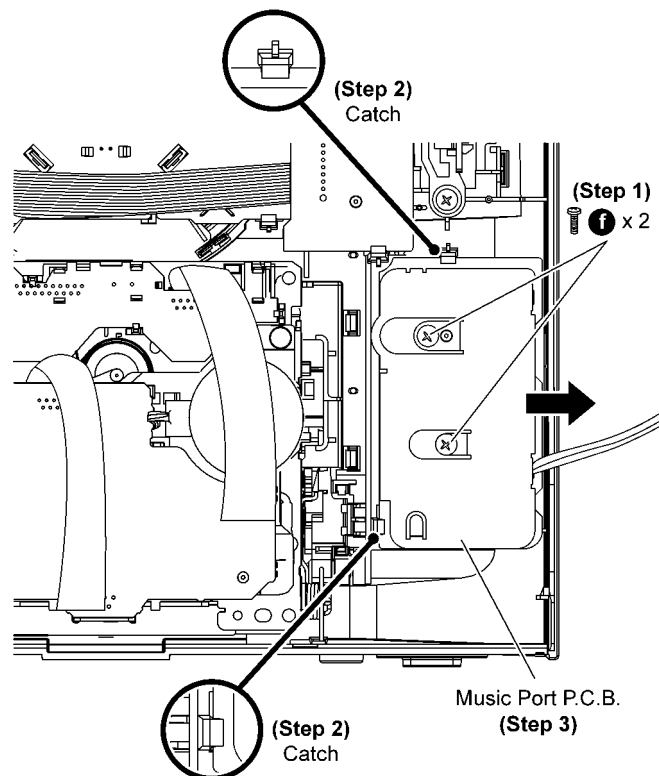


Step 3 Release the catches at USB P.C.B..

Step 4 Remove the USB P.C.B..

9.11. Disassembly of Music Port P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7



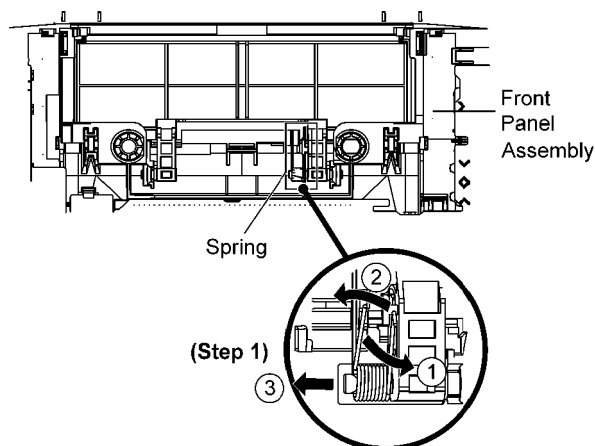
Step 1 Remove 2 screws at Music Port P.C.B..

Step 2 Release 2 catches.

Step 3 Lift up to remove Music Port P.C.B..

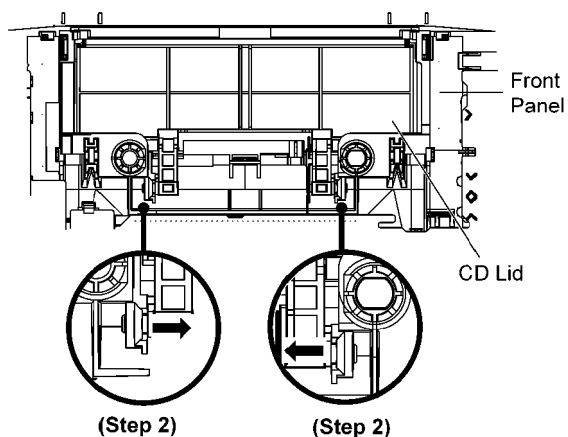
9.12. Disassembly of CD Lid

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7



Step 1 Remove the spring as arrow shown in order of sequences (1) to (3).

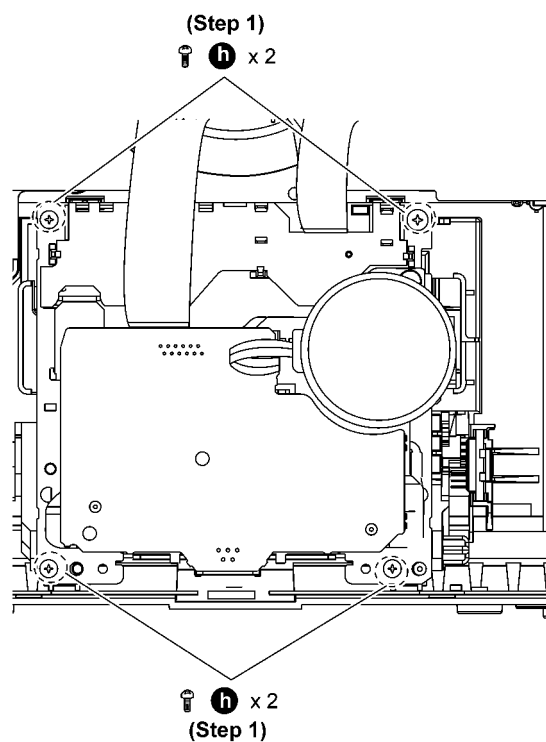
Caution: During assembling, please ensure that the spring is assembly at right position.



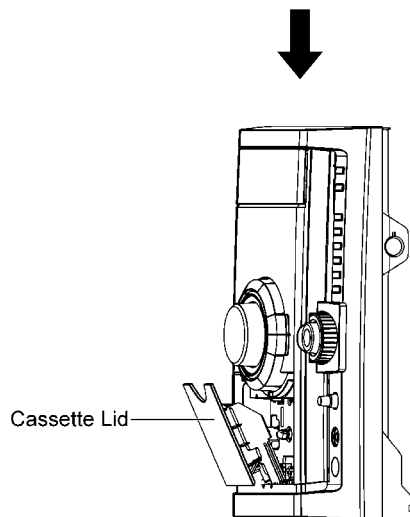
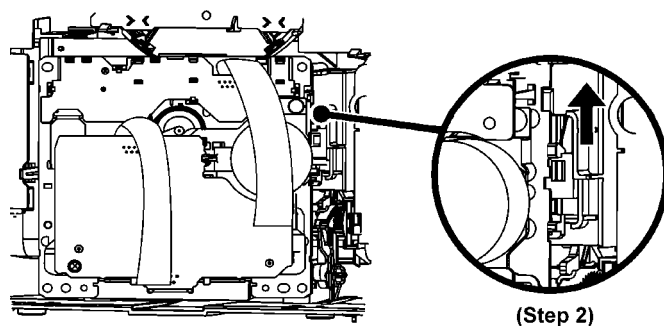
Step 2 Remove CD Lid as arrow shown.

9.13. Disassembly of Deck Mechanism Unit

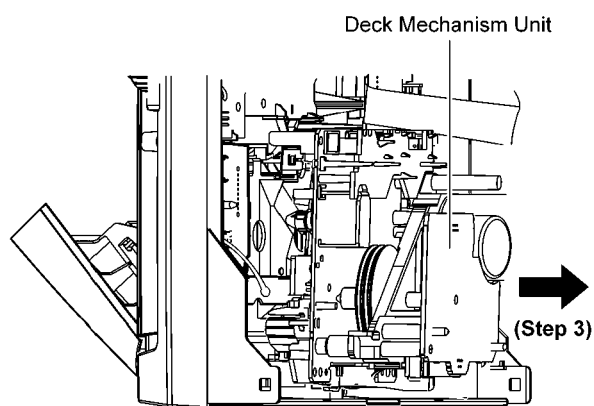
- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7



Step 1 Remove 4 screws at Deck Mechanism Unit.



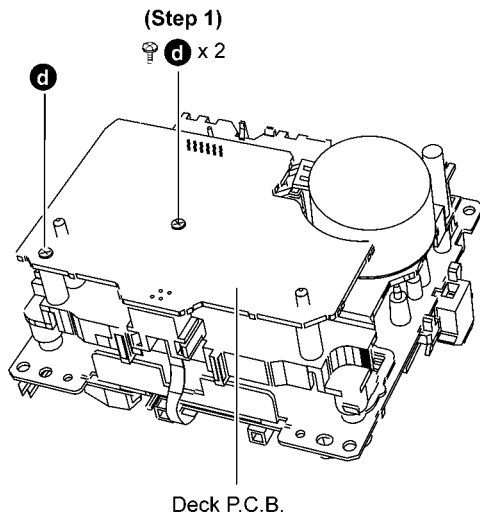
Step 2 Push the lever upward as arrow shown to open the cassette lid.



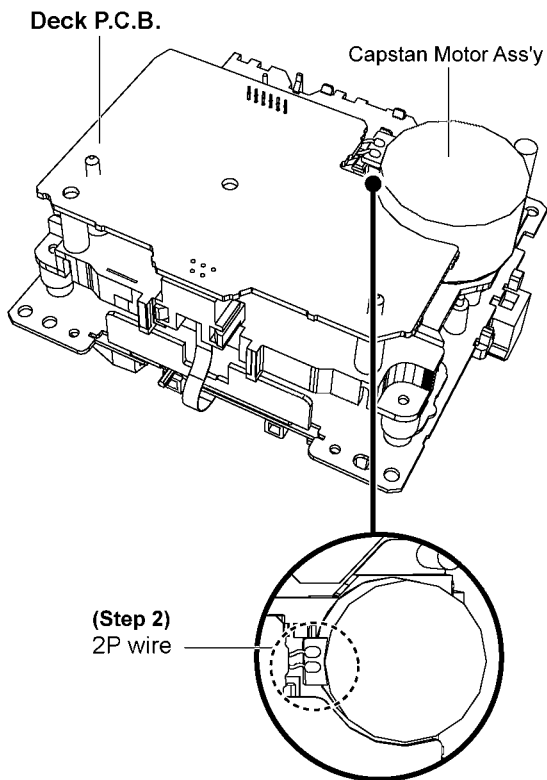
Step 3 Remove Deck Mechanism Unit in the direction of arrow.

9.14. Disassembly of Deck P.C.B.

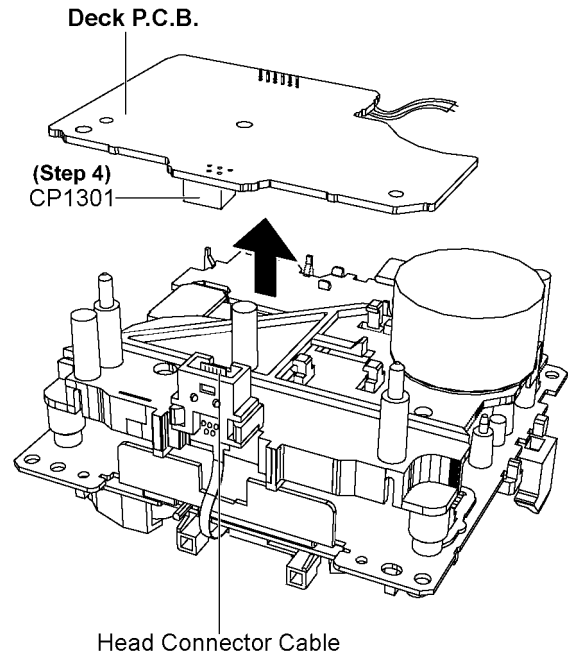
- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7
- Follow the (Step 1) to (Step 3) of Item 9.13



Step 1 Remove 2 screws.



Step 2 Desolder 2P wire at the Capstan Motor Ass'y.

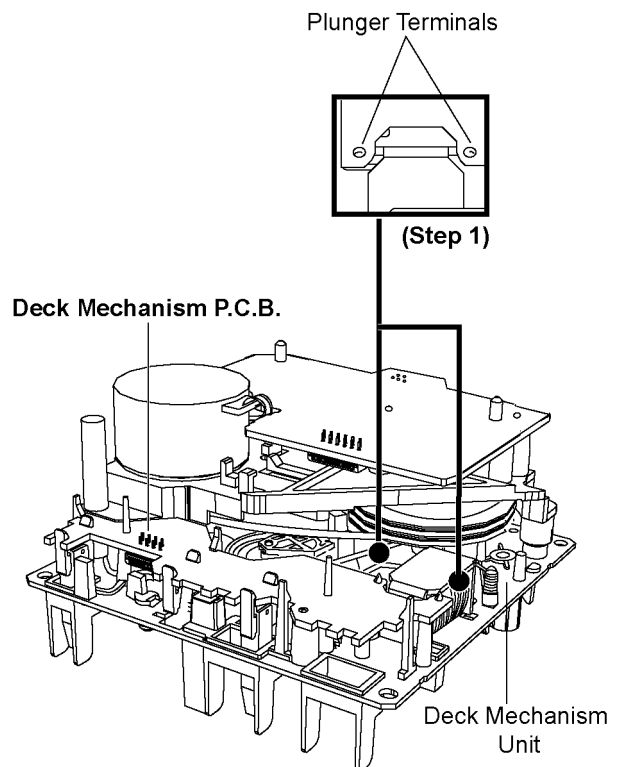


Step 4 Lift up & remove Deck P.C.B..

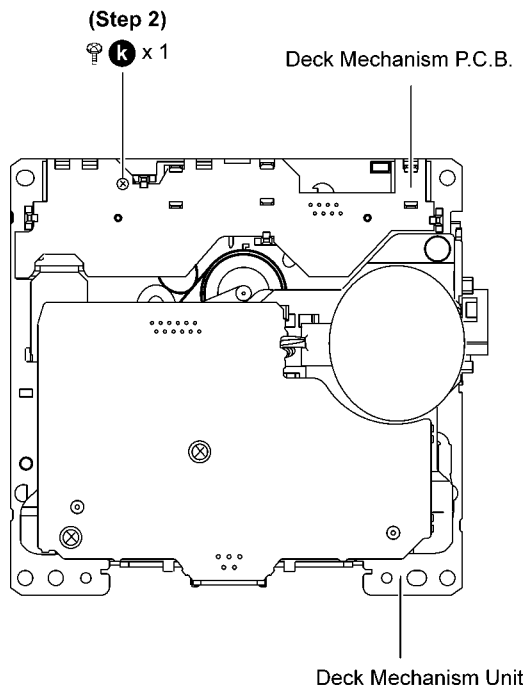
Caution: During assembling, ensure connector (CP1301) at Deck P.C.B. is seated properly & connected to the head connector cable.

9.15. Disassembly of Deck Mechanism P.C.B.

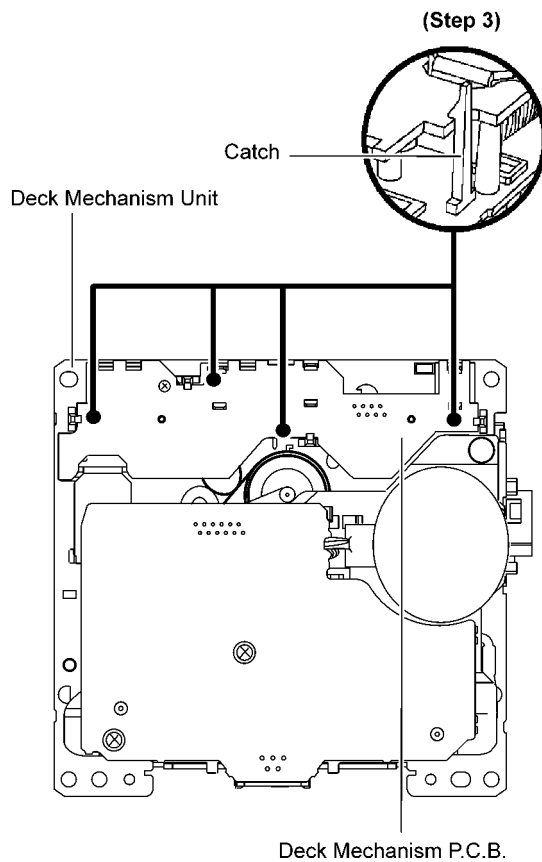
- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7
- Follow the (Step 1) to (Step 3) of Item 9.13



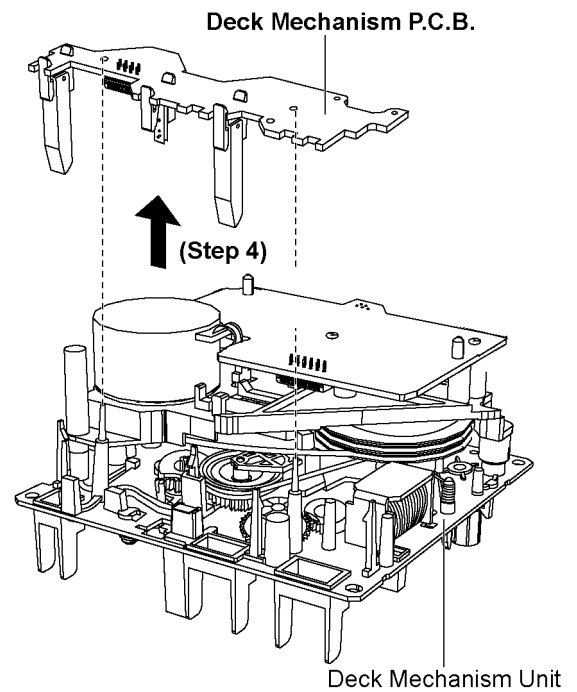
Step 1 Desolder the plunger terminals.



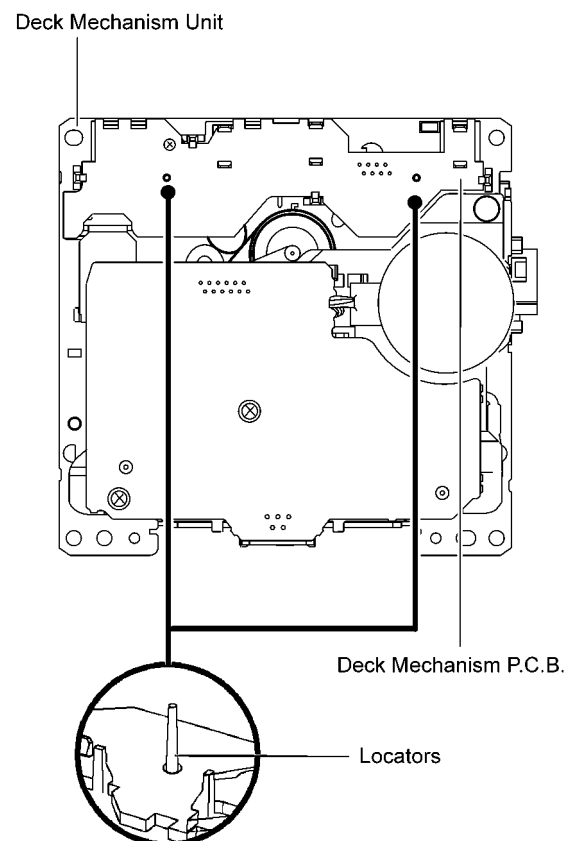
Step 2 Remove 1 screw.



Step 3 Release 4 catches.



Step 4 Remove Deck Mechanism P.C.B..



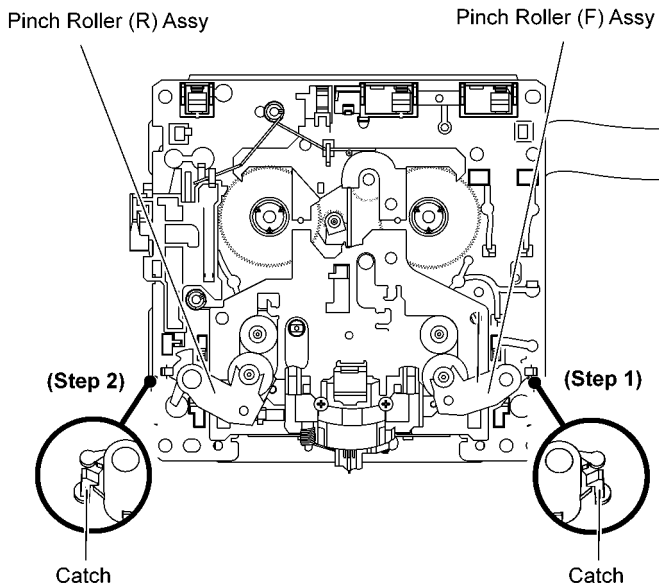
Caution: During assembling, ensure that the Deck Mechanism P.C.B. is seated properly with the guide of the locators.

9.16. Disassembly of Deck Mechanism

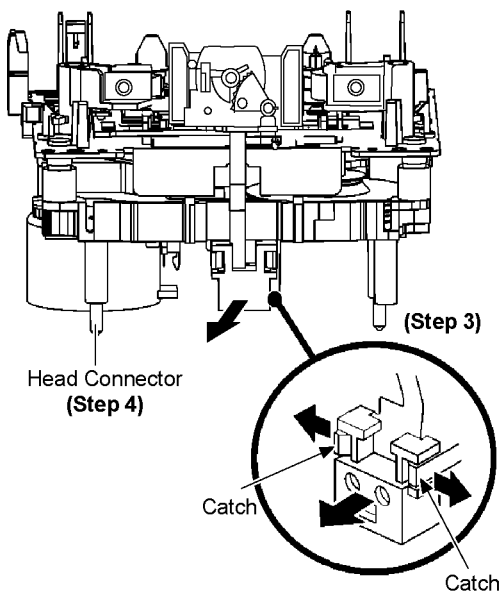
- Follow the (Step 1) to (Step 5) of Item 9.3

- Follow the (Step 1) to (Step 12) of Item 9.7
- Follow the (Step 1) to (Step 3) of Item 9.13
- Follow the (Step 1) to (Step 4) of Item 9.14

9.16.1. Replacement of Pinch Roller Ass'y and Head Block Sub Ass'y

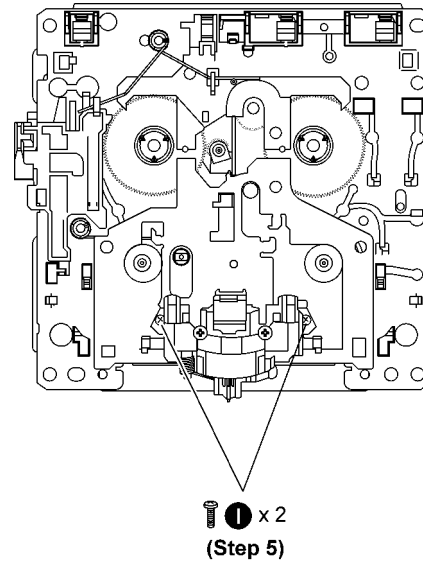


- Step 1** Release catch to remove the Pinch Roller (F) Assy.
- Step 2** Release catch to remove the Pinch Roller (R) Assy.

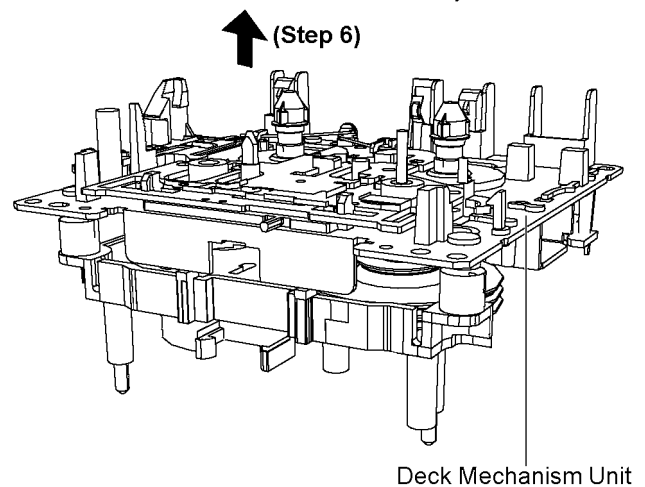
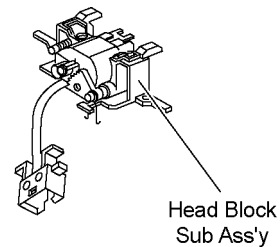


- Step 3** Release the catches at the side of head connector.
- Step 4** Detach the head connector as arrow shown.

Caution: Avoid exerting strong force as it may damage the FFC.



- Step 5** Remove 2 screws.

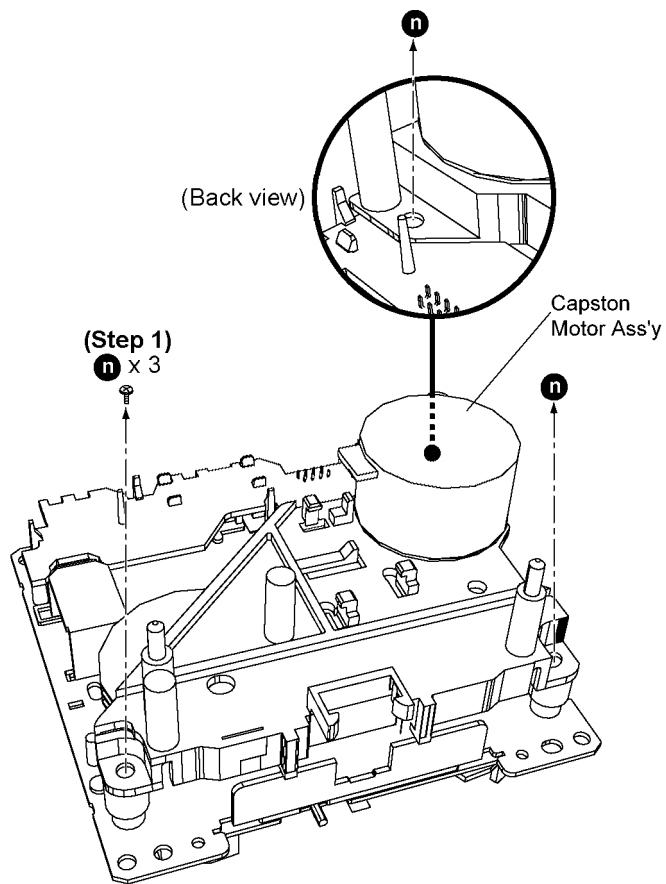


- Step 6** Remove Head Block Sub Ass'y as arrow shown.

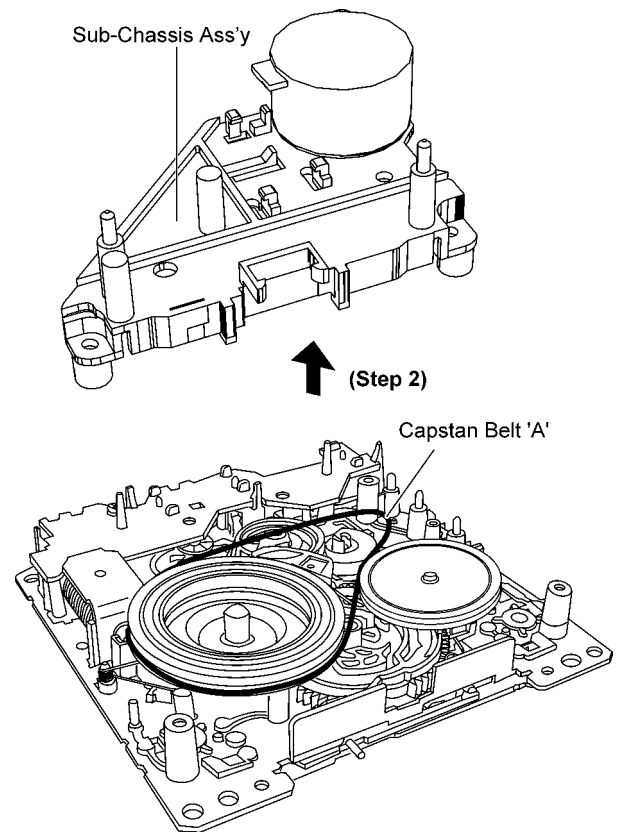
9.16.2. Replacement of Capstan Motor Ass'y and Capstan Belt 'A'

- Follow the (Step 1) to (Step 4) of item 9.14.
- Follow the (Step 3) to (Step 4) of item 9.16.1.

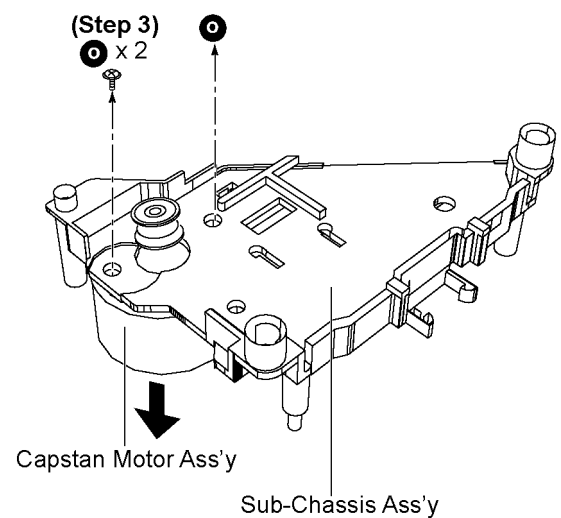
- Disassembly of Capstan Motor Ass'y and Capstan Belt 'A'



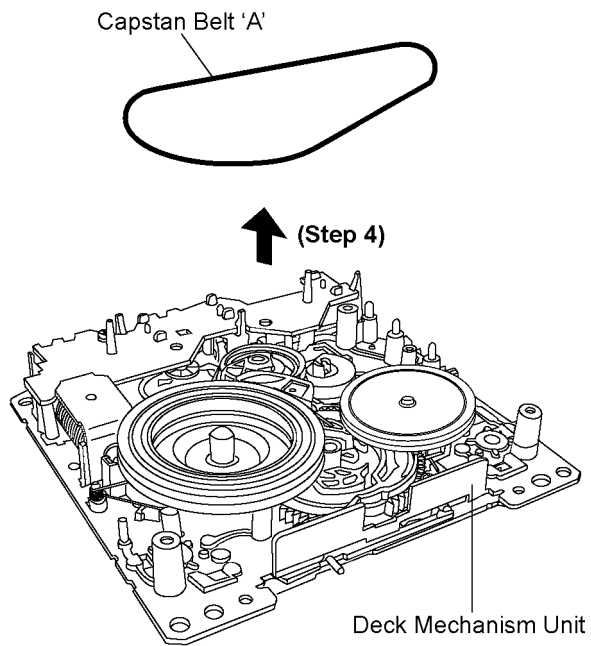
Step 1 Remove 3 screws.



Step 2 Lift up to remove the Sub-Chassis Ass'y.

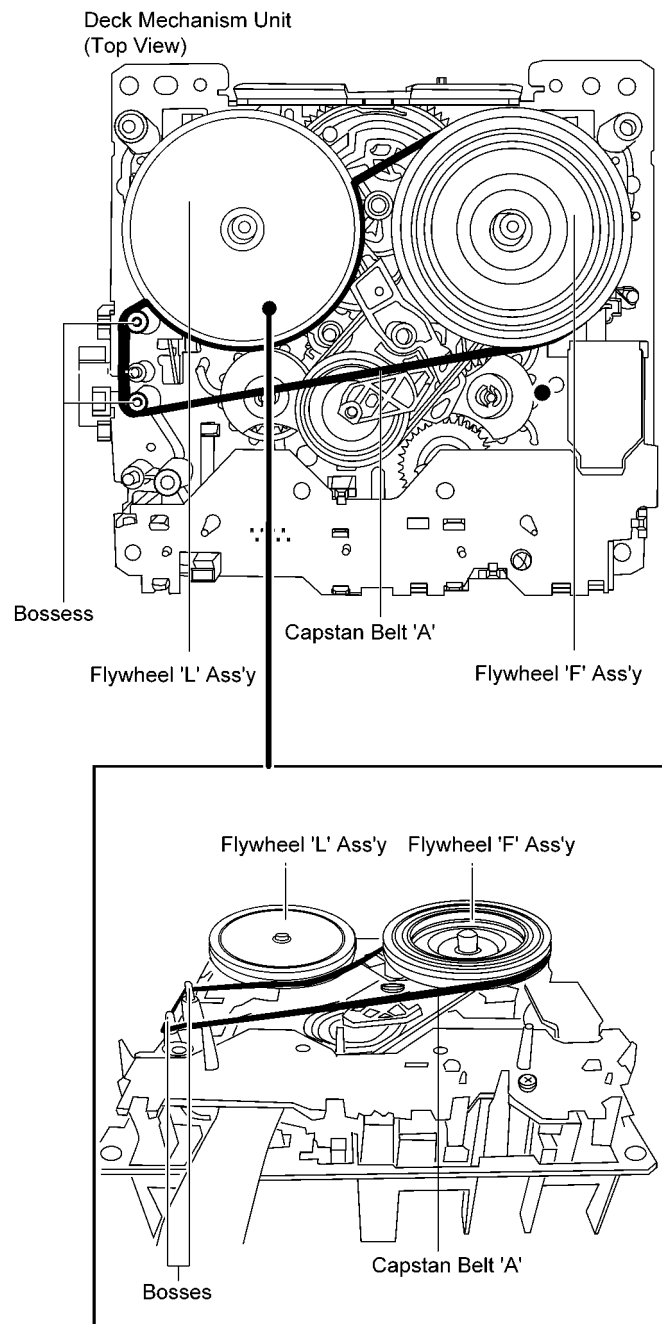


Step 3 Remove 2 screws to remove Capstan Motor Ass'y.
Caution: Support Capstan Motor Ass'y by hand to prevent it from falling during removal and assembly of Capstan Motor Ass'y.



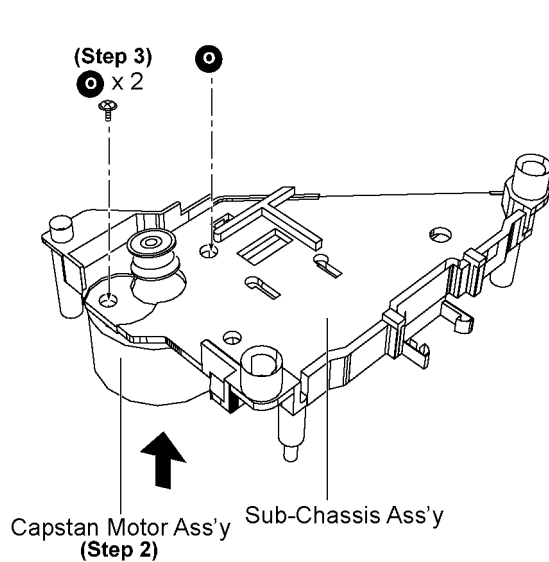
Step 4 Remove Capstan Belt 'A'.

- Assembly of Capstan Motor Ass'y and Capstan Belt 'A'



Step 1 Coil Capstan Belt 'A' to Flywheel 'F' Ass'y, Flywheel 'L' and the 2 bosses temporarily as diagram shown.

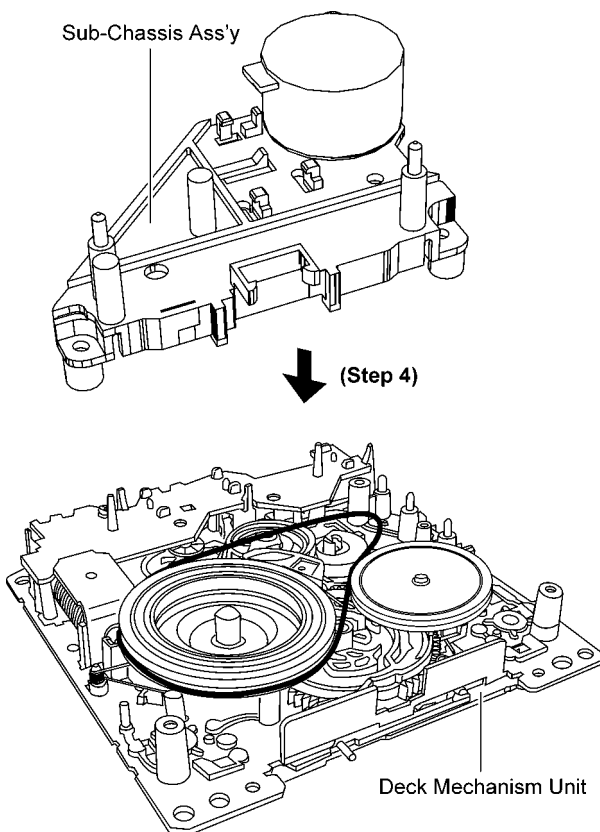
Caution: Keep Capstan Belt 'A' away from grease during assembly of Capstan Belt 'A'.



Step 2 Fit the Capstan Motor Ass'y to the Sub-Chassis Ass'y.

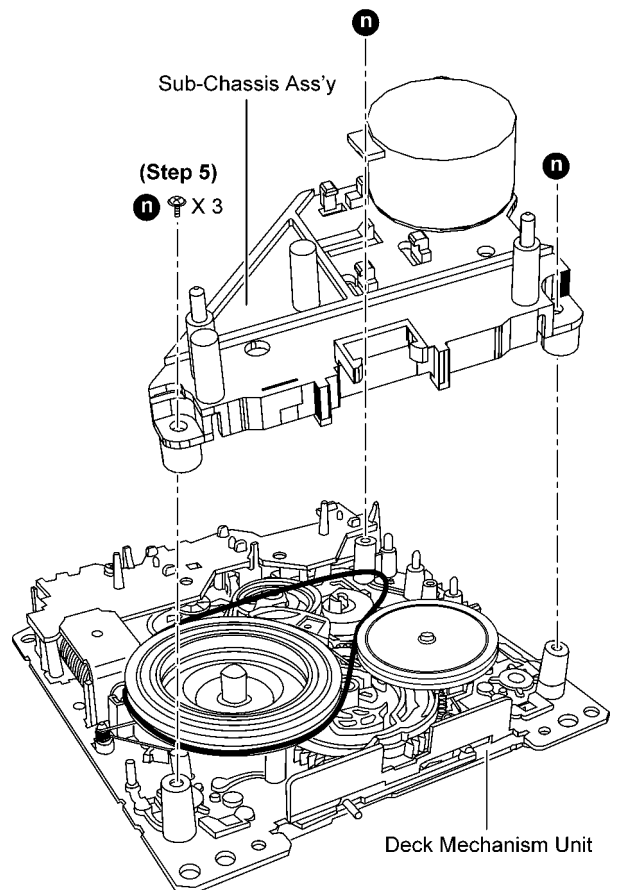
Caution: Ensure it seats properly.

Step 3 Fix the Capstan Motor Ass'y to the Sub-Chassis Ass'y by 2 screws.



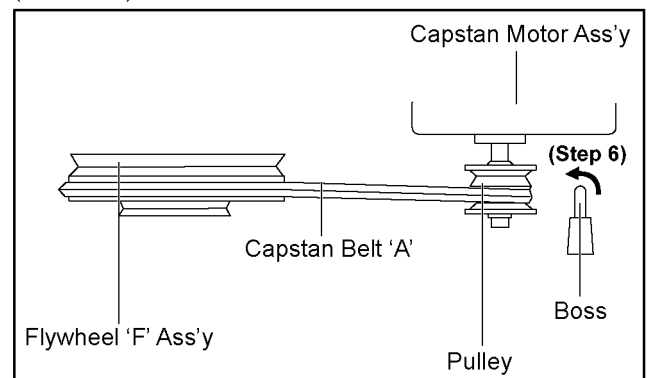
Step 4 Install the Sub-Chassis Ass'y to the Deck Mechanism Unit.

Caution: Ensure the Sub-Chassis Ass'y seats properly on the bosses.



Step 5 Fix 3 screws.

(Side view)

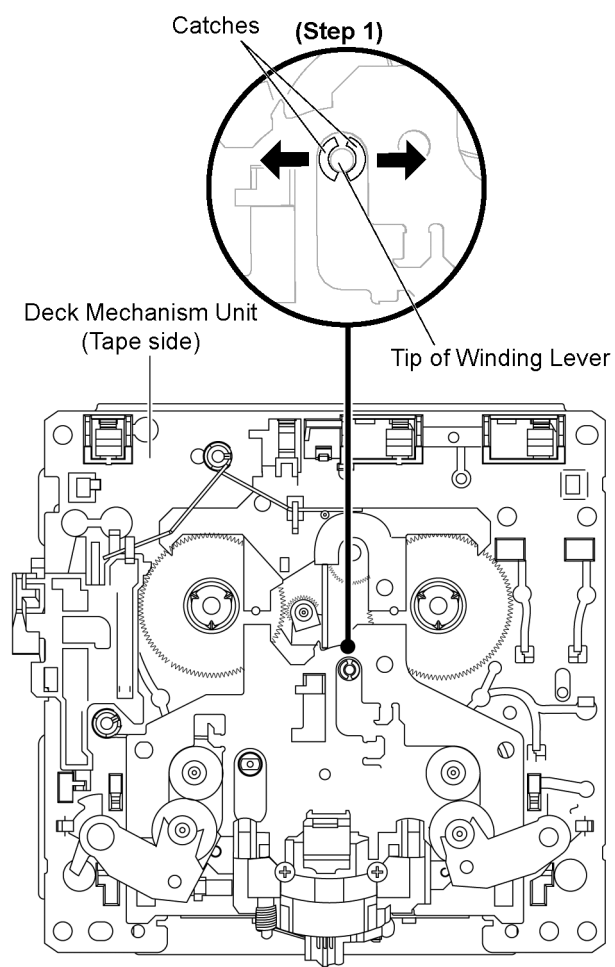


Step 6 Release Capstan Belt 'A' to the pulley of Capstan Motor Ass'y as diagram shown.

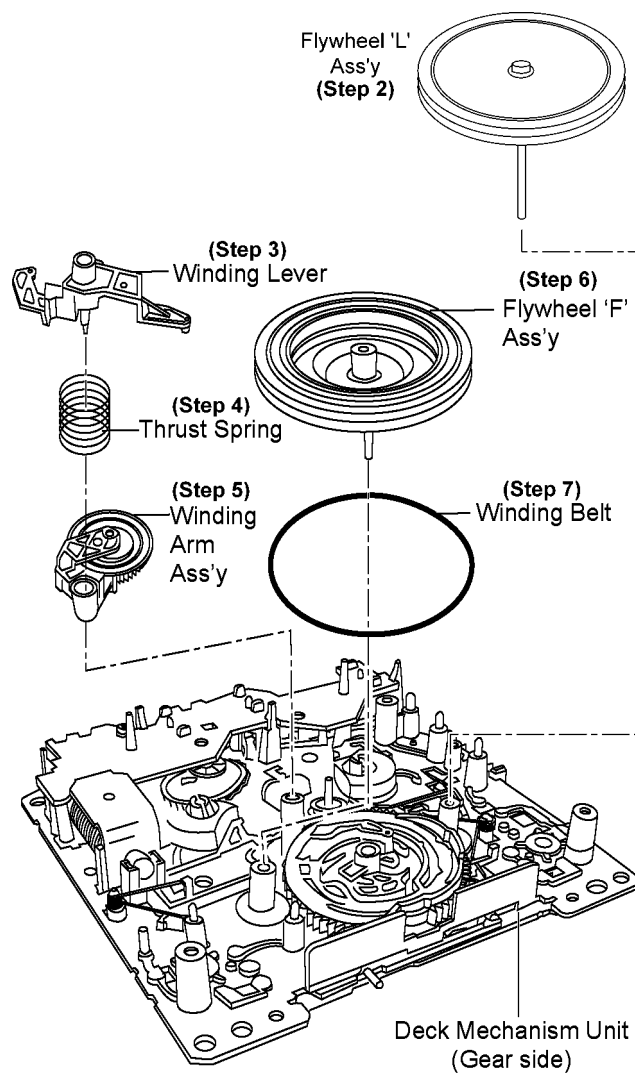
9.16.3. Replacement of Winding Belt

- Follow the (Step 1) to (Step 4) of item 9.14.
- Follow the (Step 3) to (Step 4) of item 9.16.1.
- Follow the (Step 1) to (Step 4) of item 9.16.2.

- Disassembly of Winding Belt



Step 1 Release 2 catches and press the tip of the Winding Lever downwards.



Step 2 Remove Flywheel 'L' Ass'y.

Step 3 Remove the Winding Lever.

Step 4 Remove the Thrust Spring.

Step 5 Remove the Winding Arm Ass'y.

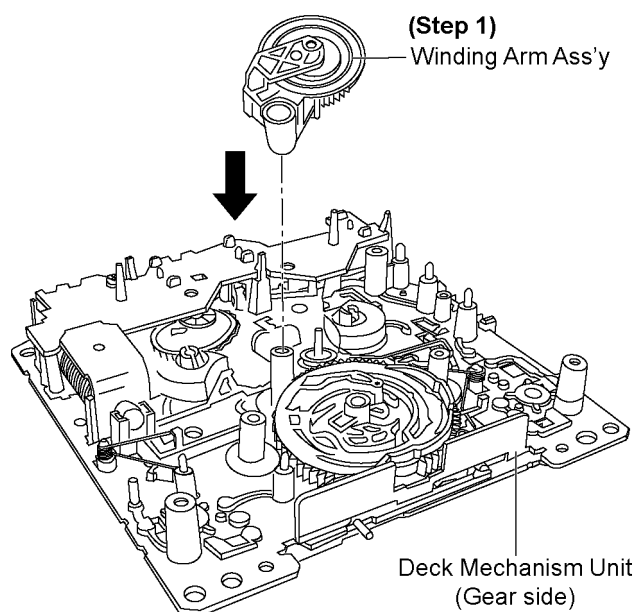
Step 6 Remove the Flywheel 'F' Ass'y.

Step 7 Remove the Winding Belt.

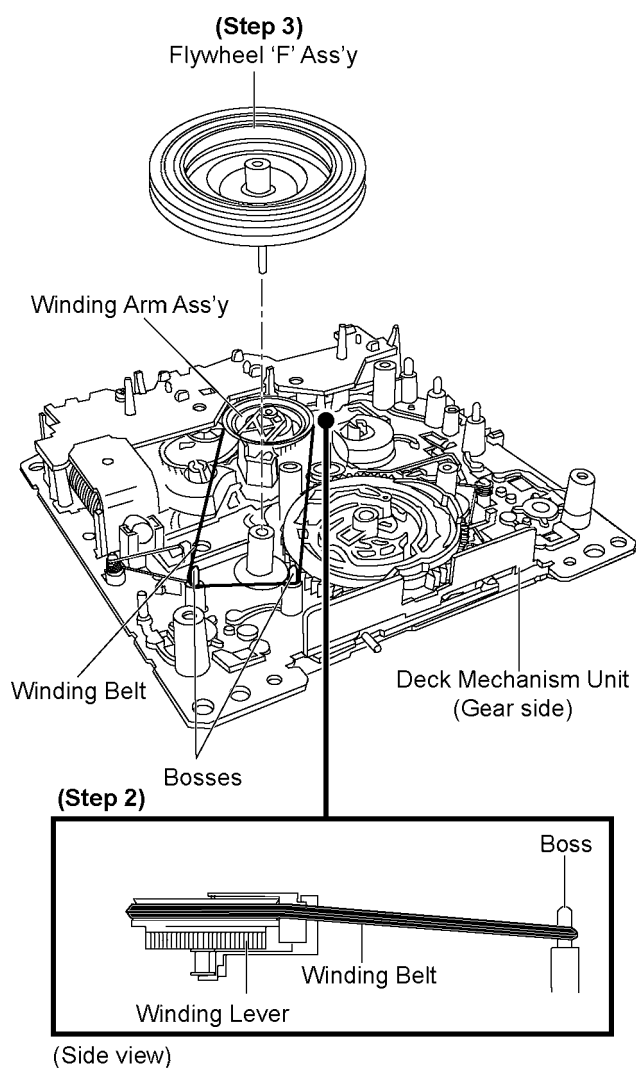
Caution: Keep Thrust Spring in a safe place for assembling purpose.

- Assembly of Winding Belt

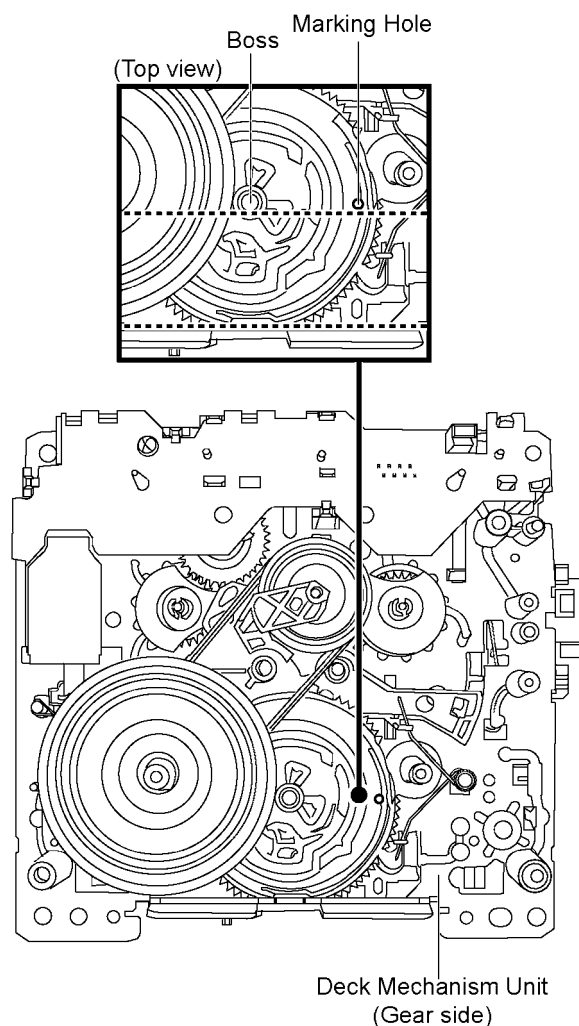
Step 3 Install Flywheel 'F' Ass'y.



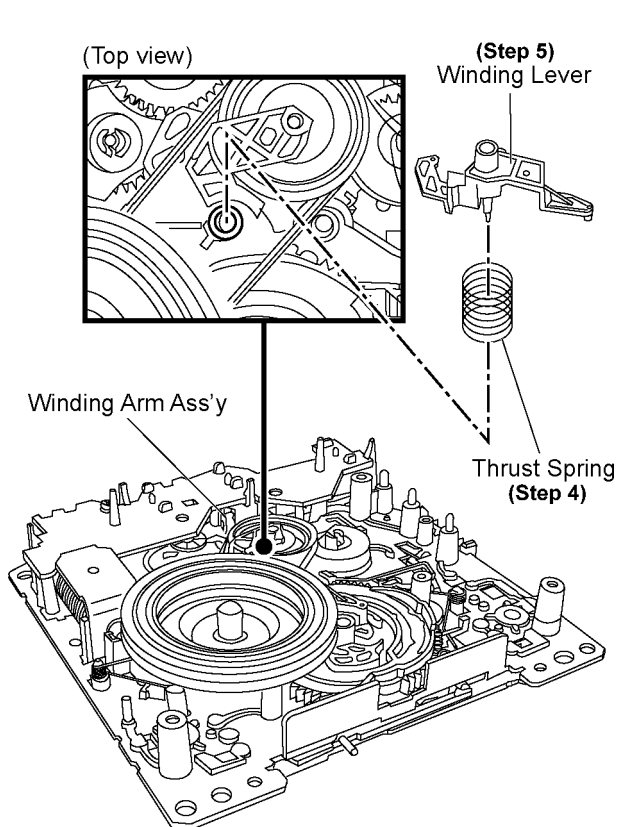
Step 1 Install the Winding Arm Ass'y.



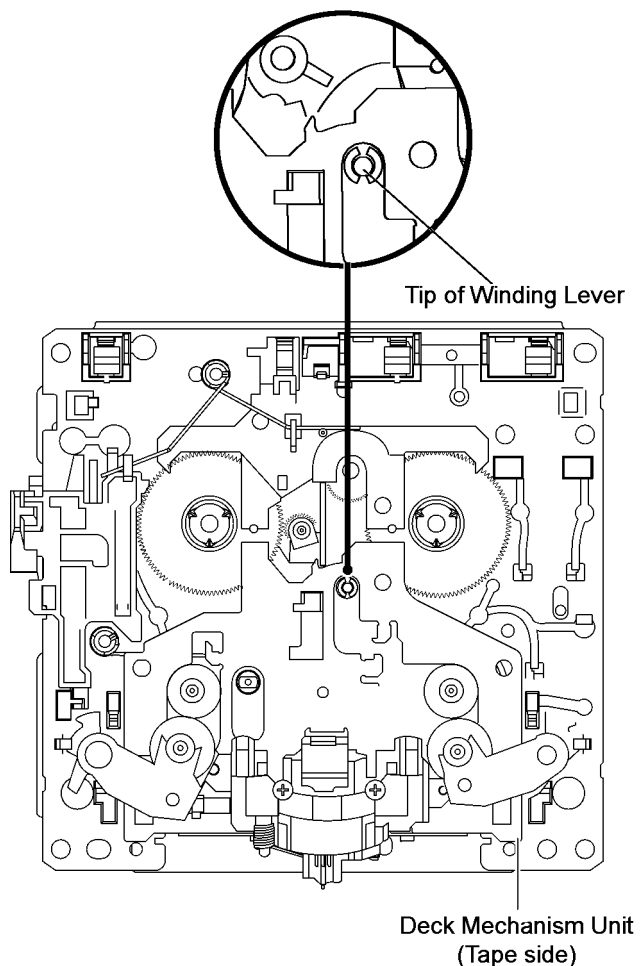
Step 2 Coil the Winding Belt to the Winding Arm Ass'y and the 2 bosses temporarily as diagram shown.



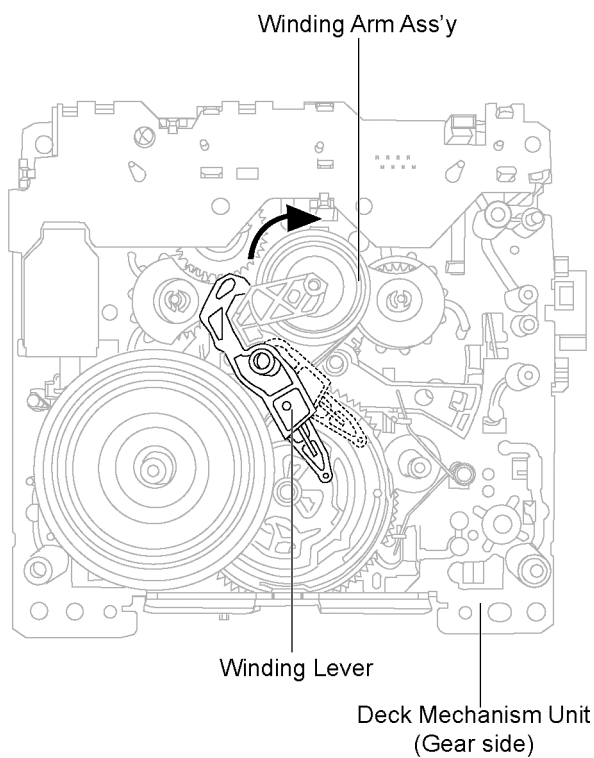
Caution: Ensure that the boss and the marking hole of the Main Gear are positioned such that they form a horizontal line parallel to the Deck Mechanism Unit.



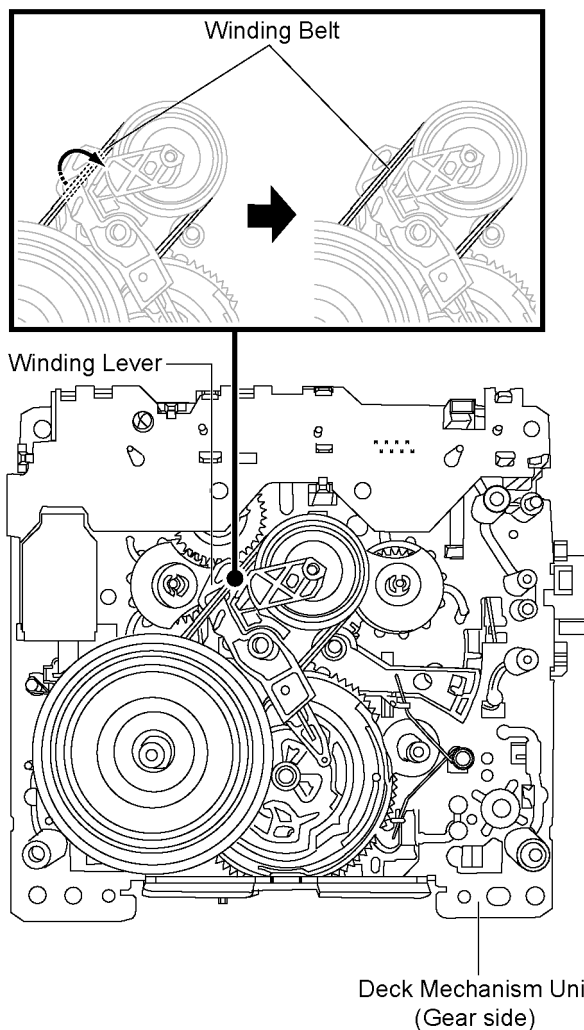
Step 4 Install the Thrust Spring.
Step 5 Install the Winding Lever.



Caution 2: Ensure that the Winding Lever is firmly inserted and properly caught on the tape side as diagram shown.

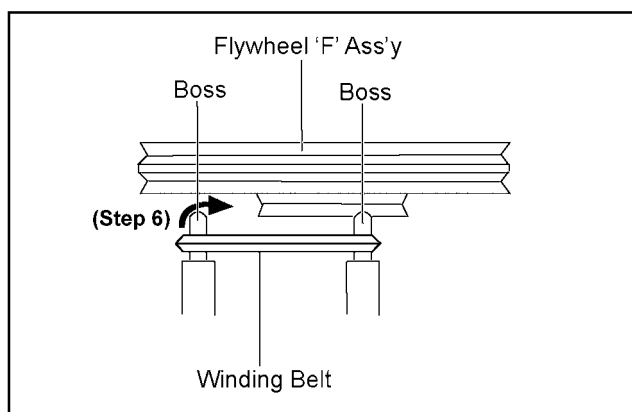


Caution 1: Ensure that the Winding Arm Ass'y is pulled towards to the right as arrow shown to enable full insertion of the Winding Lever. The Winding Lever must be seated on the Main Gear as diagram shown.

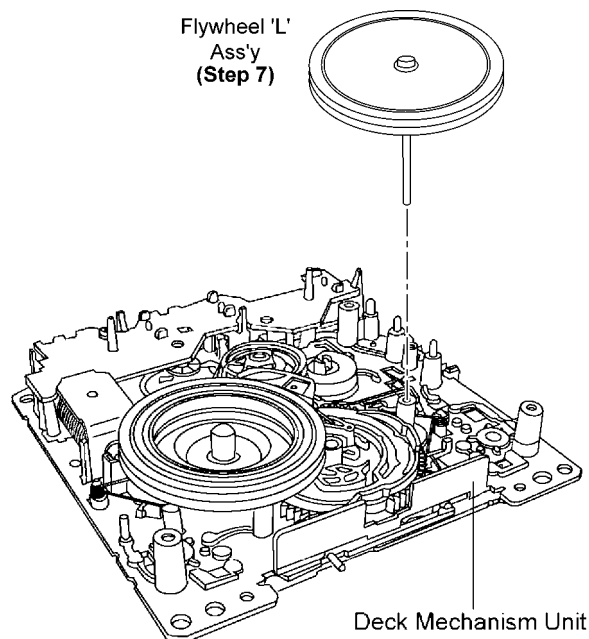


Caution 3: Ensure that the Winding Belt is above the Winding Lever as diagram shown.

(Side view)



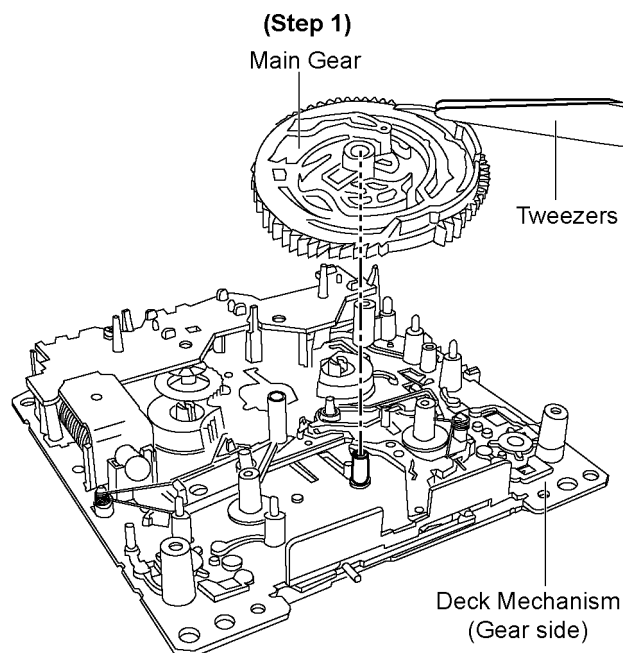
Step 6 Release the Winding Belt on Flywheel 'F' Ass'y as diagram shown.



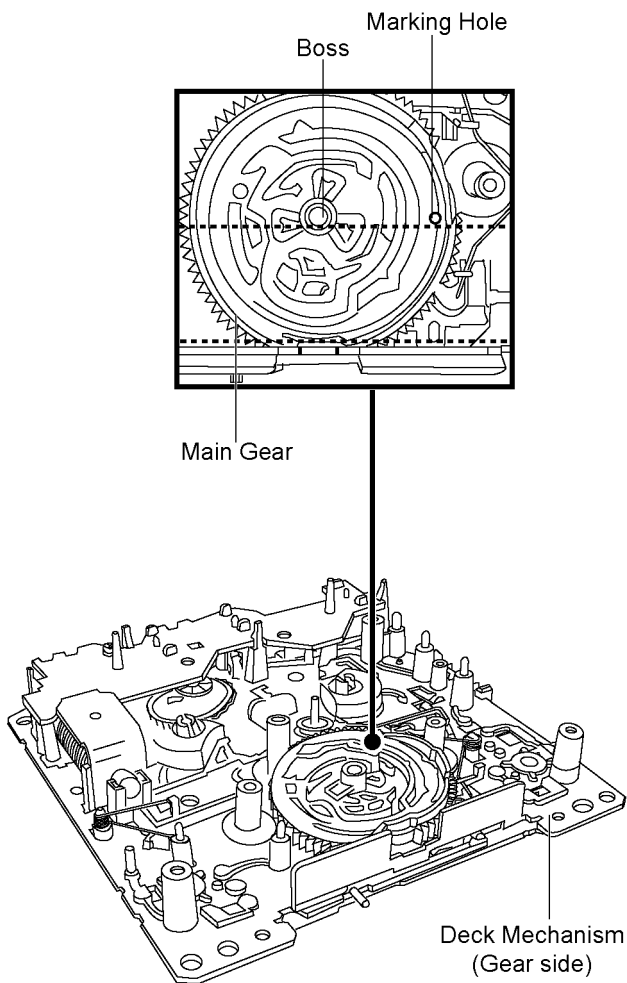
Step 7 Install Flywheel 'L' Ass'y.

9.16.4. Disassembly of Main Gear

- Follow the (Step 1) to (Step 4) of item 9.14.
- Follow the (Step 3) to (Step 4) of item 9.16.1.
- Follow the (Step 1) to (Step 4) of item 9.16.2.
- Follow the (Step 1) to (Step 6) of item 9.16.3.



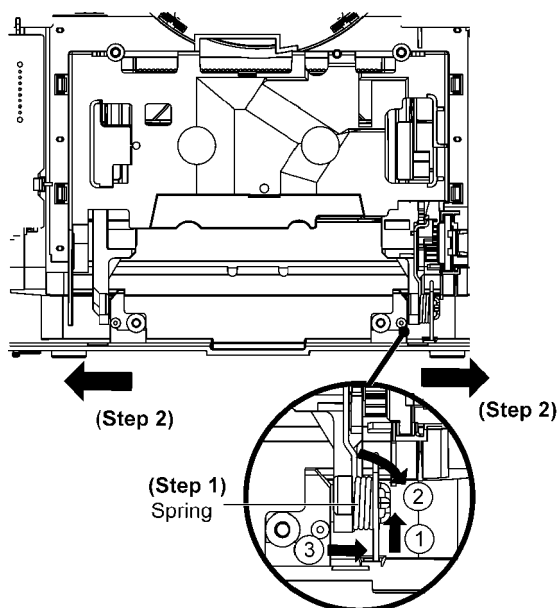
Step 1 : Remove Main Gear using tweezers.



Caution : Ensure that the boss and the marking hole of the Main Gear are positioned such that they form a horizontal line parallel to the Deck Mechanism during assembly of the Main Gear.

9.17. Disassembly of Cassette Lid

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 12) of Item 9.7
- Follow the (Step 1) to (Step 3) of Item 9.13

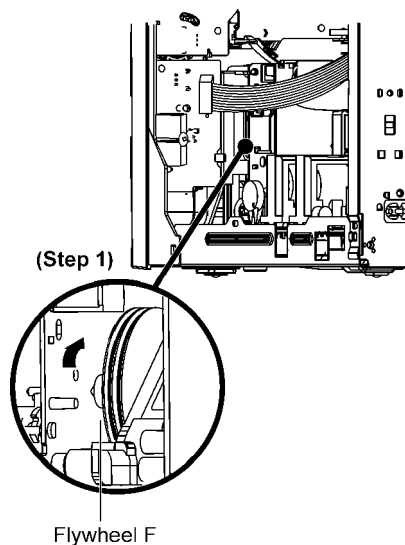


Step 1 Remove the spring.

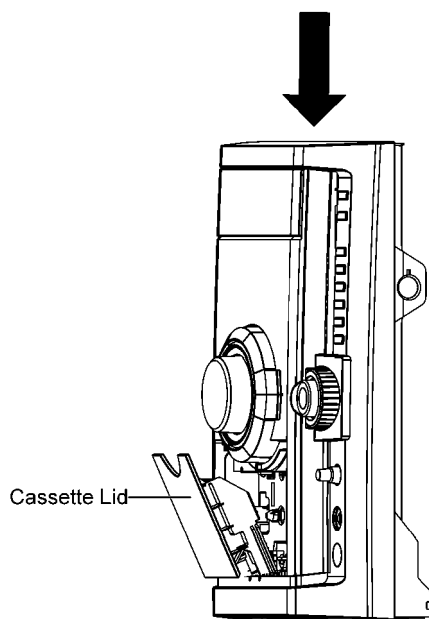
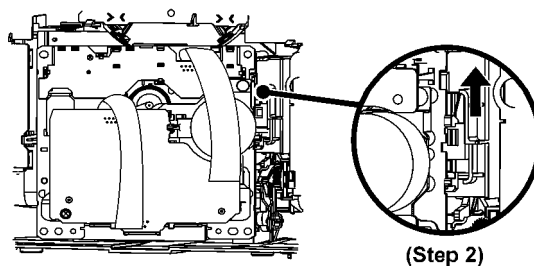
Step 2 Push the cassette lid in the direction of arrows.

9.18. Rectification for Tape Jam Problem

- Follow the (Step 1) to (Step 5) of Item 9.3



Step 1 Rotate the flywheel F in the direction of the arrow to remove it.

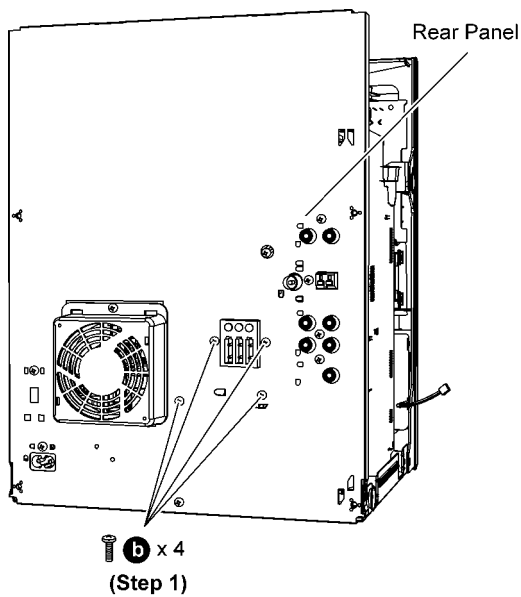


Step 2 Push the lever upward and open the cassette lid.

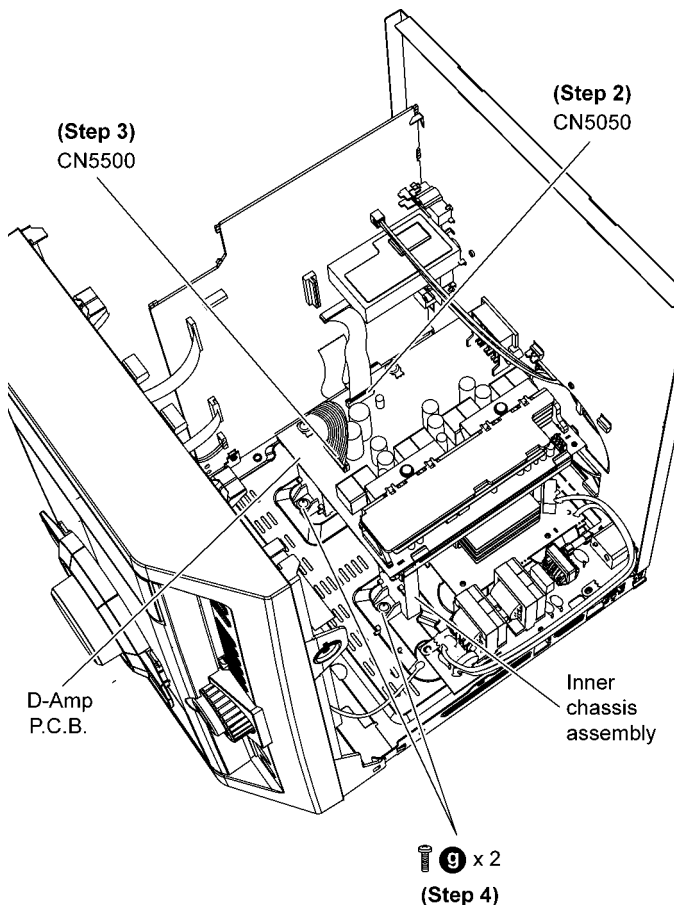
Note: Follow Disassembly of Cassette Lid to remove the cassette tape.

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

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 6) of Item 9.4



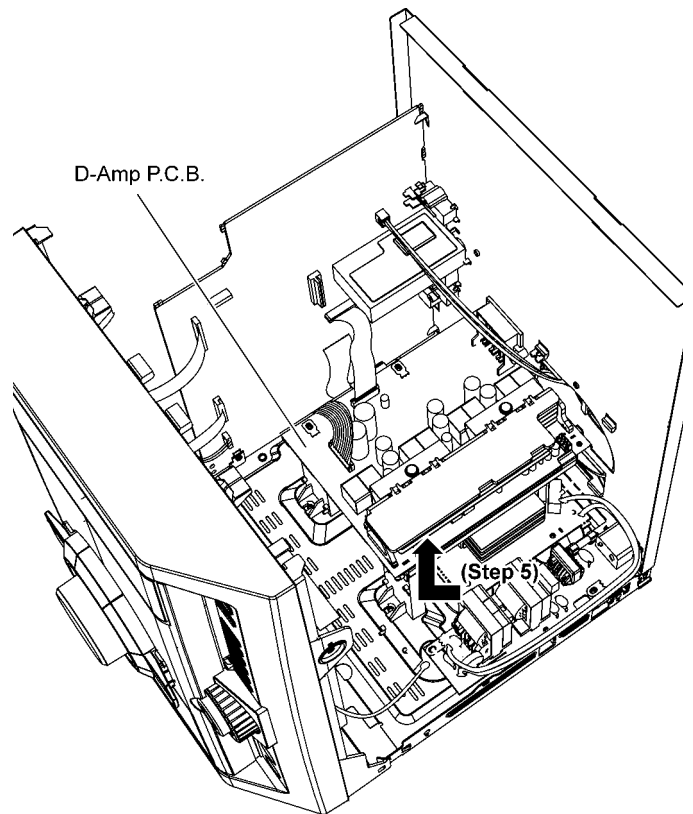
Step 1 Remove 4 screws at the rear panel.



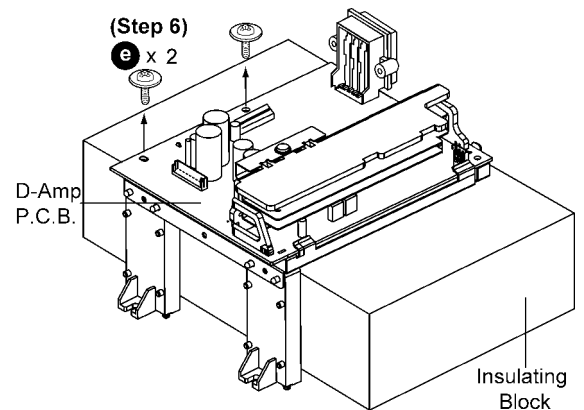
Step 2 Detach 17P FFC at the connector (CN5050) on D-Amp P.C.B..

Step 3 Detach 8P cable at the connector (CN5500) on D-Amp P.C.B..

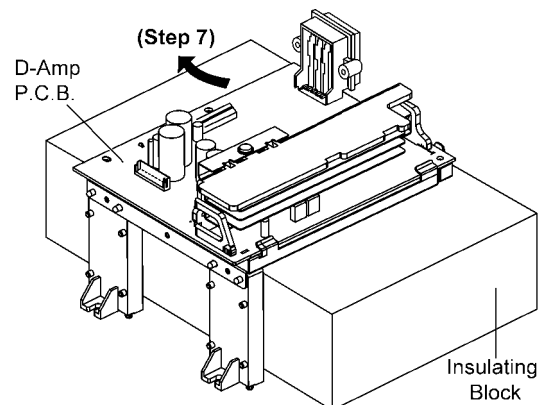
Step 4 Remove 2 screws at D-Amp P.C.B. Inner chassis assembly.



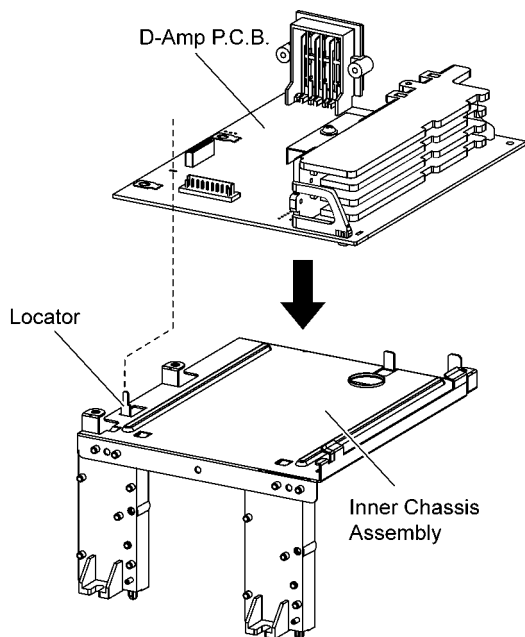
Step 5 Lift up the D-Amp P.C.B. together with the inner chassis assembly as arrow shown.



Step 6 Remove 2 screws on D-Amp P.C.B..



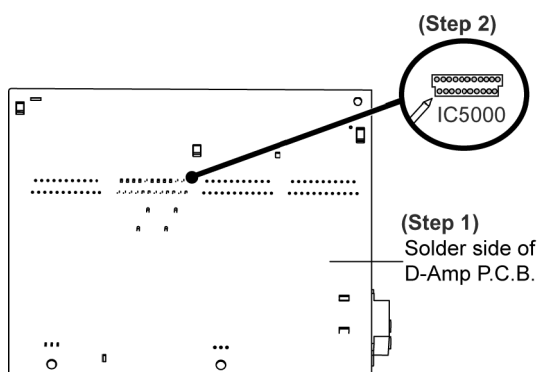
Step 7 Lift up D-Amp P.C.B. as arrow shown.



Caution: During assembling, ensure the D-Amp P.C.B. is seated properly on the locator of the Inner chassis assembly.

9.20. Replacement of Audio Digital Power Amp IC (IC5000)

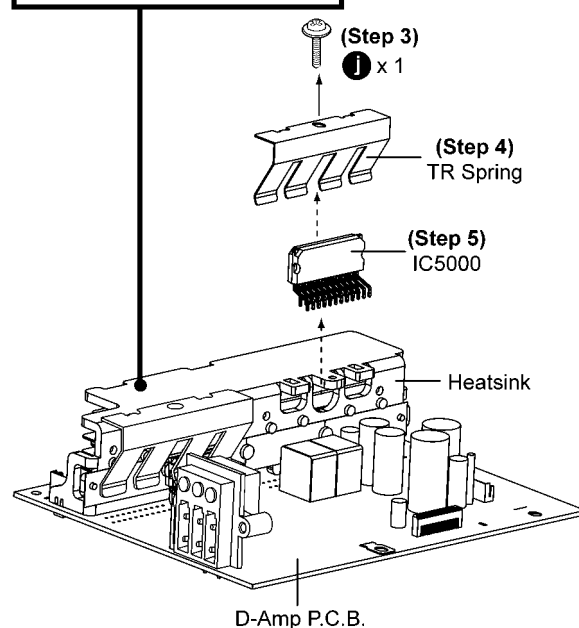
- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 7) of Item 9.4
- Follow the (Step 1) to (Step 7) of Item 9.19



Step 1 Flip over D-Amp P.C.B..

Step 2 Desolder pins of the Audio Digital Power Amp IC (IC5000) on the solder side of D-Amp P.C.B..

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



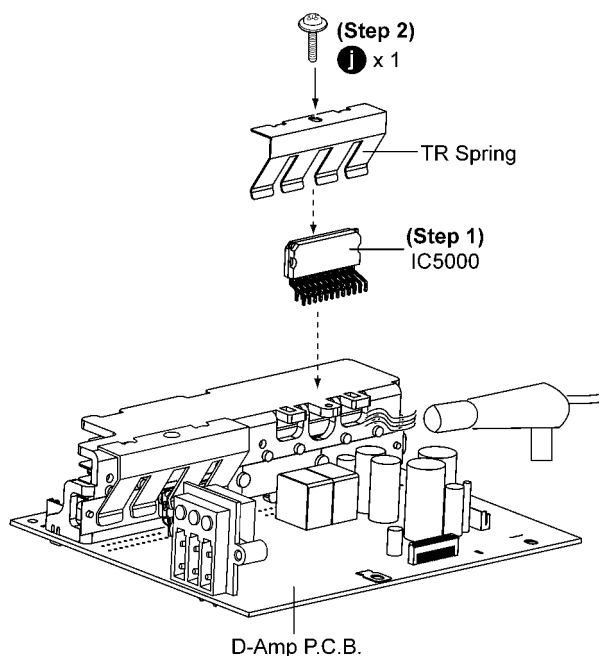
Step 3 Remove 1 screw.

Step 4 Remove TR Spring in the direction of arrow shown.

Step 5 Remove Audio Digital Power Amp IC (IC5000).

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

9.20.1. Assembly of Audio Digital Power Amp IC (IC5000)



Step 1 Mount the Audio Digital Power Amp IC (IC5000) on to D-Amp P.C.B..

Step 2 Screw back TR Spring to hold the Audio Digital Power Amp IC (IC5000) onto the Heatsink Power Unit.

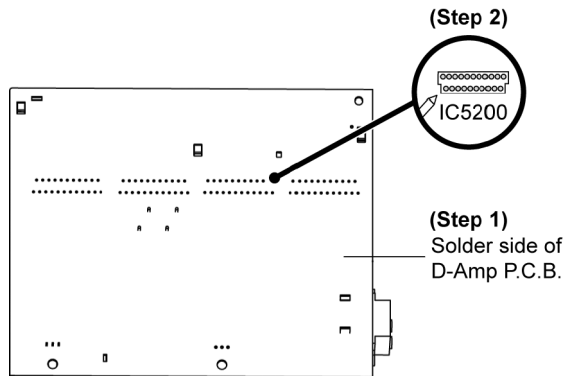
Step 3 Solder the pins of Audio Digital Power Amp IC.

Step 4 Use a blower to remove the minute particles after the screwing of TR Spring.

Caution: Ensure pins of the Audio Digital Power Amp IC (IC5000) are properly seated and soldered on D-Amp P.C.B..

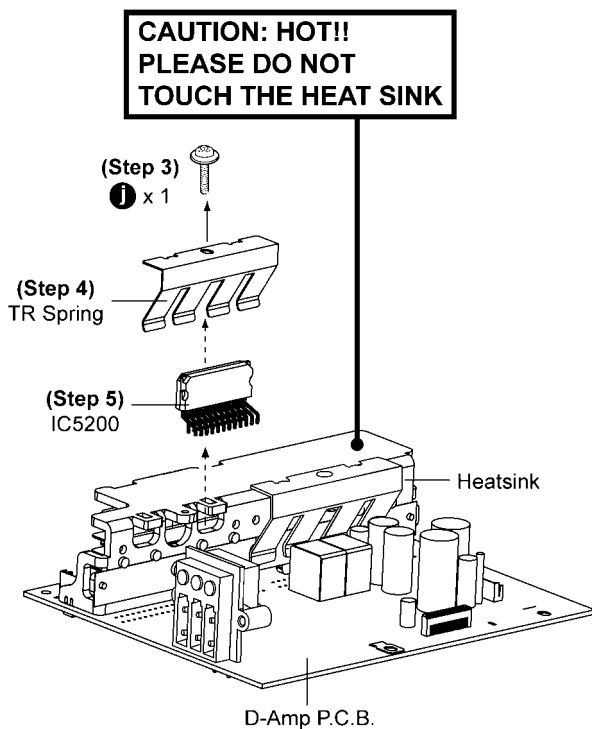
9.21. Replacement of Audio Digital Power Amp IC (IC5200)

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 7) of Item 9.4
- Follow the (Step 1) to (Step 7) of Item 9.19



Step 1 Flip over D-Amp P.C.B..

Step 2 Desolder pins of the Audio Digital Power Amp IC (IC5200) on the solder side of D-Amp P.C.B..



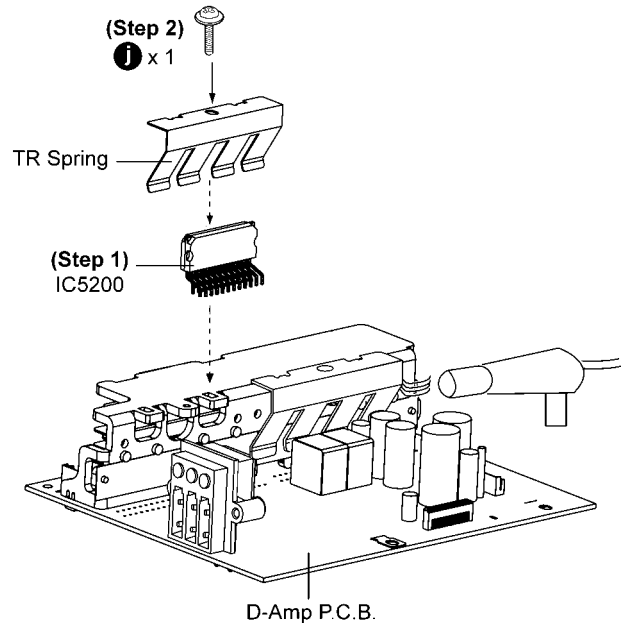
Step 3 Remove 1 screw.

Step 4 Remove TR Spring in the direction of arrow shown.

Step 5 Remove Audio Digital Power Amp IC (IC5200) from the heat sink unit.

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

9.21.1. Assembly of Audio Digital Power Amp IC (IC5200)



Step 1 Mount the Audio Digital Power Amp IC (IC5200) on to D-Amp P.C.B..

Step 2 Screw back TR Spring to hold the Audio Digital Power Amp IC (IC5200) onto the Heatsink Power Unit.

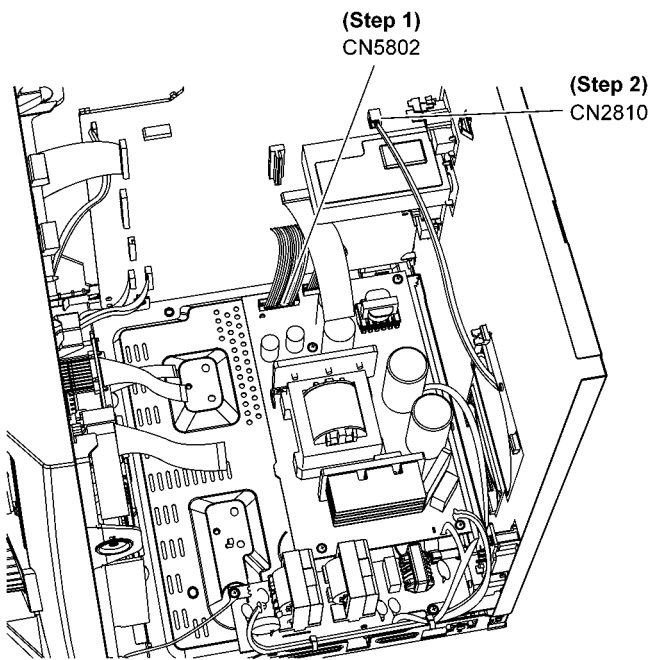
Step 3 Solder the pins of Audio Digital Power Amp IC.

Step 4 Use a blower to remove the minute particles after the screwing of TR Spring.

Caution: Ensure pins of the Audio Digital Power Amp IC (IC5200) are properly seated and soldered on D-Amp P.C.B..

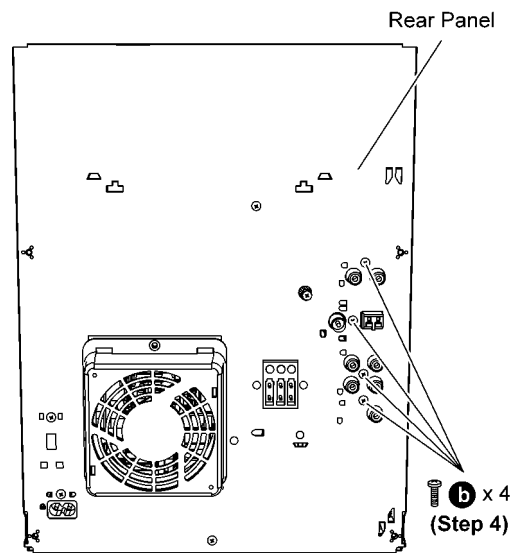
9.22. Disassembly of Main P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 7) of Item 9.4
- Follow the (Step 1) to (Step 7) of Item 9.7
- Follow the (Step 1) to (Step 5) of Item 9.19

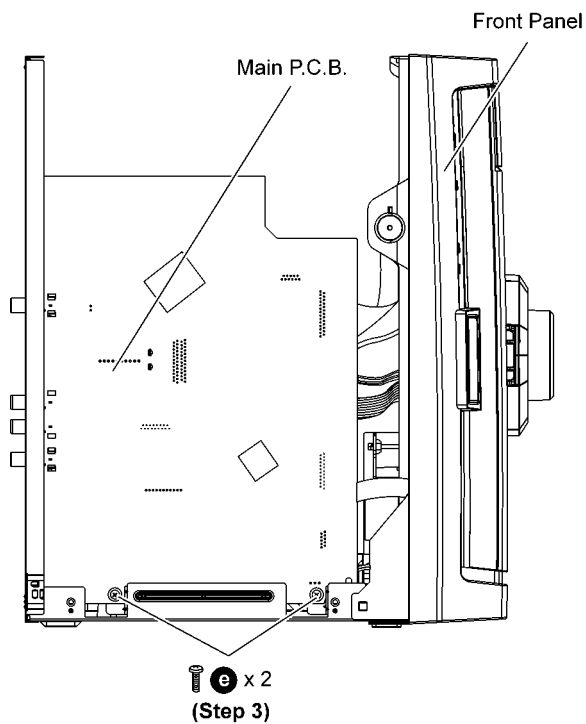


Step 1 Detach 11P cable at connector (CN5802) on SMPS P.C.B..

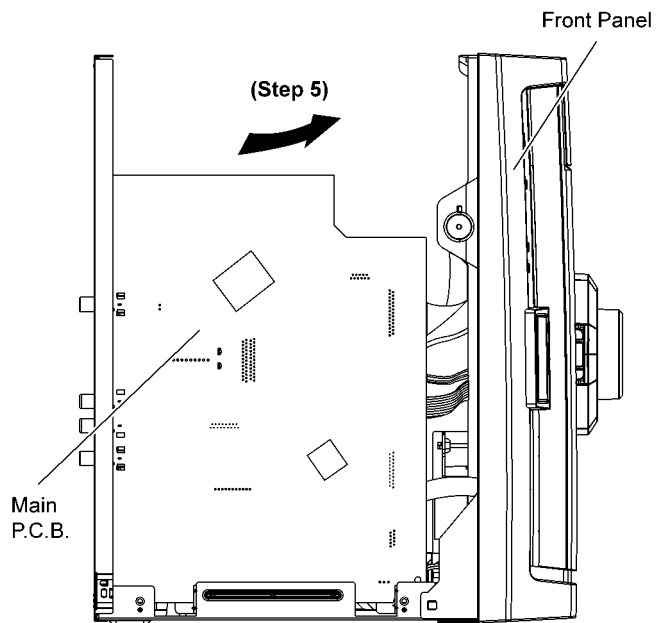
Step 2 Detach 2P cable at connector (CN2810) on SMPS P.C.B..



Step 4 Remove 4 screws at rear panel.



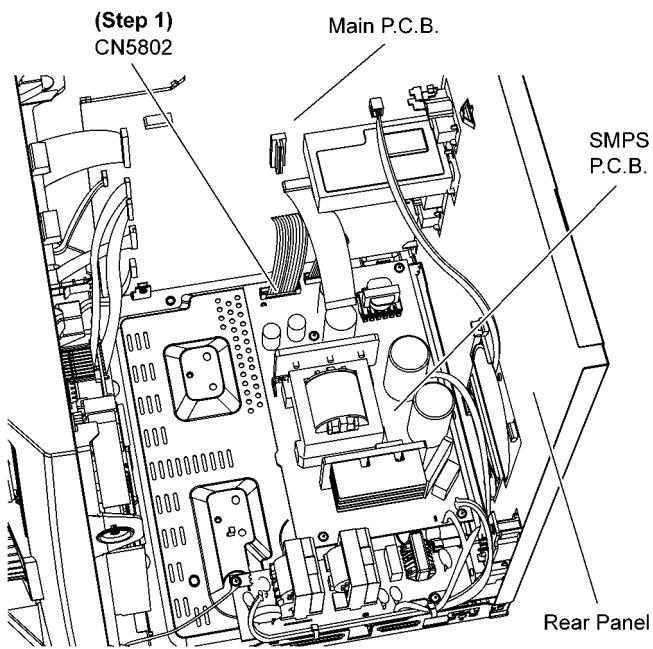
Step 3 Remove 2 screws on Main P.C.B..



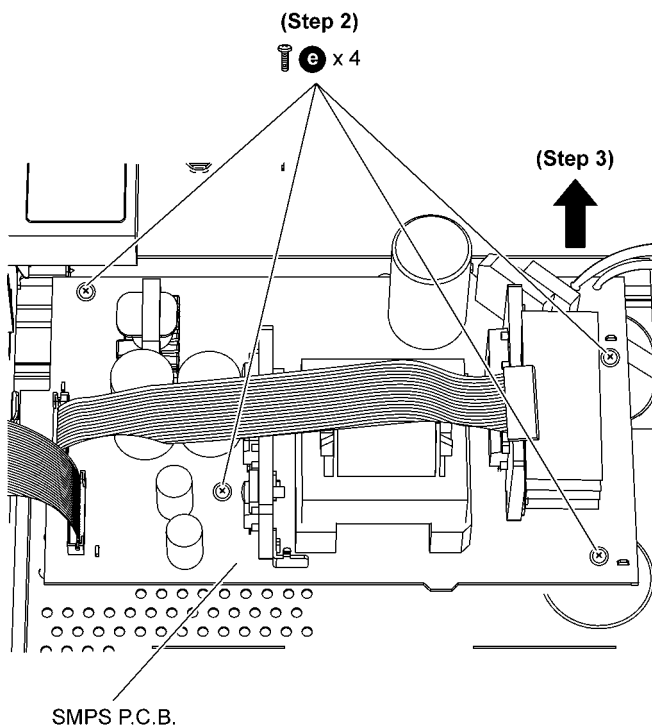
Step 5 Remove Main P.C.B. according to the arrow shown.

9.23. Disassembly of SMPS P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3
- Follow the (Step 1) to (Step 7) of Item 9.4
- Follow the (Step 1) to (Step 5) of Item 9.19

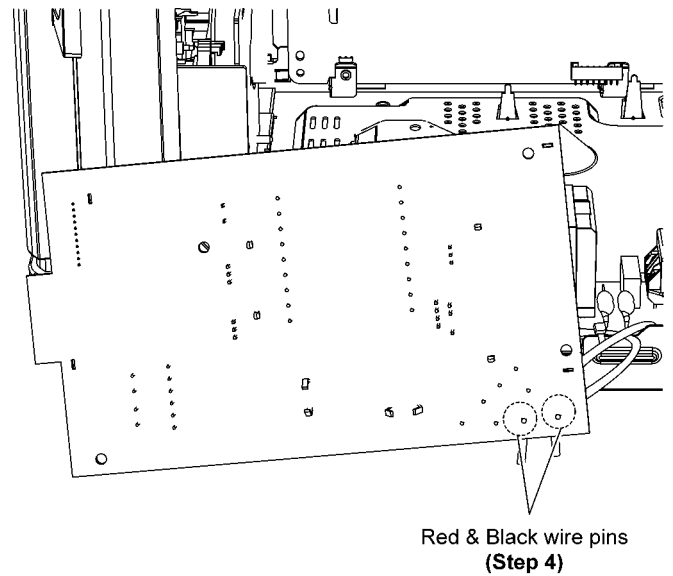


Step 1 Detach 11P cable at the connector (CN5802) on SMPS P.C.B..



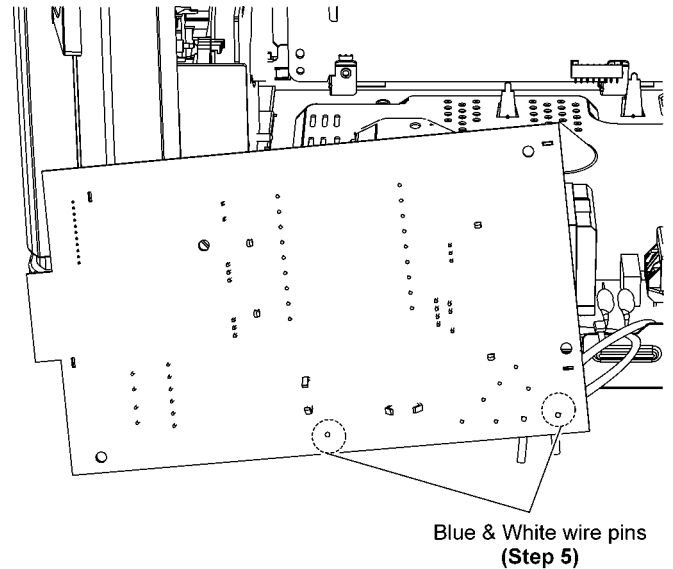
Step 2 Remove 4 screws on SMPS P.C.B..

Step 3 Lift up the SMPS P.C.B. as arrow shown.

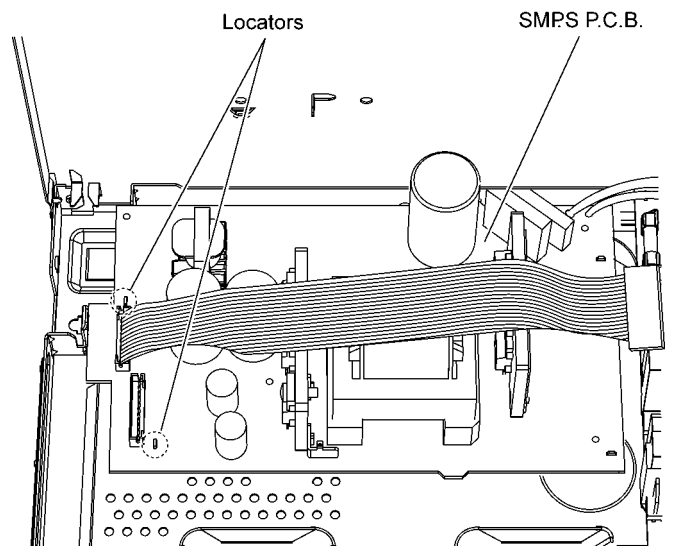


Step 4 Flip the SMPS P.C.B. and desolder 2 wires pins (red and black).

• For GA/GS only



Step 5 Desolder 2 wires pins (blue and white).

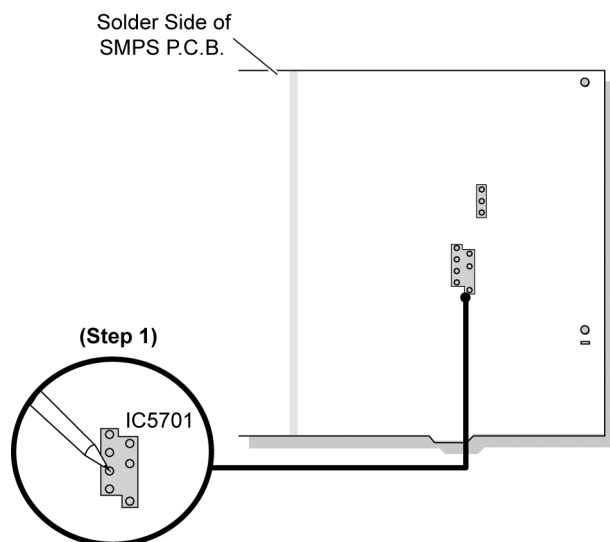


Caution: During assembling, ensure that SMPS P.C.B. is seated properly at the locators.

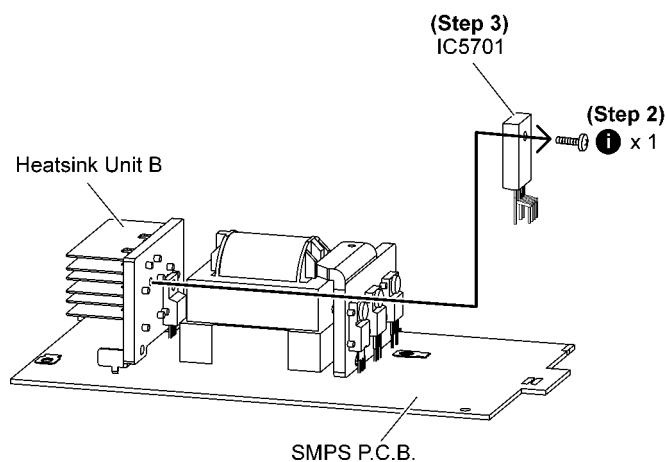
9.24. Replacement of Switching Regulator IC (IC5701)

- Follow (Step 1) to (Step 5) of Item 9.3
- Follow (Step 1) to (Step 7) of Item 9.4
- Follow (Step 1) to (Step 5) of Item 9.19
- Follow (Step 1) to (Step 5) of Item 9.23

9.24.1. 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.

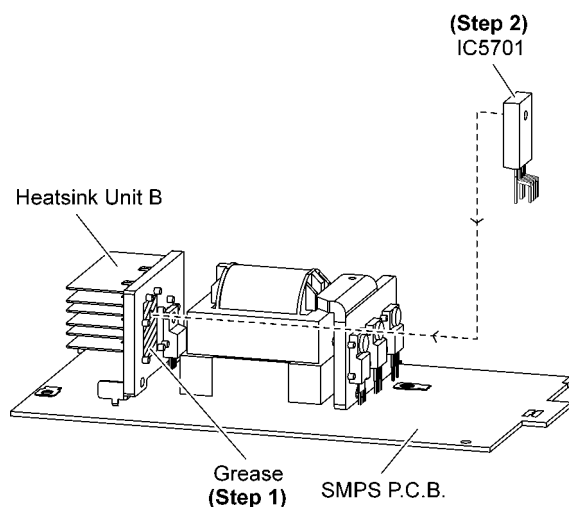


Step 2 Remove 1 screw from the Switch Regulator IC (IC5701).

Step 3 Remove the Switch Regulator IC (IC5701).

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

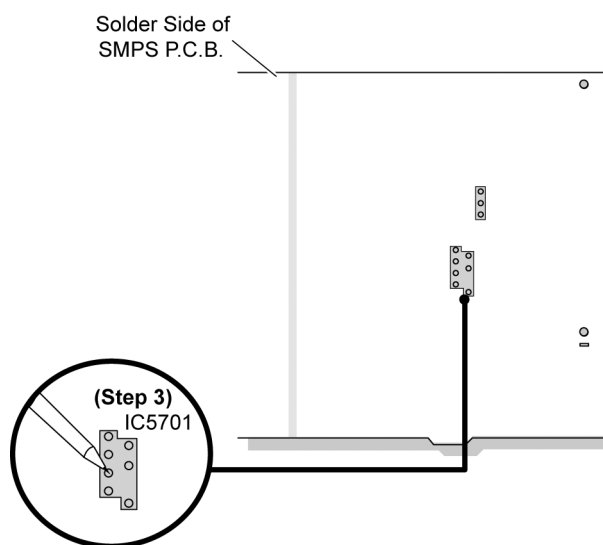
9.24.2. Assembly of Switching Regulator IC (IC5701)



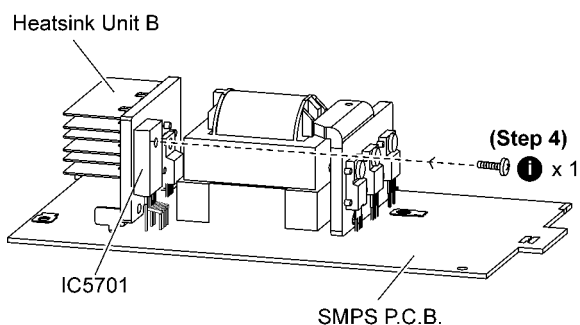
Step 1 Apply grease to the Heatsink Unit B.

Step 2 Mount the Switching Regulator IC (IC5701) on to SMPS P.C.B..

Caution: Ensure pins of the switching regulator IC (IC5701) are properly seated on SMPS P.C.B.



Step 3 Solder pins of the Switching Regulator IC (IC5701) on the solder side of SMPS P.C.B..



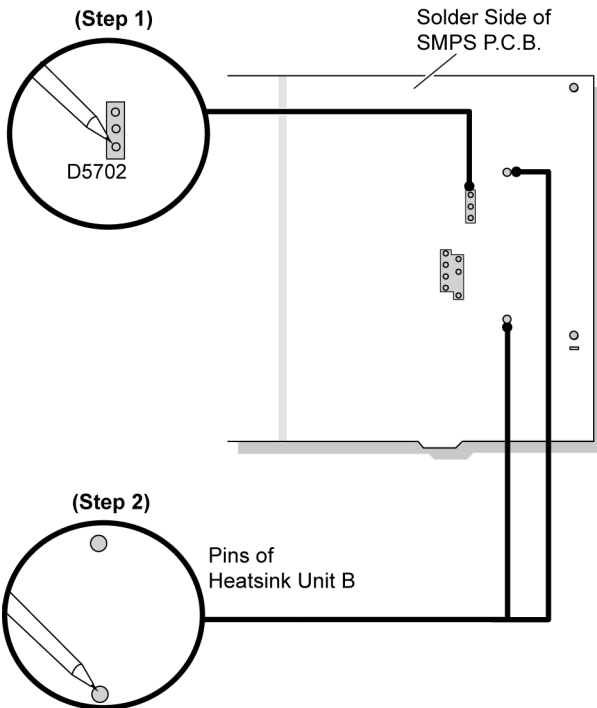
Step 4 Screw the Switching Regulator IC (IC5701) to the Heat-sink Unit B.

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

9.25. Replacement of Rectifier Diode (D5702)

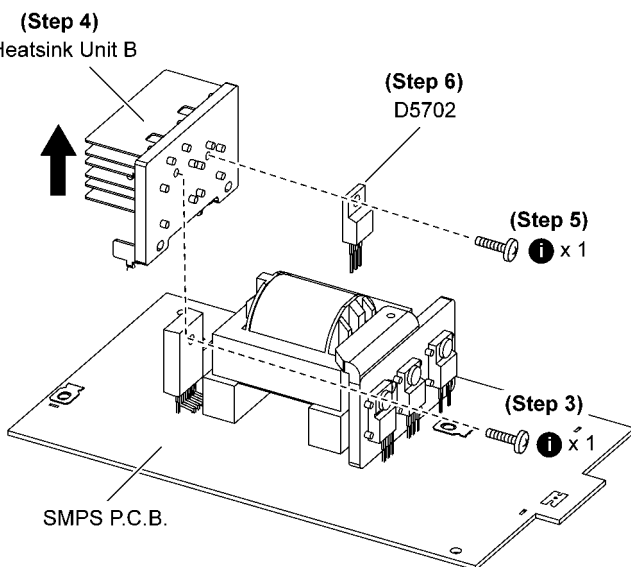
- Follow (Step 1) to (Step 5) of Item 9.3
- Follow (Step 1) to (Step 7) of Item 9.4
- Follow (Step 1) to (Step 5) of Item 9.19
- Follow (Step 1) to (Step 5) of Item 9.23

9.25.1. 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.



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

Step 4 Remove the Heatsink Unit B in the direction of arrow

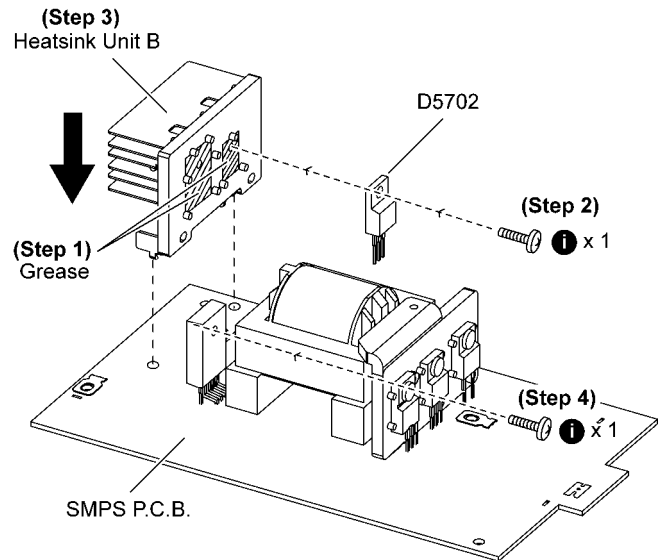
shown.

Step 5 Remove 1 screw.

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

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

9.25.2. Assembly of Rectifier Diode (D5702)



Step 1 Apply grease to the Heatsink Unit B.

Step 2 Screw the Rectifier Diode (D5702) to the Heatsink Unit B..

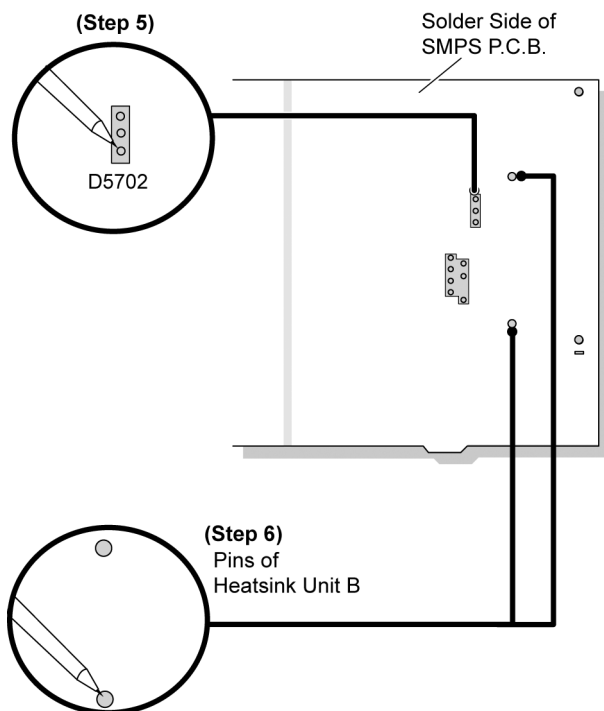
Caution: Ensure the Rectifier Diode (D5702) is well tightened to the Heatsink Unit B.

Step 3 Mount the Heatsink Unit B & Rectifier Diode (D5702) on to SMPS P.C.B..

Caution: Ensure pins of the Rectifier Diode (D5702) is properly seated on SMPS P.C.B..

Step 4 Screw the Switch Regulator IC (IC5701) to the Heatsink Unit B.

Caution: Ensure the Heatsink Unit B is properly seated on SMPS P.C.B.



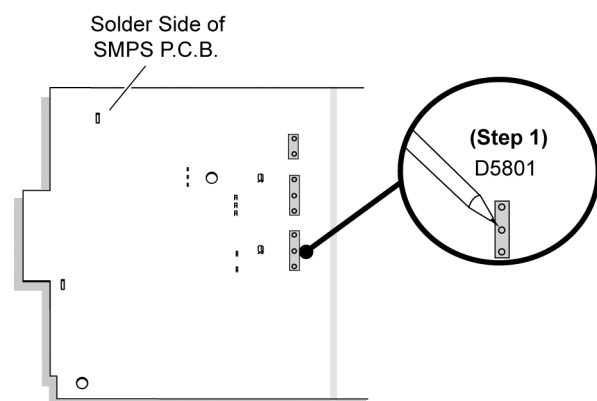
Step 5 Solder pins of the Rectifier Diode (D5702) on the solder side of SMPS P.C.B..

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

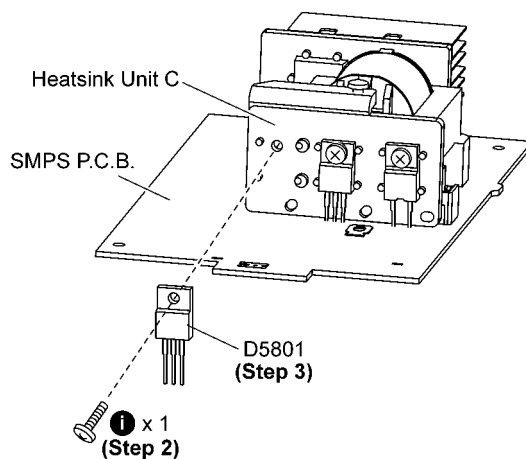
9.26. Replacement of Regulator Diode (D5801)

- Follow (Step 1) to (Step 5) of Item 9.3
- Follow (Step 1) to (Step 7) of Item 9.4
- Follow (Step 1) to (Step 5) of Item 9.19
- Follow (Step 1) to (Step 5) of Item 9.23

9.26.1. Disassembly of Regulator Diode (D5801)



Step 1 Desolder pins of the Regulator Diode (D5801) on the solder side of SMPS P.C.B.

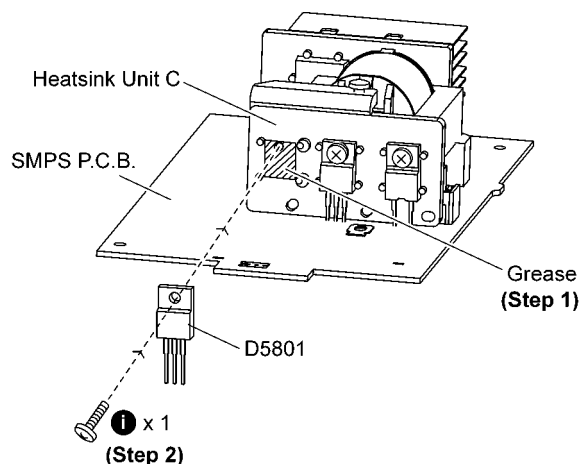


Step 2 Remove 1 screw.

Step 3 Remove the Regulator Diode (D5801).

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

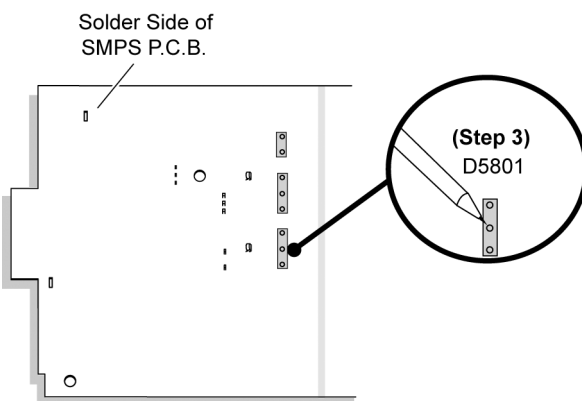
9.26.2. Assembly of Regulator Diode (D5801)



Step 1 Apply grease to the Heatsink Unit C.

Step 2 Mount & screw the Regulator Diode (D5801) to the Heatsink Unit C on the SMPS P.C.B..

Caution: Ensure the Regulator Diode (D5801) is well tightened to the Heatsink Unit C.



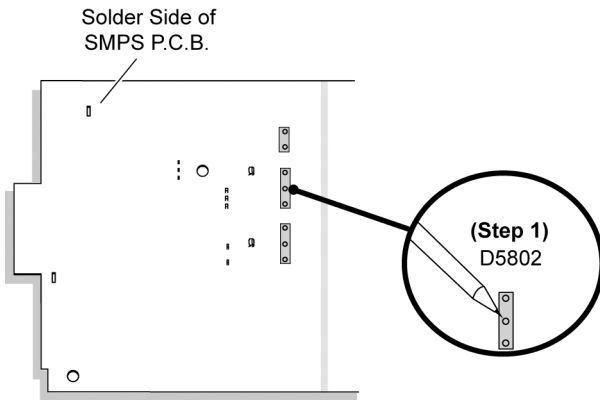
Step 3 Solder pins of the Regulator Diode (D5801) on the solder side of SMPS P.C.B..

Caution: Ensure pins of the Regulator Diode (D5801) is properly seated and soldered on SMPS P.C.B.

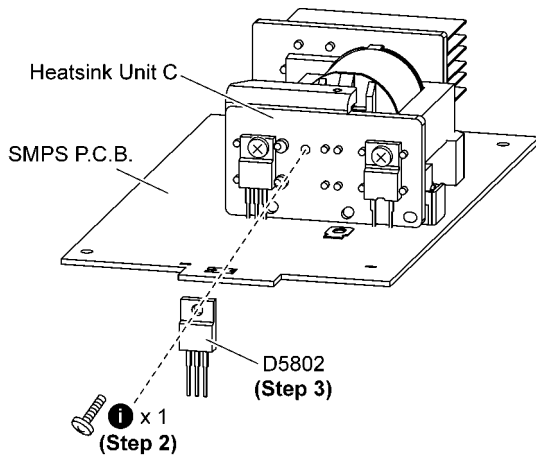
9.27. Replacement of Regulator Diode (D5802)

- Follow (Step 1) to (Step 5) of Item 9.3
- Follow (Step 1) to (Step 7) of Item 9.4
- Follow (Step 1) to (Step 5) of Item 9.19
- Follow (Step 1) to (Step 5) of Item 9.23

9.27.1. Disassembly of Regulator Diode (D5802)



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

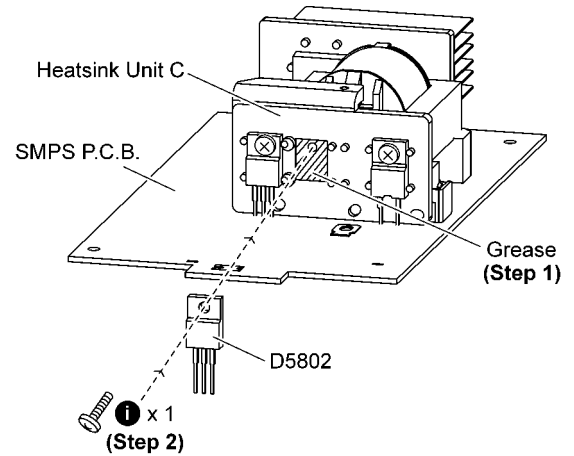


Step 2 Remove 1 screw.

Step 3 Remove the Regulator Diode (D5802) from the Heatsink Unit C.

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

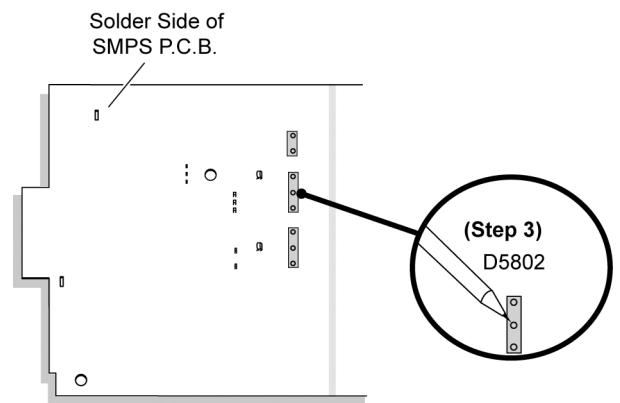
9.27.2. Assembly of Regulator Diode (D5802)



Step 1 Apply grease to the Heatsink Unit C.

Step 2 Mount & screw the Regulator Diode (D5802) to the Heatsink Unit C on SMPS P.C.B..

Caution: Ensure the Regulator Diode (D5802) is well tightened to the heatsink unit C.



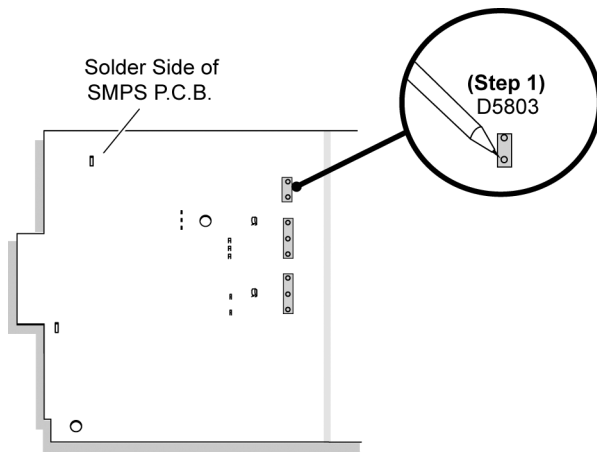
Step 3 Solder pins of the Regulator Diode (D5802) on the solder side of SMPS P.C.B..

Caution: Ensure pins of the Regulator Diode (D5802) is properly seated and soldered on SMPS P.C.B.

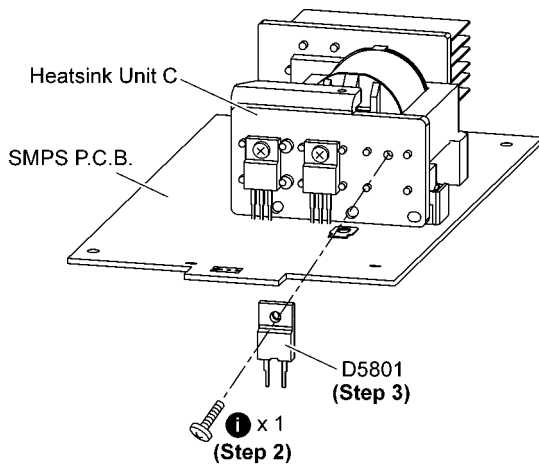
9.28. Replacement of Regulator Diode (D5803)

- Follow (Step 1) to (Step 5) of Item 9.3
- Follow (Step 1) to (Step 7) of Item 9.4
- Follow (Step 1) to (Step 5) of Item 9.19
- Follow (Step 1) to (Step 5) of Item 9.23

9.28.1. Disassembly of Regulator Diode (D5803)



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

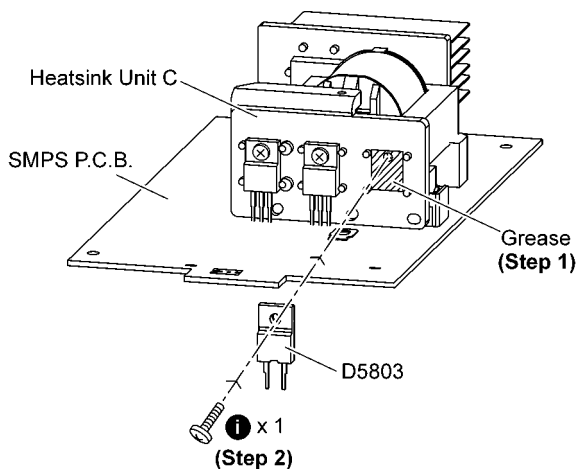


Step 2 Remove 1 screw.

Step 3 Remove the Regulator Diode (D5803) from the Heatsink Unit C.

Caution: During replacement of the part, avoid touching the heatsink, it may lead to injuries.

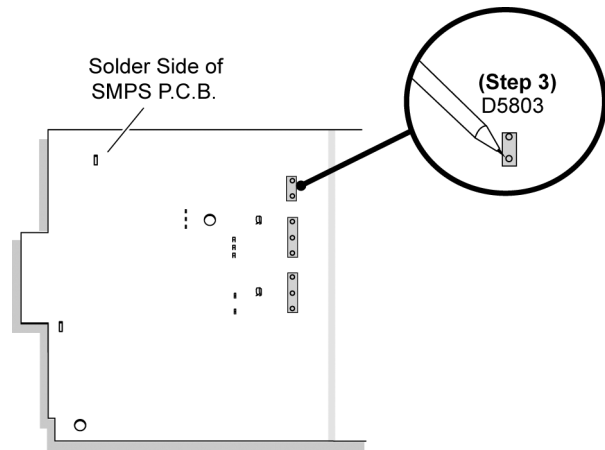
9.28.2. Assembly of Regulator Diode (D5803)



Step 1 Apply grease to the Heatsink Unit C.

Step 2 Mount & screw the regulator diode (D5803) to the Heatsink Unit C on SMPS P.C.B..

Caution: Ensure the Regulator Diode (D5803) is well tightened to the Heatsink Unit C.

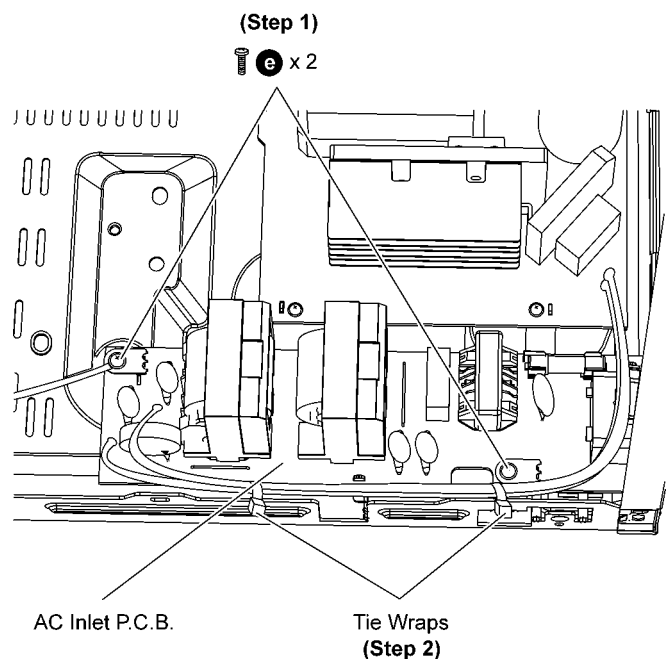


Step 3 Solder pins of the Regulator Diode (D5803) on the solder side of SMPS P.C.B..

Caution: Ensure pins of the regulator diode (D5803) are properly seated and soldered on SMPS P.C.B..

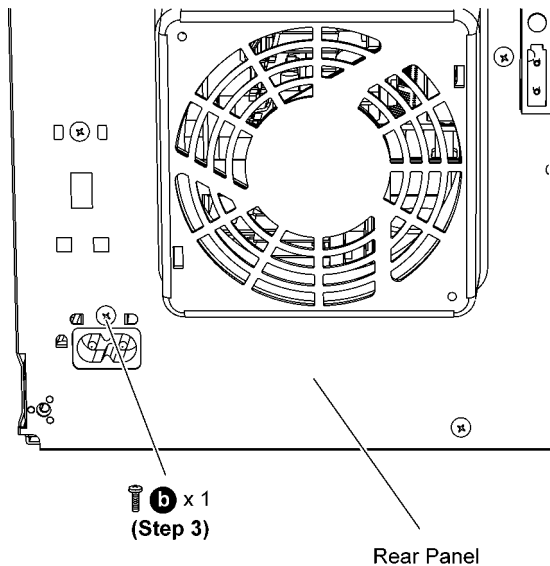
9.29. Disassembly of AC Inlet P.C.B.

- Follow the (Step 1) to (Step 5) of Item 9.3

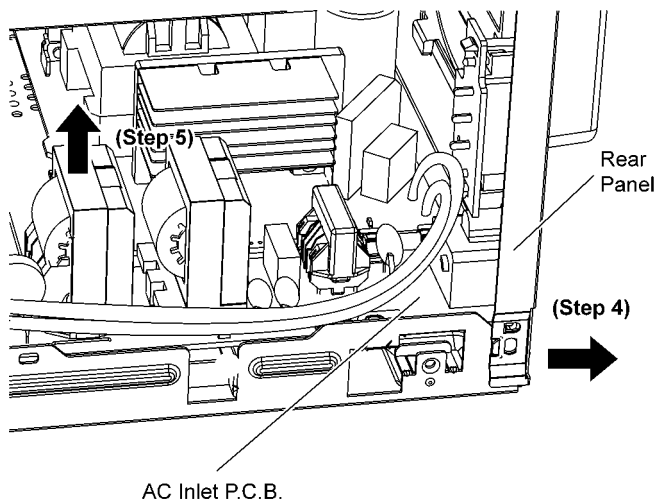


Step 1 Remove 2 screws at AC Inlet P.C.B..

Step 2 Cut 2 tie wraps.

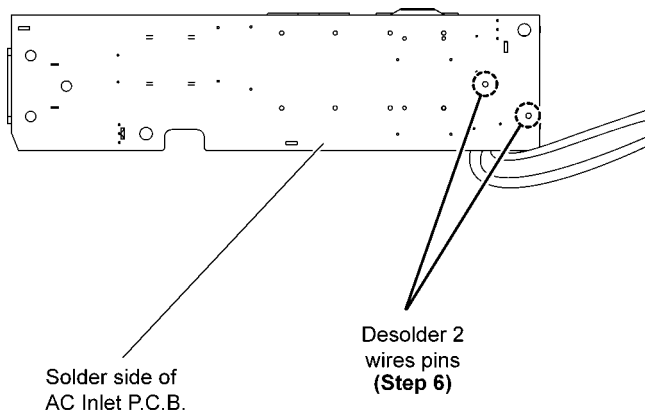


Step 3 Remove 1 screw at the rear panel.

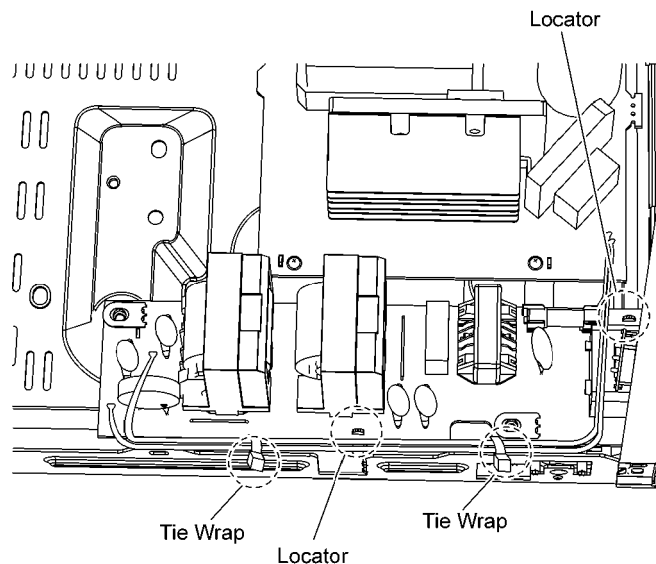


Step 4 Detach the rear panel slightly backward as arrow shown.

Step 5 Lift up the AC Inlet P.C.B..



Step 6 Flip over the AC Inlet P.C.B. and desolder 2 wires pins (red and black).

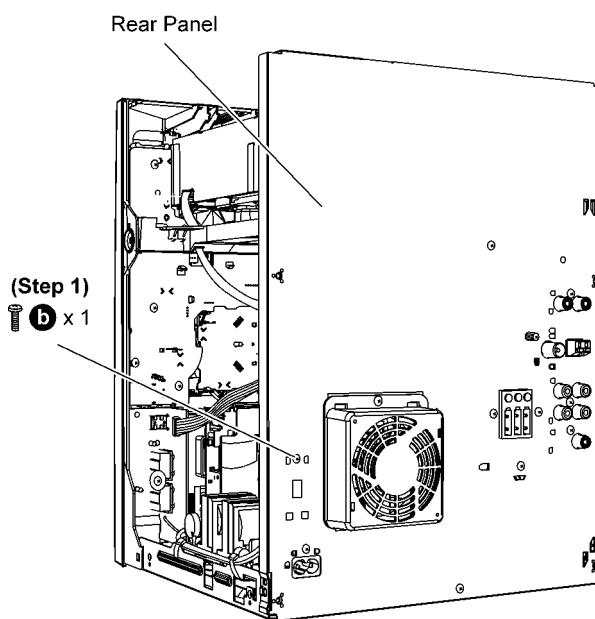


Caution: During assembling, ensure the P.C.B. is seated properly at the locators.

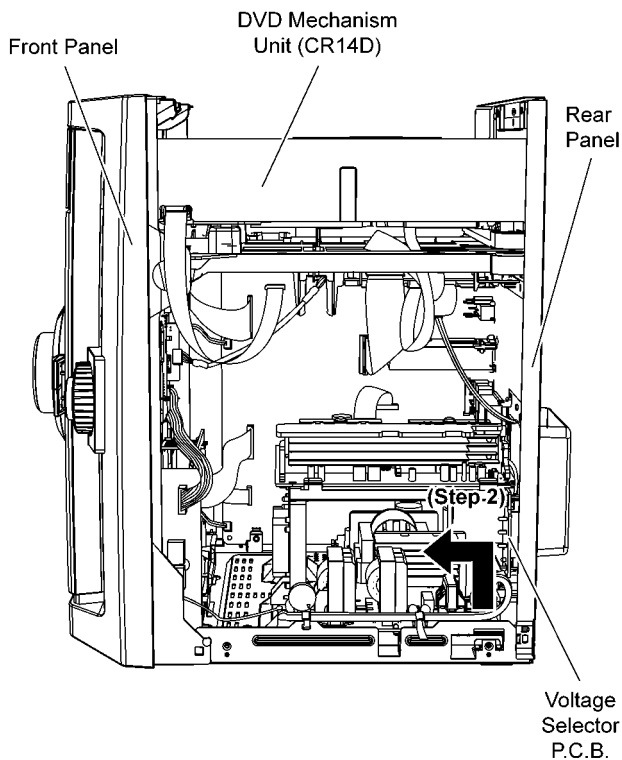
Caution: Remember to use tie wraps to tie red & black wires between AC Inlet P.C.B. to the chassis.

9.30. Disassembly of Voltage Selector P.C.B. (For GA/GS Only)

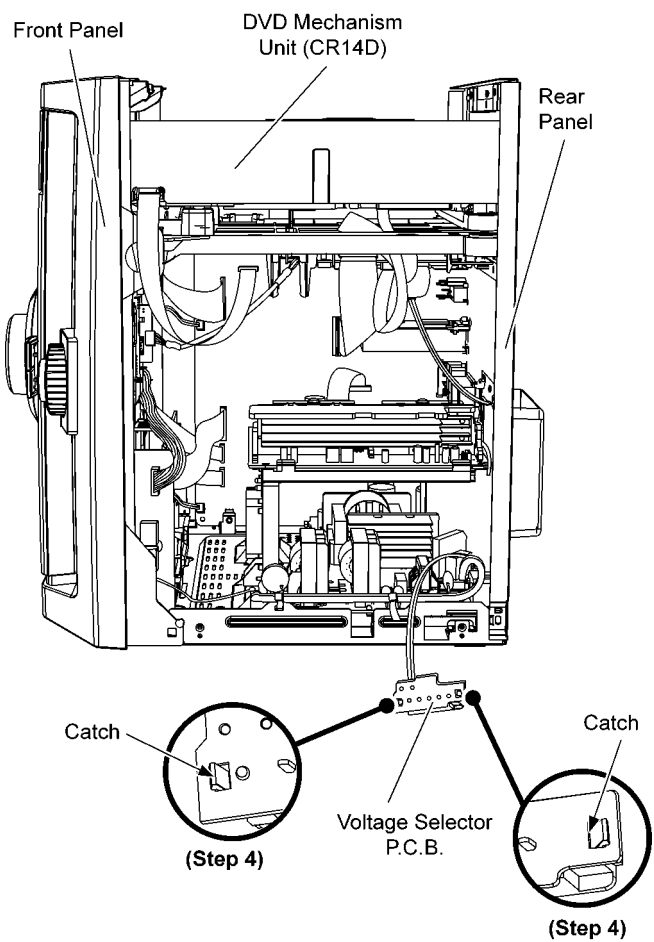
- Follow (Step 1) to (Step 5) of Item 9.3



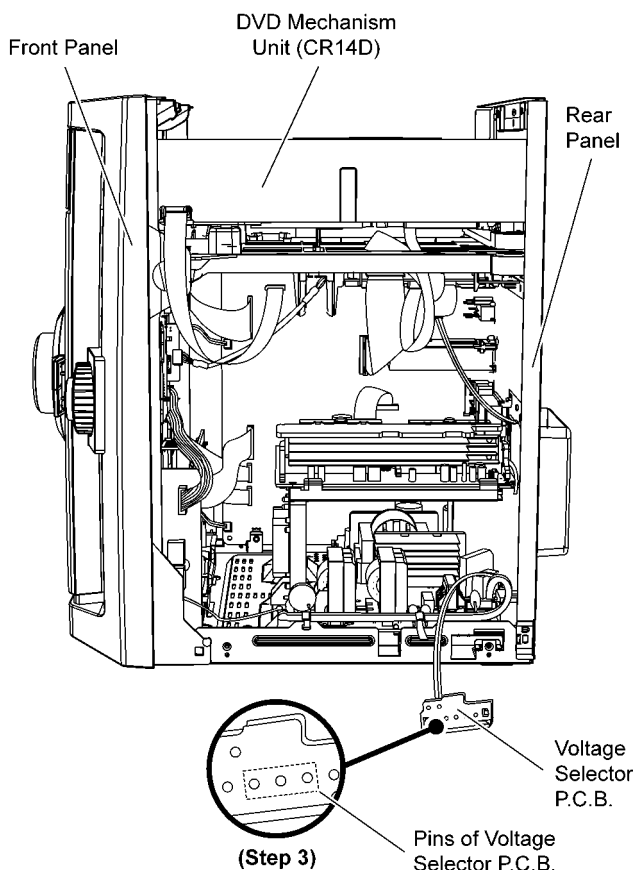
Step 1 Remove 1 screw at the rear panel.



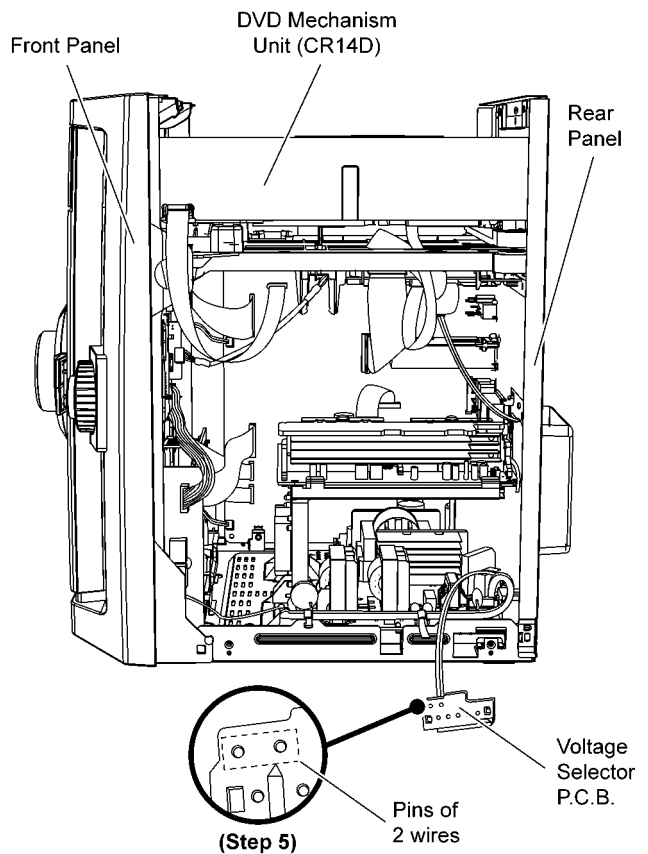
Step 2 Detach the Voltage Selector P.C.B. from rear panel in the direction of arrow.



Step 4 Release 2 catches on Voltage Selector P.C.B..



Step 3 Desolder 3 pins of Voltage Selector P.C.B..



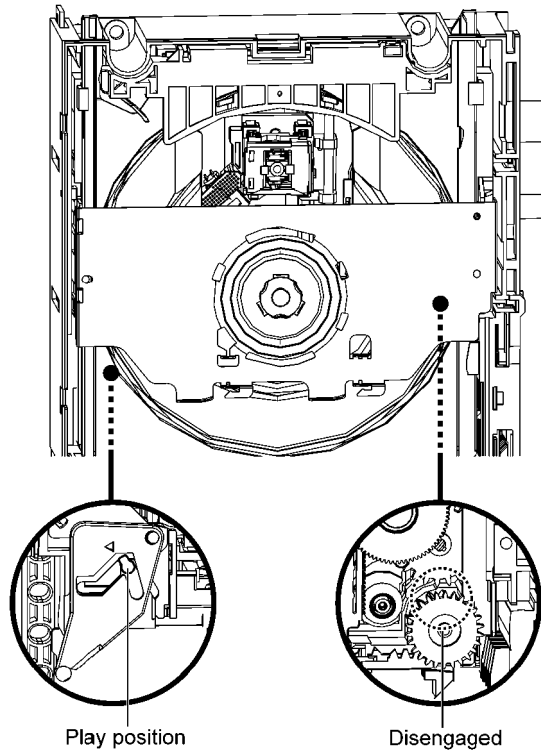
Step 5 Desolder 2 wires (White and blue) pins.

Step 6 Remove the Voltage Selector P.C.B..

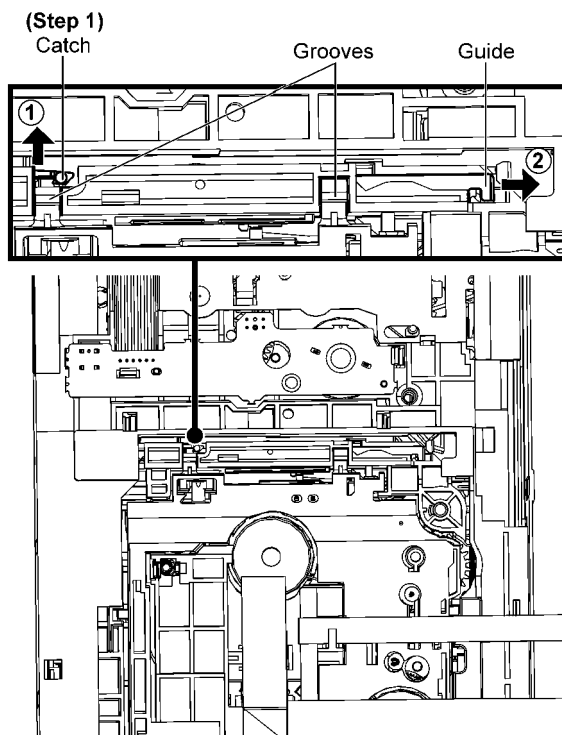
10 Disassembling and Assembling of Traverse Unit

10.1. Disassembly Procedures

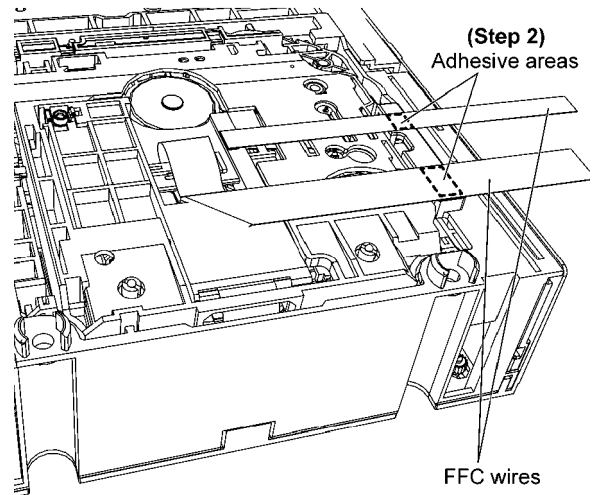
- Disassembly of traverse unit assembly in play position.



- Note: The above picture shows the units is in play position.



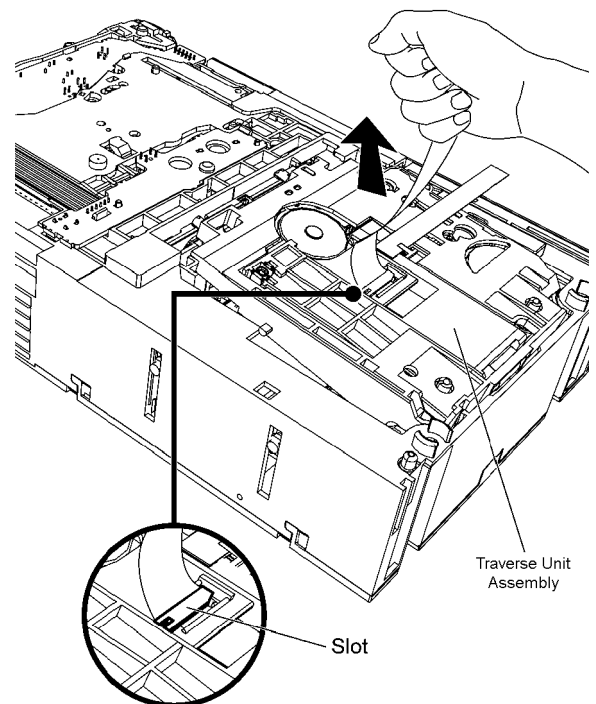
Step 1 Release the catch and push the guide as arrows shown to open both grooves.

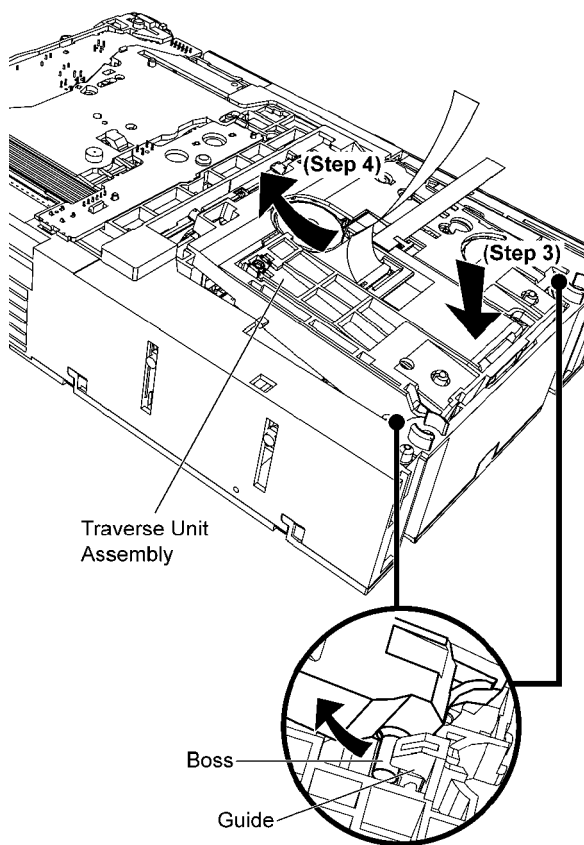


Step 2 Detach the FFC wires from the adhesive areas.

Caution:

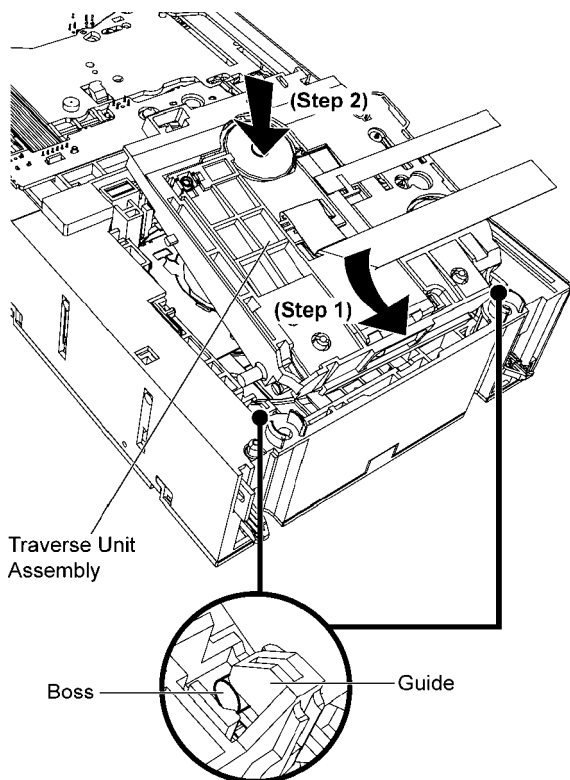
Do not pull the FFC wire to remove the traverse unit assembly, as it may cause damage to the slot.





Step 3 Press down the traverse unit assembly.
 Step 4 Remove the traverse unit assembly as arrow shown.

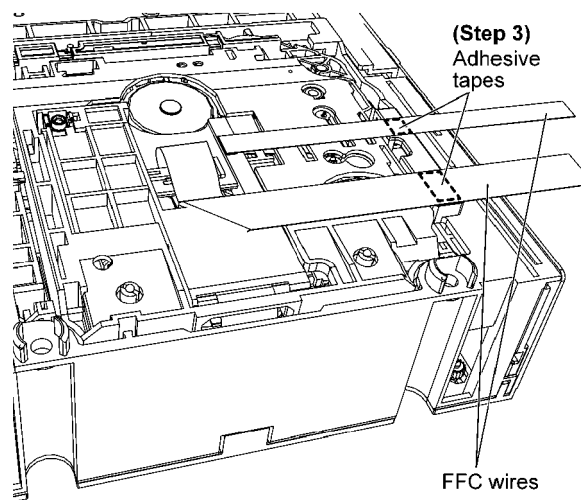
10.2. Assembly Procedures



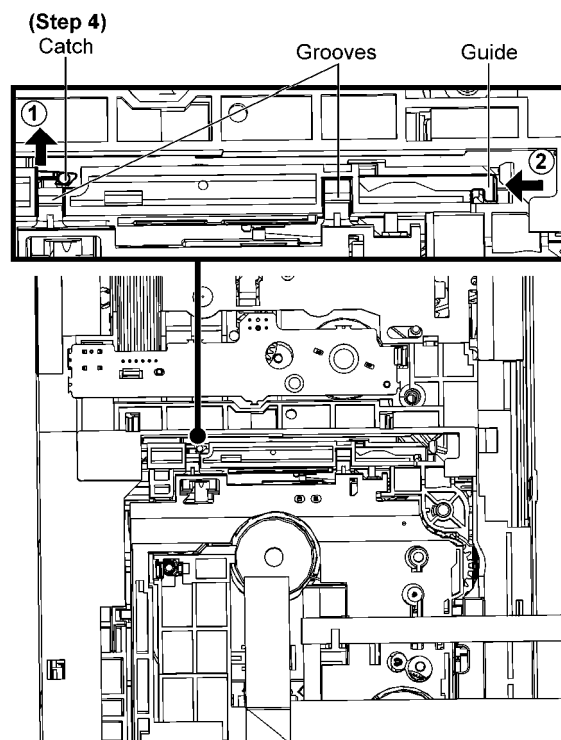
Step 1 Slot the traverse unit assembly into the guides as arrow shown.

Note: Ensure the bosses fix exactly onto the guides.

Step 2 Place down the traverse unit assy.



Step 3 Fix the FFC wires by using the adhesive tapes.



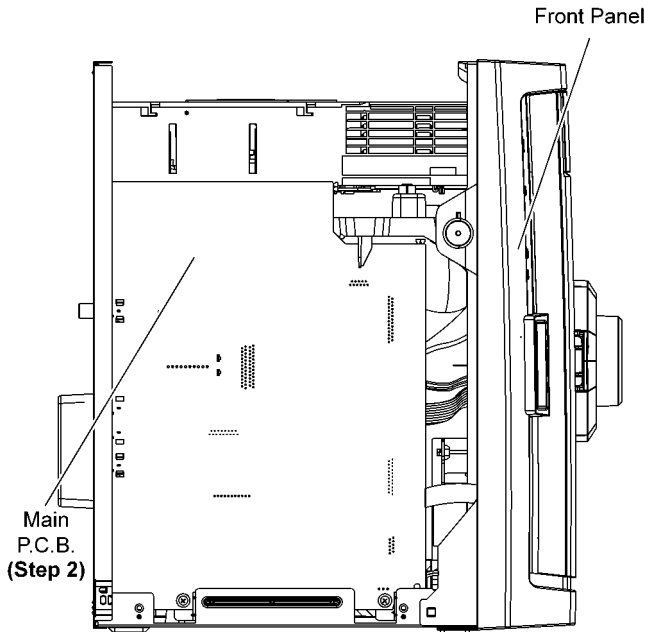
Step 4 Release the catch and push the guide as arrows shown to close both grooves.

11 Service Positions

Note: For description of the disassembly procedures, see the Section 9.

11.1. Checking and Repairing of Main P.C.B.

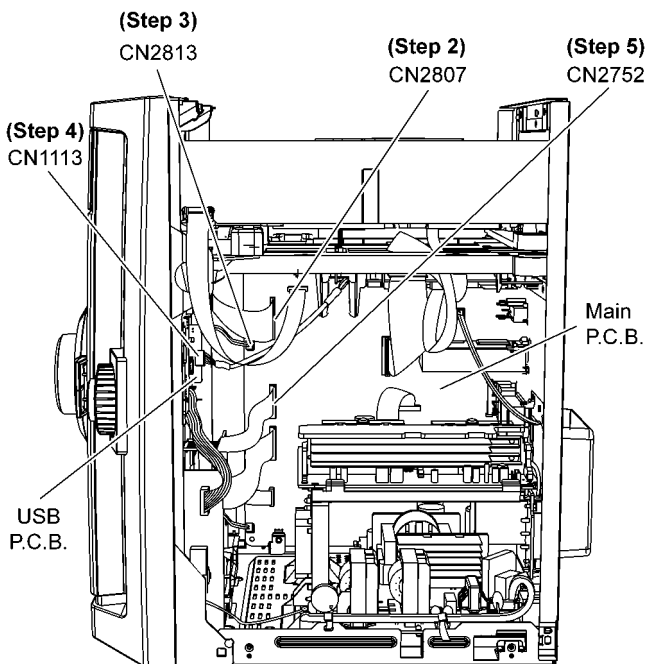
Step 1 Remove the top cabinet .



Step 2 Main P.C.B. can be checked at its original position.

11.2. Checking and Repairing Panel P.C.B., Deck P.C.B., Volume P.C.B., Music Port P.C.B. and Mic P.C.B.

Step 1 Remove the top cabinet.

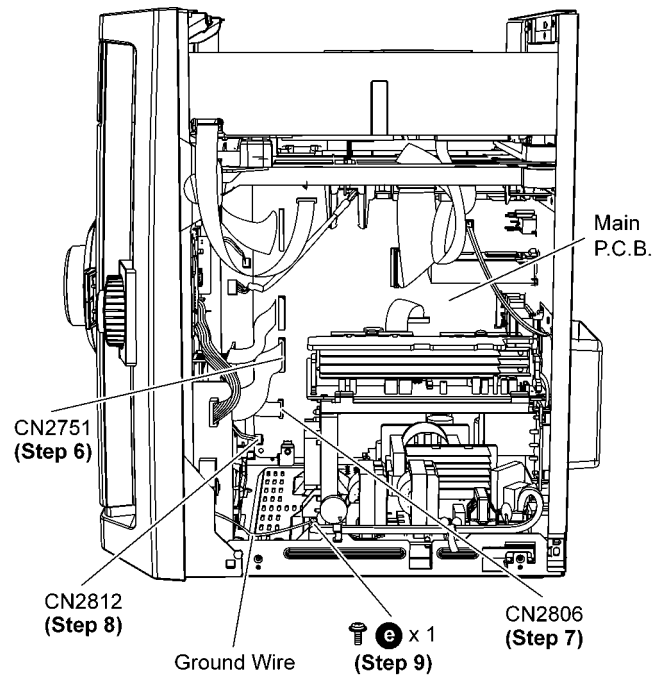


Step 2 Detach 27P FFC at the connector (CN2807) on Main P.C.B..

Step 3 Detach 2P cable at the connector (CN2813) on Main P.C.B..

Step 4 Detach 5P cable at the connector (CN1113) on USB P.C.B..

Step 5 Detach 10P FFC at the connector (CN2752) on Main P.C.B..

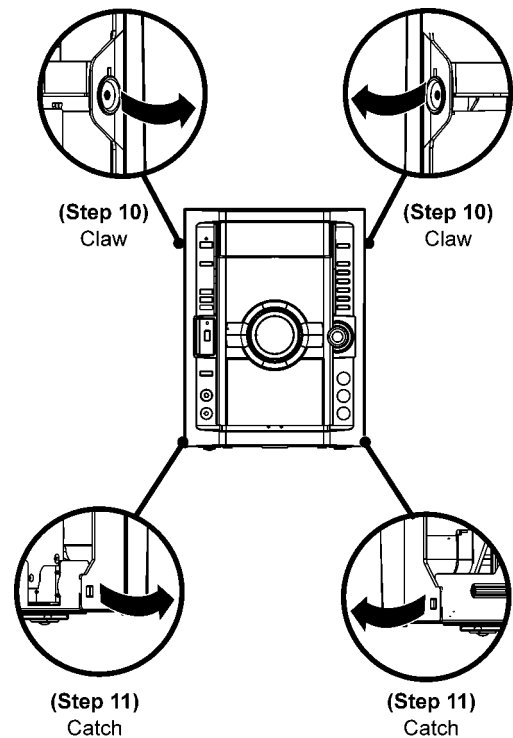


Step 6 Detach 12P FFC at the connector (CN2751) on Main P.C.B..

Step 7 Detach 10P FFC at the connector (CN2806) on Main P.C.B..

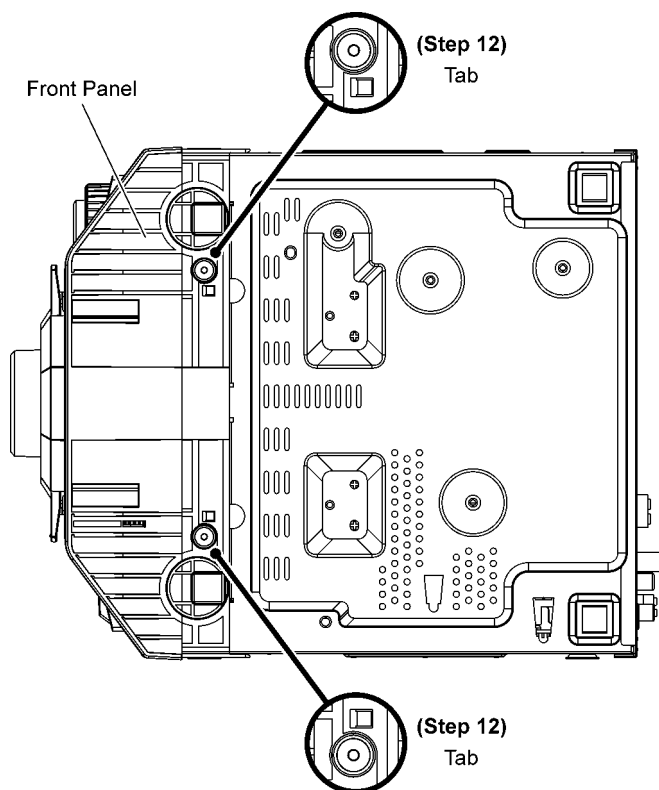
Step 8 Detach 2P cable at connector (CN2812) on Main P.C.B..

Step 9 Remove 1 screw to remove ground wire.

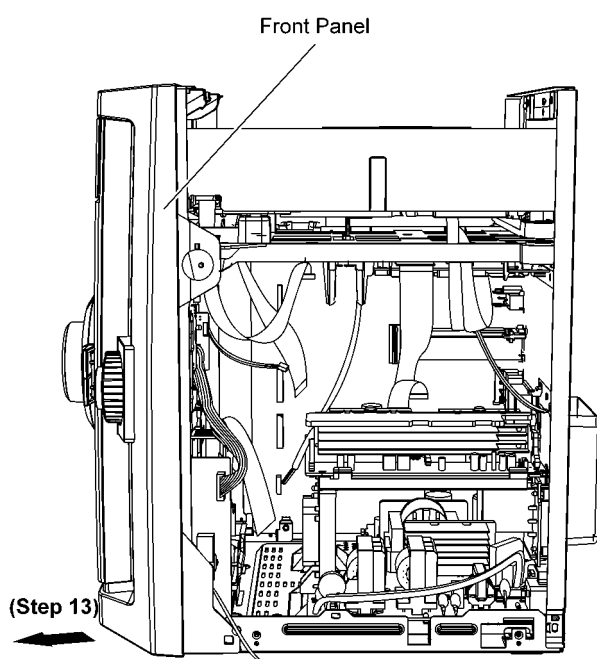


Step 10 Release the claws outwards on both sides.

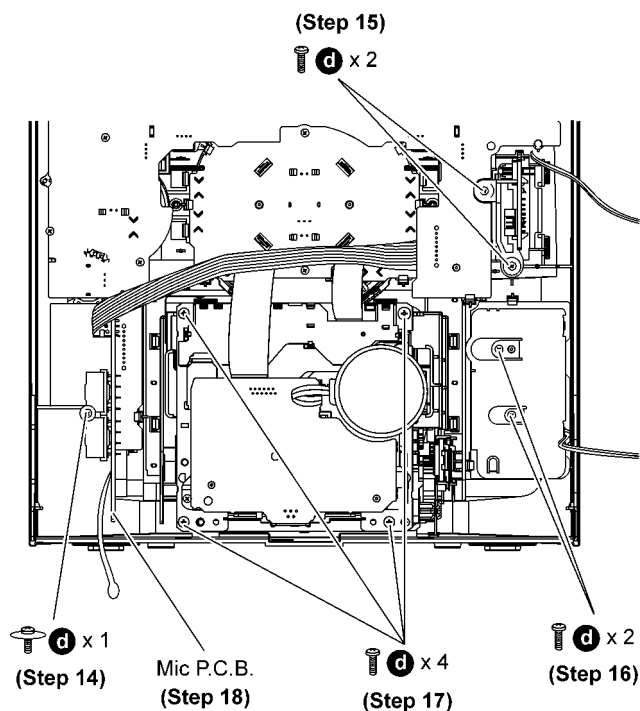
Step 11 Release the catches at both sides.



Step 12 Release the tabs at the bottom of front panel.



Step 13 Remove front panel unit in the direction of arrow.



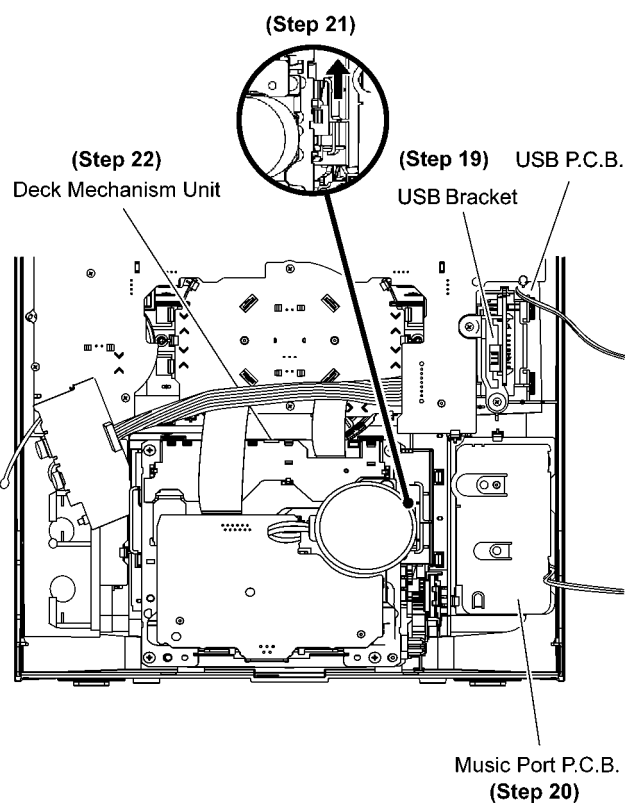
Step 14 Remove 1 screw at Mic P.C.B..

Step 15 Remove 2 screws on USB bracket.

Step 16 Remove 2 screws on Music Port P.C.B..

Step 17 Remove 4 screws at Deck Mechanism unit.

Step 18 Remove Mic P.C.B..

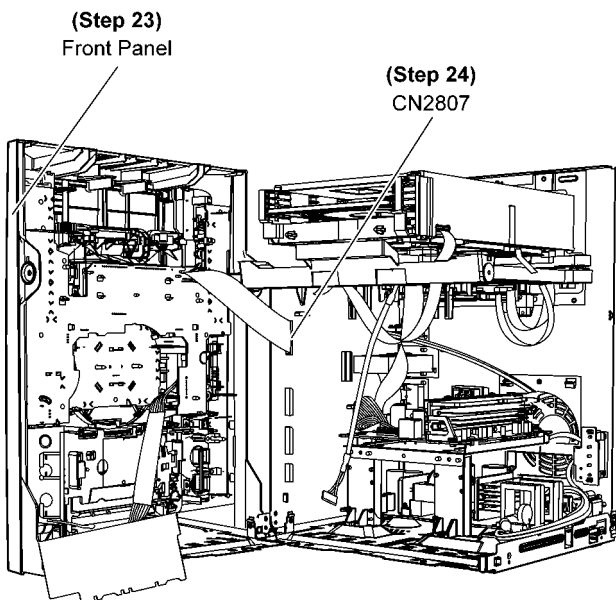


Step 19 Remove USB P.C.B. with USB bracket.

Step 20 Remove Music Port P.C.B..

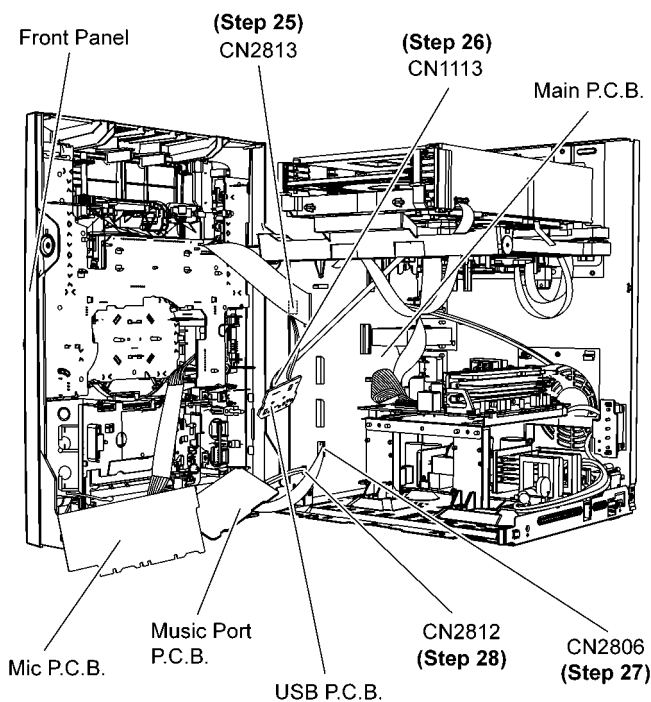
Step 21 Push the lever upward as arrow shown to open the cassette lid assembly.

Step 22 Remove Deck Mechanism unit.



Step 23 Position front panel unit according to the diagram show.

Step 24 Connect 27P FFC at connector (CN2807) on Main P.C.B..

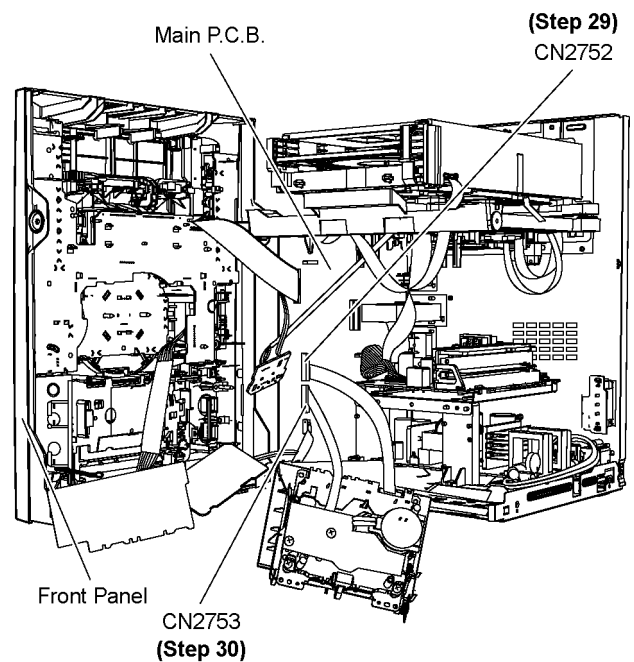


Step 25 Connect 2P cable at connector (CN2813) on Main P.C.B..

Step 26 Connect 5P cable at connector (CN1113) on USB P.C.B..

Step 27 Connect 10P FFC at connector (CN2806) on Main P.C.B..

Step 28 Connect 2P cable at connector (CN2812) on Main P.C.B..



Step 29 Connect 10P FFC at the connector (CN2752) on Main P.C.B..

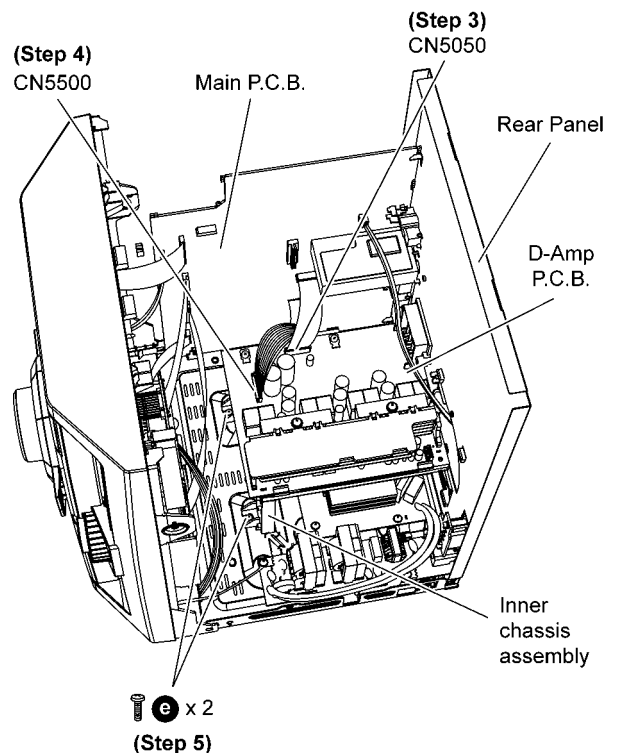
Step 30 Connect 12P FFC at the connector (CN2753) on Main P.C.B..

Step 31 Check and repair panel P.C.B., Deck P.C.B., Volume P.C.B., Music Port P.C.B. and Mic P.C.B..

11.3. Checking and Repairing of D-Amp P.C.B.

Step 1 Remove the top cabinet.

Step 2 Remove the DVD Mechanism Unit (CR14D).

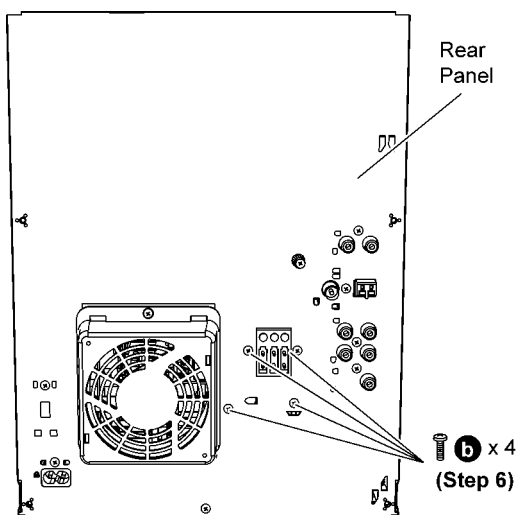


Step 3 Detach 17P FFC at connector (CN5050) on D-Amp P.C.B..

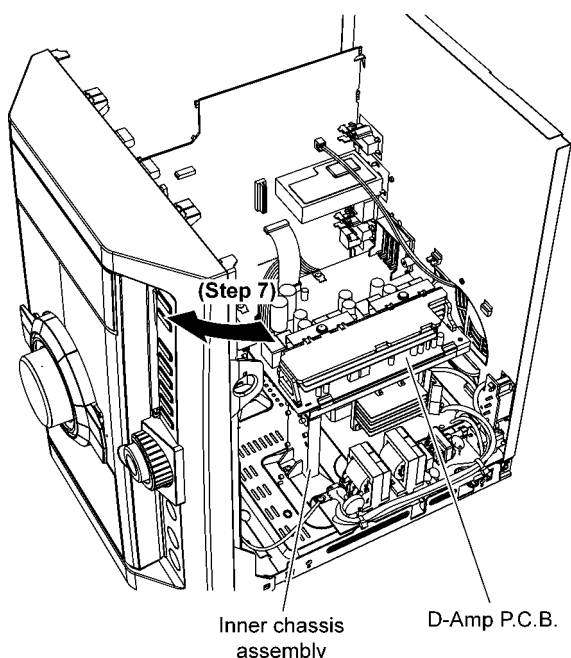
Step 4 Detach 8P cable at connector (CN5500) on D-Amp

P.C.B..

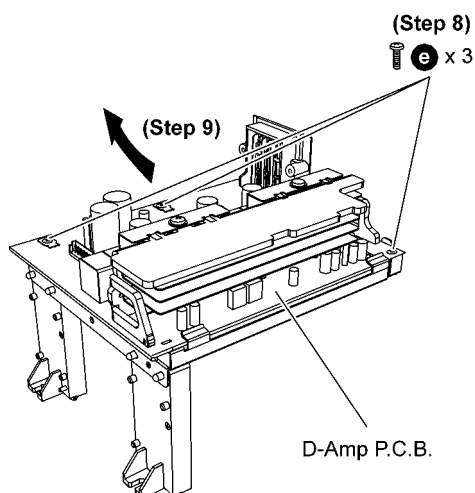
Step 5 Remove 2 screws at Inner chassis assembly.



Step 6 Remove 4 screws at the rear panel.

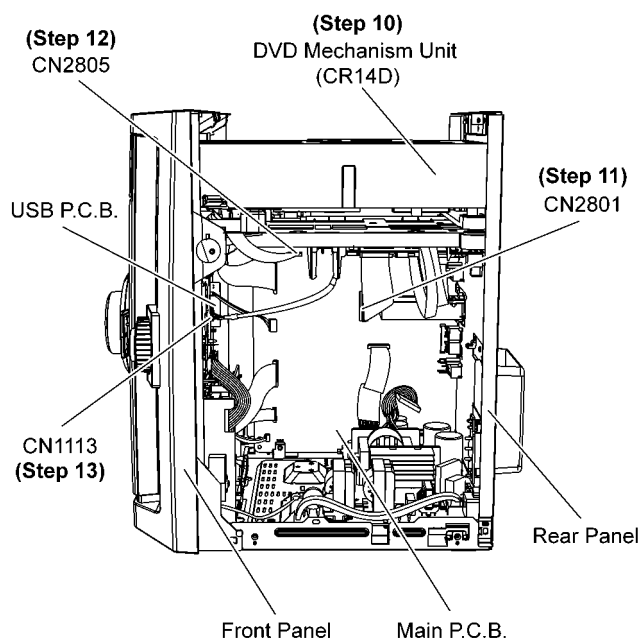


Step 7 Lift up the D-Amp P.C.B. together with the Inner chassis assembly as arrow shown.



Step 8 Remove 3 screws from D-Amp P.C.B..

Step 9 Lift up D-Amp P.C.B. as arrow shown.

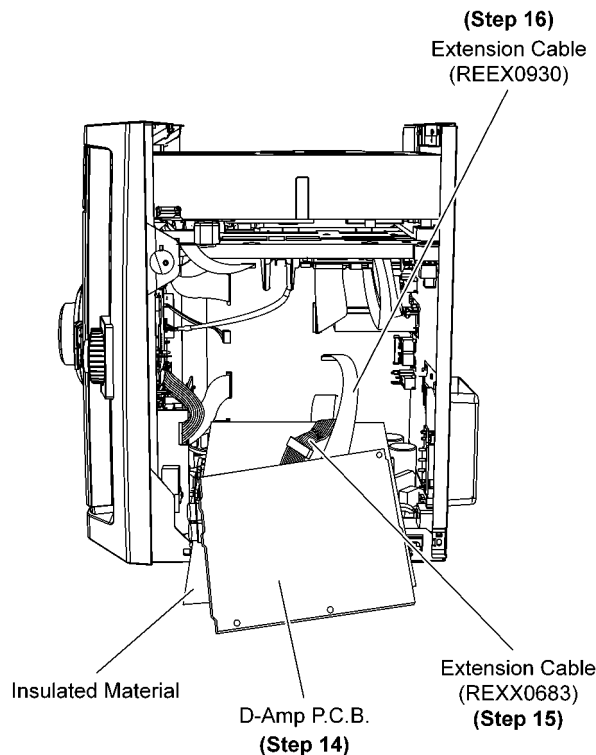


Step 10 Position DVD Mechanism unit (CR14D) according to the diagram shown.

Step 11 Connect 50P FFC cable at the connector (CN2801) on Main P.C.B..

Step 12 Connect 11P FFC cable at the connector (CN2805) on Main P.C.B..

Step 13 Connect 5P cable at the connector (CN1113) on USB P.C.B..



Step 14 Position D-Amp P.C.B. according to diagram shown.

Step 15 Attach original cable with extension cable (REXX0683) (8P cable from H5801 to CN5500).

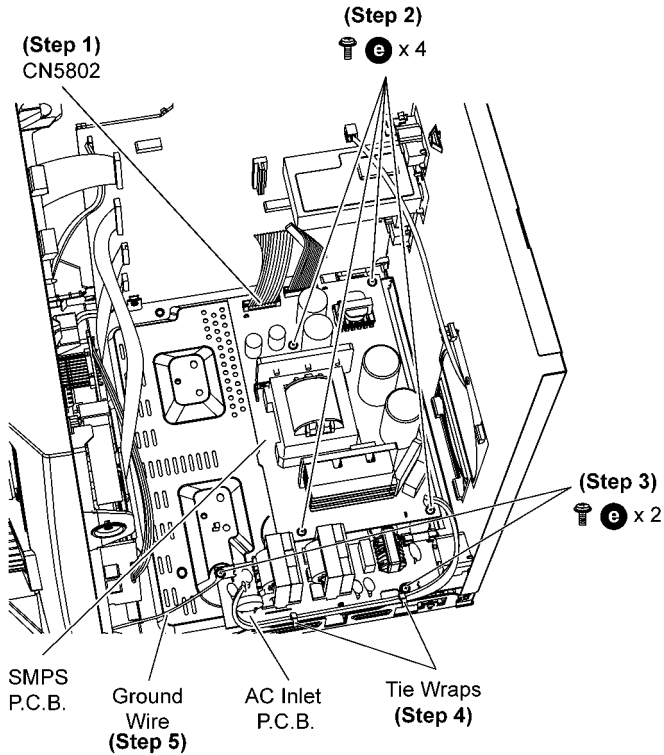
Step 16 Connect extension cable (REEX0930) (17P cable from CN2808 to CN5050).

Step 17 Check and repair D-Amp P.C.B. according to the dia-

gram shown.

11.4. Checking and Repairing of AC Inlet P.C.B. & SMPS P.C.B.

- Follow (Step 1) to (Step 9) of item 11.3



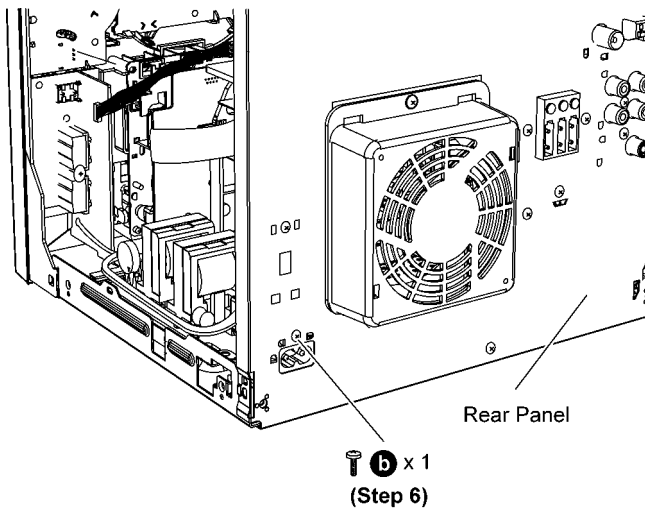
Step 1 Detach wire connector at connector (CN5802) on SMPS P.C.B..

Step 2 Remove 4 screws on SMPS P.C.B..

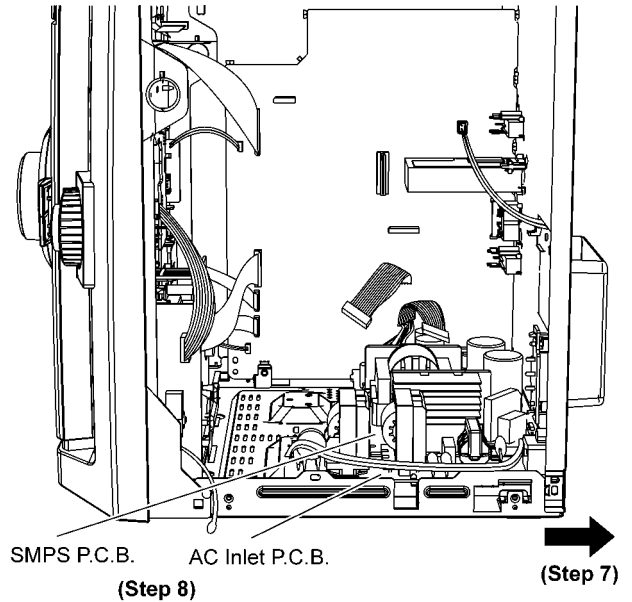
Step 3 Remove 2 screws on AC Inlet P.C.B..

Step 4 Cut 2 tie wraps onto wires.

Step 5 Remove ground wire.

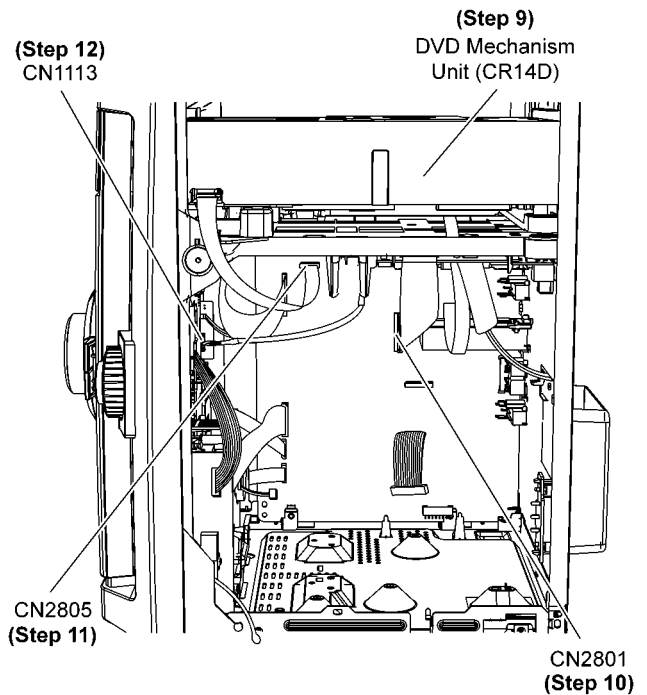


Step 6 Remove 1 screw at the rear panel.



Step 7 Move the rear panel slightly backward as arrow shown.

Step 8 Lift up the AC Inlet P.C.B. together with the SMPS P.C.B..

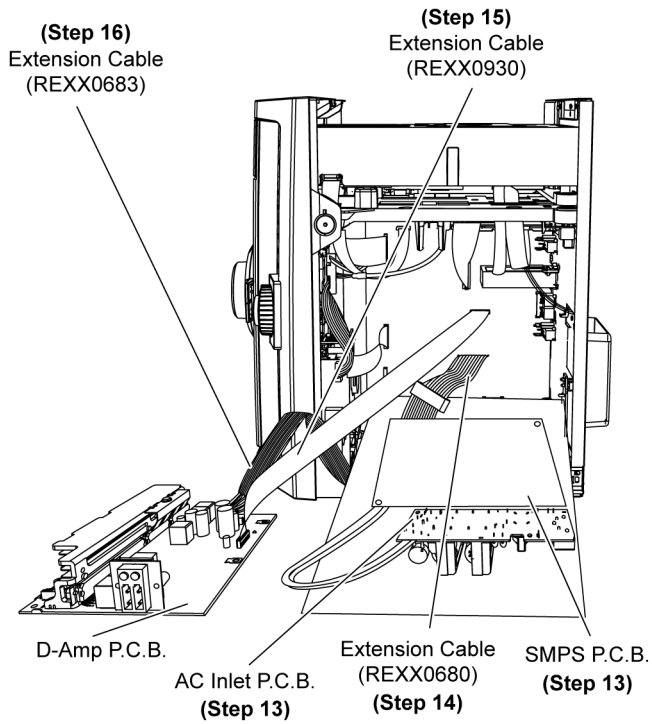


Step 9 Position DVD Mechanism unit (CR14D) according to the diagram shown.

Step 10 Connect 50P FFC cable at the connector (CN2801) on Main P.C.B..

Step 11 Connect 11P FFC cable at the connector (CN2805) on Main P.C.B..

Step 12 Connect 5P cable at the connector (CN1113) on USB P.C.B..



Step 13 Position SMPS and AC Inlet P.C.B. according to the diagram shown.

Step 14 Attach original cable with extension cable (REXX0680) (11P cable from ZJ2701 to CN5050).

Step 15 Connect extension cable (REXX0930) (17P cable from CN2808 to CN5050).

Step 16 Attach original cable with extension cable (REXX0683) (8P cable from H5801 to CN5050).

Step 17 Service and repair AC Inlet P.C.B. and SMPS P.C.B. respectively.

12 Procedure for Checking Operation of Deck Mechanism Unit

12.1. Operation Check with Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Figure 2)
2. Supply DC5V to MOTOR. (→ MOTOR rotates.) (Figure 1)
3. Insert a cassette tape to the unit.
4. Supply DC9V to the plunger, and turn the power ON and OFF. (→ Power +PL, -PL) (Figure 1)
 - a. FWD PLAY: Supply the plunger power in a flash. (ON: approx. 5msec)
 - b. FWD FF: Supply the plunger power in a flash at PLAY mode. (ON: approx. 5msec)
 - c. STOP: Supply the plunger power in a flash at FWD FF mode. (ON: approx. 5msec)
 - d. REV PLAY: Supply the plunger power in a normal timing at STOP mode. (ON: approx. 200msec)
 - e. REV REW: Supply the plunger power in a flash at REV PLAY mode. (ON: approx. 50msec)
 - f. STOP: Supply the plunger power in a flash at FF mode. (ON: approx. 50msec)Repeat the operation (→ FWD PLAY)
(Note) Other operation may start if a timing of supplying the plunger power is missed.

12.1.1. Connection Status between Deck Mechanism and Power Supply

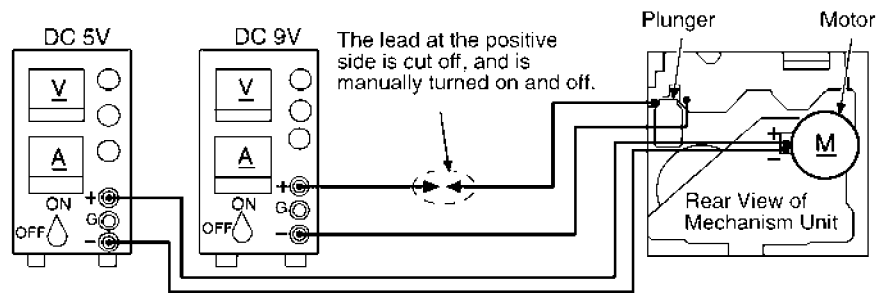


Figure 1

12.1.2. Operative Parts of Deck Mechanism Unit (EJECT lever fitted with rubber band, Plunger/Rib operation)

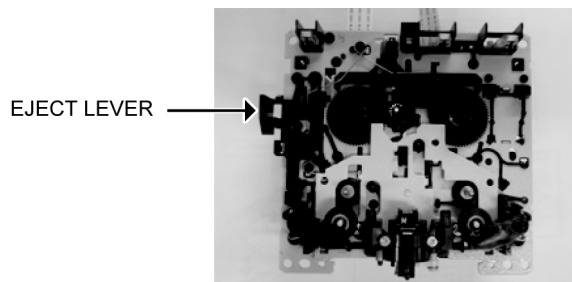


Figure 2

12.2. Operation Check without Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Figure 2)
2. Supply DC5V to MOTOR. (→ MOTOR rotates.)
3. Lift up the mechanism unit's plunger/rib with the tip of a negative screwdriver, and operate the unit in the same timing as supplying the power. (Figure 3)

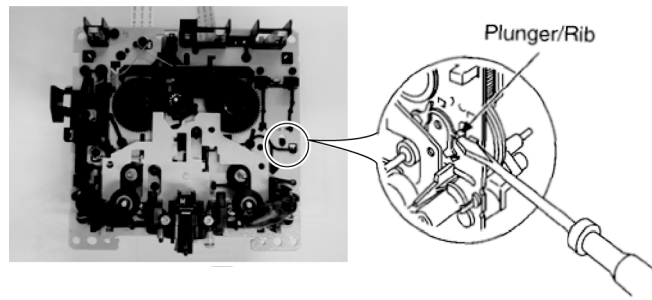


Figure 3

13 Measurements and Adjustments

13.1. Cassette Deck

1. Input point: Not Applicable.
2. Input signal: Test Tape (QZZCWAT).
3. Measuring point: Pin 3 (signal) & Pin 2 (ground at Deck P.C.B.).
4. Mode: Tape.
5. Preparation Items:
 - a. Test tape (as described in item 2).
 - b. Headphone Jack output jig (Figure 2).
 - c. Frequency indicator.
 - d. Electrical voltmeter.
 - e. Digital frequency counter.
 - f. Oscilloscope.

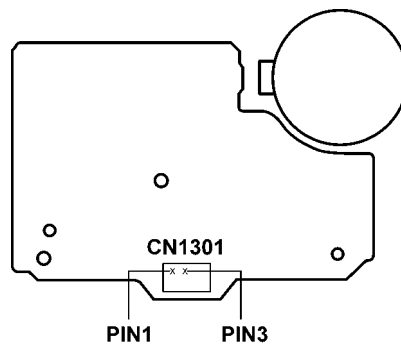


Figure 1

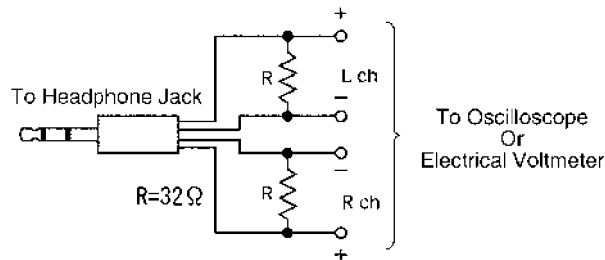


Figure 2

13.2. Tape Speed Adjustment

1. Connect the frequency indicator to the R-ch of the headphone output jig (Figure 3).
2. Insert the test tape (QZZCWAT).
3. Playback the middle portion of the test tape (QZZCWAT).
4. Adjust the motor screw so that the following output level is produced. (Figure 4)
(Adjustment Range: $3,000 \pm 90\text{Hz}$).

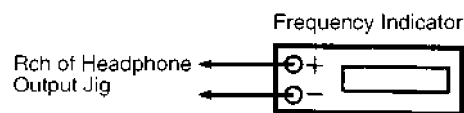


Figure 3

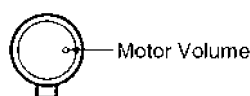


Figure 4

13.3. Bias Voltage Check

1. Connect the electrical voltmeter to Pin 3 (signal) & Pin 1 (ground) (Figure 5).
2. Set to "TAPE" mode.
3. Insert a normal blank cassette tape (QZZCRA).
4. While pressing and holding down [● REC] button, press (TAPE(TAPE ►)) button to pause the recording mode. (Repeat pressing the buttons till the recording pause mode is activated.)
5. Check that the output level is within the standard range.
Standard Range: $14 \pm 4\text{mV}$

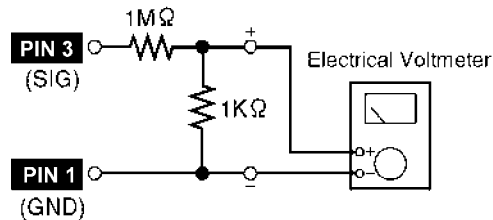


Figure 5

13.4. Bias Frequency Check

1. Connect the digital frequency counter to Pin 3 (signal) & Pin 1 (ground) (Figure 6).
2. Set to "TAPE" mode.
3. Insert a normal blank cassette tape (QZZCRA) and press [● REC] on main unit.
4. Check that the output frequency is within the standard range (standard value: $100 \pm 8\text{kHz}$).

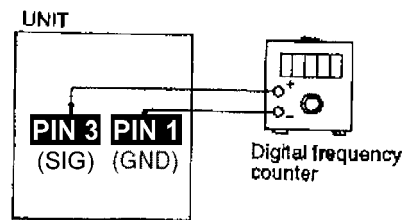


Figure 6

14.2. DVD Module P.C.B. (2/3)

REF NO.	IC8051																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	1.6	0.1	0.2	0.5	0.6	1.5	3.4	0.1	0	1.9	1.7	1.6	0.1	0.1	0.1	0.1	3.4	1.6	2.9	0
REF NO.	IC8051																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
CD PLAY	0.1	3.2	3.4	3.2	3.2	0.1	3.2	3.2	3.4	3.2	3.1	0.1	3.1	0.1						
REF NO.	IC8111																			
MODE	1	2	3	4	5	6	7													
CD PLAY	5.1	1.9	5.1	0.1	1.0	3.4	1.3													
REF NO.	IC8251																			
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	1.7	1.7	2.3	2.3	2.2	0.1	5.1	3.4	0.1	2.4	2.8	2.5	2.7	4.2	4.3	5.4	3.1	0.1	3.4
REF NO.	IC8251																			
MODE	21	22	23	24	25	26	27	28												
CD PLAY	8.9	8.8	1.8	1.7	1.7	1.7	3.4	3.4												
REF NO.	IC8420																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
CD PLAY	1.7	1.7	0.9	1.7	3.1	3.4	3.4	3.4	0.9	0.1	0.1	5.2	5.2	5.2	0	0				
REF NO.	IC8422																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
CD PLAY	2.6	2.6	0	2.6	0	5.2	5.2	0	1.4	1.7	1.6	1.7	3.4	0	5.2	0				
REF NO.	IC8601																			
MODE	1	2	3	4																
CD PLAY	3.1	1.3	0.1	0.1																
REF NO.	IC8606																			
MODE	1	2	3	4	5															
CD PLAY	3.1	3.4	0.1	0.1	0															
REF NO.	IC8611																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0.1	0.1	0.1	0.1	3.3	3.3	0.1	3.4												
REF NO.	IC8651																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.3	2.0	1.8	2.5	2.6	2.6	1.8	0.9	1.1	0.1	3.4	3.1	3.4	3.4	1.5	3.4	1.3	1.3	1.9	2.6
REF NO.	IC8651																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	2.6	1.4	1.9	2.7	2.6	2.9	0.1	2.8	2.5	1.3	2.0	1.7	2.5	2.6	2.6	1.8	3.4	0.9	1.6	1.8

SA-VK680GA/GC/GS DVD MODULE P.C.B.

14.3. DVD Module P.C.B. (3/3)

REF NO.	IC8651																			
MODE	41	42	43	44	45	46	47	48												
CD PLAY	2.6	2.5	1.3	1.9	2.7	0.1	3.4	1.5												
REF NO.	IC8691																			
MODE	1	2	3	4	5															
CD PLAY	3.0	3.0	0.1	4.6	0.1															
REF NO.	IC8695																			
MODE	1	2	3	4	5															
CD PLAY	0.1	2.8	2.8	5.2	4.3															
REF NO.	IC9001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	2.5	2.7	1.9	1.3	2.5	2.5	1.5	1.3	0.1	2.8	1.3	1.8	2.6	2.6	1.4	1.8	2.7	2.6	3.4
REF NO.	IC9002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0.1	0.9	1.8	2.6	2.6	2.5	1.7	2.0	1.3	0.1	2.9	1.3	2.0	1.8	2.5	2.6	2.5	1.8	0.9	3.2
REF NO.	IC9003																			
MODE	1	2	3	4	5	6														
CD PLAY	1.6	0.1	1.7	1.7	3.4	1.7														
REF NO.	IC9005																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0.1	5.2	5.2	0.1	3.4	2.4	1.7	1.7												
REF NO.	Q8321				Q8325				Q8331				Q8335				Q8341			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	1.0	0	0.4		1.5	0	0.9		1.1	0	0.4		1.5	0	0.9		1.5	0	0.9	
REF NO.	Q8551				Q8552				Q8561				Q8562				Q8563			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0.1	5.1	0.1		5.1	0.1	5.1		1.6	3.7	2.2		4.3	1.9	3.7		0.1	0.3	0.1	
REF NO.	Q8564				Q8565				QR8420				QR8421				QR9030			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0.1	0.1	3.3		0.1	0.1	0.7		0	4.4	0.1		0	3.3	0.1		3.4	0.1	3.4	

SA-VK680GA/GC/GS DVD MODULE P.C.B.

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

REF NO.	Q2064				Q2065				Q2142				Q2242							
MODE	E	C	B		E	C	B		E	C	B		E	C	B					
CD PLAY	0	-1.7	0		0	0	-6.1		0	0	0		0	0	0					
STANDBY	0	-1.7	0		0	0	0.7		0	0	0		0	0	0					
REF NO.	Q2366							Q2501				Q2502								
MODE	1	2	3	4	5	6		E	C	B		1	2	3	4	5	6			
CD PLAY	0	-6.1	0	0	-6.1	0		0	-6.1	0		0	-6.1	0	0	-6.1	0			
STANDBY	0	0.8	0	0	0.7	0		1.9	1.8	0		0	0.7	0	0	0.7	0			
REF NO.	Q2600				Q2701				Q2702				Q2730							
MODE	E	C	B		E	C	B		E	C	B		1	2	3	4	5	6		
CD PLAY	0	5.1	0		0	0	5.0		5.2	5.1	4.4		0	-6.1	0	0	-6.1	0		
STANDBY	0	5.1	0		0	0	5.0		5.2	5.1	4.4		0	0.7	0	0	0.7	0		
REF NO.	Q2732				Q2800				Q2801				Q2810				Q2900			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	-9.7	-0.6		3.7	3.7	5.0		0	0	0.8		5.0	9.1	5.6		0	11.6	0	
STANDBY	0	-9.7	-0.6		3.7	3.7	5.0		0	0	0.8		5.0	9.2	5.6		0	12.4	0	
REF NO.	Q2912				Q2942				Q2943				Q2948				Q2949			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	0	4.4		9.1	6.7	9.1		0	9.1	0.1		0	0.1	0.3		0	5.1	0.1	
STANDBY	0	5.2	0		9.2	6.7	9.2		0	9.1	0.1		0	0.1	0.3		0	5.1	0.1	
REF NO.	Q2980				Q4002				Q4003				Q4006				Q4007			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	1.9	5.2	2.6		-9.1	-11.6	-9.7		9.1	11.7	9.8		5.3	1.5	5.0		7.5	9.1	8.2	
STANDBY	1.9	5.2	2.6		-9.1	-11.6	-9.7		9.1	12.6	9.8		5.3	1.6	5.0		7.5	9.2	8.2	
REF NO.	Q5100				Q5102				Q6906				Q6907				Q6908			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	9.1	11.7	9.8		0	5.1	0		0	0	0		0	0	0		0	0	0	
STANDBY	9.2	12.6	9.8		0	5.2	0		0	0	0		0	0	0		0	0	0	
REF NO.	QR4002				QR4003				QR4004											
MODE	E	C	B		E	C	B		E	C	B									
CD PLAY	5.2	5.6	5.1		0.3	5.1	0		0	5.1	0.3									
STANDBY	5.2	5.4	5.1		0.4	5.1	0		0	5.1	0.4									

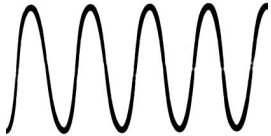
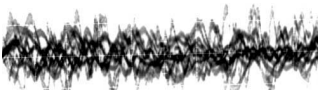
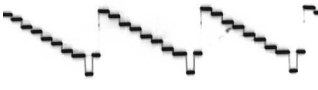
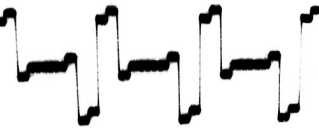
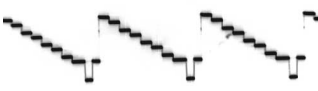
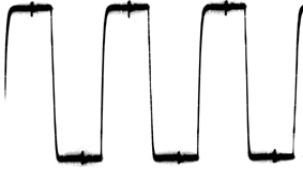
SA-VK680GA/GC/GS MAIN P.C.B.

14.10. D-Amp P.C.B.

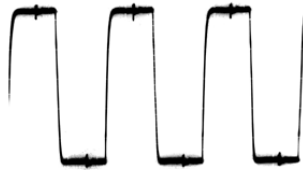
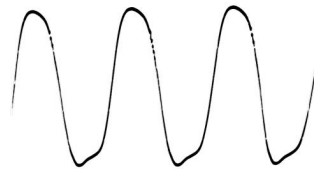
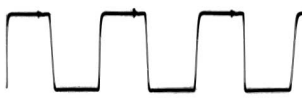
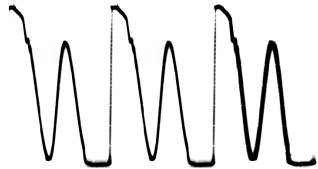
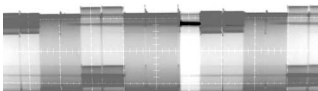
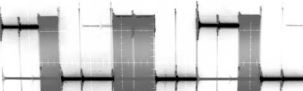
REF NO.	IC5000																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	2.5	0	0	29.0	0	-29.0	-20.6	29.3	8.9	0	-29.3	-19.2	-29.3	-0.1	8.9	29.3	-29.0	-29.0	0	29.0
STANDBY	2.5	0	0	29.0	0	-29.0	-20.6	29.3	8.9	0.1	-29.3	-19.2	-29.3	-0.1	8.9	29.3	-29.0	-29.0	0	29.0
REF NO.	IC5000																			
MODE	21	22	23																	
CD PLAY	0	0	2.5																	
STANDBY	0	0	2.5																	
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	2.5	0	0	29.0	0	-29.0	-20.6	29.3	8.9	0	-29.3	-19.2	-29.3	-0.1	8.9	29.3	-29.0	-29.0	0	29.0
STANDBY	2.5	0	0	29.0	0	-29.0	-20.6	29.3	8.9	0	-29.3	-19.2	-29.3	-0.1	8.9	29.3	-29.0	-29.0	0	29.0
REF NO.	IC5200																			
MODE	21	22	23																	
CD PLAY	0	0	2.6																	
STANDBY	0	0	2.6																	
REF NO.	IC5500																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
CD PLAY	0	5.2	4.9	0	2.7	2.2	0	2.5	2.6	2.6	2.5	2.5	2.6	5.2						
STANDBY	0	5.2	4.9	0	2.7	2.2	0	2.5	2.6	2.6	2.5	2.5	2.6	5.2						
REF NO.	Q5101				Q5102				Q5601				Q5603				Q5604			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	5.2	0		0	5.1	0		0	0	0.7		5.2	5.2	4.5		0	0	0.7	
STANDBY	0	5.2	0		0	5.2	0		0	0	0.7		5.2	5.2	4.5		0	0	0.7	

SA-VK680GA/GC/GS D-AMP P.C.B.

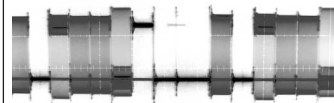
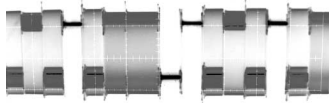
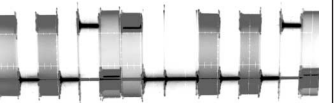
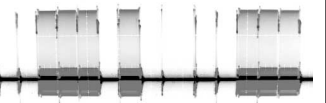
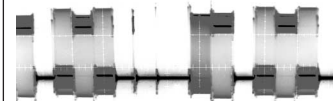
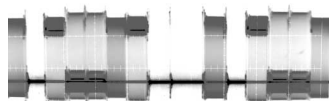
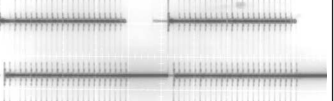
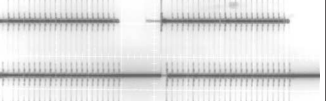
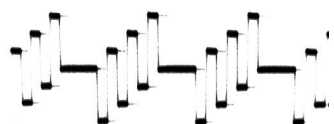
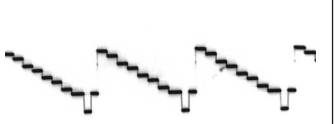
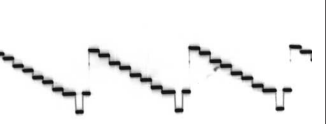
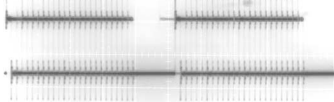
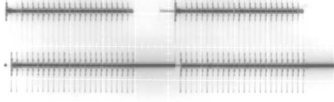
14.14. Waveform Table (1/3)

WF No. IC2103-1 (PLAY)  0.44Vp-p(200usec/div)	WF No. IC2103-7 (PLAY)  1.9Vp-p(500usec/div)	WF No. IC2801-13 (PLAY)  5Vp-p(50nsec/div)	WF No. IC2801-15 (PLAY)  3.2Vp-p(20nsec/div)
WF No. IC2803-3,4 (PLAY)  0.4Vp-p(100usec/div)	WF No. IC2803-5 (PLAY)  0.26Vp-p(200usec/div)	WF No. IC2803-6 (PLAY)  1.5Vp-p(500usec/div)	WF No. IC2803-9,10 (PLAY)  2Vp-p(500usec/div)
WF No. IC2803-16,18 (PLAY)  1.9Vp-p(500usec/div)	WF No. IC2803-35,36 (PLAY)  0.76Vp-p(500usec/div)	WF No. IC2803-43,44 (PLAY)  0.08Vp-p(500usec/div)	WF No. IC2803-52,54 (PLAY)  0.2Vp-p(500usec/div)
WF No. IC2900-4 (PLAY)  1Vp-p(20usec/div)	WF No. IC2900-8,11 (PLAY)  1.1Vp-p(20usec/div)	WF No. IC2900-15 (PLAY)  0.76Vp-p(20usec/div)	WF No. IC2900-18 (PLAY)  1.5Vp-p(20usec/div)
WF No. IC2900-21 (PLAY)  1.5Vp-p(20usec/div)	WF No. IC2900-24 (PLAY)  2Vp-p(20usec/div)	WF No. IC2900-30 (PLAY)  2.4Vp-p(20usec/div)	WF No. IC5000-1 (PLAY)  5.6Vp-p(1usec/div)

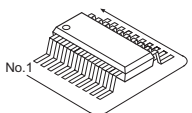
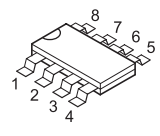
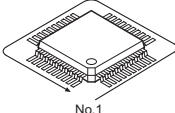
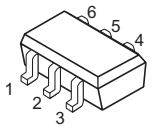
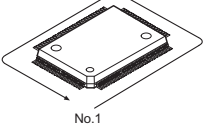
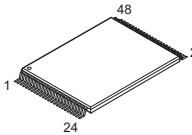
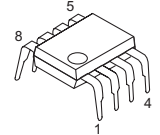
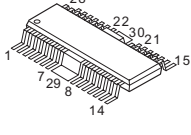
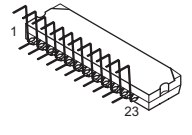
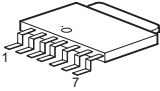
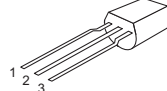
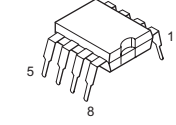
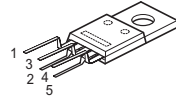
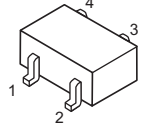
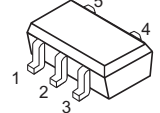
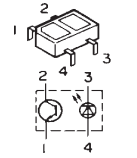
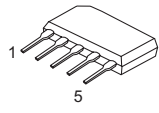
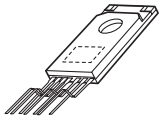
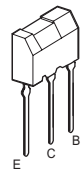
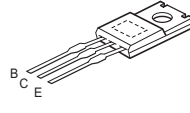
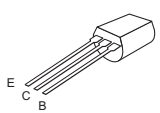
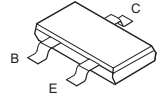
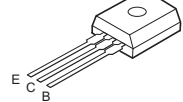
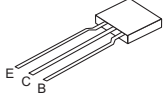
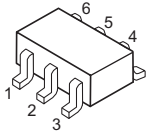
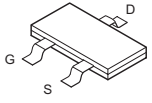
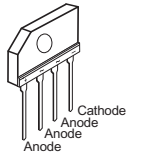
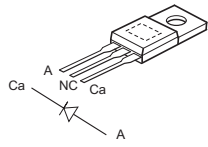
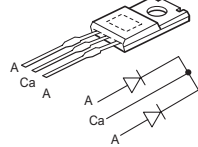
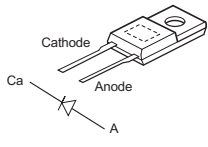
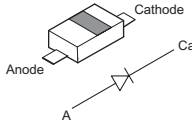
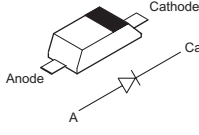
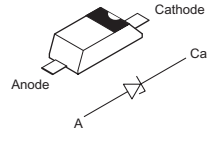
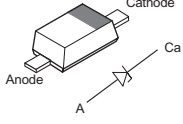
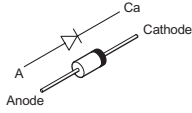
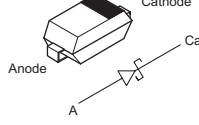
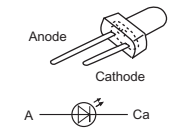
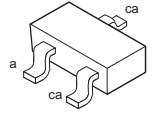
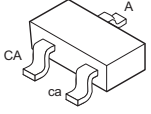
14.15. Waveform Table (2/3)

WF No. IC5000-2 (PLAY)  0.84Vp-p(200usec/div)	WF No. IC5000-10,14 (PLAY)  80Vp-p(1usec/div)	WF No. IC5000-22 (PLAY)  0.84Vp-p(200usec/div)	WF No. IC5200-1 (PLAY)  5.6Vp-p(1usec/div)
WF No. IC5200-2 (PLAY)  0.84Vp-p(200usec/div)	WF No. IC5200-10,14 (PLAY)  80Vp-p(1usec/div)	WF No. IC5200-22 (PLAY)  0.84Vp-p(200usec/div)	WF No. IC5500-4 (PLAY)  6.8Vp-p(5msec/div)
WF No. IC5500-6 (PLAY)  5.2Vp-p(500nsec/div)	WF No. IC5500-8 (PLAY)  5.6Vp-p(500nsec/div)	WF No. IC5701-1 (PLAY)  400Vp-p(2usec/div)	WF No. IC5701-4,6 (PLAY)  2Vp-p(5usec/div)
WF No. IC5799-2 (PLAY)  2Vp-p(5usec/div)	WF No. IC5799-3 (PLAY)  9.6Vp-p(5usec/div)	WF No. IC5799-5 (PLAY)  240Vp-p(50usec/div)	WF No. IC5899-1,2,3 (PLAY)  1.65Vp-p(5msec/div)
WF No. IC6601-5 (PLAY)  1.5Vp-p(1usec/div)	WF No. IC6601-8 (PLAY)  5.6Vp-p(2usec/div)	WF No. IC8001-9 (PLAY)  6.4Vp-p(5usec/div)	WF No. IC8001-10 (PLAY)  6.4Vp-p(5usec/div)

14.16. Waveform Table (3/3)

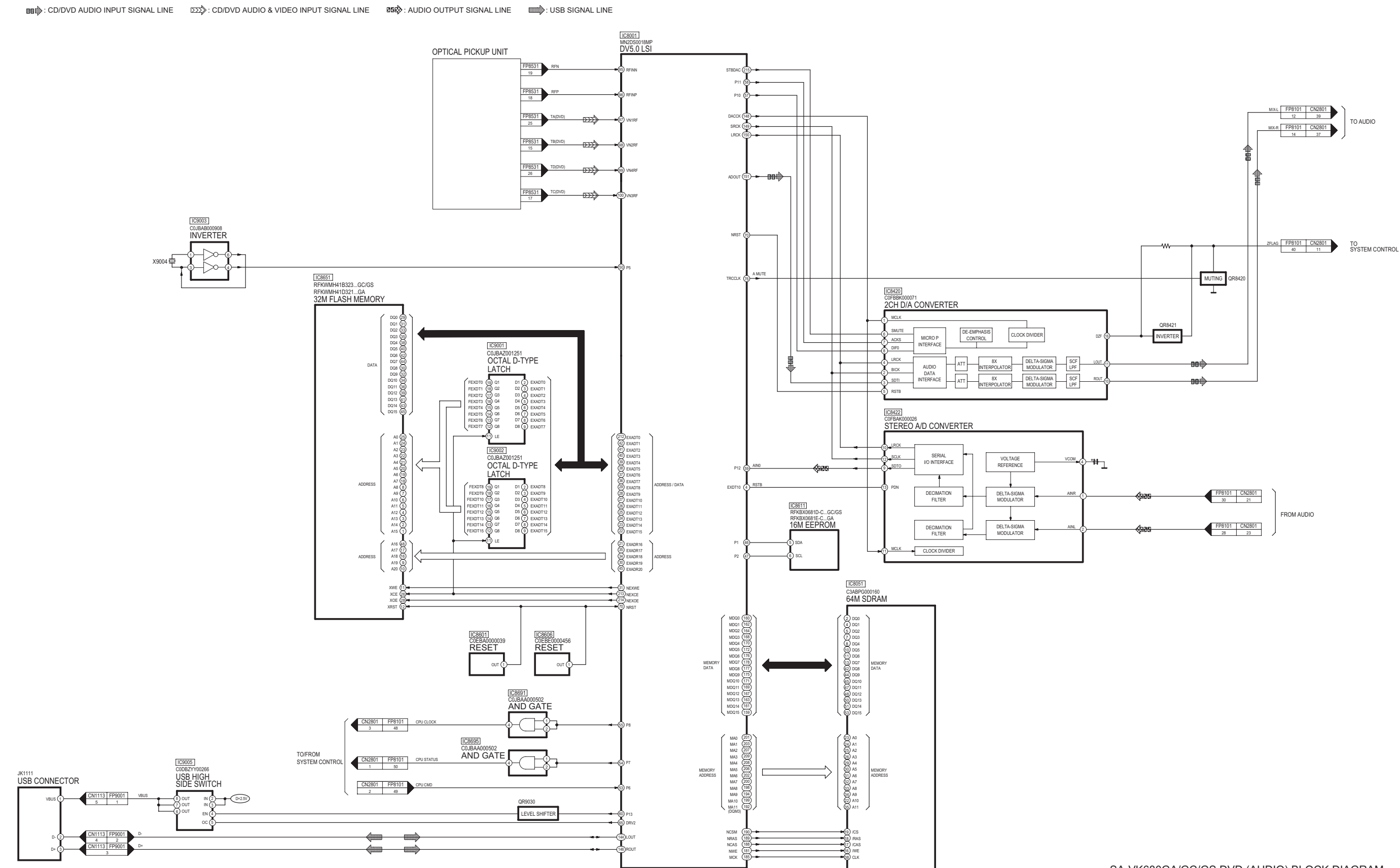
WF No. IC8001-11 (PLAY)  6Vp-p(5usec/div)	WF No. IC8001-12 (PLAY)  6Vp-p(5usec/div)	WF No. IC8001-13 (PLAY)  6.4Vp-p(5usec/div)	WF No. IC8001-14 (PLAY)  6.4Vp-p(5usec/div)
WF No. IC8001-17 (PLAY)  6Vp-p(5usec/div)	WF No. IC8001-18 (PLAY)  6.4Vp-p(5usec/div)	WF No. IC8001-59 (PLAY)  2.4Vp-p(2usec/div)	WF No. IC8001-62,63,64 (PLAY)  5.6Vp-p(2usec/div)
WF No. IC8001-129 (PLAY)  0.72Vp-p(20usec/div)	WF No. IC8001-130 (PLAY)  0.72Vp-p(20usec/div)	WF No. IC8001-131 (PLAY)  0.42Vp-p(20usec/div)	WF No. IC8001-138 (PLAY)  1.05Vp-p(20usec/div)
WF No. IC8001-139 (PLAY)  0.9Vp-p(20usec/div)	WF No. IC8001-151 (PLAY)  6Vp-p(2usec/div)	WF No. IC8001-152 (PLAY)  6.4Vp-p(500nsec/div)	WF No. IC8422-1 (PLAY)  1.5Vp-p(500usec/div)
WF No. IC8422-2 (PLAY)  0.15Vp-p(500usec/div)	WF No. IC8422-9 (PLAY)  7.6Vp-p(2usec/div)		

15 Illustration of ICs, Transistor and Diode

 AN7326K (22p) C0ABBB000230 (8p) C0DBZY00266 (8p) C0FBAK000026 (16p) C0FBBK000071 (16p) C0JBAB000902 (14p) C0JBAZ001251 (20p)		C1AB00003130 (14p) C3ABPG000160 (26p) C9ZB00000461 (32p) C1AB00002773 (16p) RFK BX0681D-C (8p) (GC/GS) RFK BX0681E-C (8p) (GA)	RFKWEVK680GC (8p) 	 C0HBB0000057 (44p) C1BB00001121 (58p) MN2DS0018MP (216p)	
C0JBAB000908 (6p) 	RFKWMVK680GC (100p) 	RFKWMH41B323 (GC/GS) RFKWMH41D321(GA) 	C0AABB000125 (8P) C0ABBA000168 (8P) 	C0GBG0000048 (28P) 	C1BA00000492 (23P) 
C0DBFZG00001 (7p) 	C0DABFC00002 (3p) C0DAEMZ00001 (3p) 	MIP4110MSSCF (8P) 	C0DAAYH00001 (5p) 	C0EBA0000039 (4p) 	C0CBCBC00140 (5p) C0JBAA000502 (5p) C0EBE0000456 (5p) 
CNB13030R2AU 	C1AA00000612 	C5HACY00003 (7p) 	B1BABK000001 	B1BACG000023 B1BCCG000002 	B1AAKD000012 2SC3940ARA 2SD09650RA 
	B1ABCF000176 B1ABGC000005 B1ABCF000011 B1ADCE000012 B1ADGB000008 B1GBCFLL0037	B1GBCFGH0001 B1GBCFJJ0051 B1GBCFJN0033 B1GDCFGA0018 B1GDCFGH0002 B1GDCFJJ0002 B1GDCFJJ0047	UNR221400L UNR521100L 2SA207700L 2SB1218ARL 2SD0601AHL 2SD1819A0L	B1ACCF000094 	B1AAGC000006 
B1HBECA00004 	B1CFHA000002 	B0FBAR000041 	B0ZAZ0000052 	B0HBSM000043 	B0HFRJ000012 
MA2C16500E MA2J1110GL MA2J7280GL 	B0ACCK000005 		B0BC010A0007 B0BC5R000009 B0BC5R1A0266 B0BC6R100010	MAZ8180GML MAZ8051GML MAZ8075GML 	B0BC5R6A0266 B0BC9R1A0266 B0BC019A0007 B0BC010A0265 B0BC024A0267 B0BC6R8A0263 B0BC035A0007 B0BC8R2A0266
B0EAKM000117 B0EAMM000057 B0HAMP000094 B0JAME000114 	B0JCPD000025 B0HCSP000001 	B3AAA0000803 B3AAA0001031 B3AEA0000127 	B0ADCC000002 	B0ADCJ000020 	

16 Block Diagram

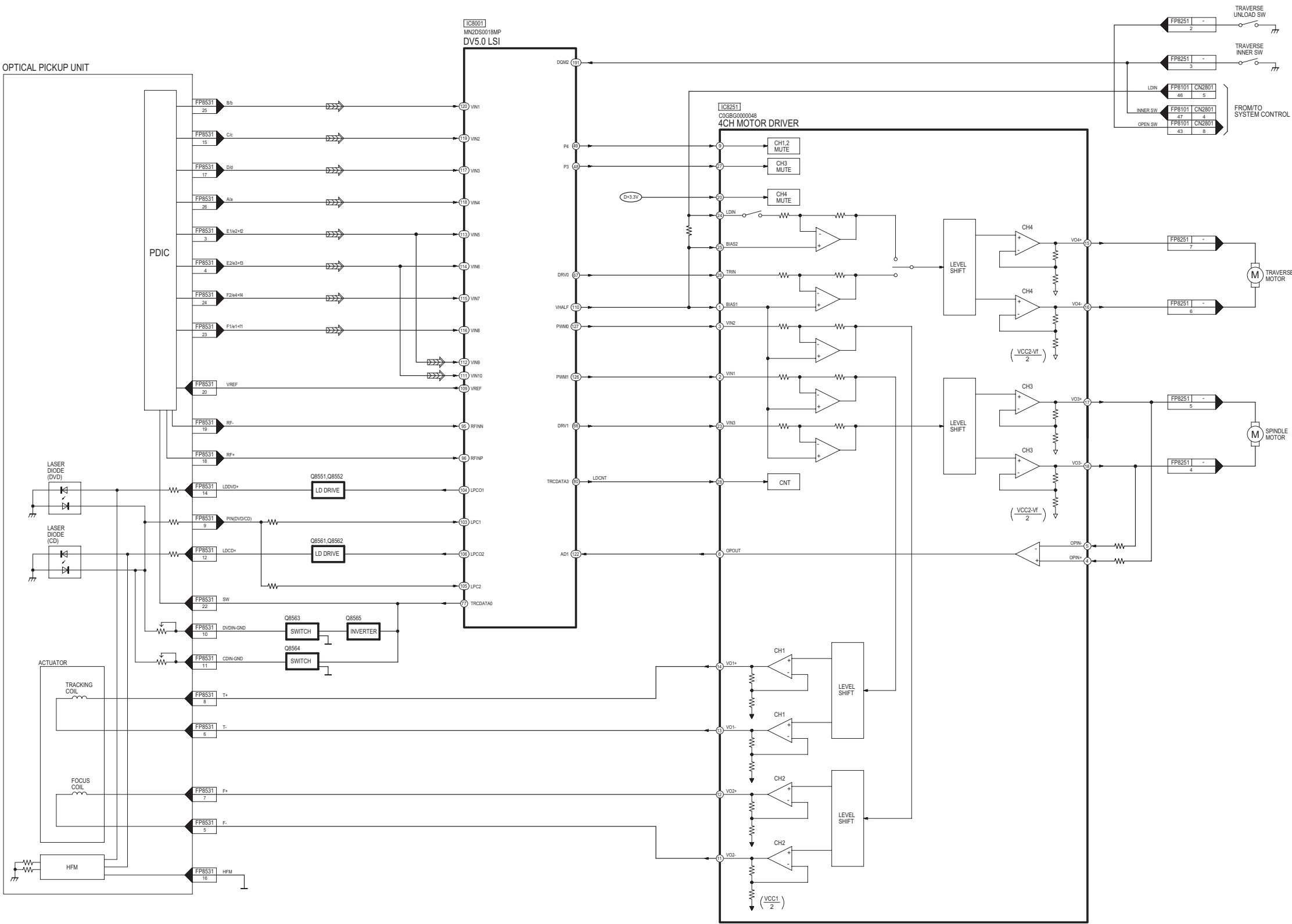
16.1. DVD (Audio)



SA-VK680GA/GC/GS DVD (AUDIO) BLOCK DIAGRAM

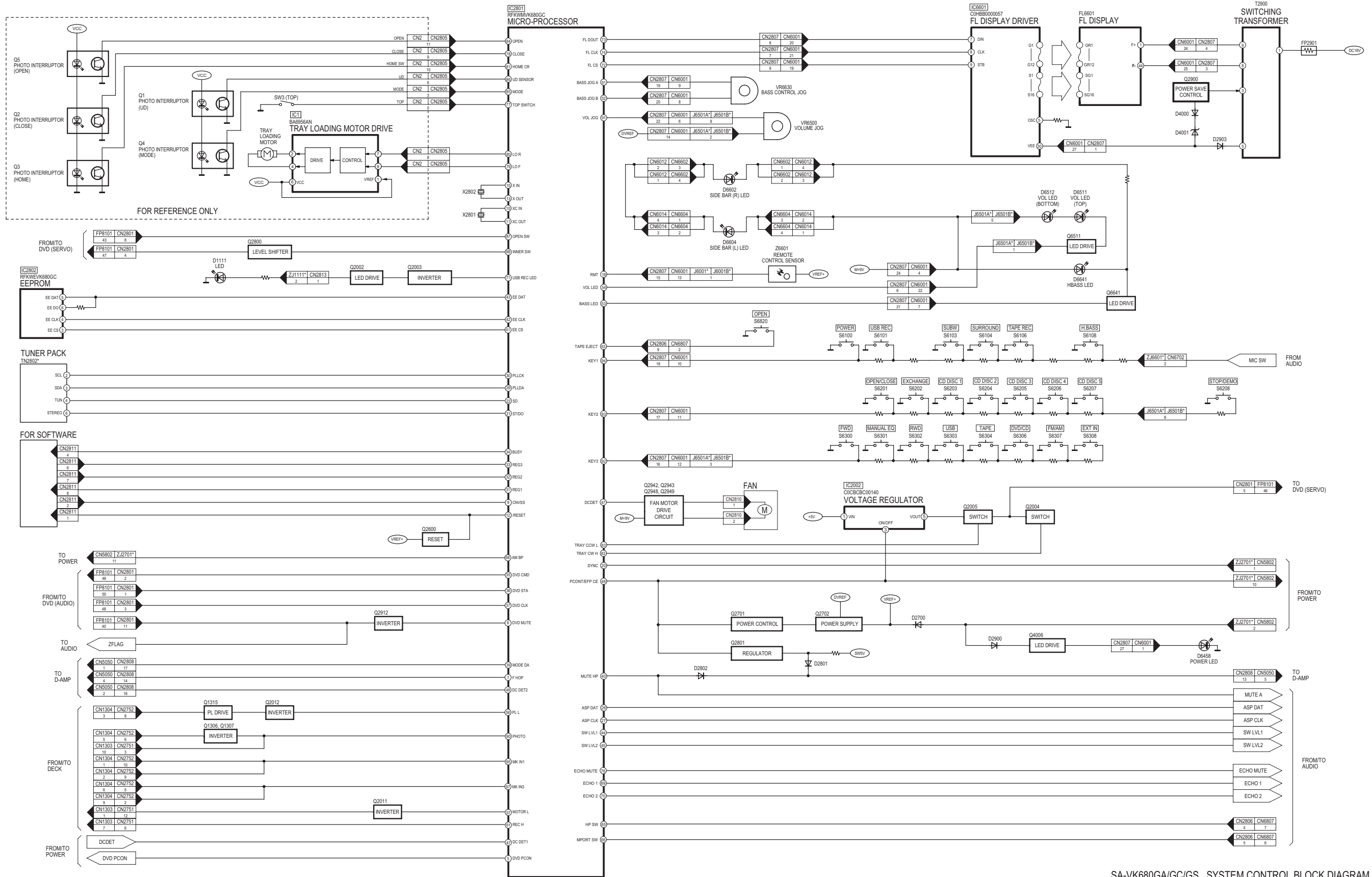
16.2. DVD (Servo)

CD/DVD AUDIO & VIDEO INPUT SIGNAL LINE



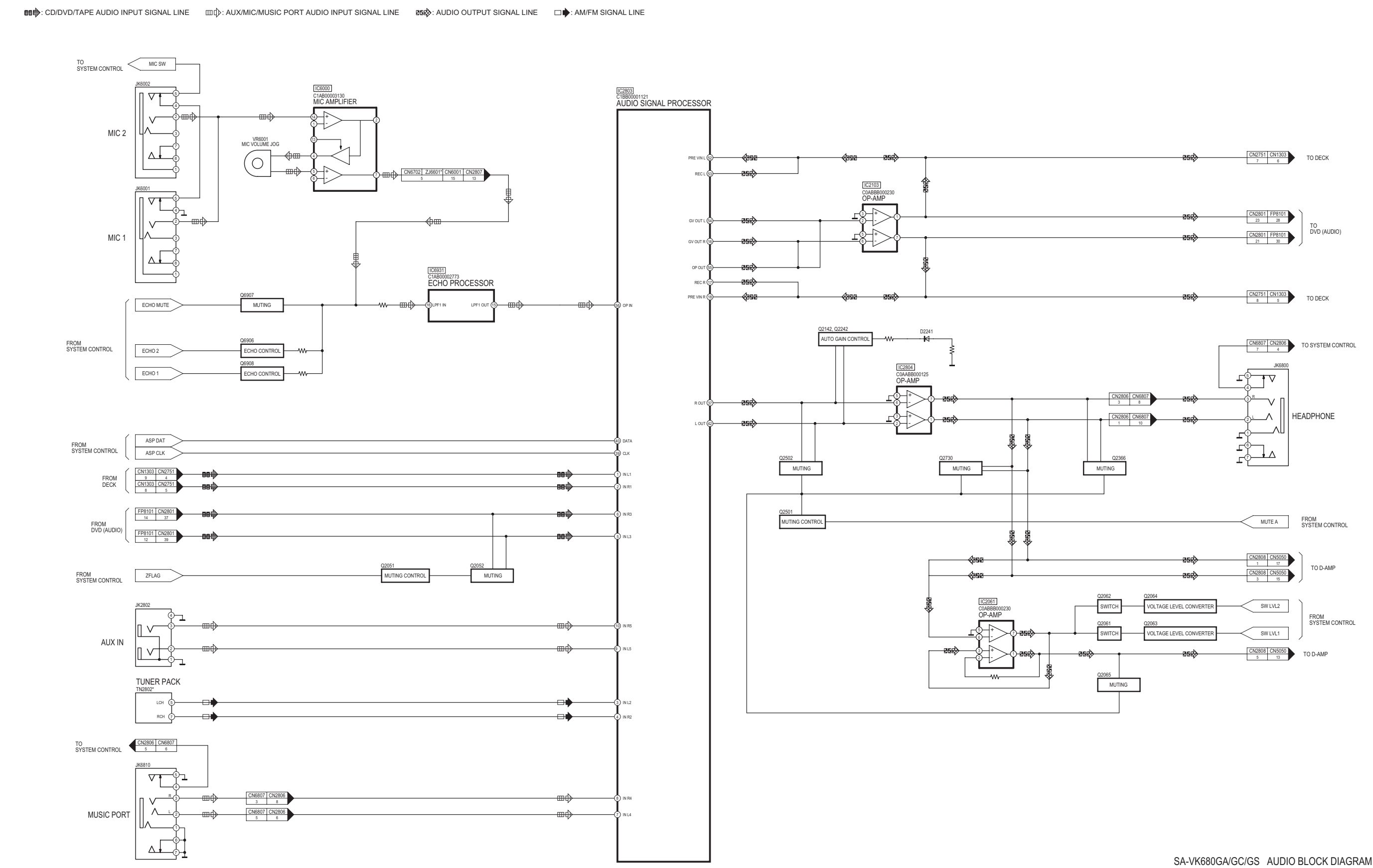
SA-VK680GA/GC/GS DVD (SERVO) BLOCK DIAGRAM

16.3. System Control



SA-VK680GA/GC/GS SYSTEM CONTROL BLOCK DIAGRAM

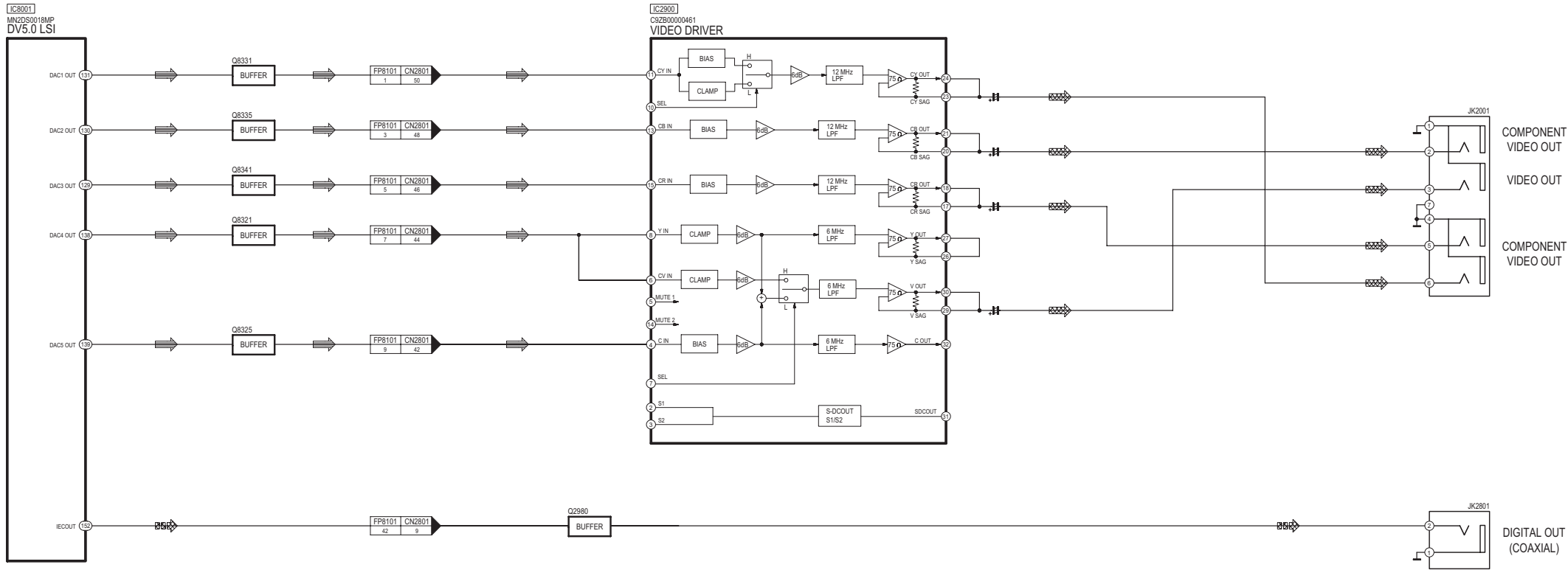
16.4. Audio



SA-VK680GA/GC/GS AUDIO BLOCK DIAGRAM

16.5. Video

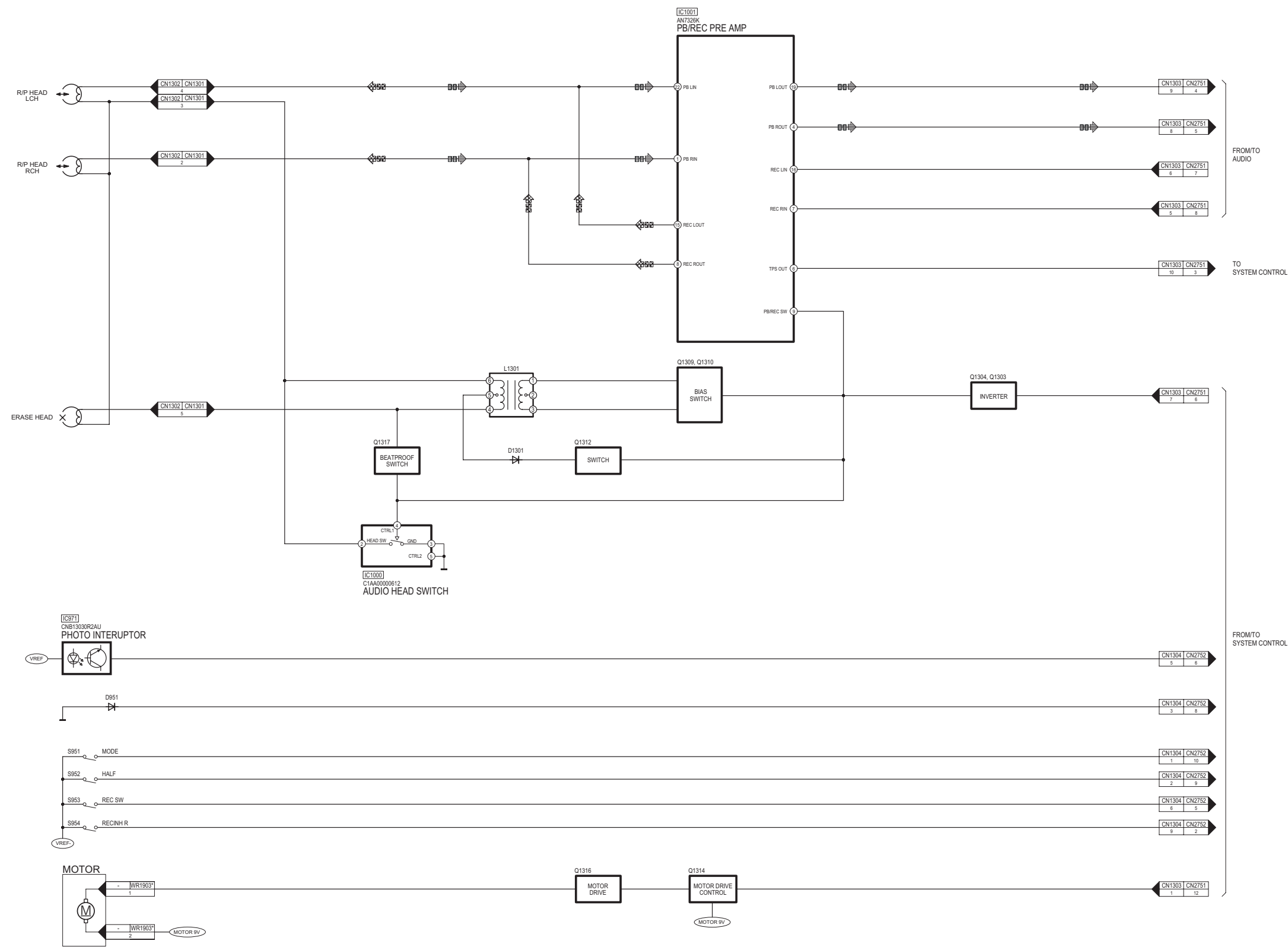
⇒ : CD/DVD VIDEO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : VIDEO OUTPUT SIGNAL LINE



SA-VK680GA/GC/GS VIDEO BLOCK DIAGRAM

16.6. Deck

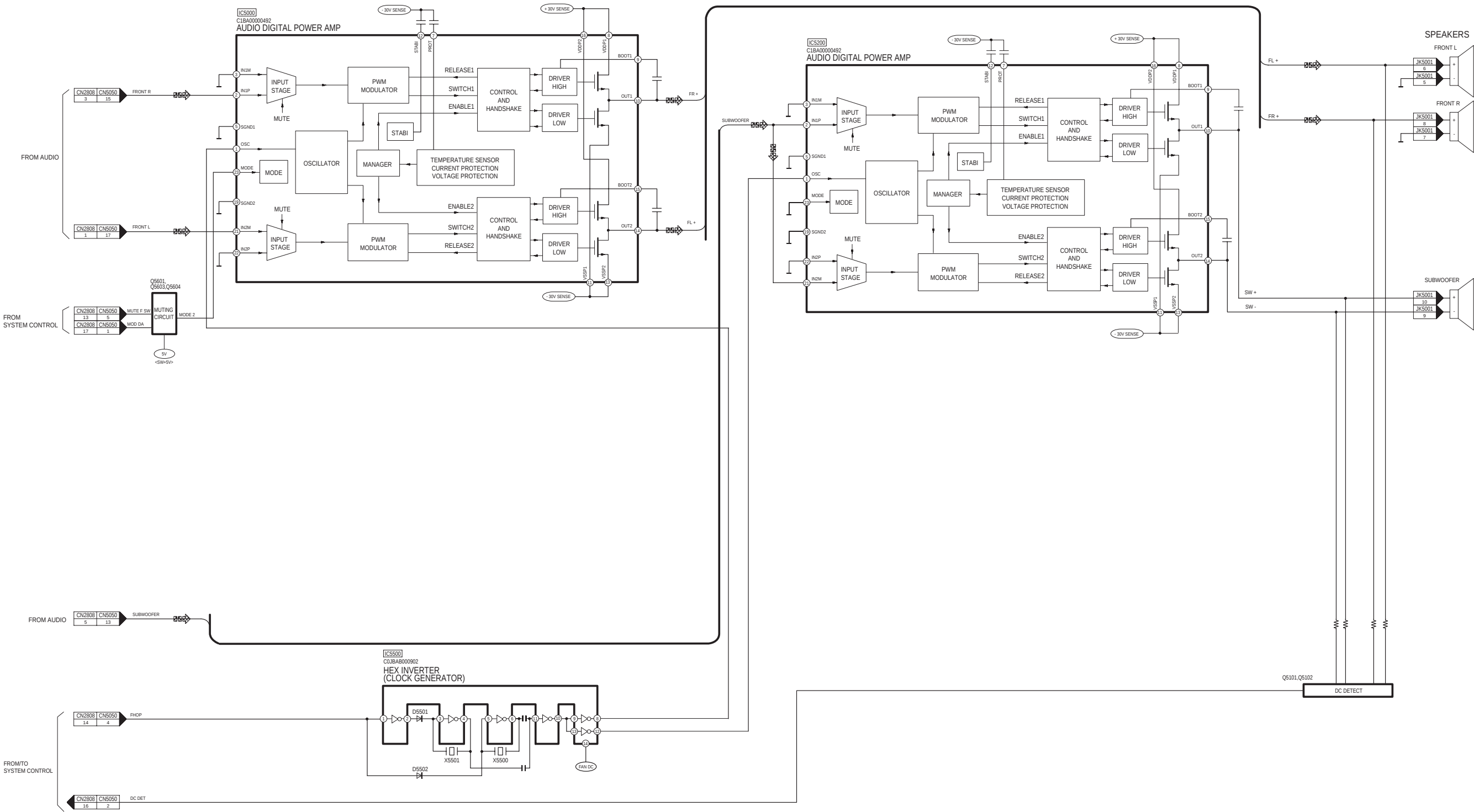
TAPE AUDIO INPUT SIGNAL LINE AUDIO OUTPUT SIGNAL LINE



SA-VK680GA/GC/GS DECK BLOCK DIAGRAM

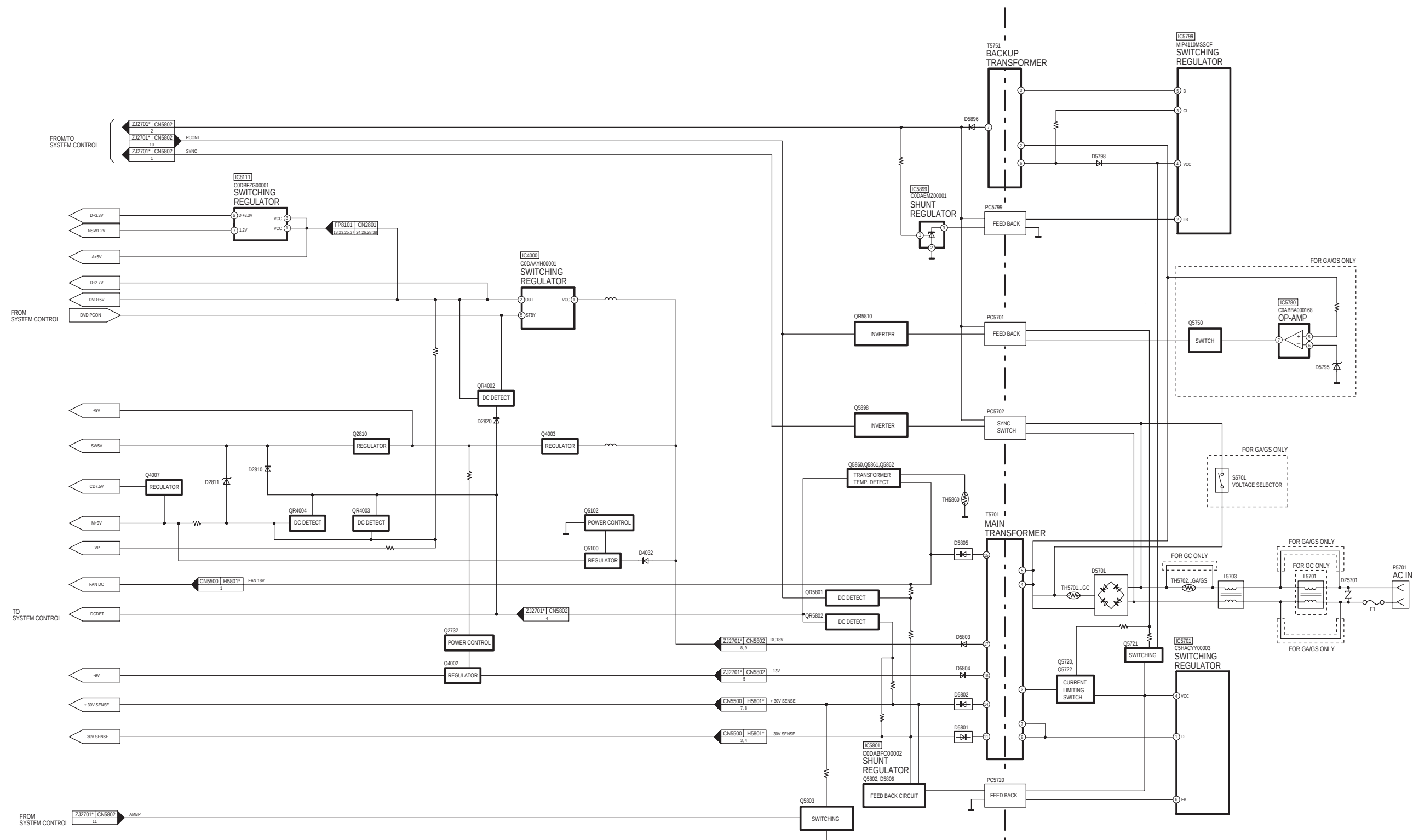
16.7. D-Amp

🔊 : AUDIO OUTPUT SIGNAL LINE



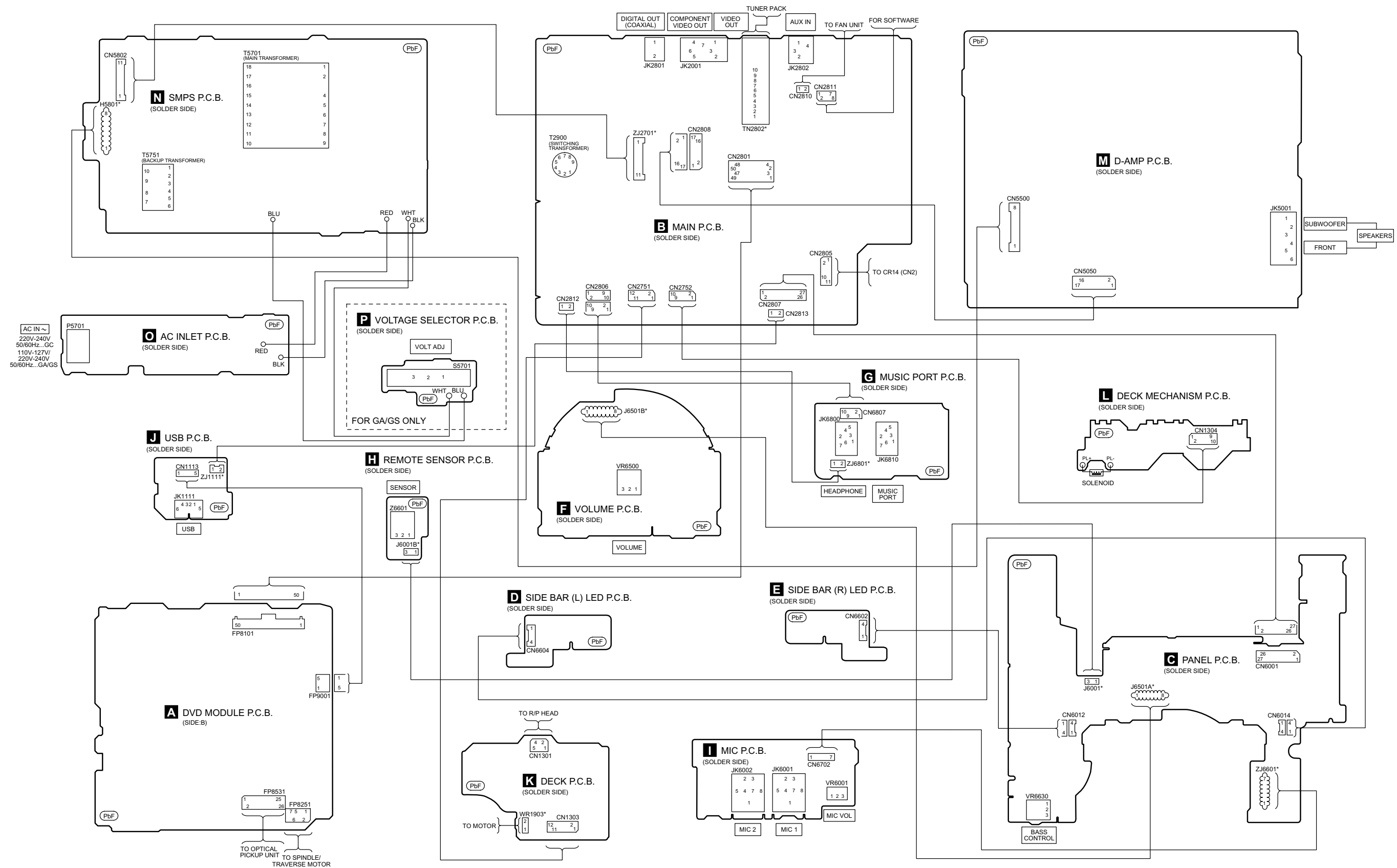
SA-VK680GA/GC/GS D-AMP BLOCK DIAGRAM

16.8. Power



SA-VK680GA/GC/GS POWER BLOCK DIAGRAM

17 Wiring Diagram



SA-VK680GA/GC/GS WIRING CONNECTION

18 Schematic Diagram Notes

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

Notes:

S951:	Mode Switch.
S952:	Half Switch.
S953:	REC Switch.
S954:	RECINH / R Switch.
S5701:	Voltage Selector Switch (For GA/GS).
S6100:	Power (⏻/⏻) Switch.
S6101:	USB Rec.
S6103:	Surround Switch.
S6104:	Subwoofer Switch.
S6106:	Tape Rec (TAPE ●REC) Switch.
S6108:	H.Bass Switch.
S6201:	Open/Close (▲) Switch.
S6202:	Exchange (▲) Switch.
S6203:	Disc 1 (1 ►►) Switch.
S6204:	Disc 2 (2 ►►) Switch.
S6205:	Disc 3 (3 ►►) Switch.
S6206:	Disc 4 (4 ►►) Switch.
S6207:	Disc 5 (5 ►►) Switch.
S6208:	Stop/-Demo (■STOP/DEMO) Switch.
S6300:	^/Forward (▲/FF/►►) Switch.
S6301:	Manual EQ Switch.
S6302:	∇/Rewind (∇/REW/◄◄) Switch.
S6303:	USB (USB ►) Switch.
S6304:	Tape (◄ ►) Switch.
S6306:	DVD/CD Switch.
S6307:	FM/AM Switch.
S6308:	EXT-IN Switch.
S6820:	Open (▲) Switch.
VR6001:	Mic Volume Jog.
VR6500:	Volume Jog.
VR6630:	Bass Control Jog.

- 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, C5703, C5704, C5705, C5706, C5707

- **Resistor**

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

- **Capacitor**

Unit of capacitance is μF, 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

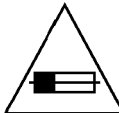
—	: +B signal line
---	: -B signal line
	: USB signal line
	: CD/DVD/Tape Audio Input signal line
	: CD/DVD Video Input signal line
	: CD/DVD Audio & Video Input signal line
	: AM/FM signal line
	: AUX /Mic /Music Port/Audio Input signal line
	: Audio Output Signal Line
	: Video Output Signal Line

- GA/GS only

CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE F1 T8AH 250V FUSE

RISK OF FIRE-REPLACE FUSE AS MARKED.

- GC only

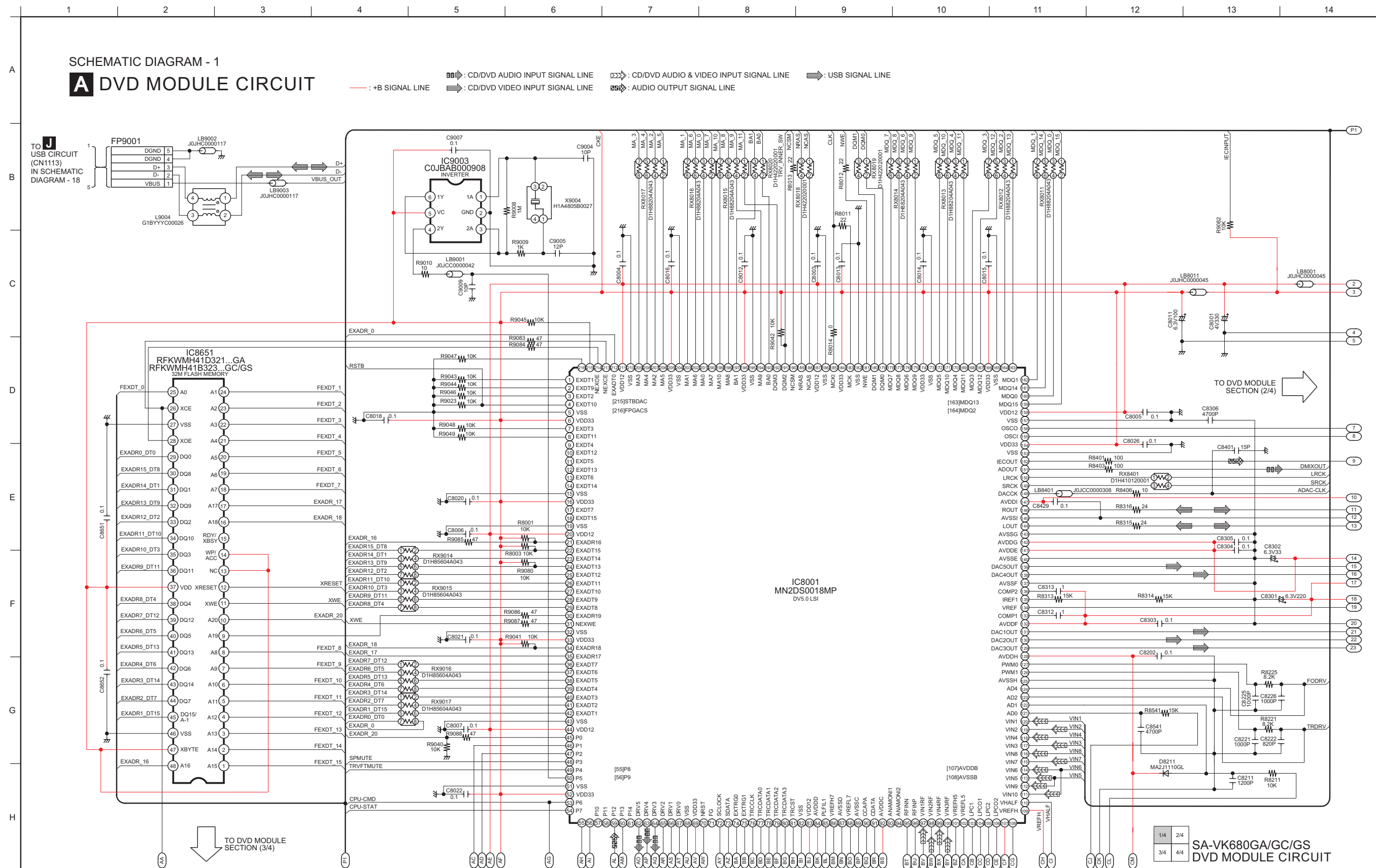
CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE F1 T5AH 250V FUSE

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.

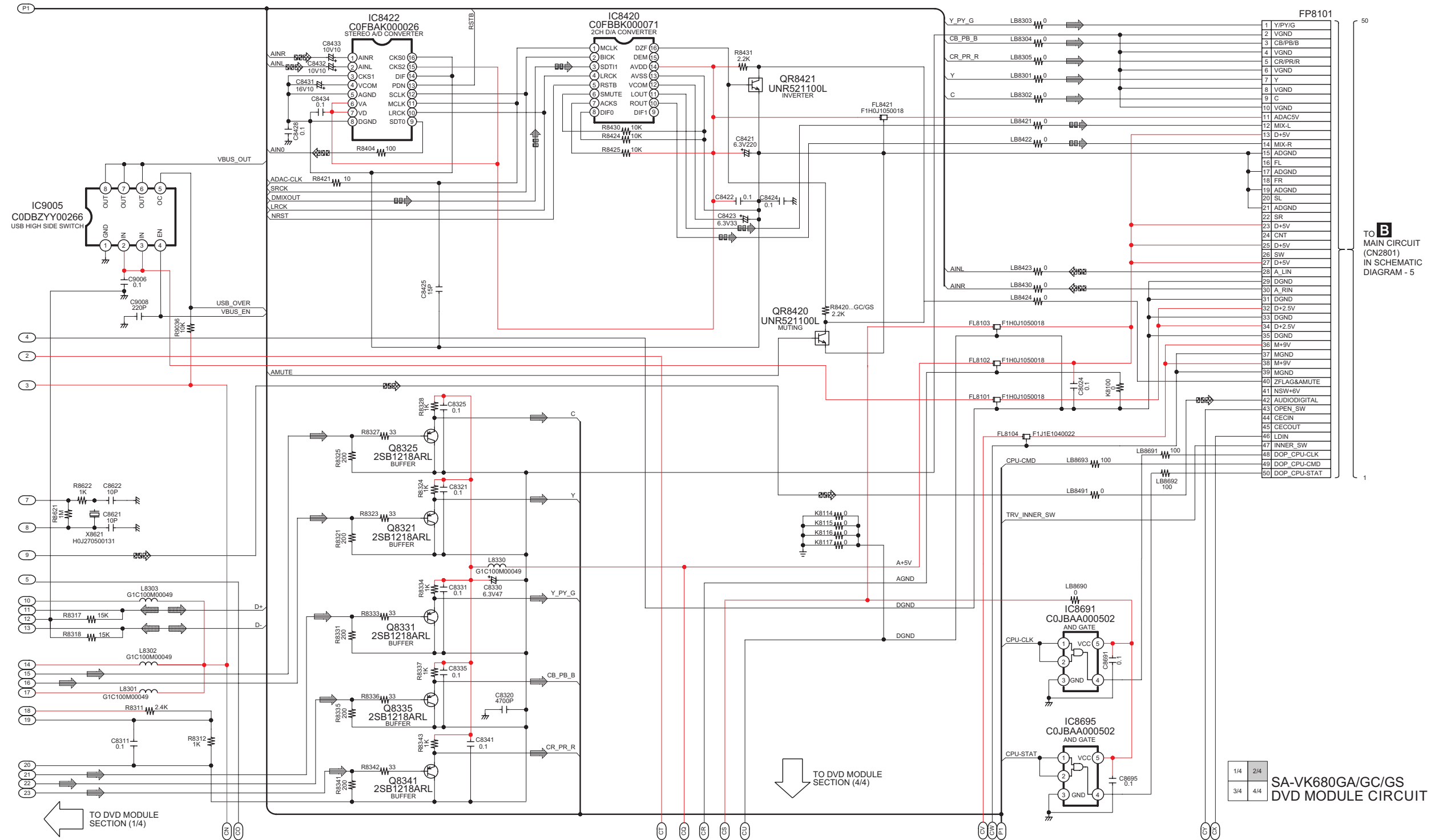
19 Schematic Diagram

19.1. DVD Module Circuit



SCHEMATIC DIAGRAM - 2 A DVD MODULE CIRCUIT

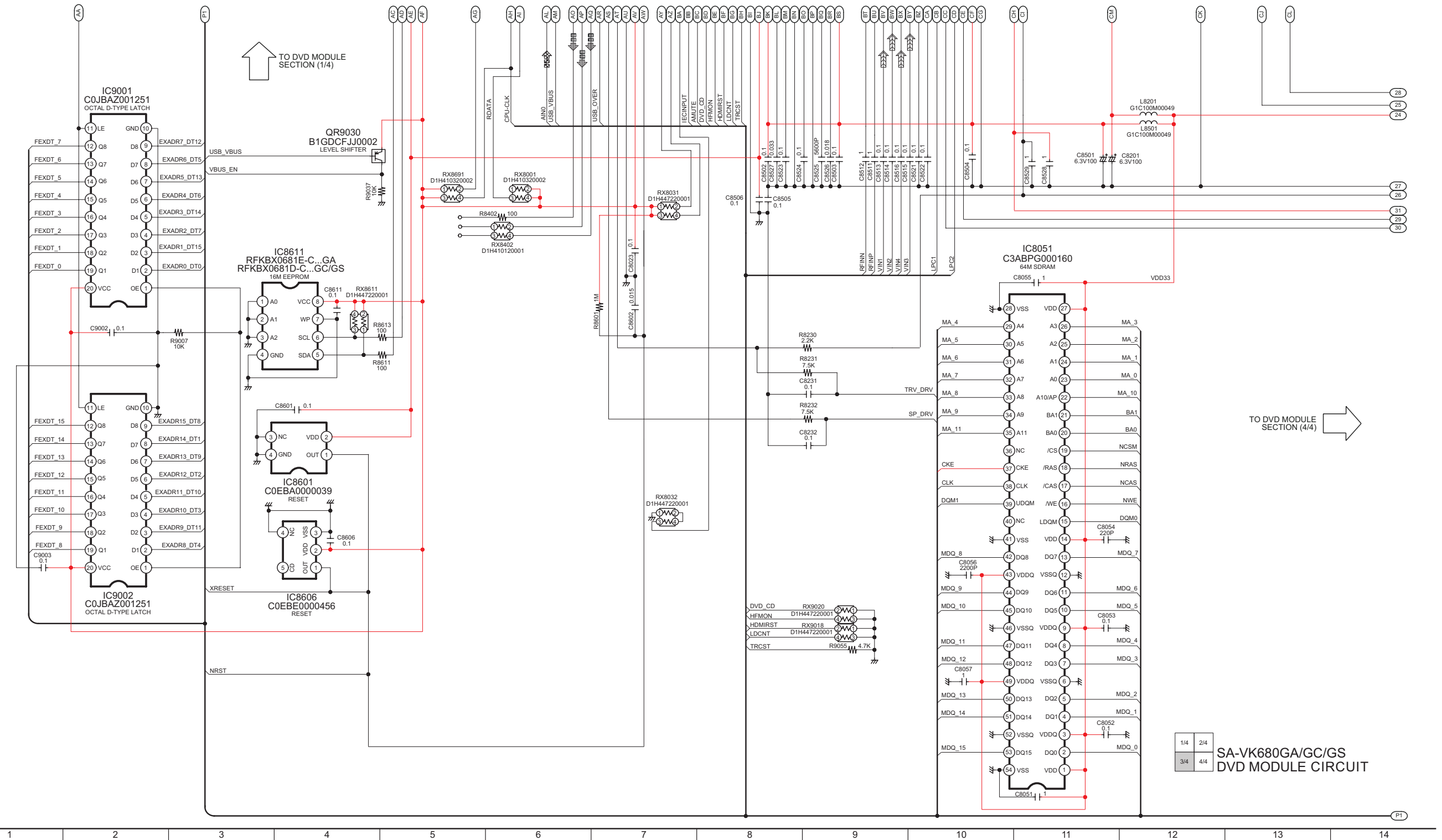
: +B SIGNAL LINE
 : CD/DVD VIDEO INPUT SIGNAL LINE
 : CD/DVD AUDIO INPUT SIGNAL LINE
 : CD/DVD AUDIO & VIDEO INPUT SIGNAL LINE
 : AUDIO OUTPUT SIGNAL LINE
 : USB SIGNAL LINE



SCHEMATIC DIAGRAM - 3

A DVD MODULE CIRCUIT

— : +B SIGNAL LINE
— : CD/DVD VIDEO INPUT SIGNAL LINE
— : CD/DVD AUDIO INPUT SIGNAL LINE
— : CD/DVD AUDIO & VIDEO INPUT SIGNAL LINE
— : AUDIO OUTPUT SIGNAL LINE
— : USB SIGNAL LINE

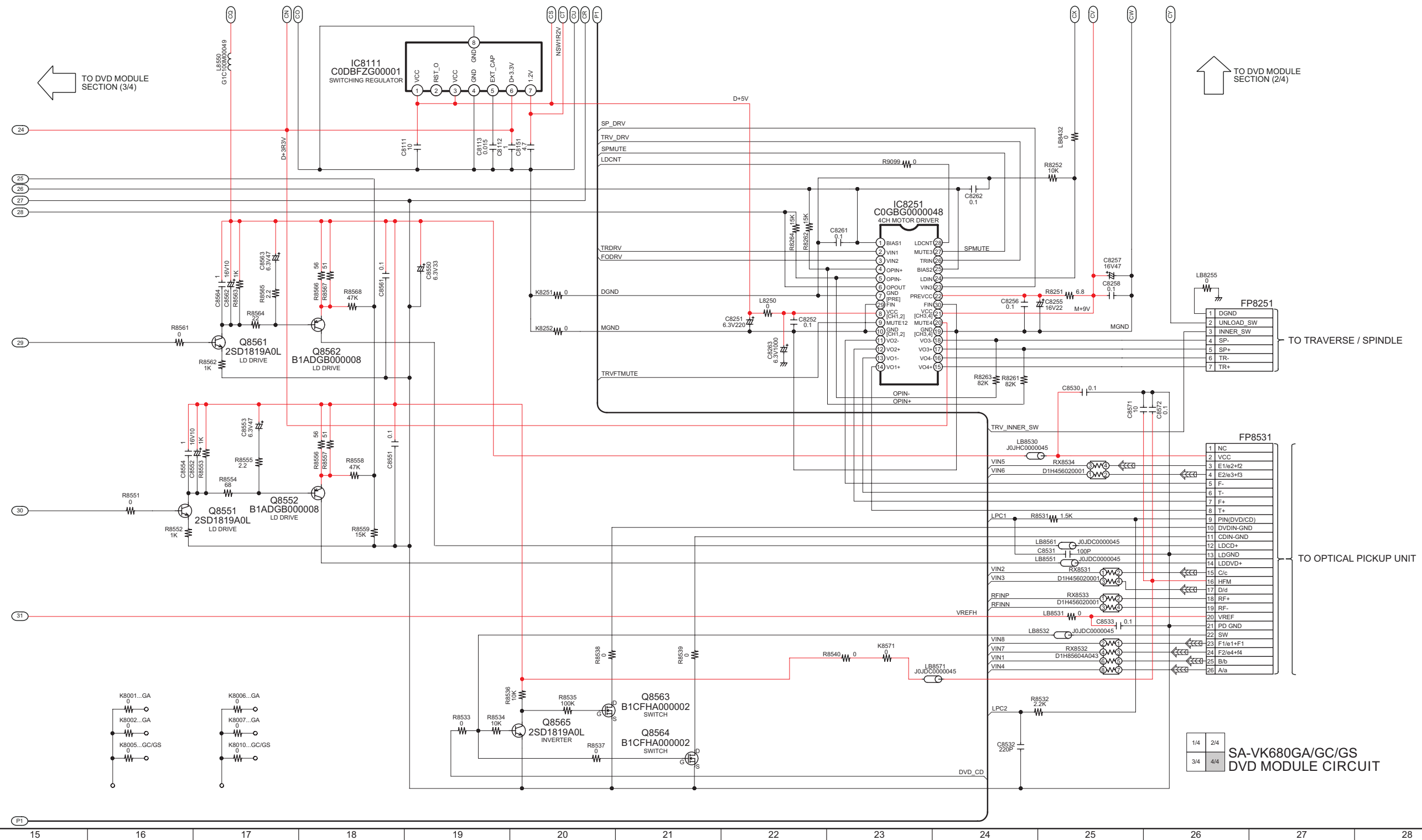


SA-VK680GA/GC/GS
DVD MODULE CIRCUIT

SCHEMATIC DIAGRAM - 4

A DVD MODULE CIRCUIT

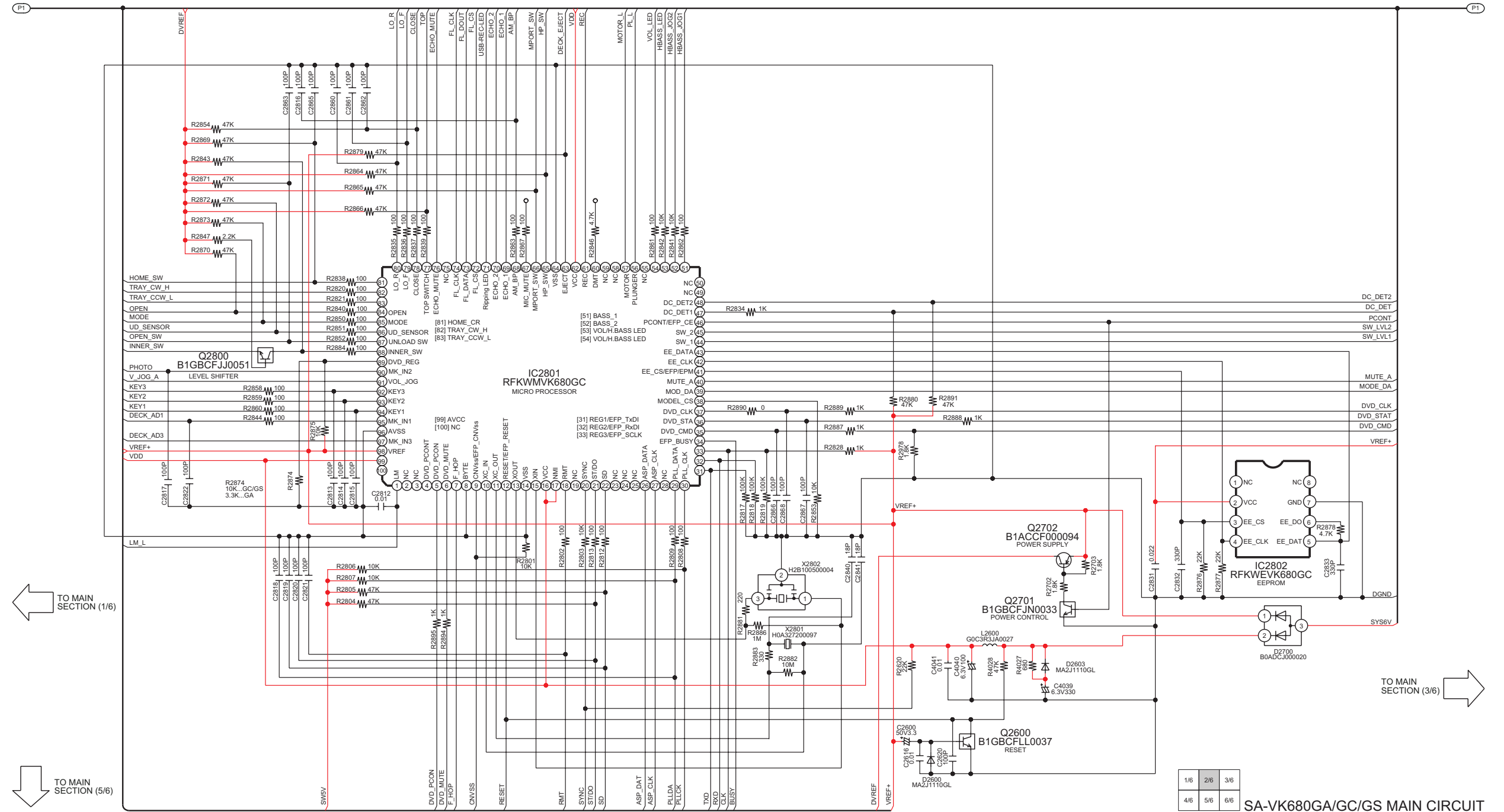
— : +B SIGNAL LINE
 : CD/DVD AUDIO INPUT SIGNAL LINE
 : CD/DVD VIDEO INPUT SIGNAL LINE
 : AUDIO OUTPUT SIGNAL LINE
 : CD/DVD AUDIO & VIDEO INPUT SIGNAL LINE
 : USB SIGNAL LINE



SCHEMATIC DIAGRAM - 6

B MAIN CIRCUIT

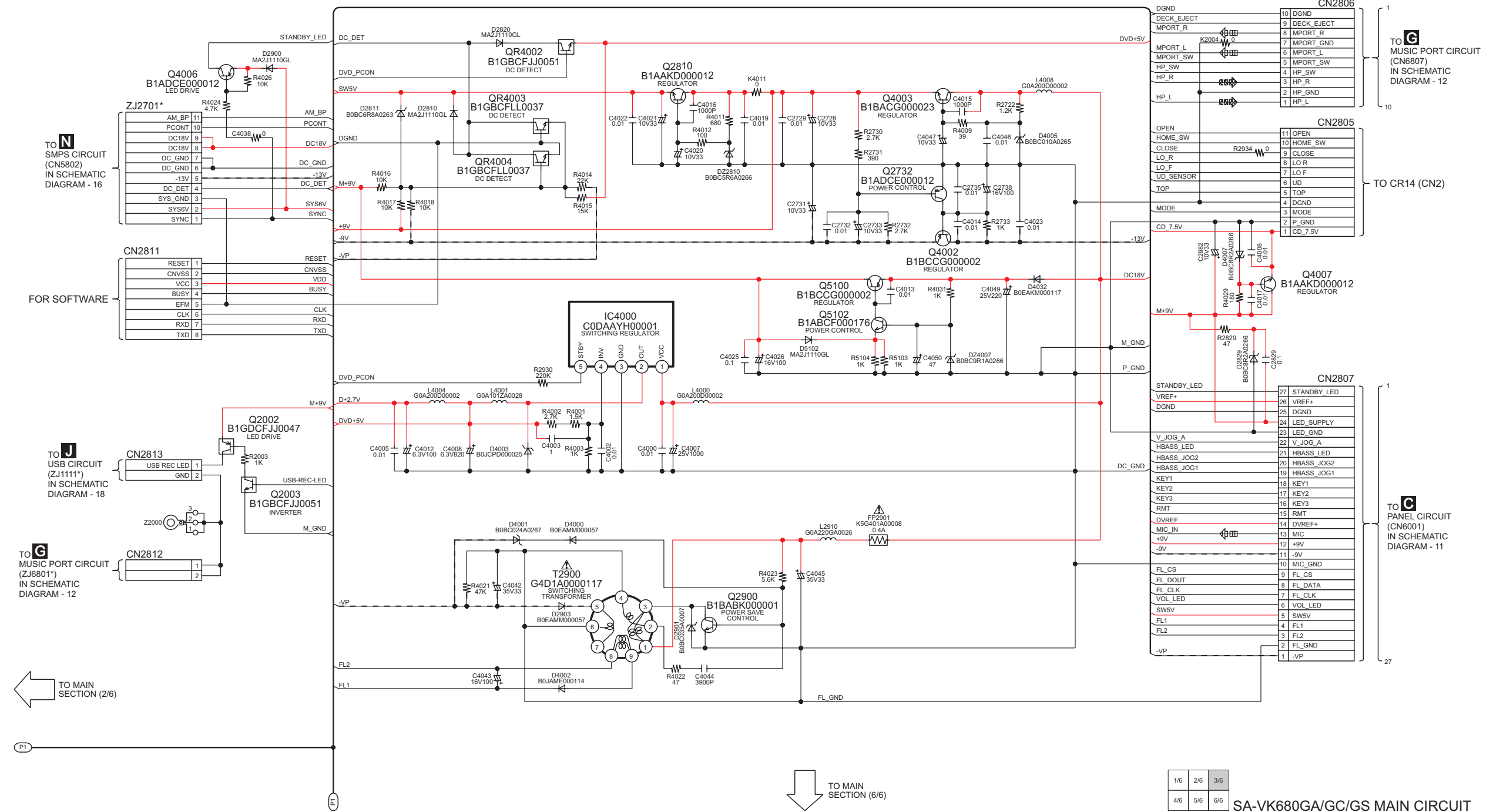
— : +B SIGNAL LINE : CD/DVD/TAPE AUDIO INPUT SIGNAL LINE : CD/DVD VIDEO INPUT SIGNAL LINE : VIDEO OUTPUT SIGNAL LINE
— : -B SIGNAL LINE : AUX/MIC/MUSIC PORT AUDIO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : AM/FM SIGNAL LINE



SA-VK680GA/GC/GS MAIN CIRCUIT

SCHEMATIC DIAGRAM - 7
B MAIN CIRCUIT

— : +B SIGNAL LINE : CD/DVD/TAPE AUDIO INPUT SIGNAL LINE : CD/DVD VIDEO INPUT SIGNAL LINE : VIDEO OUTPUT SIGNAL LINE
- - - : -B SIGNAL LINE : AUX/MIC/MUSIC PORT AUDIO INPUT SIGNAL LINE : AUDIO OUTPUT SIGNAL LINE : AM/FM SIGNAL LINE



SCHEMATIC DIAGRAM - 9

B MAIN CIRCUIT

- +B SIGNAL LINE

-B SIGNAL LINE

CD/DVD/TAPE AUDIO INPUT SIGNAL LINE

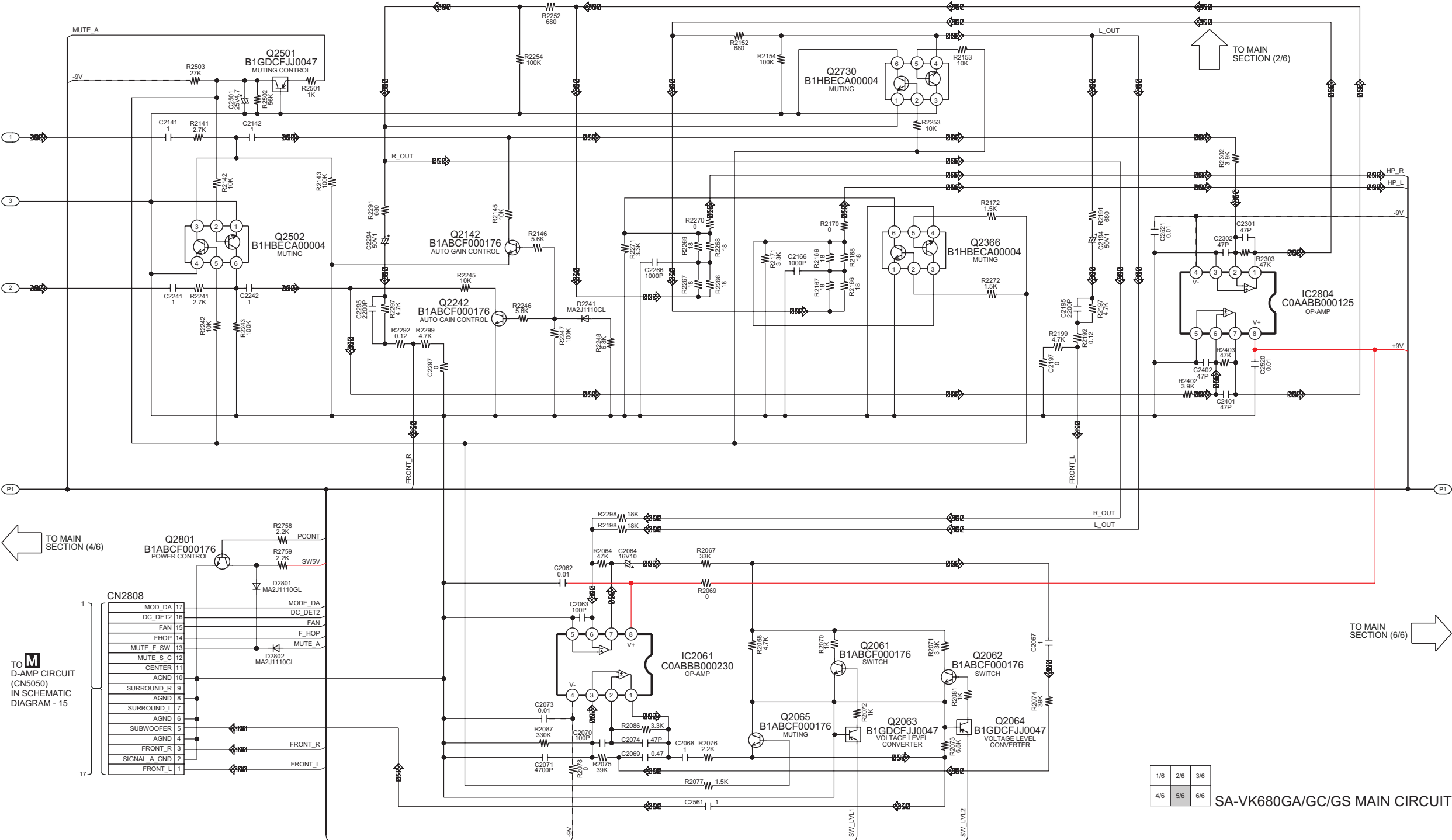
AUX/MIC/MUSIC PORT AUDIO INPUT SIGNAL LINE

CD/DVD VIDEO INPUT SIGNAL LINE

AUDIO OUTPUT SIGNAL LINE

VIDEO OUTPUT SIGNAL LINE

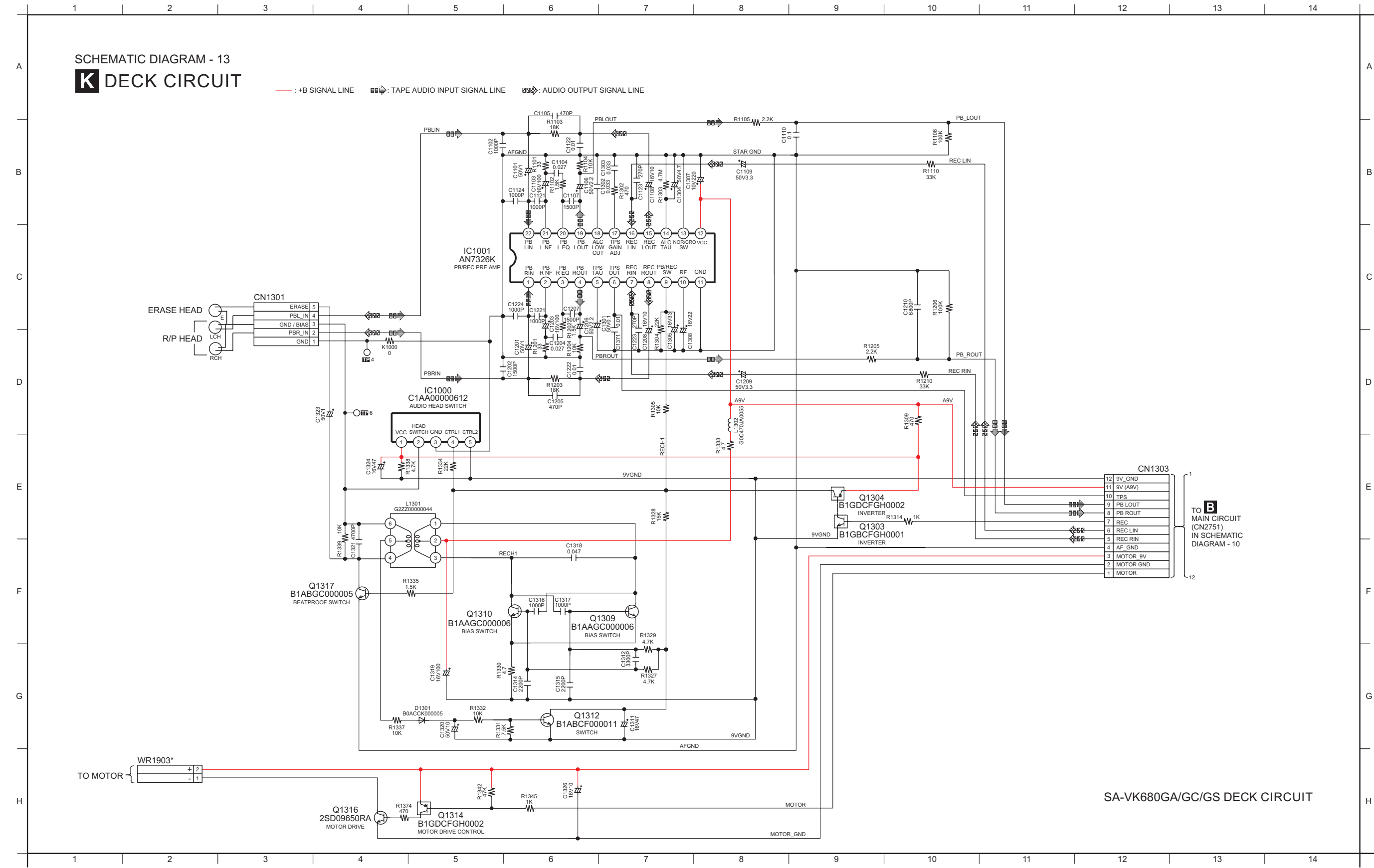
AM/FM SIGNAL LINE



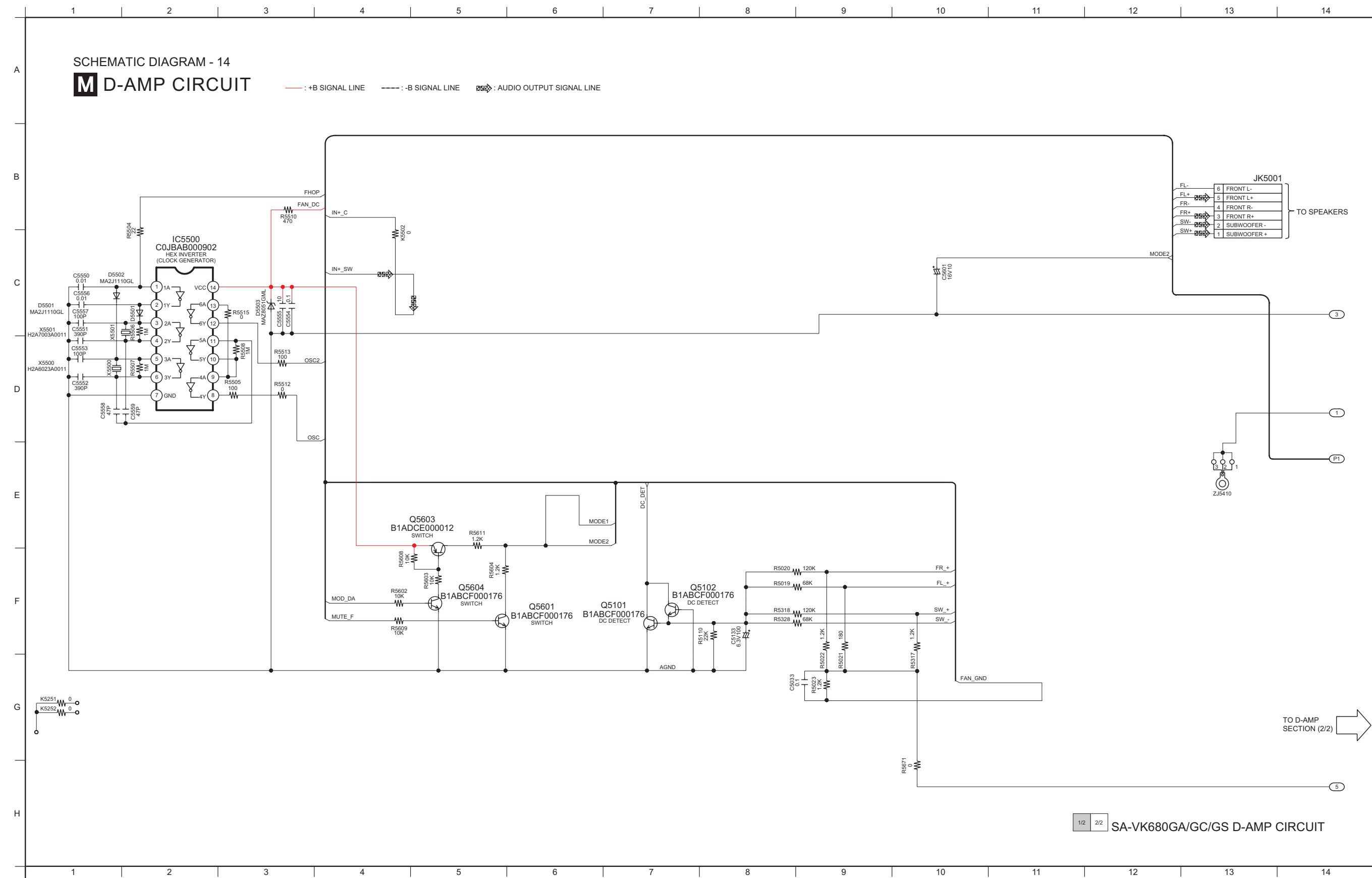
1/6	2/6	3/6
4/6	5/6	6/6

SA-VK680GA/GC/GS MAIN CIRCUIT

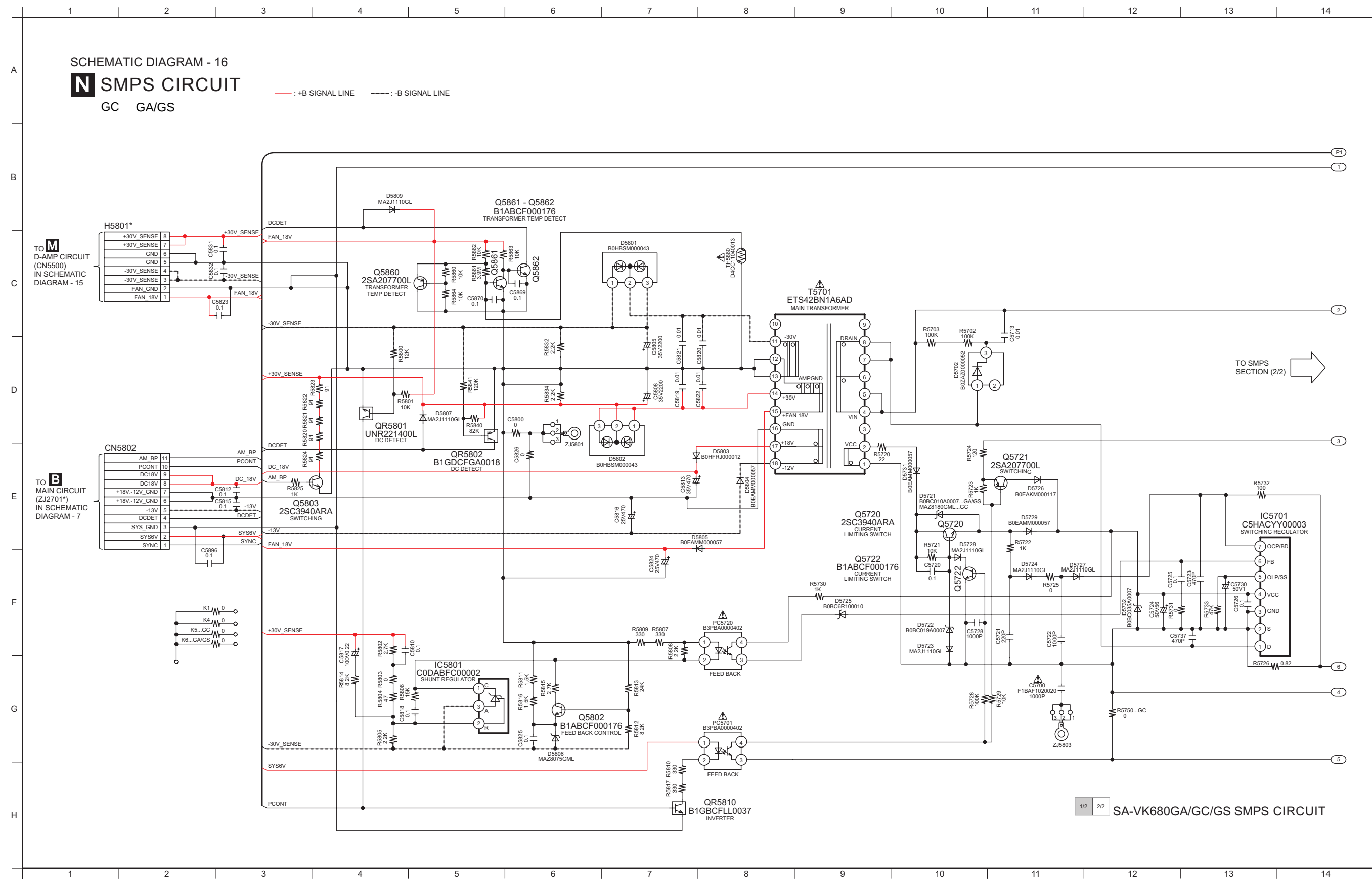
19.5. Deck Circuit



19.6. D-Amp Circuit



19.7. SMPS Circuit

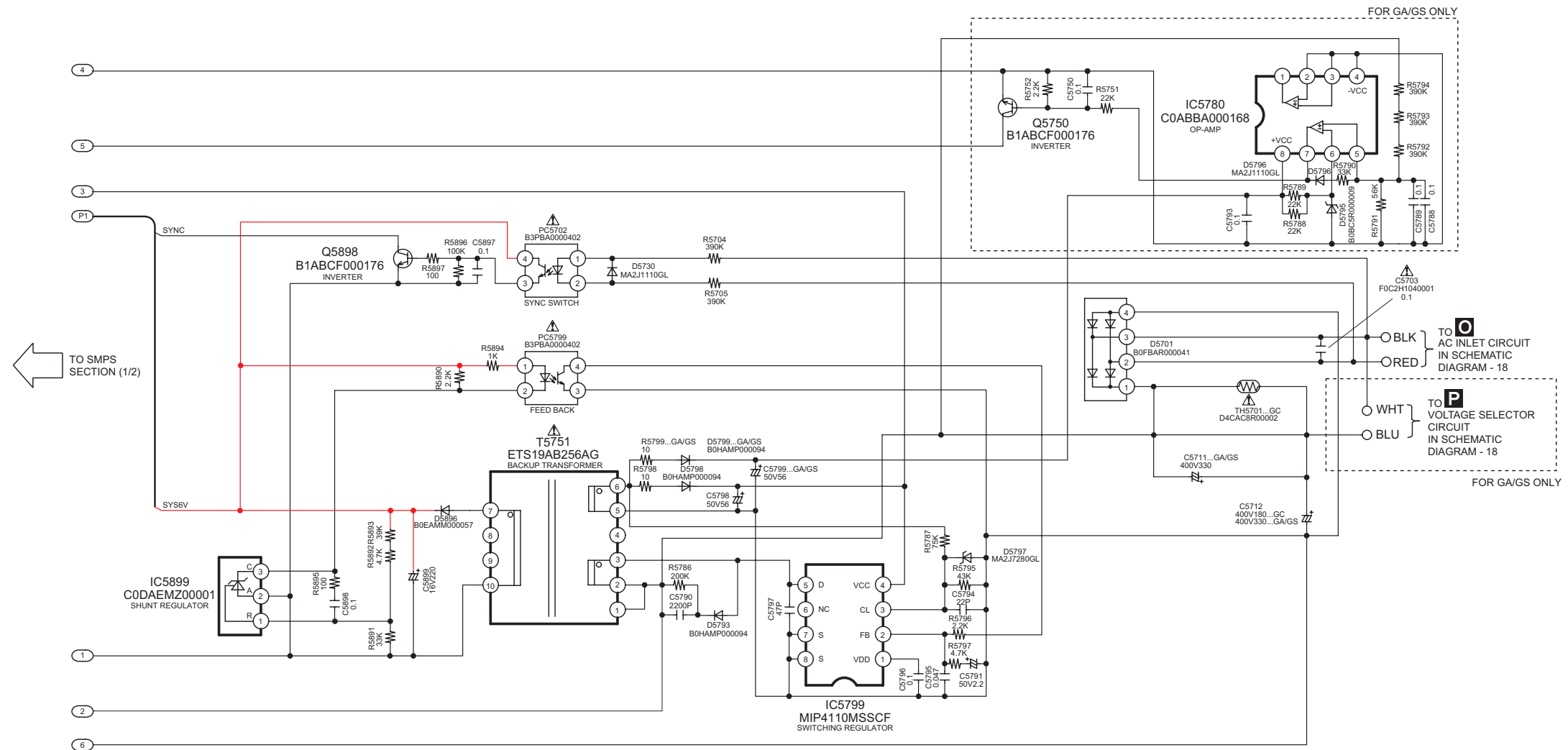


SCHEMATIC DIAGRAM - 17

N SMPS CIRCUIT

GC GA/GS

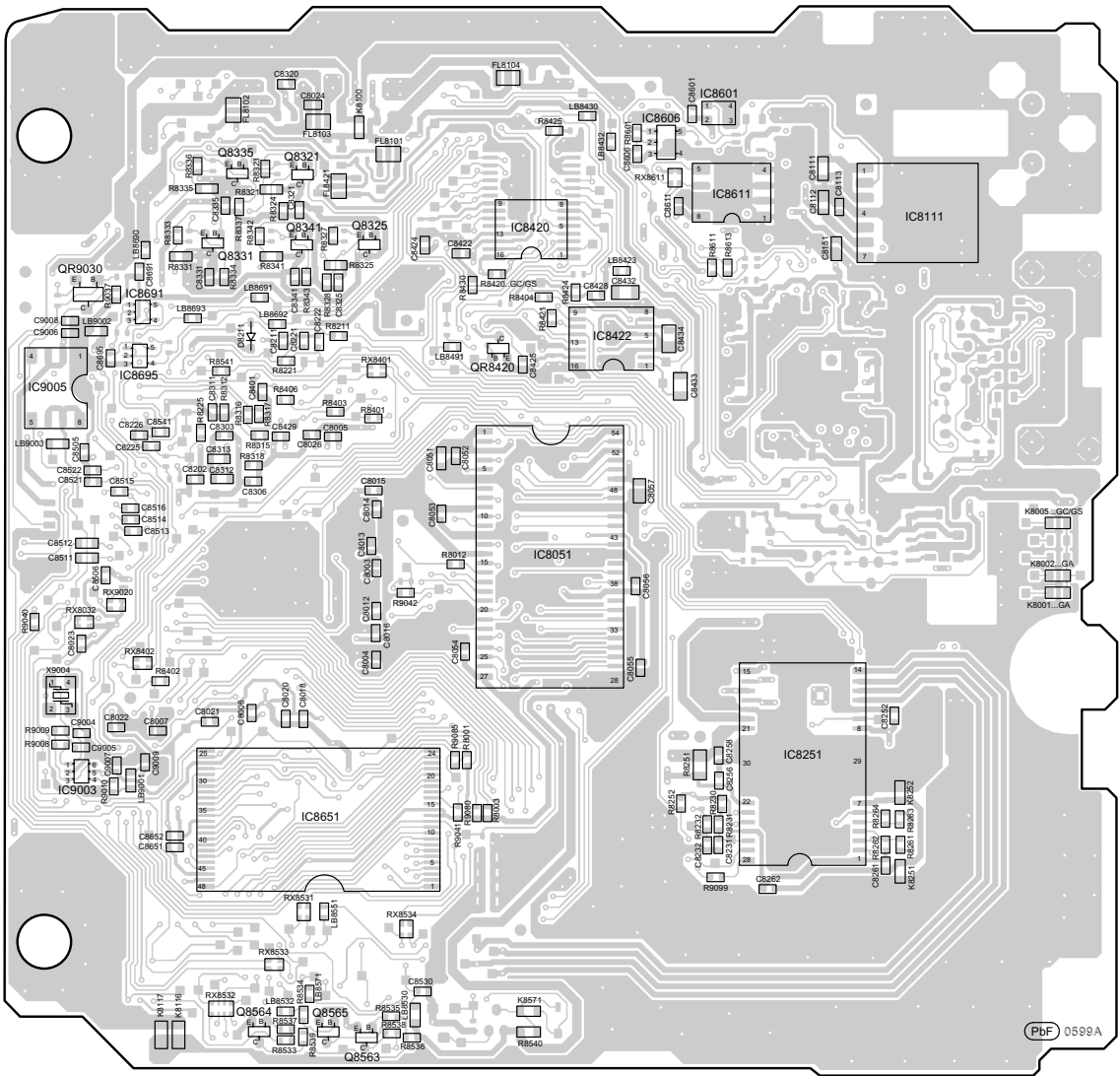
— : +B SIGNAL LINE --- : -B SIGNAL LINE



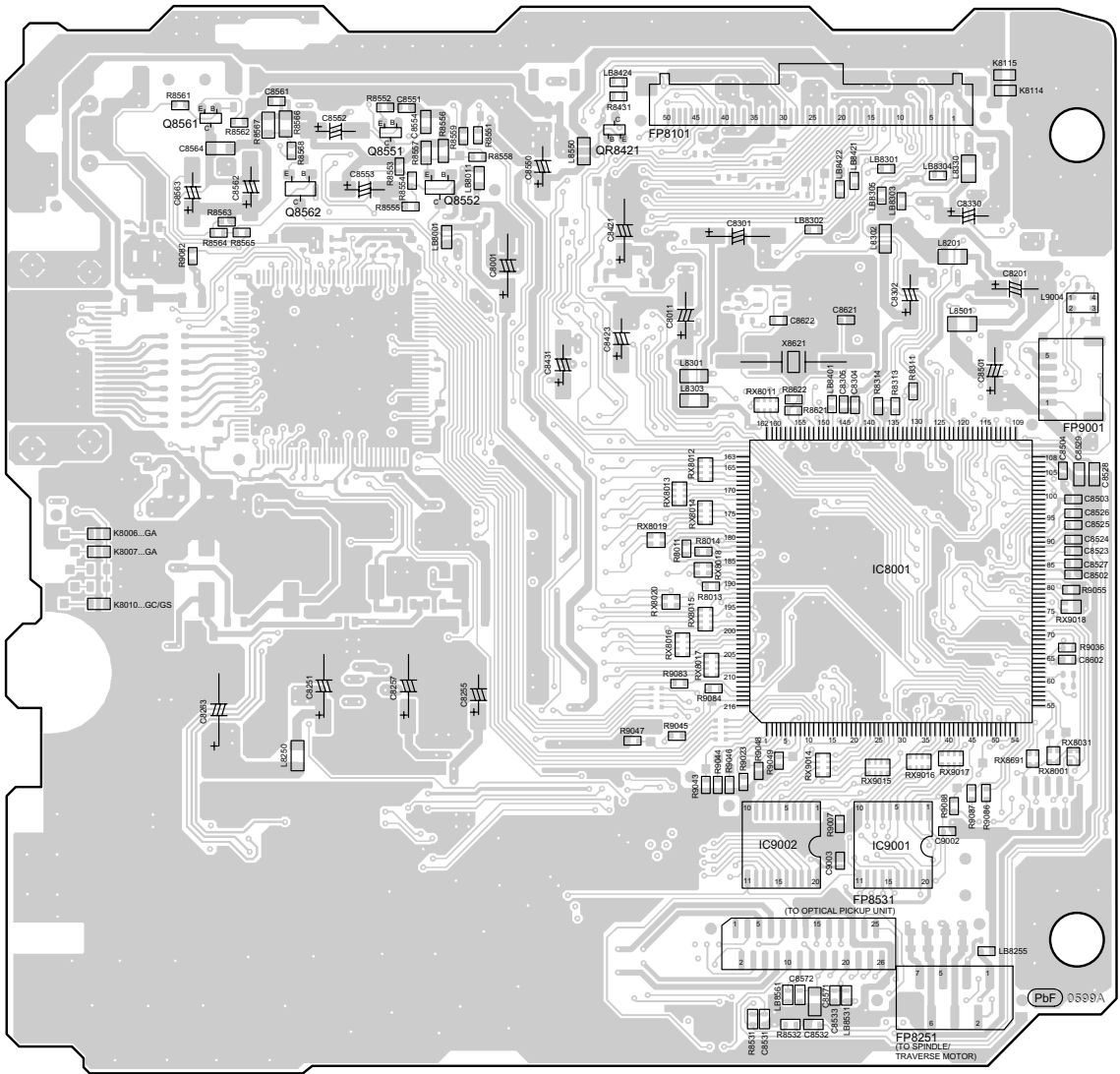
20 Printed Circuit Board

20.1. DVD Module P.C.B.

A DVD MODULE P.C.B. (RFK BX0681D-C...GC/GS)
(RFK BX0681E-C...GA)



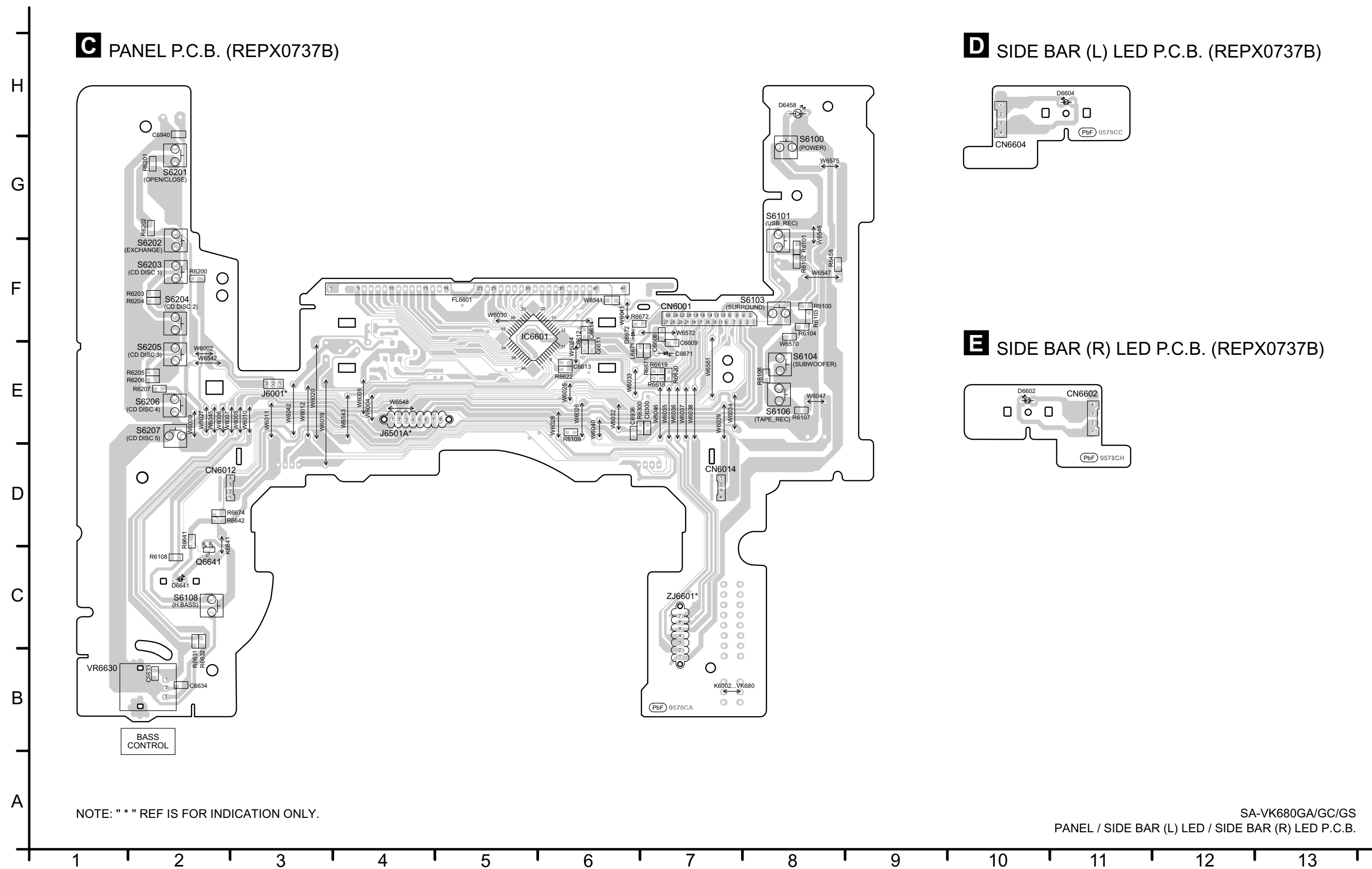
(SIDE A)



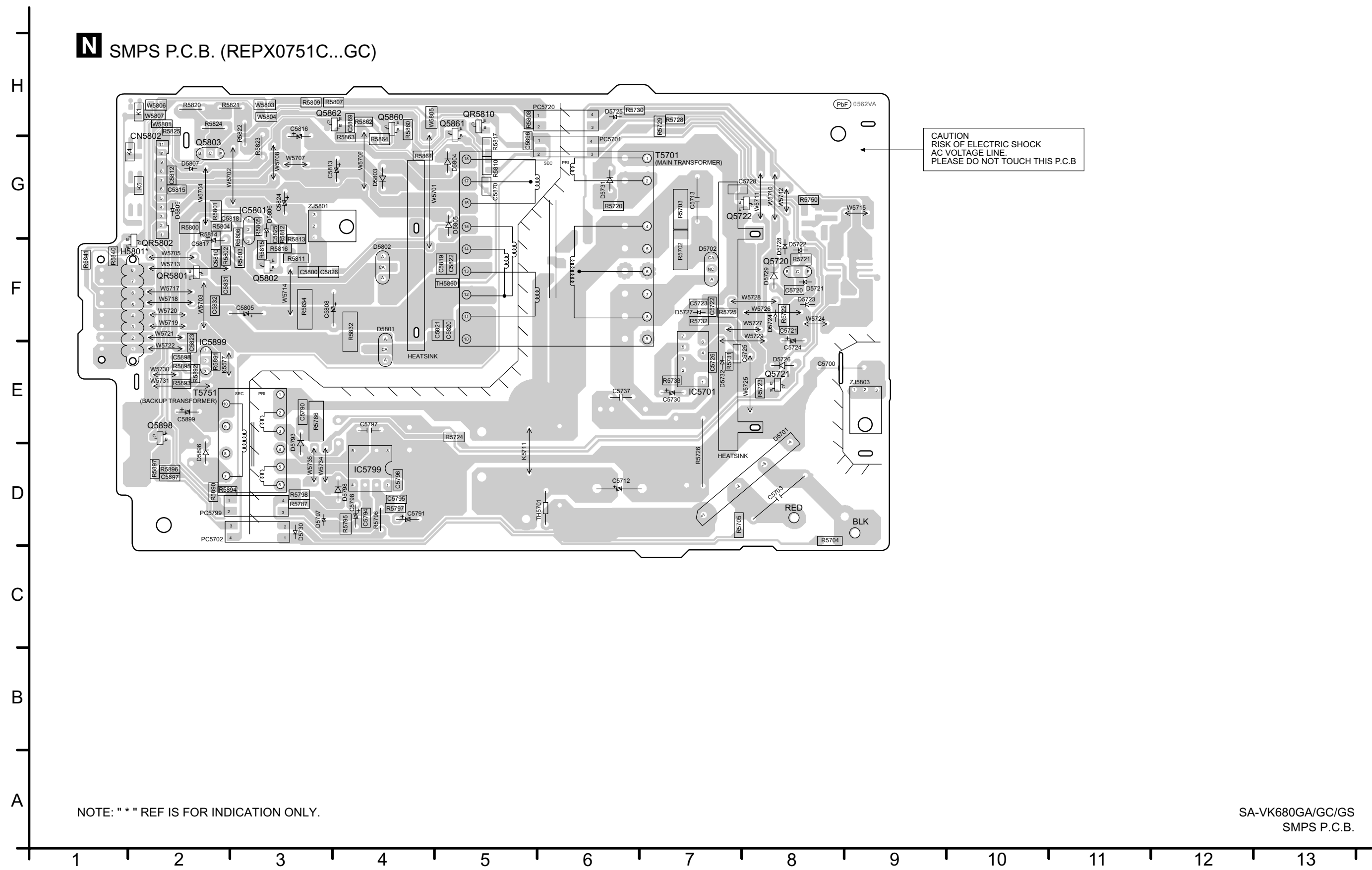
(SIDE B)

SA-VK680GA/GC/GS
DVD MODULE P.C.B.

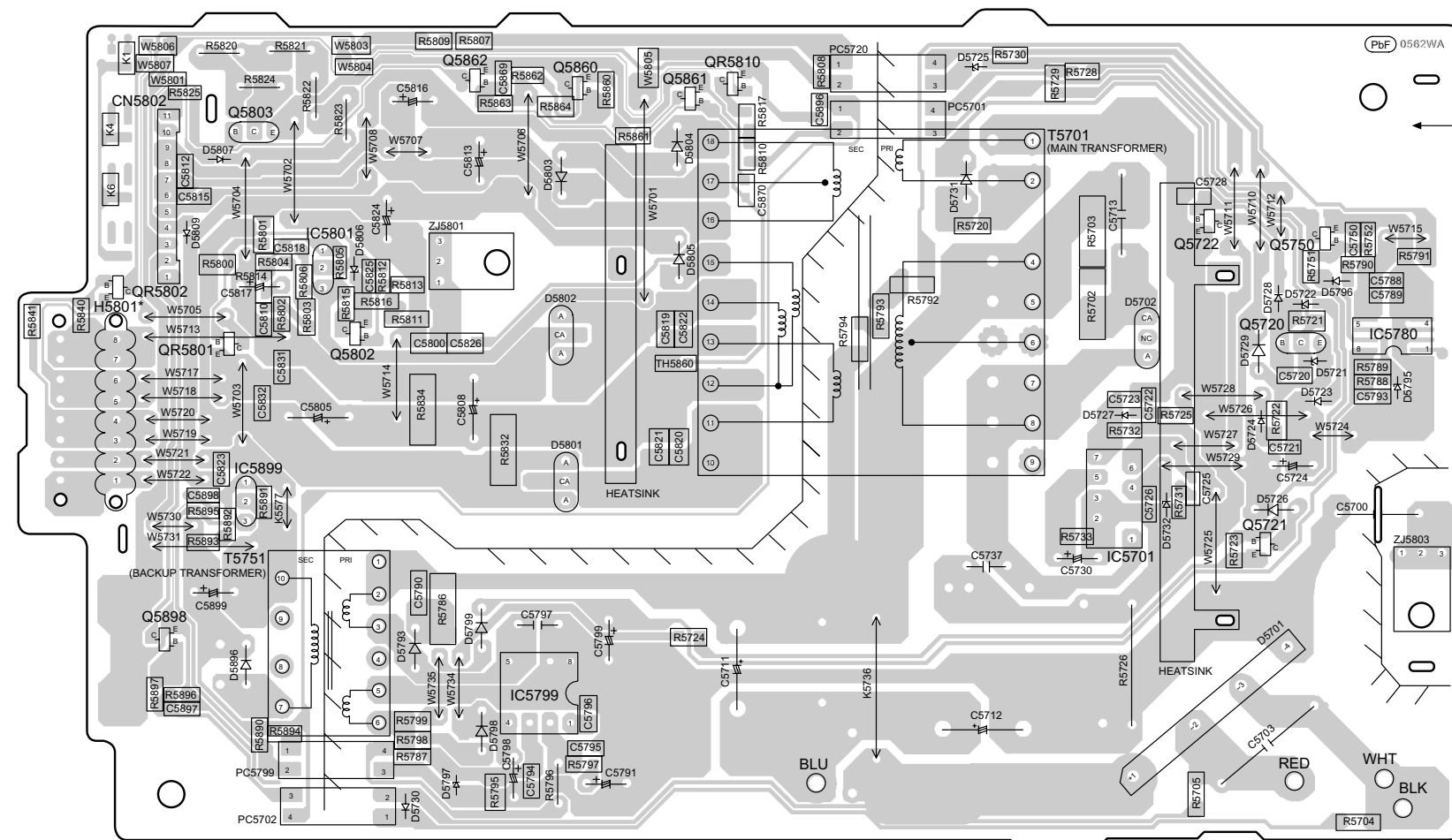
20.3. Panel, Side Bar (L) LED & Side Bar (R) LED P.C.B.



20.7. SMPS P.C.B.



N SMPS P.C.B. (REPX0751D...GA/GS)



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

NOTE: " * " REF IS FOR INDICATION ONLY.

SA-VK680GA/GC/GS
SMPS P.C.B.

21 Terminal Function of ICs

21.1. IC2801 (RFKWMVK680GC): IC MICROPROCESSOR

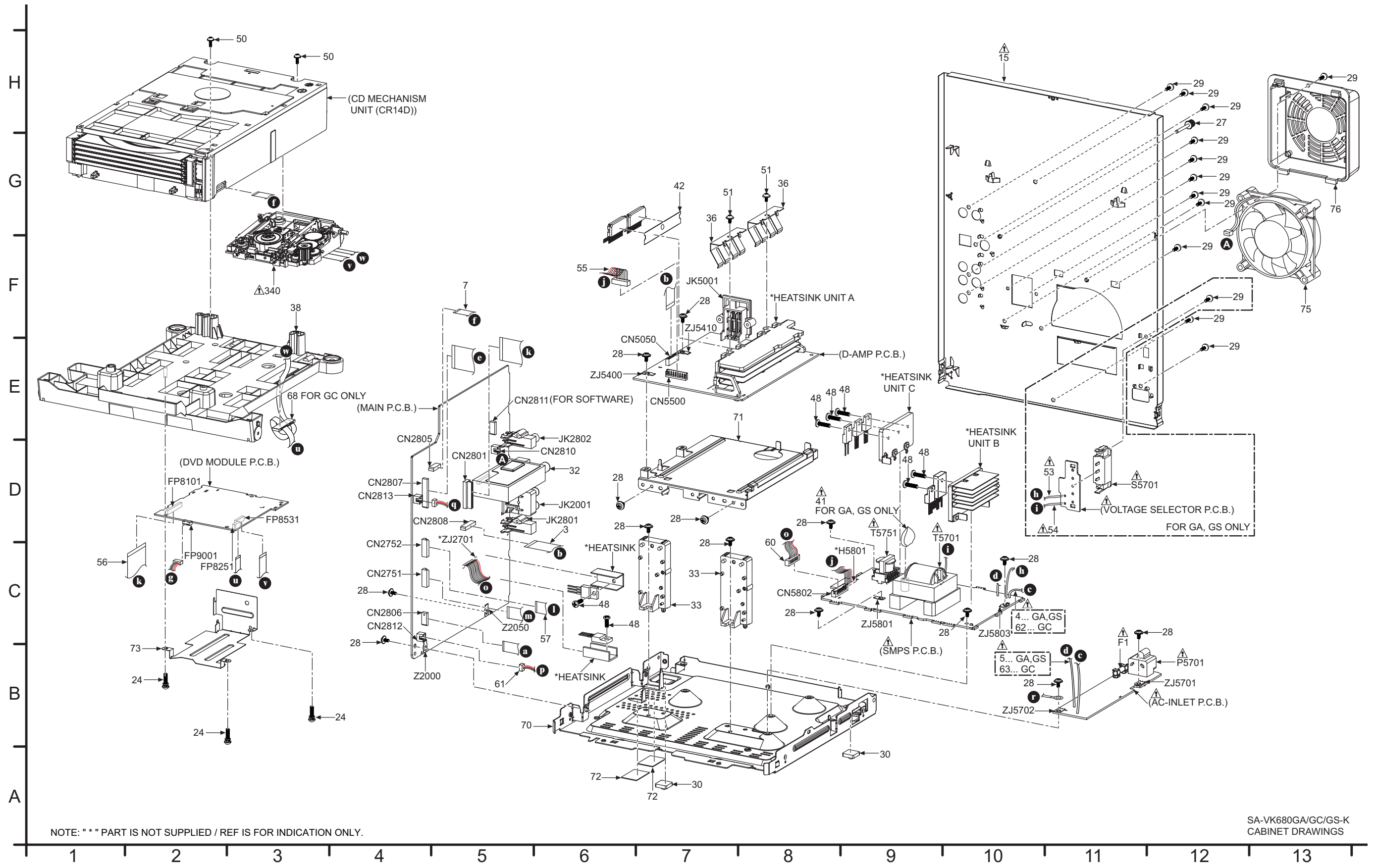
Pin No.	Terminal Name	I/O	Function
1	LM	I	Level Meter Left
2	NC	-	No Connection
3	NC	-	No Connection
4	WIDE1	O	S. Video Output Control
5	DVD_PCONT	O	Power Control pin for DVD Module
6	DVD_Mute	I	Signal from DVD module control
7	F_HOP	O	F_Hop for Digital Amplifier
8	BYTE	-	External Data Bus Width Select Input
9	CNVss/ EFP_CNVss	-	Flash Mode Terminal
10	Xc_in	-	32.768 kHz Sub Clock
11	Xc_out	-	32.768 kHz Sub Clock
12	/RESET	-	Reset Input (ACTIVE L)
13	Xout	-	10 Mhz Main Clock
14	Vss	-	Ground (0V)
15	Xin	-	10 Mhz Main Clock
16	Vcc	-	Power Supply (+5V)
17	NMI	-	Connect to Vcc (+5V)
18	RMT	I	Remote Control Input
19	NC		No Connection
20	SYNC	I	AC Failure Detect Input
21	ST/DO	I	Tuner IF Data / Stereo Input
22	SD	I	Tuner Signal Detect Input
23	NC	-	No Connection
24	NC	-	No Connection
25	NC	-	No Connection
26	ASP_DATA	O	ASP DATA
27	ASP_CLK	O	ASP CLOCK
28	NC		No Connection
29	PLL_DATA	O	PLL DATA
30	PLL_CLK	O	PLL CLOCK
31	REG1/ EFP_TxDI	I	TUNER Region Setting 1
32	REG2/ EFP_RxDI	I	TUNER Region Setting 2
33	REG3/ EFP_SCLK	I	TUNER Region Setting 3
34	EFP_BUSY	I	EFP BUSY
35	DVD_CMD	O	CMD Signal for DVD Module
36	DVD_STA	I	STATUS Signal from DVD module
37	DVD_CLK	I	CLOCK Signal from DVD module
38	MODEL_CS	I	To Select model when power on
39	MOD_DA	O	Digital Amplifier Muting
40	MUTE_HP	O	Audio Mute
41	EE_CS/EFP/ EPM	O	EEPROM Chip Select
42	EE_CLK	O/I	EEPROM CLOCK
43	EE_DATA	O/I	EEPROM DATA
44	SW_1	O	Subwoofer Level 1
45	SW_2	O	Subwoofer Level 2
46	PCONT/ EFP_CE	O	Main Transformer Control Output
47	DC_DET1	I	DC Detect Input
48	DC_DET2	I	DC Detect Input
49	NC	-	No Connection
50	NC	-	No Connection
51	BASS_1	I	Bass Control 1
52	BASS_2	I	Bass Control 2

Pin No.	Terminal Name	I/O	Function
53	VOL/H.BASS LED	O	dimmer control
54	VOL/H.BASS LED	O	dimmer control
55	NC	-	No Connection
56	PLUNGER	O	Deck plunger control
57	MOTOR	O	Deck motor control
58	NC	-	No Connection
59	NC	-	No Connection
60	DMT	-	No Connection
61	REC_H	O	Deck Recording control
62	Vcc	-	Power Supply (+5V)
63	EJECT	I	Deck Eject
64	Vss	-	Ground (0V)
65	HP_SW	I	Head Phone Detection
66	MPORT_SW	I	Music Port Detection
67	MIC mute	O	Mute when Mic is in
68	AM_BP	O	AM Beaf Proof
69	ECHO_1	O	ECHO Level Control 1
70	ECHO_2	O	ECHO Level Control 2
71	Ripping LED	O	LED for USB ripping
72	FL_CS	O	FL Driver Chip Select
73	FL_DATA	O	Serial Data to FL Driver
74	FL_CLK	O	Serial Clock to FL Driver
75	NC	O	No Connection
76	ECHO_MUTE	O	ECHO Muting
77	TOP SWITCH	I	CR14 control
78	CLOSE	I	CR14 control
79	LO_F	O	CR14 control
80	LO_R	O	CR14 control
81	HOME_CR	I	CR14 control for Change detect
82	TRAY_CW_H	O	CR14 control
83	TRAY_CCW_L	O	CR14 control
84	OPEN	I	CR14 control
85	MODE	I	CR14 control
86	UD_SENSOR	I	CR14 control Position detect
87	UNLOAD SW	I	CR14 control Open SW (Unload SW)
88	INNER_SW	I	CR14 control
89	DVD_REG	AD IN	DVD Region Setting
90	PHOTO	AD(I)	"Mecha condition input 2
91	VOL_JOG	I	Volume control
92	KEY3	AD(I)	Keyline 3 input
93	KEY2	AD(I)	Keyline 2 Input
94	KEY1	AD(I)	Keyline 1 input
95	MK_IN 1	AD(I)	Mecha condition input 1
96	AVss	-	Analog Power Supply Input
97	MK_IN3	I	Mecha condition input 3
98	Vref	-	Reference for A-D (+5V)
99	AVcc	-	Analog Power Supply Input
100	NC	-	No Connection

21.2. IC6601(C0HBB0000057): IC FL Driver

Pin No.	Terminal Name	I/O	Function
1	P0	O	No Connection
2	P1	-	No Connection
3	P2	-	No Connection
4	P3	-	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

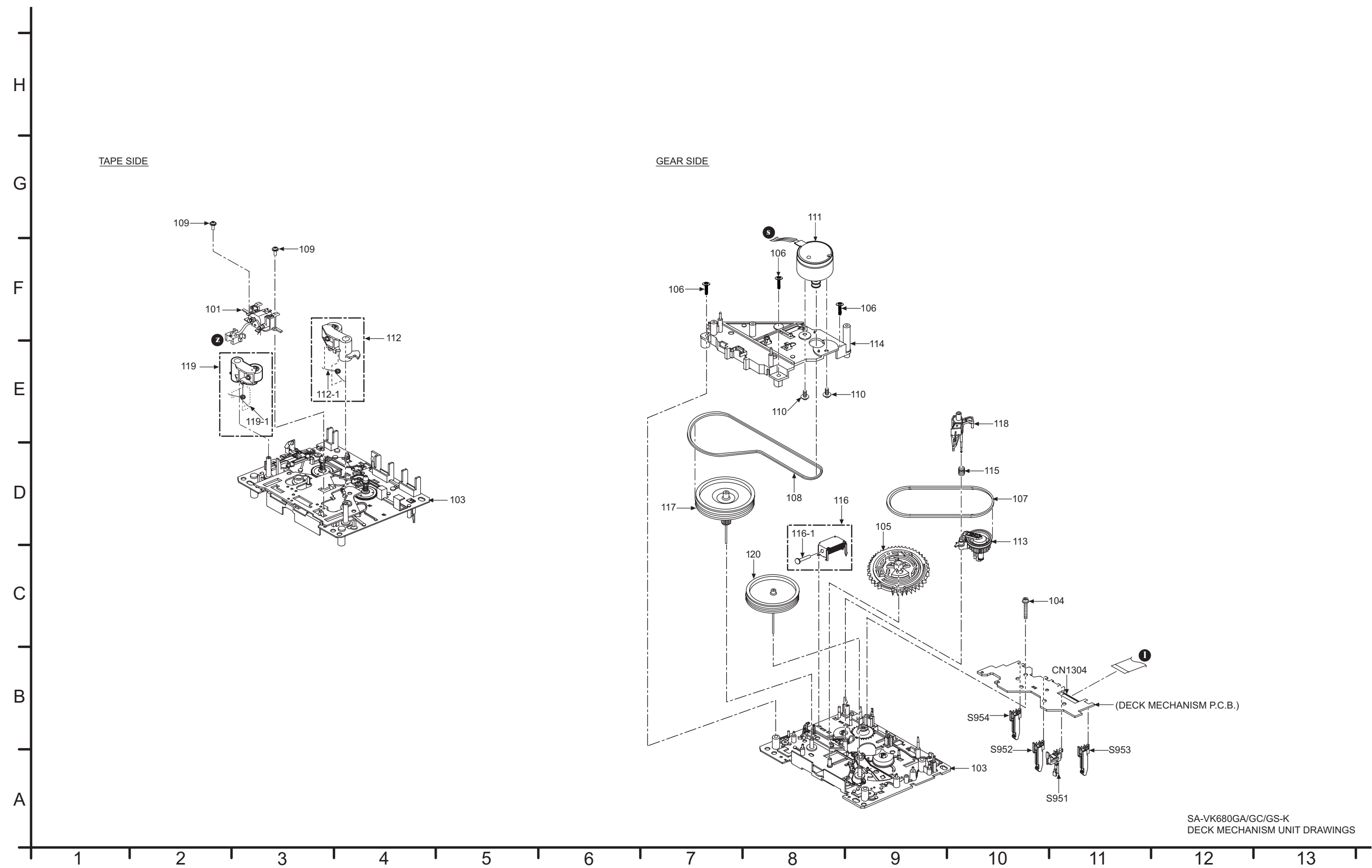
Pin No.	Terminal Name	I/O	Function
10	K1	-	Key Data Input 1 (No Connection)
11	K2	-	Key Data Input 2 (No Connection)
12	VSS	-	GND
13	VDD	-	Power Supply (+5V)
14	S1	O	Segment Output 18
15	S2	O	Segment Output 17
16	S3	O	Segment Output 16
17	S4	O	Segment Output 15
18	S5	O	Segment Output 14
19	S6	O	Segment Output 13
20	S7	O	Segment Output 12
21	S8	O	Segment Output 11
22	S9	O	Segment Output 10
23	S10	O	Segment Output 9
24	S11	O	Segment Output 8
25	S12	O	Segment Output 7
26	S13	O	Segment Output 6
27	S14	O	Segment Output 5
28	S15	O	Segment Output 4
29	S16	O	Segment Output 3
30	VEE	-	Voltage Supply
31	G12	O	Segment Output 2
32	G11	O	Segment Output 1
33	G10	O	Grid Segment Output 1
34	G9	O	Grid Segment Output 2
35	G8	O	Grid Segment Output 3
36	G7	O	Grid Segment Output 4
37	G6	O	Grid Segment Output 5
38	G5	O	Grid Segment Output 6
39	G4	O	Grid Segment Output 7
40	G3	O	Grid Segment Output 8
41	G2	O	Grid Segment Output 9
42	G1	O	Grid Segment Output 10
43	VDD	-	Voltage Supply (+5V)
44	VSS	-	GND



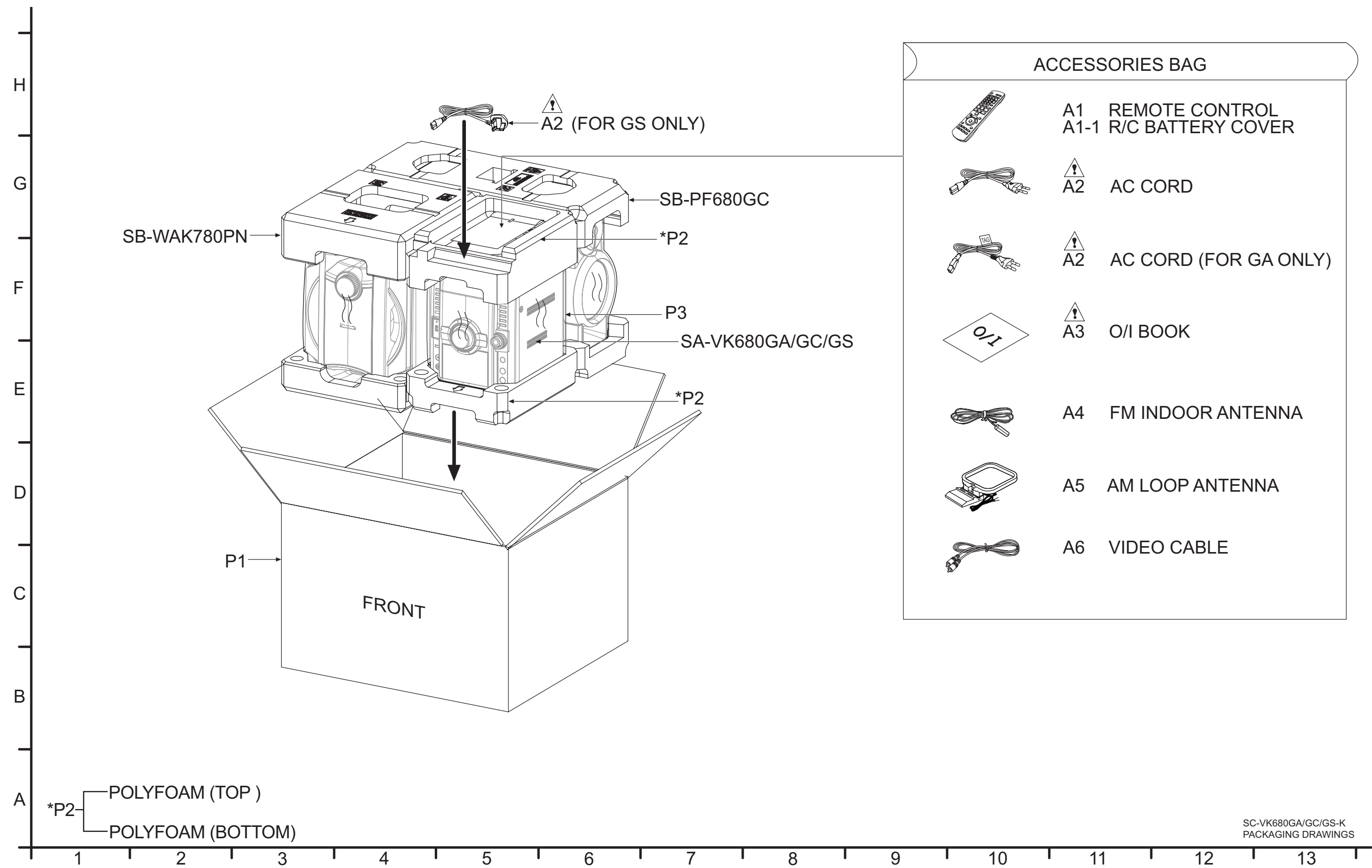
NOTE: " * " PART IS NOT SUPPLIED / REF IS FOR INDICATION ONLY.

SA-VK680GA/GC/GS-K
CABINET DRAWINGS

22.1.2. Deck Mechanism Parts Location (RAAX0005)



22.1.3. Packaging



22.1.4. 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	RDGX0040	VOLUME GEAR	1	
	2	REEX0740	10P FFC (MUSIC-MAIN)	1	
	3	REEX0881	17P FFC (MAIN-DAMP)	1	
Δ	4	REZX0023-1	BLACK WIRE (AC INLET-SMPS)	1	GA/GS
Δ	5	REZX0024-1	RED WIRE (AC INLET-SMPS)	1	GA/GS
	6	REEX0883	27P FFC (MAIN-PANEL)	1	
	7	REEX0904-J	11P FFC (OPU-MAIN)	1	
	8	RGCK0010-W	VOLUME LIGHT REFLECTOR	1	
	9	RFKGAVK680GA	FRONT PANEL ASS'Y	1	
	10	RGKX0482-2S	VOLUME ORNAMENT	1	
	11	RGKX0483B-K1	CD LID	1	
	12	RGKX0488A-B	DYNAMIC BASS ORNAMENT	1	
	13	RGLX0164-B	VOLUME LIGHT PIECE	1	
	14	RGLX0167-Q	POWER LIGHT PIECE	1	
Δ	15	RGRX0070M-D1	REAR PANEL	1	GS
Δ	15	RGRX0070M-E1	REAR PANEL	1	GA
Δ	15	RGRX0070N-C1	REAR PANEL	1	GC
	16	RGUX0764C-1S	MAIN FUNCTION BUTTON L	1	
	17	RGUX0765-4S1	DYNAMIC BASS BUTTON	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	18	RGUX0766A-K	5CD CHANGE BUTTON	1	
	19	RGUX0767B-K	POWER CONTROL BUTTON	1	
	20	RGUX0768-K	CASSETTE EJECT BUTTON	1	
	21	RGUX0777B-1S	MAIN FUNCTION BUTTON R	1	
	22	RGWX0056-1K1	MIC VOLUME KNOB	1	
	23	RGWX0072-S	VOLUME KNOB	1	
	24	RHD26043-1	SCREW	5	
	25	RHD26046-L	SCREW	15	
	26	RHD30007-K2J	SCREW	6	
	27	RHD30070	SCREW	1	
	28	RHD30111-31	SCREW	14	
	29	RHD30119-S	SCREW	17	GC
	29	RHD30119-S	SCREW	18	GA/GS
	30	RKA0072-KJ	LEG CUSHION	4	
	31	RKFX0143A-K1	CASSETTE LID	1	
	32	J3CCBB000010	TUNER PACK	1	
	33	RMAX0333-2	CHASSIS SUPPORT	2	
	34	RMBV0042-2	CASSETTE LID SPRING	1	
	35	RMBX0086-1	CD LID OPEN SPRING	1	
	36	RMC0465	TR SPRING	2	
	37	RMGX0033	CUSHION RUBBER	2	
	38	RMKX0151C	CD CHASSIS	1	
	39	RMNV0059	LED HOLDER	2	
	40	RMNV0079-1	FL HOLDER	1	
Δ	41	RMZ0339	ZNR COVER	1	GA/GS
	42	RMZX0043	IC INSULATOR	1	
	43	RHD30008	SCREW	1	
	44	RMNX0287A	USB JACK HOLDER	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	45	RMNX0190	LED HOLDER	3	
	46	RUS757ZAA	CASSETTE HALF SPRING	2	
	47	RXGX0002	DAMPER GEAR	1	
	48	XTB3+10JFJ	SCREW	7	
	49	XTV3+10GFJ-M	SCREW	4	
	50	XTW3+12TFJ	SCREW	2	
	51	XTW3+8TFJ	SCREW	2	
	52	REXX0690-1	5P WIRE (BE-USB)	1	
⚠	53	REXX0686-1	WHT WIRE (VOLT-AGE SELECTOR-SMPS)	1	GA/GS
⚠	54	REXX0687-1	BLU WIRE (VOLT-AGE SELECTOR-SMPS)	1	GA/GS
	55	REXX0683-1	8P WIRE (SMPS-DAMP)	1	
	56	REEX0905	50P FFC (DVD MODULE-MAIN)	1	
	57	REEX0987	8P FFC (MAIN-DECK MECHA)	1	
	58	REEX0988	12P FFC (MAIN-DECK)	1	
	59	REXX0679-1	7P WIRE (PANEL-MIC)	1	
	60	REXX0680	11P WIRE (MAIN-SMPS)	1	
	61	REXX0681	2P WIRE (MAIN-USB) - (MUSIC-MAIN)	2	
⚠	62	REXX0684-1	BLACK WIRE (AC INLET-SMPS)	1	GC
⚠	63	REXX0685-1	RED WIRE (AC INLET-SMPS)	1	GC
	64	REXX1028	2P WIRE (MIC-AC INLET)	1	
	65	RWJ0102050KR	2P WIRE (MOTOR)	1	
	66	RWJ1103055SS	3P WIRE (PANEL-REMOTE)	1	
	67	RWJ1108055SS	8P WIRE (PANEL-VOLUME)	1	
	68	JOKD00000126	FERRITE CORE	1	GC
⚠	69	RKMX0144A-K	TOP CABINET	1	
	70	RMKX0148-3	BOTTOM CHASSIS	1	
	71	RMKX0149-2	INNER CHASSIS	1	
	72	RMVX0126	HOLE COVER	2	
	73	RSCX0216	SHIELD PLATE	1	
	74	RMQX0319-W	VOLUME DIFFUSER	1	
	75	L6FALEFH0023	FAN UNIT ASS'Y	1	
	76	RMQX0318-K2	FAN COVER	1	
			CASSETTE DECK		
	101	RED0064-2	R/P HEAD BLOCK SUB ASSY	1	
	103	RFKJSTR280PP	MAIN CHASSIS ASS'Y	1	
	104	XYC2+JF17FJ	PCB EARTH SCREW	1	
	105	RDK0026-4	MAIN GEAR	1	
	106	XTW26+10SFJ	SUB-CHASSIS SCREW	3	
	107	RDV0033-4	WINDING BELT	1	
	108	RDV0034-2	CAPSTAN BELT A	1	
	109	XTW2+5LFJ	HEAD BLOCK UNIT SCREW	2	
	110	RHD26022-1	MOTOR SCREW	2	
	111	REM0120	CAPSTAN MOTOR ASS'Y	1	
	112	RXL0124	PINCH ROLLER F ASSY	1	
	112-1	RMB0401	PINCH ARM SPRING 'F'	1	
	113	RXL0126	WINDING ARM ASSY	1	
	114	RMK0283A-2	SUB-CHASSIS	1	
	115	RMB0408	THRUST SPRING	1	
	116	RXQ0470-2	PLUNGER ASSY	1	
	116-1	RMS0398-1	MOVING CORE	1	
	117	RXF0061-1	FLYWHEEL F ASSY	1	
	118	RML0372-2	WINDING LEVER	1	

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
	119	RXL0125	PUNCH ROLLER R ASS'Y	1	
	119-1	RMB0402	PUNCH ARM SPRING R	1	
	120	RXF0062-1	FLYWHEEL R ASS'Y	1	
			TRVERSE DECK		
⚠	340	RD-DDTX004-V	TRVERSE ASS'Y	1	(RTL)
			PACKING MATERI-ALS		
	P1	RPGX2194	PACKING CASE	1	GC
	P1	RPGX2195	PACKING CASE	1	GS
	P1	RPGX2196	PACKING CASE	1	GA
	P2	RPNX0534-2	POLYFOAM	1	
	P3	RPF0198	MIRAMAT SHEET	1	
			ACCESSORIES		
	A1	N2QAYB000423	REMOTE CONTROL	1	
	A1-1	RKK-PT470EBK	R/C BATTERY COVER	1	
⚠	A2	K2CP2CA00001	AC CORD	1	GA
⚠	A2	K2CQ2CA00007	AC CORD	1	
⚠	A2	K2CZ3YY00005	AC CORD	1	GS
⚠	A3	RQTX0281-G	O/I BOOK (En/Pe/Ar)	1	GC/GS
⚠	A3	RQTX0282-L	O/I BOOK (En/Cn)	1	GA
	A4	RSAX0002	FM INDOOR ANTENNA	1	
	A5	N1DY0000003	AM LOOP ANTENNA	1	
	A6	K2KA2CA00011	VIDEO CABLE	1	

22.2. Electrical Replacement Part List

Important Safety Notice

Components identified by $\triangle$ 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 (uF) 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 CIR- CUIT BOARDS		
	PCB1	RFKBX0681D-C	DVD MODULE P.C.B	1	(RTL) GC/GS
	PCB1	RFKBX0681E-C	DVD MODULE P.C.B	1	(RTL) GA
	PCB2	REPX0722B	DECK P.C.B	1	(RTL)
	PCB3	REPX0731A	D-AMP P.C.B	1	(RTL)
	PCB4	REPX0736D	MAIN P.C.B	1	(RTL) GC/GS
	PCB4	REPX0736E	MAIN P.C.B	1	(RTL) GA
	PCB5	REPX0737B	PANEL P.C.B	1	(RTL)
	PCB6	REPX0737B	SIDE BAR (L)LED P.C.B	1	(RTL)
	PCB6	REPX0737B	SIDE BAR (R)LED P.C.B	1	(RTL)
	PCB7	REPX0737B	VOLUME P.C.B	1	(RTL)
	PCB8	REPX0737B	REMOTE SENSOR P.C.B	1	(RTL)
	PCB9	REPX0737B	MIC P.C.B	1	(RTL)
	PCB10	REPX0737B	MUSIC PORT P.C.B	1	(RTL)
	PCB11	REPX0736D	USB P.C.B	1	(RTL) GC/GS
	PCB11	REPX0736E	USB P.C.B	1	(RTL) GA
$\triangle$	PCB12	REPX0751C	SMPS P.C.B	1	(RTL) GC
$\triangle$	PCB12	REPX0751D	SMPS P.C.B	1	(RTL) GA/GS
$\triangle$	PCB13	REPX0751C	AC INLET P.C.B	1	(RTL) GC
$\triangle$	PCB13	REPX0751D	AC INLET P.C.B	1	(RTL) GA/GS
$\triangle$	PCB14	REPX0751D	VOLTAGE SELEC- TOR P.C.B	1	(RTL) GA/GS
	PCB15	REPX0740C	DECK MECHANISM P.C.B	1	(RTL)

Safety	Ref. No.	Part No.	Part Name & Description	Qty	Remarks
			INTEGRATED CIR- CUITS		
	IC971	CNB13030R2AU	IC	1	
	IC1000	C1AA00000612	IC	1	
	IC1001	AN7326K	IC	1	
	IC2002	C0CBCBC00140	IC	1	
	IC2061	C0ABBB000230	IC	1	
	IC2103	C0ABBB000230	IC	1	
	IC2801	RFKWMVK680GC	IC	1	
	IC2802	RFKWEVK680GC	IC	1	
	IC2803	C1BB00001121	IC/GS	1	
	IC2804	C0AABB000125	IC	1	
	IC2900	C9ZB00000461	IC	1	
	IC4000	C0DAAYH00001	IC	1	
	IC5000	C1BA00000492	IC	1	
	IC5200	C1BA00000492	IC	1	
	IC5500	C0JBAB000902	IC	1	
	IC5701	C5HACY000003	IC	1	
	IC5780	C0ABBA000168	IC	1	GA/GS
	IC5799	MIP4110MSSCF	IC	1	
	IC5801	C0DABFC00002	IC	1	
	IC5899	C0DAEMZ00001	IC	1	
	IC6000	C1AB000003130	IC	1	
	IC6601	C0HBB0000057	IC	1	
	IC6931	C1AB000002773	IC	1	
	IC8001	MN2DS0018MP	IC	1	
	IC8051	C3ABFG000160	IC	1	
	IC8111	C0DBFZG00001	IC	1	
	IC8251	C0GBG0000048	IC	1	
	IC8420	C0FBBK000071	IC	1	
	IC8422	C0FBAK000026	IC	1	
	IC8601	C0EBA0000039	IC	1	
	IC8606	C0EBE0000456	IC	1	
	IC8611	RFKBX0681D-C	IC	1	(RTL) GC/GS
	IC8611	RFKBX0681E-C	IC	1	(RTL) GA

