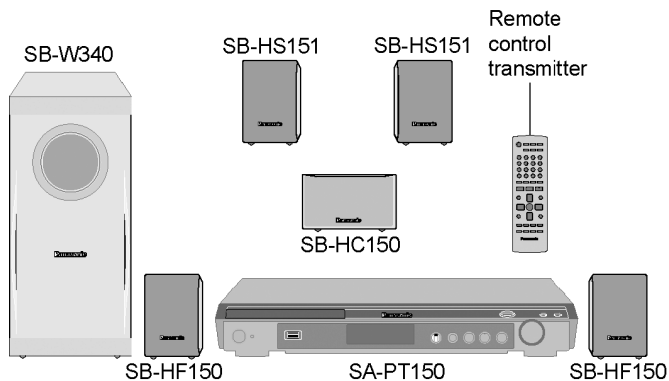


Service Manual

DVD Home Theater Sound System



SA-PT150GC
SA-PT150GCP
SA-PT150GCS
SA-PT150GCT
SA-PT150GS

Colour

(S).....Silver Type

Specifications

IGENERAL

Power Supply:	AC 110 to 240 V, 50/60 Hz
Power Consumption:	Main unit 105 W
Power Consumption in Standby Mode:	approx. 1 W
Dimensions (W×H×D):	430×60×342 mm
Mass:	Main unit 3 kg
Operating Temperature Range:	+5°C to +35°C
Operating Humidity Range:	5% to 90% RH (no condensation)

IAMPLIFIER SECTION

RMS Output Power: Dolby Digital Mode

ITotal RMS Dolby Digital mode power:

330 W

At 1 kHz and total harmonic of 10%

IFront Ch: 55 W / Channel (5 Ω)

ICenter Ch: 55 W / Channel (5 Ω)

ISurround Ch: 55 W / Channel (5 Ω)

At 100 Hz and total harmonic of 10%

ISubwoofer Ch: 55 W / Channel (5 Ω)

PMPO Output Power: 2800 W

DIN Output Power: Dolby Digital Mode:

ITotal DIN Dolby Digital mode power:

150 W

At 1 kHz and total harmonic of 1%

IFront Ch: 25 W / Channel (5 Ω)

ICenter Ch: 25 W / Channel (5 Ω)

ISurround Ch: 25 W / Channel (5 Ω)

At 100 Hz and total harmonic of 1%

ISubwoofer Ch: 25 W / Channel (5 Ω)

IFM TUNER, TERMINALS SECTION

Preset Memory: FM 30 stations

Frequency Modulation (FM)

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

Sensitivity: 1.8 μV (IHF)

S/N 26 dB: 1.4 μV

Antenna terminals: 75 Ω (unbalanced)

Mic Jack:

Sensitivity: 0.7 mV (1.2 kΩ)

Terminal: Mono, 6.3 mm jack (1 system)

IUSB SECTION

USB Port:

USB standard: USB 2.0 full speed

Media file format support: MP3 (*.mp3)
WMA (*.wma)
JPEG (*.Jpg, *.JPEG)
MPEG4 (*.asf)

Panasonic®

© 2007 Matsushita Electric Industrial Co., Ltd. All rights reserved. Unauthorized copying and distribution is a violation of law.

USB device file system: FAT12
FAT16
FAT32

USB Port power: 500 mA (Max)

IDISC SECTION

Discs played (8 cm or 12 cm):

- (1) DVD [DVD-Video, DivX (*1, *2)]
 - (2) DVD-RAM [DVD-VR, MP3 (*2, *6), JPEG (*2, *3), MPEG4 (*2, *4), DivX (*1, *2)]
 - (3) DVD-R [DVD-Video, DVD-VR, MP3 (*2, *6), JPEG (*2, *3), MPEG4 (*2, *4), DivX (*1, *2)]
 - (4) DVD-R DL [DVD-Video, DVD-VR]
 - (5) DVD-RW [DVD-Video, DVD-VR, MP3 (*2, *6), JPEG (*2, *3), MPEG4 (*2, *4), DivX (*1, *2)]
 - (6) +R/+RW [Video]
 - (7) +R DL [Video]
 - (8) CD, CD-R/RW [CD-DA, Video CD, SVCD (*5), MP3 (*2, *6), WMA (*2, *7), JPEG (*2, *3), MPEG4 (*2, *4), DivX (*1, *2)]
- *1 Plays all versions of DivX® video (including DivX®6) with standard playback of DivX® media files. Certified to the DivX Home Theater Profile.
- *2 The total combined maximum number of recognizable audio, picture and video contents and groups: 4000 audio, picture and video contents and 400 groups.
- *3 Exif Ver 2.1 JPEG Baseline files
IPicture resolution: between 160 x 120 and 6144 x 4096 pixels (Sub sampling is 4:0:0, 4:2:0, 4:2:2, or 4:4:4).
Extremely long and narrow pictures may not be displayed.
- *4 MPEG4 data recorded with the Panasonic SD multi cameras or DVD video recorders.
IConforming to SD VIDEO specifications (ASF standard)/
MPEG4 (Simple Profile) video system/G.726 audio system.
- *5 Conforming to IEC62107
- *6 MPEG-1 Layer 3, MPEG-2 Layer 3
- *7 Windows Media Audio Ver.9.0 L3
INot compatible with Multiple Bit Rate (MBR)

Pick Up:

Wavelength:

ICD: 785 nm

IDVD: 662 nm

Laser power:

ICD: CLASS 1M

IDVD: CLASS 1

Audio Output (Disc):

Number of channels: 5.1 ch (FL, FR, C, SL, SR, SW)

IVIDEO SECTION

Video system:(
GC/GCS/GCT/GS) PAL 625/50, PAL 525/60,
NTSC

Video system: (GCP) NTSC

Composite Video Output:

IOutput level: 1 Vp-p (75 Ω)

ITerminal: Pin jack (1 system)

Component video output: [NTSC: 480p/480i, PAL:576p/576i]

IY output level: 1 Vp-p (75 Ω)

IP_B output level: 0.7 Vp-p (75 Ω)

IP_R output level: 0.7 Vp-p (75 Ω)

ITerminal: Pin jack (Y: green, P_B: blue,
P_R: red) (1 system)

Note:

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

Solder:

This model uses lead free solder (PbF).

Mechanism:

This model uses DL2S (Single tray) mechanism.

Power Supply:

This unit uses Switching Mode Power Supply (SMPS).

System	Main unit	Speaker system	Subwoofer
SC-PT150GC	SA-PT150GC	SB-PT150E	SB-W340E *1
SC-PT150GCP	SA-PT150GCP		
SC-PT150GCS	SA-PT150GCS		
SC-PT150GCT	SA-PT150GCT		
SC-PT150GS	SA-PT150GS		

Speaker system	SB-PT150E
Front speakers	SB-HF150E *2
Center speaker	SB-HC150E *3
Surround speakers	SB-HS151E *4

Refer to their respective original service manuals for *1, *2, *3, *4.

Manufactured under license from Dolby Laboratories. Dolby, Pro Logic and the double-D symbol are trademarks of Dolby Laboratories.

"DTS" and "DTS Digital Surround" are registered trademarks of DTS, Inc.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Windows Media and the Windows logo are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

This product is protected by certain intellectual property rights of Microsoft Corporation and third parties. Use or distribution of such technology outside of this product is prohibited without a license from Microsoft or an authorized Microsoft subsidiary and third parties.

WMA is a compression format developed by Microsoft Corporation. It achieves the same sound quality as MP3 with a file size that is smaller than that of MP3.

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>.

Official DivX® Certified product.

Plays all versions of DivX® video (including DivX®6) with standard playback of DivX® media files.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.



■ Built-in decoders

You can play discs with these symbols.



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.

CONTENTS

	Page		Page
1 Safety Precautions	5	1.2. Before Repair and Adjustment (Using SMPS Module	
1.1. GENERAL GUIDELINES	5	P.C.B.)	5
		1.3. Protection Circuitry	5

1.4. Safety Parts Information	6	11.3. Checking & Repairing Main P.C.B.	50
1.5. Caution for AC Cord	7	11.4. Checking & Repairing SMPS Module P.C.B.	51
2 Prevention of Electro Static Discharge (ESD) to		11.5. Checking & Repairing DVD Module P.C.B.	51
Electrostatically Sensitive (ES) Devices	8	12 Measurements and Adjustments	52
3 Precaution of Laser Diode	9	12.1. Service Tools and Equipment	52
4 About Lead Free Solder (PbF)	10	12.2. Important points in adjustment	52
4.1. Service caution based on legal restrictions	10	12.3. Storing and handling of test discs	52
5 Handling Precautions for Traverse Unit	11	12.4. Optical adjustment	53
5.1. Cautions to Be Taken in Handling the Optical Pickup Unit	11	13 Abbreviations	54
5.2. Grounding for electrostatic breakdown prevention	11	14 Voltage and Waveform Chart	56
6 Accessories	13	14.1. DVD Module P.C.B.	56
7 Operation Procedures	14	14.2. Main P.C.B.	58
7.1. Remote Control Key Buttons Operations	14	14.3. Panel P.C.B.	59
7.2. Main Unit Key Buttons Operations	15	14.4. Tray Loading & SMPS Module P.C.B.	59
7.3. About DivX VOD Content	16	14.5. Waveform Chart	60
7.4. USB Connection and Operation	17	15 Illustration of IC's, Transistors and Diodes	62
7.5. Audio and Video Connections	18	16 Wiring Connection Diagram	63
7.6. Disc Information	20	17 Block Diagram	65
8 Self-Diagnosis and Special Mode Setting	22	17.1. System Control	65
8.1. Service Mode Summary Table	22	17.2. DVD (Servo)	66
8.2. Service Mode Table	22	17.3. DVD (Audio)	67
8.3. DVD Self Diagnostic Function-Error Code	30	17.4. DVD (Video)	68
8.4. Sales Demonstration Lock Function	33	17.5. Audio	69
8.5. Service Precautions	34	17.6. Amp & Power	70
9 Assembling and Disassembling	35	18 Schematic Diagram Notes	71
9.1. Disassembly Flow Chart	36	19 Schematic Diagram	73
9.2. Main Components and P.C.B. Locations	37	19.1. DVD Module Circuit	73
9.3. Disassembly of Top Cabinet	38	19.2. Main Circuit	77
9.4. Disassembly of the DVD Lid (When taking out disc manually)	38	19.3. Tuner Extent, Panel & Volume Circuit	81
9.5. Disassembly of Front Panel	39	19.4. Mic, USB Relay, USB, Tray Loading & Optical Pickup Unit Circuit	82
9.6. Disassembly of Volume P.C.B.	39	20 Printed Circuit Board	85
9.7. Disassembly of Panel P.C.B.	40	20.1. DVD Module P.C.B.	85
9.8. Disassembly of Mic P.C.B.	40	20.2. Main P.C.B.	86
9.9. Disassembly of USB P.C.B.	40	20.3. Panel, Volume & Tuner Extent P.C.B.	87
9.10. Disassembly of Rear panel	41	20.4. Mic, USB, USB Relay & Tray Loading P.C.B.	88
9.11. Disassembly of DVD Mechanism Unit	41	21 Basic Troubleshooting Guide	89
9.12. Disassembly of DVD Module P.C.B.	41	21.1. Basic Troubleshooting Guide for Traverse Unit (DVD Module P.C.B.)	89
9.13. Disassembly of USB Relay P.C.B.	42	21.2. Basic Troubleshooting Guide for SMPS/MAIN/PANEL ---	90
9.14. Disassembly of Main P.C.B. & Tuner Extent P.C.B.	42	22 Overall Block Diagram for PT150	91
9.15. Replacement of Digital Amp IC (IC5100)	43	22.1. SC-PT150 Simplified Block	91
9.16. Replacement of Regulator IC (IC2903)	43	23 Terminal Function of ICs	92
9.17. Disassembly of SMPS Module P.C.B.	44	23.1. IC2018 (C2CBYY000438): System Control IC	92
10 Assembly and Disassembly of DVD Mechanism Unit	45	24 Exploded Views	93
10.1. Disassembly Procedure	45	24.1. Cabinet Parts Location	95
11 Service Position	50	24.2. Packaging	97
11.1. Checking & Repairing Panel P.C.B.	50	25 Replacement Parts List	98
11.2. Checking & Repairing Mic P.C.B.	50	25.1. Component Parts List	99

1 Safety Precautions

1.1. GENERAL GUIDELINES

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

1.1.1. LEAKAGE CURRENT COLD CHECK

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

1.1.2. LEAKAGE CURRENT HOT CHECK

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

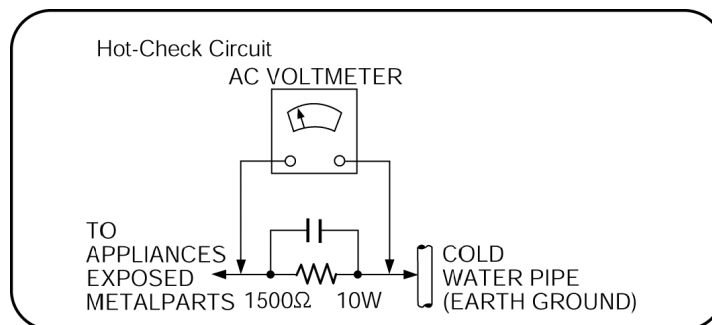


Figure 1

1.2. Before Repair and Adjustment (Using SMPS Module P.C.B.)

This unit uses Switching Mode Power Supply (SMPS) Module P.C.B. to provide the necessary voltages for the unit.

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 110-240 V, 50/60 Hz in NO SIGNAL mode volume minimal should be ~ 650 mA.

Note:

It is advisable to replace the SMPS Module P.C.B. as a unit.

1.3. Protection Circuitry

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

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

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

If this occurs, follow the procedure outlines below:

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

Note:

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

1.4. Safety Parts Information

Safety Parts List:

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

These parts are marked by $\triangle$ 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.

Table 1

Reference No.	Part No.	Part Name & Description	Remarks
340	RAE2023Z-S	TRAVERSE UNIT	[M] $\triangle$
A2	K2CQ2CA00002	AC CORD	[M] $\triangle$ GCT
A2	K2CQ2CA00007	AC CORD	[M] $\triangle$ GC/GCP/GCS
A2	K2CT3CA00004	AC CORD	[M] $\triangle$ GS

• SMPS Module P.C.B.:

Table 2

Reference No.	Part No.	Part Name & Description	Remarks
40	N0AZ6GE00006	SMPS MODULE	[M] $\triangle$ (RTL)
F1	K5D502BNA005	FUSE	[M] $\triangle$

1.5. Caution for AC Cord

(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

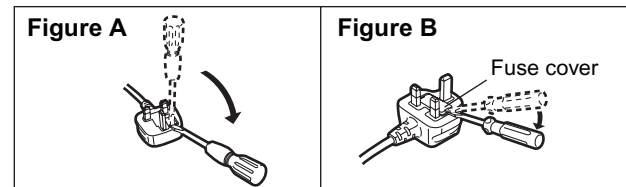
Remove the connector cover.

How to replace the fuse

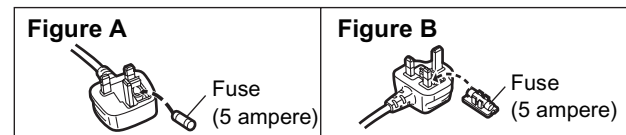
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

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.



2 Prevention of Electro Static Discharge (ESD) to Electrostatically 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 electro static 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).

3 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 :

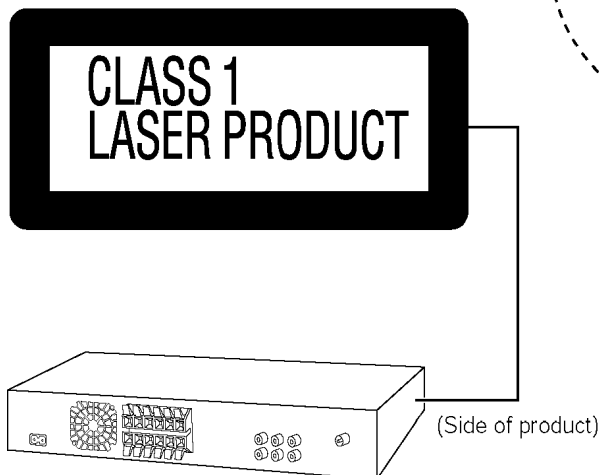
This product utilizes a laser diode with the unit turned on, invisible laser radiation is emitted from the pickup lens.

Wavelength : 662nm/785nm

Maximum output radiation power from pickup : 100μW/VDE

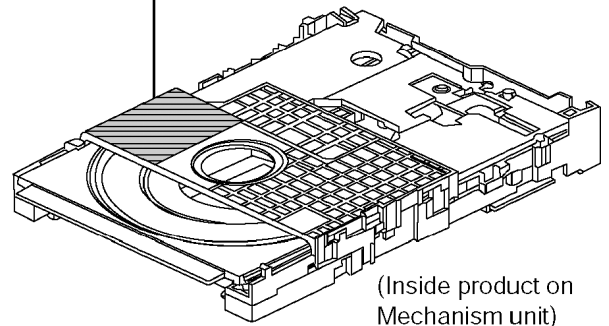
Laser radiation from pickup unit is safety level, but be sure the followings:

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.



LASER CAUTION LABEL

CAUTION	- LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM.	FDA 21 CFR / Class 1
CAUTION	- CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. (EC60825-1 + A2) Class 1M	
WARNING	- KLASS 1M SYNÄLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN DIREKT GENOM OPTISKT INSTRUMENT.	
FORSIGTIG	- SYNLIG OG USYNLIG LASERSTRÅLING KLASS 1M, NÄR LÅGET ER ÅBENT. UNDGÅ AT SE LIGE PÅ MED OPTISKE INSTRUMENTER.	
VARO!	- AVARTAESSA OLET ALLTTIIN LUOKAN 1M NÄKYVÄÄ JA NÄKYMÄTÖNTÄ, LASERSTRÄLYÄ. ÄLÄ KATSO OPTISELLA LAITTEELLA SUORAAN SÄTEESEEN.	
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRALHUNG KLASSE 1M, WENN ABDECKUNG GEÖFFNET. NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN.	
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE, CLASSE 1M, EN CAS D'OUVERTURE. NE PAS REGARDER DIRECTEMENT A L'ANDE D'INSTRUMENTS D'OPTIQUE.	
注意	- ここを開くと可視及び不可視レーザー光が出ます。 ビームを見たり、触れたりしないでください。	
注意	- 打开時有可能发出不可见激光辐射。避免光眼直视。 GB7241.1-2001GB 类	RQ_XSD76



4 About Lead Free Solder (PbF)

4.1. Service caution based on legal restrictions

4.1.1. 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%

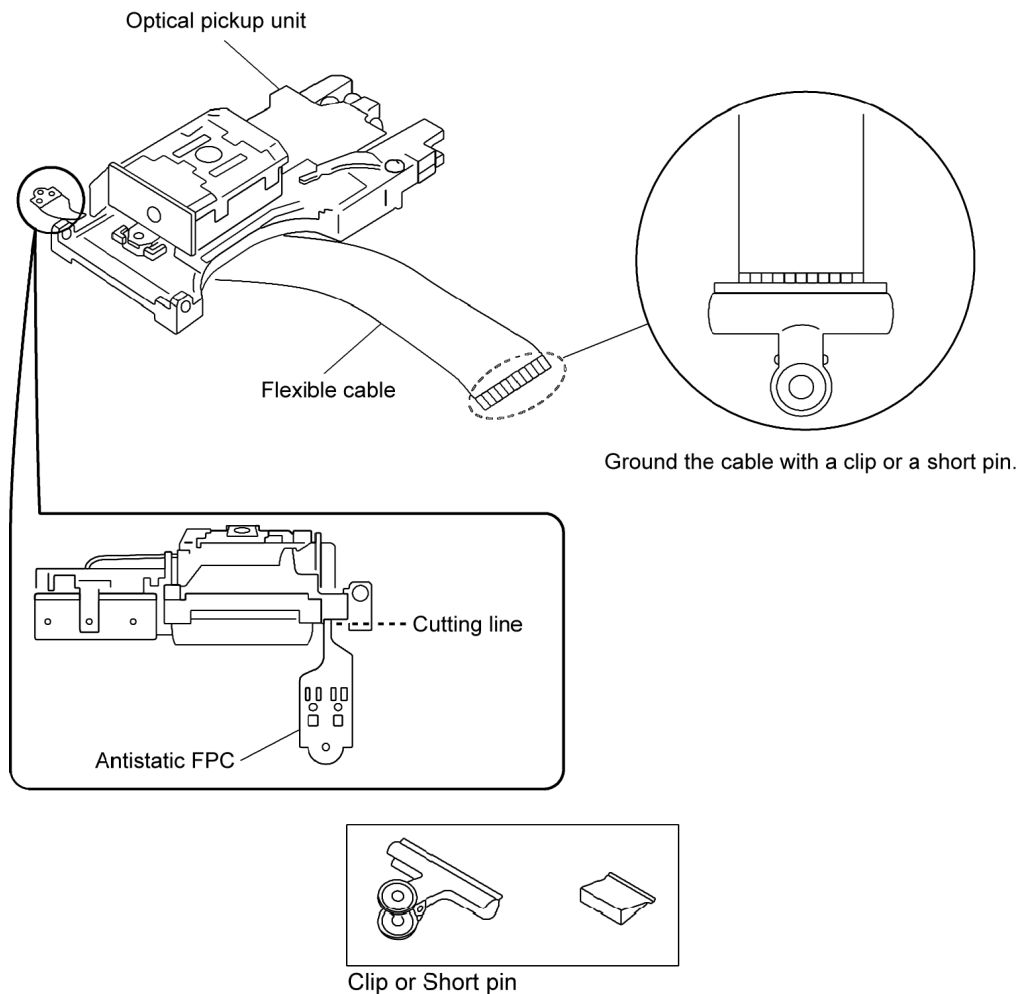
5 Handling Precautions for Traverse Unit

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.

5.1. 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.



5.2. Grounding for electrostatic breakdown prevention

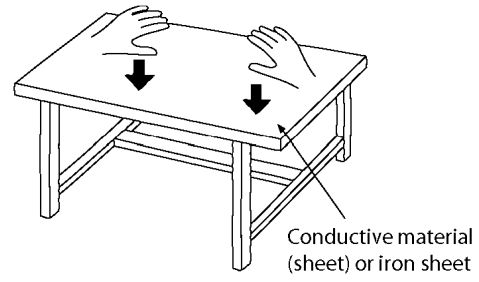
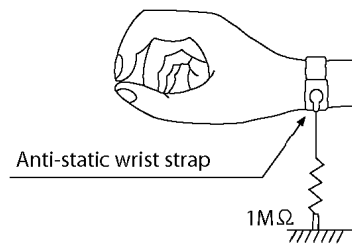
Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

5.2.1. Worktable grounding

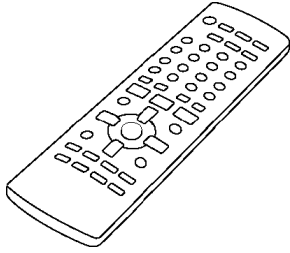
1. Put a conductive material (sheet) or iron sheet on the area where the optical pickup is placed, and ground the sheet.

5.2.2. Human body grounding

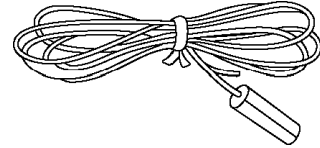
1. Use the anti-static wrist strap to discharge the static electricity form your body.



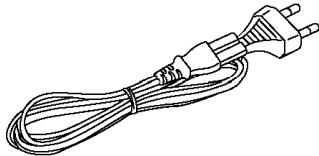
6 Accessories



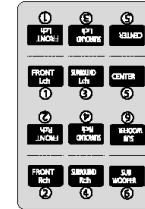
Remote control



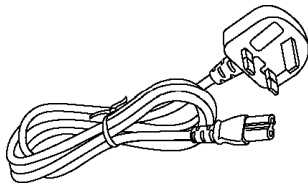
Antenna wire



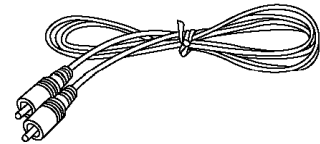
AC cord
(For GC/GCP/GCS/GCT areas)



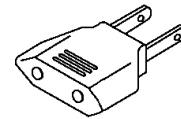
Speaker label



AC cord
(For GS area only)



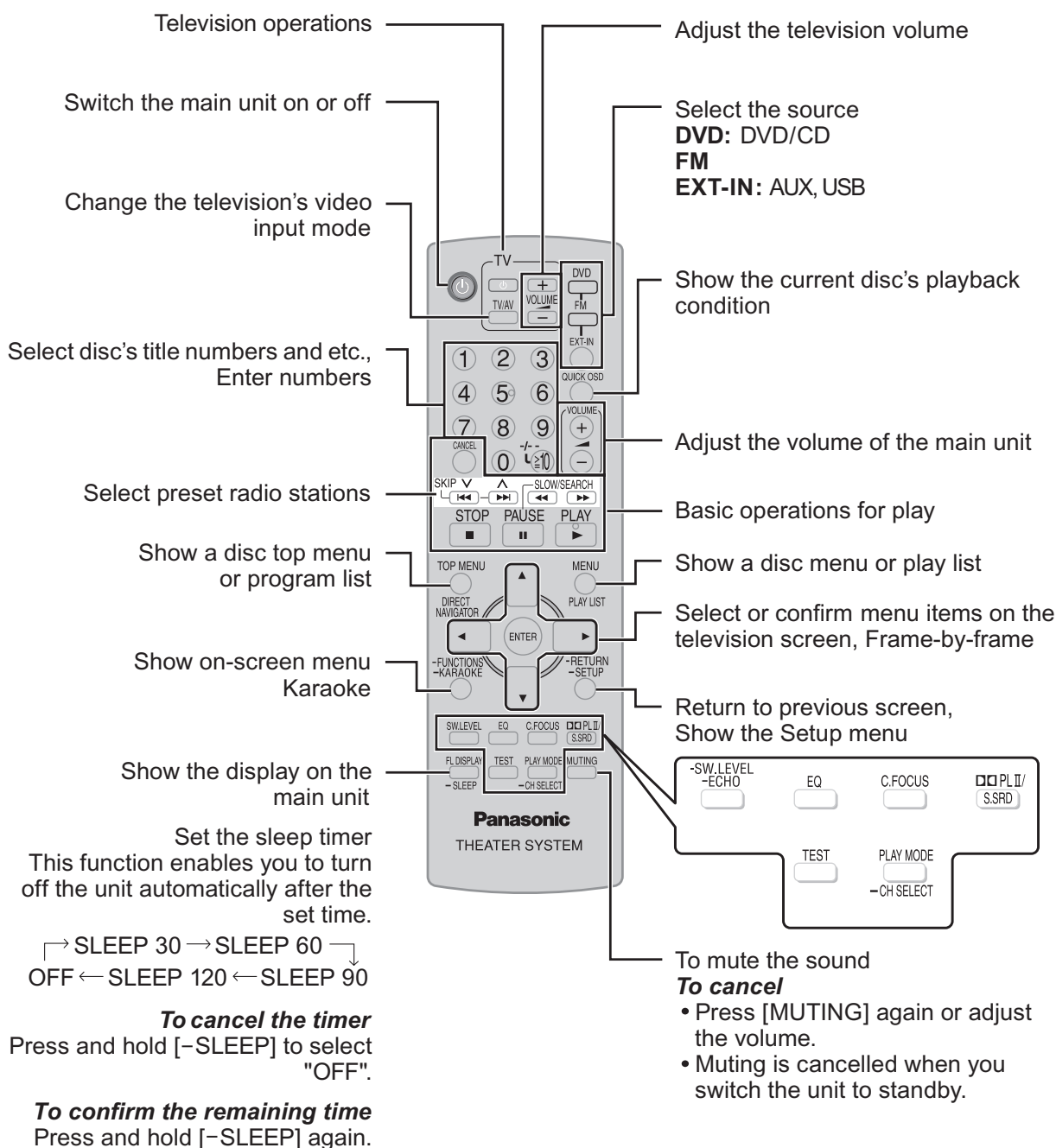
Video cable



AC plug adaptor

7 Operation Procedures

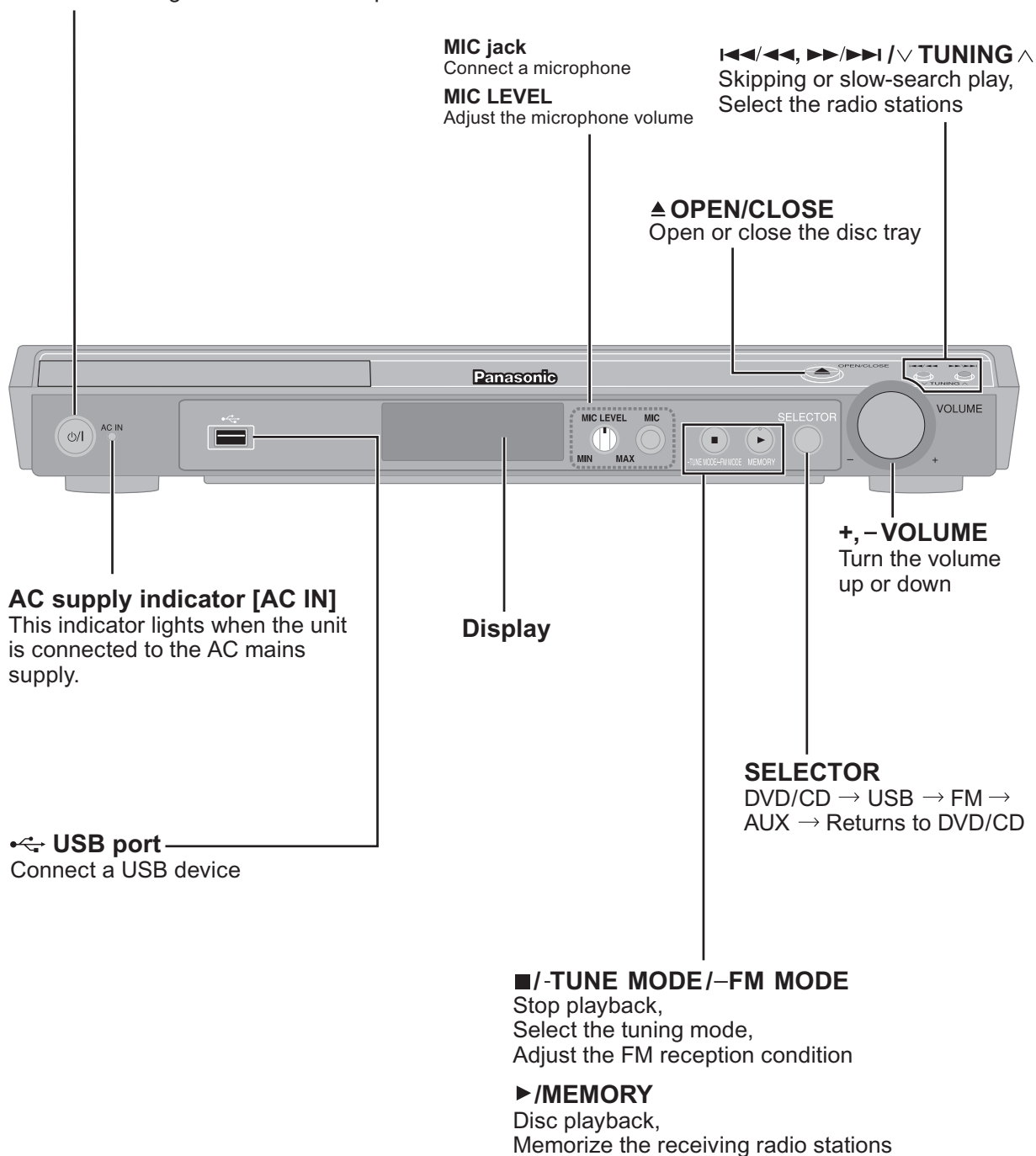
7.1. Remote Control Key Buttons Operations



7.2. Main Unit Key Buttons Operations

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.



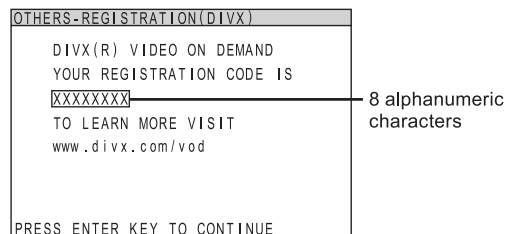
7.3. About DivX VOD Content

DivX Video-on-Demand (VOD) content is encrypted for copyright protection. In order to play DivX VOD content on this unit, you first need to register the unit.

Follow the online instructions for purchasing DivX VOD content to enter the unit's registration code and register the unit. For more information about DivX VOD, visit www.divx.com/vod.

■ Display the unit's registration code

(OI page 23, "REGISTRATION (DIVX)" in "OTHERS" tab)



- 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. ("RENTAL EXPIRED" is displayed.)

When playing this content

- The number of remaining plays is reduced by one if you press [⏮] or press and hold [~SETUP]. you press [■, STOP]. (Press [⏮, PAUSE] to pause play.) you press [⏮, ⏭] (skip) or [⏮, ⏭] (slow/search) etc. and arrive at another content or the start of the content being played.

- Resume (OI page 15, Stop) function does not work.

7.4. USB Connection and Operation

Optional USB connection and operation

WMA MP3 JPEG MPEG4

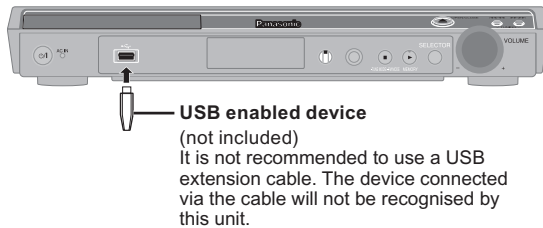
The USB connectivity enables you to connect and play tracks or files from USB mass storage class devices. Typically, USB memory devices. (Bulk only transfer)

Preparation

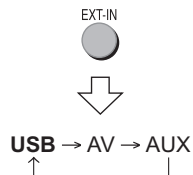
Before connecting any USB mass storage device to the unit, ensure that the data stored therein has been backed up.

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).



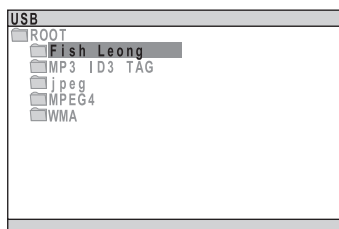
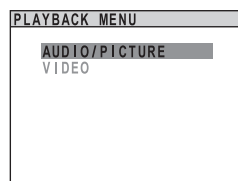
2 To select "USB" as the source, press several times.



Select the desired item for playback.



Example:

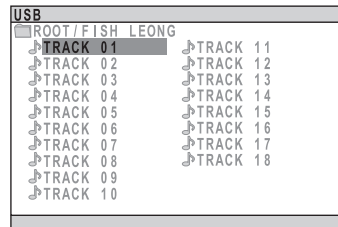


3 Adjust the volume of the main unit.



4 Begin playback by selecting the track from the USB mass storage device.

Example:



To return to the previous screen

Press [-RETURN].

For other operating functions, they are similar as those described on "DISC OPERATION". (OI page 14 to 25)

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.

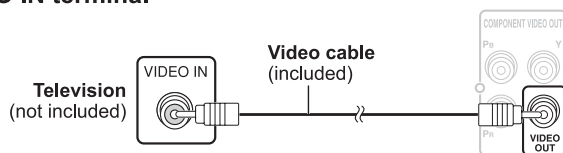
Note

- 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 16/32 (File Allocation Table 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.
- Maximum folder: 256 folders
- Maximum file: 4000 files
- Maximum file name: 12 characters
- Maximum folder name: 12 characters
- Only one memory card will be selected when connecting a multiport USB card reader. Typically the first memory card inserted.

7.5. Audio and Video Connections

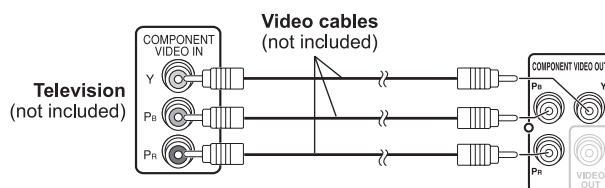
7.5.1. Television with Video In Terminal

■ Television with a VIDEO IN terminal



7.5.2. Television with Component Video In Terminals

■ Television with COMPONENT VIDEO IN terminals



Using the COMPONENT VIDEO OUT terminals

The COMPONENT VIDEO OUT terminals provides a purer picture. These terminals can be used for either interlaced or progressive output. Connection using these terminals outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

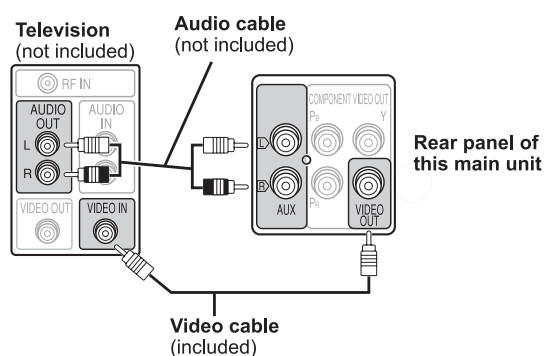
- The description of the component video input terminals depends on the television or monitor (example: Y/P_B/P_R, Y/B-Y/R-Y, Y/C_B/C_R).
- Connect to terminals of the same color.

To enjoy progressive video

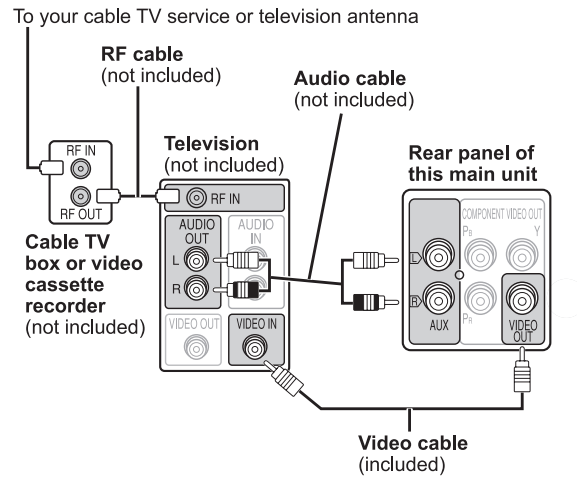
- Connect to a progressive output compatible television.
- Set the "VIDEO OUT (I/P)" to "PROGRESSIVE" (OI page 22, "VIDEO" tab).
- All Panasonic televisions that have "PROGRESSIVE" input connectors are compatible. Consult the manufacturer if you have another brand of television.

7.5.3. Audio Connection for Video Cassette Recorder or Television

This audio connection will enable you to play audio from your television through your home theater system.



7.5.4. Connection for Set Top Box



7.6. Disc Information

7.6.1. Disc Playability (Media)

Discs that can be played

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

■ Recorded discs (○: Playable, ×: Not playable)

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

- 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 [Item 7.6.2 File Extension Type Support (WMA/MP3/JPEG/MPEG4/DivX)]

※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 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.

※7 Closing the session will also work.

※8 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].

※9 Functions added with DivX ultra are not supported.

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.

■ Discs that cannot be played

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 cartridge, 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.

■ 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. (OI page 22, "NTSC DISC OUT" in "VIDEO" tab.)

7.6.2. File Extension Type Support (WMA/MP3/JPEG/MPEG4/DivX)

Tips for making data discs

- 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 (→ see 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).

MP3 (Extension: ".MP3" or ".mp3")

- Compatible compression rate: between 32 kbps and 320 kbps.
- This unit does not support ID3 tags.
- Compatible sampling rates:
 - DVD-RAM, DVD-R/RW: 11.02, 12, 22.05, 24, 44.1 and 48 kHz
 - CD-R/RW: 8, 11.02, 12, 16, 22.05, 24, 32, 44.1 and 48 kHz

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 rec orders 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.
- GMC (Global Motion Compensation) is 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.

8 Self-Diagnosis and Special Mode Setting

8.1. Service Mode Summary Table

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:

Player buttons	Remote control unit buttons	Application	Note
[STOP]	[0]	Error code check.	(Refer to the section "8.2.1. 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 "8.2.2. Service Mode Table 2" for more information.)
	[1]	ADSC internal RAM data check.	
	[3]	CD laser drive current check.	
	[6]	Region display and mode.	(Refer to the section "8.2.3. 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 "8.2.4. Service Mode Table 4" for more information.)
	[EQ]	CPPM/CRM keys check.	
	[ENTER]	DVD Module P.C.B. reset.	
	[▲]	Timer 1 check.	(Refer to the section "8.2.5. Service Mode Table 5" for more information.)
	[▼]	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.

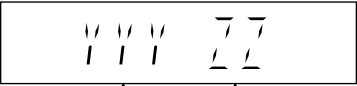
8.2. Service Mode Table

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

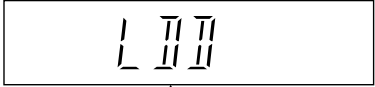
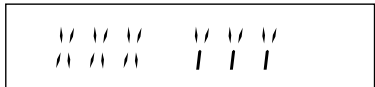
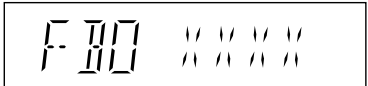
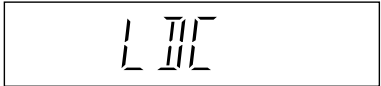
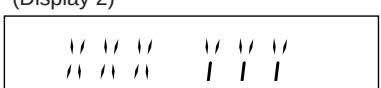
Special Note:

- 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 7.1 for the section on "Remote Control Key Buttons Operations".

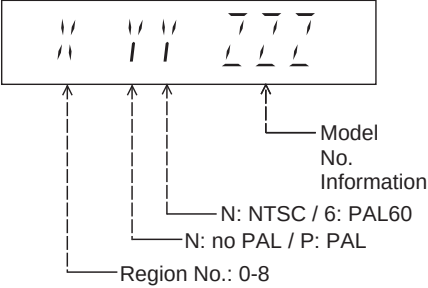
8.2.1. Service Mode Table 1

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 rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation. (Display 2) 	In STOP (no disc) mode, press [STOP] button on the main unit, and [5] button on the remote control unit. Press [POWER] button to exit. Press [FL Display] on remote control unit for next page (FL Display).
Error code check	Error code check The latest error code stored in the EEPROM IC is displayed. Note: Refer to "Section 8.3 DVD Self Diagnostic Function-Error Code" for more detailed information on the error codes.	 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)  The value denotes the current in decimal notation. (Display 2)  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.

8.2.2. 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 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.
ADSC internal RAM data check	ADSC internal RAM data check. ADSC internal RAM data is read out and displayed.	 Address RAM data for specified address The value is shown in hexadecimal notation. The above example shows the data in ADSC address FBOh is XXXXh.	In STOP (no disc) mode, press [STOP] button on the main unit, and [1] button on the remote To exit, press [POWER] button.
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 0XXmA and the measured value is 0YYmA.	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)

8.2.3. 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. FL Display sequence: Display 1→2→3.	(Display 1)  (Display 2)  (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	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 Figure 2 for "Video Design Information".		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 Menu Language
P, PC, PX	USA, Canada, PX	1	NTSC	NTSC (*A)	1PN	English, Spanish, Canadian French
(S)	Japan	2	NTSC	NTSC (*A)	2PN	Japanese, English
E	Europe	2	PAL	PAL (*C)	2P6	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
EB, EG	Europe	2	PAL	PAL (*C)	2P6	English, French, German, Italian, Spanish, Polish, Swedish, Dutch
GC, GS	Middle East	2	PAL	PAL (*C)	2P6	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
GCS, GD, GT, GCT	South East Asia, Korea, Taiwan	3	PAL NTSC	NTSC (*B)	3PN	English, Traditional Chinese
GN	New Zealand, Australia	4	PAL	PAL (*C)	4P6	English, French, German, Italian, Spanish, Polish, Swedish, Dutch
PL, GCP, LB	Central/South/Latin America	4	NTSC	NTSC (*D)	4PN	English, Spanish, French, Brazilian Portuguese
EE	CIS	5	SECAM	PAL (*C)	5P6	English, French, German, Spanish, Polish, Russian, Czech, Hungarian
GK	China	6	PAL	NTSC (*B)	6PN	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	PAL60

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

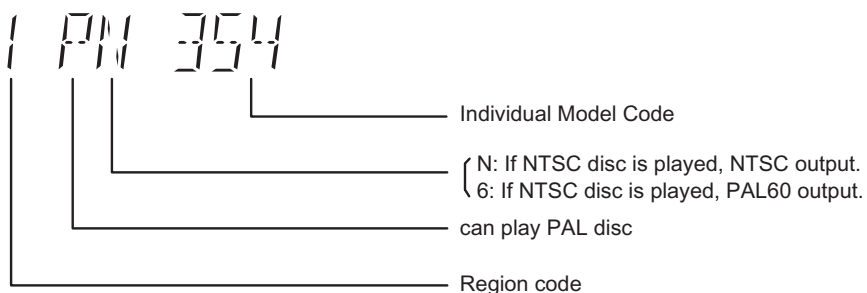
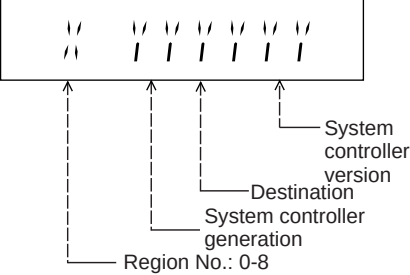
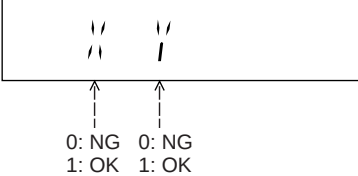
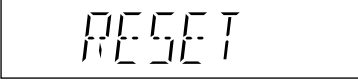
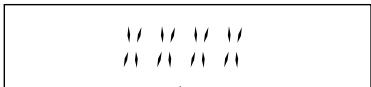
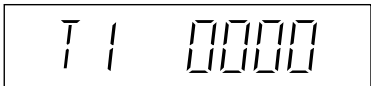


Figure 2

8.2.4. Service Mode Table 4

Mode Name	Item Description	FL Display	Key Operation
			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 [EQ] 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 [ENTER] button on the remote control unit. Cancelled automatically 5 seconds later.

8.2.5. Service Mode Table 5

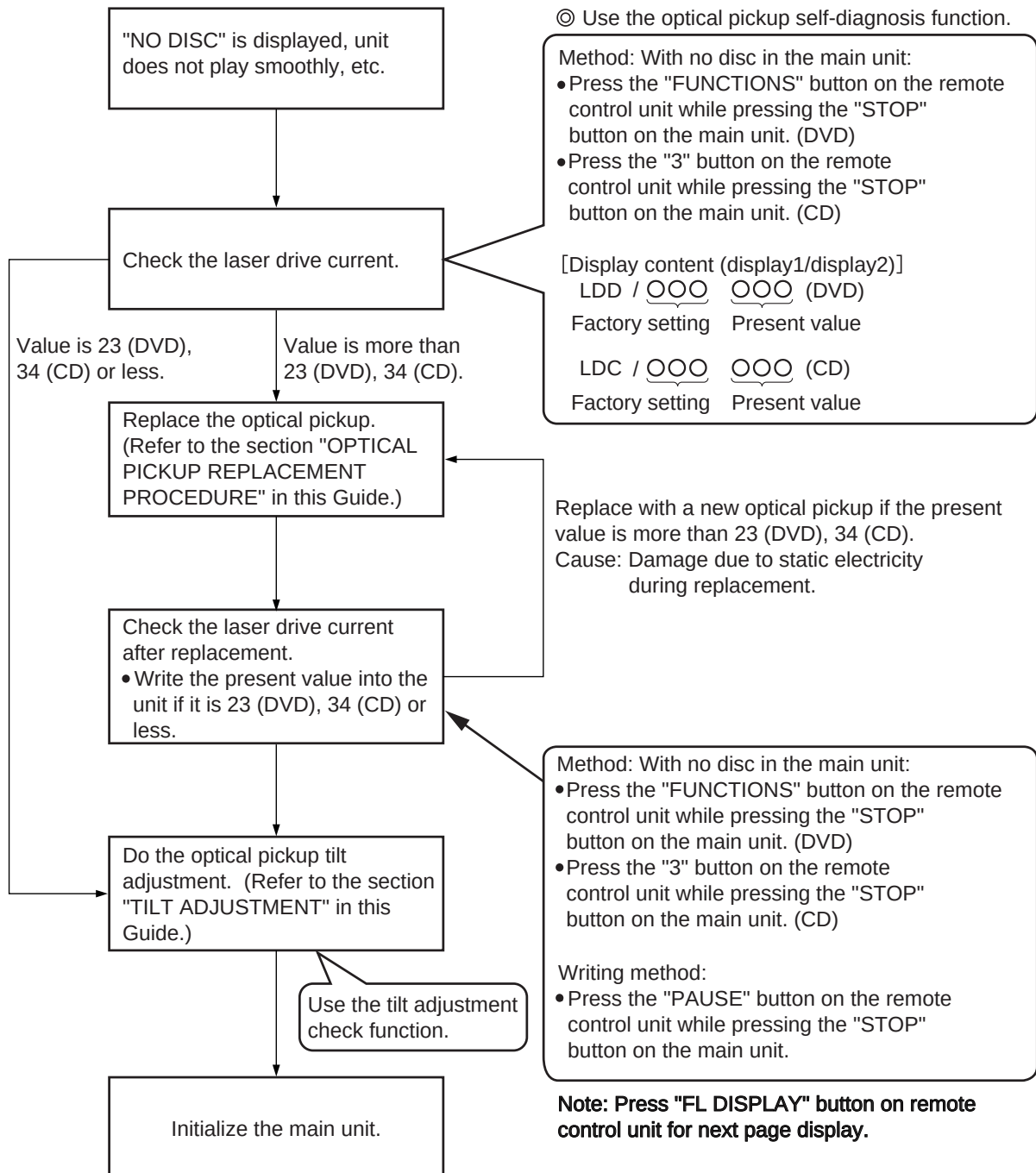
	Item	FL Display	Key Operation
Mode Name	Description		Front Key
Timer 1 check	Timer 1 check Laser operation timer is measured separately for DVD laser and CD laser. FL Display sequence: Display 1→2.	(Display 1)  Shown to the above is DVD laser usage time, and to the below is CD laser usage time. Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999". (DVD laser) (Display 2)  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.

8.2.6. 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 55.

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.)

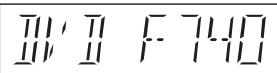
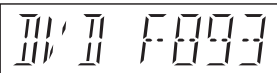
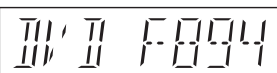
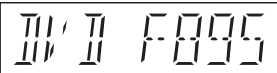
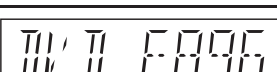
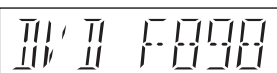


8.3. DVD Self Diagnostic Function-Error Code

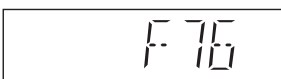
8.3.1. Mechanism Error Code Table

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.

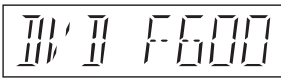
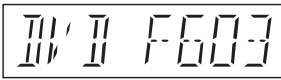
8.3.2. DVD Module Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
U702	DVD/DVI I2C communication error	The communication error of I2C when connecting it with DVD/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	DVD/DVI attestation error	When attestation (HDCP) with the TV side fails when connecting it with DVD/DVI, it is generated.		Press [■ STOP] on main unit for next error.
U704	DVD/DVI SRM Riborcerar	It is generated at the equipment to which the TV set is Riborced when connecting it with DVD/DVI.		Press [■ STOP] on main unit for next error.
U705	DVD/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 DVD/DVI.		Press [■ STOP] on main unit for next error.
F740	DVD device key	I2C error when writing DVD 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.
F896	No existence model	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.
F898	Disagreement of hardware and software	Unsuitable combination of AV Decoder, SDRAM & FLASH ROM IC (firmware).		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. (Firmware)		Press [■ STOP] on main unit for next error.

8.3.3. Power Supply 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 FL Display 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 2 seconds 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.) not available.		Press [■ STOP] on main unit for next error.

8.3.4. ECC Error Code Table

Error Code	Diagnosis Contents	Description of error	Automatic FL Display	Remarks
F600	Administrative information cannot be acquired by the recovery error.	It becomes impossible NaviPack etc. were done, and not to be able to acquire necessary information in the navigation's changing due to wound etc. of DISC, and to have done the reproduction transition.		Press [■ STOP] on main unit for next error.
F601	Irregular sector ID was demanded.	It tried to access the position that did not exist on DISC by the recording error etc. of authoring.		Press [■ STOP] on main unit for next error.
F603	KEYDET cannot be acquired by the recovery error.	The data for decoding copyright protection (CSS) cannot be acquired due to wound etc. of DISC, and it is not possible to reproduce.		Press [■ STOP] on main unit for next error.

8.3.5. 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.

8.4. 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.

8.4.1. 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 player for at least three seconds. (The message, "___LOCKED_" appears when the function is activated.)

Note:

OPEN/CLOSE ▲ is invalid and the player 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 player for at least three seconds. (The message, "___LOCKED_" appears when the function is activated.)

Note:

The following buttons are invalid and the player displays "___LOCKED_" while the lock function mode is entered.

Player	▲, ■, SELECTOR, ►►►/ , ►►►, ◀◀◀/ ◀◀◀
Remote controller unit	NUMERIC KEYS 0~9, ≥10, ■, ►►, ◀◀, ►►►, ◀◀◀, ►►, ◀◀, FUNCTIONS/KARAOKE, TOP MENU/DIRECT NAVIGATOR, RETURN/SETUP, FL DISPLAY/SLEEP, MUTING, MENU/PLAY LIST, TEST, EXT-IN, FM, UP, DOWN, LEFT & RIGHT

8.4.2. 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.)

8.5. Service Precautions

8.5.1. Recovery after the DVD player is repaired

- When the FLASH ROM IC or DVD Module P.C.B. is replaced, carry out the recovery processing to optimize the drive.
Playback the recovery disk to process the recovery automatically.
- Recovery disc (Product number: RFKZD03R005) [SPG]
- Performing recovery process
 1. Load the recovery disc RFKZD03R005 on to the player and run it.
 2. Recovery is performed automatically. When it is finished, a message appears on the screen.
 3. Remove the recovery disc.
 4. Turn off the power.
 5. Initialize the player.

8.5.2. Firmware version-up of the DVD player

- The firmware of the DVD player may be renewed to improve the quality including operability and playability to the substandard discs.processing to optimize the drive.
The recovery disc has also firmware version-up.
- After version-up, recovery processing is executed automatically.
- Part number of the recovery disc for version-up will be noticed when it is supplied.
- Updating firmware
 1. Load the recovery disc on to the player and run it.
 2. Firmware version of the player is automatically checked. Appropriate message appears whenever necessary.
 3. Using remote controller's cursor key, select whether version updating is to be done or not. (Selection of Yes/No)
 4. a. If Yes is selected, version updating is performed.
b. If No is selected, only recovery is performed.
 5. a. When updating is finished, remove the disc according to the message appearing on the screen.
b. Remove the disc according to the message appearing on the screen.
 6. Turn off the power.

Note:

If the AC power supply is shut out during version-up due to a power failure, the version-up is improperly carried out.
In such a case, replace the FLASH ROM IC and carry out the version-up again.

8.5.3. DVD Module P.C.B. Reset

- When after replacing FLASH ROM IC or DVD Module P.C.B., FL displays error code " DVD F897". This means the unit is not initialized properly and the following process needs to be carry out.
- Procedures:
 1. Press ≥ 10 on remote control while pressing "STOP" button on main unit. (To enter into initialization)
 2. FL display show "INIT"
 3. While still pressing "STOP" button on main unit, press "ENTER" on remote control. (To reset the unit)
 4. FL will display "RESET" before FL display will change to TOC reading again.
 5. Power off unit. Unplug the AC cord.
 6. Power on the unit. It should be no problem. If problem persist check on the DVD Module P.C.B. or FLASH ROM IC.

9 Assembling and Disassembling

“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. The Digital Amp IC may have high temperature after prolonged use.
5. 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**

6. This unit uses Switching Mode Power Supply (SMPS) Module P.C.B. for providing the voltage supply. It is advisable to replace as a unit. Do not attempt to replace any individual components on board.
7. Select items from the following index when checks or replacement are required.
 - Disassembly of Top Cabinet
 - Disassembly of DVD Lid (When taking out disc manually)
 - Disassembly of Front Panel
 - Disassembly of Volume P.C.B.
 - Disassembly of Panel P.C.B.
 - Disassembly of Mic P.C.B.
 - Disassembly of USB P.C.B.
 - Disassembly of Rear Panel
 - Disassembly of DVD Mechanism Unit
 - Disassembly of DVD Module P.C.B.
 - Disassembly of USB Relay P.C.B.
 - Disassembly of Main P.C.B. & Tuner Extent P.C.B.
 - Replacement of Digital Amp IC (IC5100)
 - Replacement of Regulator IC (IC2903)
 - Disassembly of SMPS Module P.C.B.

CAUTION NOTE:

Please use original screw and at correct locations.

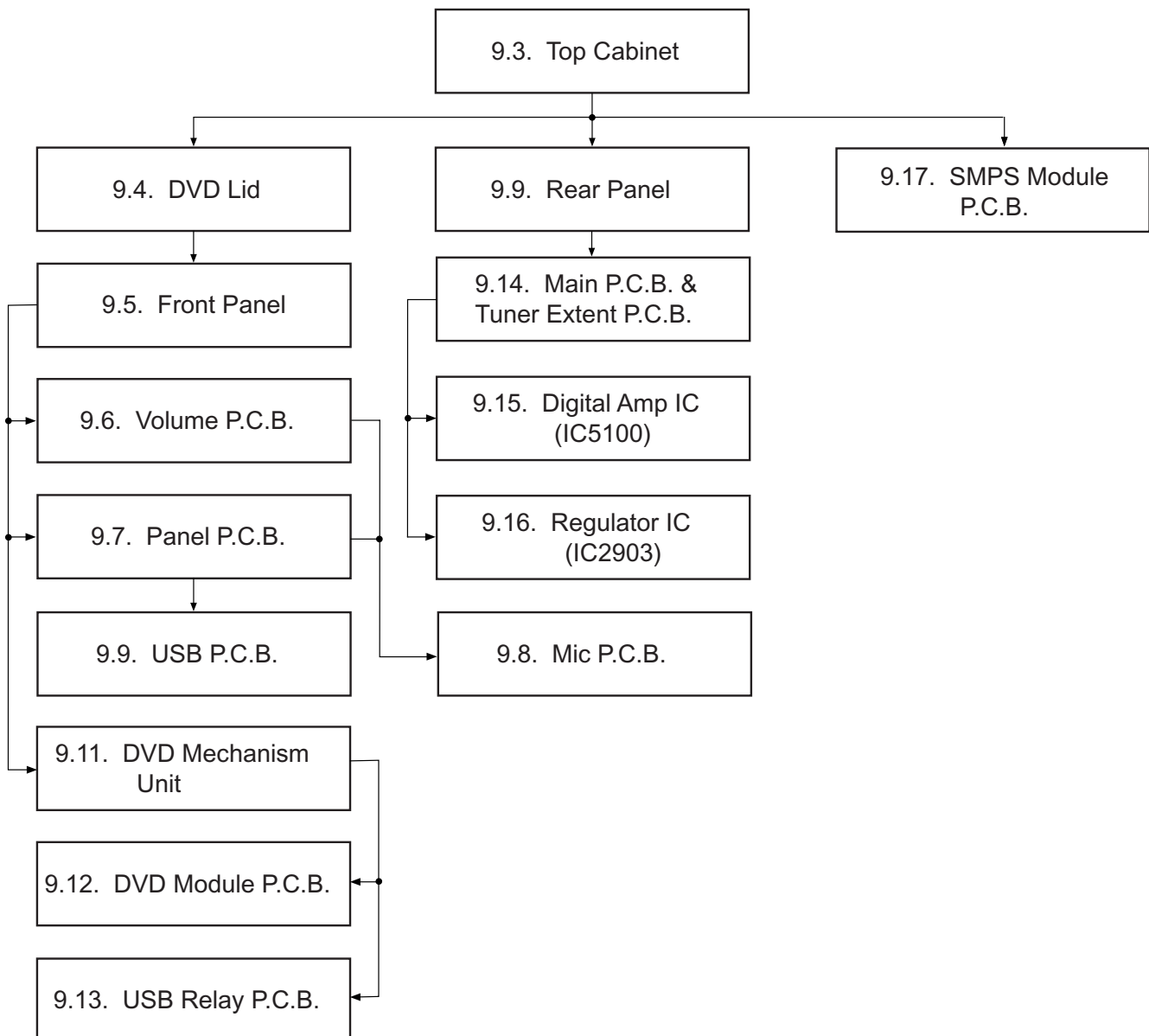
Below shown is part no. of different screw types used:

- | | |
|------------------------|----------------------|
| a :RHD30007-1SJ | e :XTV2+6GFJ |
| b :RHD30119-S | f :RHD30111-3 |
| c :RHD26046 | g :XTB3+8JFJ |
| d :RHDV30006 | h :XTN26+6GFJ |

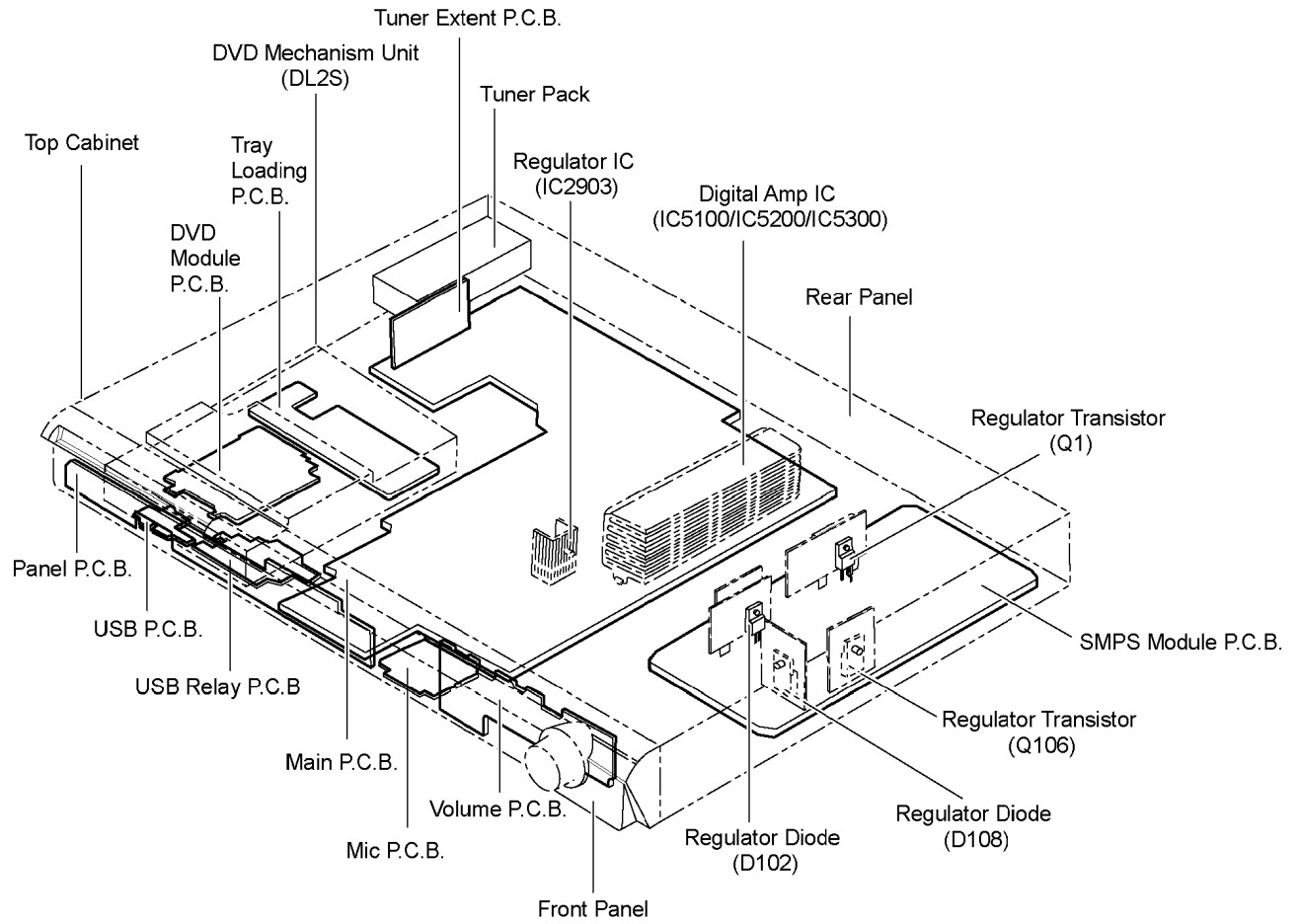
• **SMPS Module P.C.B. Replacement:**

1. This model uses **SMPS Module P.C.B.** to provide the necessary supply voltages for the unit.
2. It is advisable to replace the **SMPS Module P.C.B.** once upon detecting of non-working conditions. Do not attempt to repair or replace it by components.
3. Non-working conditions include:
 - IWith AC supply but no supply voltages after checking at CN2 and/or CN3 respectively.
 - IBroken fuse. (Substitute compatible part for fuse: K5D502BNA005)
 - IWire connection problem.
 - INon-working parts in **SMPS Module P.C.B.** (Check components)

9.1. Disassembly Flow Chart

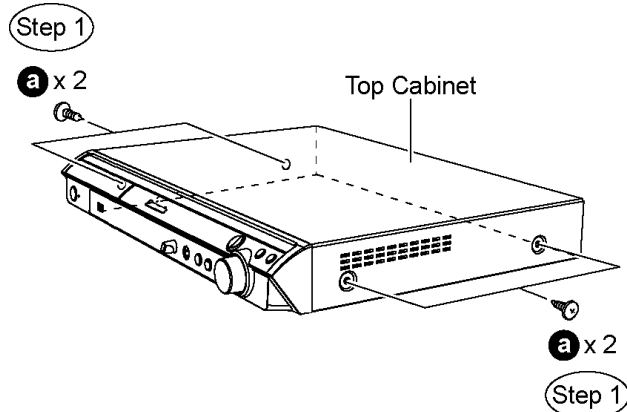


9.2. Main Components and P.C.B. Locations



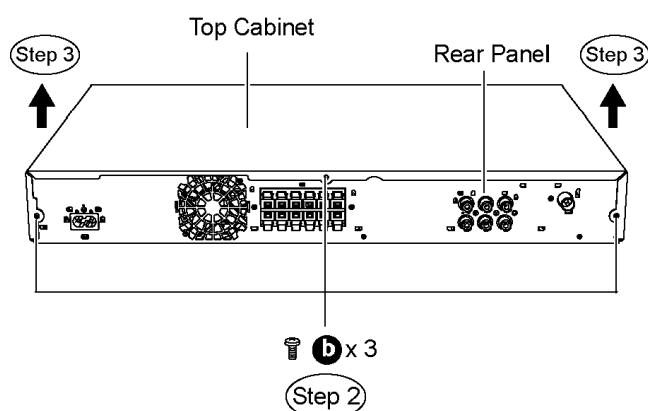
9.3. Disassembly of Top Cabinet

Step 1 Remove 4 screws.



Step 2 Remove 3 screws at the rear panel

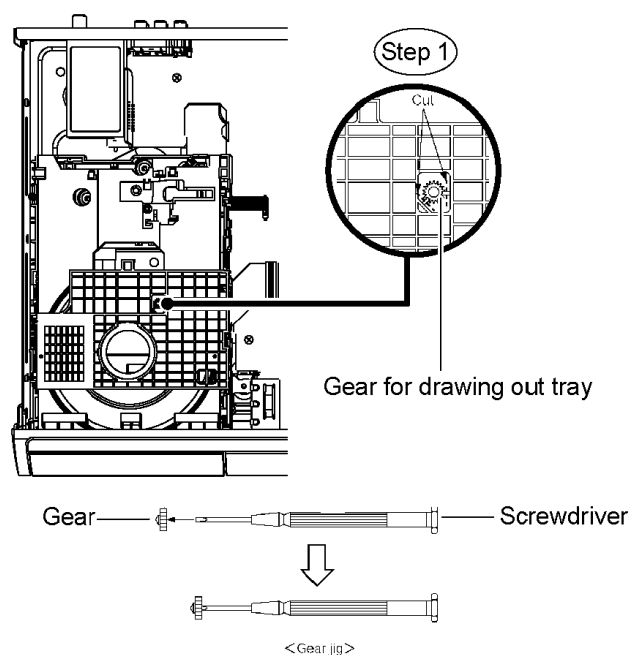
Step 3 Lift up and remove the top cabinet.



9.4. Disassembly of the DVD Lid (When taking out disc manually)

• Follow (Step 1) to (Step 3) of Item 9.3.

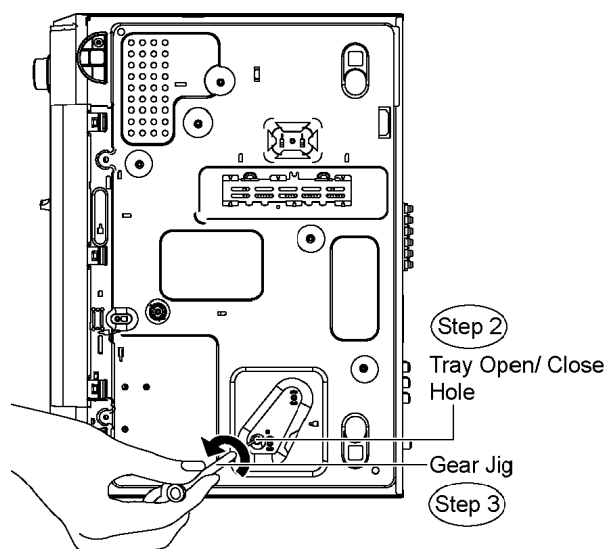
Step 1 Detach the gear (For drawing out tray) from the mechanism unit. It inserts a screw driver in the gear. (The gear jig)



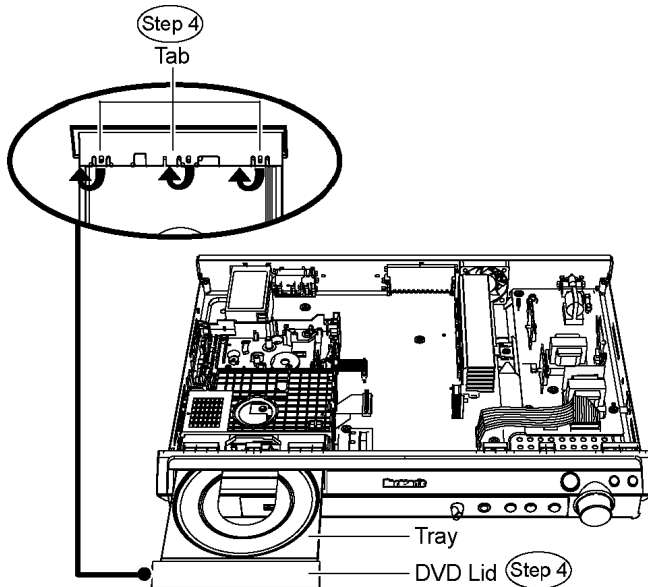
Step 2 Insert the gear jig into the tray open/ close hole.

Step 3 Turn the gear jig counterclockwise to open the tray.

Note : Do not use force to push the tray backwards as it can damage the mechanism unit.



Step 4 Release the tabs and remove the DVD lid.



Note: You can return the tray by turning the gear jig clockwise.

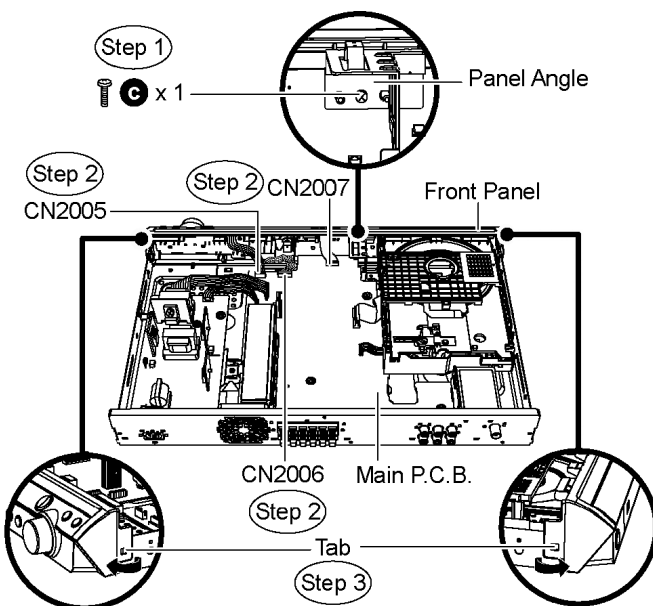
9.5. Disassembly of Front Panel

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.

Step 1 Remove 1 screw from the panel angle.

Step 2 Detach FFC cables from the connectors (CN2005, CN2006 & CN2007) on Main P.C.B.

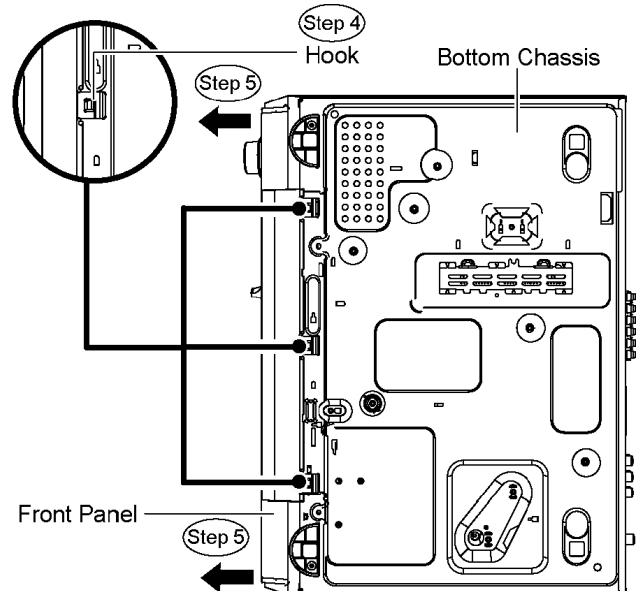
Step 3 Release the tab on each side of the front panel.



Step 4 Upset the unit and release 3 hooks at the bottom chassis.

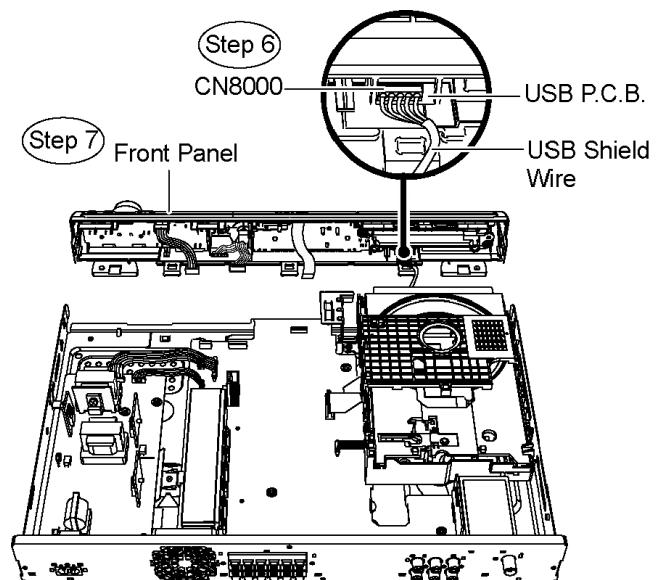
Step 5 Detach the front panel slightly forward in the direction of arrow.

Caution: Do not attempt to exert strong force when detaching the front panel.



Step 6 Detach USB shield wire from the connector (CN8000) on USB P.C.B.

Step 7 Remove the front panel.

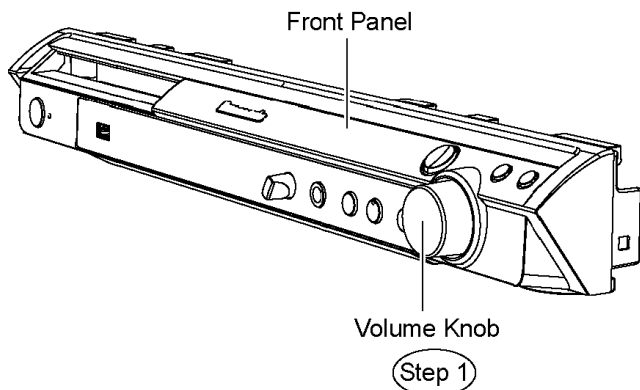


Special Note : Avoid placing the set in a position that might cause damage to the jacks when removing the front panel.

9.6. Disassembly of Volume P.C.B.

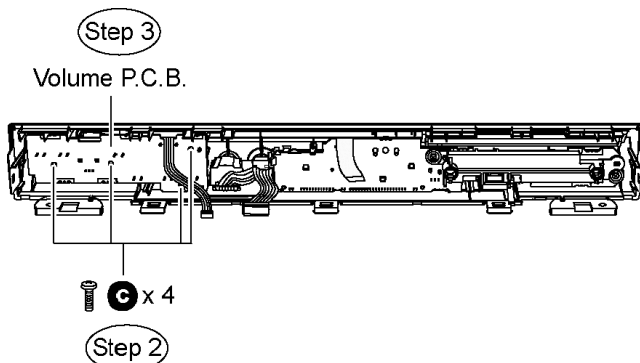
- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 7) of Item 9.5.

Step 1 Remove the volume knob.



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

Step 3 Remove Volume P.C.B.



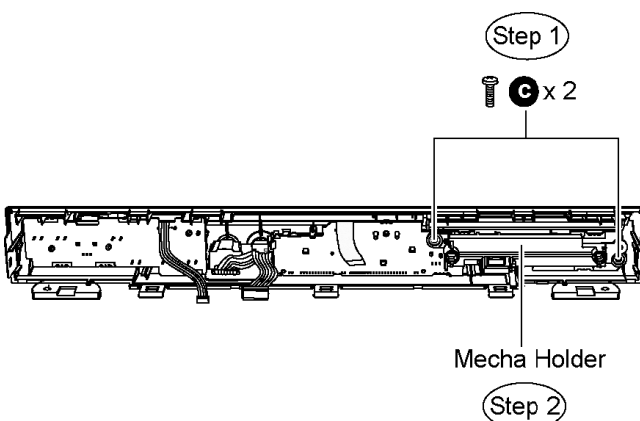
9.7. Disassembly of Panel P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 7) of Item 9.5.

- Disassembly of Mecha Holder.

Step 1 Remove 2 screws.

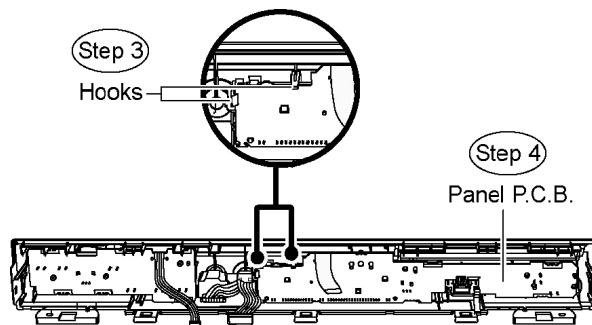
Step 2 Remove the mecha holder.



- Disassembly of Panel P.C.B.

Step 3 Release 2 hooks.

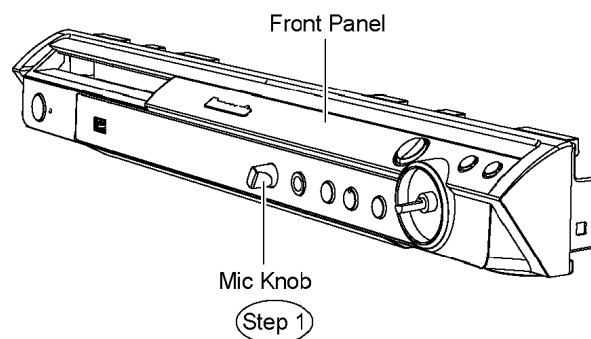
Step 4 Remove Panel P.C.B.



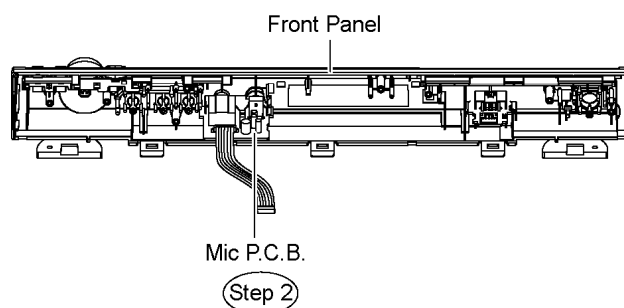
9.8. Disassembly of Mic P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 7) of Item 9.5.
- Follow (Step 1) to (Step 3) of Item 9.6.
- Follow (Step 1) to (Step 4) of Item 9.7.

Step 1 Remove the mic knob.



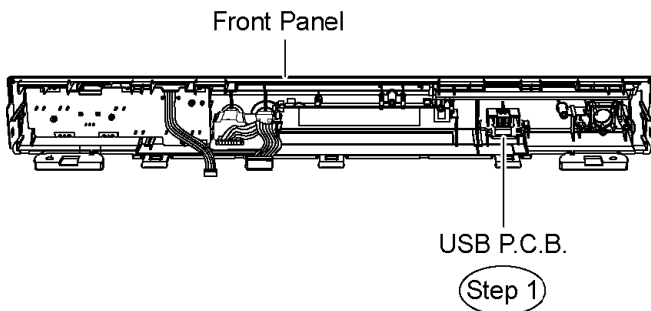
Step 2 Remove Mic P.C.B.



9.9. Disassembly of USB P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 7) of Item 9.5.
- Follow (Step 1) to (Step 4) of Item 9.7.

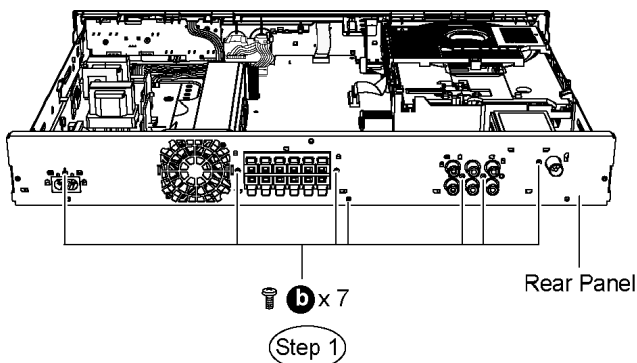
Step 1 Remove USB P.C.B.



9.10. Disassembly of Rear panel

• Follow (Step 1) to (Step 3) of Item 9.3.

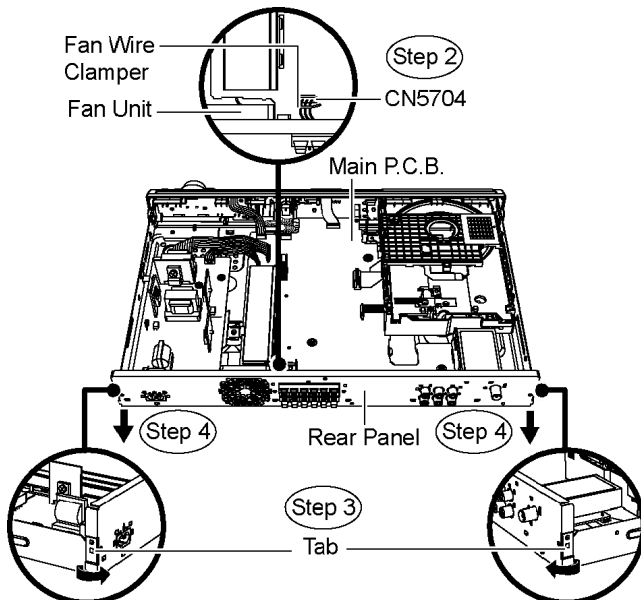
Step 1 Remove 7 screws from the rear panel.



Step 2 Remove the fan wire clammer to detach the fan unit connector (CN5704) on Main P.C.B.

Step 3 Release the tab on each side of the rear panel in the direction of arrows.

Step 4 Remove the rear panel.

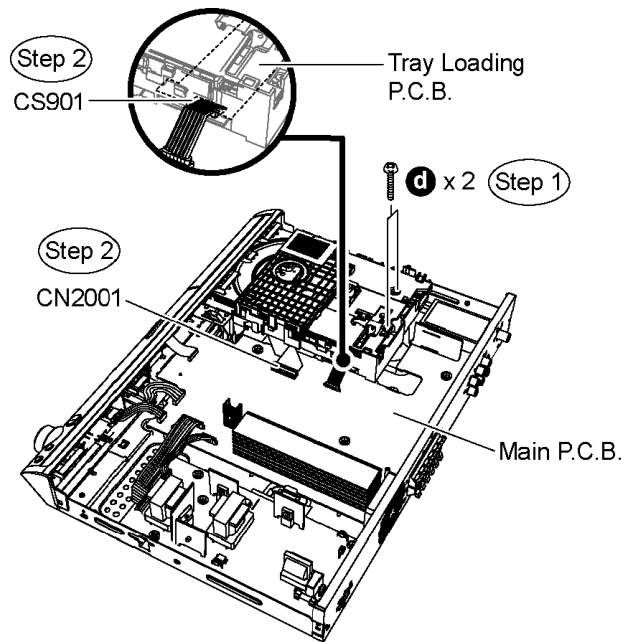


9.11. Disassembly of DVD Mechanism Unit

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.

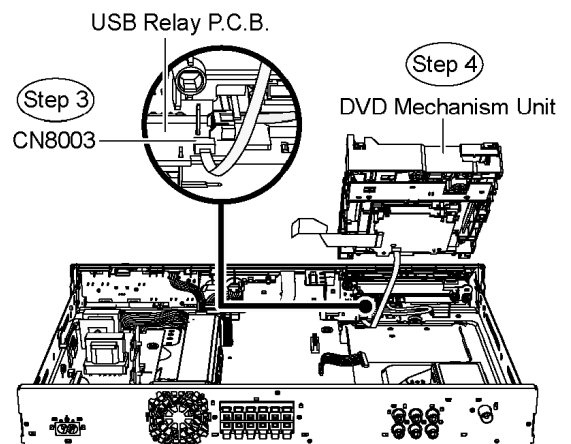
Step 1 Remove 2 screws from the DVD mechanism unit.

Step 2 Detach FFC cable from the connectors (CN2001) on Main P.C.B. and (CS901) on Tray Loading P.C.B.



Step 3 Lift up the DVD mechanism unit and detach FFC cable from the connector (CN8003) on USB Relay P.C.B..

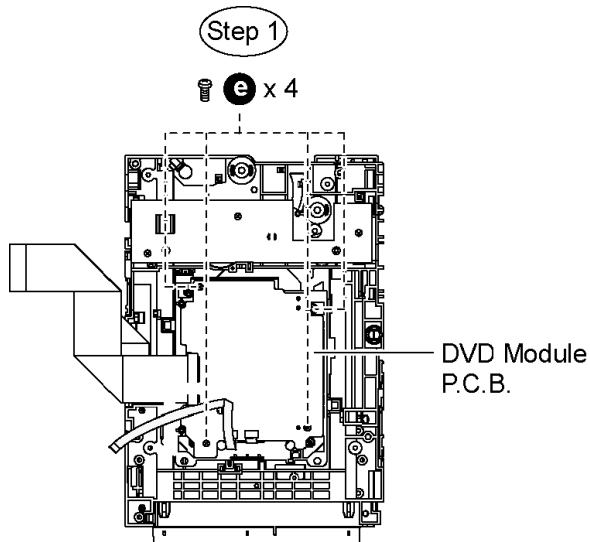
Step 4 Remove DVD mechanism unit.



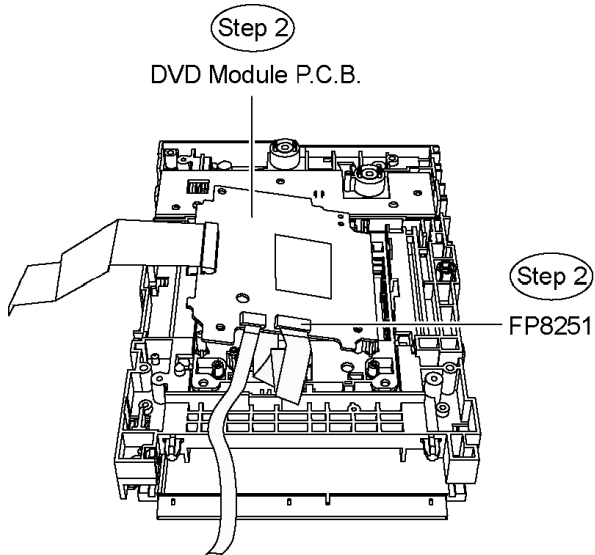
9.12. Disassembly of DVD Module P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 4) of Item 9.11.

Step 1 Remove 4 screws from DVD Module P.C.B.

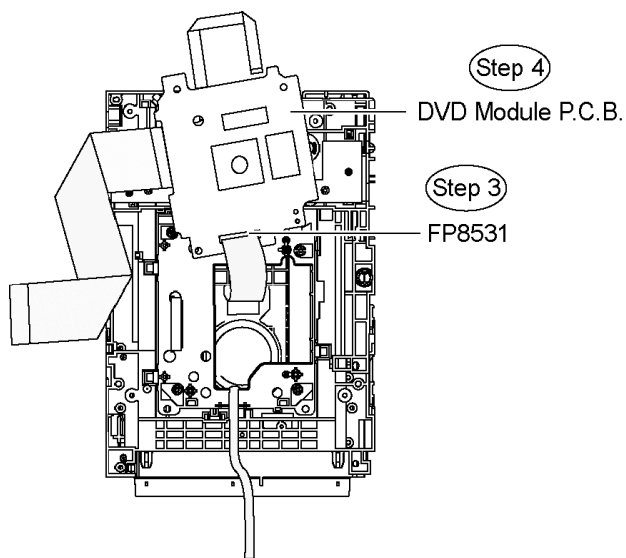


Step 2 Lift up DVD Module P.C.B. and detach FFC cable from the connector (FP8251).



Step 3 Turn over DVD Module P.C.B. and detach FFC cable from the connector (FP8531).

Step 4 Remove DVD Module P.C.B.



Caution : Do not use strong or excessive force to avoid damage to FFC cables.

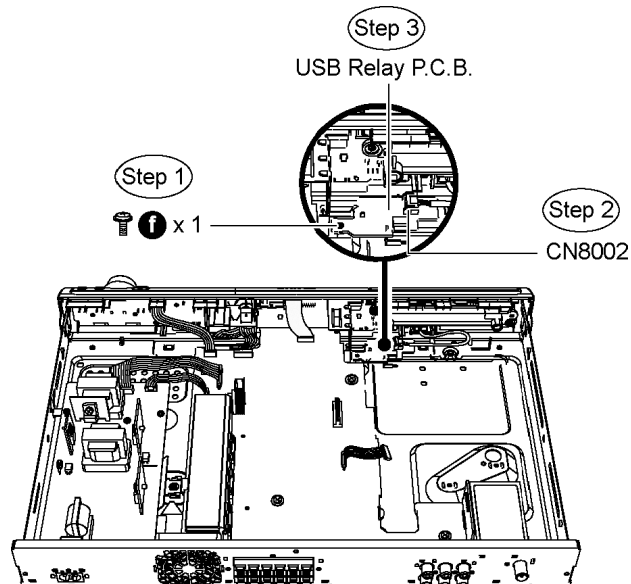
9.13. Disassembly of USB Relay P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.4.
- Follow (Step 1) to (Step 4) of Item 9.11.

Step 1 Remove 1 screw.

Step 2 Detach FFC cable from the connector (CN8002).

Step 3 Lift up and remove USB Relay P.C.B.



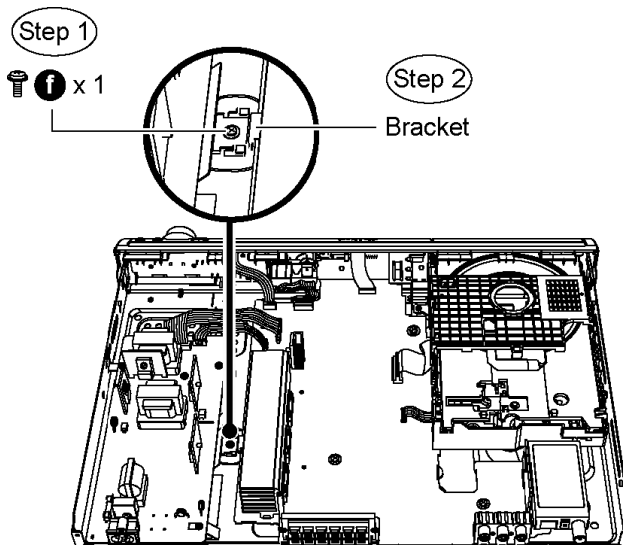
9.14. Disassembly of Main P.C.B. & Tuner Extent P.C.B.

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.10.

- Disassembly of Bracket.

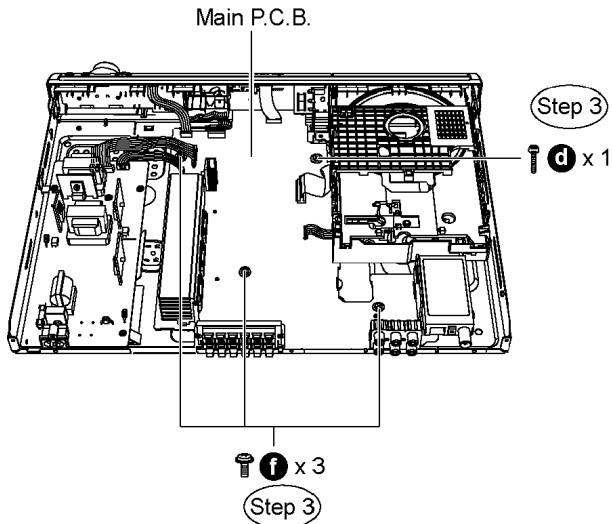
Step 1 Remove 1 screw from the bracket.

Step 2 Remove the bracket.



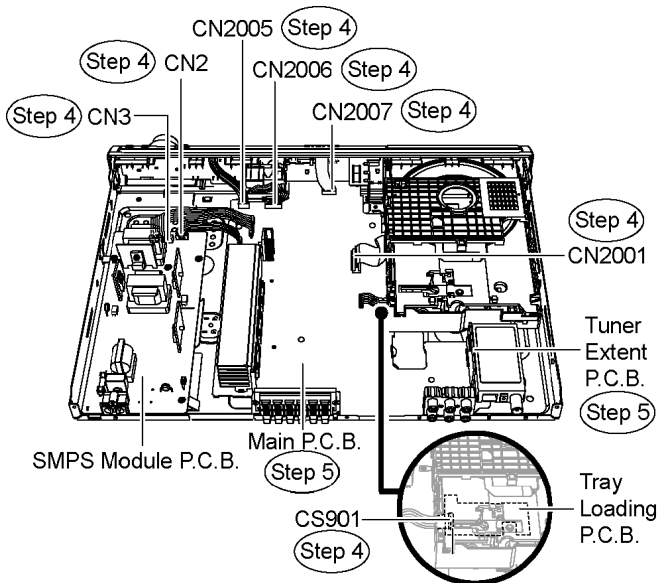
- Disassembly of Main P.C.B. & Tuner Extent P.C.B.

Step 3 Remove 4 screws on Main P.C.B.



Step 4 Detach FFC cable from the connectors (CN2 & CN3) on SMPS Module P.C.B., (CN2001, CN2005, CN2006 & CN2007) on Main P.C.B. and (CS901) on Tray Loading P.C.B.

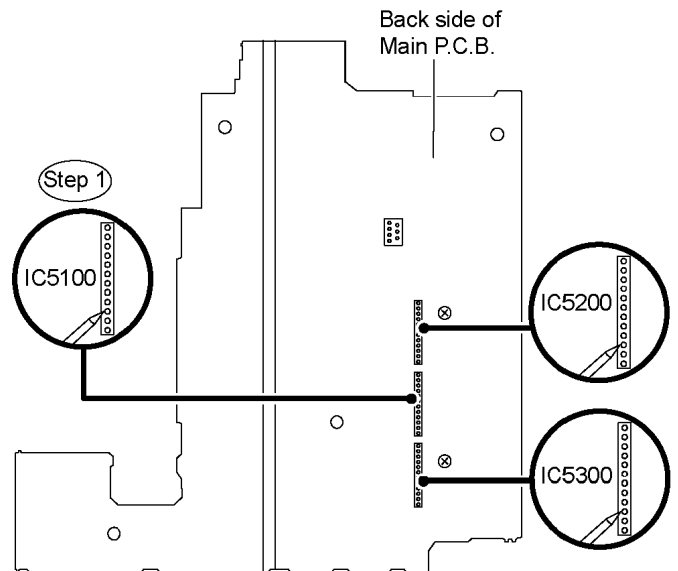
Step 5 Remove Main P.C.B. & Tuner Extent P.C.B.



9.15. Replacement of Digital Amp IC (IC5100)

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.9.
- Follow (Step 1) to (Step 5) of Item 9.14.

Step 1 Desolder pins of the digital amp IC (IC5100) on the back side of Main P.C.B.

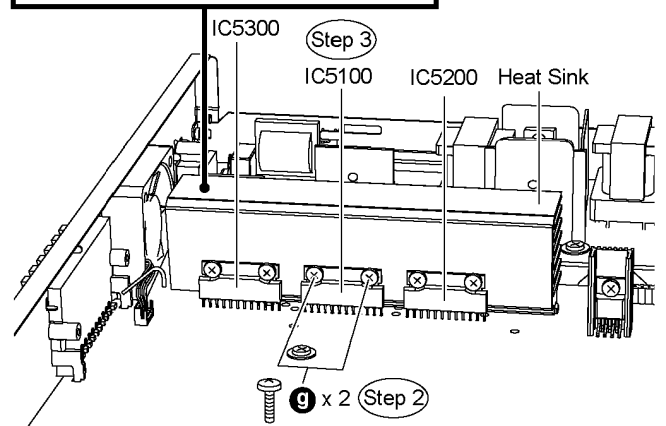


Step 2 Remove 2 screws from the digital amp IC (IC5100).

Step 3 Remove the digital amp IC (IC5100) from the heatsink unit.

Caution : Handle the heatsink unit with caution due to its high temperature after prolonged use. Touching it may lead to injuries.

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

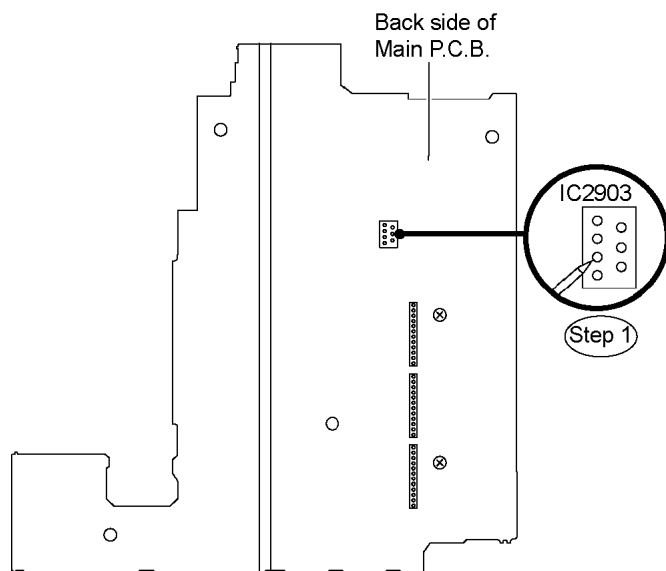


Note : For replacement of IC5200 & IC5300, repeat the (Step 1) to (Step 3). Refer to the diagrams of Main P.C.B. (Item 9.14) for the location of the parts.

9.16. Replacement of Regulator IC (IC2903)

- Follow (Step 1) to (Step 3) of Item 9.3.
- Follow (Step 1) to (Step 4) of Item 9.9.
- Follow (Step 1) to (Step 5) of Item 9.14.

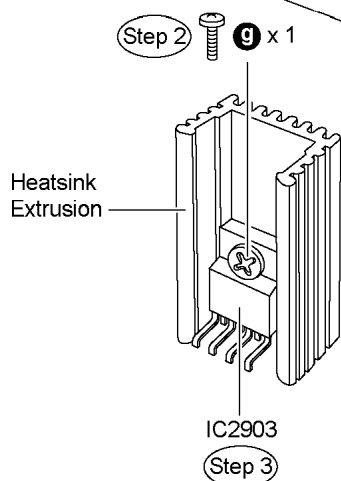
Step 1 Desolder pins of the regulator IC (IC2903) on the back side of Main P.C.B.



Step 2 Remove 1 screw from the regulator IC (IC2903).

Step 3 Remove the regulator IC (IC2903) from the heatsink extrusion.

Caution : Handle the heatsink extrusion with caution due to its high prolonged use. Touching it may lead to injuries.



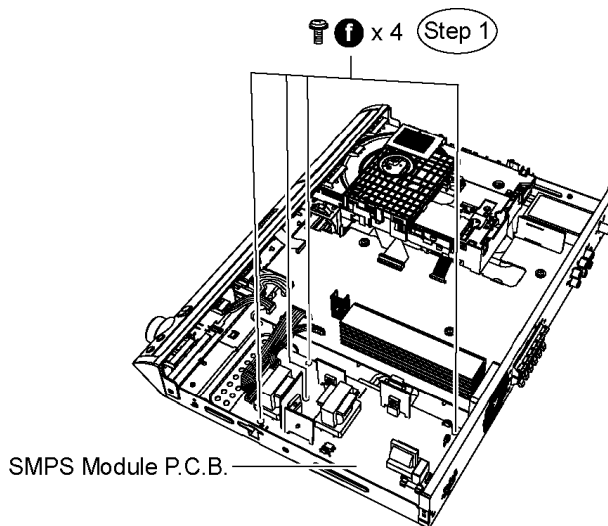
Note : Refer to the diagrams of Main P.C.B. (Item 9.14.) for the location of the part.

9.17. Disassembly of SMPS Module P.C.B.

• Follow (Step 1) to (Step 3) of Item 9.3.

Caution Note: The SMPS Module P.C.B. is advisable to be replaced as a unit. Do not attempt to replace any individual components on board.

Step 1 Remove 4 screws from SMPS Module P.C.B.

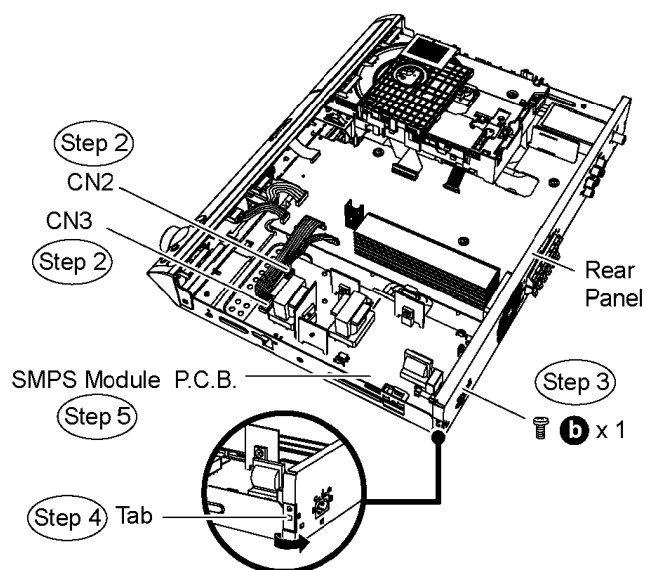


Step 2 Detach FFC cable from the connectors (CN2 & CN3) on SMPS Module P.C.B.

Step 3 Remove 1 screw from the rear panel.

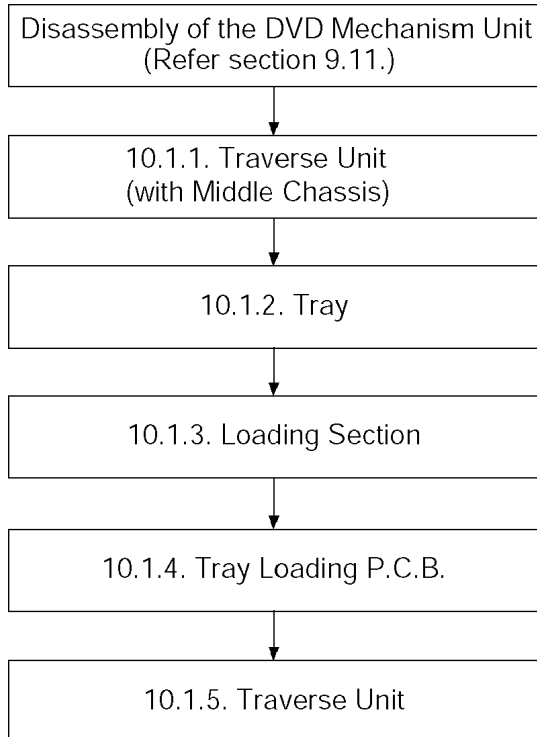
Step 4 Release tab of the rear panel in the direction of arrow.

Step 5 Remove SMPS Module P.C.B.



10 Assembly and Disassembly of DVD Mechanism Unit

10.1. Disassembly Procedure

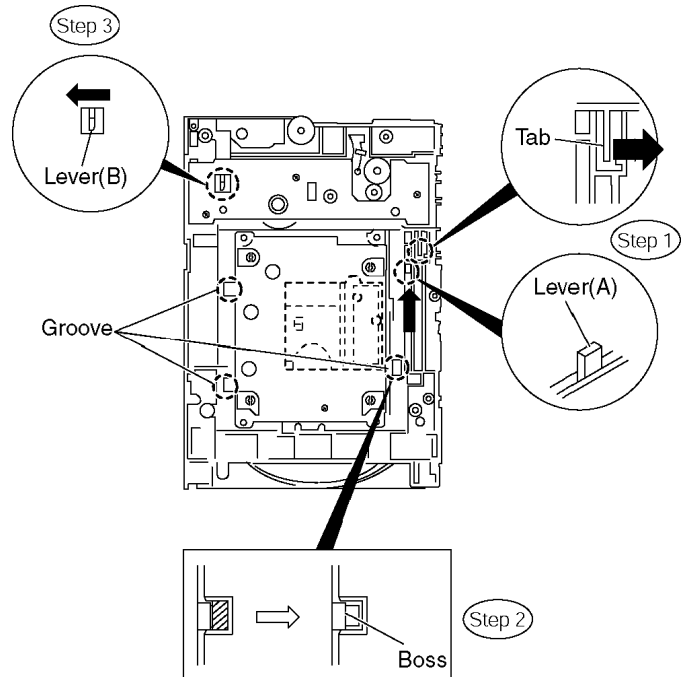


10.1.1. Disassembly of Traverse Unit (with Middle Chassis)

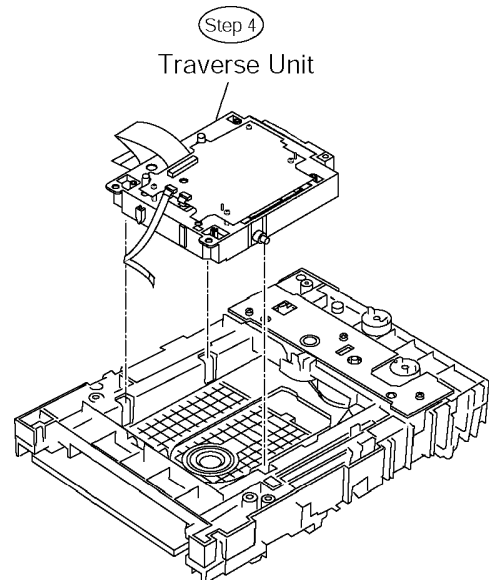
Step 1 Slide the lever (A) in the arrow direction (to the opposite side) till it stops.

Step 2 Slide the lever (A) further by bending the tab at the right side of the lever A in the right direction. (The right groove opens and the boss becomes seen.)

Step 3 Open the lever (B) to left. (The 2 grooves at the left side open.).

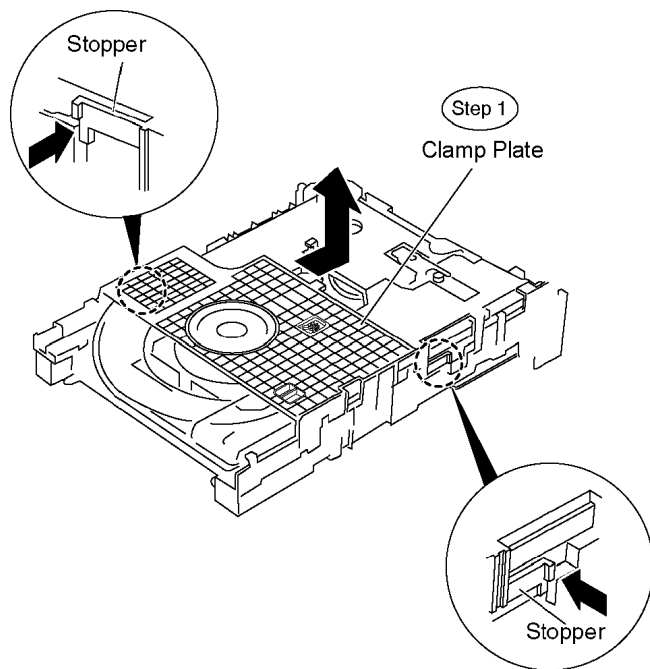


Step 4 Remove the traverse unit.



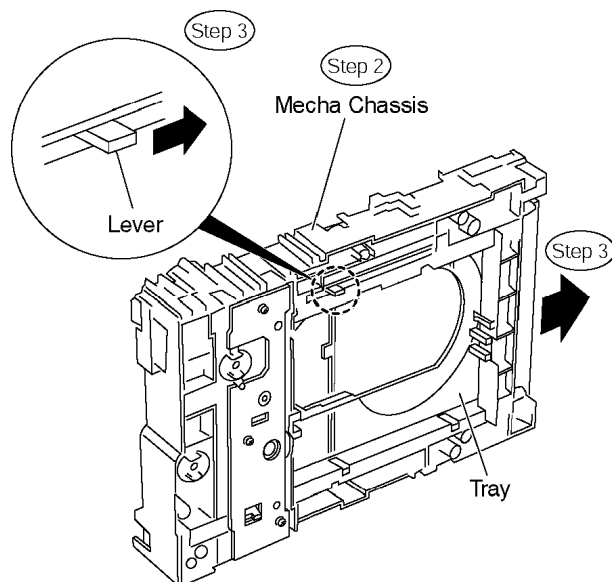
10.1.2. Disassembly of Tray

Step 1 Slide the clamp plate while pressing the stopper in the arrow direction, and remove the clamp plate.

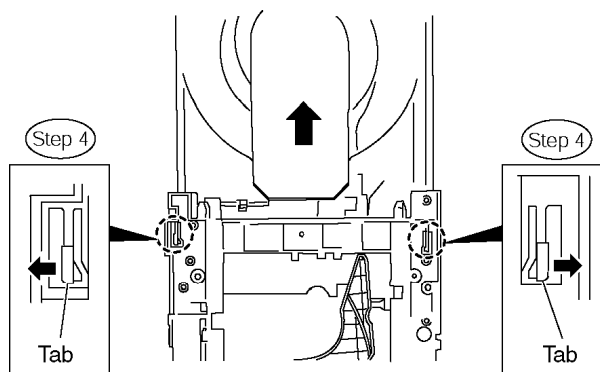


Step 2 Raise the mecha chassis vertically.

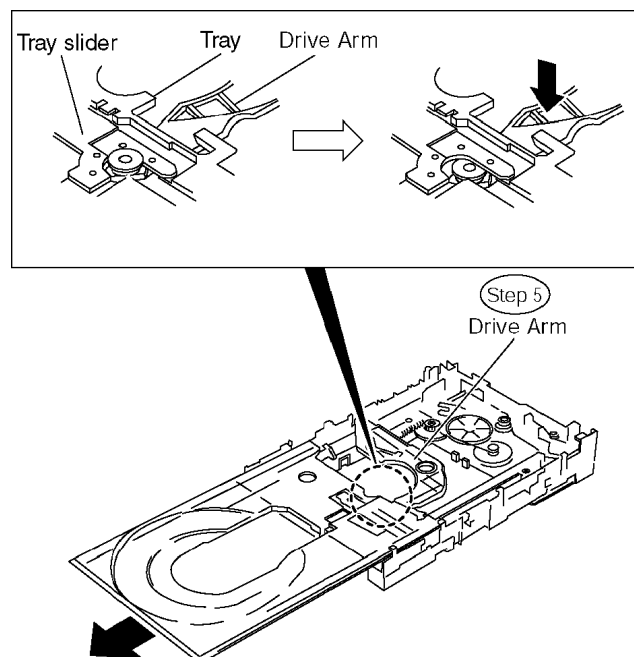
Step 3 Slide the lever in the arrow direction till it stops and pull the tray out.



Step 4 Spread the tabs at the both sides and pull the tray out. (The tray slides a little forward and stops.).



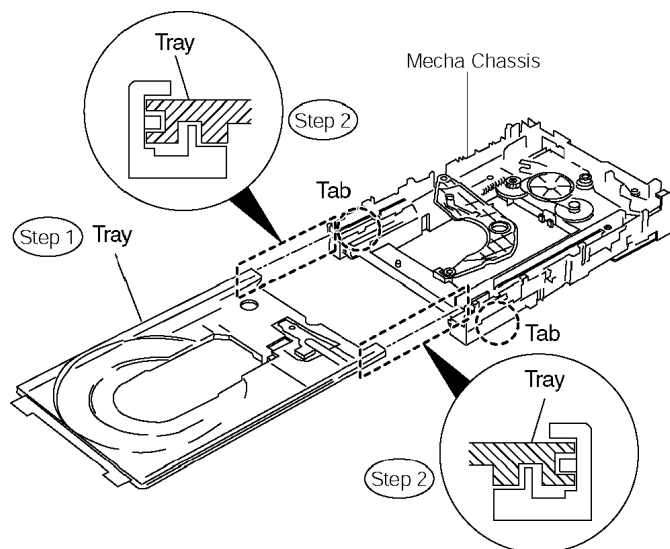
Step 5 Remove the drive arm concave phase from the tray slider and tray.



I(Assembly of the tray unit)

Step 1 Insert a part of the tray into the unit sliding over the groove on the mecha chassis.

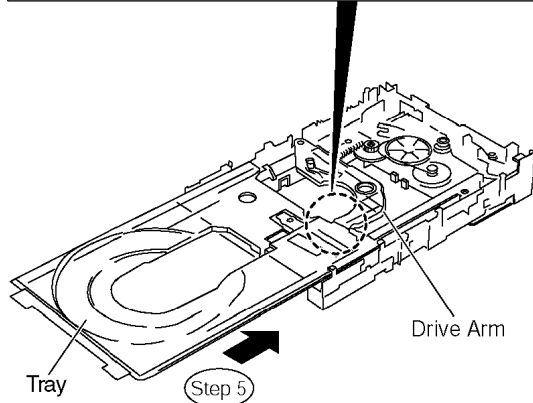
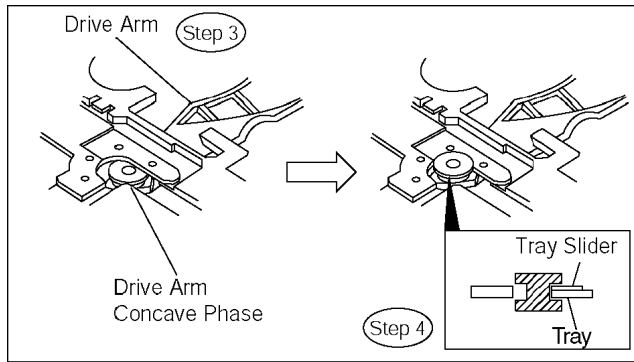
Step 2 Insert the tray to the point before the tab of the mecha chassis.



Step 3 Hook the drive arm concave phase over the tray and the tray slider.

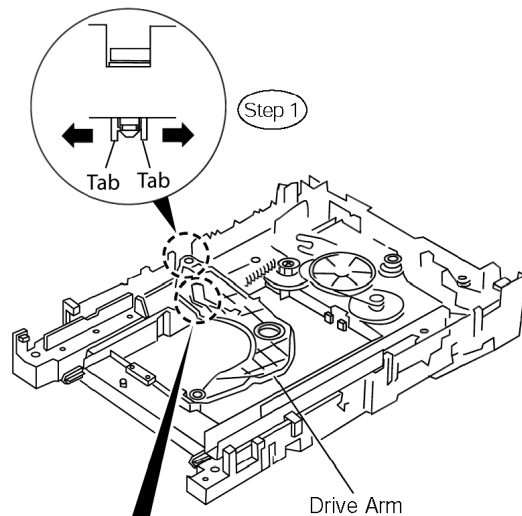
Step 4 Press in the tray.

Step 5 Make sure that the tray and the drive arm move smoothly.



10.1.3. Disassembly of Loading Section

Step 1 Spread the tabs at the both sides and push out the drive arm.

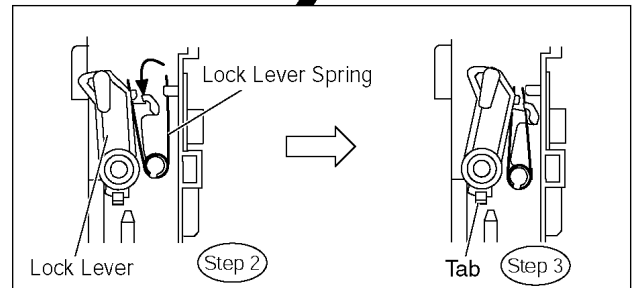
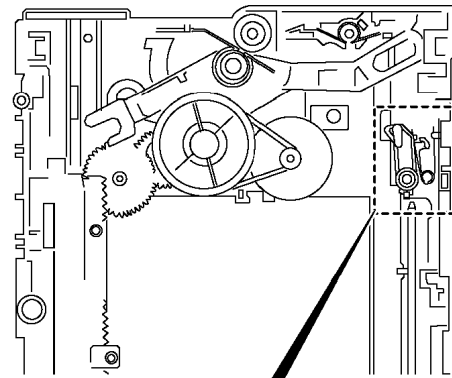


■ Important point in installing the drive rack

- Install the boss of the drive rack into the drive arm groove securely.
- Boss
- Groove

Step 2 Hook the lock lever spring on the lock lever projection part temporarily.

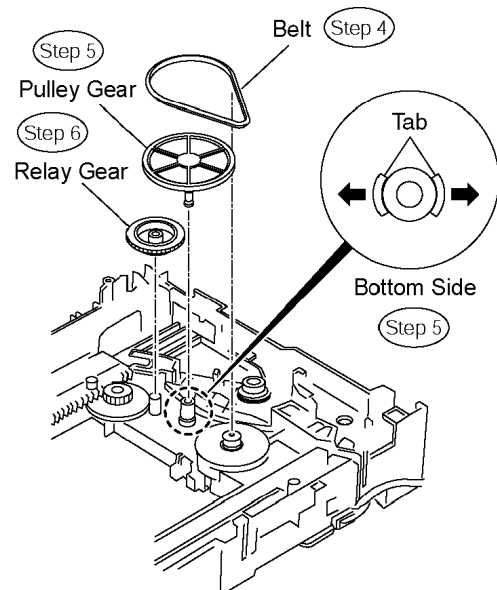
Step 3 Unlock the tab and remove the lock lever.



Step 4 Remove the belt.

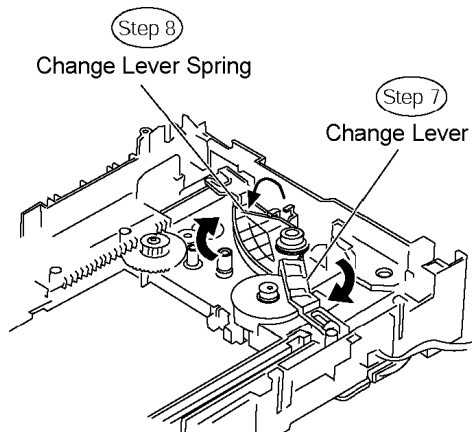
Step 5 Unlock the tab and remove the pulley gear.

Step 6 Remove the relay gear.

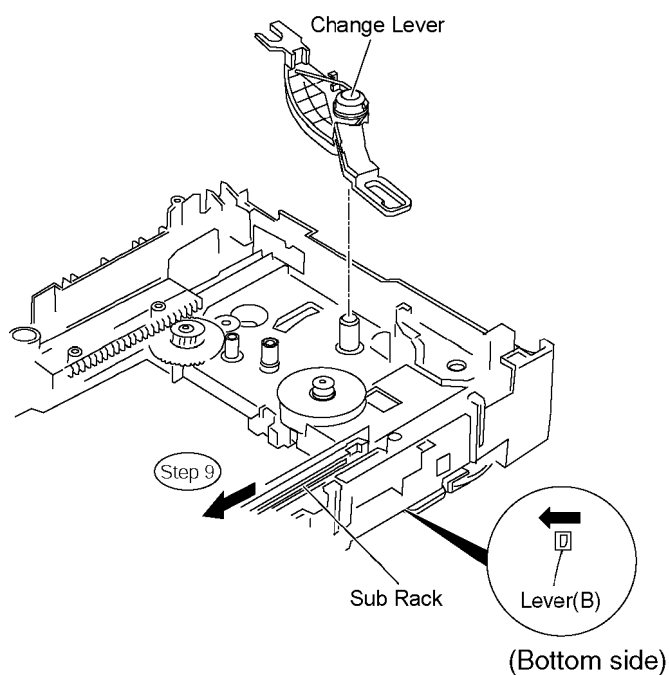


Step 7 Turn the change lever in the arrow direction till it stops.

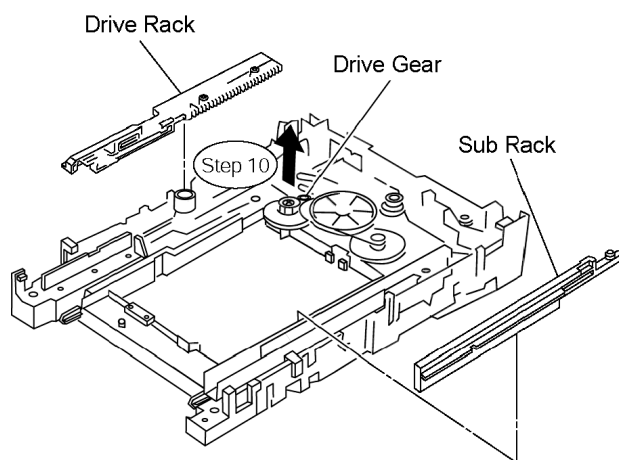
Step 8 Hook the change lever spring on the change lever project part temporarily.



Step 9 Pull the lever (B) at the bottom side in the direction of arrow and remove the change lever.



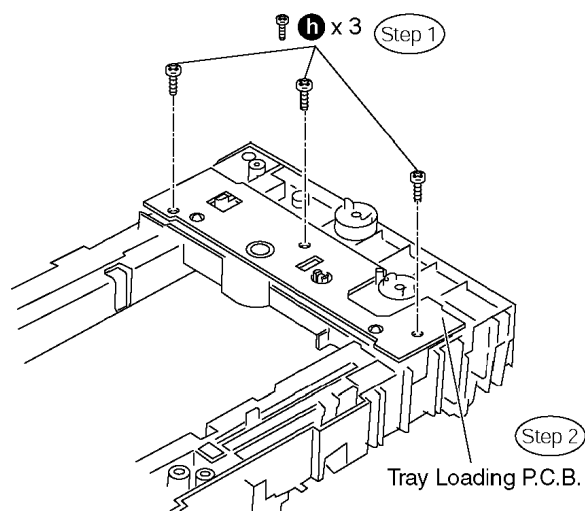
Step 10 Remove the drive rack, the sub rack and the drive gear in the direction of arrow.



10.1.4. Disassembly of Tray Loading P.C.B.

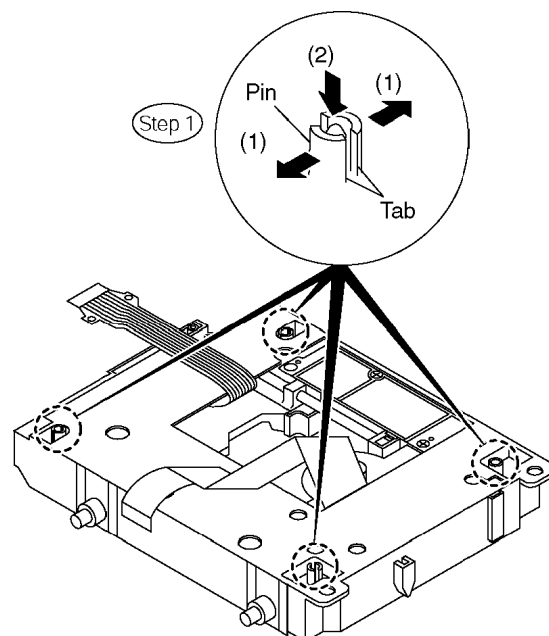
Step 1 Remove 3 screws

Step 2 Remove Tray Loading P.C.B.

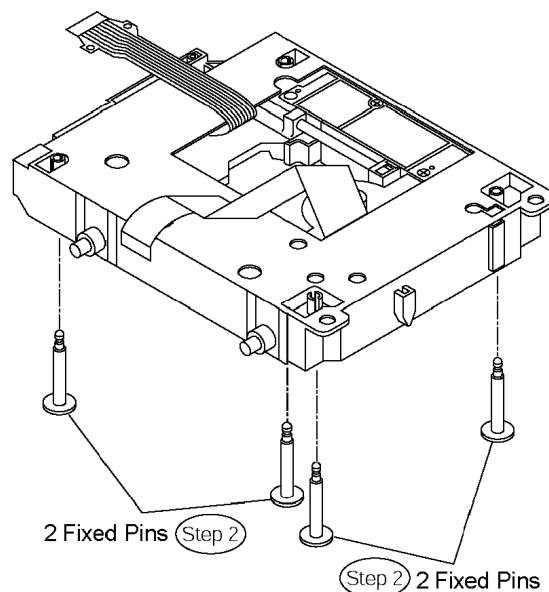


10.1.5. Disassembly of Traverse Unit

Step 1 Spread the tabs to push in the pin in the direction of arrows.

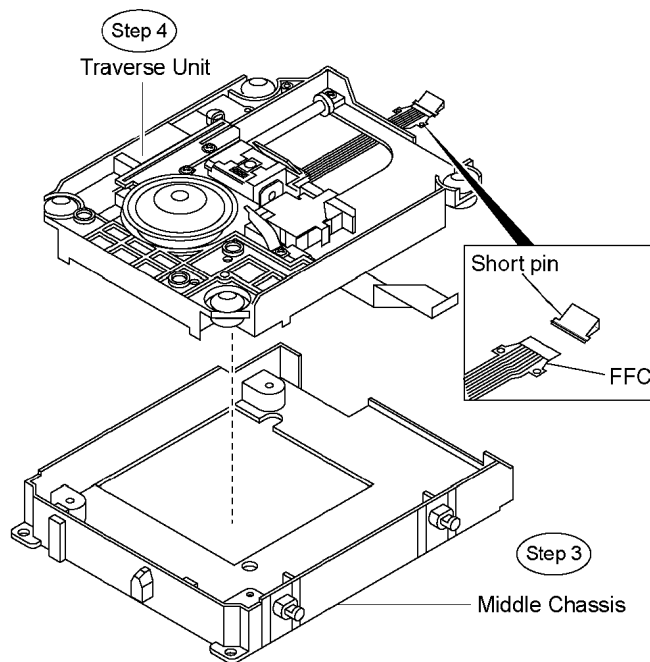


Step 2 Remove 4 fixed pins.



Step 3 Remove the middle chassis.

Step 4 Remove the traverse unit.



[Caution]

Insert the short pin into the FFC of the optical pickup unit.
[See "Caution to be taken in handling the optical pickup unit"]

11 Service Position

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

Step 1 Remove the top cabinet.

Step 2 Remove the DVD lid.

Step 3 Disassemble the front panel.

Step 4 Disassemble Panel P.C.B.

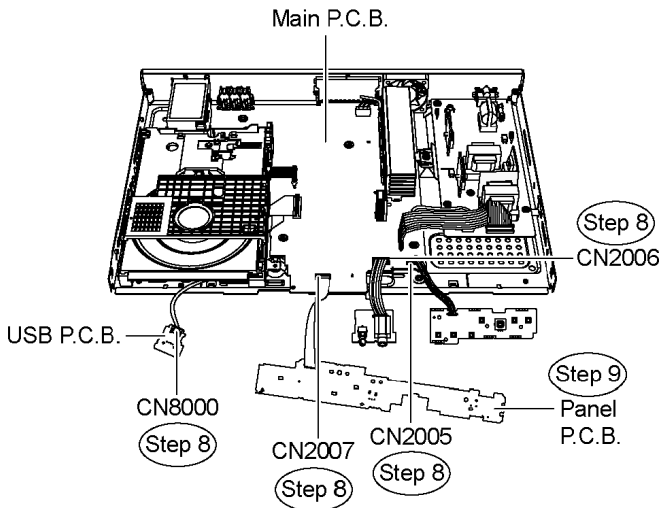
Step 5 Disassemble Volume P.C.B.

Step 6 Disassemble Mic P.C.B.

Step 7 Disassemble USB P.C.B.

Step 8 Connect FFC cable at the connectors (CN2005, CN2006 & CN2007) on Main P.C.B. and (CN8000) on USB P.C.B.

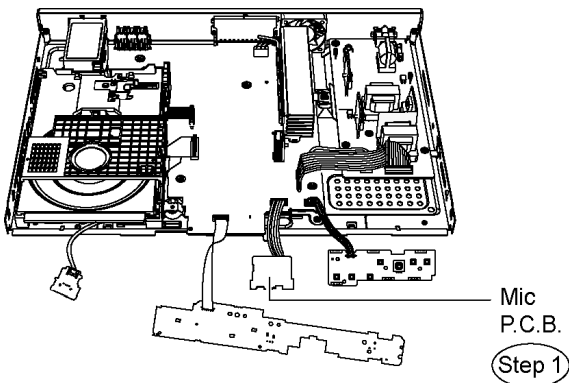
Step 9 Turn over Panel P.C.B. horizontally and place it according to the diagram shown below.



11.2. Checking & Repairing Mic P.C.B.

• Follow (Step 1) to (Step 8) of Item 11.1.

Step 1 Turn over Mic P.C.B. horizontally and place it according to the diagram shown below.



11.3. Checking & Repairing Main P.C.B.

Step 1 Remove the top cabinet.

Step 2 Remove the DVD lid.

Step 3 Disassemble the front panel.

Step 4 Disassemble Panel P.C.B.

Step 5 Disassemble Volume P.C.B.

Step 6 Disassemble Mic P.C.B.

Step 7 Disassemble USB P.C.B.

Step 8 Disassemble the DVD mechanism unit.

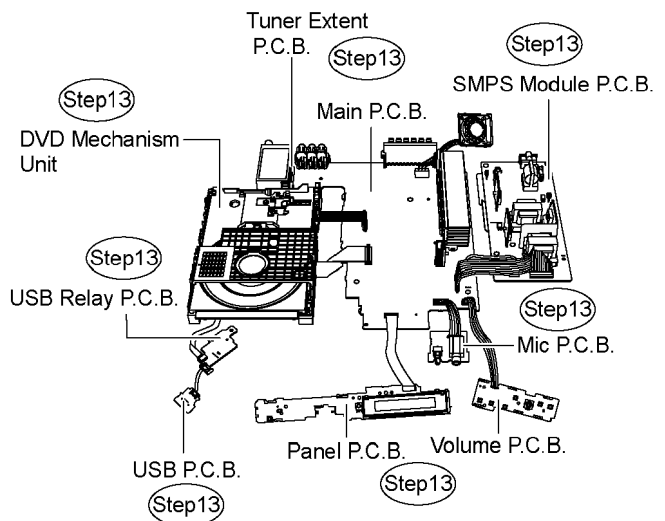
Step 9 Disassemble USB Relay P.C.B.

Step 10 Disassemble the rear panel.

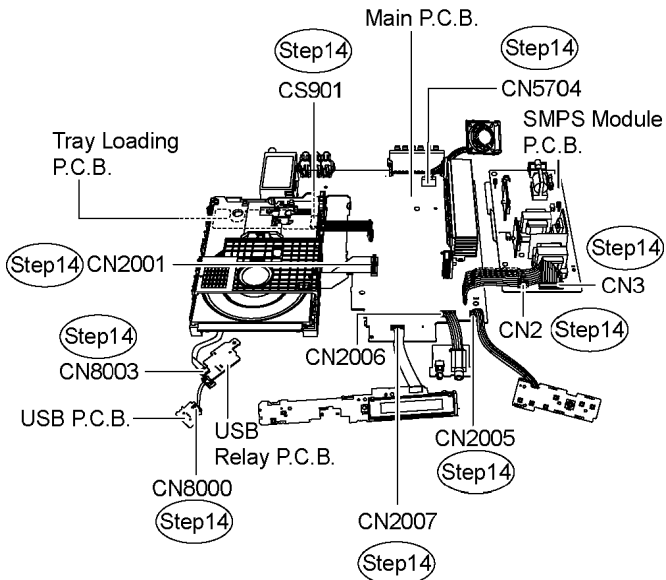
Step 11 Disassemble Main P.C.B. & Tuner Extent P.C.B.

Step 12 Disassemble SMPS Module P.C.B.

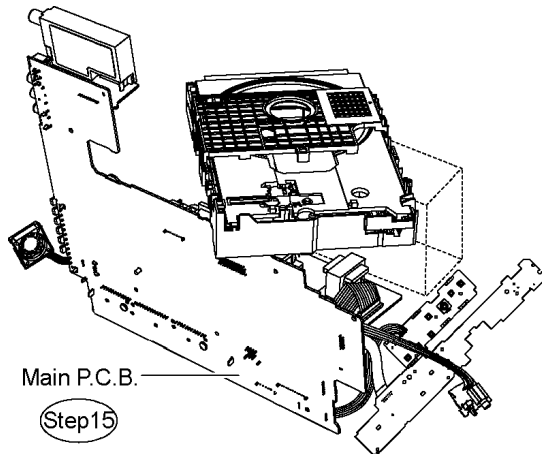
Step 13 Position Panel P.C.B., Volume P.C.B., Mic P.C.B., USB P.C.B., DVD mechanism unit, USB Relay P.C.B., SMPS Module P.C.B., Main P.C.B. & Tuner Extent P.C.B. according to diagram shown below.



Step 14 Connect FFC cable at the connectors (CN2001, CN2005, CN2006, CN2007 & CN5704) on Main P.C.B., (CS901) on Tray Loading P.C.B., (CN2 & CN3) on SMPS Module P.C.B., (CN8000) on USB P.C.B. and (CN8003) on USB Relay P.C.B.



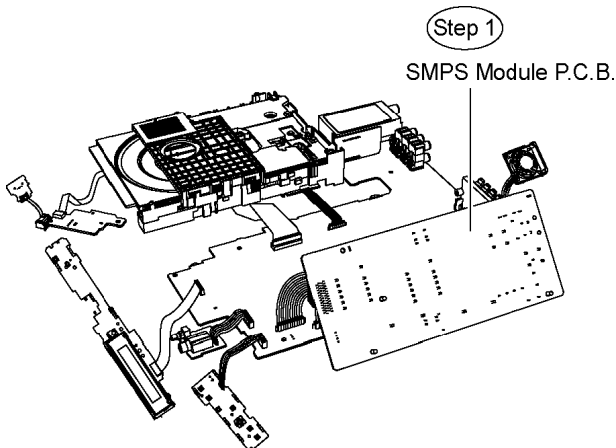
Step 15 Turn over the Main P.C.B. vertically and place it according to the diagram.



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

• Follow (Step 1) to (Step 14) of Item 11.3.

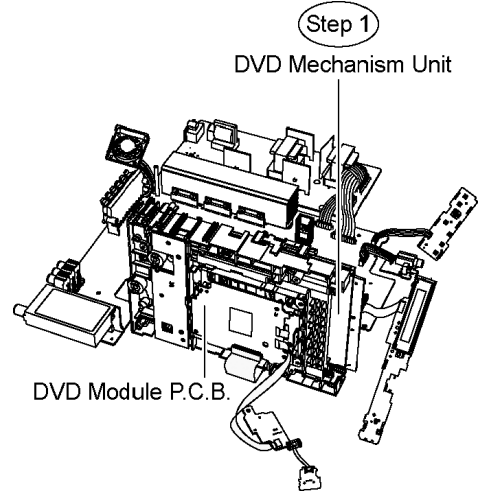
Step 1 Turn over the SMPS Module P.C.B. according to the diagram shown below.



11.5. Checking & Repairing DVD Module P.C.B.

• Follow (Step 1) to (Step 14) of Item 11.3.

Step 1 Turn over the DVD mechanism unit according to the diagram shown below.



12 Measurements and Adjustments

12.1. Service Tools and Equipment

Application	Name	Number
Tilt adjustment	DVD test disc	DVDT-S20 [SPG]
	TORX screw driver (T6)	Available on sales route. (T6) or RFKZ0185 [SPG]
Others	Grease	RFKXPG641 [SPG]
Confirmation	CD test disc	PVCD-K06 or any other commercially available disc
	VCD test disc	PVCD-K06 or any other commercially available disc
	Recovery disc	RFKZD03R005 [SPG]

12.2. Important points in adjustment

12.2.1. Important points in optical adjustment

- Before starting optical adjustment, be sure to take anti-static measures.
- Optical pickup tilt adjustment is needed after replacement of the following components.

1. Optical pickup unit
2. Spindle motor unit
3. Optical pickup peripheral parts

Notes

Adjustment is generally unnecessary after replacing other parts of the traverse unit. However, make adjustment if there is a noticeable degradation in picture quality. Optical adjustments cannot be made inside the optical pickup. Adjustment is generally unnecessary after replacing the traverse unit.

12.2.2. Important points in electrical adjustment

- Follow the adjustment procedures described in this manual.

12.3. Storing and handling of test discs

- Surface precision is vital for DVD test discs. Be sure to store and handle them carefully.

1. Do not place discs directly onto the workbench, etc., after use.
2. Handle discs carefully in order to maintain their flatness. Place them into their case after use and store them vertically. Store discs in a cool place where they are not exposed to direct sunlight or air from air conditioners.
3. Accurate adjustment will not be possible if the disc is warped when placed on a surface made of glass, etc. If this happens, use a new test disc to make optical adjustments.
4. If adjustment is done using a warped disc, the adjustment will be incorrect and some discs will not be playable.

12.4. Optical adjustment

12.4.1. Optical pickup tilt adjustment

Measurement point	Adjustment point	Mode	Disc
	Tangential adjustment screw Tilt adjustment screw	T01 (inner periphery) play T30 (center periphery) T43 (outer periphery) play	DVDT-S20 [SPG]
Measuring equipment	Adjustment value		
None (Main unit display for servicing is used.)	Adjust to the minimum jitter value.		

12.4.1.1. Adjustment procedure

1. While pressing STOP button on the main unit, press "5" on the remote control unit.
2. Confirm that "J_xxx/yyy_zz" (display1/display2) is shown on the front display.

For your information:

"yyy" and "zz" shown to the right have nothing to do with the jitter value. "yyy" is the error counter, while "zz" is the focus drive value.

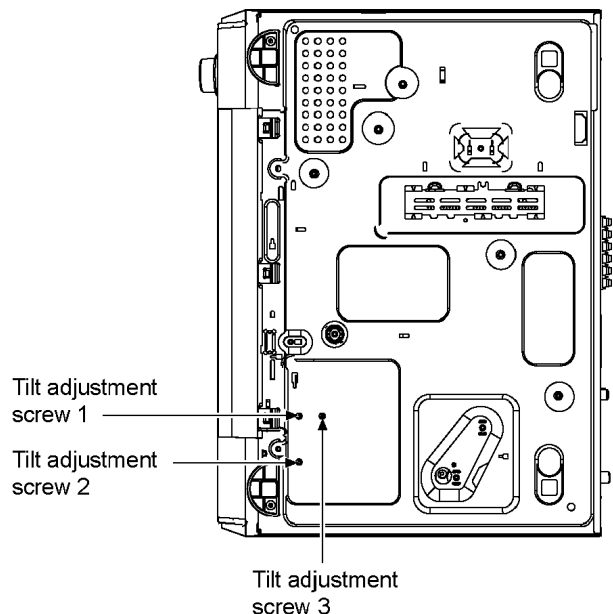
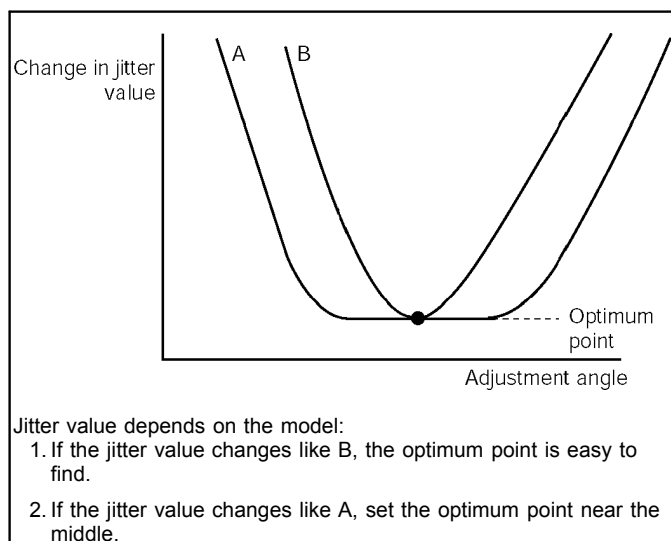
Note:

Jitter value appears on the front display.

3. Play test disc T30 (center periphery).
4. Adjust tangential adjustment screw so that the jitter value is minimized.
5. Play test disc T30 (center periphery).
6. Adjust tilt adjustment screw 1 so that the jitter value is minimized.
7. Play test disc T30 (center periphery).
8. Adjust tilt adjustment screw 2 so that the jitter value is minimized.
9. Repeat adjusting tilt adjustment screws 1 and 2 alternately until the jitter value is minimized.

12.4.1.2. Important points

1. Make tangential adjustment first, and then make tilt adjustment.
2. Repeat adjusting two or three times to find the optimum point.
3. Finish the procedure with tilt adjustment.

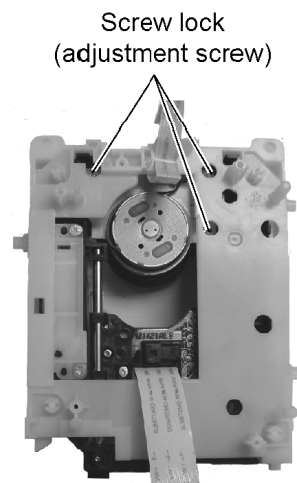


12.4.1.3. Check after adjustment

Play test disc or any other disc to make sure there is no picture degradation in the inner, middle and outer peripheries, and no audio skipping. After adjustment is finished, lock each adjustment screw in position using screw lock.

12.4.1.4. Procedure for screw lock

1. After adjustment, remove top cover, tray, clamper base and traverse unit in this sequence.
2. Lay the traverse unit upside down, and fix adjustment screw with screw lock.
3. After fixing, reassemble traverse unit, clamper base, tray and top cover.



13 Abbreviations

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVO AMP OUTPUT
	ASYN	AUDIO WORD DISTINCTION SYNC
B	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
BYTCK	BYTCK	BYTE CLOCK
C	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSCCK	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEM CLOCK SELECT
	CLV	CONSTANT LINEAR VELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPWR	CPU WRITE ENABLE
	CS	CHIP SELECT
	CSYN	COMPOSITE SYNC IN
	CSYNOUT	COMPOSITE SYNC OUT
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DEEMPHASIS BIT ON/OFF
	DEMPH	DEEMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK
	DMUTE	DIGITAL MUTE CONTROL
	DO	DROP OUT
	DOUT0~UP	DATA OUTPUT
	DRF	DATA SLICE RF (BIAS)
	DRPOUT	DROP OUT SIGNAL
	DREQ	DATA REQUEST
	DRESP	DATA RESPONSE
	DSC	DIGITAL SERVO CONTROLLER
	DSL	DATA SLICE LOOP FILTER
	DVD	DIGITAL VIDEO DISC

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL
	ENCSEL	REFERENCE
	ETMCLK	ENCODER SELECT
	ETSCLK	EXTERNAL M CLOCK (81MHz/40.5MHz)
F	FBAL	EXTERNAL S CLOCK (54MHz)
	FCLK	FOCUS BALANCE
	FE	FRAME CLOCK
	FFI	FOCUS ERROR
	FEO	FOCUS ERROR AMP INVERTED INPUT
	FG	FOCUS ERROR AMP OUTPUT
	FSC	FREQUENCY GENERATOR
	FSC	FREQUENCY SUB CARRIER
	FSC	FS (384 OVER SAMPLING) CLOCK
	FSC	
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE
I	IECOUT	IEC958 FORMAT DATA OUTPUT
	IPFRAG	INTERPOLATION FLAG
	IREF	I (CURRENT) REFERENCE
	ISEL	INTERFACE MODE SELECT
L	LDON	LASER DIODE CONTROL
	LPC	LASER POWER CONTROL
	LRCCK	L CH/R CH DISTINCTION CLOCK
M	MA0~UP	MEMORY ADDRESS
	MCK	MEMORY CLOCK
	MCKI	MEMORY CLOCK INPUT
	MCLK	MEMORY SERIAL COMMAND CLOCK
	MDATA	MEMORY SERIAL COMMAND DATA
	MDQ0~UP	MEMORY DATA INPUT/OUTPUT
	MDQM	MEMORY DATA I/O MASK
	MLD	MEMORY SERIAL COMMAND LOAD
	MPEG	MOVING PICTURE EXPERTS GROUP
O	ODC	OPTICAL DISC CONTROLLER
	OFTR	OFF TRACKING
	OSCI	OSCILLATOR INPUT
	OSCO	OSCILLATOR OUTPUT
	OSD	ON SCREEN DISPLAY
P	P1~UP	PORT
	PCD	CD TRACKING PHASE DIFFERENCE
	PCK	PLL CLOCK
	PDVD	DVD TRACKING PHASE DIFFERENCE
	PEAK	CAP. FOR PEAK HOLD
	PLLCLK	CHANNEL PLL CLOCK
	PLLOK	PLL LOCK
	PWMCTL	PWM OUTPUT CONTROL
	PWMDA	PULSE WAVE MOTOR DRIVE A
	PWMOA, B	PULSE WAVE MOTOR OUT A, B

INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE OUTPUT
	RS	(CD-ROM) REGISTER SELECT
	RSEL	RF POLARITY SELECT
	RST	RESET
	RSV	RESERVE
S	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK RECEIVER
	SCL	SERIAL CLOCK
	SCLK	SERIAL CLOCK
	SDA	SERIAL DATA
	SEG0~UP	FL SEGMENT OUTPUT
	SELCLK	SELECT CLOCK
	SEN	SERIAL PORT ENABLE
	SIN1, 2	SERIAL DATA IN
	SOUT1, 2	SERIAL DATA OUT
	SPDI	SERIAL PORT DATA INPUT
	SPDO	SERIAL PORT DATA OUTPUT
	SPEN	SERIAL PORT R/W ENABLE
	SPRCLK	SERIAL PORT READ CLOCK
	SPWCLK	SERIAL PORT WRITE CLOCK
	SQCK	SUB CODE Q CLOCK
	SQCX	SUB CODE Q DATA READ CLOCK
	SRDATA	SERIAL DATA
	SRMADR	SRAM ADDRESS BUS
	SRMDT0~7	SRAM DATA BUS 0~7
	SS	START/STOP
	STAT	STATUS
	STCLK	STREAM DATA CLOCK
	STD0~UP	STREAM DATA
	STENABLE	STREAM DATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY SELECT
	STVALID	STREAM DATA VALIDITY
	SUBC	SUB CODE SERIAL
	SBCK	SUB CODE CLOCK
	SUBQ	SUB CODE Q DATA
	SYSCLK	SYSTEM CLOCK
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACK CROSS SIGNAL
	TRON	TRACKING ON
	TRSON	TRAVERSE SERVO ON

INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING BALANCE)
	VDD	DRAIN POWER SUPPLY VOLTAGE
	VFB	VIDEO FEED BACK
	VREF	VOLTAGE REFERENCE
	VSS	SOURCE POWER SUPPLY VOLTAGE
W	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
	WSR	WORD SELECT RECEIVER
X	X	X' TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XH INTERRUPT REQUEST
	XI	X' TAL OSCILLATOR INPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X' TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	X V-DEC CHIP SELECT
	XVDS	X V-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT

14 Voltage and Waveform Chart

14.1. DVD Module P.C.B.

Ref.No.	IC8001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	1.2	1.4	1.5	0	0	3.4	1.8	1.3	1.4	1.2	1.3	0	1.1	1	0	3.4	1.3	1.1	1.9	0.7
Ref.No.	IC8001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	0.6	0.4	2.3	0.5	1.4	2.6	2	0.8	1.8	0.7	3.4	0	3.4	0.7	1.1	1.5	1.6	1.8	1.4	2
Ref.No.	IC8001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	1.8	0	0	1.3	0	3.4	3.4	3.4	3.4	1.7	0	3.4	2.8	2.8	3	3.4	3.2	3.2	0	3.2
Ref.No.	IC8001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	0.1	0	0	0.8	0.1	1.9	1.6	0	3.2	3.2	0	3.2	3.2	0	0.1	0	0	0	0	0
Ref.No.	IC8001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	0	0	1.2	3.2	0.8	2.3	0	1.8	0	0.5	1.8	3.3	2.2	2.2	1.8	1.8	1.7	1.7	1.7	1.7
Ref.No.	IC8001																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
CD PLAY	0	0	0.4	0.1	0.2	1.9	3.3	0	2.2	1.7	2.6	2.6	2.6	2.6	2.7	2.7	2.4	2.5	2.5	2.5
Ref.No.	IC8001																			
MODE	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
CD PLAY	1.8	2.0	2	1.7	0	1.7	1.7	3.4	0.9	0.9	0.4	3.3	2.4	1	1	2.4	0	0.4	0.9	0
Ref.No.	IC8001																			
MODE	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
CD PLAY	3.4	3.4	0	0	0	0	3.4	1.5	1.7	1.7	0.9	1.7	0	3.4	1.5	1.6	0	1.3	3	3.1
Ref.No.	IC8001																			
MODE	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
CD PLAY	2.9	3.2	2.9	3.1	0	3.4	3.2	3.1	3	3	3.1	3	0	3.4	3.2	3	3.1	2.9	2.9	2.9
Ref.No.	IC8001																			
MODE	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
CD PLAY	3.3	0	1.6	3.4	1.6	0	1.3	3.3	3.3	3.2	3.1	0.1	2.1	0	0	3	1.5	0	0	1.6
Ref.No.	IC8001																			
MODE	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216				
CD PLAY	3.4	0.1	2.2	0.1	0	3.4	0.3	1.6	1.6	0	1.2	1.8	2.7	2.5	1.4	1				
Ref.No.	IC8051																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	3.3	3.1	3.4	3.2	3.1	0	3.1	3.3	3.4	3	3	0	2.9	3.4	2.9	3.3	3.3	3.3	3.2	2.2
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	0.1	0.4	0.4	1.6	3.4	0	1.6	1.8	1.7	1.7	0.1	0.1	0.1	0	3.4	1.5	2.9	0
Ref.No.	IC8051																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
CD PLAY	0	3.1	3.4	3.2	3.1	0	3	3.2	3.4	2.9	2.9	0	3	0						
Ref.No.	IC8111																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	3.4	-	0.1	-	4.4	-	-	4.7												
Ref.No.	IC8151																			
MODE	1	2	3	4	5															
CD PLAY	2.5	2.5	0	1.3	0.8															
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	2.2	2.2	1.8	0	5.1	3.3	0	2.4	2.8	2.6	2.6	4.1	4.3	4.8	3.7	0	3.3
Ref.No.	IC8251																			
MODE	21	22	23	24	25	26	27	28	29	30										
CD PLAY	8.9	8.8	1.7	1.7	1.7	1.7	3.3	5.1	0	0										
Ref.No.	IC8421																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	3.3	2.9	3.3	1.6	0.9	1.7	1.7	5.2	0	0.9	0.1	0.1	0	2.5	2.5	5.2	0	2.5	2.5
Ref.No.	IC8421																			
MODE	21	22	23	24	25	26	27	28												
CD PLAY	2.5	2.5	5.2	0	2.6	2.5	2.6	5.1												
Ref.No.	IC8601										IC8606									
MODE	1	2	3	4		1	2	3	4	5		1	2	3	4	5	6	7	8	
CD PLAY	1.2	3.3	0	0		3.3	3.3	0	0	-		0	0	0	0	3.2	3.3	0	3.3	
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	1.1	1.0	1.8	1.0	1.7	2.3	1.3	1.8	1.2	0.1	3.3	3.3	3.3	3.3	1.6	1.6	0.6	1.2	1.5	1.7
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	1.8	1.8	2	1.9	0	2	0	2.5	1.7	1.1	0.8	1.6	1.0	1.6	2.3	1.4	3.3	1.7	1.1	1.4
Ref.No.	IC8651																			
MODE	41	42	43	44	45	46	47	48												
CD PLAY	1.6	1.7	1.7	2	1.9	0	3.3	0.8												

Ref No.	IC8691						IC8695						IC9003							
MODE	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5	6		
CD PLAY	3	3	0	4.6	5.1		2.7	2.7	0	4.2	5.1		1.6	0.1	1.6	1.7	3.3	1.6		
Ref No.	IC9005																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0.1	5.1	5.1	3.3	2.2	3.3	0.1	3.4												
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	1.1	0	0.4		1.5	0	0.9		1.1	0	0.4		1.6	0	0.9		1.5	0	0.9	
Ref No.	Q8551				Q8552				Q8561				Q8562							
MODE	E	C	B		E	C	B		E	C	B		E	C	B					
CD PLAY	0.1	4.6	0.1		0.1	4.6	4.6		1.9	3.5	1.3		3.5	4.1	4.1					
Ref No.	QR8111								QR8420				QR8571							
MODE	1	2	3	4	5	6			E	C	B		E	C	B					
CD PLAY	0.1	0.1	1.4	0.1	0.1	4.4			0	0.1	4.0		3.4	3.3	0.1					

SA-PT150GC/GS/GCS/GCT/GCP DVD MODULE P.C.B.

14.2. Main P.C.B.

Ref No.	IC2004																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	-	5.2	0	0	0	0	0	-												
STANDBY	-	5.2	0	0	0	0	0	-												
Ref No.	IC2018																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	2.2	4	3.6	0	2.8	0	0	0	0	0	4.2	2.4	0	2.5	5.1	5.1	5.1	3.2	0
STANDBY	0	5	5.1	5.2	0	5	0	0	0	0	0	5.1	2.5	0	2.5	5.1	5.1	5.1	3.2	0
Ref No.	IC2018																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	5.2	0	0	0	0	0	0	4.4	4.1	2.7	0	0	0	0	5.2	5.2	5.1	5.2	0	5.1
STANDBY	5.2	0	0	0	0	0	0	4.5	4.1	2.8	0	0	0	0	5.2	5.2	5.1	5.1	0	5
Ref No.	IC2018																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref No.	IC2018																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	0	5.1	0	0	5.1	0	5.1	5.1	0	5.2	5.1	0	0	0	0	0	0	0	0	5.1
STANDBY	0	5.1	0	0	5.1	0	5.1	5	5	5.2	5.1	0	0	0	0	0	0	0	4.6	5
Ref No.	IC2018																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	0	0	5.1	0	4.1	2.5	1.9	5.2	2.6	0.4	5.2	1.7	3.1	4.8	2.1	0	5.2	5.2	5.1	5.1
STANDBY	0	0	5.1	0	0	2.3	2	5.2	2.6	0.4	5.2	1.7	3.1	4.8	2.1	0	5.2	5.2	5.1	5.1
Ref No.	IC2102																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref No.	IC2102																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1
STANDBY	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1
Ref No.	IC2102																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
CD PLAY	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0.1	0	0	0	0	0	0
STANDBY	0	0	0	0	0	0	0	0	0	1.4	0	0	0	0.1	0	0	0	0	0	0
Ref No.	IC2102																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CD PLAY	0	-0.1	0	0	4.8	0	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0
STANDBY	0	-0.1	0	0	4.8	0	5.6	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Ref No.	IC2102																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
CD PLAY	0	0	0	0	-6.2	6.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STANDBY	0	0	0	0	-6.4	6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref No.	IC2801																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	4.9	0	2.1	4.8	1.6	0	1.6	2.1	0	0	0	2.1	4.8	2.1	4.9	2.2	2.2	0	2.2	2.2
STANDBY	4.9	0	2.1	4.8	1.5	0	1.5	2.1	0	1.5	0	2.1	4.8	2.1	4.9	2.2	2.2	0	2.2	2.2
Ref No.	IC2801										IC2802									
MODE	21	22	23	24	25	26	27	28	29	30	31		1	2	3	4	5	6		
CD PLAY	0	1.3	1.3	0	1.3	1.3	0	1.4	1.6	0	2.2		0	2.5	4.9	2.5	0	2.5		
STANDBY	0	1.3	1.3	0	1.3	1.3	0	1.4	1.6	0	2.2		0	2.5	4.9	2.5	0	2.5		
Ref No.	IC2903																			
MODE	1	2	3	4	5	6														
CD PLAY	1.6	0	1.7	1.7	3.4	1.7														
STANDBY	1.6	0	1.7	1.7	3.4	1.7														
Ref No.	IC5100																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12								
CD PLAY	25.9	12.7	0	12.6	4.7	0	0	0	0	12.7	0	12.7								
STANDBY	26.0	12.8	0	12.7	4.7	0	0	0	3.0	12.8	0	12.8								
Ref No.	IC5200																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12								
CD PLAY	25.9	12.7	0	12.7	4.7	0	0	0	3.0	12.7	0	12.7								
STANDBY	26.0	12.7	0	12.7	4.7	0	0	0	3.0	12.8	0	12.7								
Ref No.	IC5300																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12								
CD PLAY	25.9	12.7	0	13.0	4.7	0	0	0	0	12.7	0	12.8								
STANDBY	25.6	12.7	0	12.7	4.6	0	0	0	3.0	12.7	0	12.8								
Ref No.	IC7100																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
CD PLAY	-	2.6	2.6	2.6	2.6	0.6	0.6	0	2.6	2.6	2.6	2.6	2.6	0.9	5.2	-				
STANDBY	-	2.6	2.6	2.6	2.6	0.6	0.6	0	2.6	2.6	2.6	2.6	2.6	0.9	5.2	-				
Ref No.	IC7101																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-7	0	0	6.7	7												
STANDBY	0	0	0	-7	0	0	6.7	7												
Ref No.	Q2003				Q2004				Q2006				Q2030				Q2801			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	2.2	0		0	0	4.5		1.1	0	0.5		0	0	4.7		0	4.8	0	
STANDBY	0	0.1	0		0	0	0		0	0	0		0	0	4.6		0	4.6	2	
Ref No.	Q2905				Q2906				Q2907				Q2910				Q2914			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	0	5.2	0		-7.5	-23.3	-7.0		-6.3	-21.0	-6.8		12.9	21.2	13.5		3.2	3.5	3.7	
STANDBY	0	5.2	0		-7.5	-23.3	-7.0		-6.9	-21.0	-6.4		12.9	21.2	13.5		3.2	3.2	3.8	
Ref No.	Q2974				Q3003				Q3008				Q3009				Q5740			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
CD PLAY	-21.8	-25.4	-22.4		1.6	1.6	0		0	0	0.6		0	0.2	0.2		8.9	17.1	9.5	
STANDBY	-21.7	-25.3	-22.3		1.6	1.6	0		0	0	0.6		0	0.1	0		8.9	17.1	9.5	
Ref No.	Q5741				Q5742				Q5744				Q5745				Q5746			
MODE	E	C	B		E	C	B		1	2	3		1	2	3	4		E	C	B
CD PLAY	0	4.9	0		0	0.1	0.7		0	4.6	0.1		5.6	4.4	0	0.4		0	0.1	4.8
STANDBY	0	4.9	0		0	0.1	0.7		0	4.6	0.1		5.6	4.4	0	0.4		0	0.1	4.8
Ref No.	Q7100				Q7101				Q7102											
MODE	E	C	B		E	C	B		E	C	B									
CD PLAY	0	0	0		0	0	5		0	0	0									
STANDBY	0	0	0		0	0	5		0	0	0									

14.3. Panel P.C.B.

Ref No.	IC6901																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CD PLAY	0	0	0	0	2.9	2.2	1.8	4	2.3	2.2	2.2	0	5	-24.4	-22	-24.4	-24.4	-19.6	-19.8	-15
STANDBY	0	0	0	0	2.9	2.1	1.9	4	2.2	2.2	2.2	0	5	-24.4	-24.4	-22	-24.4	-14.9	-19.6	-12.5
Ref No.	IC6901																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CD PLAY	-24.4	-24.4	-24.3	-17.2	-14.8	-24.4	-24.4	-24.4	14.8	-24.8	-15	-22	-22.3	-22.2	-22.2	-22.2	-22.2	-22.2	-22.2	-22.2
STANDBY	-24.3	-24.3	-24.3	-17.2	-14.9	-24.3	-24.3	-24.3	-17.2	-24.8	-15	-15	-22.2	-22.2	-22.2	-22.2	-22.2	-22.2	-22.2	-22.2
Ref No.	IC6901																			
MODE	41	42	43	44																
CD PLAY	-22.2	-22.2	5	0																
STANDBY	-22.2	-22.2	5	0																

SA-PT150GC/GS/GCS/GCT/GCP PANEL P.C.B.

14.4. Tray Loading & SMPS Module P.C.B.

Ref No.	IC904																			
MODE	1	2	3	4	5	6	7	8	9											
CD PLAY	5.1	7.5	0.6	7.5	0	7.5	0.6	2.8	5.1											
STANDBY	5.1	7.6	0.6	7.6	0	7.6	0.6	2.8	5.1											

SA-PT150GC/GS/GCS/GCT/GCP TRAY LOADING P.C.B.

Ref No.	CN2				CN3														
MODE	1	2	3	4	1	2	3	4	5	6	7	8	9	10	11				
CD PLAY	18.5	18.5	0	0	6	3.5	0	10.5	0	0	5	-12.3	-16.1	5.2	24.7				
STANDBY	18.5	18.5	0	0	6	3.5	0	10.5	0	0	5	-12.2	-16.0	5.2	-24.7				

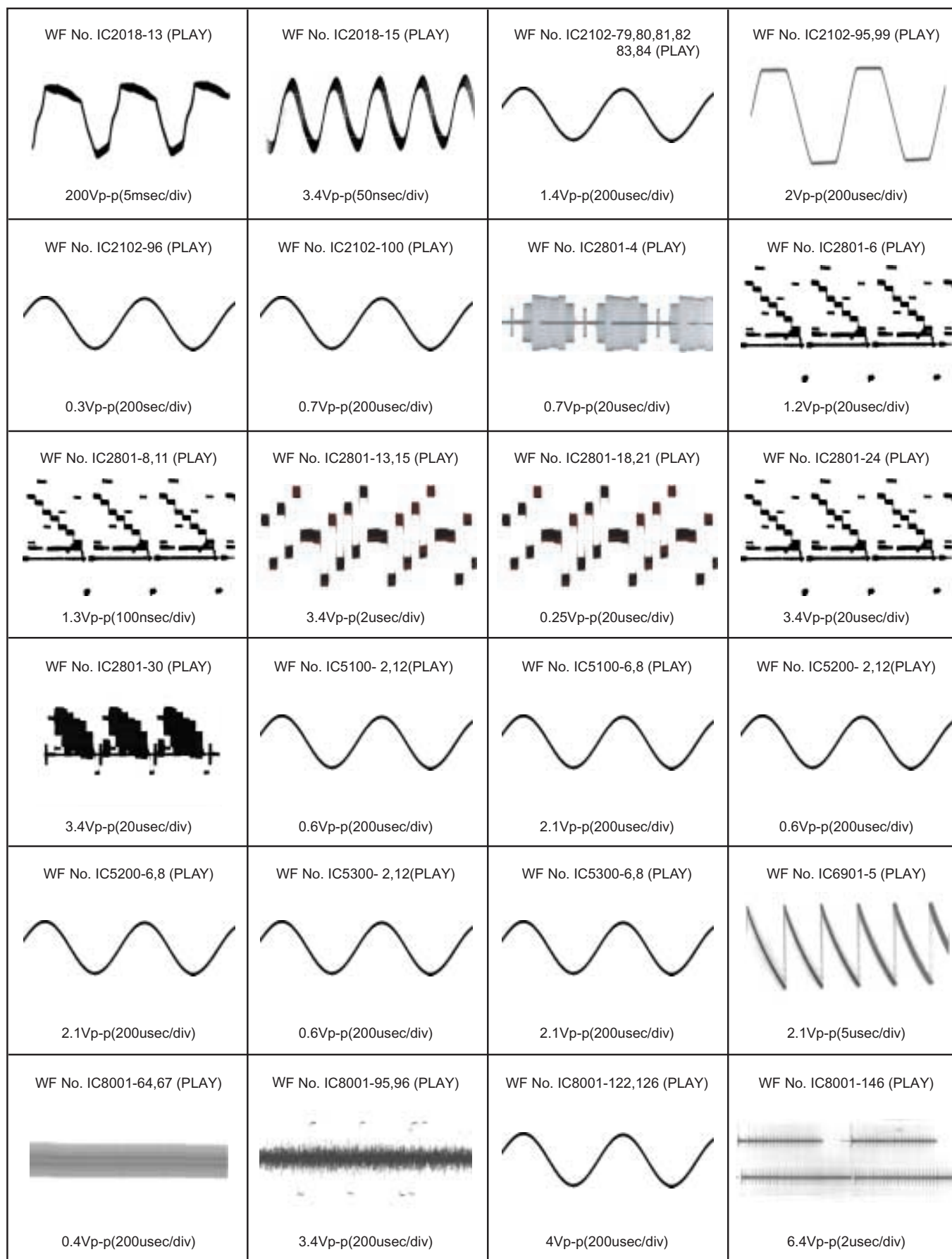
SA-PT150GC/GS/GCS/GCT/GCP SMPS MODULE P.C.B.

Ref No.	IC2204																			
MODE	1	2	3	4	5	6	7	8												
CD PLAY	0	0	0	-7	0	0	6.7	7												
STANDBY	0	0	0	-7	0	0	6.7	7												

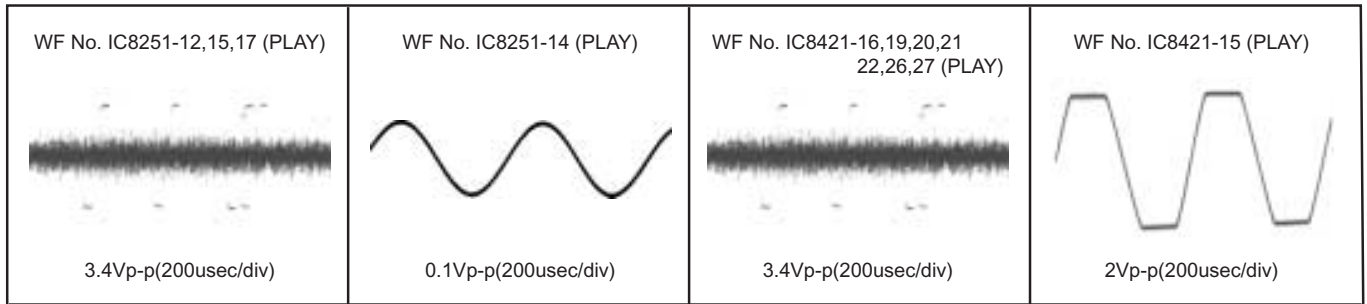
SA-PT150GC/GS/GCS/GCT/GCP MIC P.C.B.

14.5. Waveform Chart

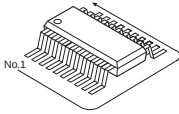
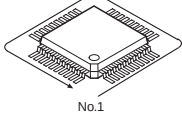
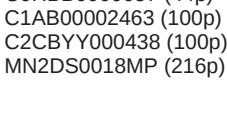
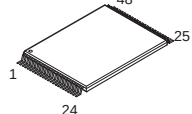
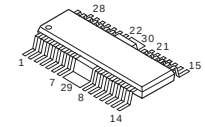
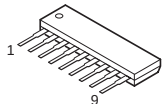
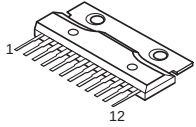
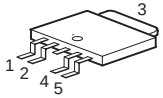
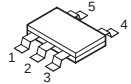
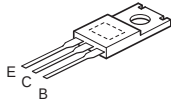
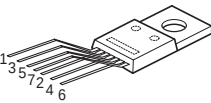
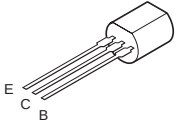
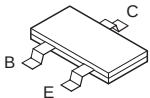
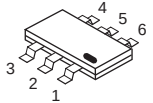
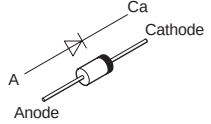
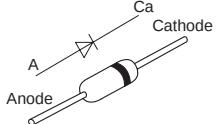
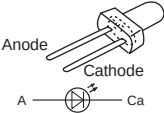
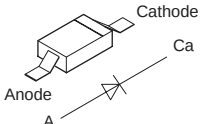
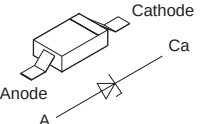
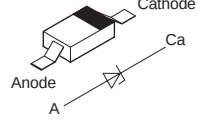
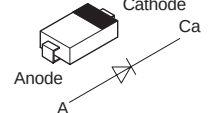
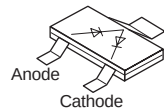
14.5.1. Waveform 1



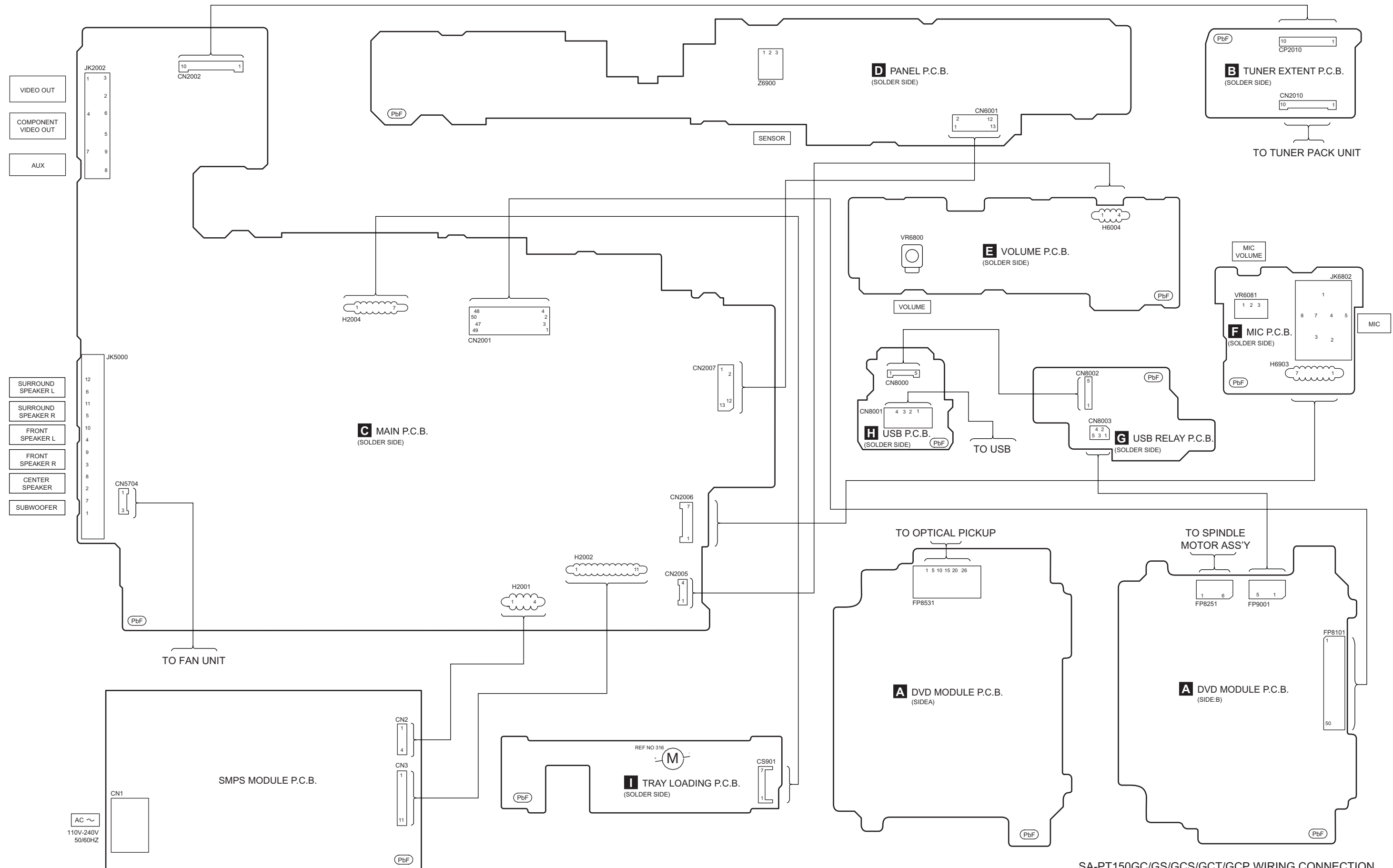
14.5.2. Waveform 2



15 Illustration of IC's, Transistors and Diodes

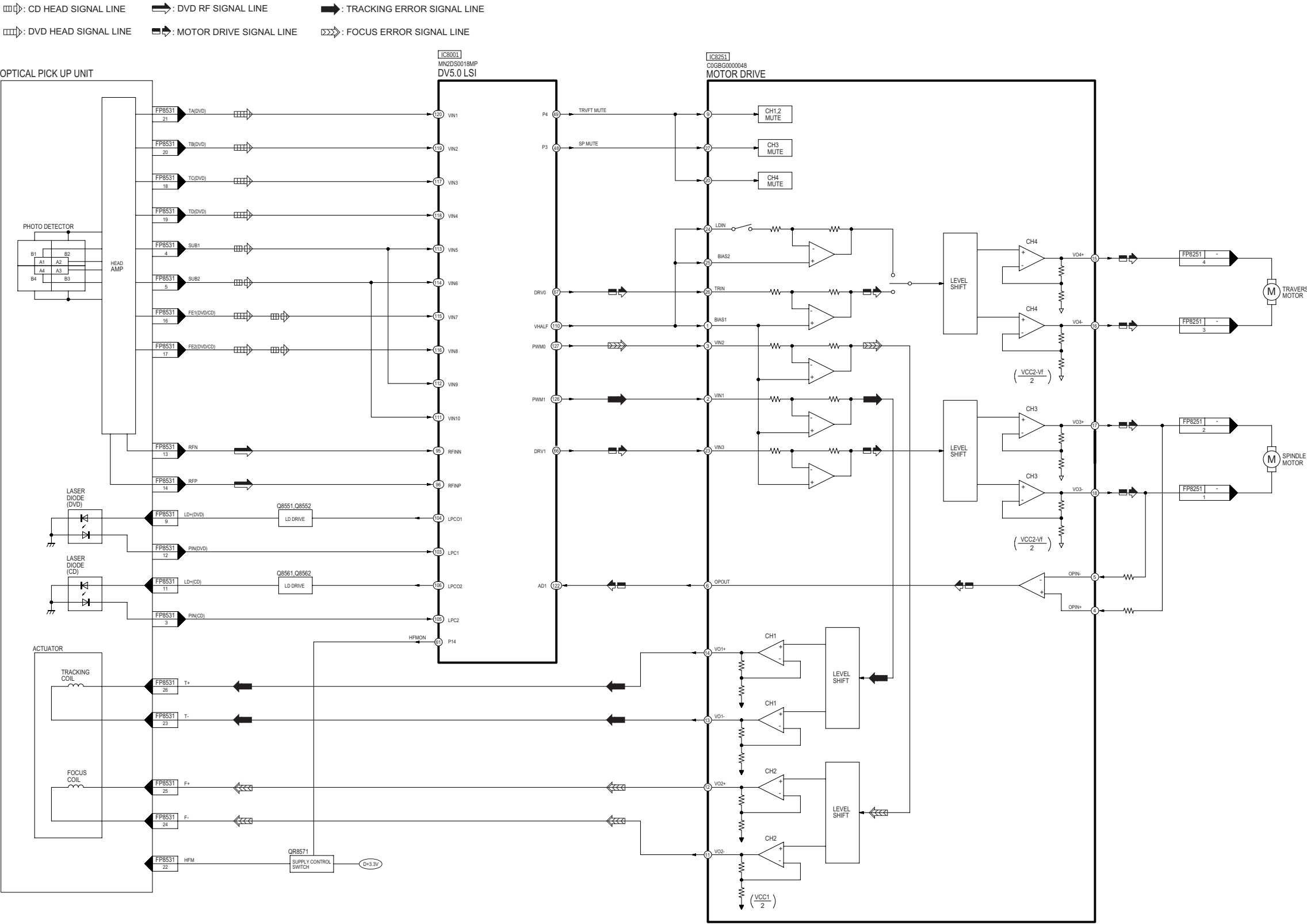
 C0ABBB000230 (8p) C0CBCBD00018 (8p) C0DBZYE00002 (8p) C0EBA0000029 (4p) C0FBBK000050 (28p) C0JBAB000908 (6p)	 C1AB00001731 (6p) C1BB00001061 (16p) C3ABPG000145 (54p) C9ZB00000461 (32p)		 C0HBB0000057 (44p) C1AB00002463 (100p) C2CBYY000438 (100p) MN2DS0018MP (216p)		 RFKWMHC0B320 (GC/GCP/GS) RFKWMHC0D320 (GCS/GCT)
C0GBG0000048 	C0GAY0000013 	AN17831A 	C0DBEHG00006 	C0EBE0000456 C0JBAA000502 	B1BACG000023 B1BCCG000002 
AN30071A-NM 	B1ACKD000005 	 B1ABCF000176 B1ABGC000005 B1ADCE000012 B1ADCF000001 B1ADGB000008 B1GBCFJJ0051		B1GDCFJJ0047 UNR511V00L UNR521100L 2SD1819A0L 2SB1218ARL	XP0621400L 
B0EAKM000117 	MA2J72800L 	B3AAA0000803 	MA2J11100L 	MAZ82200ML 	B0BC5R000009 B0BC013A0007 
 B0ACCK000005 B0BC3R400001 B0BC7R500001 B0JCAE000001 B0JCPD000025		B0ADCJ000020 			

16 Wiring Connection Diagram



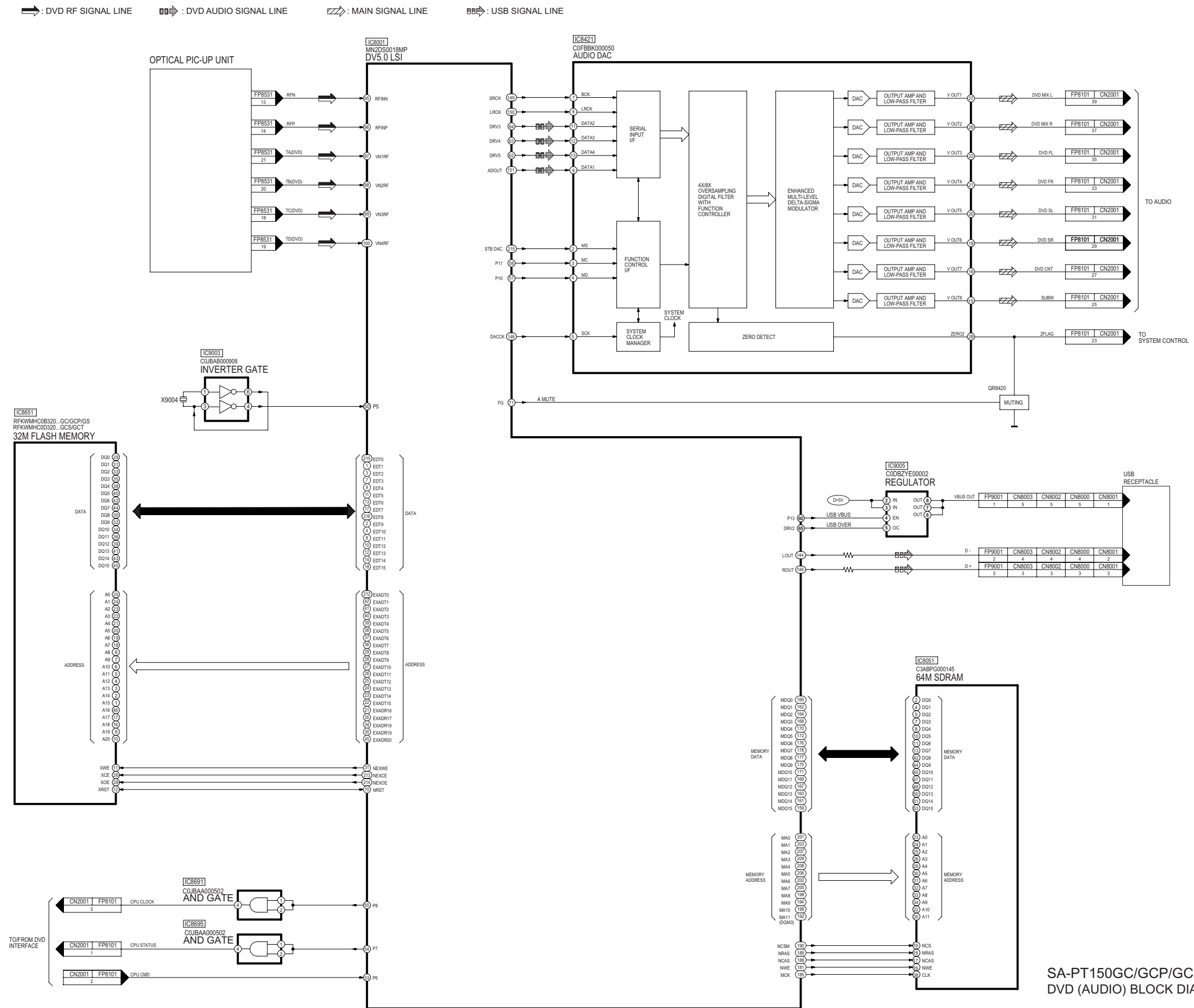
SA-PT150GC/GS/GCS/GCT/GCP WIRING CONNECTION

17.2. DVD (Servo)



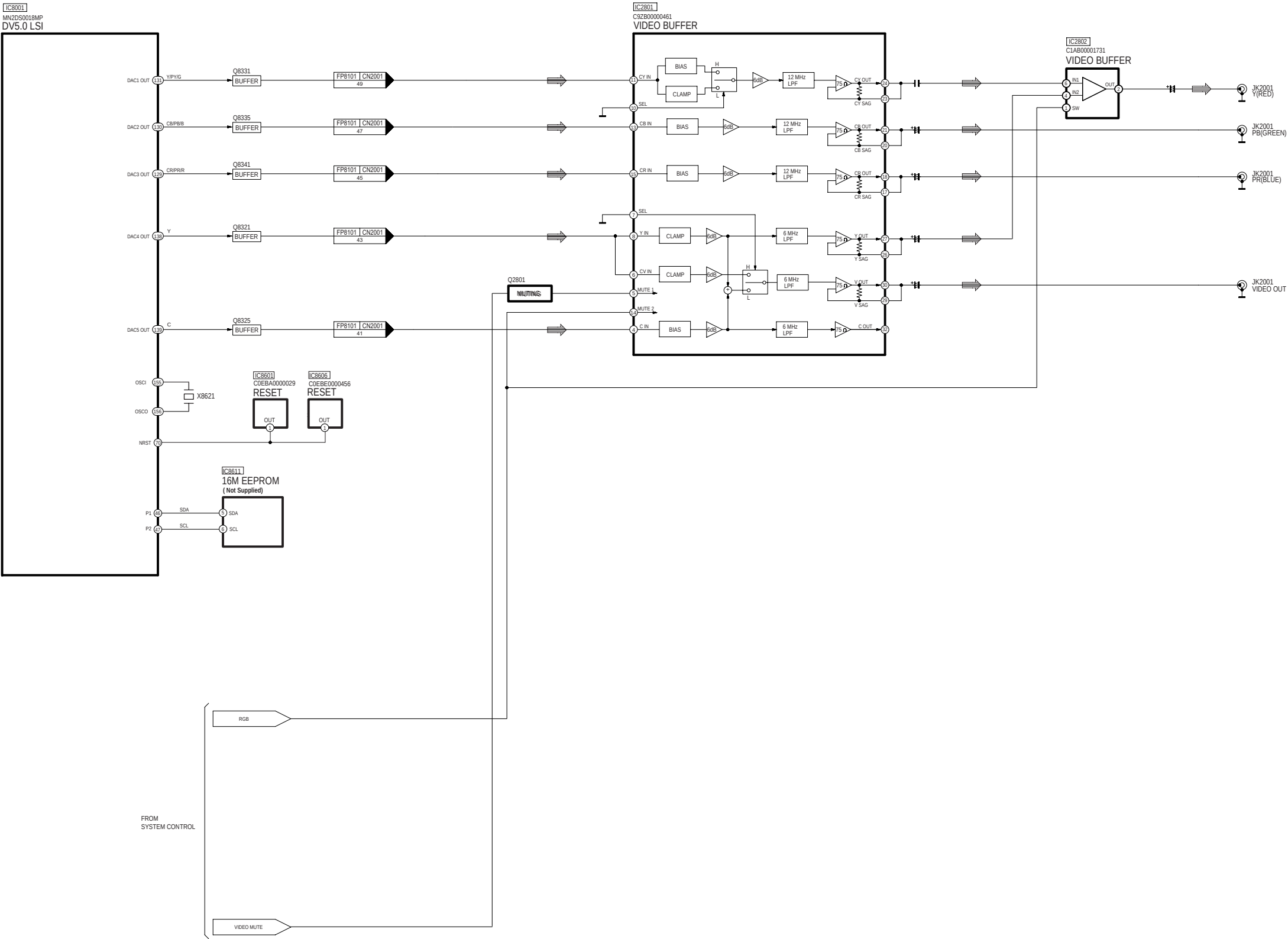
SA-PT150GC/GCP/GCS/GCT/GS DVD (SERVO) BLOCK DIAGRAM

17.3. DVD (Audio)

SA-PT150GC/GCP/GCS/GCT/GS
DVD (AUDIO) BLOCK DIAGRAM

17.4. DVD (Video)

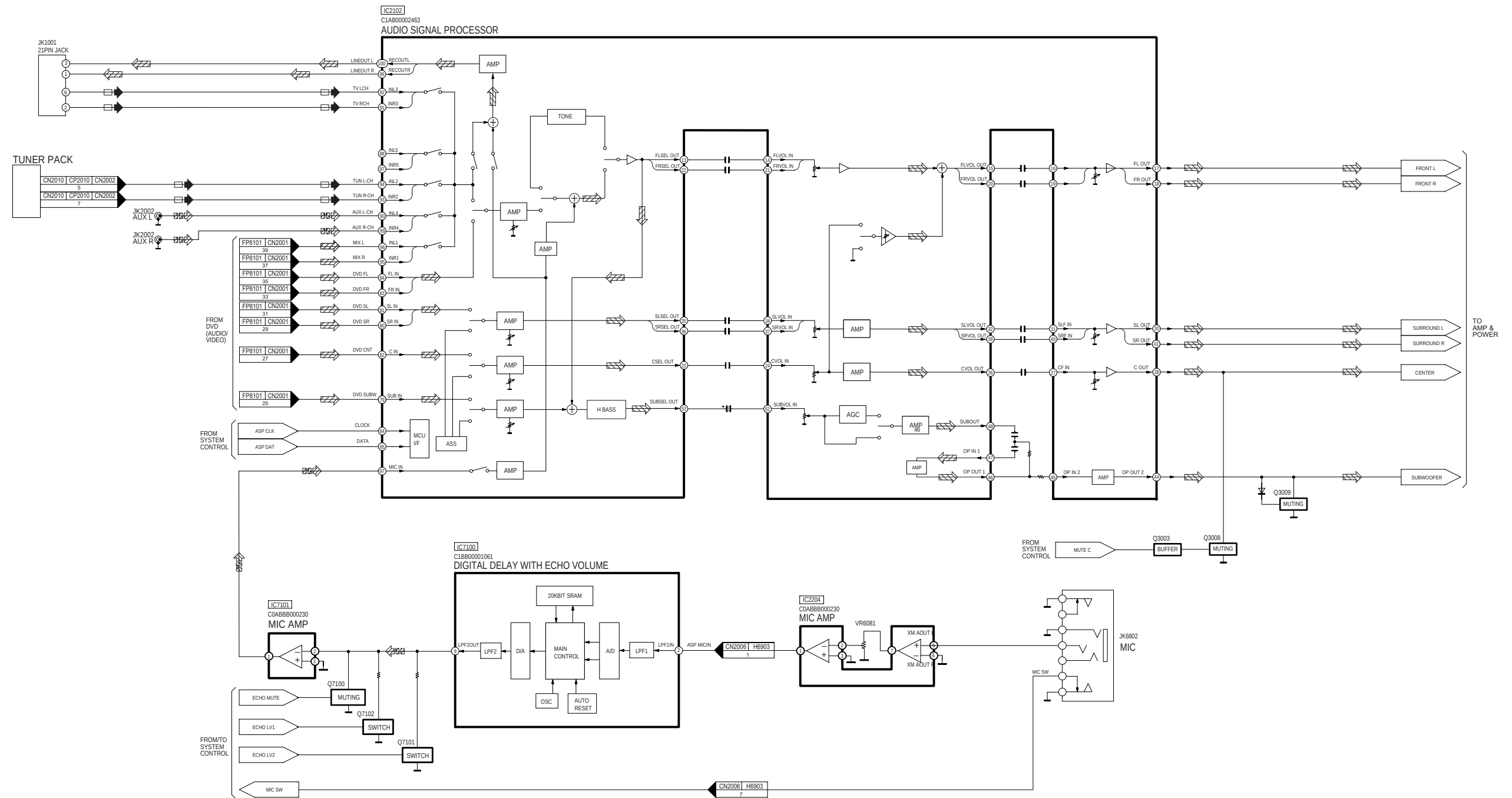
⇒ : DVD VIDEO SIGNAL LINE ⇨⇨ : MAIN SIGNAL LINE



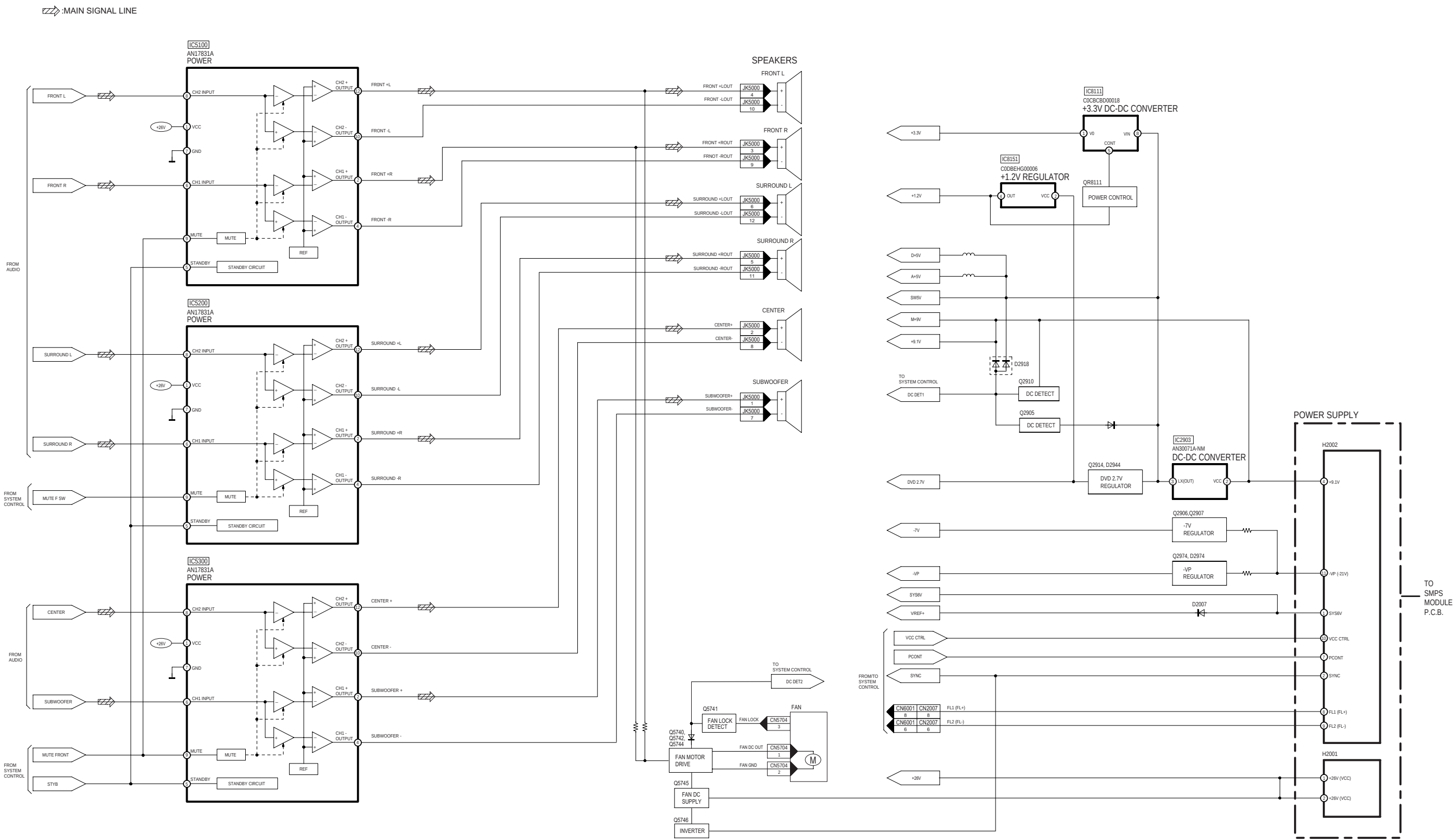
SA-PT150GC/GCP/GCS/GCT/GS DVD VIDEO BLOCK DIAGRAM

17.5. Audio

 :MAIN SIGNAL LINE
  :FM SIGNAL LINE
  :AUX, MIC SIGNAL LINE



17.6. Amp & Power



SA-PT150GC/GCP/GCS/GCT/GS AMP & POWER BLOCK DIAGRAM

18 Schematic Diagram Notes

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

Notes:

S901:	Play switch.
S902:	Open switch.
S6800:	Power switch ( / AC IN).
S6801:	Open / close switch ( Open / Close).
S6802:	Forward switch ( /  / TUNING ).
S6803:	Reverse switch ( /  / TUNING ).
S6804:	Stop switch ( / -TUNE MODE / — FM MODE).
S6805:	Play switch ( / Memory).
S6806:	Selector switch.
VR6081:	Mic Volume.
VR6800:	Volume jog.

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

- 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.

• Resistor

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

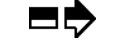
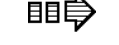
• Capacitor

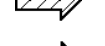
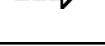
Unit of capacitance is μ F, unless otherwise noted. F=Farad, pF=Pico-Farad

• Coil

Unit of inductance is H, unless otherwise noted.

- Voltage and signal line

	: +B signal line
	: -B signal line
	: USB signal line
	: DVD RF signal line
	: Motor Drive signal line
	: DVD Audio signal line

	: DVD Video signal line
	: CD Head signal line
	: DVD Head signal line
	: Main signal line
	: Tracking Error signal line
	: Focus Error signal line
	: FM signal line
	: AUX/MIC signal line

Special Note:

This model uses Switching Mode Power Supply (SMPS) for powering two providing necessary voltages. It is supplied as a module assembly unit. As such, there is no schematic drawings included in this technical document. The fuse located in the SMPS Module can be replaced using substitute compatible part.

Fuse part no.: K5D502BNA005
(Manufacturer: Littelfuse) 250V, T5AH

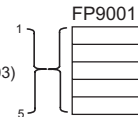
19 Schematic Diagram

19.1. DVD Module Circuit

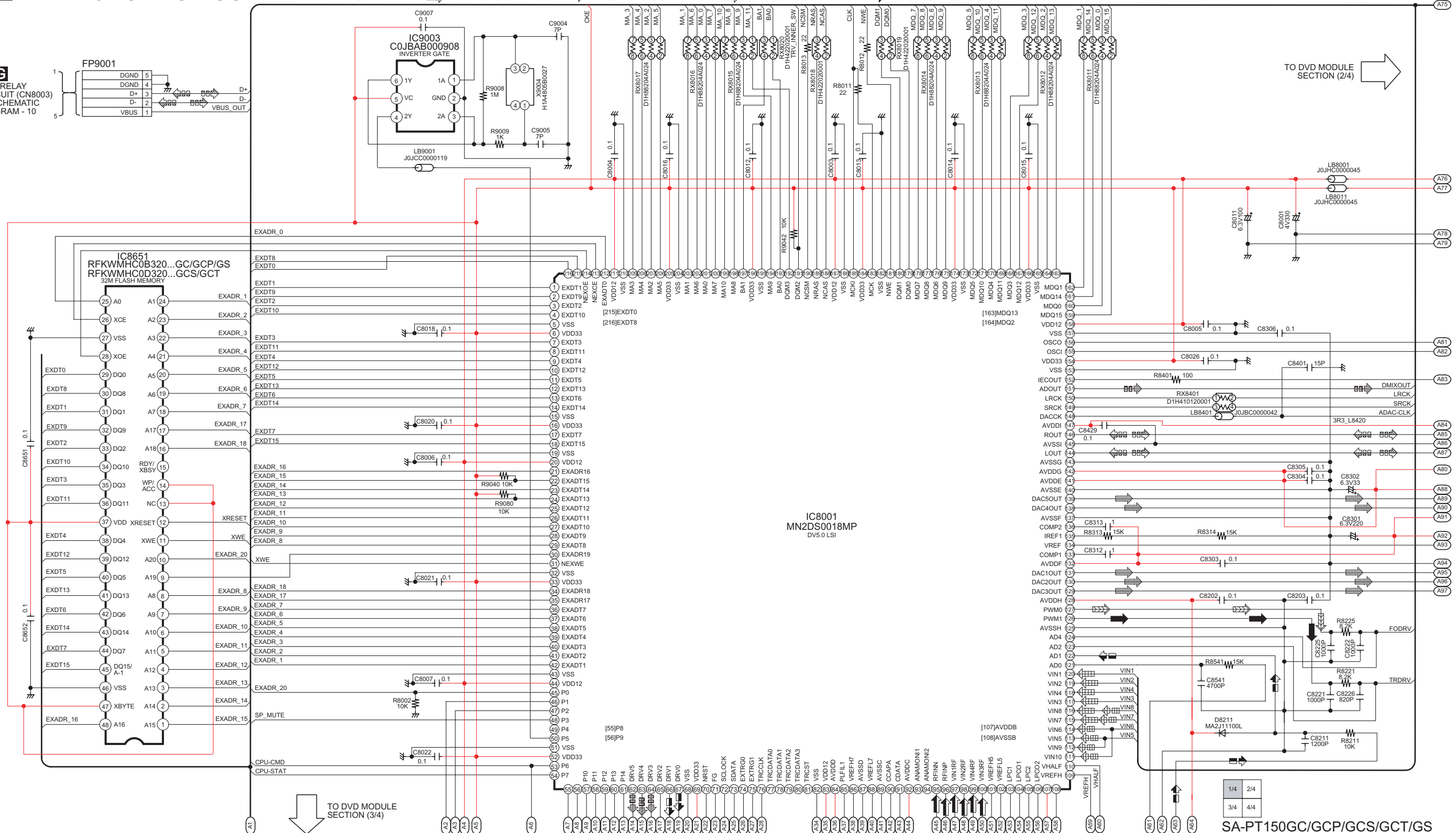
SCHEMATIC DIAGRAM - 1

A DVD MODULE CIRCUIT

TO **G** USB RELAY CIRCUIT (CN8003) IN SCHEMATIC DIAGRAM - 10



: CD HEAD SIGNAL LINE
 : DVD RF SIGNAL LINE
 : DVD AUDIO SIGNAL LINE
 : FOCUS ERROR SIGNAL LINE
 : USB SIGNAL LINE
 : +B SIGNAL LINE
 : DVD HEAD SIGNAL LINE
 : MOTOR DRIVE SIGNAL LINE
 : DVD VIDEO SIGNAL LINE
 : TRACKING ERROR SIGNAL LINE

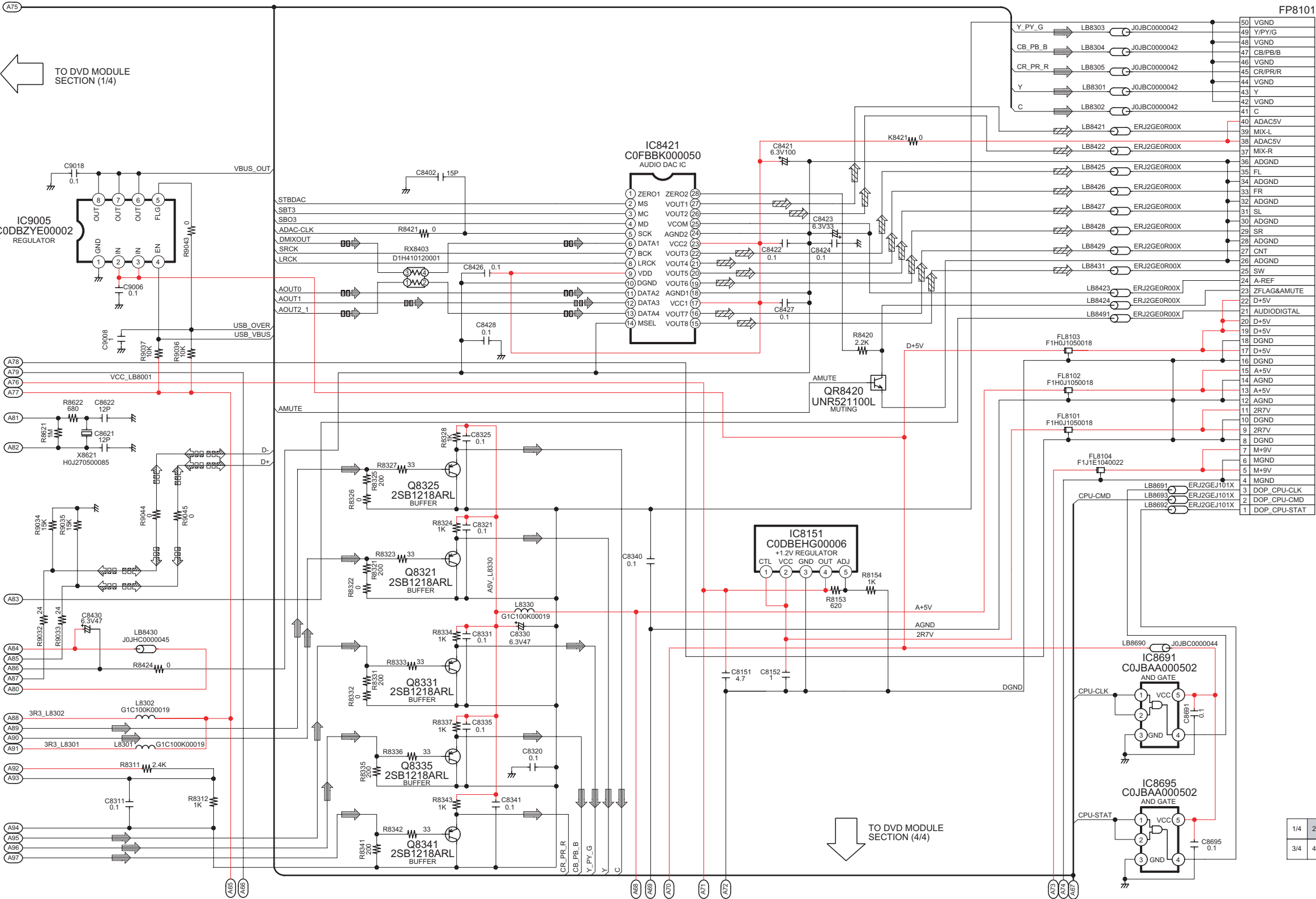


SA-PT150GC/GCP/GCS/GCT/GS
DVD MODULE CIRCUIT

15 16 17 18 19 20 21 22 23 24 25 26 27 28

SCHEMATIC DIAGRAM - 2

A DVD MODULE CIRCUIT

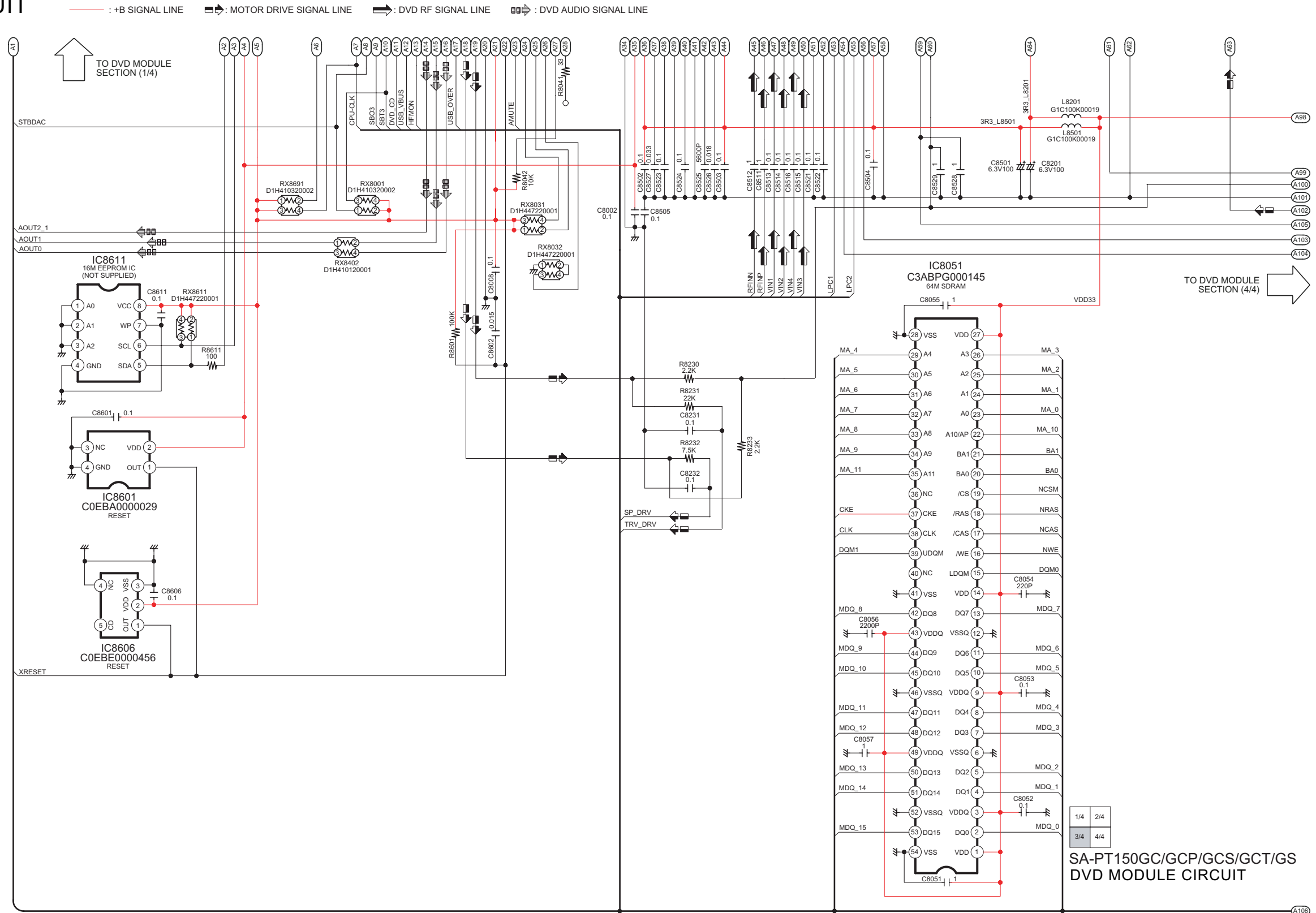


1/4	2/4
3/4	4/4

SA-PT150GC/GCP/GCS/GCT/GS DVD MODULE CIRCUIT

SCHEMATIC DIAGRAM - 3

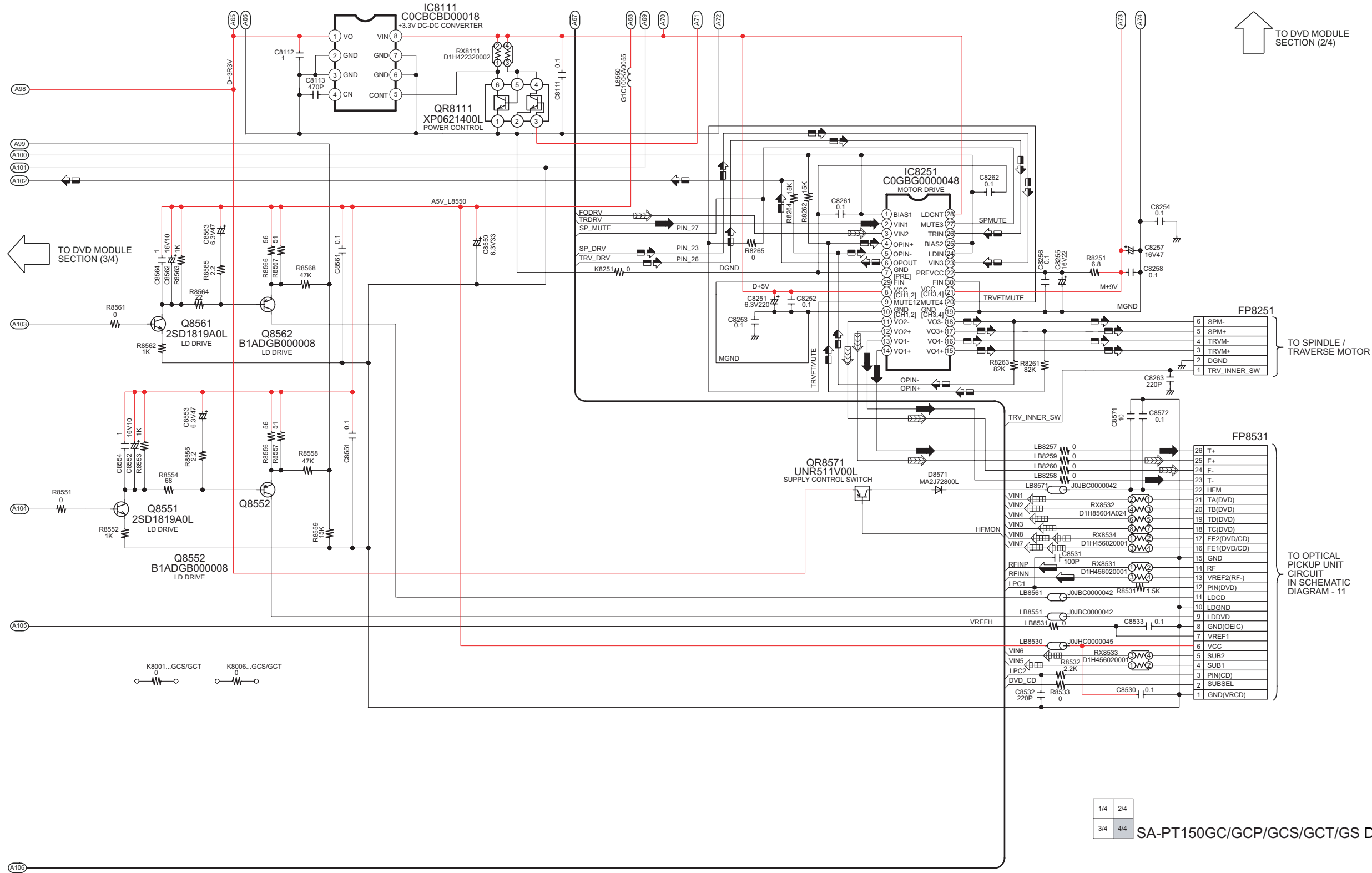
A DVD MODULE CIRCUIT



SCHEMATIC DIAGRAM - 4

A DVD MODULE CIRCUIT

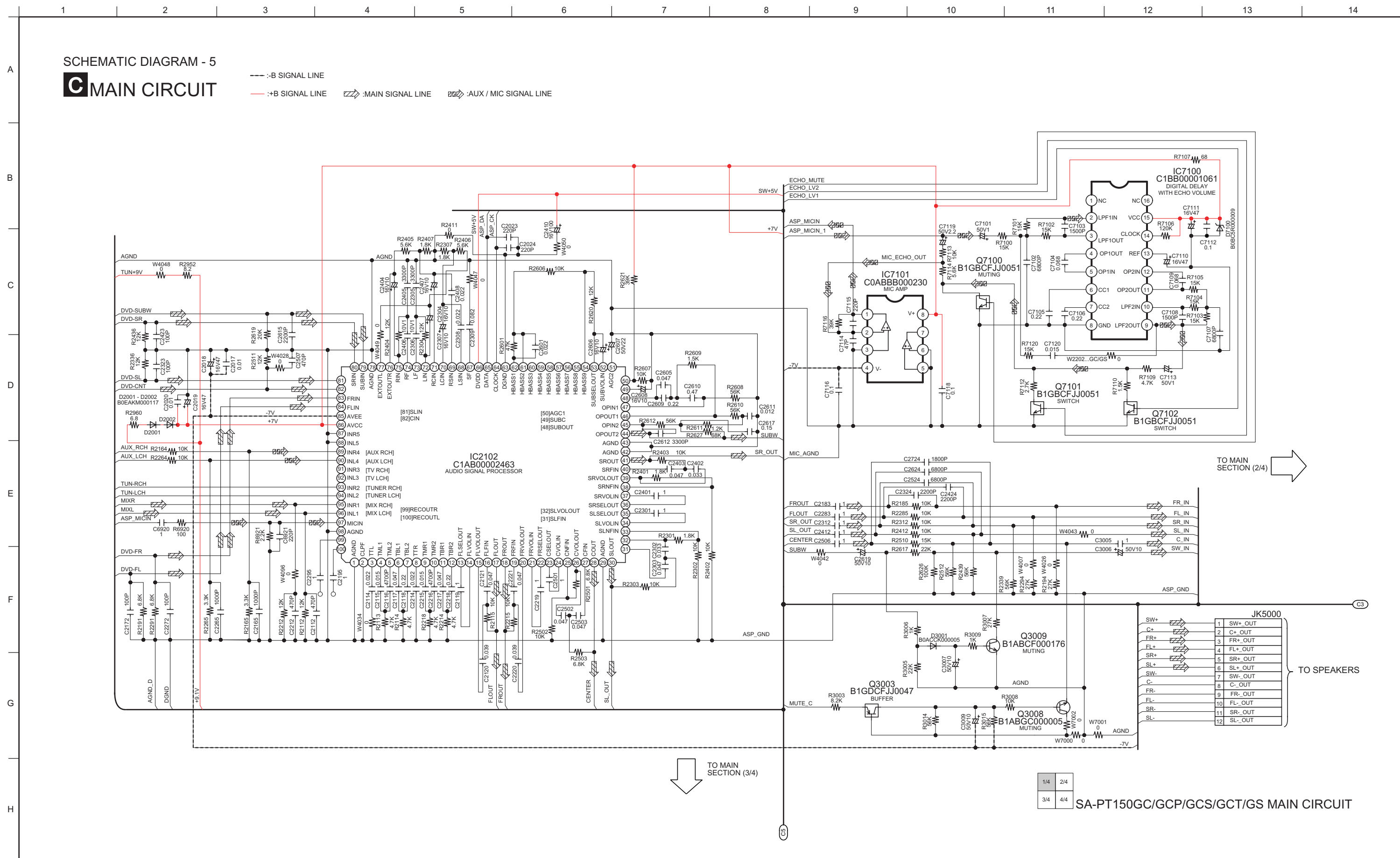
CD HEAD SIGNAL LINE MOTOR DRIVE SIGNAL LINE DVD RF SIGNAL LINE
+B SIGNAL LINE DVD HEAD SIGNAL LINE TRACKING ERROR SIGNAL LINE FOCUS ERROR SIGNAL LINE



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

SA-PT150GC/GCP/GCS/GCT/GS DVD MODULE CIRCUIT

19.2. Main Circuit



 :AUX / MIC SIGNAL LINE



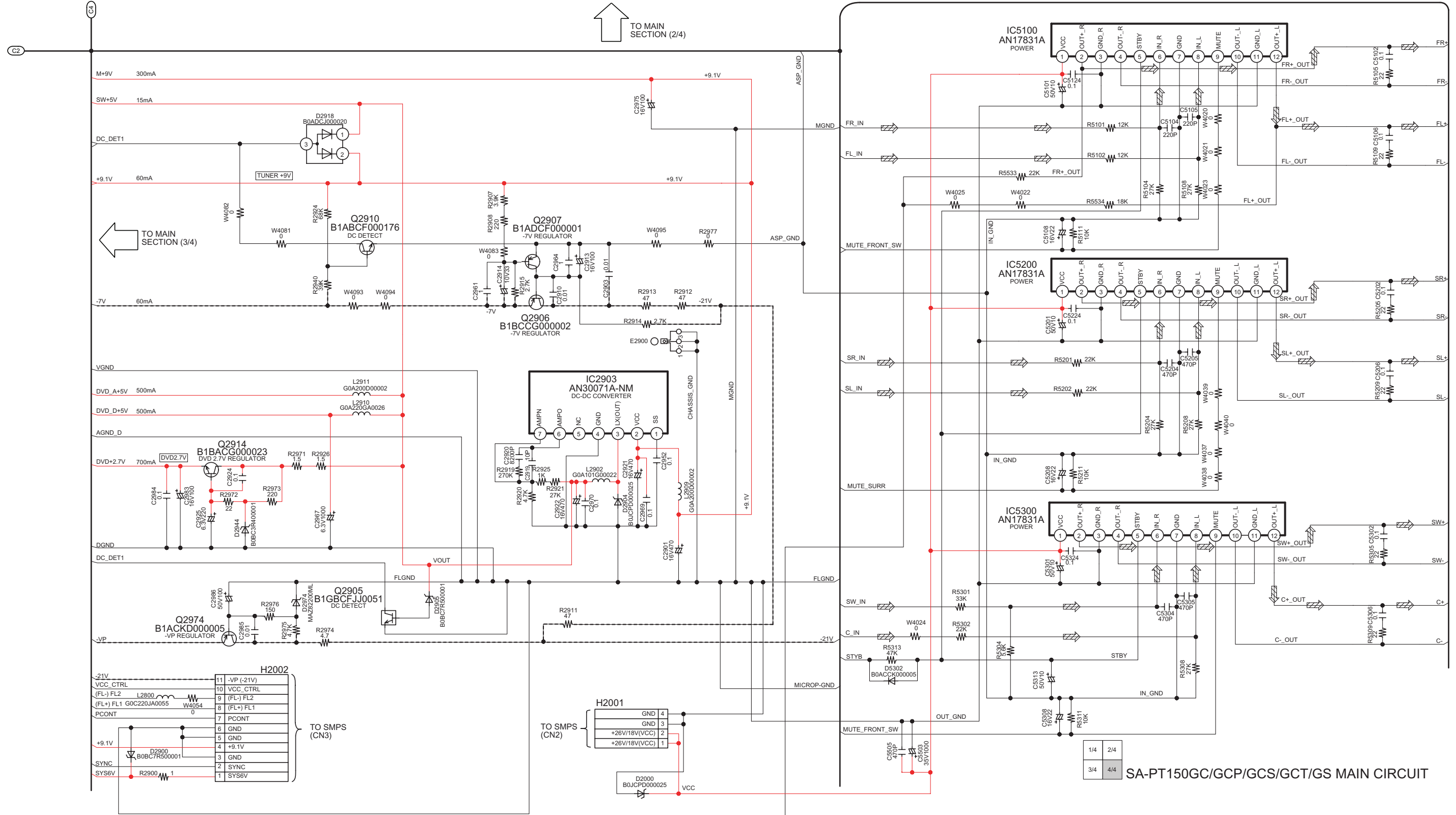
C MAIN CIRCUIT



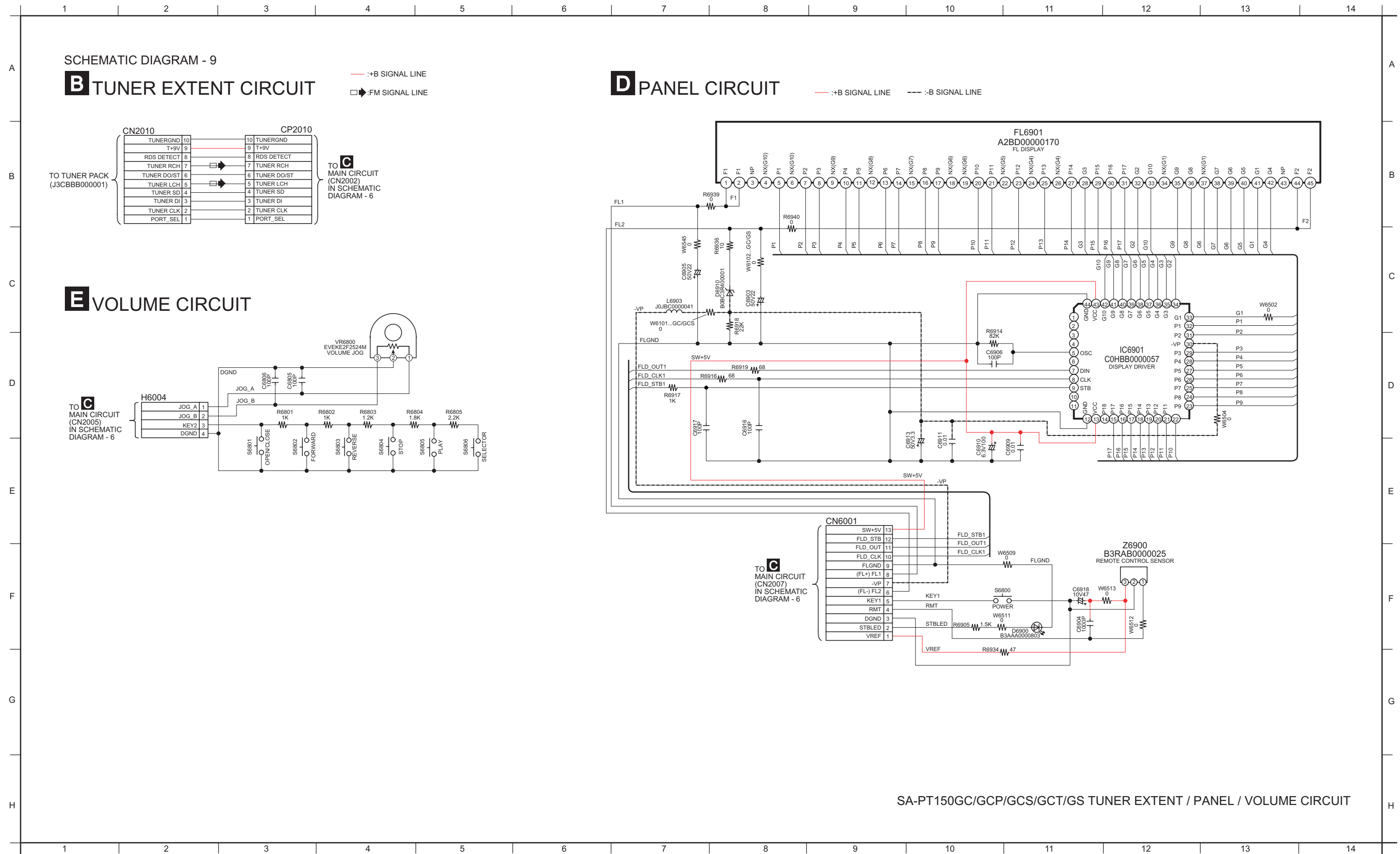
SCHEMATIC DIAGRAM - 8

C MAIN CIRCUIT

--- :-B SIGNAL LINE
--- :+B SIGNAL LINE
--- :MAIN SIGNAL LINE



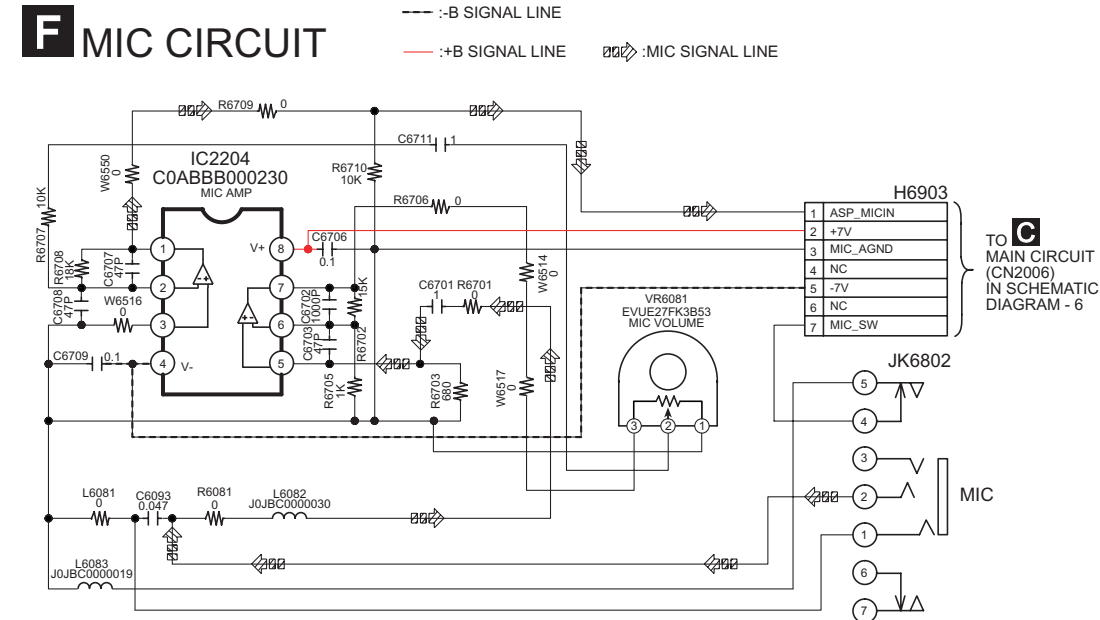
19.3. Tuner Extent, Panel & Volume Circuit



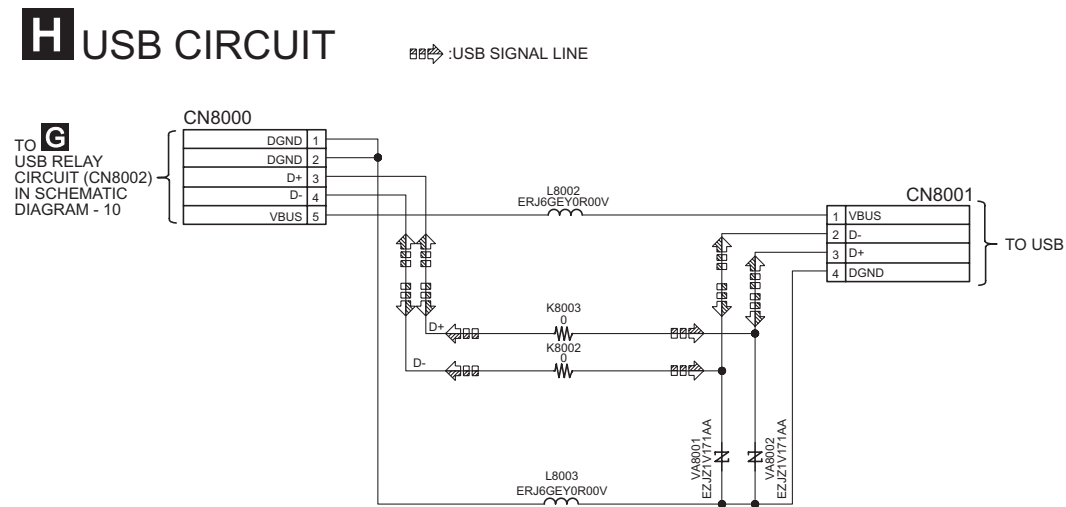
19.4. Mic, USB Relay, USB, Tray Loading & Optical Pickup Unit Circuit

SCHEMATIC DIAGRAM - 10

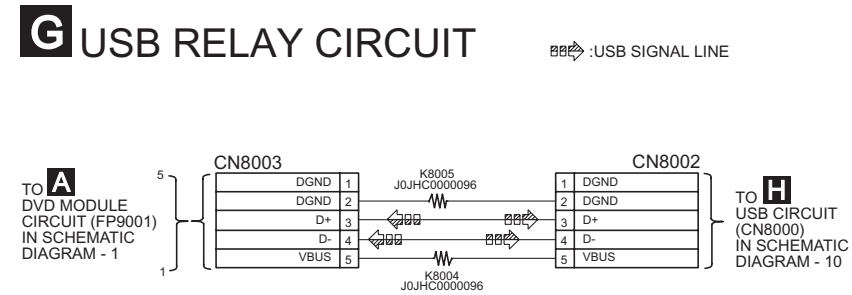
F MIC CIRCUIT



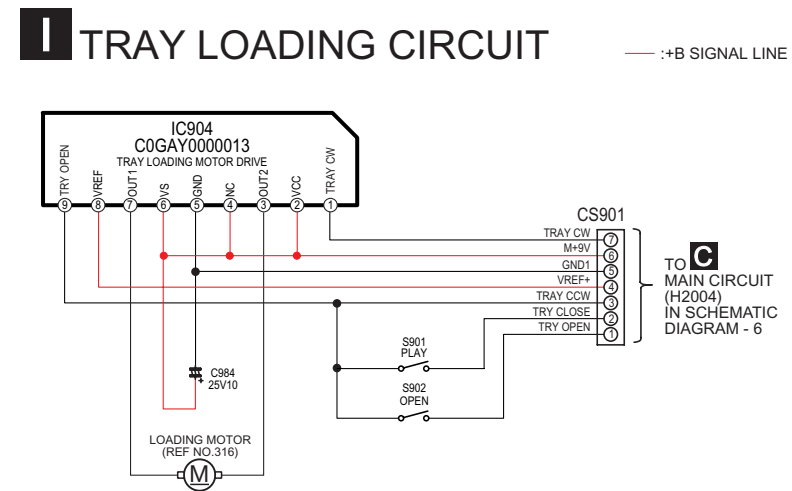
H USB CIRCUIT



USB RELAY CIRCUIT



TRAY LOADING CIRCUIT



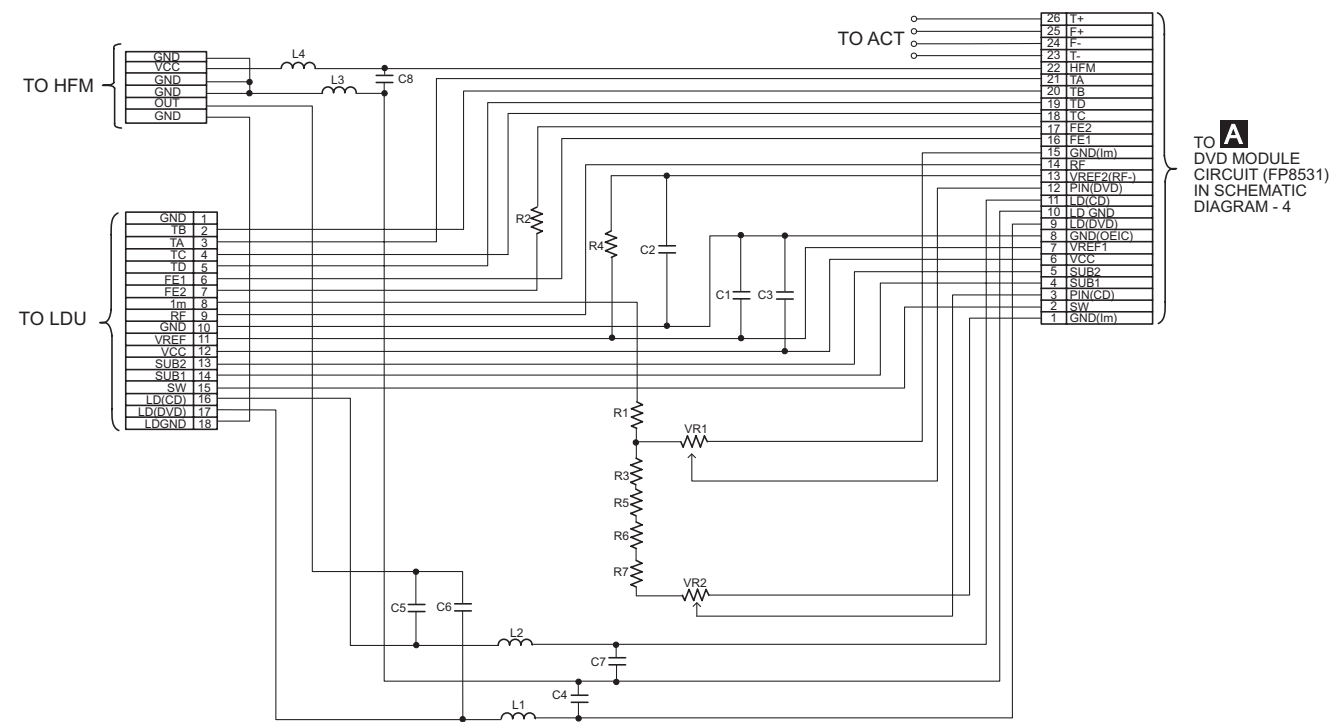
SA-PT150GC/GCP/GCS/GCT/GS MIC / USB RELAY / USB / TRAY LOADING CIRCUIT

SCHEMATIC DIAGRAM - 11



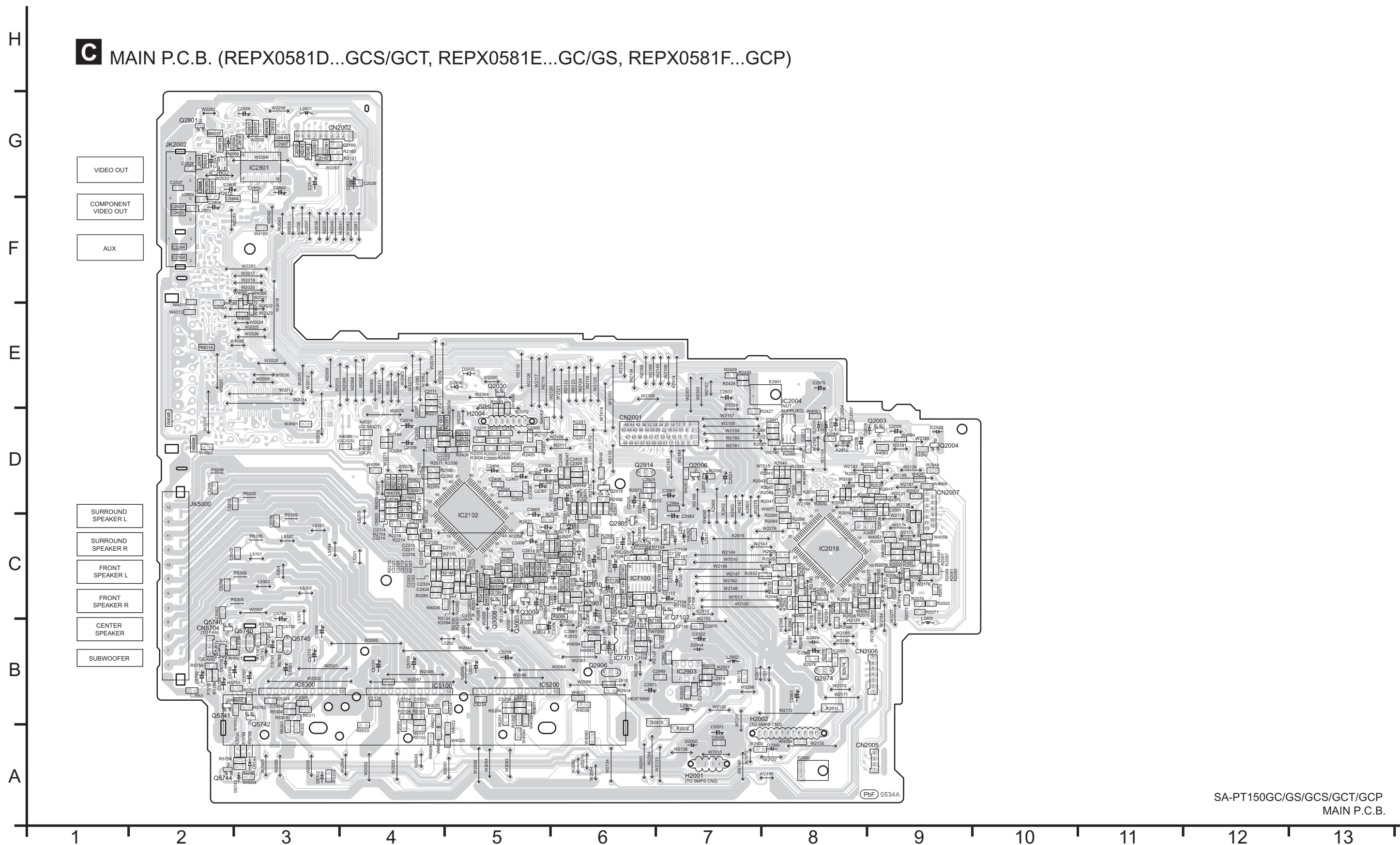
OPTICAL PICKUP UNIT CIRCUIT

(FOR REFERENCE ONLY)

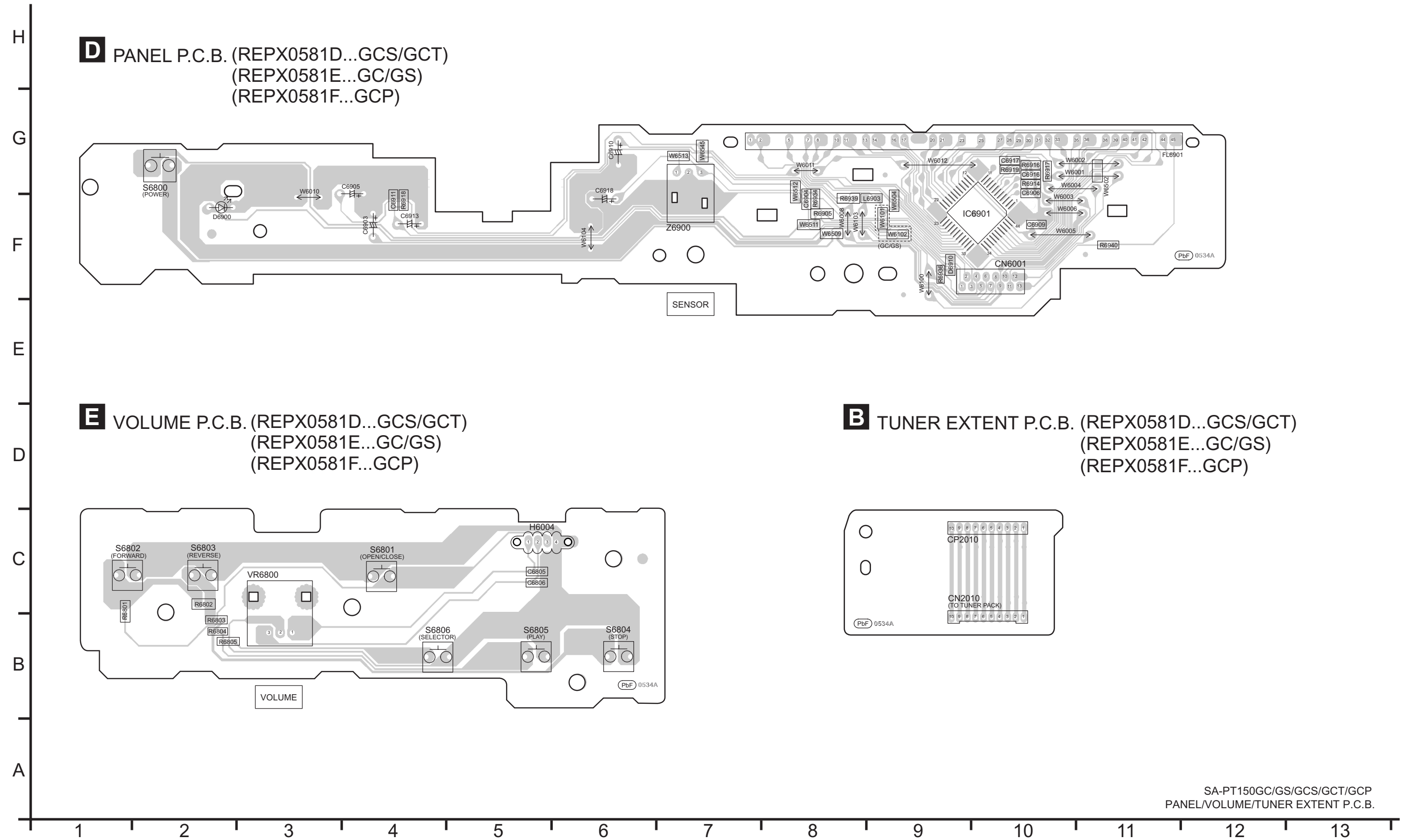


SA-PT150GC/GCP/GCS/GCT/GS OPTICAL PICKUP UNIT CIRCUIT

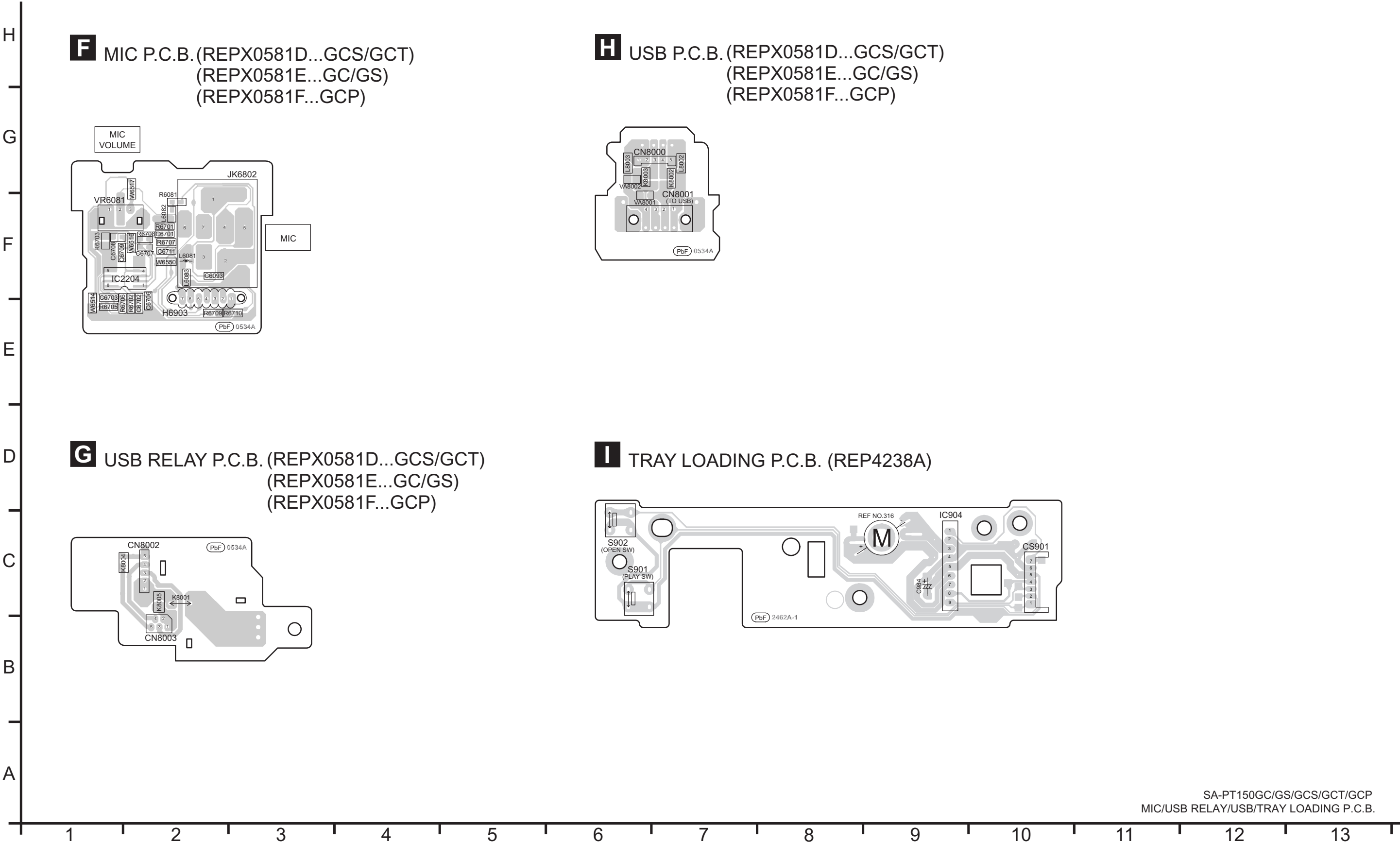
C MAIN P.C.B. (REPX0581D...GCS/GCT, REPX0581E...GC/GS, REPX0581F...GCP)



20.3. Panel, Volume & Tuner Extent P.C.B.



20.4. Mic, USB, USB Relay & Tray Loading P.C.B.



21 Basic Troubleshooting Guide

21.1. 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	LB8301, R8321, R8322, LB8302, R8325, R8326
	c) Check audio DAC circuitry * Compare the above with OK condition DVD module P.C.B.	IC8421 *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, Q8561, Q8562
	c) Check LSI IC connection to motor drive circuitry *Compare the above with OK condition DVD Module P.C.B.	IC8001 Pin 66, 67 * 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, LB8531 (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
9) Cannot read data from USB	a) Check USB connector & FFC b) Check LSI O/P c) Check IC supply (+5V)	FP9001 IC8001 Pin 144, 146 IC9005 Pin 2, 3

21.2. Basic Troubleshooting Guide for SMPS/MAIN/PANEL

Problems	Checking Points	Checking Components
1) No power supply to unit	a) Check AC cord connection (open/short)	
	b) Check fuse F1 on SMPS Module P.C.B.	F1
	c) Check supply voltage to Main P.C.B. from SMPS Module P.C.B. (+5V/±7V/2.7V)	H2002 Pin 1, 4, 8, 9, 11
	d) Check cable connection between SMPS Module & Main P.C.B.	
	e) Check DC voltage (+9.1V)	IC2903, L2909 Pin 2, 3
2) No FL Display	a) Check supply voltage (Refer to Item 1) checking points	
	b) Check SYS6V to IC2018	IC2018 Pin 16
	c) Check oscillator circuit	X2001, IC2018 Pin13, 16
	d) Check soldering condition	IC2018, IC6901, FL6901
3) No audio output	a) Check speaker connection * Solderability condition	JK5000
	b) Check amplifier IC circuit (audio output)	IC5100, IC5200, IC5300 Pin 4, 10
	b) Check supply to amplifier IC	IC5100, IC5200, IC5300 Pin 1

23 Terminal Function of ICs

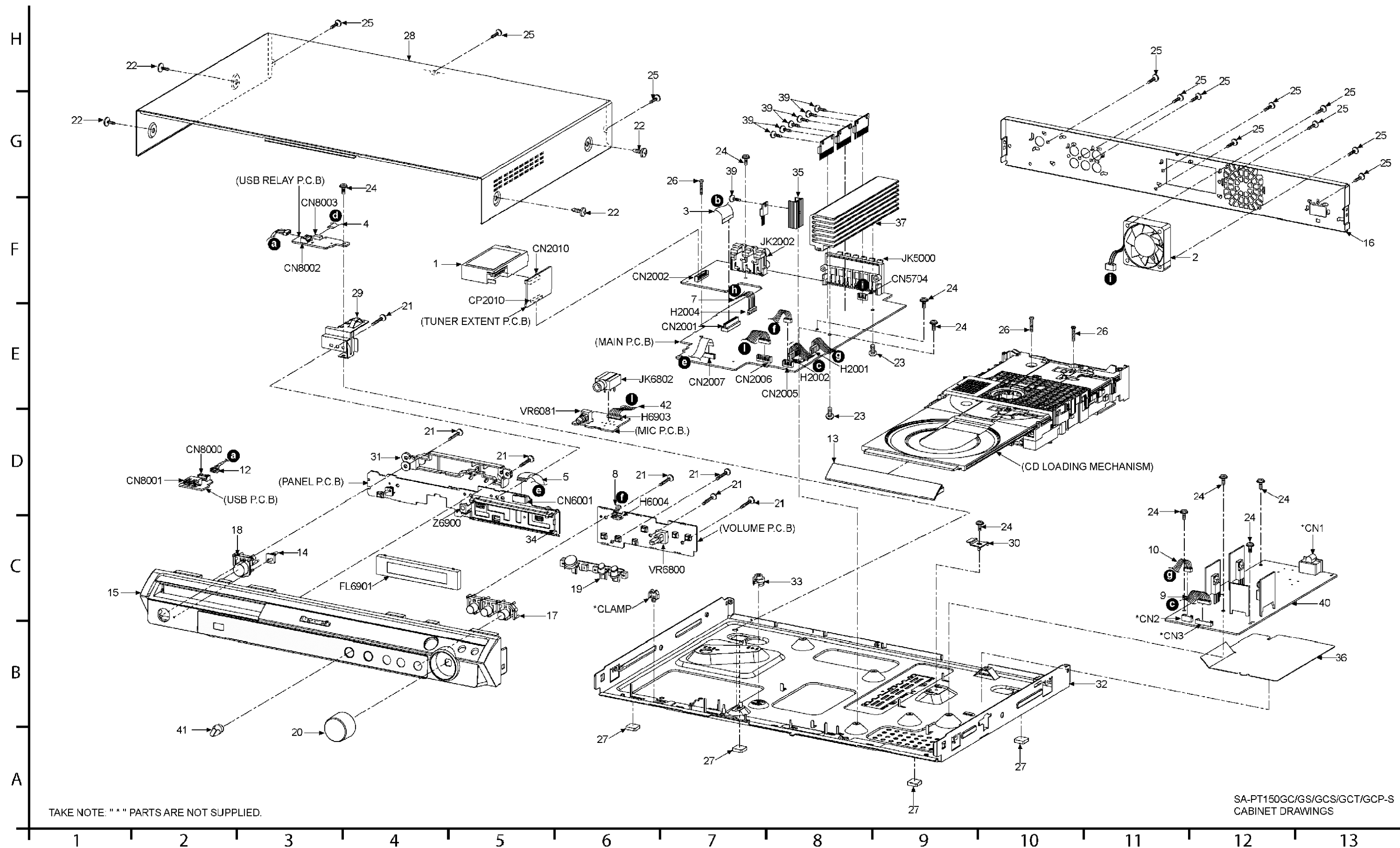
23.1. IC2018 (C2CBYY000438): System Control IC

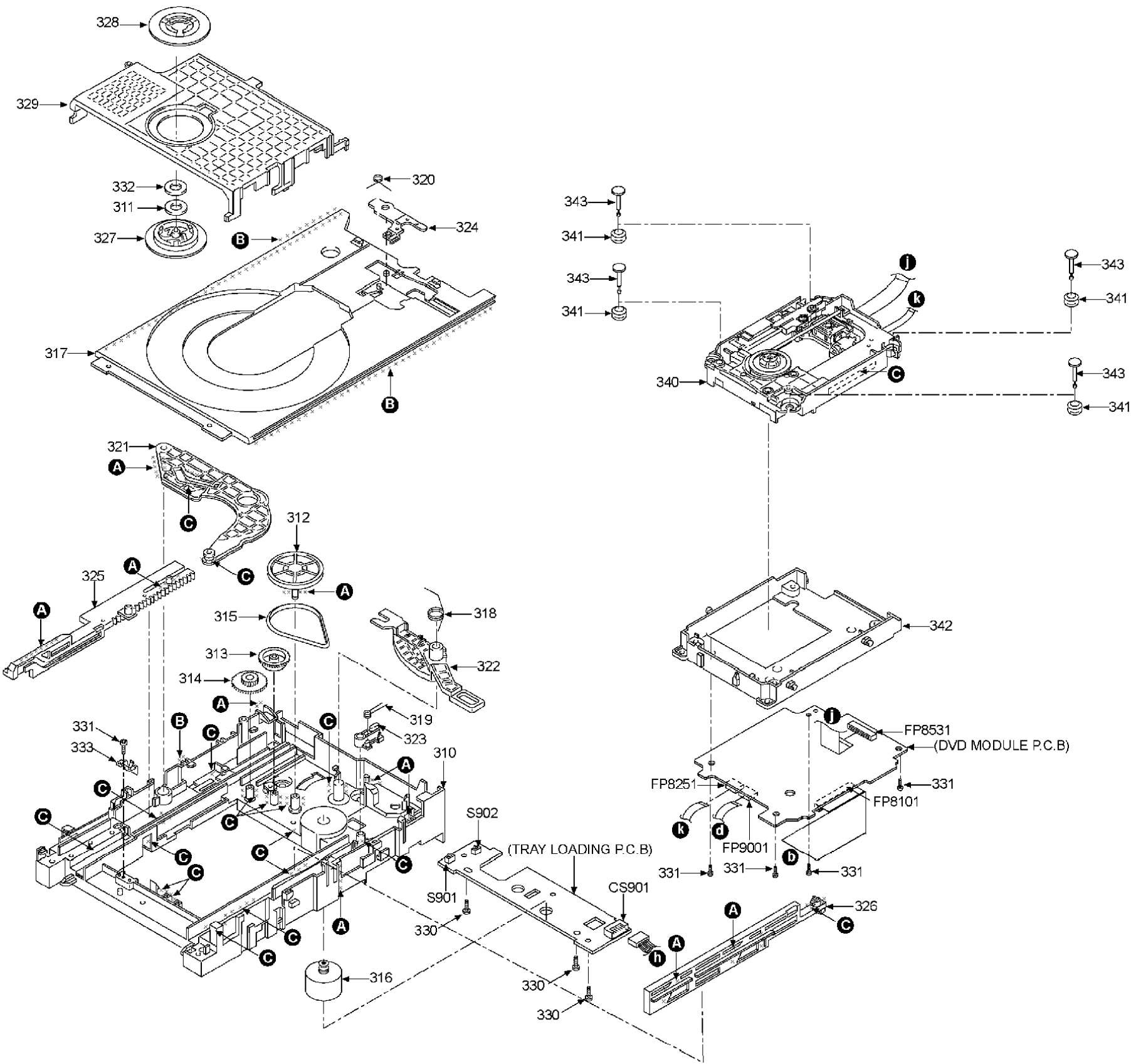
Pin No.	Terminal Name	I/O	Function
1	TRAY_CLOSE	I	LOADING MECHA CLOSE SW (L: SW ON)
2	TRAY_CCW	O	Terminal for tray control 1
3	TRAY_CW	O	Terminal for tray control 2
4	TRAY_OPEN	I	LOADING MECHA OPEN SW (L: SW ON)
5	NC	-	MIC Insertion Detect (if MIC_EN = 1)
6	I/P VCC_CTRL	I	Input Power Supply Control
7	NC	-	No Connection
8	BYTE	-	VSS (GND)
9	CNVSS	-	VSS (GND)
10	NC	-	No Connection
11	NC	-	RDS Enable (H = Enable, L = Disable)
12	RESET	I	SYSTEM RESET INPUT
13	XOUT	-	MAIN CLOCK OUTPUT (10.0MHZ)
14	VSS	-	GND (0V)
15	XIN	-	MAIN CLOCK INPUT (10 MHZ)
16	VCC	-	POWER SUPPLY (5V)
17	NMI	I	CONNECT TO VCC EXTERNAL INTERRUPT I/P
18	RMT	I	REMOCON INPUT
19	SYNC	I	AC FAILURE DETECT INPUT
20	NC	-	No Connection
21	MIC_EN	I	Microphone Enable (L=Disable, H=Enable)
22	NC	-	No Connection
23	EDA	I/O	DATA signal for the EEPROM
24	ECK	O	CLOCK signal for the EEPROM
25	ECS	O	LAT signal for the EEPROM
26	NC	-	No Connection
27	NC	-	No Connection
28	DVD_CLK	I	CLK signal for the DVD Module
29	DVD_STAT	I	STATUS signal from the DVD Module
30	DVD_CMD	O	CMD signal for the DVD Module
31	NC	-	No Connection
32	NC	-	No Connection
33	NC	-	No Connection
34	NC	-	No Connection
35	TUN_SD	I	Tuner Station Detect
36	TUN_CLK	O	I2C Clock for Tuner
37	TUN_DO	I	Stereo Detect
38	TUN_DI	O	I2C Data for Tuner
39	NC	-	No Connection
40	PCONT	O	Control Signal for Power Relay
41	EPM	I	CONNECTED TO GROUND VIA RESISTOR
42	DVD_MUTE	I	Signal from DVD module control mute circuit
43	NC	-	No Connection
44	NC	-	No Connection
45	NC	-	No Connection
46	VMUTE	O	Video Mute Control
47	NC	-	No Connection
48	NC	-	No Connection
49	NC	-	No Connection
50	NC	-	No Connection
51	ECHO_MUTE	O	ECHO MUTING CONTROL
52	ECHO_LVL1	O	ECHO LEVEL CONTROL 1
53	ECHO_LVL2	O	ECHO LEVEL CONTROL 2
54	NC	-	No Connection

Pin No.	Terminal Name	I/O	Function
55	NC	-	No Connection
56	NC	-	No Connection
57	NC	-	No Connection
58	NC	-	No Connection
59	NC	-	No Connection
60	NC	-	No Connection
61	NC	-	No Connection
62	VCC	-	POWER SUPPLY 5.0V
63	NC	-	No Connection
64	VSS	-	GND (0V)
65	O/P VCC_CTRL	O	Output VCC Supply Control
66	MIC_SW	O	PULL UP RESISTOR TO SUPPLY
67	MUTE_C_S	O	Center and Surround L & R Mute
68	MUTE_F_SW	O	Front L & R Mute and SubWoofer Mute
69	MUTE_FRONT	O	Front Mute
70	DC_DET1	I	DC Detection circuit 1
71	STYB	O	Standby Mode
72	NC	-	No Connection
73	NC	-	No Connection
74	NC	-	No Connection
75	NC	-	No Connection
76	JOG_A	I	Signal A from Volume JOG
77	JOG_B	I	Signal B from Volume JOG
78	NC	-	No Connection
79	SCART_MUTE	O	Line out for SCART terminal
80	WIDE1	O	Control Signal for the WIDE function
81	RGB	I	Mute signal 1 for Video output
82	YC_H	O	Control signal for the video signal Mix
83	ASP_CLK	O	Clock Signal for 6 Channel ASP IC
84	ASP_DAT	O	Data Signal for ASPIC IC
85	FLD_CLK	O	Clock Signal for the FL Driver
86	FLD_STB	O	FL Strobe
87	FLD_OUT	O	FL Data Out
88	DC_DET2	I	DC Detection circuit 2
89	MD3	I	Model Code 3
90	MD2	I	Model Code 2
91	KEY_2	I	Key 2 line input
92	MD1	I	Model Code 1
93	DES3	I	DVD Region Setting
94	DES2	I	Model Selector
95	DES1	I	REGION Setting for Tuner
96	AVSS	-	Analog Power Supply Input
97	KEY1	I	Key 1 Line input
98	VREF	-	Reference Voltage Input
99	AVCC	-	Analog Power Supply Input
100	BRAKE_H	O	Terminal for tray control 3

24 Exploded Views

24.1. Cabinet Parts Location





SA-PT150GC/GS/GCS/GCT/GCP-S
CD LOADING MECHANISM DRAWINGS

24.2. Packaging

ACCESSORIES BAG

A1

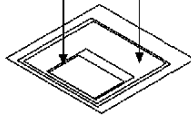


A2



A7

A3



A1 REMOTE CONTROL

A2 AC CORD
(GC/GCS/GCP/GCT)

A3 O/I BOOK

A4 ANTENNA WIRE

A5 VIDEO CABLE

A6 AC PLUG ADAPTOR
(GCP)

A7 SPEAKER LABEL

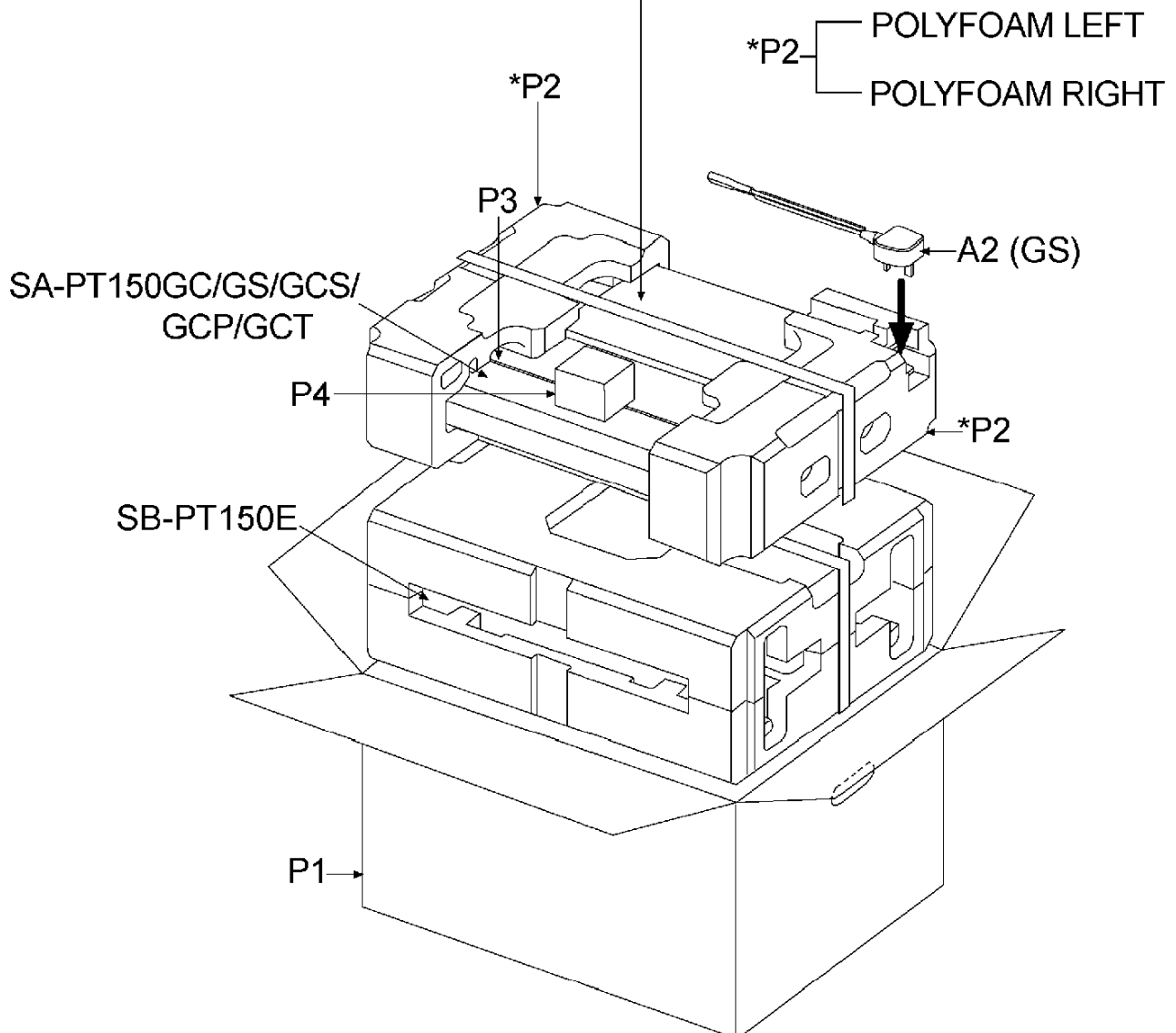
A4



A5



A6

SC-PT150GC/GS/GCS/GCP/GCT-S
PACKAGING DRAWINGS

25 Replacement Parts List

Notes:

- Important safety notice:
Components identified by $\triangle$ mark have special characteristics important for safety purpose.
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 manufacture's specified parts shown in the parts list.
- Warning: This product uses a laser diode. Refer to caution statements.
- Capacity values are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F=Farads (F).
- Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000K (OHM).
- The parenthesized indications in the Remarks columns specify the model names and areas. (Refer to the cover page)
- The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.
- Parts mentioned [M] are supplied from PAVCSG.
- Parts mentioned [SPG] are supplied from PAVC.
- Reference for O/I book languages are as follows:

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

Note:

The SMPS Module P.C.B. is replaced as a unit if upon confirmation that is not working in proper condition.

Check for all voltages for confirmation. (Refer to Section 14.4). Replace fuse as specified if found broken. (Substitute Fuse Part No. K5D502BNA005)

25.1. Component Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	J3CBBB000001	TUNER PACK	[M]
2	L6FAJCC00007	SMALL DC FAN MOTOR	[M]
3	REEX0613	50P FFC (MECHA)	[M]
4	REEX0679	5P FFC (MECHA)	[M]
5	REEX0736	13P FFC WIRE (FL)	[M]
7	REXX0384-J	7P FLAT WIRE (DVD)	[M] GC/G CS/GS
8	REXX0519	4P FLAT WIRE (VOLUME)	[M]
9	REXX0520	11P FLAT WIRE (MAIN)	[M]
10	REXX0521	4P FLAT WIRE (MAIN)	[M]
12	REXX0589	5P USB WIRE	[M]
13	RGKX0325A-S1	DVD LID	[M]
14	RGLX0128-Q	LIGHTING CHIP	[M]
15	RFGAPT150EE	FRONT PANEL ASS'Y	[M] GC/G CS/GCT/GS
15	RFGAPT150GP	FRONT PANEL ASS'Y	[M] GCP
16	RGRX0058F-J	REAR PANEL	[M] GCS
16	RGRX0058F-K	REAR PANEL	[M] GC/G S
16	RGRX0058F-M	REAR PANEL	[M] GCT
16	RGRX0058F-N	REAR PANEL	[M] GCP
17	RGUX0665-S	POWER BUTTON	[M]
18	RGUX0666-S	FUNCTION BUTTON	[M]
19	RGUX0676-S	OPEN CLOSE BUTTON	[M]
20	RGWX0076-S	VOLUME KNOB	[M]
21	RHD26046	SCREW	[M]
22	RHD30007-1SJ	SCREW	[M]
23	RHD30092-1	SCREW	[M]
24	RHD30111-3	SCREW	[M]
25	RHD30119-S	SCREW	[M]
26	RHDV30006	SCREW	[M]
27	RKA0059-K	LEG RUBBER	[M]
28	RKMX0107-1S3	TOP CABINET	[M]
29	RMAX0086-2	PANEL ANGLE	[M]
30	RMAX0101	BRACKET	[M]
31	RMAX0108-1	MECHA HOLDER	[M]
32	RMKX0117-4	BOTTOM CHASSIS	[M]
33	RMNX0109	PCB SPACER	[M]
34	RMNX0149	FL HOLDER	[M]
35	RMYX0191A	HEATSINK EXTRUSION	[M]
36	RMZX0029	MAIN PCB INSULATOR	[M]
37	RXXX0090	HEATSINK UNIT	[M]
39	XTB3+8JFJ	SCREW	[M]
40	NOAZ6GE00006	SMPS MODULE	[M] △
41	RGWX0352A-K	MIC KNOB	[M]
42	REXX0531	7P FLAT WIRE (MIC)	[M]
		TRAVERSE DECK	
310	RMK0591A	MECHA CHASSIS	[M]
311	RHM0003-J	MAGNET	[M]
312	RDG0547	PULLEY GEAR	[M]
313	RDG0548-1	RELAY GEAR	[M]
314	RDG0549	DRIVE GEAR	[M]
315	RDV0070	BELT	[M]
316	REM0133	MOTOR UNIT	[M]
317	RGQ0395-K1	TRAY	[M]
318	RME0350	CHANGE LEVER SPRING	[M]
319	RME0351A	LOCK LEVER SPRING	[M]
320	RME0353	TRAY SLIDER SPRING	[M]
321	RML0627-2	DRIVE ARM	[M]
322	RML0628	CHANGE LEVER	[M]
323	RML0629	LOCK LEVER	[M]
324	RML0631	TRAY SLIDER	[M]
325	RMM0247-3	DRIVE RACK	[M]
326	RMM0248	SUB RACK	[M]
327	RMR1446-X	CLAMPER	[M]
328	RMR1447-X	MAGNET HOLDER	[M]
329	RMR1468-K	CLAMP PLATE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
330	XTN26+6GFJ	SCREW	[M]
331	XTV2+6GFJ	PCB SCREW	[M]
332	XWG6FFJ	WASHER	[M]
333	RMC0387	SUPPORT SPRING	[M]
340	RAE2023Z-S	TRAVERSE UNIT	[M] △
341	RMG0598A-K	FLOATING RUBBER	[M]
342	RMR1596-X2	MIDDLE CHASSIS	[M]
343	RMS0789	FIXED PIN	[M]
		PRINTED CIRCUIT BOARDS	
	REPX0562A	DVD MODULE P.C.B.	[M] (RTL) GC /GCP/GS
	REPX0562B	DVD MODULE P.C.B.	[M] (RTL) GC S/GCT
	REPX0581D	MAIN/TUNER EXTENT/PANEL/VOLUME/MIC/USB/USB RELAY P.C.B.	[M] (RTL) GC S/GCT
	REPX0581E	MAIN/TUNER EXTENT/PANEL/VOLUME/MIC/USB/USB RELAY P.C.B.	[M] (RTL) GC /GS
	REPX0581F	MAIN/TUNER EXTENT/PANEL/VOLUME/MIC/USB/USB RELAY P.C.B.	[M] (RTL) GC P
	REP4238A	TRAY LOADING P.C.B.	[M] (RTL)
		INTEGRATED CIRCUITS	
IC904	C0GAY0000013	IC TRAY LOADING MOTOR DRIVE	[M]
IC2018	C2CBYY000438	IC SYSTEM CONTROL	[M]
IC2102	C1AB00002463	IC AUDIO SIGNAL PROCESSOR	[M]
IC2204	C0ABBB000230	IC MIC AMP	[M]
IC2801	C92B00000461	IC VIDEO BUFFER	[M]
IC2802	C1AB00001731	IC VIDEO BUFFER	[M]
IC2903	AN30071A-NM	IC DC-DC CONVERTER	[M]
IC5100	AN17831A	IC POWER	[M]
IC5200	AN17831A	IC POWER	[M]
IC5300	AN17831A	IC POWER	[M]
IC6901	C0HBB0000057	IC DISPLAY DRIVER	[M]
IC7100	C1BB00001061	IC DIGITAL DELAY WITH ECHO VOLUME	[M]
IC7101	C0ABBB000230	IC MIC AMP	[M]
IC8001	MN2DS0018MP	IC DV5.0 LSI	[M]
IC8051	C3ABPG000145	IC 64M SDRAM	[M]
IC8111	C0CBCBD00018	IC +3.3V DC-DC CONVERTER	[M]
IC8151	C0DBEHG00006	IC +1.2V REGULATOR	[M]
IC8251	C0GBG0000048	IC MOTOR DRIVE	[M]
IC8421	C0FBBK000050	IC AUDIO DAC	[M]
IC8601	C0EBA0000029	IC RESET	[M]
IC8606	C0EBE0000456	IC RESET	[M]
IC8651	RFKWMHC0B320	IC 32M FLASH MEMORY	[SPG] GC /GCP/GS
IC8651	RFKWMHC0D320	IC 32M FLASH MEMORY	[SPG] GC S/GCT
IC8691	C0JBAA000502	IC AND GATE	[M]
IC8695	C0JBAA000502	IC AND GATE	[M]
IC9003	C0JBAB000908	IC INVERTER GATE	[M]
IC9005	C0DBZE000002	IC REGULATOR	[M]
		TRANSISTORS	
Q2003	B1GBCFJJ0051	TRANSISTOR	[M]
Q2004	B1ADCE000012	TRANSISTOR	[M]
Q2006	B1GBCFJJ0051	TRANSISTOR	[M]
Q2030	B1GBCFJJ0051	TRANSISTOR	[M]
Q2801	B1GBCFJJ0051	TRANSISTOR	[M]
Q2905	B1GBCFJJ0051	TRANSISTOR	[M]
Q2906	B1BCCG000002	TRANSISTOR	[M]
Q2907	B1ADCF000001	TRANSISTOR	[M]
Q2910	B1ABCF000176	TRANSISTOR	[M]
Q2914	B1BACG000023	TRANSISTOR	[M]
Q2974	B1ACKD000005	TRANSISTOR	[M]
Q3003	B1GDCEJJ0047	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q3008	B1ABGC000005	TRANSISTOR	[M]
Q3009	B1ABCF000176	TRANSISTOR	[M]
Q5740	B1BACG000023	TRANSISTOR	[M]
Q5741	B1ABCF000176	TRANSISTOR	[M]
Q5742	B1ABCF000176	TRANSISTOR	[M]
Q5744	B1ABCF000176	TRANSISTOR	[M]
Q5745	B1ACKD000005	TRANSISTOR	[M]
Q5746	B1GBCFJJ00051	TRANSISTOR	[M]
Q7100	B1GBCFJJ00051	TRANSISTOR	[M]
Q7101	B1GBCFJJ00051	TRANSISTOR	[M]
Q7102	B1GBCFJJ00051	TRANSISTOR	[M]
Q8321	2SB1218ARL	TRANSISTOR	[M]
Q8325	2SB1218ARL	TRANSISTOR	[M]
Q8331	2SB1218ARL	TRANSISTOR	[M]
Q8335	2SB1218ARL	TRANSISTOR	[M]
Q8341	2SB1218ARL	TRANSISTOR	[M]
Q8551	2SD1819A0L	TRANSISTOR	[M]
Q8552	B1ADGB000008	TRANSISTOR	[M]
Q8561	2SD1819A0L	TRANSISTOR	[M]
Q8562	B1ADGB000008	TRANSISTOR	[M]
QR8111	XP0621400L	CHIP TRANSISTOR	[M]
QR8420	UNR521100L	CHIP TRANSISTOR	[M]
QR8571	UNR511V00L	CHIP TRANSISTOR	[M]
		DIODES	
D2000	B0JCPD000025	DIODE	[M]
D2001	B0EAKM000117	DIODE	[M]
D2002	B0EAKM000117	DIODE	[M]
D2005	B0ACCK000005	DIODE	[M]
D2007	B0ACCK000005	DIODE	[M]
D2008	B0ACCK000005	DIODE	[M]
D2810	B0JCAE000001	DIODE	[M]
D2900	B0BC7R500001	DIODE	[M]
D2904	B0JCPD000025	DIODE	[M]
D2905	B0BC7R500001	DIODE	[M]
D2918	B0ADCJ000020	DIODE	[M]
D2929	B0ACCK000005	DIODE	[M]
D2935	B0EAKM000117	DIODE	[M]
D2936	B0EAKM000117	DIODE	[M]
D2944	B0BC3R400001	DIODE	[M]
D2974	MAZ82200ML	DIODE	[M]
D3001	B0ACCK000005	DIODE	[M]
D5302	B0ACCK000005	DIODE	[M]
D5700	B0ACCK000005	DIODE	[M]
D5743	B0ACCK000005	DIODE	[M]
D5744	B0ACCK000005	DIODE	[M]
D5745	B0BC013A0007	DIODE	[M]
D6900	B3AAA0000803	DIODE	[M]
D6910	B0BC3R400001	DIODE	[M]
D7100	B0BC5R000009	DIODE	[M]
D8211	MA2J11100L	DIODE	[M]
D8571	MA2J72800L	DIODE	[M]
		VARIABLE RESISTORS	
VR6081	EVUE27FK3B53	VR MIC LEVEL	[M]
VR6800	EVEKE2F2524M	VR VOLUME JOG	[M]
VA8001	EZJZ1V171AA	CHIP VARISTOR	[M]
VA8002	EZJZ1V171AA	CHIP VARISTOR	[M]
		SWITCHES	
S901	RSH1A044-1A	SW PLAY	[M]
S902	RSH1A044-1A	SW OPEN	[M]
S6800	EVQ21405R	SW POWER	[M]
S6801	EVQ21405R	SW OPEN/CLOSE	[M]
S6802	EVQ21405R	SW FORWARD	[M]
S6803	EVQ21405R	SW REVERSE	[M]
S6804	EVQ21405R	SW STOP	[M]
S6805	EVQ21405R	SW PLAY	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
S6806	EVQ21405R	SW SELECTOR	[M]
		CONNECTORS	
CN2001	K1MY50AA0029	50P CONNECTOR	[M]
CN2002	K1KA10AA0031	10P CONNECTOR	[M]
CN2005	K1KA04AA0193	4P CONNECTOR	[M]
CN2006	K1KA07AA0193	7P CONNECTOR	[M]
CN2007	K1MN13AA0003	13P CONNECTOR	[M]
CN2010	K1KA10AA0031	10P CONNECTOR	[M]
CN5704	K1KA03AA0301	3P CONNECTOR	[M]
CN6001	K1MN13BA0004	13P CONNECTOR	[M]
CN8000	K1KA05BA0061	5P CONNECTOR	[M]
CN8001	K1FY104B0011	4P CONNECTOR	[M]
CN8002	K1KA05BA0061	5P CONNECTOR	[M]
CN8003	K1MY05BA0130	5P CONNECTOR	[M]
CP2010	K1KB10B00042	10P CONNECTOR	[M]
CS901	K1KA07BA0061	7P CONNECTOR	[M]
FP8101	K1MN50BA0173	50P CONNECTOR	[M]
FP8251	K1MN06BA0148	6P CONNECTOR	[M]
FP8531	K1MY26BA0025	26P CONNECTOR	[M]
FP9001	K1MN05BA0148	5P CONNECTOR	[M]
		COILS & TRANSFORMERS	
L2009	G0C220JA0055	COIL	[M]
L2800	G0C220JA0055	COIL	[M]
L2801	G0C220JA0055	COIL	[M]
L2802	J0JBC0000015	CHIP INDUCTOR	[M]
L2803	J0JBC0000015	CHIP INDUCTOR	[M]
L2804	J0JBC0000015	CHIP INDUCTOR	[M]
L2805	J0JBC0000015	CHIP INDUCTOR	[M]
L2902	G0A101G00022	COIL	[M]
L2909	G0A200D00002	COIL	[M]
L2910	G0A220GA0026	INDUCTOR	[M]
L2911	G0A200D00002	COIL	[M]
L6081	ERJ3GEY0R00V	CHIP JUMPER	[M]
L6082	J0JBC0000030	CHIP BEEZ	[M]
L6083	J0JBC0000019	CHIP INDUCTOR	[M]
L6903	J0JBC0000041	CHIP INDUCTOR	[M]
L8002	ERJ6GEY0R00V	CHIP RESISTOR	[M]
L8003	ERJ6GEY0R00V	CHIP RESISTOR	[M]
L8201	G1C100K00019	CHIP COIL	[M]
L8301	G1C100K00019	CHIP COIL	[M]
L8302	G1C100K00019	CHIP COIL	[M]
L8330	G1C100K00019	CHIP COIL	[M]
L8501	G1C100K00019	CHIP COIL	[M]
L8550	G1C100KA0055	CHIP INDUCTOR	[M]
		CHIP INDUCTORS	
LB8001	J0JHC0000045	CHIP INDUCTOR	[M]
LB8011	J0JHC0000045	CHIP INDUCTOR	[M]
LB8257	ERJ3GEY0R00V	CHIP RESISTOR	[M]
LB8258	ERJ3GEY0R00V	CHIP RESISTOR	[M]
LB8259	ERJ3GEY0R00V	CHIP RESISTOR	[M]
LB8260	ERJ3GEY0R00V	CHIP RESISTOR	[M]
LB8301	J0JBC0000042	CHIP BEAD	[M]
LB8302	J0JBC0000042	CHIP BEAD	[M]
LB8303	J0JBC0000042	CHIP BEAD	[M]
LB8304	J0JBC0000042	CHIP BEAD	[M]
LB8305	J0JBC0000042	CHIP BEAD	[M]
LB8401	J0JBC0000042	CHIP BEAD	[M]
LB8421	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8422	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8423	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8424	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8425	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8426	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8427	ERJ2GE0R00X	CHIP RESISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
LB8428	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8429	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8430	J0JHC0000045	CHIP INDUCTOR	[M]
LB8431	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8491	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8530	J0JHC0000045	CHIP INDUCTOR	[M]
LB8531	ERJ2GE0R00X	CHIP RESISTOR	[M]
LB8551	J0JBC0000042	CHIP BEAD	[M]
LB8561	J0JBC0000042	CHIP BEAD	[M]
LB8571	J0JBC0000042	CHIP BEAD	[M]
LB8690	J0JBC0000044	HIGH LOSS INDUCTOR	[M]
LB8691	ERJ2GEJ101X	CHIP RESISTOR	[M]
LB8692	ERJ2GEJ101X	CHIP RESISTOR	[M]
LB8693	ERJ2GEJ101X	CHIP RESISTOR	[M]
LB9001	J0JCC0000119	CHIP INDUCTOR	[M]
		COMPONENT COMBINATION	
Z6900	B3RAB0000025	REMOTE SENSOR	[M]
		OSCILLATORS	
X2001	H2B100500004	CERAMIC RESONATOR	[M]
X8621	H0J270500085	CRYSTAL OSCILLATOR	[M]
X9004	H1A4805B0027	CRYSTAL OSCILLATOR	[M]
		DISPLAY TUBE	
FL6901	A2BD00000170	FL DISPLAY	[M]
FL8101	F1H0J1050018	INDUCTOR	[M]
FL8102	F1H0J1050018	INDUCTOR	[M]
FL8103	F1H0J1050018	INDUCTOR	[M]
FL8104	F1J1E1040022	INDUCTOR	[M]
		FUSE	
F1	K5D502BNA005	FUSE	[M] △
		HOLDERS	
H2001	K1YF04000001	4P CABLE HOLDER	[M]
H2002	K1YZ11000002	11P CABLE HOLDER	[M]
H2004	K1YZ07000001	7P WIRE HOLDER	[M]
H6004	K1YZ04000002	4P CABLE HOLDER	[M]
H6903	K1YZ07000001	7P WIRE HOLDER	[M]
		JACKS	
JK2002	K2HA306B0070	JACK COMPONENT VIDEO OUT	[M]
JK5000	K4AC12B00003	JK SPEAKER	[M]
JK6802	K2HB102J0038	JACK MIC	[M]
		EARTH TERMINALS	
E2900	K4CZ01000027	TERMINAL	[M]
E2901	K4CZ01000027	TERMINAL	[M]
		PACKING MATERIALS	
P1	RPGX1727	PACKING CASE	[M] GC
P1	RPGX1728	PACKING CASE	[M] GS
P1	RPGX1729	PACKING CASE	[M] GCS
P1	RPGX1730	PACKING CASE	[M] GCT
P1	RPGX1731	PACKING CASE	[M] GCP
P2	RPNX0369-1	POLYFOAM	[M]
P3	RPF0058-1J	MIRAMAT	[M]
P4	RPNX0446	POLYFOAM	[M] GC/GS
		ACCESSORIES	
A1	N2QAYB000092	REMOTE CONTROL	[M]
A1-1	RKK-HTR0051K	R/C BATTERY COVER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
A2	K2CQ2CA00002	AC CORD	[M] △
A2	K2CQ2CA00007	AC CORD	[M] △
			GC/GCS/GCP
A2	K2CT3CA000004	AC CORD	[M] △
			GS
A3	RQTX0028-2B	O/I BOOK (EN)	[M] GC/GS/GCT/GS
A3	RQTX0031-G	OI BOOK (AR/PE)	[M] GC/GS
A3	RQTX0032-K	OI BOOK (CN)	[M] GCS/GCT
A3	RQTX0033-M	O/I BOOK (SP)	[M] GCP
A4	RSA0007-M	ANTENNA WIRE	[M]
A5	K2KA2BA00001	VIDEO CABLE	[M]
A6	K2DA42E00001	AC PLUG ADAPTOR	[M] GCP
A7	RQCA0968	SPEAKER LABEL	[M] GCP/GCT
		RESISTORS	
R2000	ERJ3GEYJ221V	220 1/16W	[M]
R2001	ERJ3GEYJ104V	100K 1/16W	[M]
R2002	ERJ3GEYJ103V	10K 1/16W	[M]
R2003	ERJ3GEYJ221V	220 1/16W	[M]
R2004	ERJ3GEYJ221V	220 1/16W	[M]
R2005	ERJ3GEYJ221V	220 1/16W	[M]
R2006	ERJ3GEYJ182V	1.8K 1/16W	[M]
R2007	ERJ3GEYJ103V	10K 1/16W	[M]
R2010	ERJ3GEYJ221V	220 1/16W	[M]
R2012	ERJ3GEYJ103V	10K 1/16W	[M]
R2015	ERJ3GEYJ102V	1K 1/16W	[M]
R2016	ERJ3GEYJ221V	220 1/16W	[M]
R2017	ERJ3GEYJ273V	27K 1/16W	[M]
R2019	ERJ3GEYJ273V	27K 1/16W	[M]
R2022	ERJ3GEYJ221V	220 1/16W	[M]
R2023	ERJ3GEYJ221V	220 1/16W	[M]
R2024	ERJ3GEYJ221V	220 1/16W	[M]
R2029	ERJ3GEYJ221V	220 1/16W	[M]
R2030	ERJ3GEYJ221V	220 1/16W	[M]
R2031	ERJ3GEYJ221V	220 1/16W	[M]
R2032	ERJ3GEYJ473V	47K 1/16W	[M]
R2039	ERJ3GEYJ103V	10K 1/16W	[M]
R2040	ERJ3GEYJ221V	220 1/16W	[M]
R2041	ERJ3GEYJ103V	10K 1/16W	[M]
R2042	ERJ3GEYJ221V	220 1/16W	[M]
R2043	ERJ3GEYJ473V	47K 1/16W	[M]
R2044	ERJ3GEYJ221V	220 1/16W	[M]
R2045	ERJ3GEYJ103V	10K 1/16W	[M]
R2046	ERJ3GEYJ221V	220 1/16W	[M]
R2047	ERJ3GEYJ221V	220 1/16W	[M]
R2048	ERJ3GEYJ221V	220 1/16W	[M]
R2049	ERJ3GEYJ221V	220 1/16W	[M]
R2052	ERJ3GEYJ221V	220 1/16W	[M]
R2053	ERJ3GEYJ103V	10K 1/16W	[M]
R2060	ERJ3GEYJ221V	220 1/16W	[M]
R2061	ERJ3GEYJ473V	47K 1/16W	[M]
R2062	ERJ3GEYJ221V	220 1/16W	[M]
R2063	ERJ3GEYJ473V	47K 1/16W	[M]
R2064	ERJ3GEYJ221V	220 1/16W	[M]
R2065	ERJ3GEYJ221V	220 1/16W	[M]
R2066	ERJ3GEYJ222V	2.2K 1/16W	[M]
R2067	ERJ3GEYJ221V	220 1/16W	[M]
R2068	ERJ3GEYJ221V	220 1/16W	[M]
R2069	ERJ3GEYJ221V	220 1/16W	[M]
R2070	ERJ3GEYJ221V	220 1/16W	[M]
R2071	ERJ3GEYJ221V	220 1/16W	[M]
R2072	ERJ3GEYJ221V	220 1/16W	[M]
R2073	ERJ3GEYJ221V	220 1/16W	[M]
R2074	ERJ3GEYJ103V	10K 1/16W	[M]
R2075	ERJ3GEYJ221V	220 1/16W	[M]
R2076	ERJ3GEYJ103V	10K 1/16W	[M]
R2077	ERJ3GEYJ821V	820 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R2078	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2079	ERJ3GEYJ103V	10K 1/16W	[M]
R2080	ERJ3GEYJ103V	10K 1/16W	[M] GC/G S
R2080	ERJ3GEYJ332V	3.3K 1/16W	[M] GCS/GCT
R2080	ERJ3GEYJ223V	22K 1/16W	[M] GCP
R2081	ERJ3GEYJ103V	10K 1/16W	[M]
R2082	ERJ3GEY0R00V	0 1/16W	[M]
R2084	ERJ3GEYJ473V	47K 1/16W	[M]
R2085	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2086	ERJ3GEYJ223V	22K 1/16W	[M]
R2087	ERJ3GEYJ223V	22K 1/16W	[M]
R2088	ERJ3GEYJ103V	10K 1/16W	[M]
R2089	ERJ3GEYJ223V	22K 1/16W	[M] GCS/GCT
R2089	ERJ3GEYJ333V	33K 1/16W	[M] GC/G S
R2089	ERJ3GEYJ124V	120K 1/16W	[M] GCP
R2090	ERJ3GEYJ221V	220 1/16W	[M]
R2091	ERJ3GEYJ103V	10K 1/16W	[M]
R2092	ERJ3GEYJ221V	220 1/16W	[M]
R2093	ERJ3GEYJ332V	3.3K 1/16W	[M] GC/G S
R2093	ERJ3GEYJ472V	4.7K 1/16W	[M] GCS/GCT
R2093	ERJ3GEYJ682V	6.8K 1/16W	[M] GCP
R2094	ERJ3GEYJ103V	10K 1/16W	[M]
R2095	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2096	ERJ3GEYJ103V	10K 1/16W	[M]
R2097	ERJ3GEYJ474V	470K 1/16W	[M]
R2098	ERJ3GEYJ221V	220 1/16W	[M]
R2101	ERJ3GEYJ123V	12K 1/16W	[M]
R2111	ERJ3GEYJ123V	12K 1/16W	[M]
R2112	ERJ3GEYJ123V	12K 1/16W	[M]
R2113	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2114	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2115	ERJ3GEYJ103V	10K 1/16W	[M]
R2160	ERJ3GEYJ563V	56K 1/16W	[M]
R2161	ERJ3GEYJ473V	47K 1/16W	[M]
R2164	ERJ3GEYJ103V	10K 1/16W	[M]
R2165	ERJ3GEYJ332V	3.3K 1/16W	[M]
R2185	ERJ3GEYJ103V	10K 1/16W	[M]
R2191	ERJ3GEYJ682V	6.8K 1/16W	[M]
R2194	ERJ3GEYJ273V	27K 1/16W	[M]
R2201	ERJ3GEYJ123V	12K 1/16W	[M]
R2211	ERJ3GEYJ123V	12K 1/16W	[M]
R2212	ERJ3GEYJ123V	12K 1/16W	[M]
R2214	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2215	ERJ3GEYJ103V	10K 1/16W	[M]
R2218	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2260	ERJ3GEYJ563V	56K 1/16W	[M]
R2261	ERJ3GEYJ473V	47K 1/16W	[M]
R2264	ERJ3GEYJ103V	10K 1/16W	[M]
R2265	ERJ3GEYJ332V	3.3K 1/16W	[M]
R2285	ERJ3GEYJ103V	10K 1/16W	[M]
R2291	ERJ3GEYJ682V	6.8K 1/16W	[M]
R2294	ERJ3GEYJ273V	27K 1/16W	[M]
R2300	ERJ3GEYJ223V	22K 1/16W	[M]
R2301	ERJ3GEYJ182V	1.8K 1/16W	[M]
R2302	ERJ3GEYJ103V	10K 1/16W	[M]
R2303	ERJ3GEYJ103V	10K 1/16W	[M]
R2304	ERJ3GEYJ123V	12K 1/16W	[M]
R2307	ERJ3GEYJ182V	1.8K 1/16W	[M]
R2312	ERJ3GEYJ103V	10K 1/16W	[M]
R2336	ERJ3GEYJ123V	12K 1/16W	[M]
R2339	ERJ3GEYJ563V	56K 1/16W	[M]
R2400	ERJ3GEYJ223V	22K 1/16W	[M]
R2401	ERJ3GEYJ182V	1.8K 1/16W	[M]
R2402	ERJ3GEYJ103V	10K 1/16W	[M]
R2403	ERJ3GEYJ103V	10K 1/16W	[M]
R2404	ERJ3GEYJ123V	12K 1/16W	[M]
R2405	ERJ3GEYJ562V	5.6K 1/16W	[M]
R2406	ERJ3GEYJ562V	5.6K 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R2407	ERJ3GEYJ182V	1.8K 1/16W	[M]
R2411	ERJ3GEY0R00V	0 1/16W	[M]
R2412	ERJ3GEYJ103V	10K 1/16W	[M]
R2427	ERJ3GEY0R00V	0 1/16W	[M]
R2428	ERJ3GEY0R00V	0 1/16W	[M]
R2429	ERJ3GEY0R00V	0 1/16W	[M]
R2430	ERJ3GEY0R00V	0 1/16W	[M]
R2436	ERJ3GEYJ123V	12K 1/16W	[M]
R2439	ERJ3GEYJ563V	56K 1/16W	[M]
R2500	ERJ3GEYJ223V	22K 1/16W	[M]
R2501	ERJ3GEYJ682V	6.8K 1/16W	[M]
R2502	ERJ3GEYJ103V	10K 1/16W	[M]
R2503	ERJ3GEYJ682V	6.8K 1/16W	[M]
R2510	ERJ3GEYJ153V	15K 1/16W	[M]
R2511	ERJ3GEYJ123V	12K 1/16W	[M]
R2512	ERJ3GEYJ563V	56K 1/16W	[M]
R2600	ERJ3GEYJ102V	1K 1/16W	[M]
R2601	ERJ3GEYJ473V	47K 1/16W	[M]
R2606	ERJ3GEYJ103V	10K 1/16W	[M]
R2607	ERJ3GEYJ103V	10K 1/16W	[M]
R2608	ERJ3GEYJ563V	56K 1/16W	[M]
R2609	ERJ3GEYJ152V	1.5K 1/16W	[M]
R2610	ERJ3GEYJ563V	56K 1/16W	[M]
R2611	ERJ3GEYJ122V	1.2K 1/16W	[M]
R2612	ERJ3GEYJ563V	56K 1/16W	[M]
R2617	ERJ3GEYJ223V	22K 1/16W	[M]
R2619	ERJ3GEYJ203V	20K 1/16W	[M]
R2620	ERJ3GEYJ123V	12K 1/16W	[M]
R2621	ERJ3GEYJ393V	39K 1/16W	[M]
R2626	ERJ3GEYJ104V	100K 1/16W	[M]
R2627	ERJ3GEYJ683V	68K 1/16W	[M]
R2803	ERJ3GEYJ102V	1K 1/16W	[M]
R2804	ERJ3GEYJ102V	1K 1/16W	[M]
R2809	ERJ3GEYF750V	75 1/16W	[M]
R2812	ERJ3GEYF750V	75 1/16W	[M]
R2813	ERJ3GEYF750V	75 1/16W	[M]
R2816	ERJ3GEYF750V	75 1/16W	[M]
R2900	ERJ3GEYJ1R0V	1 1/16W	[M]
R2901	ERJ3GEYJ103V	10K 1/16W	[M]
R2907	ERJ3GEYJ392V	3.9K 1/16W	[M]
R2908	ERJ3GEYJ221V	220 1/16W	[M]
R2911	ERG2SJ470E	47 1/32W	[M]
R2912	ERG2SJ470E	47 1/32W	[M]
R2913	ERG2SJ470E	47 1/32W	[M]
R2914	ERJ3GEYJ272V	2.7K 1/16W	[M]
R2915	ERJ3GEYJ272V	2.7K 1/16W	[M]
R2919	ERJ3GEYJ274V	270K 1/16W	[M]
R2920	ERJ3GEYF472V	4.7K 1/16W	[M]
R2921	ERJ3GEYF273V	27K 1/16W	[M]
R2924	ERJ3GEYJ683V	68K 1/16W	[M]
R2925	ERJ3GEYF102V	1K 1/16W	[M]
R2926	ERX2SJ1R5E	1.5 1/32W	[M]
R2927	ERJ3GEYJ221V	220 1/16W	[M]
R2928	ERJ3GEYJ221V	220 1/16W	[M]
R2929	ERJ3GEYJ221V	220 1/16W	[M]
R2930	ERJ3GEYJ103V	10K 1/16W	[M]
R2931	ERJ3GEYJ103V	10K 1/16W	[M]
R2932	ERJ3GEYJ103V	10K 1/16W	[M]
R2940	ERJ3GEYJ393V	39K 1/16W	[M]
R2942	ERJ3GEYJ222V	2.2K 1/16W	[M]
R2943	ERJ3GEYJ272V	2.7K 1/16W	[M]
R2944	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2950	ERJ3GEYJ102V	1K 1/16W	[M]
R2952	ERJ3GEYJ8R2V	8.2 1/16W	[M]
R2960	ERJ6GEYJ6R8V	6.8 1/10W	[M]
R2971	ERX2SJ1R5E	1.5 1/32W	[M]
R2972	ERJ3GEYJ220V	22 1/16W	[M]
R2973	ERJ3GEYJ221V	220 1/16W	[M]
R2974	ERD2FCVJ4R7T	4.7 1/4W	[M]
R2975	ERJ3GEYJ472V	4.7K 1/16W	[M]
R2976	ERJ3GEYJ151V	150 1/16W	[M]
R2977	ERJ3GEY0R00V	0 1/16W	[M]
R2998	ERJ3GEYJ223V	22K 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R2999	ERJ3GEYJ223V	22K 1/16W	[M]
R3003	ERJ3GEYJ822V	8.2K 1/16W	[M]
R3005	ERJ3GEYJ223V	22K 1/16W	[M]
R3006	ERJ3GEYJ102V	1K 1/16W	[M]
R3007	ERJ3GEYJ273V	27K 1/16W	[M]
R3008	ERJ3GEYJ103V	10K 1/16W	[M]
R3009	ERJ3GEYJ102V	1K 1/16W	[M]
R3014	ERJ3GEYJ563V	56K 1/16W	[M]
R3015	ERJ3GEYJ563V	56K 1/16W	[M]
R5101	ERJ3GEYJ123V	12K 1/16W	[M]
R5102	ERJ3GEYJ123V	12K 1/16W	[M]
R5104	ERJ3GEYJ273V	27K 1/16W	[M]
R5105	ERG2SJ220E	22 1/32W	[M]
R5108	ERJ3GEYJ273V	27K 1/16W	[M]
R5109	ERG2SJ220E	22 1/32W	[M]
R5111	ERJ3GEYJ103V	10K 1/16W	[M]
R5112	ERJ3GEYJ102V	1K 1/16W	[M]
R5201	ERJ3GEYJ223V	22K 1/16W	[M]
R5202	ERJ3GEYJ223V	22K 1/16W	[M]
R5204	ERJ3GEYJ273V	27K 1/16W	[M]
R5205	ERG2SJ220E	22 1/32W	[M]
R5208	ERJ3GEYJ273V	27K 1/16W	[M]
R5209	ERG2SJ220E	22 1/32W	[M]
R5211	ERJ3GEYJ103V	10K 1/16W	[M]
R5212	ERJ3GEYJ102V	1K 1/16W	[M]
R5301	ERJ3GEYJ333V	33K 1/16W	[M]
R5302	ERJ3GEYJ223V	22K 1/16W	[M]
R5304	ERJ3GEYJ562V	5.6K 1/16W	[M]
R5305	ERG2SJ220E	22 1/32W	[M]
R5308	ERJ3GEYJ273V	27K 1/16W	[M]
R5309	ERG2SJ220E	22 1/32W	[M]
R5311	ERJ3GEYJ103V	10K 1/16W	[M]
R5312	ERJ3GEYJ102V	1K 1/16W	[M]
R5313	ERJ3GEYJ473V	47K 1/16W	[M]
R5533	ERJ3GEYJ223V	22K 1/16W	[M]
R5534	ERJ3GEYJ183V	18K 1/16W	[M]
R5736	ERJ3GEYJ222V	2.2K 1/16W	[M]
R5754	ERJ3GEYJ563V	56K 1/16W	[M]
R5755	ERJ3GEYJ103V	10K 1/16W	[M]
R5756	ERJ3GEYJ103V	10K 1/16W	[M]
R5757	ERJ3GEYJ103V	10K 1/16W	[M]
R5758	ERJ3GEYJ335V	3.3M 1/16W	[M]
R5759	ERJ3GEYJ104V	100K 1/16W	[M]
R5760	ERJ3GEYJ103V	10K 1/16W	[M]
R5761	ERJ3GEYJ225V	2.2M 1/16W	[M]
R5762	ERJ3GEYJ154V	150K 1/16W	[M]
R5763	ERJ3GEYJ272V	2.7K 1/16W	[M]
R5764	ERJ3GEYJ392V	3.9K 1/16W	[M]
R5765	ERJ3GEYJ103V	10K 1/16W	[M]
R5766	ERJ3GEYJ103V	10K 1/16W	[M]
R6081	ERJ3GEY0R00V	0 1/16W	[M]
R6701	ERJ3GEY0R00V	0 1/16W	[M]
R6702	ERJ3GEYJ153V	15K 1/16W	[M]
R6703	ERJ3GEYJ681V	680 1/16W	[M]
R6705	ERJ3GEYJ102V	1K 1/16W	[M]
R6706	ERJ3GEY0R00V	0 1/16W	[M]
R6707	ERJ3GEYJ103V	10K 1/16W	[M]
R6708	ERJ3GEYJ183V	18K 1/16W	[M]
R6709	ERJ3GEY0R00V	0 1/16W	[M]
R6710	ERJ3GEYJ103V	10K 1/16W	[M]
R6801	ERJ3GEYJ102V	1K 1/16W	[M]
R6802	ERJ3GEYJ102V	1K 1/16W	[M]
R6803	ERJ3GEYJ122V	1.2K 1/16W	[M]
R6804	ERJ3GEYJ182V	1.8K 1/16W	[M]
R6805	ERJ3GEYJ222V	2.2K 1/16W	[M]
R6905	ERJ3GEYJ152V	1.5K 1/16W	[M]
R6914	ERJ3GEYJ823V	82K 1/16W	[M]
R6916	ERJ3GEYJ680V	68 1/16W	[M]
R6917	ERJ3GEYJ102V	1K 1/16W	[M]
R6918	ERJ3GEYJ223V	22K 1/16W	[M]
R6919	ERJ3GEYJ680V	68 1/16W	[M]
R6920	ERJ3GEYJ101V	100 1/16W	[M]
R6921	ERJ3GEYJ222V	2.2K 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R6934	ERJ3GEYJ470V	47 1/16W	[M]
R6936	ERJ3GEYJ100V	10 1/16W	[M]
R6939	ERJ3GEY0R00V	0 1/16W	[M]
R6940	ERJ3GEY0R00V	0 1/16W	[M]
R7100	ERJ3GEYJ153V	15K 1/16W	[M]
R7101	ERJ3GEYJ153V	15K 1/16W	[M]
R7102	ERJ3GEYJ153V	15K 1/16W	[M]
R7103	ERJ3GEYJ153V	15K 1/16W	[M]
R7104	ERJ3GEYJ153V	15K 1/16W	[M]
R7105	ERJ3GEYJ153V	15K 1/16W	[M]
R7106	ERJ3GEYJ124V	120K 1/16W	[M]
R7107	ERJ3GEYJ680V	68 1/16W	[M]
R7109	ERJ3GEYJ472V	4.7K 1/16W	[M]
R7110	ERJ3GEYJ152V	1.5K 1/16W	[M]
R7112	ERJ3GEYJ272V	2.7K 1/16W	[M]
R7113	ERJ3GEYJ103V	10K 1/16W	[M]
R7114	ERJ3GEYJ562V	5.6K 1/16W	[M]
R7116	ERJ3GEYJ393V	39K 1/16W	[M]
R7120	ERJ3GEYJ153V	15K 1/16W	[M]
R8002	ERJ2GEJ103X	10K 1/32W	[M]
R8011	ERJ2GEJ220X	22 1/32W	[M]
R8012	ERJ2GEJ220X	22 1/32W	[M]
R8013	ERJ2GEJ220X	22 1/32W	[M]
R8041	ERJ2GEJ330X	33 1/32W	[M]
R8042	ERJ2GEJ103X	10K 1/32W	[M]
R8153	ERJ2RHD621X	620 1/32W	[M]
R8154	ERJ2RHD102X	1K 1/32W	[M]
R8211	ERJ2GEJ103X	10K 1/32W	[M]
R8221	ERJ2GEJ822X	8.2K 1/32W	[M]
R8225	ERJ2GEJ822X	8.2K 1/32W	[M]
R8230	ERJ2GEJ222X	2.2K 1/32W	[M]
R8231	ERJ2GEJ223X	22K 1/32W	[M]
R8232	ERJ2GEJ752X	7.5K 1/32W	[M]
R8233	ERJ2GEJ222X	2.2K 1/32W	[M]
R8251	ERJ6GEYJ6R8V	6.8 1/10W	[M]
R8261	ERJ2GEJ823X	82K 1/32W	[M]
R8262	ERJ2GEJ153X	15K 1/32W	[M]
R8263	ERJ2GEJ823X	82K 1/32W	[M]
R8264	ERJ2GEJ153X	15K 1/32W	[M]
R8265	ERJ2GE0R00X	0 1/32W	[M]
R8311	ERJ2RHD242X	2.4K 1/32W	[M]
R8312	ERJ2RHD102X	1K 1/32W	[M]
R8313	ERJ2RHD153X	15K 1/32W	[M]
R8314	ERJ2RHD153X	15K 1/32W	[M]
R8321	ERJ3RBD201V	200 1/16W	[M]
R8322	ERJ3GEY0R00V	0 1/16W	[M]
R8323	ERJ2GEJ330X	33 1/32W	[M]
R8324	ERJ2RHD102X	1K 1/32W	[M]
R8325	ERJ3RBD201V	200 1/16W	[M]
R8326	ERJ3GEY0R00V	0 1/16W	[M]
R8327	ERJ2GEJ330X	33 1/32W	[M]
R8328	ERJ2RHD102X	1K 1/32W	[M]
R8331	ERJ3RBD201V	200 1/16W	[M]
R8332	ERJ3GEY0R00V	0 1/16W	[M]
R8333	ERJ2GEJ330X	33 1/32W	[M]
R8334	ERJ2RHD102X	1K 1/32W	[M]
R8335	ERJ3RBD201V	200 1/16W	[M]
R8336	ERJ2GEJ330X	33 1/32W	[M]
R8337	ERJ2RHD102X	1K 1/32W	[M]
R8341	ERJ3RBD201V	200 1/16W	[M]
R8342	ERJ2GEJ330X	33 1/32W	[M]
R8343	ERJ2RHD102X	1K 1/32W	[M]
R8401	ERJ2GEJ101X	100 1/32W	[M]
R8420	ERJ2GEJ222X	2.2K 1/32W	[M]
R8421	ERJ2GE0R00X	0 1/32W	[M]
R8424	ERJ2GE0R00X	0 1/32W	[M]
R8531	ERJ2GEJ152X	1.5K 1/32W	[M]
R8532	ERJ2GEJ222X	2.2K 1/32W	[M]
R8533	ERJ2GE0R00X	0 1/32W	[M]
R8541	ERJ2GEJ153X	15K 1/32W	[M]
R8551	ERJ2GE0R00X	0 1/32W	[M]
R8552	ERJ2GEJ102X	1K 1/32W	[M]
R8553	ERJ2GEJ102X	1K 1/32W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R8554	ERJ2GEJ680X	68 1/32W	[M]
R8555	ERJ2GEJ2R2X	2.2 1/32W	[M]
R8556	ERJ3GEYJ560V	56 1/16W	[M]
R8557	ERJ3GEYJ510V	51 1/16W	[M]
R8558	ERJ2GEJ473X	47K 1/32W	[M]
R8559	ERJ2GEJ153X	15K 1/32W	[M]
R8561	ERJ2GEOR00X	0 1/32W	[M]
R8562	ERJ2GEJ102X	1K 1/32W	[M]
R8563	ERJ2GEJ102X	1K 1/32W	[M]
R8564	ERJ2GEJ220X	22 1/32W	[M]
R8565	ERJ2GEJ2R2X	2.2 1/32W	[M]
R8566	ERJ3GEYJ560V	56 1/16W	[M]
R8567	ERJ3GEYJ510V	51 1/16W	[M]
R8568	ERJ2GEJ473X	47K 1/32W	[M]
R8601	ERJ2GEJ104X	100K 1/32W	[M]
R8611	ERJ2GEJ101X	100 1/32W	[M]
R8621	ERJ2GEJ105X	1M 1/32W	[M]
R8622	ERJ2RHD681X	680 1/32W	[M]
R9008	ERJ2GEJ105X	1M 1/32W	[M]
R9009	ERJ2RHD102X	1K 1/32W	[M]
R9032	ERJ2RKD240X	24 1/32W	[M]
R9033	ERJ2RKD240X	24 1/32W	[M]
R9034	ERJ2GEJ153X	15K 1/32W	[M]
R9035	ERJ2GEJ153X	15K 1/32W	[M]
R9036	ERJ2GEJ103X	10K 1/32W	[M]
R9037	ERJ2GEJ103X	10K 1/32W	[M]
R9040	ERJ2GEJ103X	10K 1/32W	[M]
R9042	ERJ2GEJ103X	10K 1/32W	[M]
R9043	ERJ2GEOR00X	0 1/32W	[M]
R9044	ERJ2GEOR00X	0 1/32W	[M]
R9045	ERJ2GEOR00X	0 1/32W	[M]
R9080	ERJ2GEJ103X	10K 1/32W	[M]
RX8001	D1H410320002	CHIP RESISTOR	[M]
RX8011	D1H88204A024	CHIP RESISTOR	[M]
RX8012	D1H88204A024	CHIP RESISTOR	[M]
RX8013	D1H88204A024	CHIP RESISTOR	[M]
RX8014	D1H88204A024	CHIP RESISTOR	[M]
RX8015	D1H88204A024	CHIP RESISTOR	[M]
RX8016	D1H88204A024	CHIP RESISTOR	[M]
RX8017	D1H88204A024	CHIP RESISTOR	[M]
RX8018	D1H422020001	CHIP RESISTOR	[M]
RX8019	D1H422020001	CHIP RESISTOR	[M]
RX8020	D1H422020001	CHIP RESISTOR	[M]
RX8031	D1H447220001	CHIP RESISTOR	[M]
RX8032	D1H447220001	CHIP RESISTOR	[M]
RX8111	D1H422320002	CHIP RESISTOR	[M]
RX8401	D1H410120001	CHIP RESISTOR	[M]
RX8402	D1H410120001	CHIP RESISTOR	[M]
RX8403	D1H410120001	CHIP RESISTOR	[M]
RX8531	D1H456020001	CHIP RESISTOR	[M]
RX8532	D1H85604A024	CHIP RESISTOR	[M]
RX8533	D1H456020001	CHIP RESISTOR	[M]
RX8534	D1H456020001	CHIP RESISTOR	[M]
RX8611	D1H447220001	CHIP RESISTOR	[M]
RX8691	D1H410320002	CHIP RESISTOR	[M]
K4030	ERJ3GEYOR00V	CHIP JUMPER	[M] GC/GS
K4031	ERJ3GEYOR00V	CHIP JUMPER	[M] GCS/GCT
K4032	ERJ3GEYOR00V	CHIP JUMPER	[M] GCP
K8001	ERJ2GEOR00X	CHIP JUMPER	[M] GCS/GCT
K8002	ERJ3GEYOR00V	CHIP JUMPER	[M]
K8003	ERJ3GEYOR00V	CHIP JUMPER	[M]
K8004	J0JHC0000034	CHIP FERRITE BEAD	[M]
K8005	J0JHC0000034	CHIP FERRITE BEAD	[M]
K8006	ERJ2GEOR00X	CHIP JUMPER	[M] GCS/GCT
K8251	ERJ3GEYOR00V	CHIP JUMPER	[M]
K8421	ERJ3GEYOR00V	CHIP JUMPER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
W2201	ERJ6GEYOR00V	CHIP RESISTOR	[M] GC/GS
W2202	ERJ3GEYOR00V	CHIP JUMPER	[M] GC/GS
W4001	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4002	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4003	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4004	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4005	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4006	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4007	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4011	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4012	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4013	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4014	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4016	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4017	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4018	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4020	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4021	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4022	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4023	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4024	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4025	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4026	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4028	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4034	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4037	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4038	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4039	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4040	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4042	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4043	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4045	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4047	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4048	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4049	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4050	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4053	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4054	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4055	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4056	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4057	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4058	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4059	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4060	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4061	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4062	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4063	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4064	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4065	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4066	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4067	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4068	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4069	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4070	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4071	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4080	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4081	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4082	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4083	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4084	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4085	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4086	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4089	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4090	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4091	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4093	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4094	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4095	ERJ3GEYOR00V	CHIP JUMPER	[M]
W4096	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W4100	ERJ6GEYOR00V	CHIP RESISTOR	[M]
W6101	ERJ6GEYOR00V	CHIP RESISTOR	[M] GC/GS

Ref. No.	Part No.	Part Name & Description	Remarks
W6102	ERJ3GEY0R00V	CHIP JUMPER	[M] GC/G S
W6502	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6504	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6509	ERJ3GEY0R00V	CHIP JUMPER	[M]
W6511	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6512	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6513	ERJ3GEY0R00V	CHIP JUMPER	[M]
W6514	ERJ3GEY0R00V	CHIP JUMPER	[M]
W6516	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6517	ERJ3GEY0R00V	CHIP JUMPER	[M]
W6545	ERJ6GEY0R00V	CHIP RESISTOR	[M]
W6550	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7000	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7001	ERJ3GEY0R00V	CHIP JUMPER	[M]
W7002	ERJ3GEY0R00V	CHIP JUMPER	[M]
		CAPACITORS	
C984	ECA1EAK100XE	10 25V	[M]
C2000	ECJ1VB1H104K	0.1 50V	[M]
C2001	ECJ1VB1H104K	0.1 50V	[M]
C2003	ECA1HM220B	22 50V	[M]
C2004	ECJ1VB1H103K	0.01 50V	[M]
C2006	ECA1HM3R3B	3.3 50V	[M]
C2007	ECJ1VB1C104K	0.1 16V	[M]
C2008	ECA0JM101B	100 6.3V	[M]
C2009	ECJ1VB1H104K	0.1 50V	[M]
C2010	ECJ1VB1H331K	330P 50V	[M]
C2011	ECJ1VB1H331K	330P 50V	[M]
C2012	ECJ1VB1H331K	330P 50V	[M]
C2013	ECJ1VB1H223K	0.022 50V	[M]
C2017	ECJ1VB1H103K	0.01 50V	[M]
C2018	ECA1CM470B	47 16V	[M]
C2019	ECA1CM470B	47 16V	[M]
C2020	ECJ1VB1H103K	0.01 50V	[M]
C2021	ECA1AM221B	220 10V	[M]
C2022	ECA1CM101B	100 16V	[M]
C2023	ECJ1VB1H221K	220P 50V	[M]
C2024	ECJ1VB1H221K	220P 50V	[M]
C2026	ECJ1VB1A105K	1 10V	[M]
C2101	ECJ1VB1C105K	1 16V	[M]
C2111	ECJ1VB1C105K	1 16V	[M]
C2112	ECJ1VB1H471K	470P 50V	[M]
C2114	ECJ1VB1H223K	0.022 50V	[M]
C2115	ECJ1VB1H153K	0.015 50V	[M]
C2116	ECJ1VB1H472K	4700P 50V	[M]
C2117	ECJ1VB1H473K	0.047 50V	[M]
C2118	ECJ1VB1C224K	0.22 16V	[M]
C2119	ECJ1VB1C105K	1 16V	[M]
C2120	ECJ1VB1C393K	0.039 16V	[M]
C2121	ECJ1VB1H473K	0.047 50V	[M]
C2161	ECJ1VB1C183K	0.018 16V	[M]
C2162	ECJ1VB1H681K	680P 50V	[M]
C2164	ECJ1VB1H221K	220P 50V	[M]
C2165	ECJ1VB1H102K	1000P 50V	[M]
C2169	ECJ1VB1H103K	0.01 50V	[M]
C2172	ECJ1VC1H101J	100P 50V	[M]
C2183	ECJ1VB1A105K	1 10V	[M]
C2195	ECJ1VB1A105K	1 10V	[M]
C2201	ECJ1VB1C105K	1 16V	[M]
C2211	ECJ1VB1C105K	1 16V	[M]
C2212	ECJ1VB1H471K	470P 50V	[M]
C2214	ECJ1VB1H223K	0.022 50V	[M]
C2215	ECJ1VB1H153K	0.015 50V	[M]
C2216	ECJ1VB1H472K	4700P 50V	[M]
C2217	ECJ1VB1H473K	0.047 50V	[M]
C2218	ECJ1VB1C224K	0.22 16V	[M]
C2219	ECJ1VB1C105K	1 16V	[M]
C2220	ECJ1VB1C393K	0.039 16V	[M]
C2221	ECJ1VB1H473K	0.047 50V	[M]
C2261	ECJ1VB1C183K	0.018 16V	[M]
C2262	ECJ1VB1H681K	680P 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C2264	ECJ1VB1H221K	220P 50V	[M]
C2265	ECJ1VB1H102K	1000P 50V	[M]
C2272	ECJ1VC1H101J	100P 50V	[M]
C2283	ECJ1VB1A105K	1 10V	[M]
C2295	ECJ1VB1A105K	1 10V	[M]
C2300	ECJ1VB1A105K	1 10V	[M]
C2301	ECJ1VB1A105K	1 10V	[M]
C2302	ECJ1VB1C333K	0.033 16V	[M]
C2303	ECJ1VB1H473K	0.047 50V	[M]
C2304	ECA1CM100B	10 16V	[M]
C2305	ECJ1VB1H332K	3300P 50V	[M]
C2306	ECJ1VB1A105K	1 10V	[M]
C2307	ECA1CM100B	10 16V	[M]
C2308	ECJ1VB1H223K	0.022 50V	[M]
C2309	ECJ1VB1C823K	0.082 16V	[M]
C2312	ECJ1VB1A105K	1 10V	[M]
C2323	ECJ1VC1H101J	100P 50V	[M]
C2324	ECJ1VB1H222K	2200P 50V	[M]
C2400	ECJ1VB1A105K	1 10V	[M]
C2401	ECJ1VB1A105K	1 10V	[M]
C2402	ECJ1VB1C333K	0.033 16V	[M]
C2403	ECJ1VB1H473K	0.047 50V	[M]
C2404	ECA1CM100B	10 16V	[M]
C2405	ECJ1VB1H332K	3300P 50V	[M]
C2406	ECJ1VB1A105K	1 10V	[M]
C2407	ECA1CM100B	10 16V	[M]
C2408	ECJ1VB1H223K	0.022 50V	[M]
C2410	ECA1CM101B	100 16V	[M]
C2412	ECJ1VB1A105K	1 10V	[M]
C2423	ECJ1VC1H101J	100P 50V	[M]
C2424	ECJ1VB1H222K	2200P 50V	[M]
C2500	ECJ1VB1A105K	1 10V	[M]
C2501	ECJ1VB1C105K	1 16V	[M]
C2502	ECJ1VB1H473K	0.047 50V	[M]
C2503	ECJ1VB1H473K	0.047 50V	[M]
C2506	ECJ1VB1A105K	1 10V	[M]
C2507	ECJ1VB1H471K	470P 50V	[M]
C2524	ECJ1VB1H682K	6800P 50V	[M]
C2600	ECJ1VB1A105K	1 10V	[M]
C2601	ECJ1VB1H223K	0.022 50V	[M]
C2605	ECJ1VB1H473K	0.047 50V	[M]
C2606	ECA1CM100B	10 16V	[M]
C2607	ECA1HM220B	22 50V	[M]
C2608	ECA1CM100B	10 16V	[M]
C2609	ECJ1VB1C224K	0.22 16V	[M]
C2610	ECJ1VB1A474K	0.47 10V	[M]
C2611	ECJ1VB1H123K	0.012 50V	[M]
C2612	ECJ1VB1H332K	3300P 50V	[M]
C2615	ECJ1VB1H222K	2200P 50V	[M]
C2617	ECJ1VB1A154K	0.15 10V	[M]
C2619	ECA1HM100B	10 50V	[M]
C2624	ECJ1VB1H682K	6800P 50V	[M]
C2724	ECJ1VB1H182K	1800P 50V	[M]
C2800	ECJ1VB1C105K	1 16V	[M]
C2802	ECA0JM102B	1000 6.3V	[M]
C2804	ECJ1VB1C105K	1 16V	[M]
C2805	ECA0JM331B	330 6.3V	[M]
C2806	ECA0JM331B	330 6.3V	[M]
C2807	ECJ1VB1H103K	0.01 50V	[M]
C2808	ECA1AM221B	220 10V	[M]
C2809	ECA1AM221B	220 10V	[M]
C2810	ECJ1VB1H103K	0.01 50V	[M]
C2811	ECJ1VB1H104K	0.1 50V	[M]
C2812	ECJ1VB1H104K	0.1 50V	[M]
C2817	ECJ1VB1C105K	1 16V	[M]
C2818	ECJ1VB1C105K	1 16V	[M]
C2823	ECJ1VC1H101J	100P 50V	[M]
C2825	ECJ1VC1H101J	100P 50V	[M]
C2826	ECJ1VC1H101J	100P 50V	[M]
C2827	ECJ1VC1H101J	100P 50V	[M]
C2833	ECA1CM100B	10 16V	[M]
C2841	ECA0JM102B	1000 6.3V	[M]
C2853	ECJ1VC1H101J	100P 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C2901	ECA1CM471B	470 16V	[M]
C2903	ECJ1VB1H103K	0.01 50V	[M]
C2910	ECJ1VB1H103K	0.01 50V	[M]
C2913	ECA1CM101B	100 16V	[M]
C2914	ECA1AM330B	33 10V	[M]
C2919	ECJ1VC1H100D	10P 50V	[M]
C2920	ECJ1VB1H822K	8200P 50V	[M]
C2921	ECA1CM471B	470 16V	[M]
C2922	EEUFC1C471B	470 16V	[M]
C2924	ECJ1VB1H104K	0.1 50V	[M]
C2925	ECA0JM221B	220 6.3V	[M]
C2952	ECJ1VB1H104K	0.1 50V	[M]
C2961	ECJ1VB1A105K	1 10V	[M]
C2964	ECJ1VB1A105K	1 10V	[M]
C2967	ECA0JM102B	1000 6.3V	[M]
C2969	ECJ1VB1H104K	0.1 50V	[M]
C2970	ECJ1VB1H104K	0.1 50V	[M]
C2975	ECA1CM101B	100 16V	[M]
C2983	ECA1CM101B	100 16V	[M]
C2984	ECJ1VB1H104K	0.1 50V	[M]
C2985	ECJ1VB1H103K	0.01 50V	[M]
C2986	ECA1HM101B	100 50V	[M]
C3005	ECJ1VB1A105K	1 10V	[M]
C3006	ECA1HM100B	10 50V	[M]
C3007	ECA1HM100B	10 50V	[M]
C3009	ECA1HM100B	10 50V	[M]
C5101	ECA1HM100B	10 50V	[M]
C5102	ECJ1VB1C104K	0.1 16V	[M]
C5104	ECJ1VB1H221K	220P 50V	[M]
C5105	ECJ1VB1H221K	220P 50V	[M]
C5106	ECJ1VB1C104K	0.1 16V	[M]
C5108	ECA1CM220B	22 16V	[M]
C5124	ECJ1VB1H104K	0.1 50V	[M]
C5201	ECA1HM100B	10 50V	[M]
C5202	ECJ1VB1C104K	0.1 16V	[M]
C5204	ECJ1VB1H471K	470P 50V	[M]
C5205	ECJ1VB1H471K	470P 50V	[M]
C5206	ECJ1VB1C104K	0.1 16V	[M]
C5208	ECA1CM220B	22 16V	[M]
C5224	ECJ1VB1H104K	0.1 50V	[M]
C5301	ECA1HM100B	10 50V	[M]
C5302	ECJ1VB1C104K	0.1 16V	[M]
C5304	ECJ1VB1H471K	470P 50V	[M]
C5305	ECJ1VB1H471K	470P 50V	[M]
C5306	ECJ1VB1C104K	0.1 16V	[M]
C5308	ECA1CM220B	22 16V	[M]
C5313	ECA1HM100B	10 50V	[M]
C5324	ECJ1VB1H104K	0.1 50V	[M]
C5503	ECA1VM102B	1000 35V	[M]
C5505	ECJ1VB1H471K	470P 50V	[M]
C5790	ECJ1VB1H102K	1000P 50V	[M]
C5791	ECA1CM101B	100 16V	[M]
C5792	ECA0JM221B	220 6.3V	[M]
C5794	ECA1CM330B	33 16V	[M]
C5795	ECJ1VB1H104K	0.1 50V	[M]
C5796	ECA1HM2R2B	2.2 50V	[M]
C5797	ECEA1HKA010B	1 50V	[M]
C5798	ECA1HM101B	100 50V	[M]
C5799	ECJ1VB1H104K	0.1 50V	[M]
C6093	ECJ1VB1H473K	0.047 50V	[M]
C6701	ECJ1VB1C105K	1 16V	[M]
C6702	ECJ1VB1H102K	1000P 50V	[M]
C6703	ECJ1VC1H470J	47P 50V	[M]
C6706	ECJ1VB1H104K	0.1 50V	[M]
C6707	ECJ1VC1H470J	47P 50V	[M]
C6708	ECJ1VC1H470J	47P 50V	[M]
C6709	ECJ1VB1H104K	0.1 50V	[M]
C6711	ECJ1VB1C105K	1 16V	[M]
C6805	ECJ1VC1H101K	100P 50V	[M]
C6806	ECJ1VC1H101K	100P 50V	[M]
C6903	ECA1HM220B	22 50V	[M]
C6904	ECJ1VB1H102K	1000P 50V	[M]
C6905	ECA1HM220B	22 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C6906	ECJ1VC1H101K	100P 50V	[M]
C6909	ECJ1VB1H103K	0.01 50V	[M]
C6910	ECA0JM101B	100 6.3V	[M]
C6911	ECJ1VB1H103K	0.01 50V	[M]
C6913	ECA1HM3R3B	3.3 50V	[M]
C6916	ECJ1VC1H101K	100P 50V	[M]
C6917	ECJ1VC1H101K	100P 50V	[M]
C6918	ECA1AM470B	47 10V	[M]
C6920	ECJ1VB1C105K	1 16V	[M]
C6921	ECJ1VB1H221K	220P 50V	[M]
C7101	ECEA1HKA010B	1 50V	[M]
C7102	ECJ1VB1H682K	6800P 50V	[M]
C7103	ECJ1VB1H152K	1500P 50V	[M]
C7104	ECJ1VB1C683K	0.068 16V	[M]
C7105	ECJ1VB1C224K	0.22 16V	[M]
C7106	ECJ1VB1C224K	0.22 16V	[M]
C7107	ECJ1VB1H682K	6800P 50V	[M]
C7108	ECJ1VB1H152K	1500P 50V	[M]
C7109	ECJ1VB1C683K	0.068 16V	[M]
C7110	ECA1CM470B	47 16V	[M]
C7111	ECA1CM470B	47 16V	[M]
C7112	ECJ1VB1H104K	0.1 50V	[M]
C7113	ECEA1HKA010B	1 50V	[M]
C7114	ECJ1VC1H470J	47P 50V	[M]
C7115	ECJ1VB1H221K	220P 50V	[M]
C7116	ECJ1VB1H104K	0.1 50V	[M]
C7118	ECJ1VB1H104K	0.1 50V	[M]
C7119	ECA1HM2R2B	2.2 50V	[M]
C7120	ECJ1VB1H153K	0.015 50V	[M]
C8001	EEE0GA331WP	330 4V	[M]
C8002	ECJ0EF1C104Z	0.1 16V	[M]
C8003	ECJ0EF1C104Z	0.1 16V	[M]
C8004	ECJ0EF1C104Z	0.1 16V	[M]
C8005	ECJ0EF1C104Z	0.1 16V	[M]
C8006	ECJ0EF1C104Z	0.1 16V	[M]
C8007	ECJ0EF1C104Z	0.1 16V	[M]
C8008	ECJ0EF1C104Z	0.1 16V	[M]
C8011	F2G0J101A066	100 6.3V	[M]
C8012	ECJ0EF1C104Z	0.1 16V	[M]
C8013	ECJ0EF1C104Z	0.1 16V	[M]
C8014	ECJ0EF1C104Z	0.1 16V	[M]
C8015	ECJ0EF1C104Z	0.1 16V	[M]
C8016	ECJ0EF1C104Z	0.1 16V	[M]
C8018	ECJ0EF1C104Z	0.1 16V	[M]
C8020	ECJ0EF1C104Z	0.1 16V	[M]
C8021	ECJ0EF1C104Z	0.1 16V	[M]
C8022	ECJ0EF1C104Z	0.1 16V	[M]
C8026	ECJ0EF1C104Z	0.1 16V	[M]
C8051	ECJ1VB0J105K	1 6.3V	[M]
C8052	ECJ0EB1A104K	0.1 10V	[M]
C8053	ECJ0EF1C104Z	0.1 16V	[M]
C8054	ECJ0EC1H221J	220P 50V	[M]
C8055	ECJ1VB0J105K	1 6.3V	[M]
C8056	ECJ0EB1E222K	2200P 25V	[M]
C8057	ECJ1VB0J105K	1 6.3V	[M]
C8111	ECJ0EB1A104K	0.1 10V	[M]
C8112	ECJ1VB0J105K	1 6.3V	[M]
C8113	ECJ0EB1E471K	470P 25V	[M]
C8151	ECJ1VB0J475K	4.7 6.3V	[M]
C8152	ECJ1VB1C105K	1 16V	[M]
C8201	F2G0J101A066	100 6.3V	[M]
C8202	ECJ0EB1A104K	0.1 10V	[M]
C8203	ECJ0EB1A104K	0.1 10V	[M]
C8211	ECJ0EB1E122K	1200P 25V	[M]
C8221	ECJ0EB1E102K	1000P 25V	[M]
C8222	ECJ0EB1E102K	1000P 25V	[M]
C8225	ECJ0EB1E102K	1000P 25V	[M]
C8226	ECJ0EB1E821K	820P 25V	[M]
C8231	ECJ0EB1A104K	0.1 10V	[M]
C8232	ECJ0EB1A104K	0.1 10V	[M]
C8251	F2G0J221A065	220 6.3V	[M]
C8252	ECJ0EF1C104Z	0.1 16V	[M]
C8253	ECJ0EF1C104Z	0.1 16V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C8254	ECJ0EF1C104Z	0.1 16V	[M]
C8255	F2G1C220A037	22 16V	[M]
C8256	ECJ0EF1C104Z	0.1 16V	[M]
C8257	F2G1C470A076	47 16V	[M]
C8258	ECJ0EF1C104Z	0.1 16V	[M]
C8261	ECJ0EF1C104Z	0.1 16V	[M]
C8262	ECJ0EF1C104Z	0.1 16V	[M]
C8263	ECJ1VB1H221K	220P 50V	[M]
C8301	F2G0J221A031	220 6.3V	[M]
C8302	F2G0J330A031	33 6.3V	[M]
C8303	ECJ0EB1A104K	0.1 10V	[M]
C8304	ECJ0EB1A104K	0.1 10V	[M]
C8305	ECJ0EB1A104K	0.1 10V	[M]
C8306	ECJ0EB1A104K	0.1 10V	[M]
C8311	ECJ0EB1A104K	0.1 10V	[M]
C8312	ECJ1VB0J105K	1 6.3V	[M]
C8313	ECJ1VB0J105K	1 6.3V	[M]
C8320	ECJ0EF1C104Z	0.1 16V	[M]
C8321	ECJ0EB1A104K	0.1 10V	[M]
C8325	ECJ0EB1A104K	0.1 10V	[M]
C8330	F2G0J470A031	47 6.3V	[M]
C8331	ECJ0EB1A104K	0.1 10V	[M]
C8335	ECJ0EB1A104K	0.1 10V	[M]
C8340	ECJ0EF1C104Z	0.1 16V	[M]
C8341	ECJ0EB1A104K	0.1 10V	[M]
C8401	ECJ0EC1H150J	15P 50V	[M]
C8402	ECJ0EC1H150J	15P 50V	[M]
C8421	F2G0J101A083	100 6.3V	[M]
C8422	ECJ0EF1C104Z	0.1 16V	[M]
C8423	F2G0J330A083	33 6.3V	[M]
C8424	ECJ0EF1C104Z	0.1 16V	[M]
C8426	ECJ0EF1C104Z	0.1 16V	[M]
C8427	ECJ0EF1C104Z	0.1 16V	[M]
C8428	ECJ0EF1C104Z	0.1 16V	[M]
C8429	ECJ0EF1C104Z	0.1 16V	[M]
C8430	F2G0J470A031	47 6.3V	[M]
C8501	F2G0J101A031	100 6.3V	[M]
C8502	ECJ0EF1C104Z	0.1 16V	[M]
C8503	ECJ0EF1C104Z	0.1 16V	[M]
C8504	ECJ0EF1C104Z	0.1 16V	[M]
C8505	ECJ0EF1C104Z	0.1 16V	[M]
C8511	ECJ1VB0J105K	1 6.3V	[M]
C8512	ECJ1VB0J105K	1 6.3V	[M]
C8513	ECJ0EB1A104K	0.1 10V	[M]
C8514	ECJ0EB1A104K	0.1 10V	[M]
C8515	ECJ0EB1A104K	0.1 10V	[M]
C8516	ECJ0EB1A104K	0.1 10V	[M]
C8521	ECJ0EB1A104K	0.1 10V	[M]
C8522	ECJ0EB1A104K	0.1 10V	[M]
C8523	ECJ0EF1C104Z	0.1 16V	[M]
C8524	ECJ0EF1C104Z	0.1 16V	[M]
C8525	ECJ0EB1C562K	5600P 16V	[M]
C8526	ECJ0EB1C183K	0.018 16V	[M]
C8527	ECJ0EB1A333K	0.033 10V	[M]
C8528	ECJ1VB0J105K	1 6.3V	[M]
C8529	ECJ1VB0J105K	1 6.3V	[M]
C8530	ECJ0EF1C104Z	0.1 16V	[M]
C8531	ECJ0EC1H101J	100P 50V	[M]
C8532	ECJ0EC1H221J	220P 50V	[M]
C8533	ECJ0EF1C104Z	0.1 16V	[M]
C8541	ECJ0EB1E472K	4700P 25V	[M]
C8550	F2G0J330A031	33 6.3V	[M]
C8551	ECJ0EF1C104Z	0.1 16V	[M]
C8552	F2G1C100A072	10 16V	[M]
C8553	F2G0J470A031	47 6.3V	[M]
C8554	ECJ1VB0J105K	1 6.3V	[M]
C8561	ECJ0EF1C104Z	0.1 16V	[M]
C8562	F2G1C100A072	10 16V	[M]
C8563	F2G0J470A031	47 6.3V	[M]
C8564	ECJ1VB0J105K	1 6.3V	[M]
C8571	ECJ3YB1A106M	10 10V	[M]
C8572	ECJ0EF1C104Z	0.1 16V	[M]
C8601	ECJ0EF1C104Z	0.1 16V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C8602	ECJ0EB1C153K	0.015 16V	[M]
C8606	ECJ0EF1C104Z	0.1 16V	[M]
C8611	ECJ0EF1C104Z	0.1 16V	[M]
C8621	ECJ0EC1H120J	12P 50V	[M]
C8622	ECJ0EC1H120J	12P 50V	[M]
C8651	ECJ0EF1C104Z	0.1 16V	[M]
C8652	ECJ0EF1C104Z	0.1 16V	[M]
C8691	ECJ0EF1C104Z	0.1 16V	[M]
C8695	ECJ0EF1C104Z	0.1 16V	[M]
C9004	ECJ0EC1H070D	7P 50V	[M]
C9005	ECJ0EC1H070D	7P 50V	[M]
C9006	ECJ0EB1A104K	0.1 10V	[M]
C9007	ECJ0EF1C104Z	0.1 16V	[M]
C9008	ECJ1VB0J105K	1 6.3V	[M] GCS/ GCT
C9008	ECJ1VB1C105K	1 16V	[M] GC/G SGCP
C9018	ECJ0EB1A104K	0.1 10V	[M]