

TOSHIBA

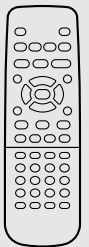
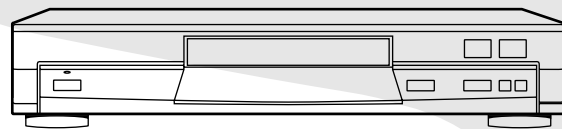
FILE NO. 810-200101

SERVICE MANUAL

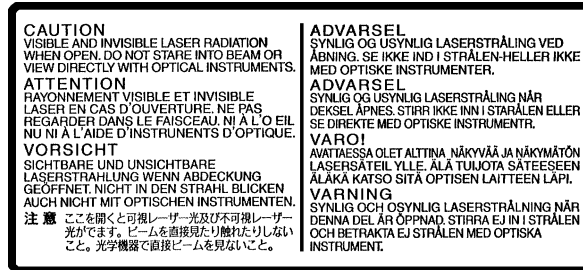


DVD VIDEO PLAYER

SD-2700



LASER BEAM CAUTION LABEL



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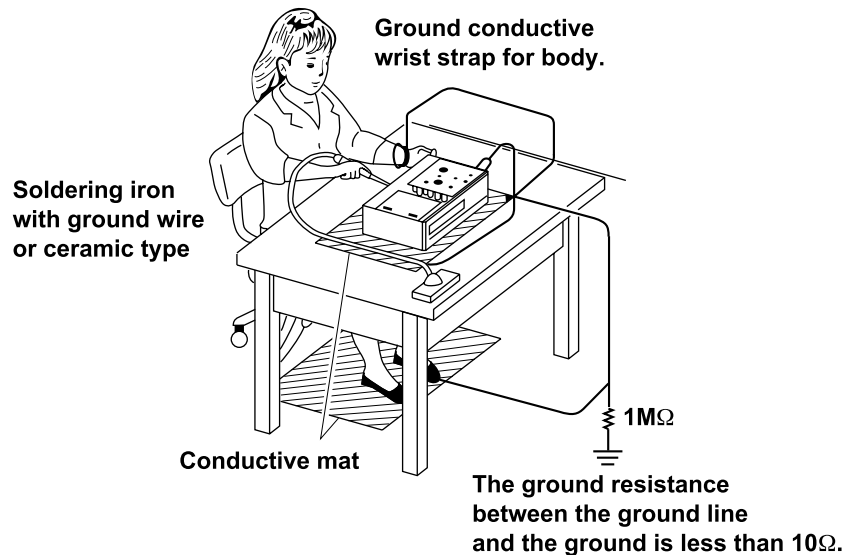
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.



SAFETY NOTICE

SAFETY PRECAUTIONS

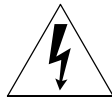
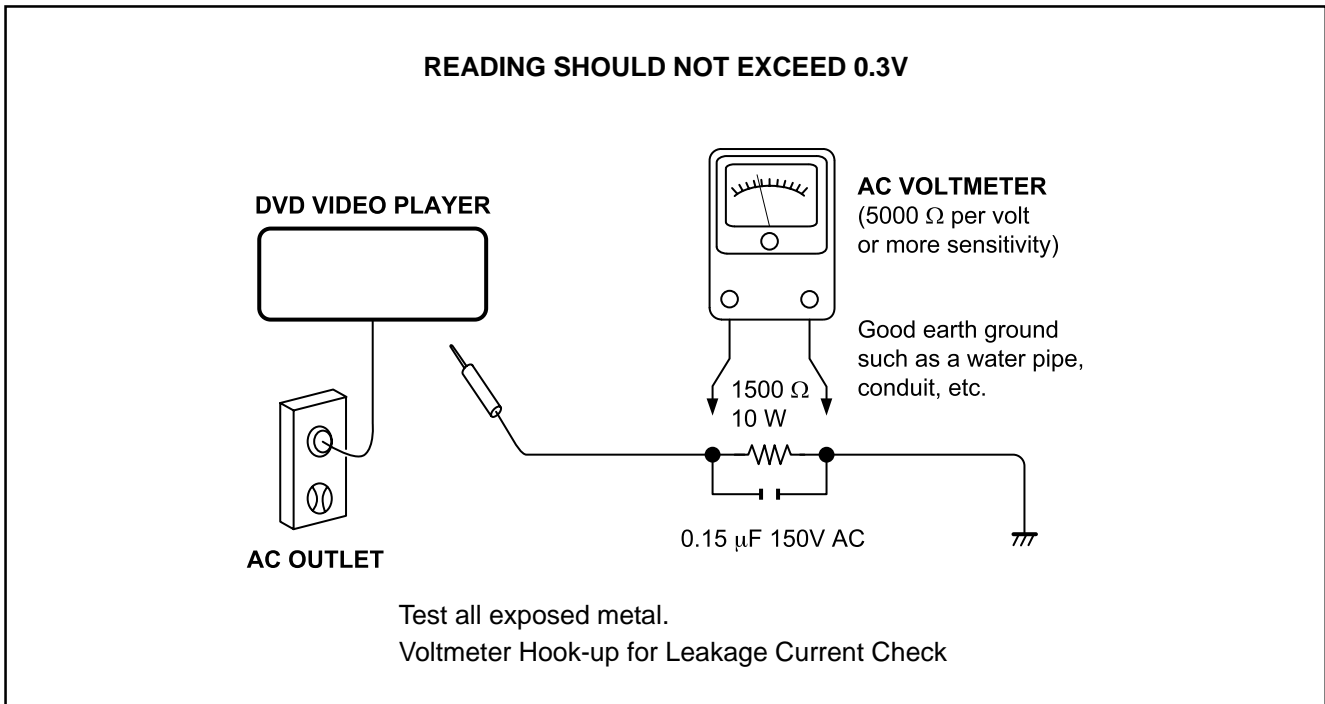
LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having $5000\ \Omega$ per volt or more sensitivity. Connect a $1500\ \Omega$ 10 W resistor, paralleled by a $0.15\ \mu\text{F}$ 150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

Measure the AC voltage across the $1500\ \Omega$ resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 V. A reading exceeding 0.3 V indicates that a dangerous potential exists, the fault must be located and corrected.

Repeat the above test with the DVD VIDEO PLAYER power plug reversed.

NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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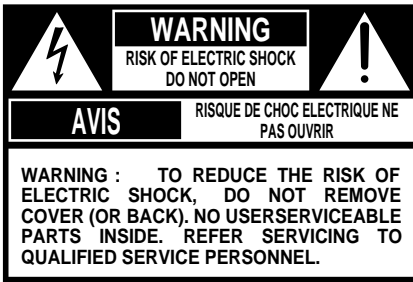
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ABBREVIATIONS
1. Integrated Circuit (IC)
 2. Capacitor (Cap)
 3. Resistor (Res)
4. EXPLODED VIEWS
 - 4-1. Packing Assembly
 - 4-2. Chassis Assembly
 - 4-3. Mechanism Assembly
 5. PARTS LIST

SECTION 1 GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



The symbol for CLASS II (Double Insulation)

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR EVITER LES CHOCES ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

CAUTION: This Digital Video Disc Player employs a Laser System. To ensure proper use of this product, please read this owner's manual carefully and retain for future reference. Should the unit require maintenance, contact an authorized service location - see service procedure.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure. Visible and invisible laser radiation when open and interlocks defeated. DO NOT STARE INTO BEAM.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rule. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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

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

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user's authority to operate the equipment.

The instructions shall state that an ALL-POLE MAINS SWITCH with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

In the spaces provided below, record the Model and Serial No. located on the rear panel of your DVD video player.

Model No. _____

Serial No. _____

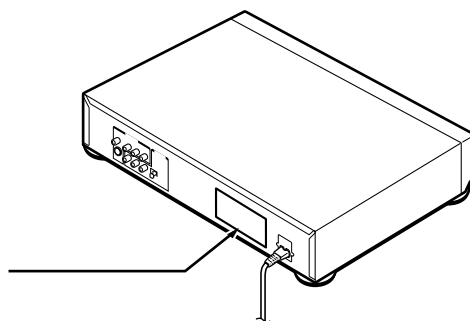
Retain this information for future reference.

Location of the required label

PRODUCT IS CERTIFIED BY THE MANUFACTURER TO COMPLY WITH DHHS RULE 21 CFR SUBCHAPTER J APPLICABLE AT THE DATE OF MANUFACTURE.

MANUFACTURED

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU.
TOKYO 105-8001, JAPAN



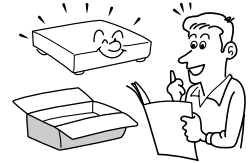
IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.

DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

1. Read these instructions.

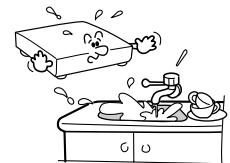


2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.



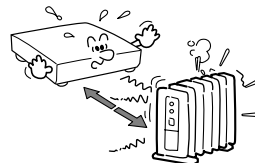
6. Clean only with dry cloth.



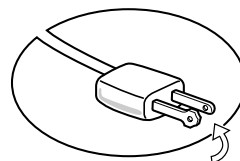
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.



8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.



10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



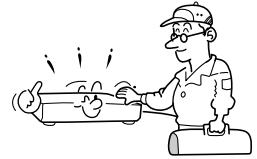
53125A

IMPORTANT SAFETY INSTRUCTIONS

13. Unplug this apparatus during lightning storms or when unused for long periods of time.



14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



15. When you use headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.



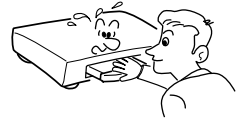
16. Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



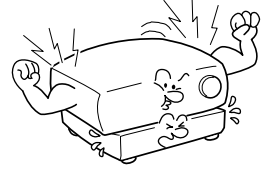
17. Never insert objects of any kind into this apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the apparatus.



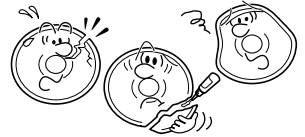
18. Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.



19. Do not place a heavy object on or step on the apparatus. The object may fall, causing serious personal injury and serious damage to the apparatus.



20. Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and apparatus malfunction.



Precautions

Notes on handling

- When shipping the DVD video player, the original shipping carton and packing materials come in handy. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD video player. Do not leave rubber or plastic products in contact with the DVD video player for a long time. They will leave marks on the finish.
- The top and rear panels of the DVD video player may become warm after a long period of use. This is not a malfunction.
- When the DVD video player is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD video player for a long period, the unit may not function properly in the future. Turn on and use the DVD video player occasionally.

Notes on locating

- Place the DVD video player on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand. The loaded disc may come off the proper position and cause damage to the DVD video player.
- When you place this DVD video player near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD video player away from the TV, radio, or VCR.

Notes on cleaning

Use a soft, dry cloth for cleaning.

- For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry.
Do not use any type of solvent, such as thinner and benzene, as they may damage the surface of the DVD video player.
- If you use a chemical saturated cloth to clean the unit, follow that product's instructions.

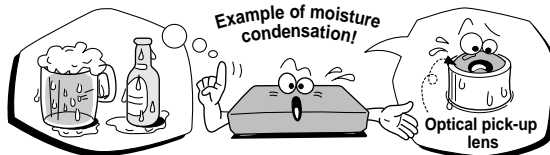
To obtain a clear picture

The DVD video player is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality becomes poor. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

Notes on moisture condensation

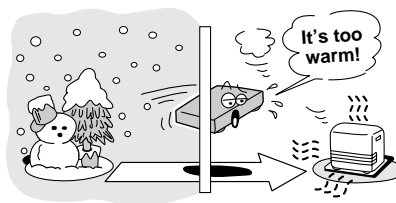
Moisture condensation damages the DVD video player. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD video player.



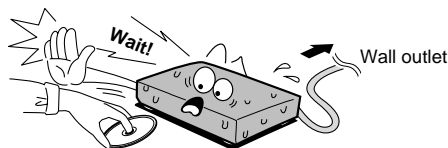
Moisture condensation occurs during the following cases.

- When you bring the DVD video player directly from a cold place to a warm place.
- When you use the DVD video player in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the DVD video player in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the DVD video player in a humid place.



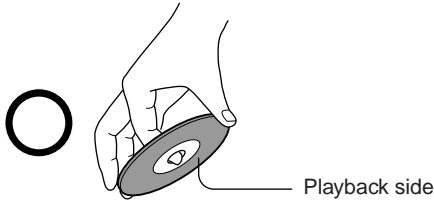
Do not use the DVD video player when moisture condensation may occur.

If you use the DVD video player in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD video player to the wall outlet, turn on the DVD video player, and leave it for two or three hours. After two or three hours, the DVD video player will have warmed up and evaporated any moisture. Keep the DVD video player connected to the wall outlet and moisture condensation will seldom occur.



On handling discs

- Do not touch the playback side of the disc.

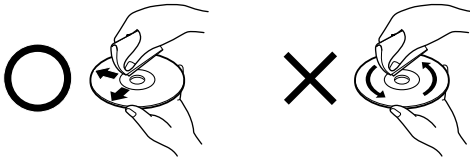


- Do not attach paper or tape to discs.



On cleaning discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.



- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzene, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

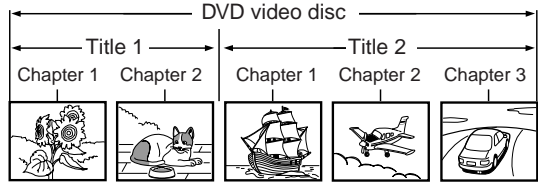
On storing discs

- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

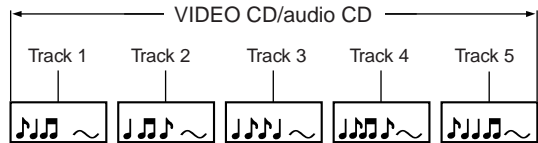
Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. VIDEO CDs and audio CDs are divided into tracks.

DVD video disc



VIDEO CD/audio CD



Each title, chapter or track is assigned a number, which is called "title number", "chapter number" or "track number" respectively.

There may be discs that do not have these numbers.

Notes on copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD video discs are copy protected, and any recordings made from these discs will be distorted.

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.



Notes on Discs (continued)

About this owner's manual

This owner's manual explains the basic instructions of this DVD video player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD video player may not respond to all operating commands. This is not a defect in the DVD video player. Refer to instruction notes of discs.

"Ⓢ" may appear on the TV screen during operation. A "Ⓢ" means that the operation is not permitted by the DVD video player or the disc.

Notes on region numbers

The region number of this DVD video player is 1. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find  or , disc playback will not be allowed by the player. (In this case, the DVD video player will display a message on-screen.)

On VIDEO CDs

This DVD video player supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **VIDEO CD not equipped with PBC function (Version 1.1)**

Sound and movie can be played on this DVD video player in the same way as an audio CD.

- **VIDEO CD equipped with PBC function (Version 2.0)**

In addition to operation of a VIDEO CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback). Some of the functions described in this owner's manual may not work with some discs.

Playable discs

This DVD video player can play the following discs.

	Disc Mark	Contents	Disc Size	Maximum playback time
DVD video discs		Audio + video (moving pictures)	12 cm	Approx. 4 hours (single sided disc)
				Approx. 8 hours (double sided disc)
			8 cm	Approx. 80 minutes (single sided disc)
				Approx. 160 minutes (double sided disc)
VIDEO CDs		Audio + video (moving pictures)	12 cm	Approx. 74 minutes
			8 cm	Approx. 20 minutes
Audio CDs		Audio	12 cm	Approx. 74 minutes
			8 cm (CD single)	Approx. 20 minutes

The following discs are also available.

- CD-R
 - CD-RW
- CD-R/RW discs recorded by CD-DA method can be played. Some CD-R/RW discs may be incompatible.

- You cannot play discs other than those listed above.
- You cannot play discs of DVD-RAM, DVD-RW, etc., even if they may be labeled marks listed above.
- This DVD video player uses the NTSC color system, and cannot play DVD video discs recorded in any other color system (PAL, SECAM, etc.).

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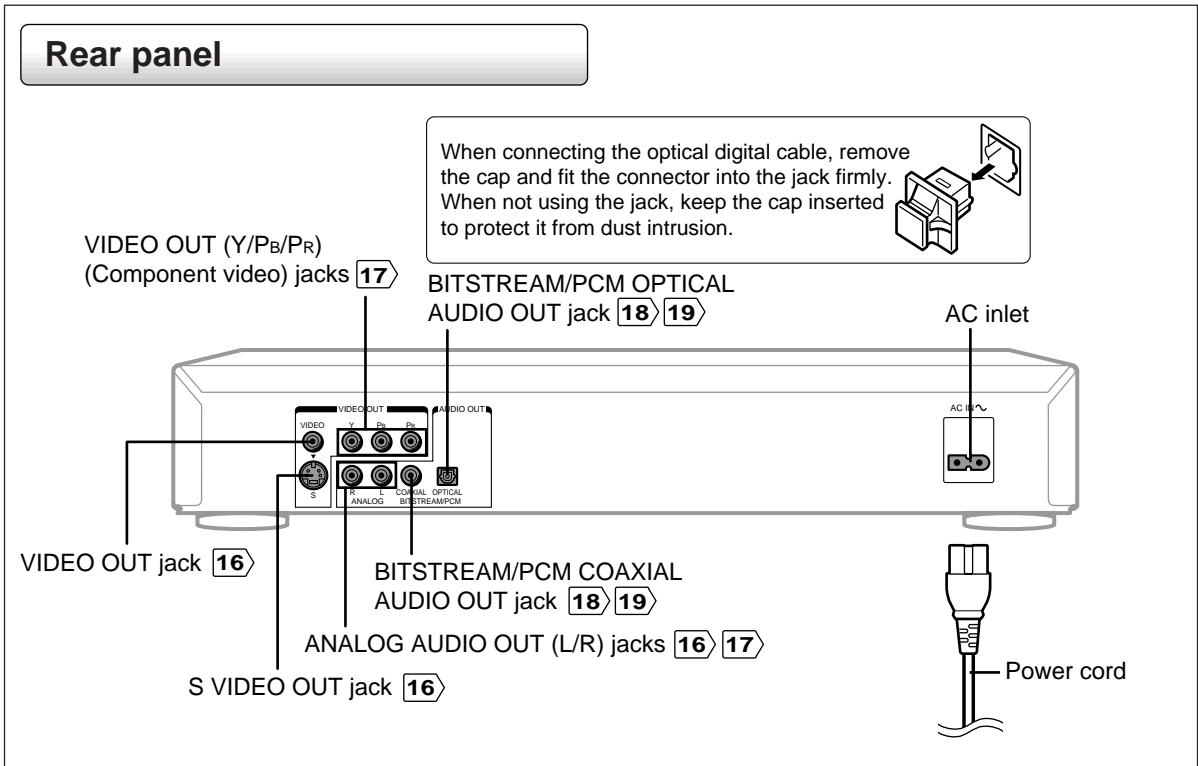
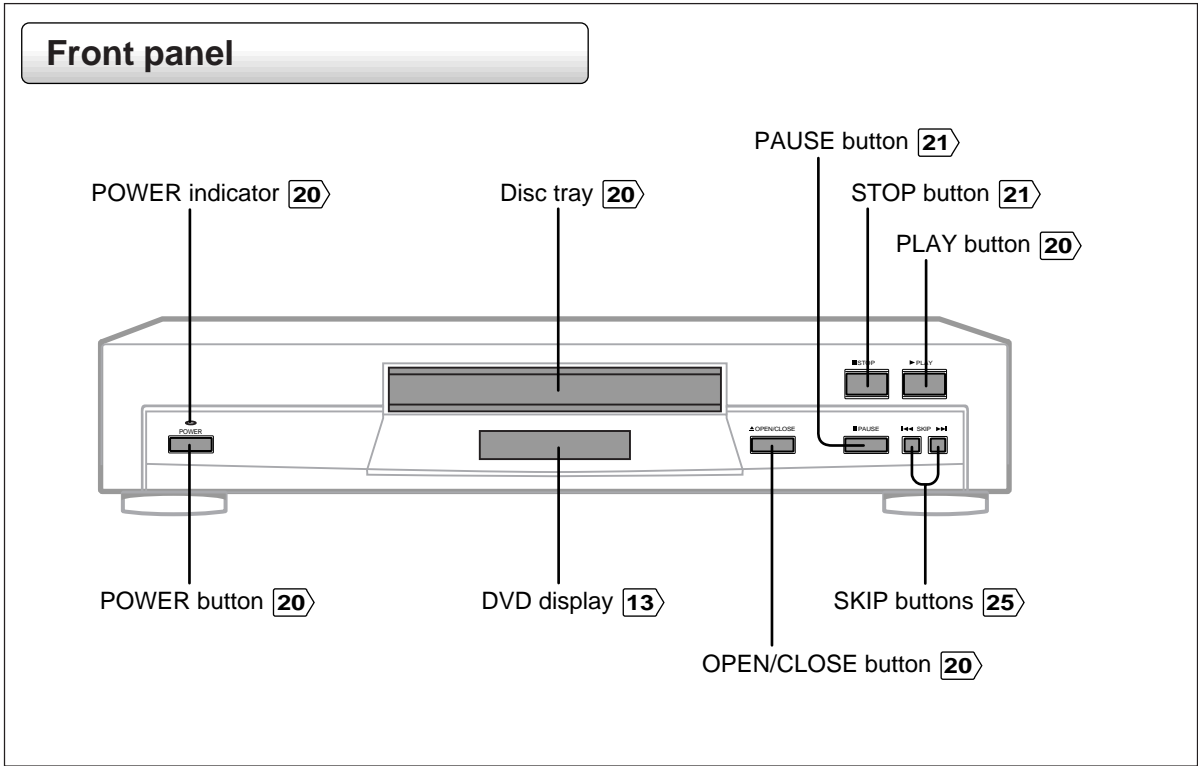
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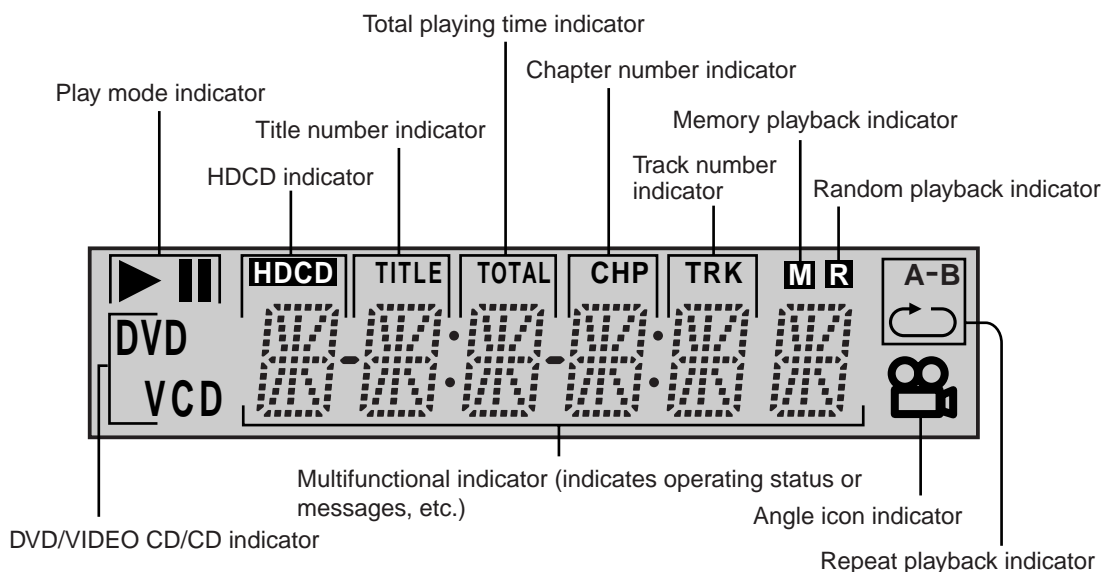
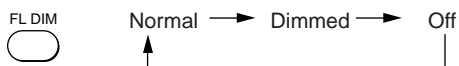
Identification of Controls

See the page in for details.



DVD display

- Pressing of the FL DIM button on the remote control changes the brightness of the display.



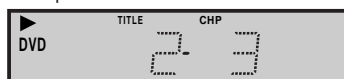
- When you start playback, the elapsed time indicators appear. Pressing the FL SELECT button switches them to the title/chapter/track number indicators. Some discs may not permit this operation.

The indicators vary depending on the kinds of discs you play.

DVD video disc

- During playback:

Example



Playing chapter 3 of title 2

Some discs may not display chapter numbers or elapsed time.

VIDEO CD

- During playback:

Example



Playing track 6

Some discs may not display track numbers or elapsed time.

Audio CD

- During playback:

Example



Playing track 6

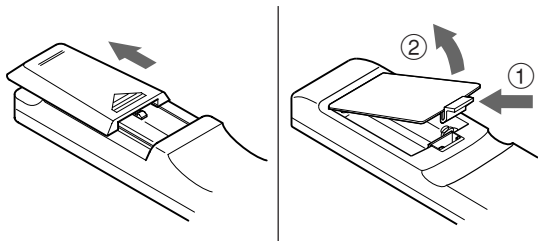
■ About the illustrations of the battery compartment

There are two types of battery compartment in the supplied remote controls. (This does not mean a difference in performance between the two.)

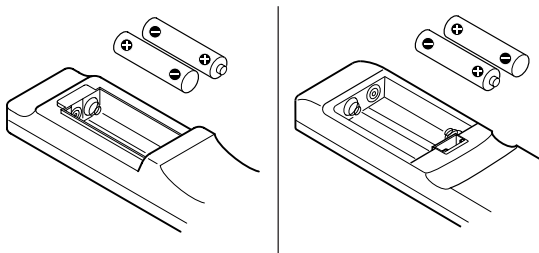
Refer to either illustration depending on the actual remote control.

Loading batteries

1 Open the cover.



2 Insert batteries (AA size).



Make sure to match the + and – on the batteries to the marks inside the battery compartment.

3 Close the cover.

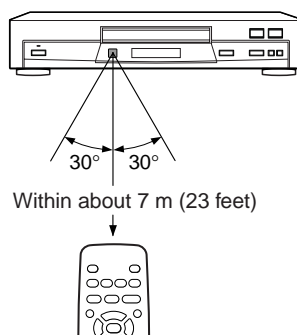
Notes on batteries

Improper use of batteries may cause battery leakage and corrosion. To operate the remote control correctly, follow the instructions below.

- Do not insert batteries into the remote control in the wrong direction.
- Do not charge, heat, open, or short-circuit the batteries. Do not throw batteries into a fire.
- Do not leave dead or exhausted batteries in the remote control.
- Do not use different types of batteries together, or mix old and new batteries.
- If you do not use the remote control for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
- If the remote control does not function correctly or if the operating range becomes reduced, replace all batteries with new ones.
- If battery leakage occurs, wipe the battery liquid from the battery compartment, then insert new batteries.

Operating with the remote control

Point the remote control at the remote sensor and press the buttons.



Distance: About 7 m (23 feet) from the front of the remote sensor

Angle: About 30° in each direction of the front of the remote sensor

* Do not expose the remote sensor of the DVD video player to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the DVD video player via the remote control.

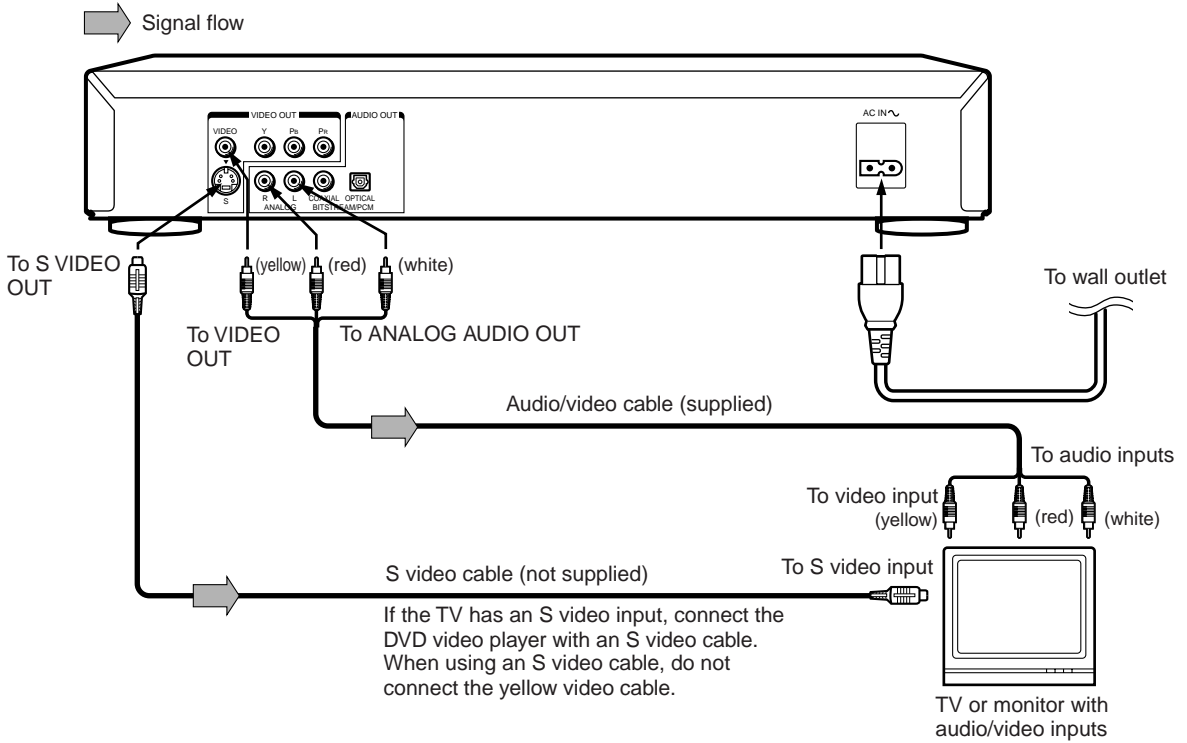
Notes on the remote control

- Direct the remote control at the remote sensor of the DVD video player.
- Do not drop or give the remote control a shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.

Connecting to a TV

Connect the DVD video player to your TV.
 For details of output sound, see **35**.

Connecting to a TV



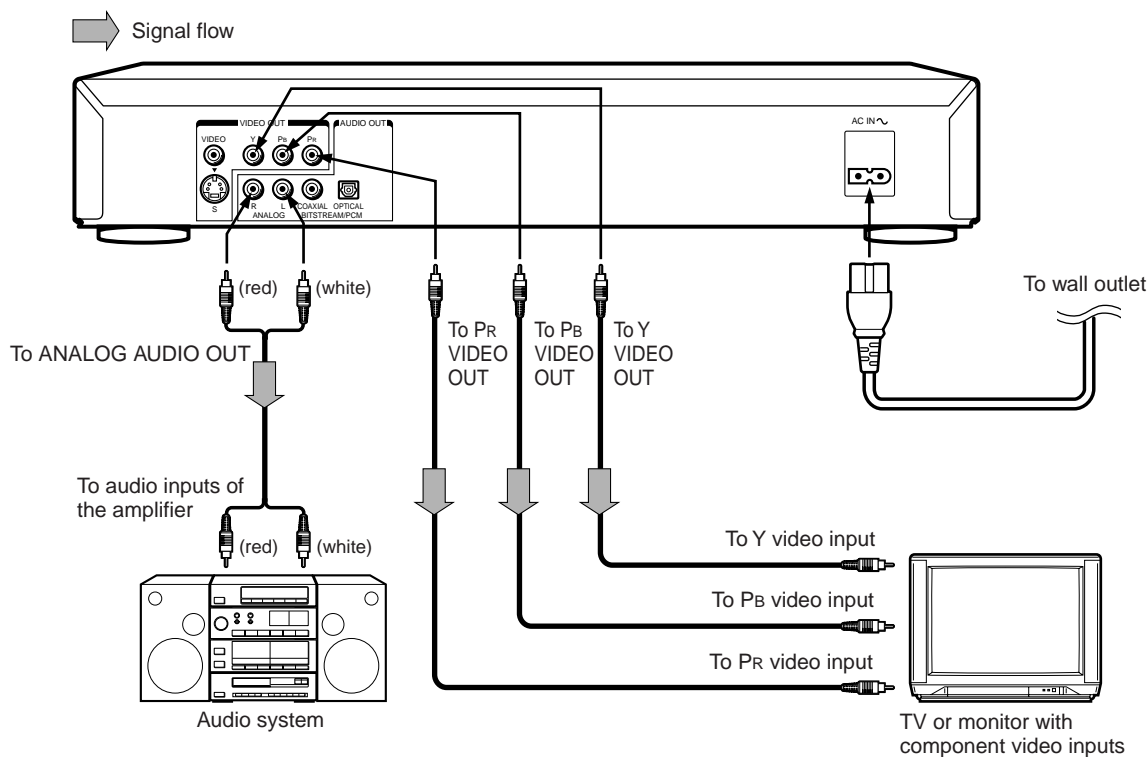
- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"Analog 2ch"	38 40

Notes

- Refer to the owner's manual of the connected TV as well.
- When you connect the DVD video player to your TV, be sure to turn off the power and unplug both units from the wall outlet before making any connections.
- If your television set has one audio input, connect the DVD video player to a Y cable adapter (not supplied) and then connect to your TV.
- Connect the DVD video player directly to your TV. If you connect the DVD video player to a VCR, TV/VCR combination or video selector, the playback picture may be distorted as DVD video discs are copy protected.

Connecting to an audio system and TV equipped with component video inputs



Component video (ColorStream®) outputs/inputs

Some TVs or monitors are equipped with component video inputs. Connecting to these inputs allows you to enjoy higher quality picture playback.

Actual labels for component video inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or Y, C_B, C_R)

In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"Analog 2ch"	38 40






Notes

- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD video player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD video player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD video player away from the tuner and radio.
- The output sound of the DVD video player has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD video player's power cord. If you leave the amplifier power on, the speakers may be damaged.

Connecting to Optional Equipment

You can enjoy high quality dynamic sounds by connecting the DVD video player to optional audio equipment.

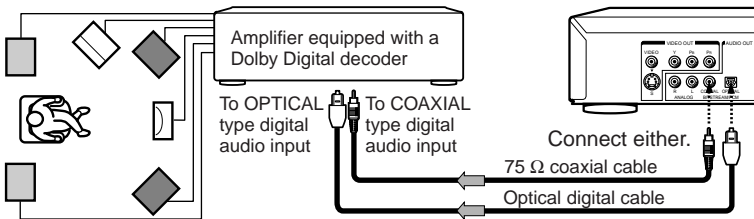
For connection to your TV, see "Connecting to a TV" **16** **17**.
 For details of output sound, see **35**.

	: Front speaker		: Center speaker
	: Rear speaker		: Signal flow
	: Sub woofer		

Connecting to an amplifier equipped with a Dolby Digital decoder


Dolby Digital

Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs with this dynamic realistic sound by connecting the DVD video player to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Pro Logic Surround decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.



Manufactured under license from Dolby Laboratories. "Dolby" "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. ©1992-1997 Dolby Laboratories. All rights reserved.

- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

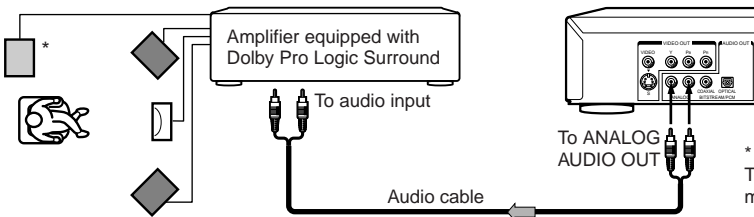
On-screen display	Select:	Page
"Audio Out Select"	"Bitstream"	38 40
Recording system		35

Connecting to an amplifier equipped with Dolby Pro Logic Surround

Dolby Pro Logic Surround

You can enjoy the dynamic realistic sound of Dolby Pro Logic Surround by connecting an amplifier and speaker system (right and left front speakers, a center speaker, and one or two rear speakers).

- With an amplifier equipped with Dolby Digital
 Connect the equipment the same way as described in "Connecting to an amplifier equipped with a Dolby Digital decoder." Refer to that amplifier's owner's manual and set the amplifier so you can enjoy Dolby Pro Logic Surround sound.
- With an amplifier not equipped with Dolby Digital
 Connect the equipment as follows.



- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"Analog 2ch"	38 40

Be sure to set "Audio Out Select" to "Analog 2ch" when you enjoy sounds of Dolby Pro Logic Surround using this connection.

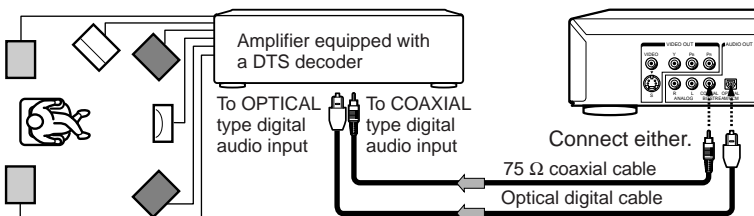
* Connect one or two rear speakers. The output sound from the rear speakers will be monaural even if you connect two rear speakers.

Connecting to an amplifier equipped with a DTS decoder

Digital Theater Systems (DTS)

DTS is a high quality surround sound technology used in theaters and now available for home use, on DVD video discs or audio CDs.

If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.



"DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc.

- Use DVD video discs or audio CDs encoded via the DTS recording system.
- Make the following setting.

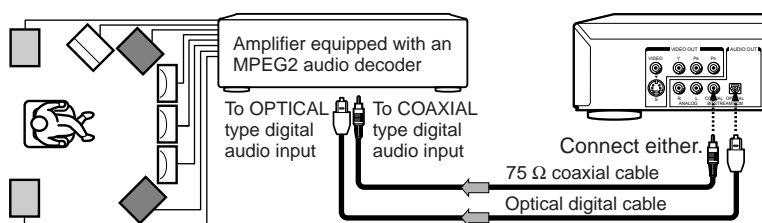
On-screen display	Select:	Page
"Audio Out Select"	"Bitstream"	38 40
Recording system	DTS	35

Warning

- When you are connecting (via the BITSTREAM/PCM AUDIO OUT jack) an AV decoder that does not have Dolby Digital, Digital Theater Systems (DTS) or MPEG2 decoding function, be sure to set "Audio Out Select" to "PCM" from the on-screen displays **38** **40**. Otherwise, high volume sound may damage your hearing as well as the speakers.
- When playing DTS-encoded discs (DVD video discs and audio CDs), excessive noise may be output from the analog stereo jacks. To avoid possible damage to the audio system, you should take proper precautions when the ANALOG AUDIO OUT (L/R) jacks of the DVD video player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM AUDIO OUT jack of the DVD video player.

Connecting to an amplifier equipped with an MPEG2 audio decoder**MPEG2 sound**

You can enjoy motion picture and live concert DVD video discs with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.

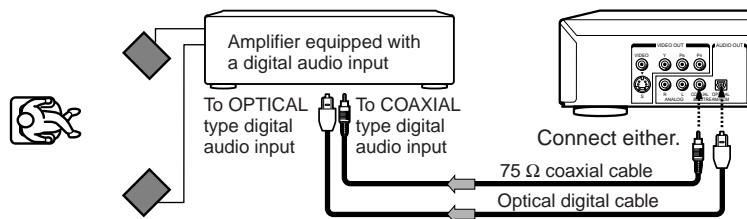


- Use DVD video discs encoded via the MPEG2 recording system.
- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"Bitstream"	38 40
Recording system	MPEG	35

Connecting to an amplifier equipped with a digital audio input**2 channel digital stereo**

You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).



- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"PCM"	38 40

Notes

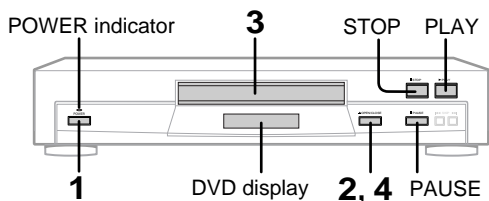
- DO NOT connect the BITSTREAM/PCM AUDIO OUT jack of the DVD video player to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the BITSTREAM/PCM AUDIO OUT jack of the DVD video player.
- Connect the BITSTREAM/PCM AUDIO OUT jack of the DVD video player to the "OPTICAL" or "COAXIAL" input of a Receiver or Processor.
- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD video player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- The output sound of the DVD video player has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD video player's power cord. If you leave the amplifier power on, the speakers may be damaged.

Playing a Disc

This section shows you the basics on how to play a disc.

CAUTION

Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.



Basic playback

Preparations

- When you want to view a disc, turn on the TV and select the video input connected to the DVD video player.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD video player.

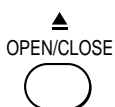
1 Press the power button (POWER).



The DVD video player turns on and the POWER indicator on the player illuminates.

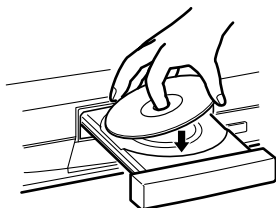
When the DVD video player is turned on for the first time, a message appears. Press **ENTER**, and make the proper settings before proceeding to step 2. [45](#)

2 Press OPEN/CLOSE.



The disc tray opens.

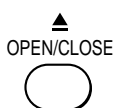
3 Place the disc on the disc tray.



With the playback side down

- There are two different disc sizes. Place the disc in the correct guide on the disc tray. If the disc is out of the guide, it may damage the disc and cause the DVD video player to malfunction.
- Do not place a disc which is unplayable in this DVD video player.

4 Press OPEN/CLOSE to close the disc tray.



Playback starts.

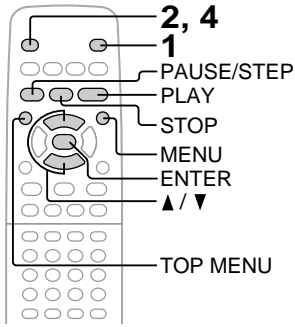
If you insert a DVD video disc that contains a top menu, a menu may appear. See "Locating a title using the top menu." [24](#)

- You may need to press the TOP MENU or MENU button to display disc menu (depending on the actual DVD video disc.)

■ To start playback in the stop mode

Press **PLAY**.





■ **To obtain a higher quality picture**

Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video disc because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use with this DVD video player, you should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

■ **About**

The icons on the heading bar show the playable discs for the function described under that heading.

: You can use this function with DVD video discs.

: You can use this function with VIDEO CDs.

: You can use this function with audio CDs.

■ **To pause playback (still mode)**

Press **PAUSE/STEP** during playback.



To resume normal playback, press the **PLAY** button.

- The sound is muted during still mode.

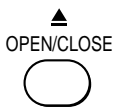
■ **To stop playback**

Press **STOP**.

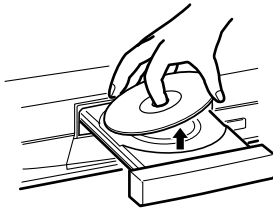


■ **To remove the disc**

Press **OPEN/CLOSE**.



Remove the disc after the disc tray opens completely.



Be sure to press the **OPEN/CLOSE** button to close the disc tray after you remove the disc.

■ **About the screen saver**

If you pause a picture of a DVD video disc and leave it still for a long while, the screen saver of the DVD video player automatically appears (when "Screen Saver" is set to "On" **43**). To turn off the screen saver, press the **PLAY** button.

■ **Automatic Power Off function**

If the DVD video player is stopped, or the screen saver is engaged for about 20 minutes, the DVD video player will automatically turn itself off.

■ **HDCD (High Definition Compatible Digital®)**

HDCD® (High Definition Compatible Digital®) is a recording system that has improved audio CD sound in dynamic range, sound field reproducibility and vocal acoustics.

This DVD video player is equipped with an HDCD decoder. The HDCD indicator illuminates when playing an HDCD-encoded audio CD.

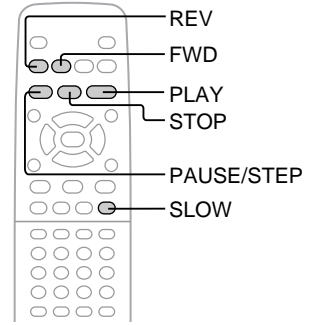
HDCD®, High Definition Compatible Digital® and Pacific Microsonics™ are either registered trademarks or trademarks of Pacific Microsonics, Inc. in the United States and/or other countries. HDCD system manufactured under license from Pacific Microsonics, Inc. This product is covered by one or more of the following patents: In the USA: 5,479,168, 5,638,074, 5,640,161, 5,808,574, 5,838,274, 5,854,600, 5,864,311, 5,872,531, and in Australia: 669114. Other patents pending.

Notes

- Do not move the DVD video player during playback. Doing so may damage the disc.
- Use the **OPEN/CLOSE** button to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the DVD video player to malfunction.
- Do not push up on the disc tray or put any objects other than discs on the disc tray. Doing so may cause the DVD video player to malfunction.
- In many instances, a menu screen will appear after playback of a movie is completed. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press the **STOP** button on your remote control once the movie is completed.

Playing a Disc (continued)

You can play discs at various speeds, and resume playback from the location where you stopped playback.



DVD VCD CD Playing in fast reverse or fast forward directions

Press REV or FWD during playback.



REV: Fast reverse playback
FWD: Fast forward playback

Each time you press the REV or FWD button, the playback speed changes.

■ To resume normal playback

Press PLAY.



Notes

- The DVD video player does not play sound and subtitles during reverse and forward scan of DVD video discs. However, the DVD video player plays sound during fast forward or fast reverse play of audio CDs.
- The playback speed may differ depending on the disc.

DVD VCD Playing frame by frame

Press PAUSE/STEP during still playback.



Each time you press the PAUSE/STEP button, the picture advances one frame.

■ To resume normal playback

Press PLAY.



Note

The sound is muted during frame by frame playback.



Playing in slow-motion

Press SLOW during playback.



Each time you press the SLOW button, the slow-motion speed changes.

■ To resume normal playback

Press **PLAY**.



Note

The sound is muted during slow-motion playback.



Resuming playback from the same location

1 Press STOP at the location where you want to interrupt playback.



The DVD video player memorizes the location where playback is stopped.

2 Press PLAY.



The DVD video player resumes playback from the location where you stopped playback.

■ To start playback from the beginning regardless of the location where you stopped playback


1 Press **STOP** twice.




The DVD video player's memory is cleared.

2 Press **PLAY**.



 Playback starts from the beginning of the current title.

 Playback starts from the beginning of the disc.

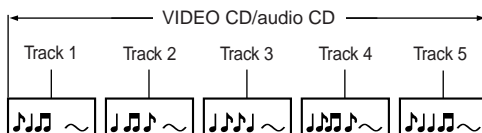
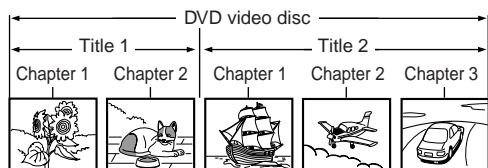
- If you want to return to the beginning of a DVD video disc, open and close the disc tray once with the OPEN/CLOSE button before pressing the PLAY button.

Notes

- The DVD video player's memory is also cleared when:
 - you change the parental lock setting **[43]** or select a disc menu language **[41]**.
 - you open the disc tray.
- There may be a difference in the location where playback resumes depending on the disc.
- Settings you changed using the on-screen displays while the DVD video player keeps a location in the memory may function only after the memory is cleared.

Locating a Specific Title, Chapter, or Track

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. VIDEO CDs and audio CDs are divided into tracks. You can quickly locate any specific title, chapter, or track.



DVD Locating a title using the top menu

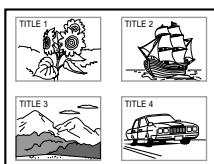
1 Press TOP MENU.

TOP MENU

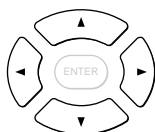


The top menu appears on the TV screen.

e.g.

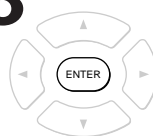


2 Press ▲/▼/◀/▶ to select the title you want.



If the titles in the top menu are assigned a number, you can directly locate a specific title by pressing its designated number with the number buttons.

3 Press ENTER.



Playback starts from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video disc. If different instructions appear on the TV screen, follow those instructions.
- If you display the top menu during playback and press the TOP MENU button again without selecting any title, the DVD video player may resume playback from the point where you first pressed the TOP MENU button (depending on the actual DVD video disc.)
- This method of locating a title is available only on a disc that contains a top menu.
- Instruction notes of discs may refer to the button that displays the top menu as TITLE button.

DVD Locating a title by entering the title number

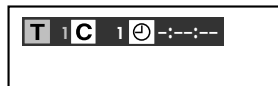
1 Press T.

SEARCH



Make sure that the space of "T (Title)" is highlighted. (You can shift the highlight using the ◀/▶ buttons.)

e.g.

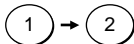


2 Enter the number for the title you want, using ▲/▼ or the number buttons.

e.g. To select title 2



To select title 12



3 Press PLAY.

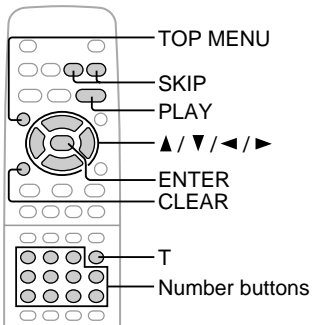
PLAY



Playback starts from chapter 1 of the selected title.

Notes

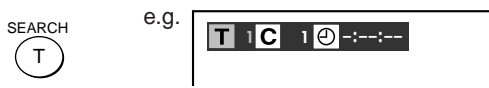
- Pressing the CLEAR button resets the title and chapter numbers. To clear the "T (Title)" and "C (Chapter)" display, press the T button several times.
- This method of locating a title is available only on a disc that contains title numbers.



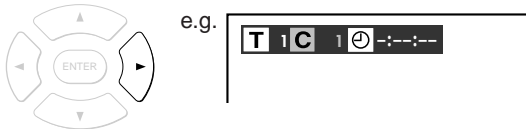
DVD VCD CD Locating a specific chapter or track directly

1 Press T.

If you are using a VIDEO CD/audio CD, skip steps 1 and 2, then at step 3, enter the number for the track you want using the number buttons.



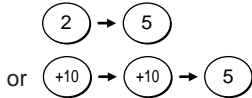
2 Press ► to highlight the space of “C (Chapter).”



3 Enter the number for the chapter or track you want, using ▲ / ▼ or the number buttons.

When you use the number buttons, you can use the +10 button to select numbers from 10 through 99.

e.g. To select chapter or track 25



4 Press PLAY.



Playback starts from the selected chapter or track.

■ To select a title and chapter number at the same time

Perform step 1, and enter a title number you want in the space of “T (Title)” using the number buttons or the ▲ / ▼ buttons then perform steps 2 to 4.

Note

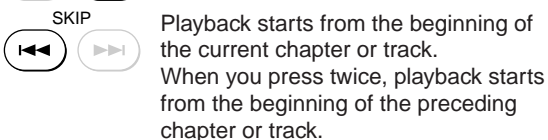
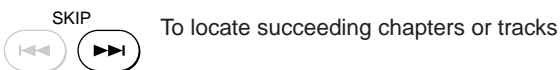
Pressing the CLEAR button resets the title and chapter numbers. To clear the “T (Title)” and “C (Chapter)” display, press the T button several times.

Basic playback

DVD VCD CD Locating a specific chapter or track

Press SKIP ◀◀ or ▶▶ repeatedly to display the chapter or track number you want.

Playback starts from the selected chapter or track.

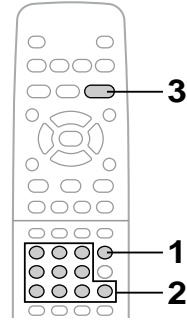


Notes

- Some titles may not display chapter numbers.
- If you press and hold the SKIP ◀◀ or ▶▶ button on the front panel during playback, the DVD video player performs fast reverse or fast forward playback. You can select the speed by pressing the button repeatedly. To locate chapters or tracks during fast reverse or fast forward playback, first press the PLAY button to resume normal playback, then use the SKIP ◀◀ or ▶▶ button.
- When you set “Title Stop” to “Off” [45], you can access chapters in another title. If you go back to the preceding title by pressing the SKIP ◀◀ button, the DVD video player locates the first chapter of the title. When “Title Stop” is set to “On,” you can access chapters only within the current title.

Accessing a Specific Location Directly

You can locate a specific location by entering its corresponding time (hours, minutes, seconds).



DVD VCD CD Entering the time of the desired location

1 Press T three times.

SEARCH



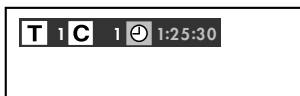
You may have to press further depending on the disc. Press the button repeatedly until the clock icon is highlighted.

e.g.



2 Press the number buttons to enter the time.

e.g.



3 Press PLAY.

PLAY



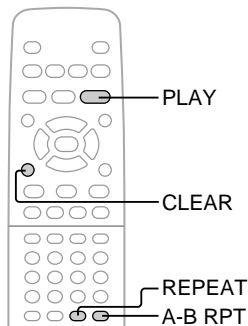
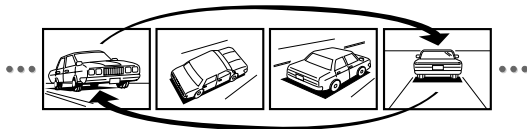
Playback starts from the desired location.

Notes

- Some discs may not respond to this process.
- Some scenes may not be located precisely as you specified.
- This method for accessing specific locations is available only within the current title of the DVD video disc or within the current track of the VIDEO CD/audio CD.

Playing Repeatedly

You can play a specific title, chapter, track, or segment repeatedly. (Title repeat, chapter/track repeat, A-B repeat)

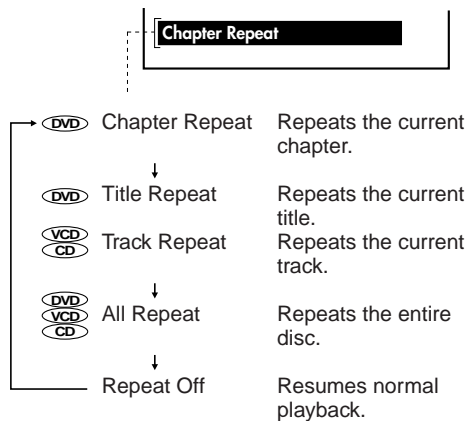


DVD VCD CD Repeating a title, chapter, or track

1 Press REPEAT.



Each time you press the REPEAT button, the repeat mode changes as follows.



2 Press PLAY.



The DVD video player starts repeat playback. Press the PLAY button within about 5 seconds after you press the REPEAT button.

■ To resume normal playback

Press **CLEAR**.



Note

Some discs may not permit repeat operation.

DVD VCD CD Repeating a specific segment

1 Press A-B RPT at the beginning of the segment (point A) you want to play repeatedly.



2 Press A-B RPT again at the end of the segment (point B).



The DVD video player automatically returns to point A and starts repeat playback of the selected segment (A-B).



■ To resume normal playback

Press **CLEAR**.

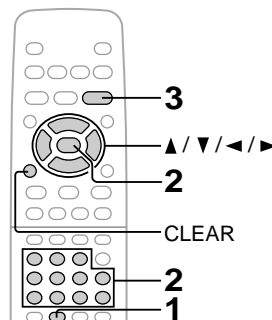


Notes

- Some discs may not permit A-B repeat operation.
- You cannot set the A-B repeat function for a segment that includes multiple camera angles **[33]**.
- You can specify a segment only within the current title or track (VIDEO CD).
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order

You can combine your favorite titles, chapters, or tracks and play them in the order you determine. You can program up to 30 selections into the memory. (Memory playback)



Setting titles, chapters, or tracks in a favorite order

1 Insert a disc and press MEMORY during stop.

MEMORY

The following display appears.

e.g.

1 T:-- CT:---
2 T:-- CT:---
3 T:-- CT:---
4 T:-- CT:---
5 T:-- CT:---
6 T:-- CT:---
7 T:-- CT:---

T: Title number
CT: Chapter number
or track number

2 Select the items in the order you want by pressing the number buttons, then ENTER for each item.

Each time you press the ◀/▶ button, the space of "T" and "CT" is highlighted in turn. Highlight where you want to enter, then press the corresponding number buttons.

To select another chapter in the same title, you do not need to select the title number.

To select tracks from a VIDEO CD/audio CD in order, press the **number buttons** for the track, then press the **ENTER** button for each selection you want.

Note

The space of "T (Title)" may be showing a number. Neglect this number when using a VIDEO CD/audio CD.

3 Press PLAY while the display appears on the TV screen.

PLAY

The DVD video player starts memory playback.

■ To change the programmed selections

- 1 While the display appears on the TV screen, press ▲/▼/◀/▶ to move the highlighted bar to the item you want to change.
- 2 Change the selection following the instructions in step 2.

■ To cancel the programmed selections

- 1 While the display appears on the TV screen, press ▲/▼ to move the highlighted bar to the item you want to cancel.
- 2 Press **CLEAR**.

■ To resume normal playback from memory playback

Press **CLEAR**.

CLEAR

The memory playback indicator disappears.

■ To program during playback

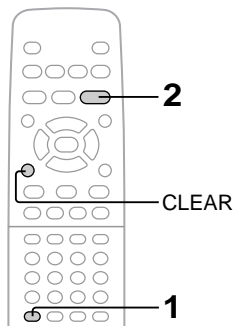
If you press the **MEMORY** button during playback, a programming display appears. Follow steps 2 and 3.

Notes

- Some discs may not permit memory playback operation.
- If you press the REPEAT button during memory playback, the DVD video player repeats the current memory playback.
- If you press the MEMORY or RETURN button while the display appears on the TV screen, the display disappears.
- The programmed selections will be cleared when you turn off the DVD video player.

Playing in Random Order

You can play titles, chapters within a title, or tracks in random order.
(Random playback)

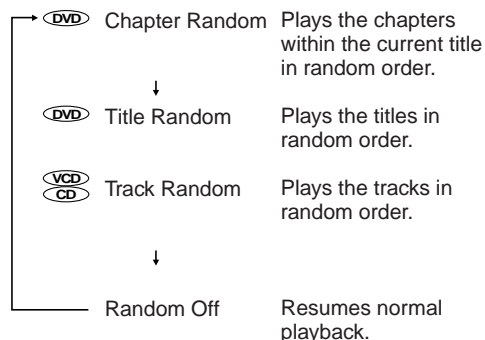
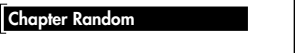


DVD VCD CD Playing titles, chapters or tracks in random order

1 Press RANDOM.



Each time you press the RANDOM button, the random playback mode changes as follows.



If you press the RANDOM button during playback, the DVD video player automatically starts random playback after finishing the current title, chapter or track.

■ To resume normal playback

Press CLEAR.



Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.

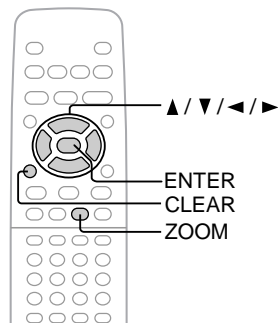
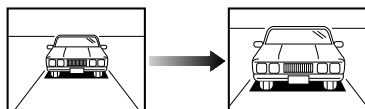
2 Press PLAY.



The DVD video player starts random playback. Press the PLAY button within about 5 seconds after you press the RANDOM button.

Zooming a Picture

You can magnify areas within a picture.

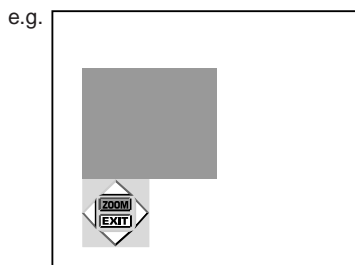


DVD Zooming a picture

Press ZOOM during normal, slow or still playback.



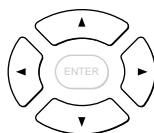
The DVD video player enters the zoom playback mode and displays the icon.



ZOOM : As you repeatedly press the ENTER (or ZOOM) button while "ZOOM" is selected, the magnification level changes. Variation of the levels includes reducing.

EXIT : If you press the ENTER button while "EXIT" is selected, you can turn off the icon, keeping the current magnification level.

You can shift the highlight within the icon by the ▲/▼/◀/▶ buttons.



If you press and hold the ▲/▼/◀/▶ buttons, the zoom point shifts.



Pressing the CLEAR button restores the zoom point to the center of the picture.

To resume normal playback

While "ZOOM" is selected, press ZOOM repeatedly to turn off the icon.

Picture restores the size when the icon disappears.



- The ENTER button cannot cancel zoom playback if you have turned off the icon by selecting "EXIT." To restore normal picture size, press the ZOOM button to display the icon, then further press the ZOOM button until the icon turns off.

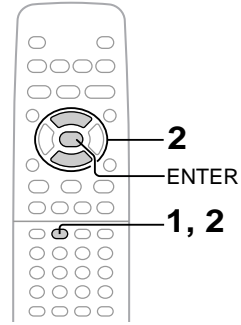
Notes

- Some discs may not respond to zoom feature.
- During some scenes, the buttons may not work as described in the left column.
- Zooming does not work on subtitles or menus included on DVD video discs.
- While the icon is displayed, the ▲/▼/◀/▶ buttons cannot work on menus included on the DVD video discs. If you want to view the menus, turn off the icon.
- The magnification level varies depending on the picture size you select. **40**

Selecting the picture enhancement (E.P.M.*)

You can easily switch the picture enhancement to your preference.

*E.P.M.: Enhanced Picture Mode

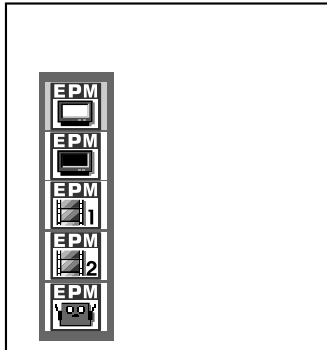


DVD VCD CD Selecting the picture enhancement

1 Press E.P.M.

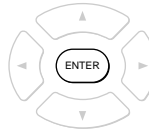


The picture enhancement selection appears.



■ To turn off the picture enhancement selection

Press **ENTER**.



Alternatively leave the DVD video player unoperated for about 5 seconds after having made the selection.

Note

Actual effects to pictures may vary depending on the TV. Make the selection to your preference.

2 Select the picture enhancement by pressing E.P.M. or ▲ / ▼.

Each time you press the button, the picture enhancement changes.



Normal:
Standard black level (7.5 IRE).



Enhanced Black Level:
Enhanced Black Level (0 IRE).



Movie 1:
To raise brightness to clarify details.



Movie 2:
To deepen colors.

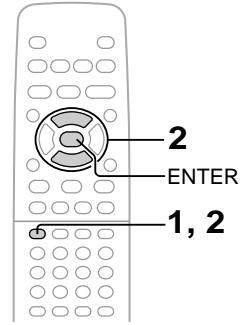


Animation:
To raise contrast enhancing colors.

Selecting the sound enhancement (E.A.M.*)

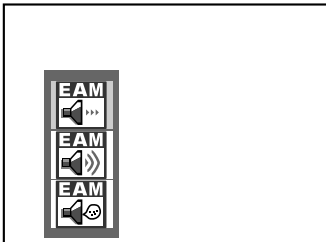
You can easily switch the sound enhancement to your preference.

*E.A.M.: Enhanced Audio Mode

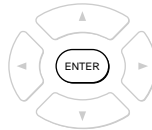


DVD VCD CD Selecting the sound enhancement

1 Press E.A.M.
 E.A.M. The sound enhancement selection appears.



To turn off the audio enhancement selection
 Press **ENTER**.



Alternatively leave the DVD video player unoperated for about 5 seconds after having made the selection.

Notes

- Actual effects to sounds may vary depending on the speakers. Make the selection to your preference.
- Actual effects to sounds may vary depending on the disc.
- When the DVD video player is connected to an amplifier equipped with Dolby Pro Logic Surround, select "Normal". Otherwise, Dolby Pro Logic Surround may function differently than usual.
- Selecting "Dialogue" disables "Dynamic Range Control" function **40**.

2 Select the sound enhancement by pressing E.A.M. or ▲ / ▼.

Each time you press the button, the sound enhancement changes.



Normal:
 Normal sound.



3D (N-2-2):
 To obtain expansive virtual surround sound effects from just two speakers.

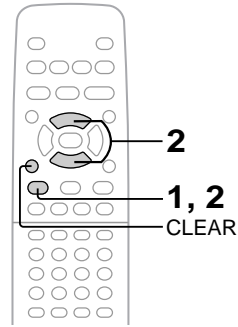
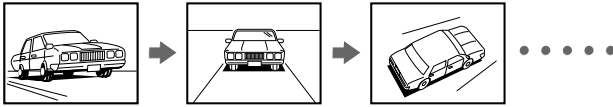


Dialogue:
 To control dynamic range to make dialogues easier to hear (only when playing a DVD video disc recorded on the Dolby Digital recording system).
 • To use this enhancement on sounds output from the BITSTREAM/PCM jack, be sure to set "Audio Out Select" to "PCM." **40**

Spatializer® 3-Dimensional Sound Processing provided by Desper Products, Inc.
 Certain audio features of this product manufactured under a license from Desper Products, Inc., Spatializer® and the circle-in-square device are trademarks owned by Desper Products, Inc.

Selecting the Camera Angle

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.



DVD Changing the camera angle

1 Press ANGLE while playing a scene recorded with multiple angles.



While playing a scene recorded with multiple angles, the angle icon (📷) flashes in the DVD display. Press the ANGLE button while the angle icon is flashing.

e.g.



■ To turn off the angle number display

Press **CLEAR**.



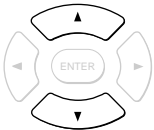
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing a camera angle, the resumed playback picture may not display the new camera angle.

2 Press ANGLE or ▲ / ▼ while the angle number is displayed on the TV screen.



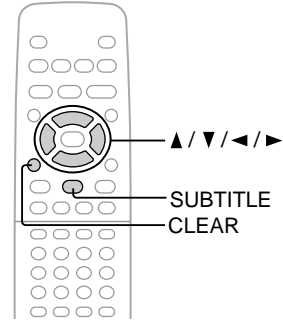
Each time you press the ANGLE button, the camera angle changes.



You can change the camera angle directly by pressing the number buttons corresponding to its angle number instead of using the ▲ / ▼ buttons.

Selecting Subtitles

You can display subtitles on the TV screen and select a subtitle language from those included on the DVD video disc.



DVD Selecting a subtitle language

1 Press SUBTITLE during playback.

SUBTITLE The current subtitle setting is displayed.



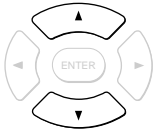
e.g.



The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. [46](#)

2 Press SUBTITLE or ▲/▼ while the subtitle setting is displayed on the TV screen.

SUBTITLE Each time you press the SUBTITLE button, the subtitle languages included on the DVD video disc change.



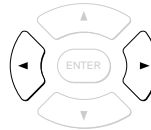
To turn off the subtitle setting display, press the CLEAR or ENTER button.

To turn subtitles on or off

1 Press **SUBTITLE** during playback.



2 Press **◀/▶** while the subtitle setting is displayed on the TV screen, to select "On" or "Off."



Displayed for about 3 seconds.

Notes

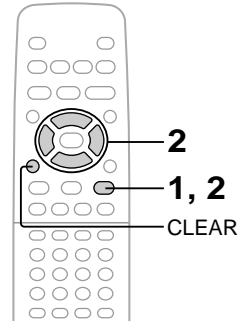
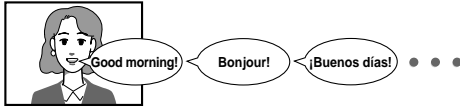
- Some DVD video discs are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select "On."
- Some DVD video discs will allow you to make subtitle selections and turn subtitles on or off only via the disc menu.

Notes

- When you turn on the DVD video player or replace a disc, the player returns to the initial default setting [42](#). When you select a subtitle language which is not included on the disc, the DVD video player plays a prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language.

Selecting a Language

You can select a preferred language and sound recording system from those included on the DVD video disc.



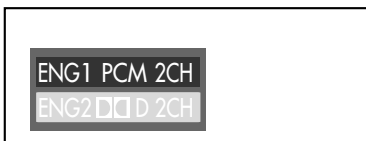
DVD VCD Selecting a playback audio setting

1 Press AUDIO during playback.



The current audio setting is displayed.

e.g.

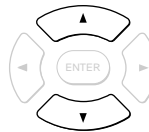


The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. **46**

2 Press AUDIO or ▲/▼ while the audio setting is displayed on the TV screen.



Each time you press the AUDIO button, the audio settings included on the DVD video disc change.



If you press the ◀/▶ buttons, you can select output sound format. **40**

To turn off the audio setting display, press the CLEAR button.

■ Selecting sound channels of VIDEO CDs

You can switch left and right channels by pressing the **AUDIO** button repeatedly during playback.

Notes

- When you turn on the DVD video player or replace a disc, player returns to the initial default setting **42**. When you select a sound track which is not included on the disc, the DVD video player plays a prior sound track programmed on the disc.
- Some discs allow you to change audio selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate language from the selections on the disc menu.

■ Output sound conversion table (sampling frequency/quantization bit)

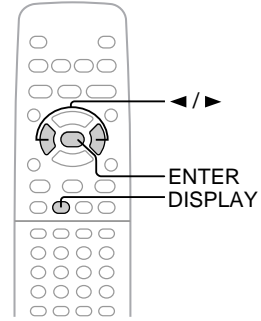
Discs	Recording system	Audio selection from the menu 38 / 40 and output jacks on the rear panel					
		"Bitstream"		"Analog 2ch"		"PCM"	
		BITSTREAM/PCM jack	ANALOG AUDIO OUT jacks	BITSTREAM/PCM jack	ANALOG AUDIO OUT jacks	BITSTREAM/PCM jack	ANALOG AUDIO OUT jacks
DVD video discs	Dolby Digital	Bitstream	48 kHz/20 bit	Bitstream	48 kHz/16 bit	48 kHz/16 bit	48 kHz/20 bit
	Linear PCM	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit
		48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit
		96 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	—	96 kHz/16 bit	48 kHz/16 bit
		96 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	—	96 kHz/20 bit	48 kHz/16 bit
	96 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	—	96 kHz/24 bit	48 kHz/16 bit	
DTS	Bitstream	—	Bitstream	—	—	—	
MPEG1, MPEG2	Bitstream	48 kHz/16 bit	Bitstream	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	
VIDEO CDs	MPEG1	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
Audio CDs	Linear PCM 44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
	HDCD	44.1 kHz/16 bit	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit
	DTS	Bitstream	(Noise)	Bitstream	(Noise)	Bitstream	(Noise)

3D : 3D (N-2-2) sound enhancement can function.

- HDCD sound via the ANALOG AUDIO OUT jacks is output in a normal audio CD format when 3D (N-2-2) sound enhancement is on.

Operating in the on-screen display mode

When you turn on the on-screen display, you can view information on operational status and access the features and settings on-screen.



DVD VCD CD Operating in the on-screen display mode

Press DISPLAY.

DISPLAY



The following display appears.

Each time you press the DISPLAY button, the on-screen display changes as follows.

If you press the ◀/▶ buttons to select an icon, then press the ENTER button, you can access the feature.

When you select an icon (*), no need to press the ENTER button.

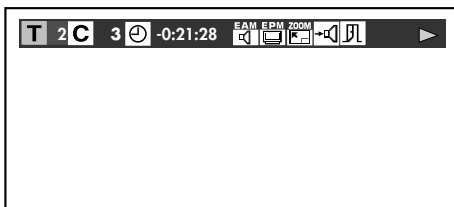
See the pages in □ for details on the features.

e.g. When playing a DVD video disc



- T*** : Title number (Track number)
To locate a title or track using the number. **24**
- C*** : Chapter number
To locate a chapter using the number. **25**
- ⌚*** : Elapsed time of the current title
To enter the time to locate a desired location. **26**
- 🔊** : Audio setting **35**
- ⋮** : Subtitle setting **34**
- 🎥** : Angle setting **33**
- 🔇** : To turn off the display.

Press DISPLAY again.

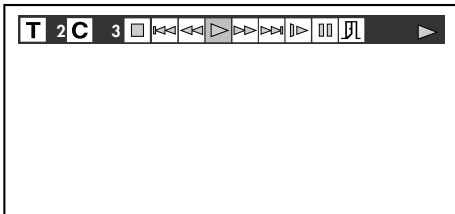


- T*** : Title number (Track number)
To locate a title or track using the number. **24**
- C*** : Chapter number
To locate a chapter using the number. **25**
- ⌚*** : Remaining time of the current title
To enter the time to locate a desired location. **26**
- E.A.M** : E.A.M. (Enhanced Audio Mode) setting **32**
- E.P.M** : E.P.M. (Enhanced Picture Mode) setting **31**
- ZOOM** : To zoom a picture. **30**
- 🔊** : "Audio Out Select" setting **40**
BST: Bitstream 2CH: Analog 2ch PCM: PCM
- 🔇** : To turn off the display.

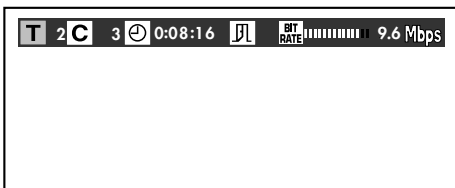
Press DISPLAY again.



(continued)



Press DISPLAY again.



OFF

To turn off the on-screen display, press DISPLAY again.

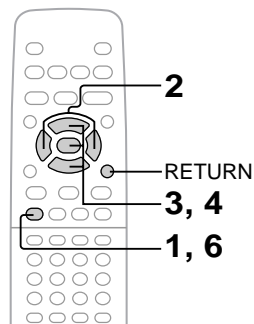
- T** * : Title number (Track number)
To locate a title or track using the number. **[24]**
- C** * : Chapter number
To locate a chapter using the number. **[25]**
- : To stop playback. **[21]**
- : Playback starts from the beginning of the current chapter or track. **[25]**
- : Fast reverse playback **[22]**
- : To start playback. **[20]**
- : Fast forward playback **[22]**
- : To locate succeeding chapters or tracks. **[25]**
- : To slow motion playback. **[23]**
- : To pause playback. **[21]**
- : To turn off the display.

The on-screen display will vary depending on the disc.

- : Data transfer rate (Mbit/s)
= Amount of picture, sound and subtitle data in the DVD video disc transferred per second.
The larger the value is, the more data processed, but this does not necessarily insure better picture quality.
- : CD-Text
Displays CD-Text data if included on the audio CDs. (Some letters may not be displayed properly depending on the disc.)
- : The on-screen display turns off.

Customizing the Function Settings

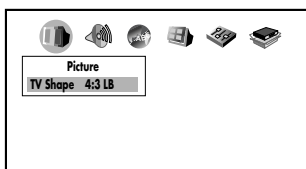
You can change the default settings to customize performance to your preference.



DVD
VCD
CD

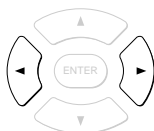
Setting procedure

1 Press SETUP during stop.
The following on-screen display appears.



2 Press ◀/▶ to select a symbol for the setting you want to change.

(See the next page.)



Picture performance settings



Output sound settings



Language settings



Display settings

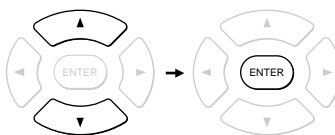


Operational settings

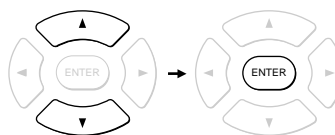


Initial settings

3 Press ▲/▼ to select the setting you want to change, then press ENTER.



4 Change the selection by ▲/▼ or other buttons, referring to the pages from 39, then press ENTER.



5 Repeat steps 3 and 4 to change other settings.

To select another operation, go back to step 2.

6 Press SETUP.



The on-screen display disappears.


































■ **To return to the previous display**

Press RETURN.



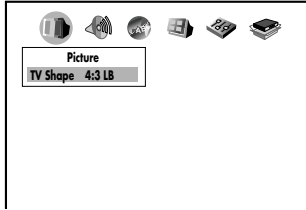
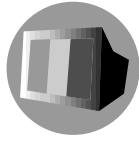
Notes

- The on-screen display disappears when you press the SETUP button.
- The SETUP button can function even during normal playback, however some operations may be inaccessible, and a message will appear. In this case, try again after playback is stopped.

Setting		Details	Page
 TV Shape		To select a picture size according to the aspect ratio of your TV.	40
 Audio Out Select	  	To select an output sound format corresponding to your system connection.	40
Dynamic Range Control		To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late hours playback.	40
Karaoke Vocal		To turn on or off the vocal output during DVD KARAOKE disc playback.	41
CD Attenuation		To attenuate sound distortion incurred during playback of an audio CD (HDCD).	41
 On-Screen Language	  	To select a preferred language for on-screen displays.	41
Disc Menu Language		To select a preferred language for disc menus.	41
Audio Language		To select a preferred language for the sound track.	42
Subtitle Language		To select a preferred language for subtitles.	42
 On-Screen Displays	  	To turn on or de-activate the operational status display on the TV screen.	43
Background	  	To select the background color or background picture.	43
Screen Saver		To turn the screen saver on or off.	43
 Pause/Still		To select the resolution of still pictures. (Field/Frame)	43
Parental Lock		To turn the parental lock function on or off.	43
Title Stop		To turn on or off a feature that automatically stops playback after a title has been viewed.	45
PBC		To use the menu screen when playing a PBC-controllable VIDEO CD.	45
 On-screen Language TV Shape Audio Out Select	  	To install the initial system setting.	45

Customizing the Function Settings (continued)

Setting details



TV Shape DVD

4:3 Letterbox: Select when a standard 4:3 TV is connected. Displays theatrical images with masking bars above and below the picture.



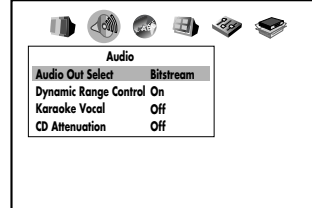
4:3 Normal: Select when a standard 4:3 TV is connected. Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.



16:9 Widescreen: Select when a 16:9 wide TV is connected.

Notes

- The displayable picture size is preset on the DVD video disc. Therefore, the playback picture of some DVD video discs may not conform to the picture size you select.
- When you play DVD video discs recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select "16:9 Widescreen" and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Always be sure that your TV shape conforms to the actual TV in use.



Audio Out Select DVD VCD CD

Select the output sound format corresponding to your system connection. For details of sound recording systems, see **35**.

Bitstream: Select when connected to an amplifier equipped with a Dolby Digital, DTS, MPEG1 or MPEG2 decoder. **18** **19**
The DVD video player outputs digital audio information in the bitstream format when you play a DVD video disc recorded on the Dolby Digital, DTS, MPEG1 or MPEG2 recording system.

Analog 2ch: Select when connected to a TV, or Dolby Pro Logic or stereo system via the analog audio jacks. **16** **17** **18**

PCM: Select when connected to a 2 channel digital stereo amplifier. **19**
The DVD video player outputs sounds in the PCM 2ch format when you play a DVD video disc recorded on the Dolby Digital, MPEG1 or MPEG2 recording system.

Dynamic Range Control DVD

Off: Full dynamic range is maintained.
On: Dynamic range is reduced.

Notes

- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD video disc.

Karaoke Vocal

Off: The primary vocal is not output.
 On: The primary vocal is output when it is recorded on the disc.

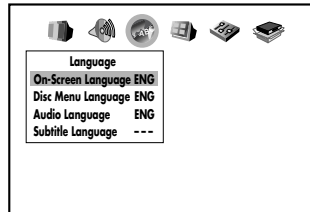
Notes

- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing KARAOKE, connect appropriate audio equipment such as an amplifier to the DVD video player.

CD Attenuation

HDCD enhances the output sound level of audio CD by approximately 6 dB. As such, distortion may occur in some connected products that are unable to compensate for a wide range of input signal levels. (e.g. TV, stereo receivers)

Off: For normal use.
 On: Select when an HDCD sound is distorted. Sound volume of an HDCD is lessened.



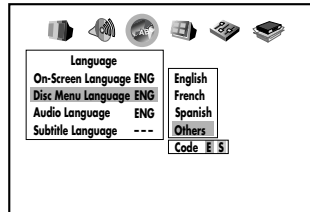
On-Screen Language

English: To view on-screen displays in English.
 Français: To view on-screen displays in French.
 Español: To view on-screen displays in Spanish.

Disc Menu Language

English: To display disc menus in English.
 French: To display disc menus in French.
 Spanish To display disc menus in Spanish.
 Others: To make a further choice.

- After pressing the ENTER button, follow steps 1) - 4) below.
- 1) Obtain the abbreviation of the preferred language from the list **46**.
 - 2) Select the first character by pressing the ▲ / ▼ buttons.
 - 3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



4) Press the ENTER button.

Note

Some DVD video discs may not include your pre-selected language. In this case, the DVD video player automatically displays disc menus consistent with the disc's initial language setting.

Customizing the Function Settings (continued)

Setting details

Audio Language (DVD)

English: To play sound tracks in English.

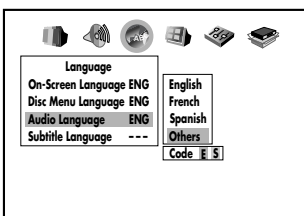
French: To play sound tracks in French.

Spanish: To play sound tracks in Spanish.

Others: To make a further choice.

After pressing the ENTER button, follow steps 1) - 4) below.

- 1) Obtain the abbreviation of the preferred language from the list **[46]**.
- 2) Select the first character by pressing the ▲ / ▼ buttons.
- 3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



- 4) Press the ENTER button.

Note

Some DVD video discs may be played in a different language than you selected. A prior language may be programmed on the disc.

Subtitle Language (DVD)

English: To display subtitles in English.

French: To display subtitles in French.

Spanish: To display subtitles in Spanish.

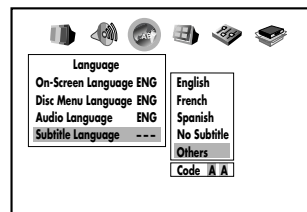
No Subtitle: To disable subtitles.

Others: To make a further choice.

After pressing the ENTER button, follow steps 1) - 4) below.

- 1) Obtain the abbreviation of the preferred language from the list **[46]**.
- 2) Select the first character by pressing the ▲ / ▼ buttons.

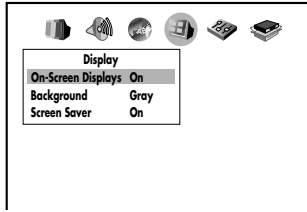
- 3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.



- 4) Press the ENTER button.

Notes

- Some DVD video discs may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD video discs allow you to change subtitle selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate subtitle language from the selection on the disc menu.



On-Screen Displays (DVD) (VCD) (CD)

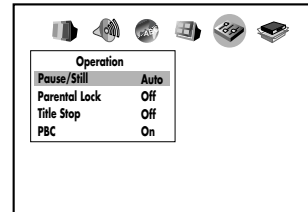
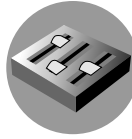
- Off: Operational modes (e.g. "□□", "▶▶") are not displayed.
- On: Operational modes (e.g. "□□", "▶▶") are displayed on-screen.

Background (DVD) (VCD) (CD)

- Blue: Blue background.
- Gray: Gray background.
- Picture: To use the picture which appears when you turn on the DVD video player as a background.
- Jacket: To use the jacket picture included on some discs as a background. If it is not included, a gray background will be substituted.

Screen Saver (DVD)

- Off: The screen saver is disengaged.
- On: The screen saver operates.



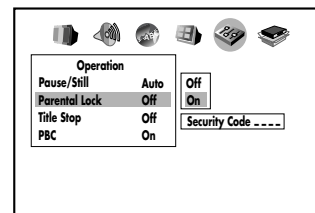
Pause/Still (DVD)

- Auto: For normal use. Still and fast motion images can be paused.
- Frame: The resolution of still pictures is improved, so that you can make a motionless picture more clearer when you pause it.

Parental Lock (DVD)

DVD video discs equipped with the parental lock function are rated according to their content. The contents allowed by a parental lock level and the way a DVD video disc can be controlled may vary from disc to disc. For example, if the disc allowed you could edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD video discs may or may not respond to the parental lock settings. This is not a defect in the DVD video player. Make sure this function works with your DVD video discs.
- Off: The parental lock feature does not function. After pressing the ENTER button, follow step 1) below.
- On: To activate the parental lock feature or change the settings. After pressing the ENTER button, follow steps 1) - 3) below.



(Continued)

Customizing the Function Settings (continued)

Setting details

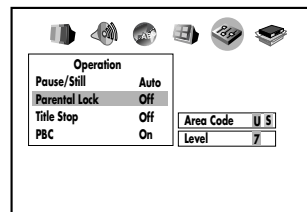
(Continued)

- 1) Press the number buttons to create a personal 4-digit security code, then press the ENTER button.
If you make a mistake before pressing the ENTER button, press the CLEAR button and enter your 4-digit security code again.
- 2) Enter the code of a country/area whose standards were used to rate the DVD video disc, referring to the list below.

Country/Area	Code
AUSTRALIA	AU
BELGIUM	BE
CANADA	CA
CHINA	CN
CHINA HONG KONG	HK
DENMARK	DK
FINLAND	FI
FRANCE	FR
GERMANY	DE
INDONESIA	ID
ITALY	IT
JAPAN	JP
MALAYSIA	MY
NETHERLANDS	NL
NORWAY	NO
PHILIPPINES	PH
RUSSIAN FEDERATION	RU
SINGAPORE	SG
SPAIN	ES
SWEDEN	SE
SWITZERLAND	CH
TAIWAN	TW
THAILAND	TH
UNITED KINGDOM	GB
UNITED STATES	US

- a) Select the first character by pressing the ▲ / ▼ buttons.
- b) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.
- c) Press the ENTER button.

- 3) Press the ▲ / ▼ buttons to select the parental lock level, then press the ENTER button.



You cannot play DVD video discs rated higher than the level you selected unless you cancel the parental lock function.
For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

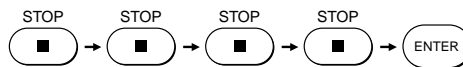
The parental lock level is equivalent to the following USA movie ratings.
Level 7: NC-17
Level 6: R
Level 4: PG 13
Level 3: PG
Level 1: G

The parental lock levels for other countries/areas than U.S. are included for future use. Check the appropriate parental lock level when you buy a DVD video disc equipped with the parental lock feature in the future.

■ **To change the parental lock level**
Follow steps 1) - 3).

■ **To change your 4-digit security code**

- 1) After selecting "On" or "Off," press the STOP button four times, then press the ENTER button.



- The 4-digit security code is cleared.
- 2) Press the number buttons to create a new 4-digit security code.
 - 3) Press the ENTER button.

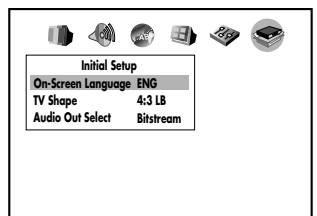
Title Stop

- Off: The DVD video player continues after playback of a title is completed.
- On: The DVD video player stops after playback of a title is completed.

PBC

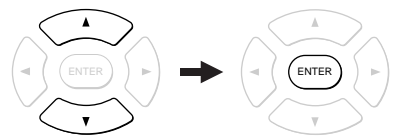
- Off: When playing a VIDEO CD without using the menu.
- On: To use the menu when playing a PBC-featured VIDEO CD.

Note
PBC may not work if you make locating immediately after starting playback.



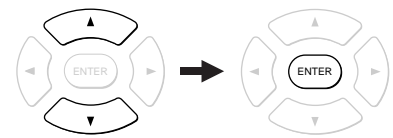
Initial Setup

- 1) Press the **▲ / ▼** buttons to select "On-Screen Language," and press the **ENTER** button.



- 2) Select a language pressing the **▲ / ▼** buttons, and press the **ENTER** button.

See page **41**, "On-screen Language."



- 3) Make your selection in the same manner as step 1) then step 2).

See page **40**, "TV Shape."
See page **40**, "Audio Out Select."

Table of Languages

Table of languages and their abbreviations

Abbreviation	Language	Abbreviation	Language	Abbreviation	Language
---	No alternate language	GN	Guarani	PT	Portuguese
CHI (ZH)	Chinese	GU	Gujarati	QU	Quechua
DUT (NL)	Dutch	HA	Hausa	RM	Rhaeto-Romance
ENG (EN)	English	HI	Hindi	RN	Kirundi
FRE (FR)	French	HR	Croatian	RO	Rumanian
GER (DE)	German	HU	Hungarian	RU	Russian
ITA (IT)	Italian	HY	Armenian	RW	Kinyarwanda
JPN (JA)	Japanese	IA	Interlingua	SA	Sanskrit
KOR (KO)	Korean	IE	Interlingue	SD	Sindhi
MAY (MS)	Malay	IK	Inupiak	SG	Sango
SPA (ES)	Spanish	IN	Indonesian	SH	Serbo-Croatian
AA	Afar	IS	Icelandic	SI	Singhalese
AB	Abkhazian	IW	Hebrew	SK	Slovak
AF	Afrikaans	JI	Yiddish	SL	Slovenian
AM	Amharic	JW	Javanese	SM	Samoaan
AR	Arabic	KA	Georgian	SN	Shona
AS	Assamese	KK	Kazakh	SO	Somali
AY	Aymara	KL	Greenlandic	SQ	Albanian
AZ	Azerbaijani	KM	Cambodian	SR	Serbian
BA	Bashkir	KN	Kannada	SS	Siswati
BE	Belorussian	KS	Kashmiri	ST	Sesotho
BG	Bulgarian	KU	Kurdish	SU	Sundanese
BH	Bihari	KY	Kirghiz	SV	Swedish
BI	Bislama	LA	Latin	SW	Swahili
BN	Bengali, Bangla	LN	Lingala	TA	Tamil
BO	Tibetan	LO	Laotian	TE	Telugu
BR	Breton	LT	Lithuanian	TG	Tajik
CA	Catalan	LV	Latvian, Lettish	TH	Thai
CO	Corsican	MG	Malagasy	TI	Tigrinya
CS	Czech	MI	Maori	TK	Turkmen
CY	Welsh	MK	Macedonian	TL	Tagalog
DA	Danish	ML	Malayalam	TN	Setswana
DZ	Bhutani	MN	Mongolian	TO	Tongan
EL	Greek	MO	Moldavian	TR	Turkish
EO	Esperanto	MR	Marathi	TS	Tsonga
ET	Estonian	MT	Maltese	TT	Tatar
EU	Basque	MY	Burmese	TW	Twi
FA	Persian	NA	Nauru	UK	Ukrainian
FI	Finnish	NE	Nepali	UR	Urdu
FJ	Fiji	NO	Norwegian	UZ	Uzbek
FO	Faroese	OC	Occitan	VI	Vietnamese
FY	Frisian	OM	(Afan) Oromo	VO	Volapük
GA	Irish	OR	Oriya	WO	Wolof
GD	Scottish Gaelic	PA	Panjabi	XH	Xhosa
GL	Galician	PL	Polish	YO	Yoruba
		PS	Pashto, Pushto	ZU	Zulu

Before Calling Service Personnel

Check the following guide for the possible cause of a problem before contacting service.

Symptoms and correction

Symptom	Cause	Correction	Page
No power.	<ul style="list-style-type: none"> The power plug is disconnected. 	<ul style="list-style-type: none"> Connect the power plug securely into the wall outlet. 	16
The DVD video player turned off by itself.	<ul style="list-style-type: none"> The automatic power off function turned the unit off. 	<ul style="list-style-type: none"> Press the PLAY button. 	21
No picture.	<ul style="list-style-type: none"> The TV is not set to receive DVD signal output. 	<ul style="list-style-type: none"> Select the appropriate video input mode on the TV so the picture from the DVD video player appears on the TV screen. 	20
	<ul style="list-style-type: none"> The video cable is not connected securely. 	<ul style="list-style-type: none"> Connect the video cable securely into the appropriate jacks. 	16, 17
No sound.	<ul style="list-style-type: none"> The equipment connected with the audio cable is not set to receive DVD signal output. 	<ul style="list-style-type: none"> Select the correct input mode of the audio receiver so you can listen to the sound from the DVD video player. 	20
	<ul style="list-style-type: none"> The audio cable is not connected securely. 	<ul style="list-style-type: none"> Connect the audio cable securely into the appropriate jacks. 	16, 17 18, 19
	<ul style="list-style-type: none"> The audio receiver or TV is turned off. 	<ul style="list-style-type: none"> Turn on the equipment connected with the audio cable. 	20
	<ul style="list-style-type: none"> The setting of output sound format is incorrect. 	<ul style="list-style-type: none"> Select the proper audio setting. 	35, 38 40
The playback picture has occasional distortion.	<ul style="list-style-type: none"> The disc is dirty. 	<ul style="list-style-type: none"> Eject the disc and clean it. 	9
	<ul style="list-style-type: none"> It is in fast forward or fast reverse playback. 	<ul style="list-style-type: none"> Sometimes a small amount of picture distortion may appear. This is not a malfunction. 	—
Brightness is unstable or noises are present in the playback pictures.	<ul style="list-style-type: none"> The effect of copy protection. 	<ul style="list-style-type: none"> Connect the DVD video player directly to the TV. Avoid connecting the DVD video player to a VCR or TV/VCR combination. 	16
The DVD video player does not start playback.	<ul style="list-style-type: none"> No disc is inserted. 	<ul style="list-style-type: none"> Insert a disc. 	20
	<ul style="list-style-type: none"> An unplayable disc is inserted. 	<ul style="list-style-type: none"> Insert a playable disc. (Check the disc type and color system.) 	10
	<ul style="list-style-type: none"> The disc is placed upside down. 	<ul style="list-style-type: none"> Place the disc with the playback side down. 	20
	<ul style="list-style-type: none"> The disc is not placed within the guide. 	<ul style="list-style-type: none"> Place the disc correctly inside the guide on the disc tray. 	20
	<ul style="list-style-type: none"> The disc is dirty. 	<ul style="list-style-type: none"> Clean the disc. 	9
	<ul style="list-style-type: none"> The parental lock function is set. 	<ul style="list-style-type: none"> Cancel the parental lock function or change the parental lock level. 	38, 43
Playback does not follow the course of the disc's program.	<ul style="list-style-type: none"> It is in the mode of repeat playback, memory playback, etc. 	<ul style="list-style-type: none"> These operations may prevent a proper progress of the contents. 	—
Buttons do not work.	<ul style="list-style-type: none"> Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operations. 	<ul style="list-style-type: none"> Turn the power on or off with the POWER button. Or disconnect the power plug and insert it into the wall outlet again. 	—
The remote control does not work properly.	<ul style="list-style-type: none"> The remote control is not pointed at the remote sensor of the DVD video player. 	<ul style="list-style-type: none"> Point the remote control at the remote sensor of the DVD video player. 	15
	<ul style="list-style-type: none"> The remote control is too far from the DVD video player. 	<ul style="list-style-type: none"> Operate the remote control within about 7 m. 	15
	<ul style="list-style-type: none"> The batteries in the remote control are exhausted. 	<ul style="list-style-type: none"> Replace the batteries with new ones. 	15



Specifications

DVD video player / outputs / supplied accessories

DVD Video Player

Power supply	120 V AC, 60 Hz
Power consumption	15 W
Mass	2.3 kg
External dimensions	430 × 81 × 225 mm (W/H/D)
Signal system	Standard NTSC
Laser	Semiconductor laser, wavelength 650/780 nm
Frequency range	DVD linear sound : 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz
Signal-to-noise ratio	More than 112 dB
Audio dynamic range	More than 108 dB
Harmonic distortion	Less than 0.002 %
Wow and flutter	Below measurable level (less than ±0.001 % (W.PEAK))
Operating conditions	Temperature: 5 °C to 35 °C, Operation status: Horizontal

Outputs

Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack × 1
S video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin × 1 (C) 0.286 V (p-p), 75 Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack × 1 (P _B)/(P _R) 0.7 V (p-p), 75 Ω, pin jack × 2
Audio output (BITSTREAM/PCM COAXIAL)	0.5V (p-p), 75 Ω, pin jack × 1
Audio output (BITSTREAM/PCM OPTICAL)	Optical connector × 1
Audio output (ANALOG)	2.0 V (rms), 220 Ω, pin jacks (L, R) × 1

Supplied Accessories

Audio/video cable	1
Remote control (SE-R0047)	1
Batteries (AA)	2
Power cord	1

- Designs and specifications are subject to change without notice.

LIMITED WARRANTY DVD VIDEO PLAYER

Toshiba America Consumer Products, Inc. ("TACP"), Toshiba Hawaii ("THI") and Toshiba Canada Limited ("TCL") make the following limited warranties. These limited warranties extend to original purchaser or any person receiving this set as a gift from the original purchaser and to no other purchaser or transferee.

Limited Ninety (90) Day Warranty

TACP/THI warrant this product against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you. You must deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Limited One (1) Year Warranty

TACP/THI further warrant the parts in this product against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you, except that if a defective part is replaced after ninety (90) days from the date of the original retail purchase you pay labor charges involved in the replacement. You must also deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian Consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Rental Units

The warranty for rental units begin with the first rental or thirty (30) days from the date of shipment to the rental firm, whichever comes first.

Commercial Units

Products sold and used for commercial use have a limited ninety (90) day warranty for all parts and labor.

Owner's Manual

You should read the owner's manual thoroughly before operating this product. You should complete and mail the enclosed Demographic card within ten (10) days after you, or the person who has given you this product as a gift, purchased this product. This is one way to enable TACP to provide you with better customer service and improved products. Failure to return the card will not affect your rights under this warranty.

Your Responsibility

The above warranties are subject to the following conditions:

- (1) You must retain your bill of sale or provide other proof of purchase.
- (2) You must notify a TACP/THI/TCL /Authorized Service Station within thirty (30) days after you discover a defective product or part.
- (3) All warranty servicing of this product must be made by a TACP/THI/TCL Authorized Service Station.
- (4) U.S.A. warranties are effective only if the product is purchased and operated in the Continental U.S.A. or Puerto Rico.
- (5) Labor service charges for set installation. Set up, adjustment of customer controls and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems are your responsibility.
- (6) Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or to damage to products or parts caused by misuse, accident, damage caused by Acts of God, such as lighting or fluctuations in electric power, improper installation, improper maintenance or use in violation of instructions furnished by us; or to units which have been altered or modified without authorization of TACP/THI/TCL or to damage to products or part thereof which have had the serial number removed, altered, defaced or rendered illegible.
- (7) Should you elect to return your DVD Unit to TACP after the ninety (90) days and within one (1) year, or after the warranty period has expired: Call (800)-631-3811 to receive information concerning an exchange price. Payment must be enclosed with product in the form of a certified check or money order including reason for return.
- (8) Physically damaged DVD Units are not acceptable for repair or exchange whether in or out of warranty and will be returned as received.

(Continued)

LIMITED WARRANTY DVD VIDEO PLAYER (continued)

How to Obtain Warranty Service

- (1) Refer to the troubleshooting guide in your owner's manual. This check list may solve your problem.
- (2) In the U.S.A., only call the TACP toll free number 800-631-3811, or if in Hawaii or Canada see listing below within (30) days after you find a defective product or part.
- (3) Arrange for the delivery of the product to the TACP/THI/TCL Authorized Service Station or TACP Return Center. Products shipped to the Service Station must be insured and safely and securely packed, preferably in the original shipping carton, and a letter explaining the defect and also a copy of the bill of sale or other proof of purchase must be enclosed.

In the Continental United States contact:



In Hawaii contact:

Toshiba Hawaii Inc.
327 Kamakee Street
Honolulu, HA 96814
(808)-521-5377

In Canada contact:

Consumer Electronics Group
191 McNabb Street
Markham, Ontario L3R 8H2
(905)-470-5400

Consumer Electronics Group
22171 Fraserwood Way
Richmond, B.C. V6W 1J5
(604)-303-2500

Consumer Electronics Group
1643 North Service Road
Droval, QC H9P 1J1
(514)-856-4100

All warranties implied by state law, including the implied warranties of merchantability and fitness for a particular purpose, are expressly limited to the duration of the limited warranties set forth above. With the exception of any warranties implied by state law as hereby limited, the foregoing warranty is exclusive and in lieu of all other warranties, guarantees, agreements and similar obligations of manufacturer or seller with respect to the repair or replacement of any parts. In no event shall TACP/THI be liable for consequential or incidental damages.

No person, agent, distributor, dealer or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of TACP/THI arising under the warranty or under any statute, or law of the United States or any state thereof, is hereby limited to ninety (90) days from the date you discover or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state. Some states do not allow limitation on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above provisions may not apply to you.

ATTENTION CANADIAN CONSUMERS:

Canadian consumers are requested to complete the special Canadian "Warranty Registration Form" enclosed, and forward this completed form with a copy of bill of sale to TOSHIBA OF CANADA to "Register and Validate" their warranty. Product must be purchased from an Authorized Canadian Dealer. Products purchased in the U.S.A. and used in Canada are not covered by these warranties.

IMPORTANT: PACKING AND SHIPPING INSTRUCTION

When you send the product to a Service Station, you must use the original carton box and packing material, then insert the original carton box containing the unit into another carton using more packing material.

2. LOCATION OF MAIN PARTS AND MECHANISM PARTS

2-1. Location of Main Parts

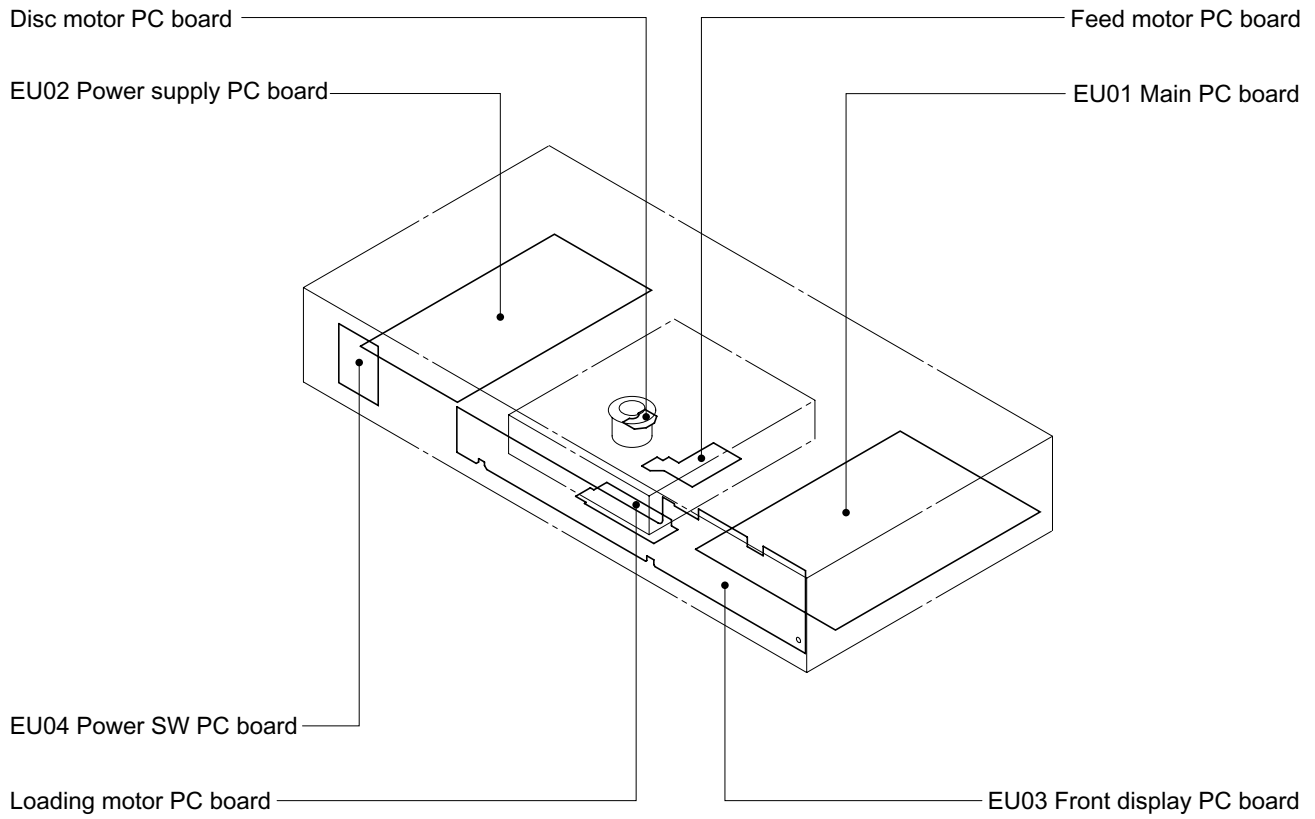


Fig. 1-2-1

2-2. Location of Mechanism Parts

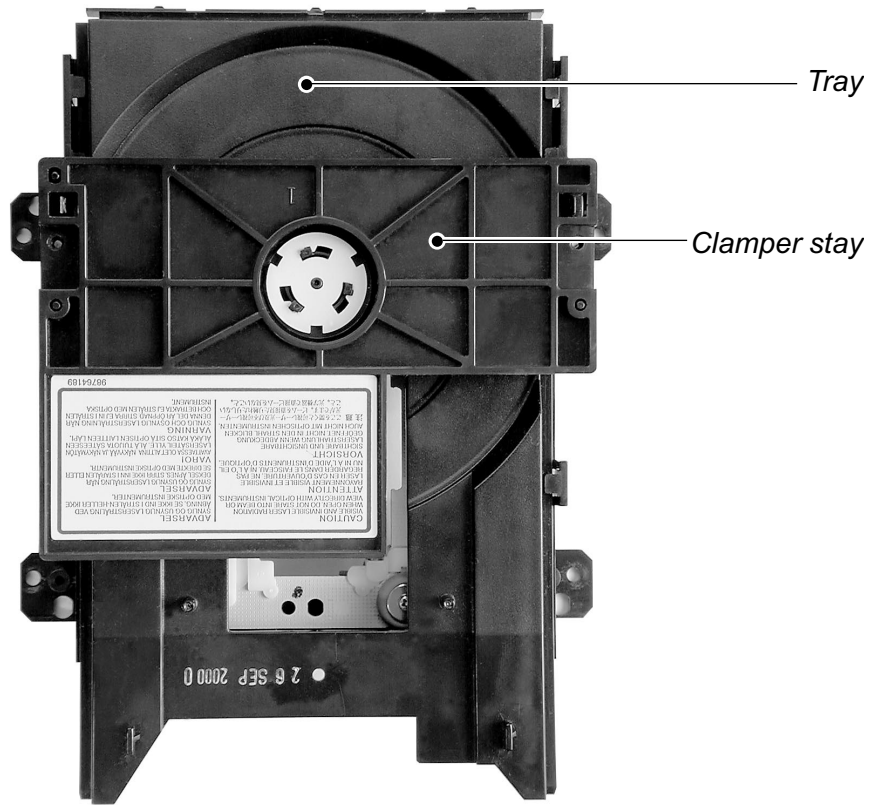


Fig. 1-2-2 Mechanism chassis assembly (Top side)

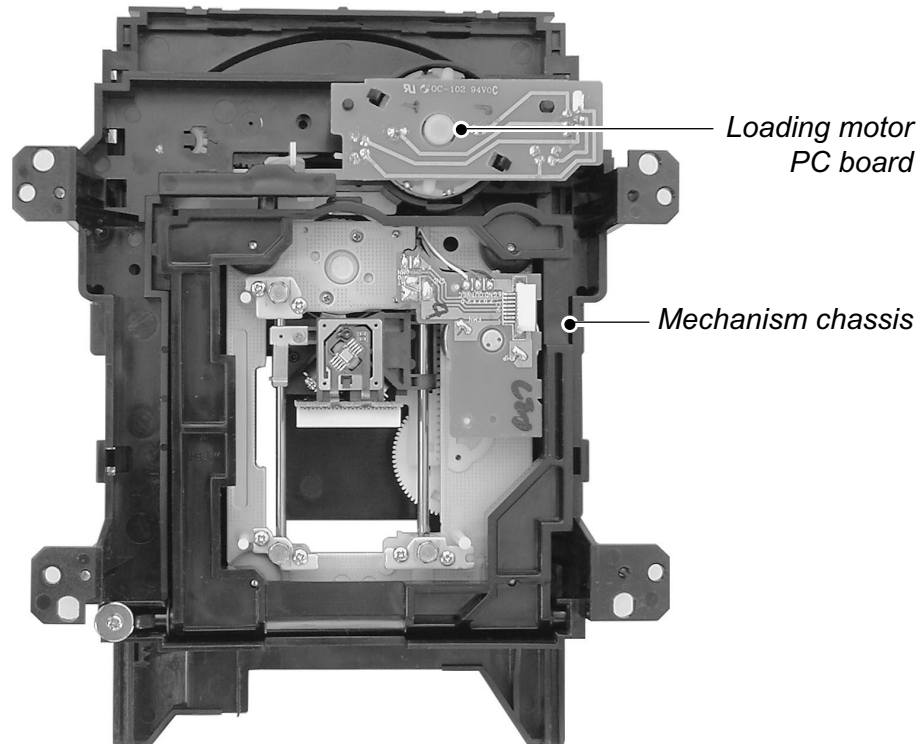


Fig. 1-2-3 Mechanism chassis assembly (Bottom side)

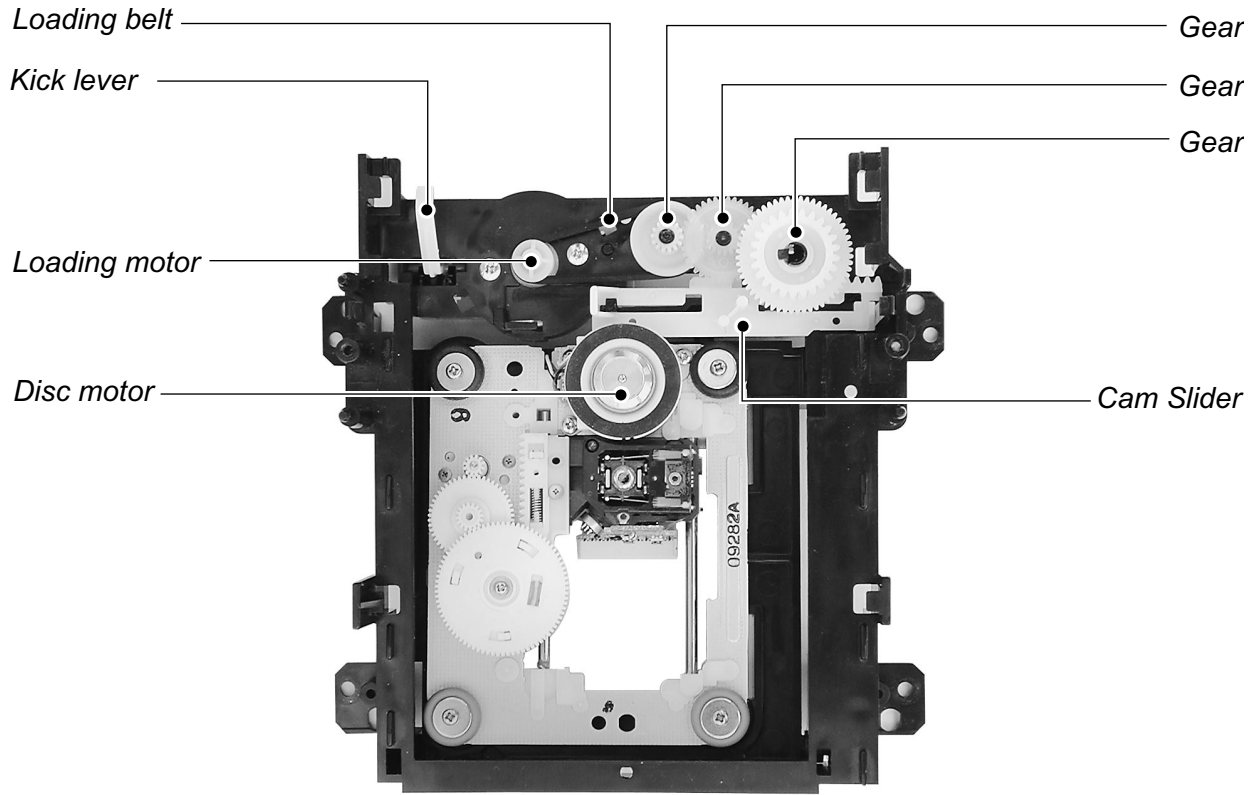


Fig. 1-2-4 Mechanism chassis assembly (Internal side)

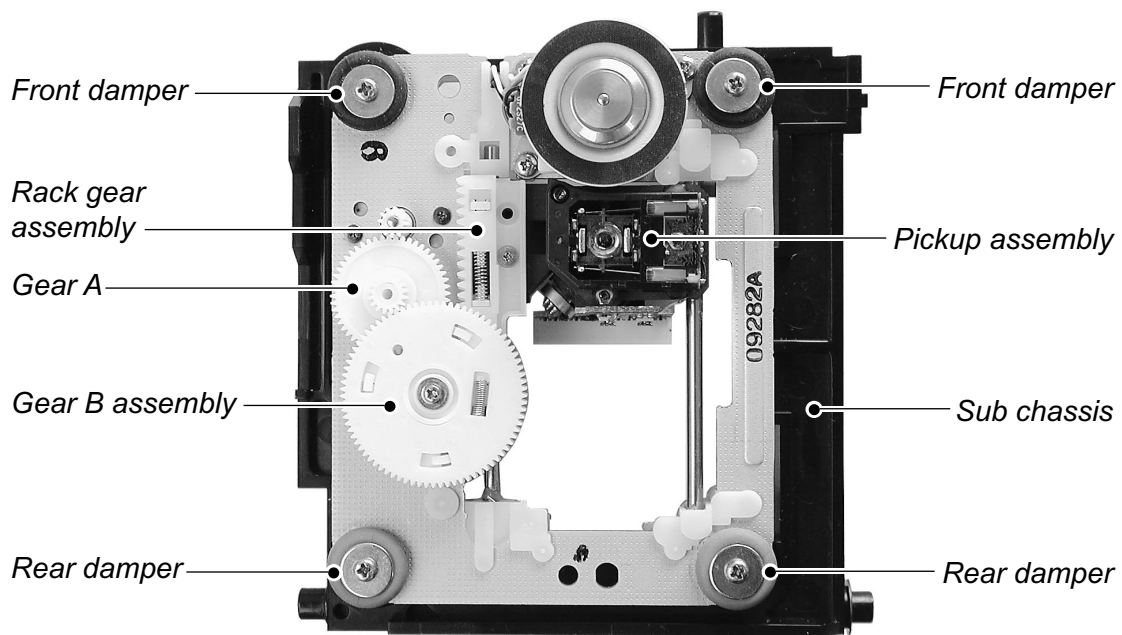


Fig. 1-2-5 Pickup mechanism chassis assembly (Top side)

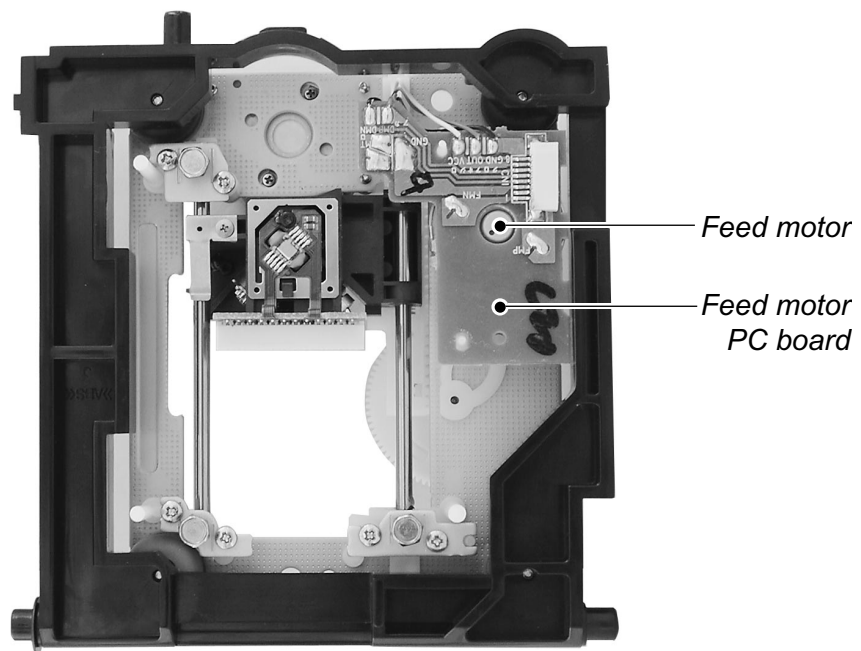


Fig. 1-2-6 Pickup mechanism chassis assembly (Bottom side)

3. TROUBLESHOOTING

3-1. Main Circuit

3-1-1. Servo System

(1) Initial Operation after Power ON

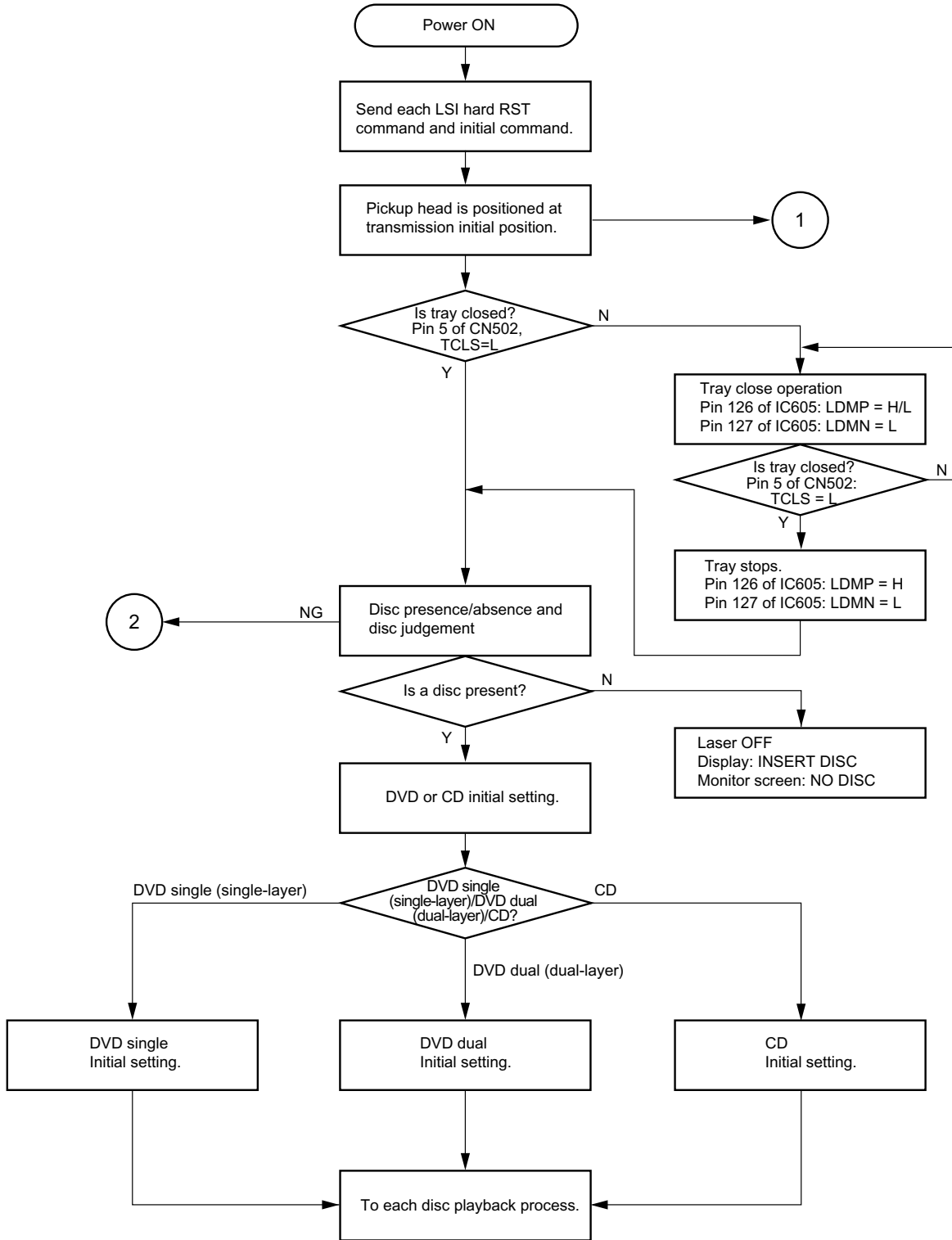


Fig. 1-3-1

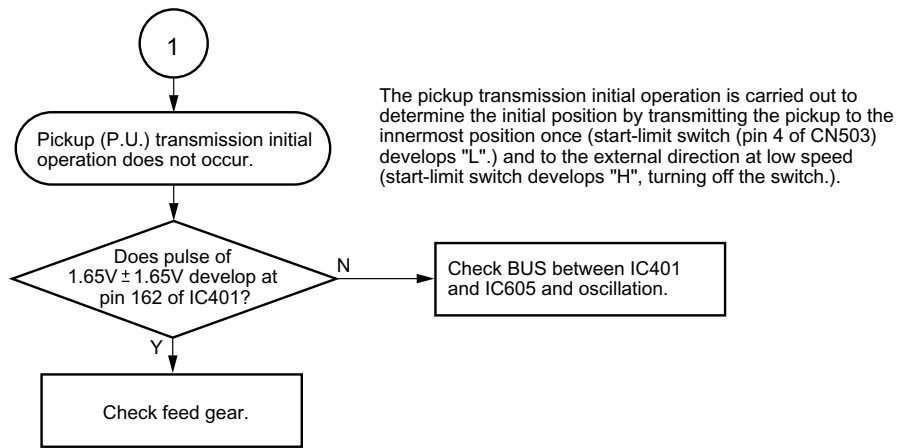


Fig. 1-3-2

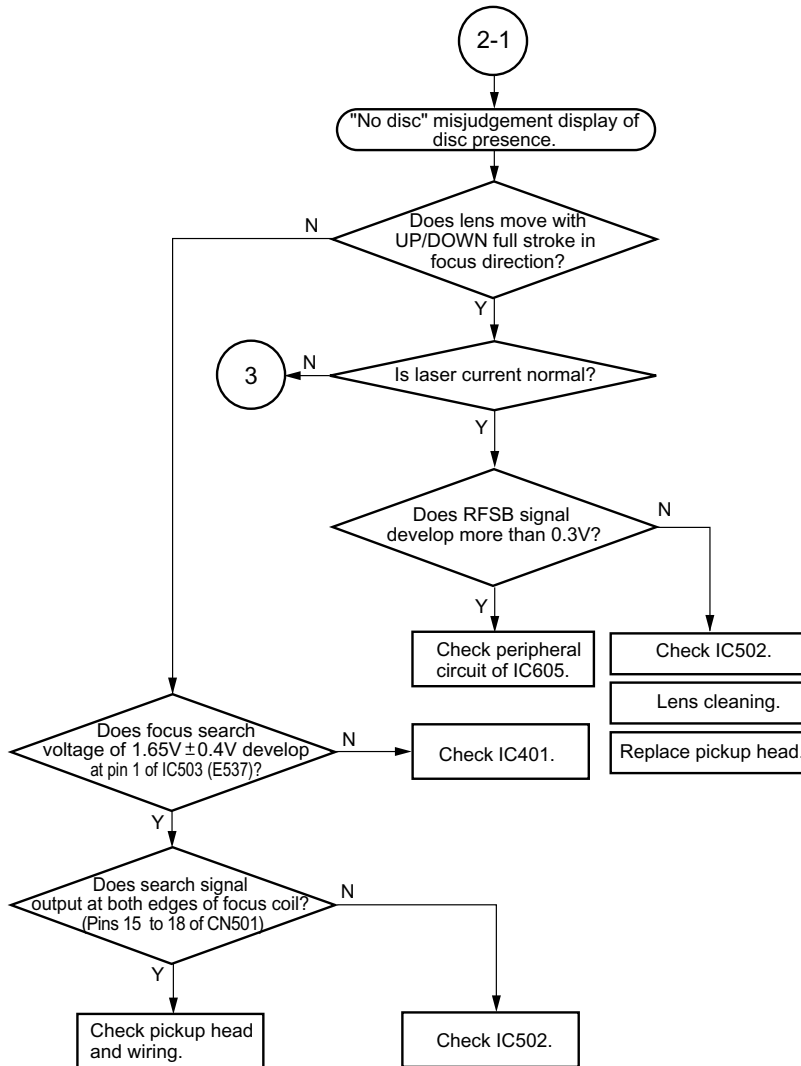


Fig. 1-3-3

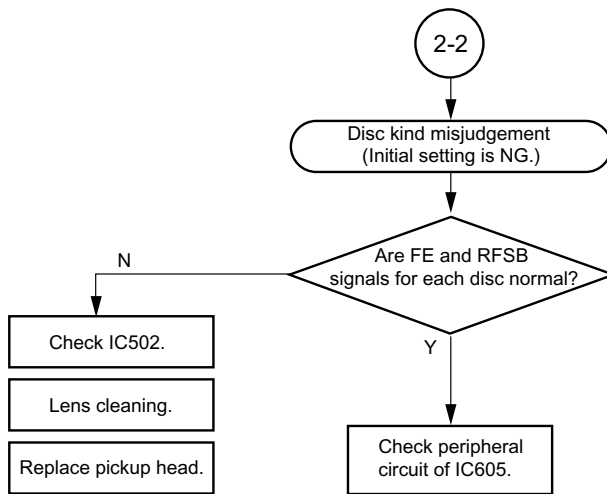
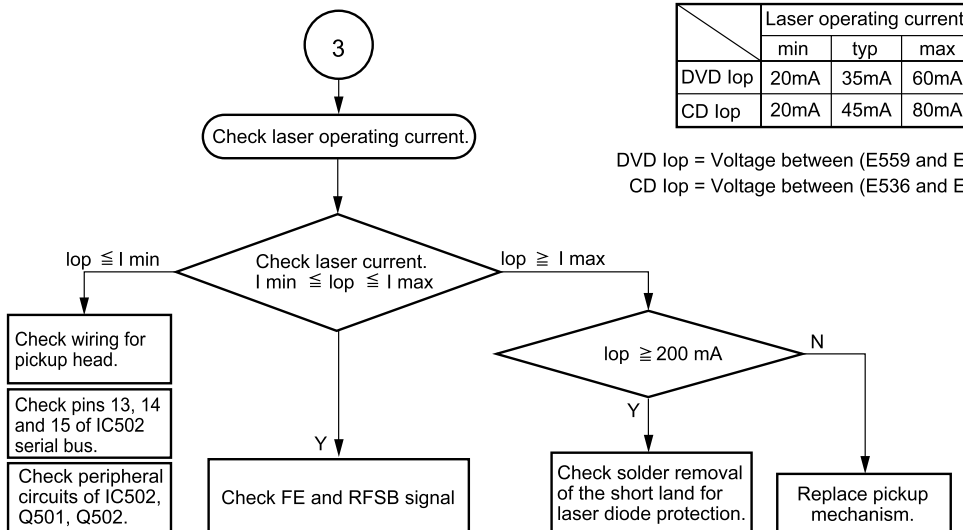


Fig. 1-3-4



	Laser operating current		
	min	typ	max
DVD lop	20mA	35mA	60mA
CD lop	20mA	45mA	80mA

DVD lop = Voltage between (E559 and E591) / 10Ω
 CD lop = Voltage between (E536 and E591) / 10Ω

To turn on each laser diode forcibly, press the following buttons on the remote controller.
 DVD LD: ZOOM, 0, 3, 0, ZOOM
 CD LD: ZOOM, 0, 3, 1, ZOOM
 After checked the laser current, press POWER or OPEN/CLOSE button to turn it off.

CAUTION

- The laser ray emitting out from the pickup head is very harmful to your eyes. Keep your eyes from the objective lens at least 300mm distance during the pickup head operating.
- When you perform solder removal work, please turn OFF a set power supply and perform the ground of human body and a tool.

Fig. 1-3-5

DVD single (single-layer) disc detection waveform

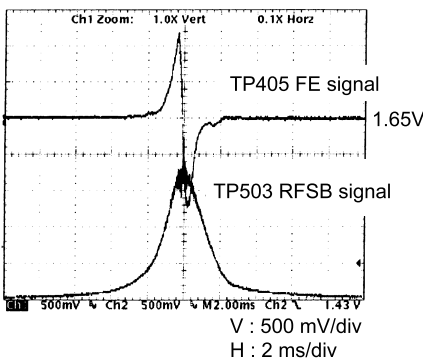


Fig. 1-3-6

DVD dual (dual-layer) disc detection waveform

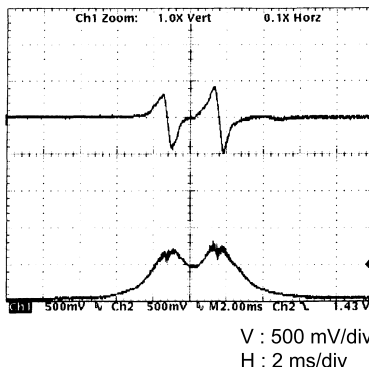


Fig. 1-3-7

CD disc detection waveform

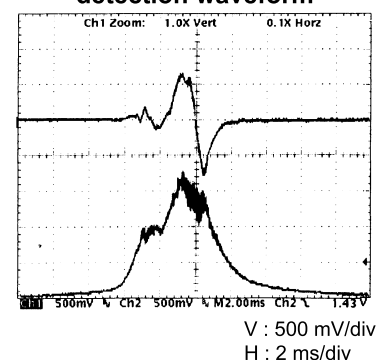


Fig. 1-3-8

(2) Picture appears (PLAY)

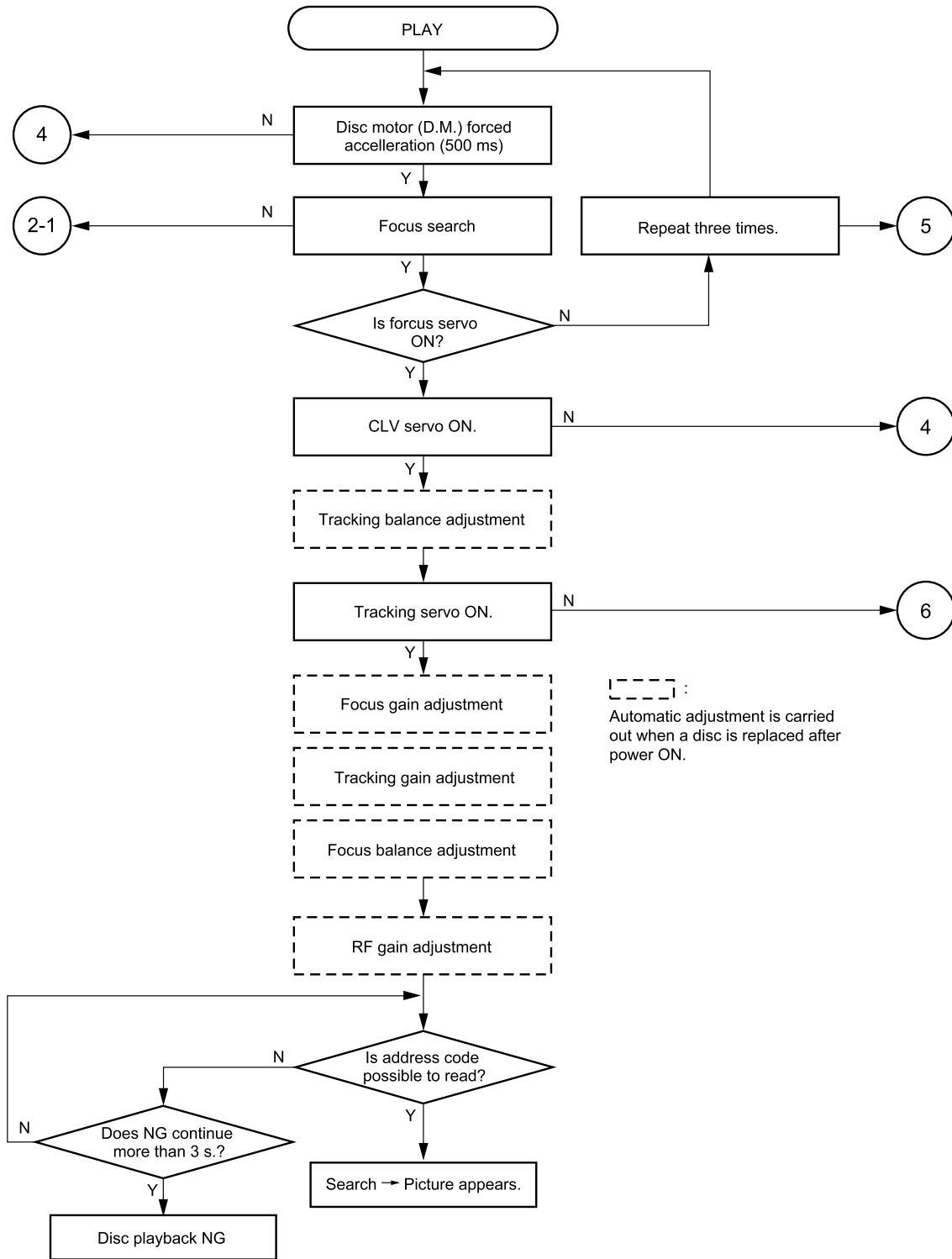


Fig. 1-3-9

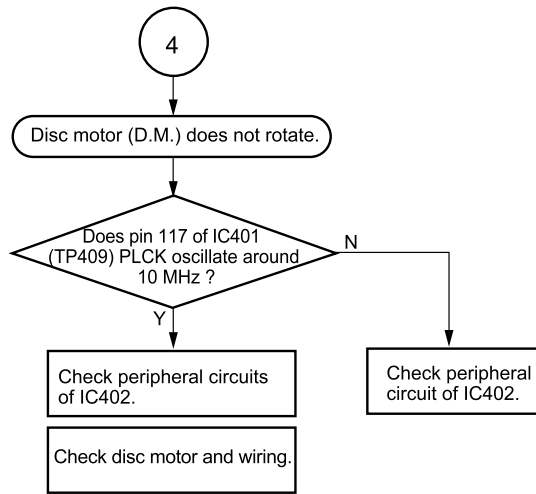


Fig. 1-3-10

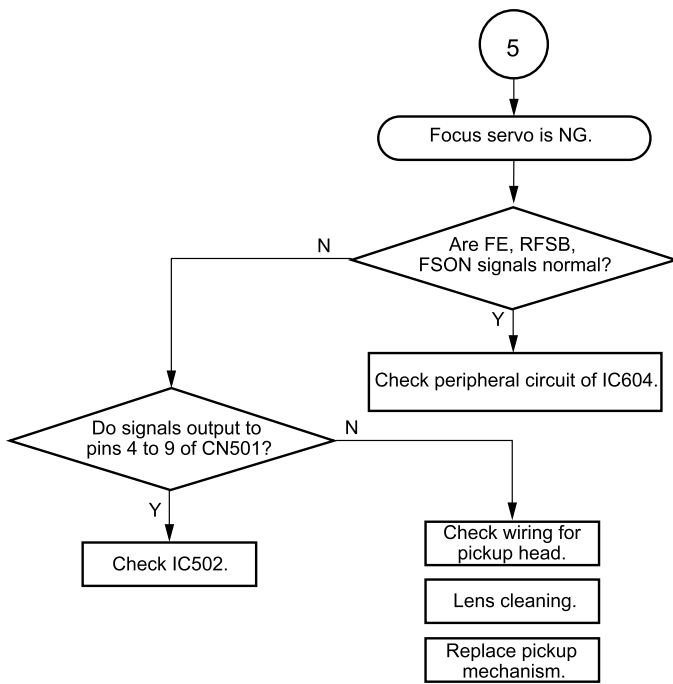


Fig. 1-3-11

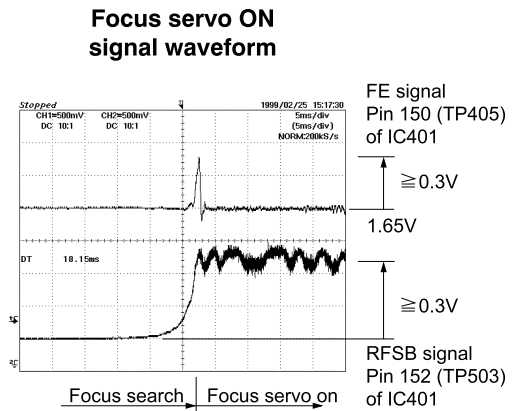


Fig. 1-3-12

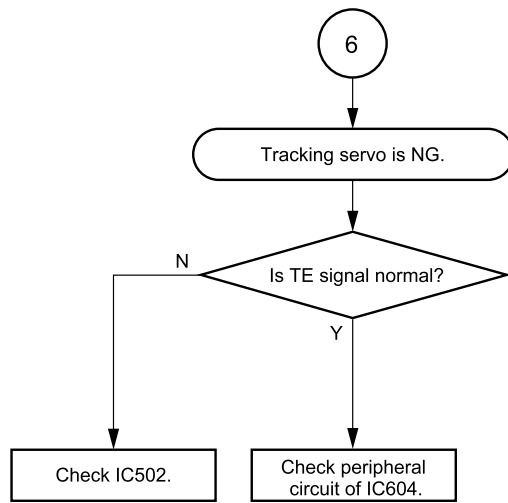
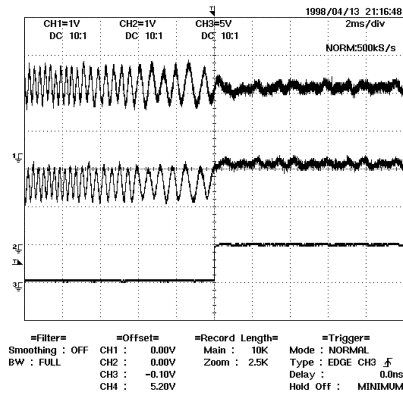


Fig. 1-3-13

Signal waveform at tracking servo ON (CD)



ON search Tracking servo on

Fig. 1-3-14

Signal waveform at tracking servo ON (DVD)

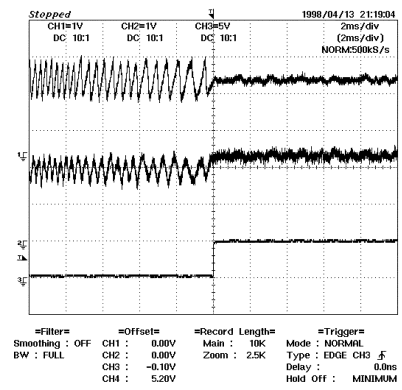


Fig. 1-3-15

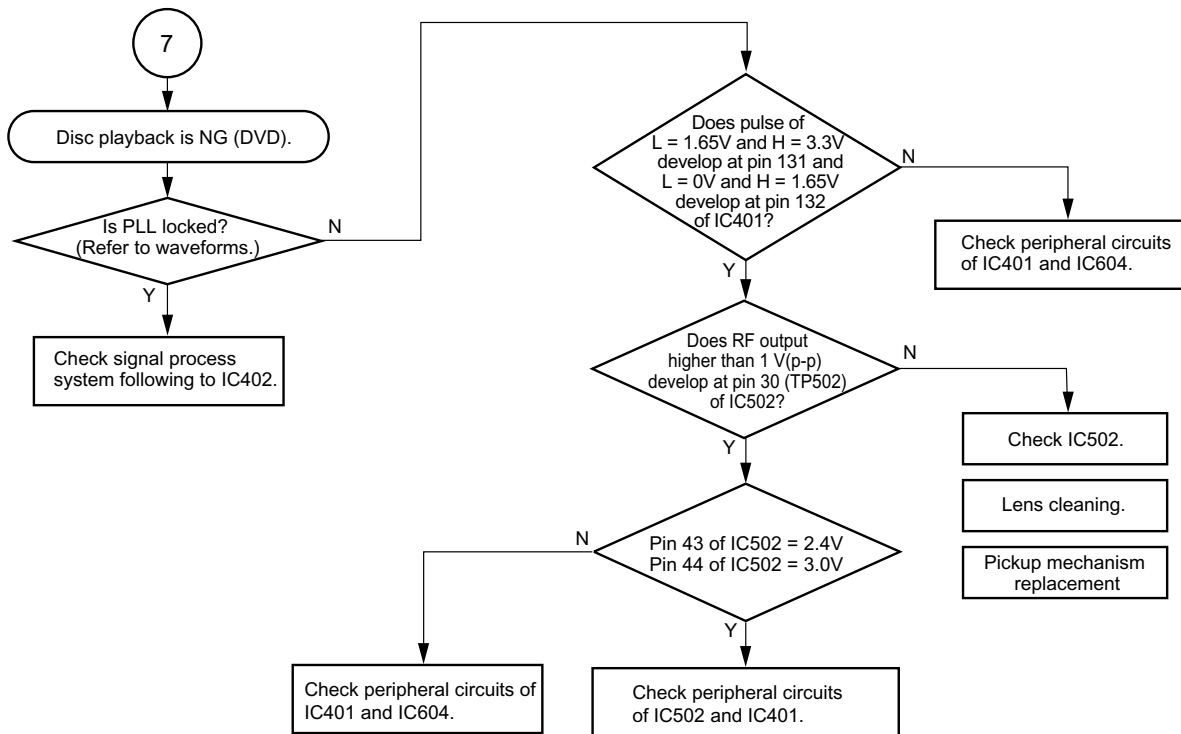


Fig. 1-3-16

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

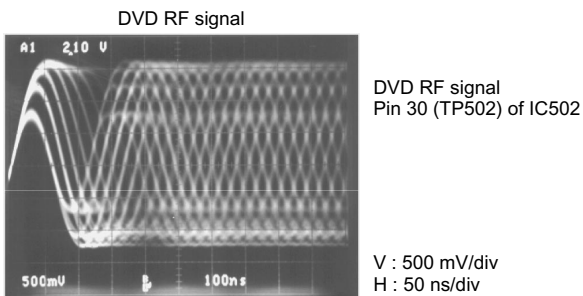


Fig. 1-3-17

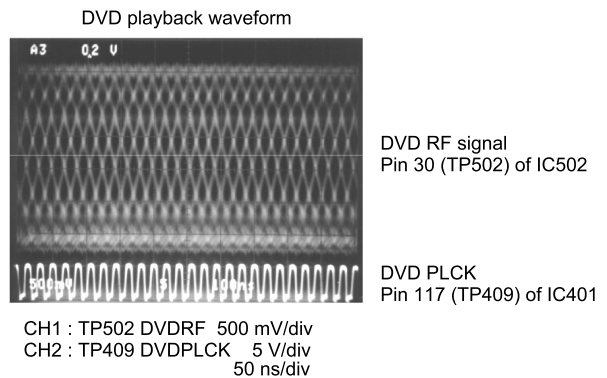


Fig. 1-3-19

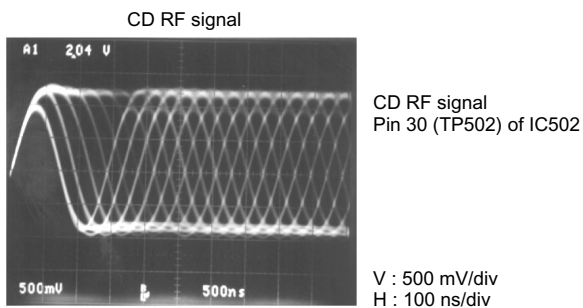


Fig. 1-3-18

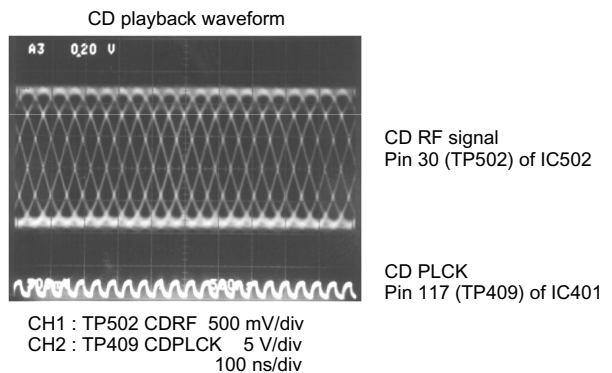


Fig. 1-3-20

3-1-2. Location Diagram of Servo Test Point

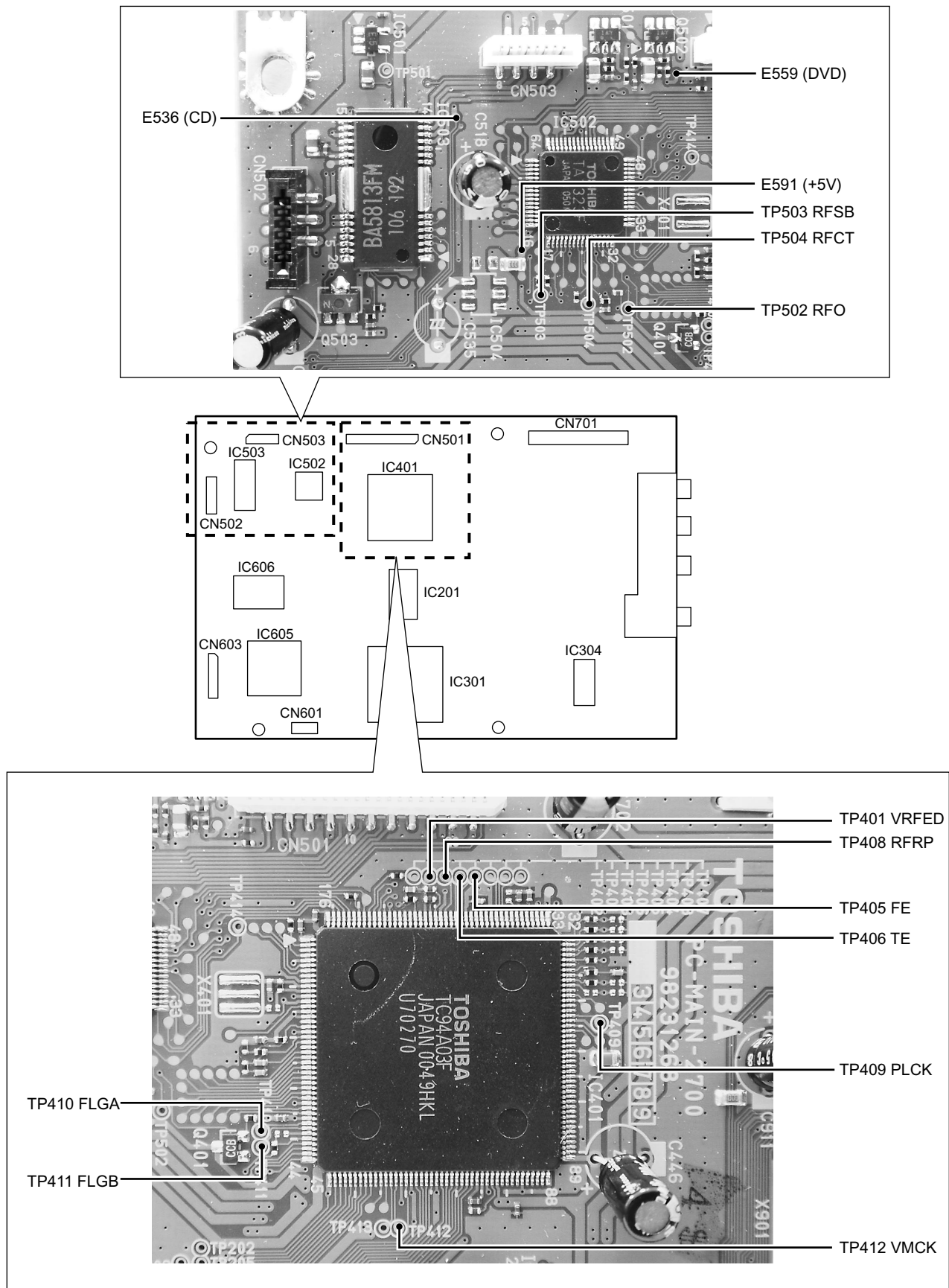


Fig. 1-3-21

SECTION 2

PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily be damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove five screws (1) and remove the top cover (2).

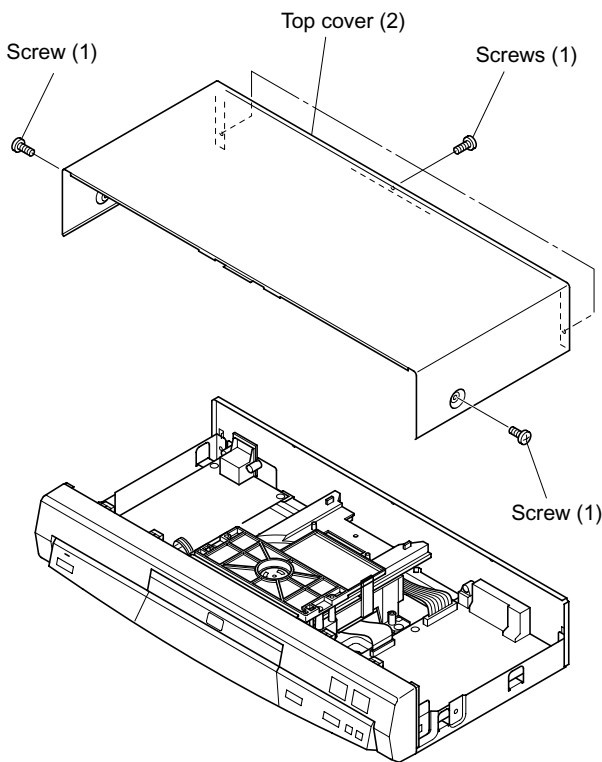


Fig. 2-1-1

1-1-2. Clamper Stay

<Removal>

1. Remove two screws (1).
2. Release two claws and remove the clamper stay (2).

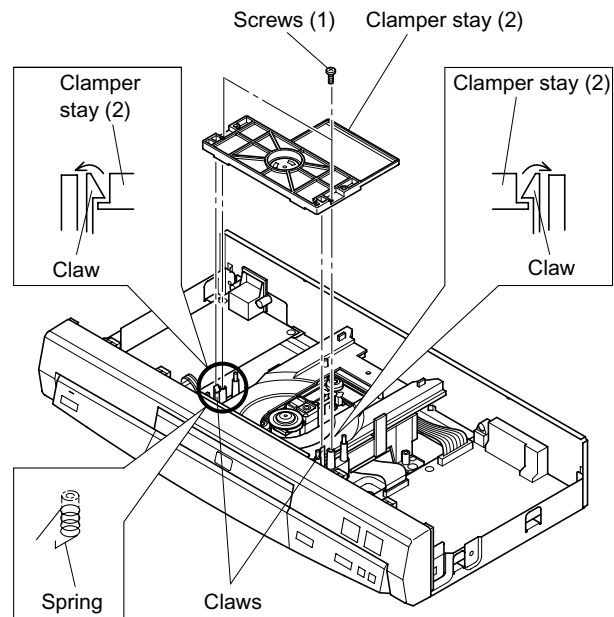


Fig. 2-1-2

<Mounting >

1. The spring for tray side pressure is inserted into the portion "A". (Refer to Fig. 2-1-2.)
2. By referring to Fig. 2-1-3, insert the spring normally and mount the clamber stay.

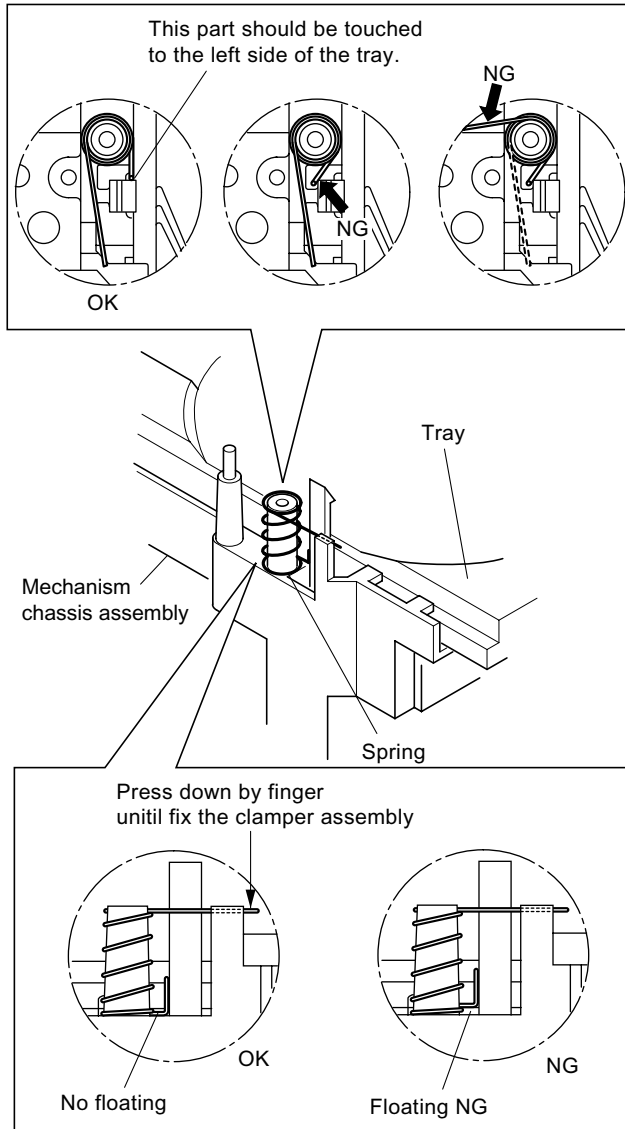


Fig. 2-1-3

1-1-3. Tray Panel

<Tray Ejection>

1. Slide the slider (2) of the mechanism chassis assembly (1) with a screwdriver, etc. in the arrow direction, so that the tray (3) is ejected.

Note:

- Take care not to damage the pickup and other parts.

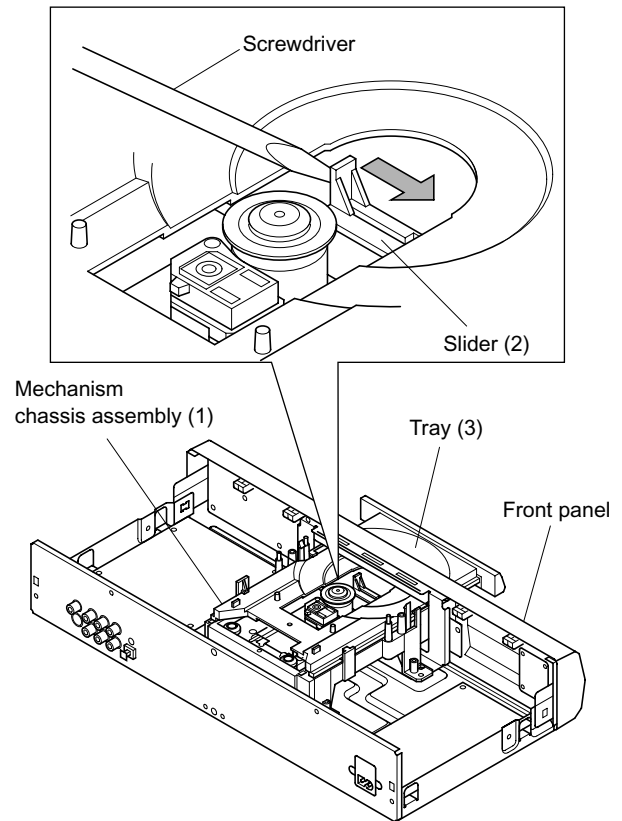


Fig. 2-1-4

<Tray Panel Removal>

1. Eject the tray (3).
2. Twist the tray panel (4) a little in the arrow A direction with the tray (3) hold by hand to release two claws and lift up the tray panel (4) in the arrow B direction, then the tray panel (4) is removed. (Refer to Fig. 2-1-5.)
3. When mounting the tray panel (4), insert the tray panel (4) along the grooves of the both sides of the tray (3) until clicking.

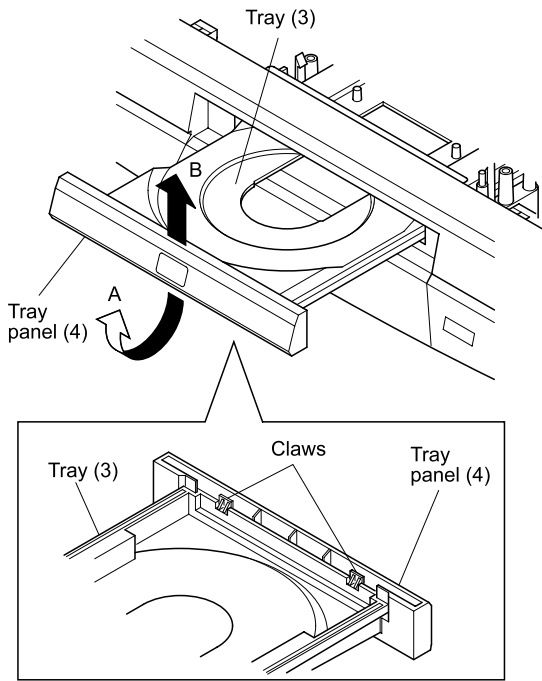


Fig. 2-1-5

1-1-4. Front Panel and Tray

1. Remove the flexible cable (1).
2. Remove one screw (2) and remove the GND lead (5).
3. Release four claws and remove the front panel (4).
4. Pull out the tray (3) to this side.

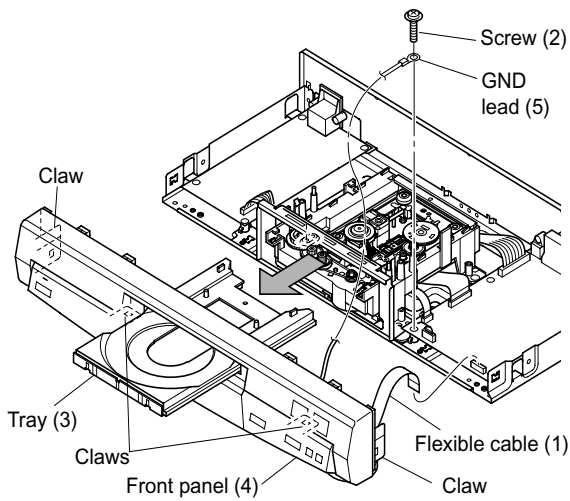


Fig. 2-1-6

Note:

- Insert the tray (3) with the front side of the pickup mechanism assembly descended. (The slider positions to the left side.)
- The gears are required to match their phases each other. After setting the gear (4) as shown in the figure "A", insert the tray (3). When inserting a tray (3), push the rack gear side shown by the arrow.

- Confirm that the mark of the gear matches with the triangle mark on the reverse side of the tray in the tray close status. (The gear is rotated with the slider locks.) (Refer to Fig. B.)

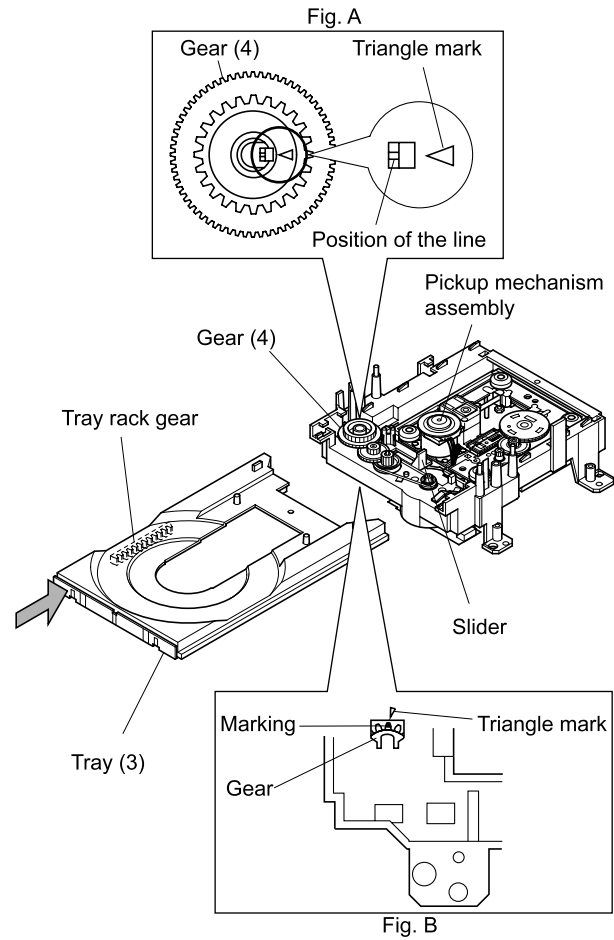


Fig. 2-1-7

1-1-5. Rear Panel

1. Remove four screws (1) and remove the rear panel (2).

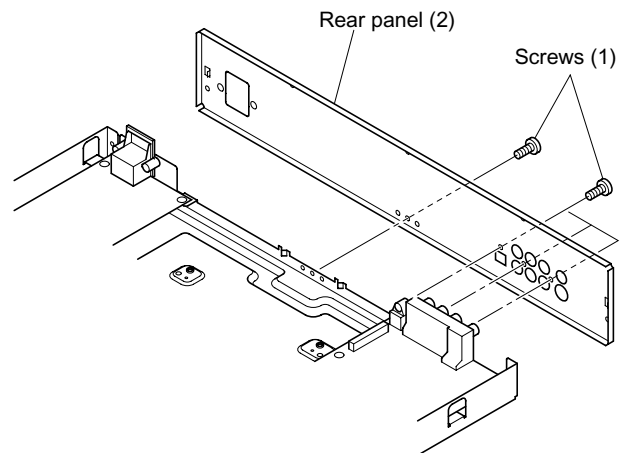


Fig. 2-1-8

1-2. PC Board Replacement

1-2-1. Main PC Board

Note:

- Before removing the main PC board (5), be sure to short-circuit the laser diode output land.
- After replacing, open the land as it was after inserting the flexible cables (1).

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove four flexible cables (1) and remove one connector (2).
3. Remove four screws (3) and one GND lead (4).
4. Remove three screws (5) and remove the main PC board (6).

Note:

- When mounting, be sure to twist the wire for the connector (3) several times.

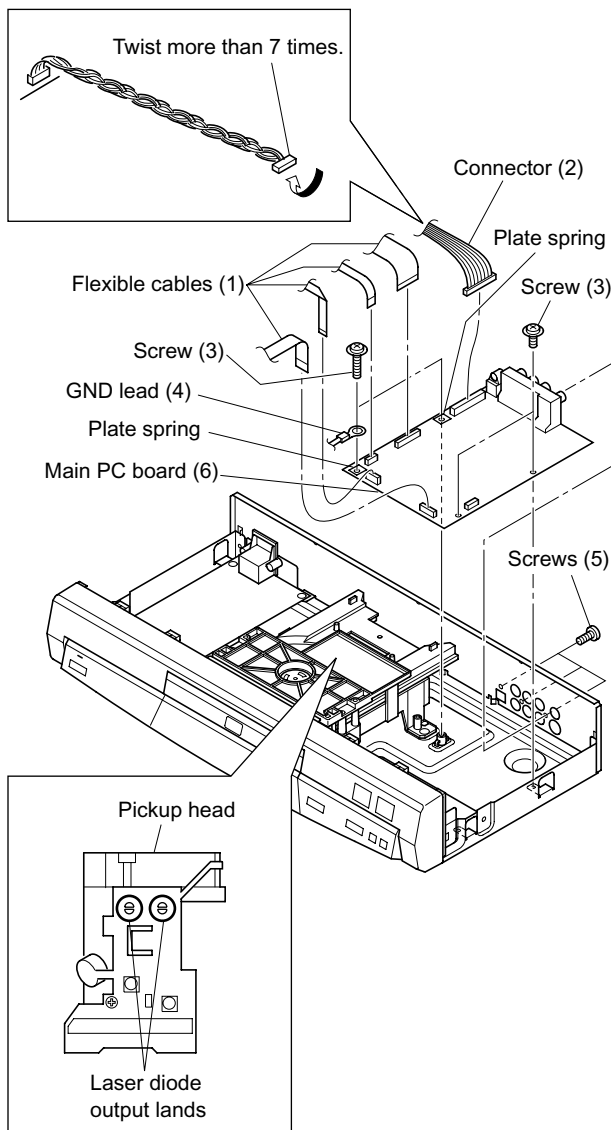


Fig. 2-1-9

1-2-2. Power PC board

1. Peel off two tapes (1).
2. Remove the connectors (2).
3. Remove four screws (3).
4. Remove two screws (4) and remove the power supply PC board (5).

Note:

- When mounting, be sure to twist the wire for the connectors (2) several times.

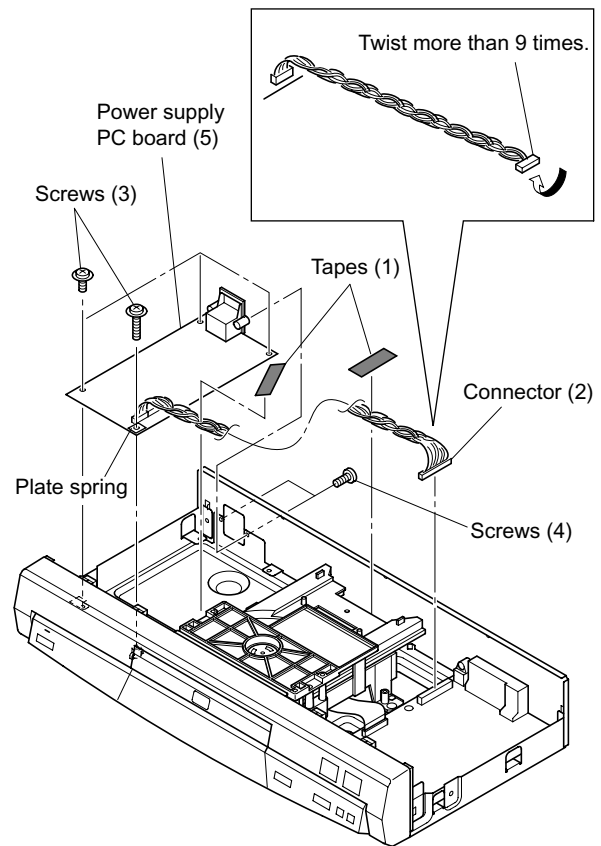


Fig. 2-1-10

1-2-3. Front PC Board

1. Remove the front panel. (Refer to item 1-1-4.)
2. Remove six screws (1) and remove the front display PC board (2)
3. Remove two screws (3) and remove the power switch PC board (4).

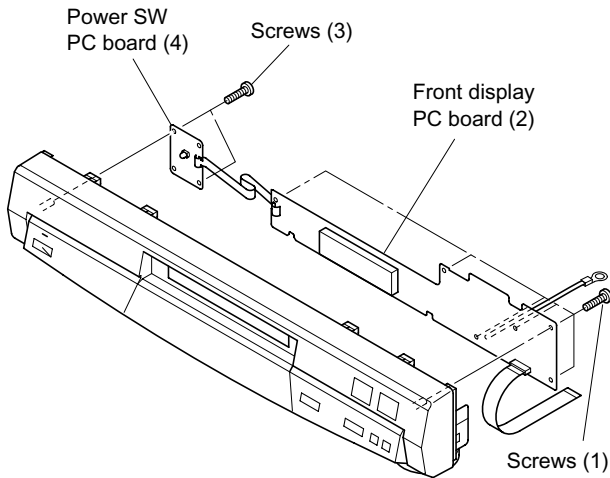


Fig. 2-1-11

1-3. Mechanism Parts

1-3-1. Mechanism Chassis Assembly

Note:

- When removing the mechanism chassis assembly (3), be sure to short-circuit the laser diode output land before removing the connector and the flexible cables.

After replacing, open the land as it was after inserting the connector and flexible cables.

1. Remove the tray. (Refer to items 1-1-3 and 1-1-4.)
2. Remove three flexible cables (1).
3. Remove four screws (2) and remove the mechanism chassis assembly (3).

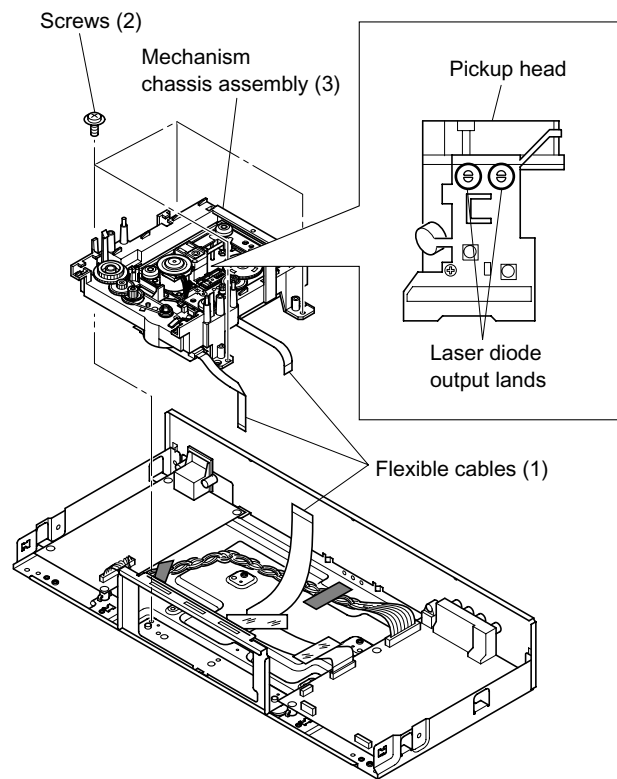


Fig. 2-1-12

1-3-2. Loading Belt

1. Remove the gear (1) by releasing the claw.
2. Remove the gear (2).
3. Remove the gear (3) and the loading belt (4).
4. Replace the loading belt (4) with a new one.
5. When mounting, perform the reverse order of the removal.

Note:

- When mounting the loading belt (4), twisting and attaching of a grease, etc. are not allowed.

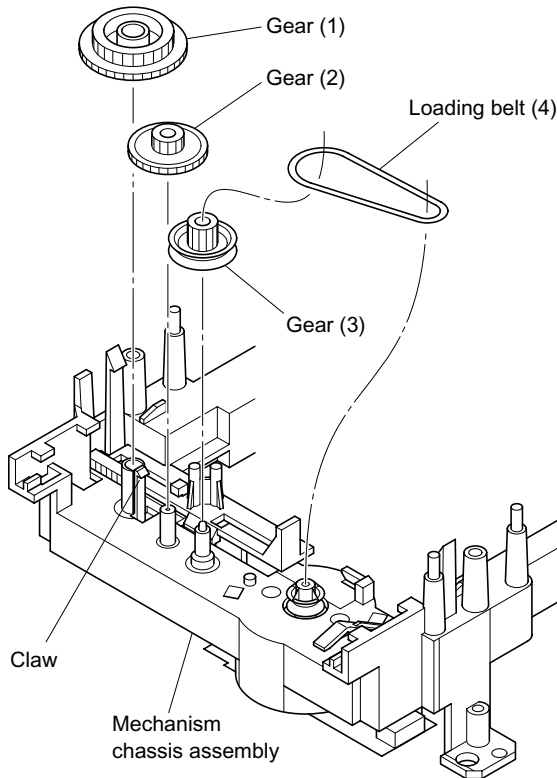


Fig. 2-1-13

1-3-3. Loading Motor

1. Remove the loading belt. (Refer to item 1-3-2.)
2. Remove two screws (1) and two claws. Then remove the loading motor (2) (with the loading motor PC board (3) attached).
3. Desolder the terminal section of the loading motor (2) and remove the loading motor PC board (3).
4. Replace the loading motor (2) with a new one.
5. When mounting, perform the reverse order of the removal.

Note:

- When replacing the loading motor, meet the polarity phase of the terminals. (Mount the motor with the label positioned as shown in Fig. 2-1-14.)

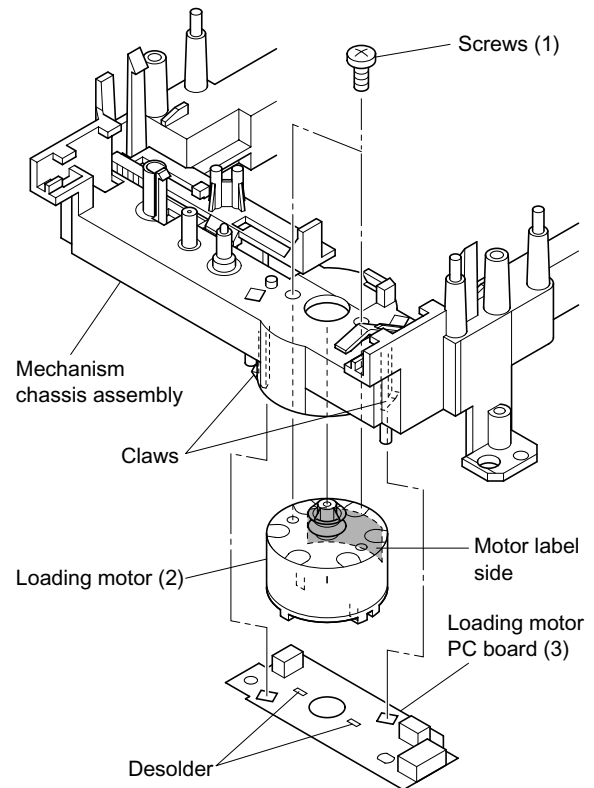


Fig. 2-1-14

1-3-4. Sub Chassis (with a pickup mechanism)

1. Turn the mechanism chassis assembly (1) upside down.
2. Remove one screw (2) and one washer (3) release the boss "A" from the claw. Then remove the sub chassis (4) (with the pickup mechanism) by sliding in the arrow direction.
3. When mounting, perform the reverse order of the removal.

Note:

- When mounting the sub chassis (4) (with the pickup mechanism), first, insert the boss "C" along the groove of the cam slider up/down cam (5) and next, the boss "B" and "A".
- The boss "A" may be used with washers. (One or two washers are used to prevent from the slust rattling. In some cases, no washer is used.)

When the washer(s) is used, be sure to assemble as it was without losing.

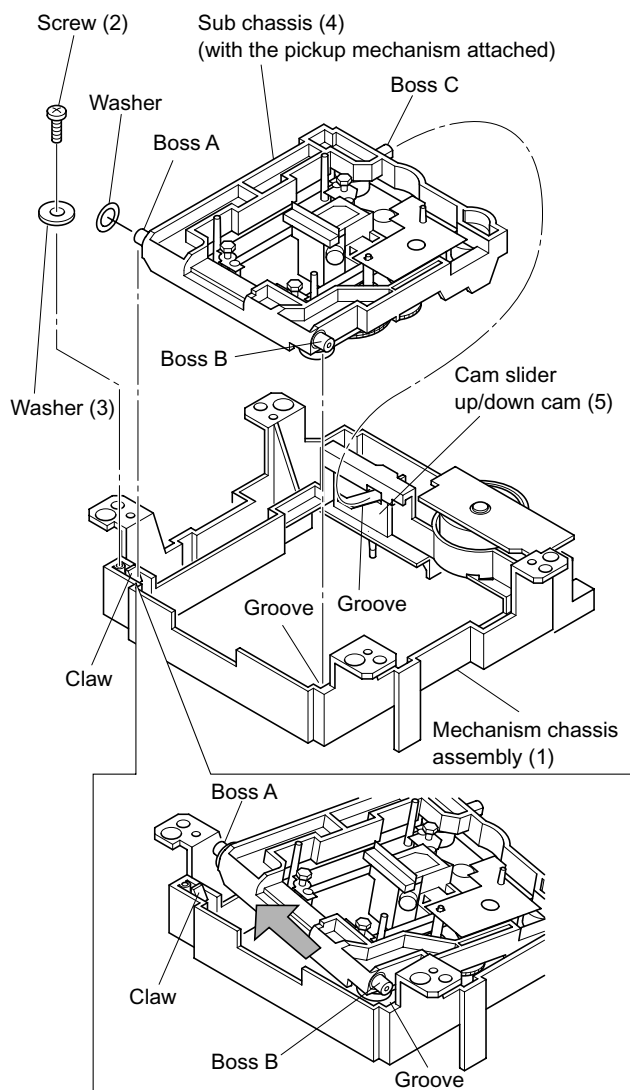


Fig. 2-1-15

1-3-5. Pickup Mechanism Assembly

<Removal>

1. Remove four screws (1) and four washers (2) then remove the pickup mechanism assembly (3).

<Mounting>

1. Replace the pickup mechanism assembly (3) with a new one.
2. When mounting, perform the reverse order of the removal.

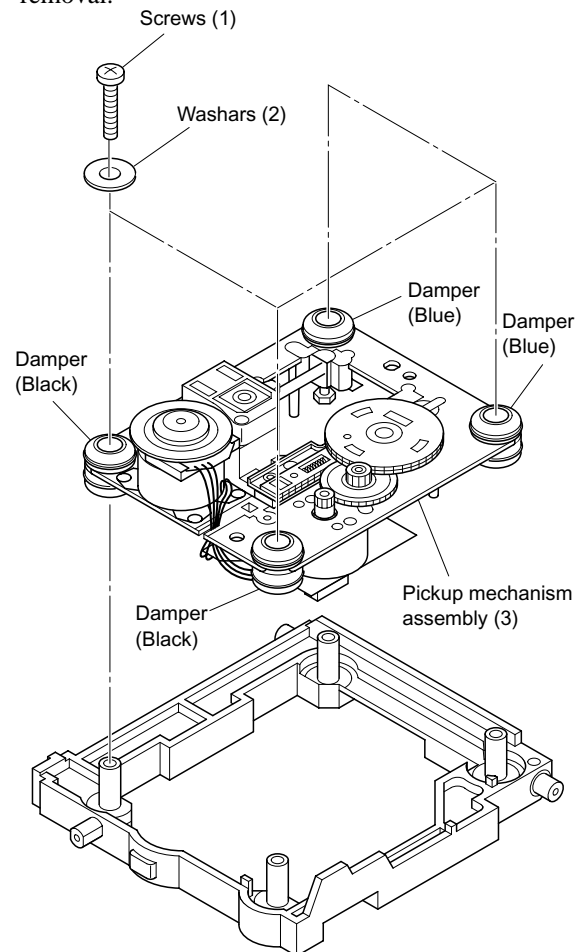


Fig. 2-1-16

Note:

- The dampers' color differs when used for the front side and the rear.
- When mounting the pickup mechanism assembly (2) with the screws (1), push the pickup mechanism assembly (2) downward without being caught and tighten the screws (1) after placing the washer with the damper bent.

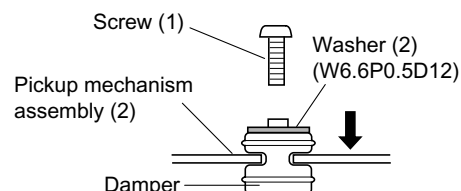


Fig. 2-1-17

1-3-6. Gear B Assembly, Gear A and Rack Gear Assembly

<Removal>

1. Remove one screw (3) and remove the gear B assembly (1).
2. Remove the gear A (2).
3. Remove one screw (5) and remove the rack gear assembly (4).

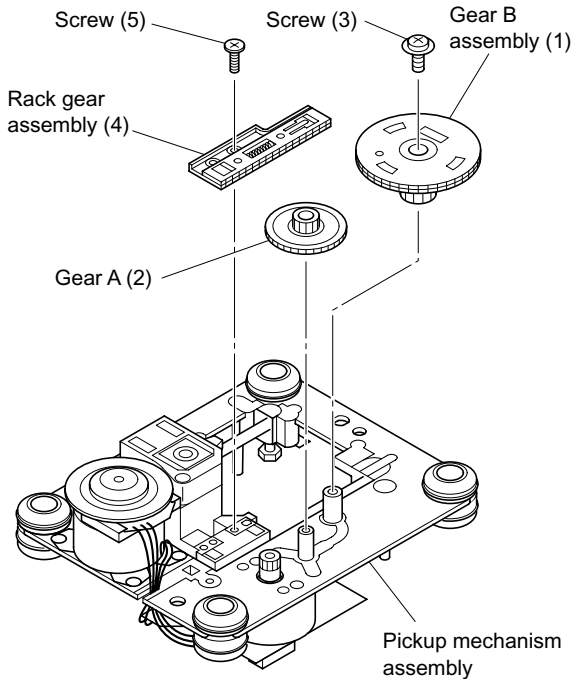


Fig. 2-1-18

<Mounting>

1. When mounting, perform the reverse order of the removal.
2. Mount the gear B assembly (1) by pushing the pickup head (5) to the disc motor side (arrow A direction) and shifting the upper gear of the rack gear assembly (4) in the arrow B direction. (Refer to Fig. 2-1-19.)
3. Fit the positioning holes on the upper gear and lower gear of the gear B assembly (1) and mount on the pickup mechanism assembly with the phase matched. At this time, note that the phase of the gear B assembly (1) and the gear A (2) shows the status in the Fig. 2-1-20.

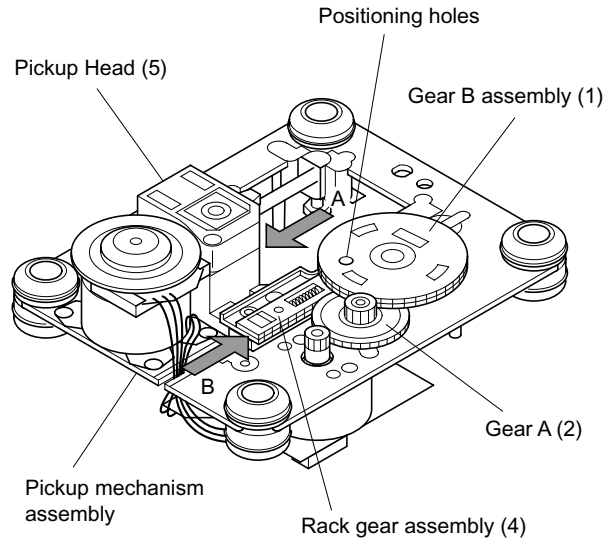


Fig. 2-1-19

Note:

- Mount the gear B assembly (1) and the gear A (2) with their gear teeth placed more than one tooth at least inside the shaded portion.

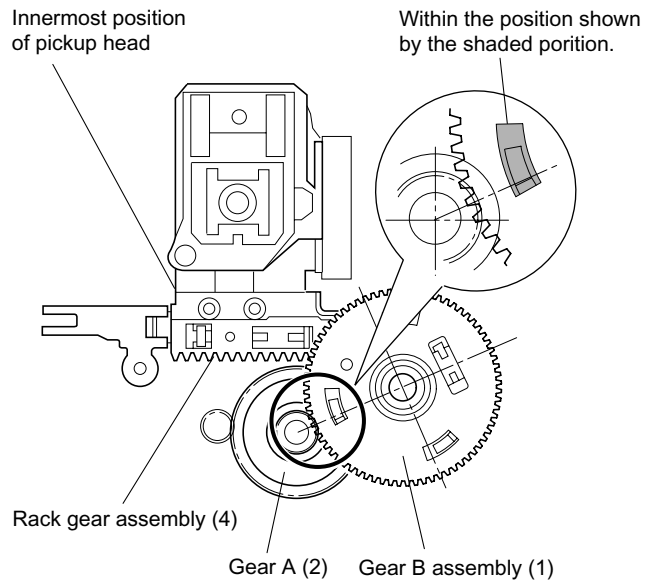


Fig. 2-1-20

1-3-7. Feed Motor

<Removal>

1. Remove the gear B assembly and the gear A. (Refer to item 1-3-6.)
2. Remove two screws (1) and remove the feed motor (2) (with the feed motor PC board (3) attached). (Refer to Fig. 2-1-21.)
3. Desolder the terminals of the feed motor (2) and remove the feed motor PC board (3).

<Mounting>

1. Tighten the feed motor (2) on the pickup mechanism assembly with two screws (1).
2. Insert the feed motor PC board (3) with the positioning pin on the chassis matched and solder the terminals.
3. Perform the reverse order of the removal.

Note:

- After mounting, put the lead wires through the notch of the pickup mechanism assembly.
- When replacing the loading motor, meet the polarity phase of the terminals. (Mount the motor with the label positioned as shown in Fig. 2-1-21.)

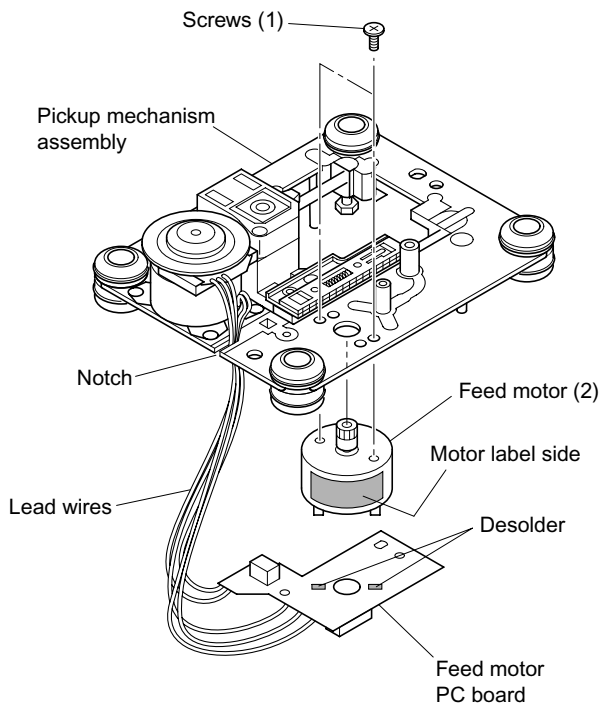


Fig. 2-1-21

SECTION 3

SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING

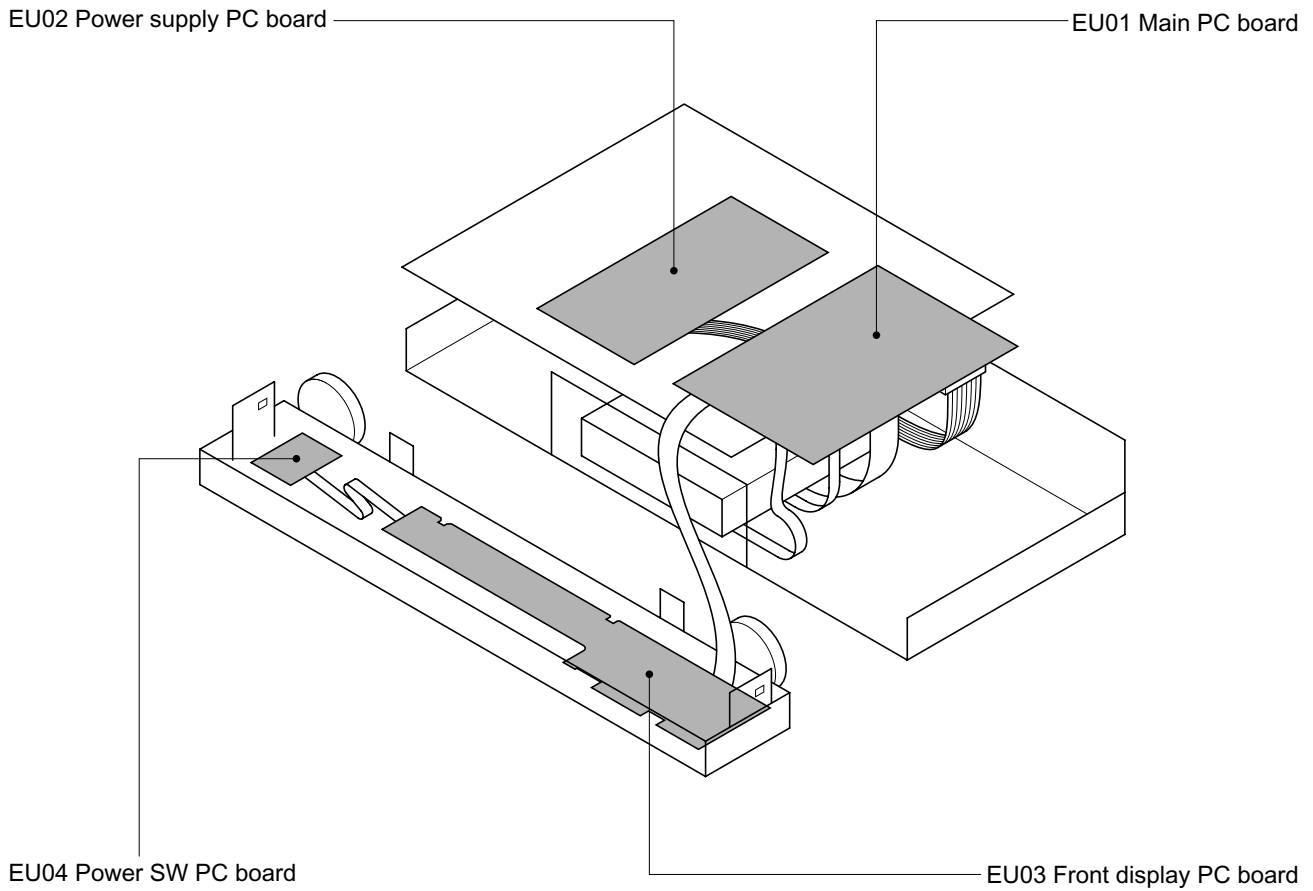


Fig. 3-1-1

2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

2-1. Precautions for Part Replacement

- In the schematic diagram, parts marked \triangle (ex. \triangle F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

2-2. Solid Resistor Indication

Unit	None Ω K $k\Omega$ M $M\Omega$
Tolerance	None $\pm 5\%$ B $\pm 0.1\%$ C $\pm 0.25\%$ D $\pm 0.5\%$ F $\pm 1\%$ G $\pm 2\%$ K $\pm 10\%$ M $\pm 20\%$
Rated Wattage	(1) Chip Parts None 1/16W (2) Other Parts None 1/6W Other than above, described in the Circuit Diagram.
Type	None Carbon film S Solid R Oxide metal film W Metal film W Cement FR Fusible

Fig. 1

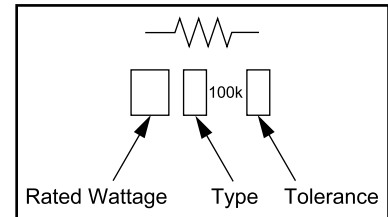


Fig. 3-2-1

2-3. Capacitance Indication

Symbol	$\begin{array}{l} \text{---} \text{ } \text{---} \text{+} \\ \text{---} \text{ } \text{---} \text{NF} \end{array}$ Electrolytic, Special electrolytic $\text{---} \text{ } \text{---}$ Non polarity electrolytic $\text{---} \text{ } \text{---}$ Ceramic, plastic $\text{---} \text{ } \text{---} \text{M}$ Film $\text{---} \text{ } \text{---} \text{P}$ Trimmer
Unit	None F μ μF p pF
Rated voltage	None 50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None $\pm 5\%$ or more B $\pm 0.1\%$ C $\pm 0.25\%$ D $\pm 0.5\%$ F $\pm 1\%$ G $\pm 2\%$ (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None more than $\pm 5\%$ pF B ± 0.1 pF C ± 0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Fig. 2

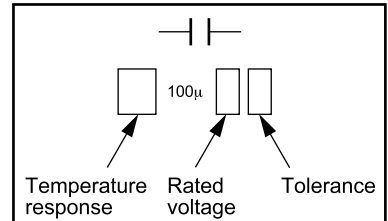


Fig. 3-2-2

Fig. 3

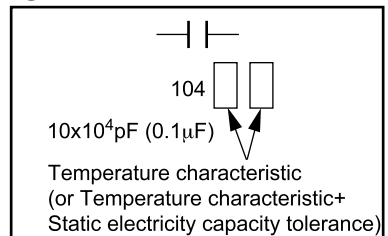


Fig. 3-2-3

2-4. Inductor Indication

Unit	None H μ μH m mH
Tolerance	None ±5% B ±0.1% C ±0.25% D ±0.5% F ±1% G ±2% K ±10% M ±20%

Eg. 4

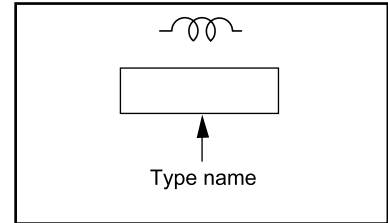


Fig. 3-2-4

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.
- The parts indicated with "NC", "KETU" etc. are not used in the circuits of this model.

2-6. Others

- The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

Eg. 5

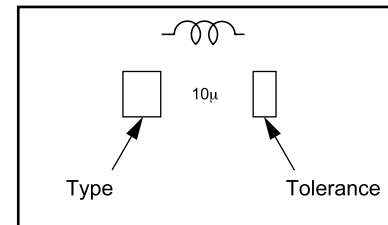


Fig. 3-2-5

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

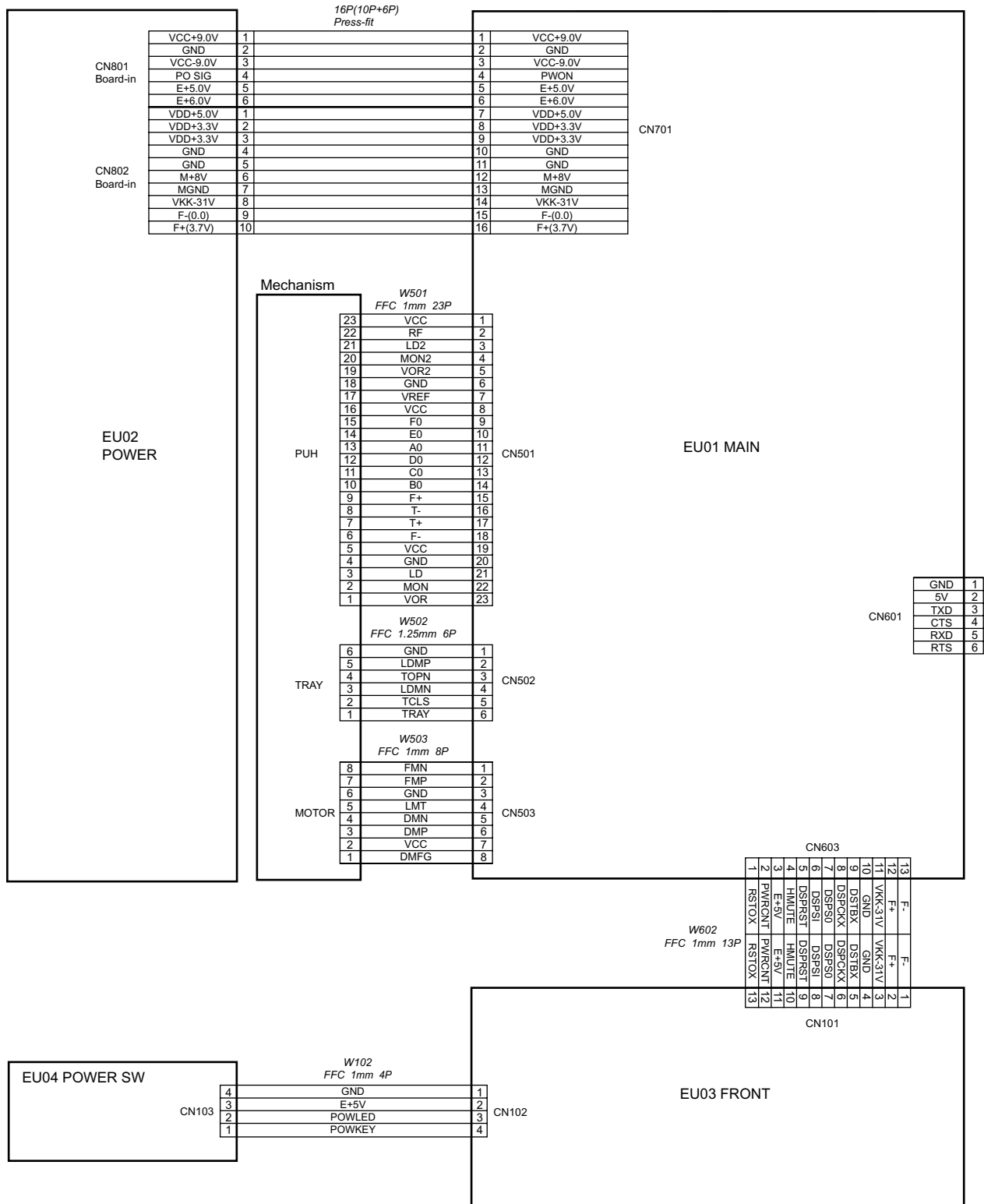


Fig. 3-3-1

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram

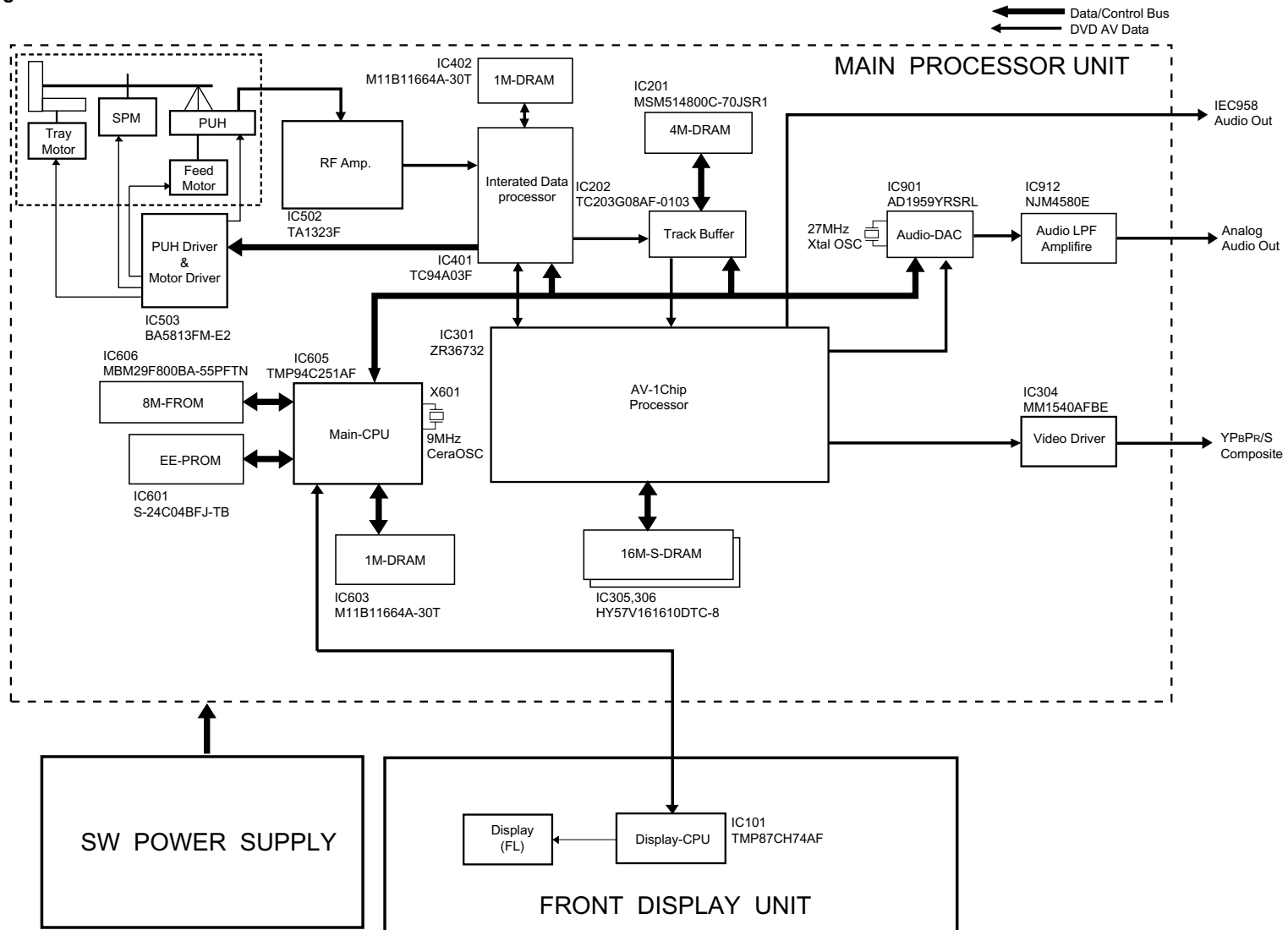


Fig.3-4-1

4-2. Power Supply Block Diagram

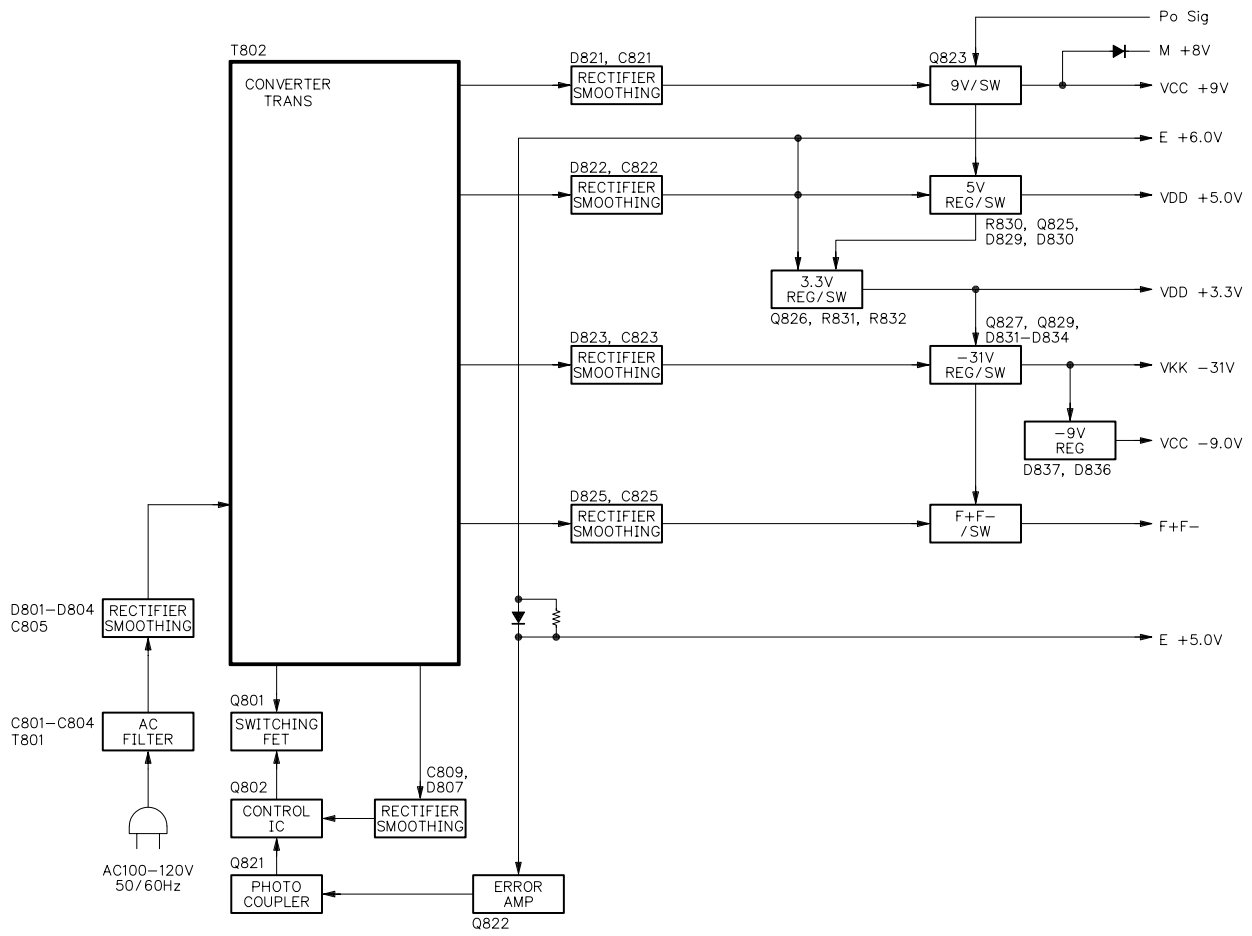


Fig. 3-4-2

4-3. Front Display, Power Switch Block Diagram

4-3-1. Front Display

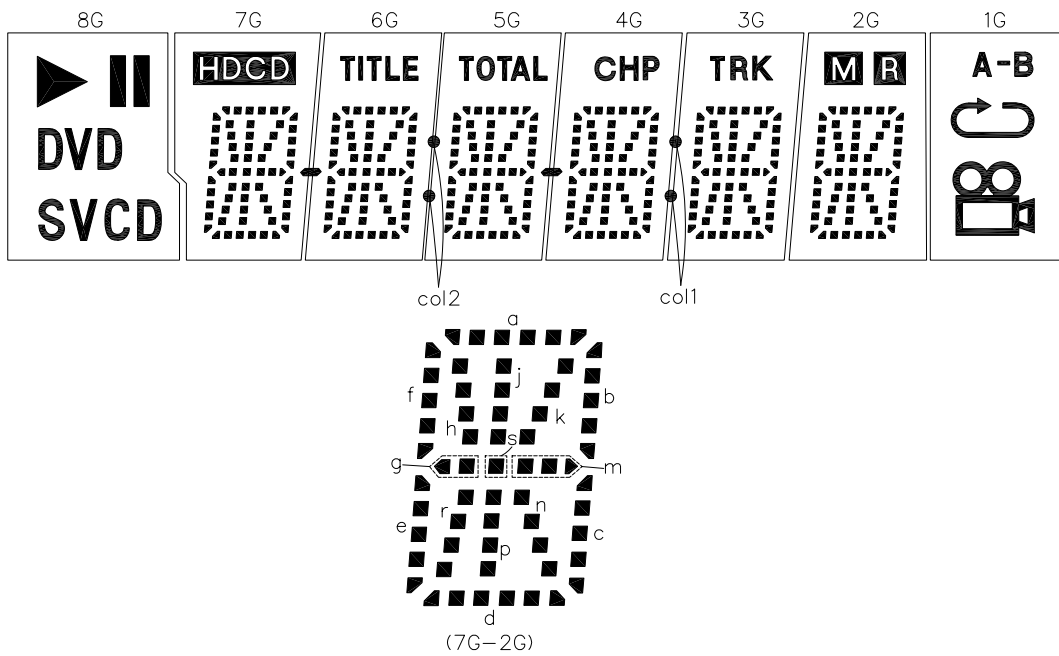


Fig. 3-4-3

4-3-2. Front Display Pattern

	8G	7G	6G	5G	4G	3G	2G	1G
P1	▶	a	a	a	a	a	a	A
P2		f	f	f	f	f	f	-B
P3	DVD	h	h	h	h	h	h	↻
P4	S	j	j	j	j	j	j	📷
P5	V	k	k	k	k	k	k	-
P6	CD	b	b	b	b	b	b	-
P7	-	g	g	g	g	g	g	-
P8	-	s	s	s	s	s	s	-
P9	-	m	m	m	m	m	m	-
P10	-	e	e	e	e	e	e	-
P11	-	r	r	r	r	r	r	-
P12	-	p	p	p	p	p	p	-
P13	-	n	n	n	n	n	n	-
P14	-	c	c	c	c	c	c	-
P15	-	d	d	d	d	d	d	-
P16	-	-	col2		col1		M	-
P17	-	▶		▶		-	R	-
P18	-	HDCD	TITLE	TOTAL	CHP	TRK	-	-

Fig. 3-4-4

4-3-3. Front Display, Power Switch Block Diagram

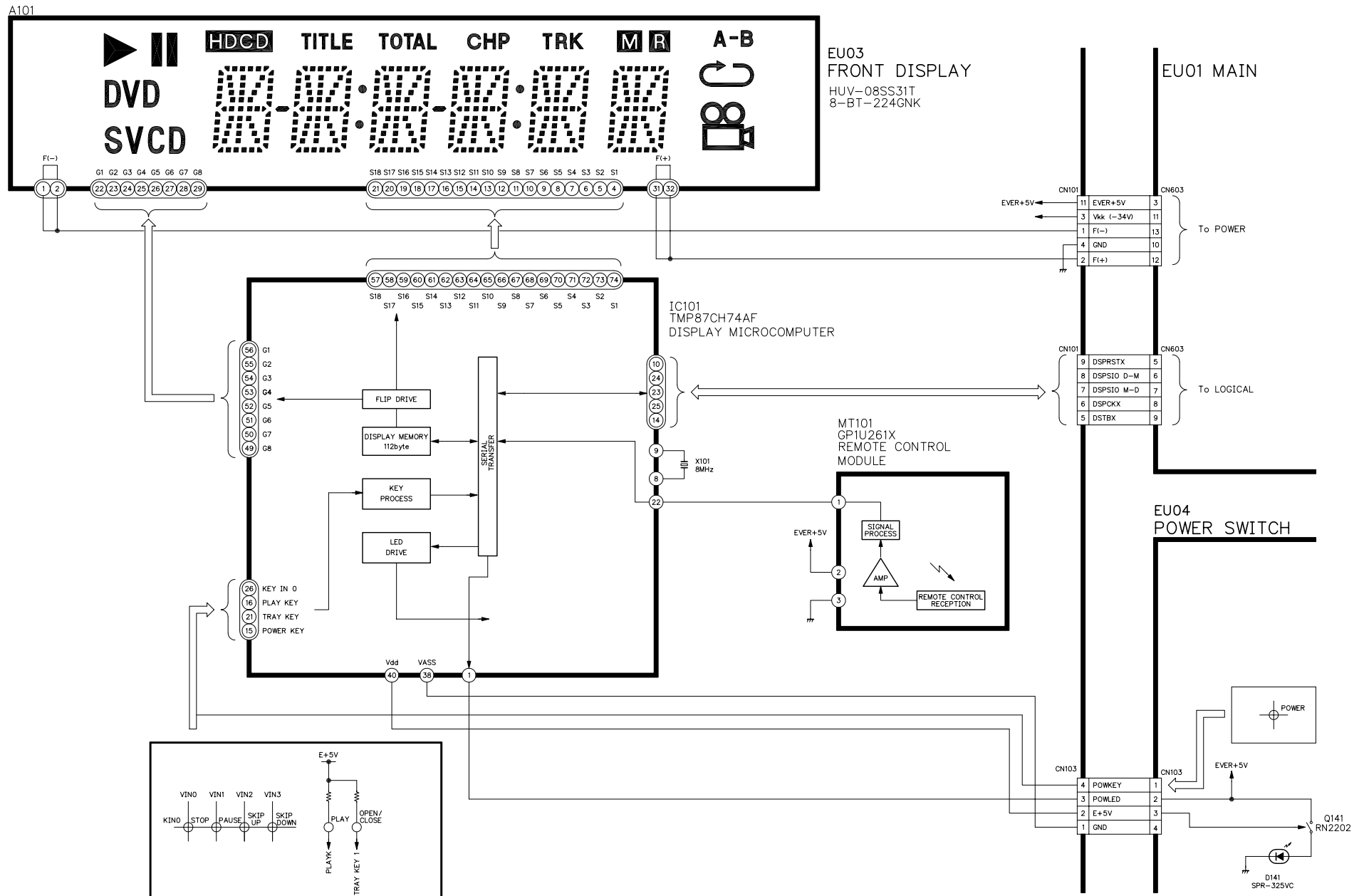


Fig. 3-4-5

4-4. Main Block Diagrams

4-4-1. Servo System Block Diagram

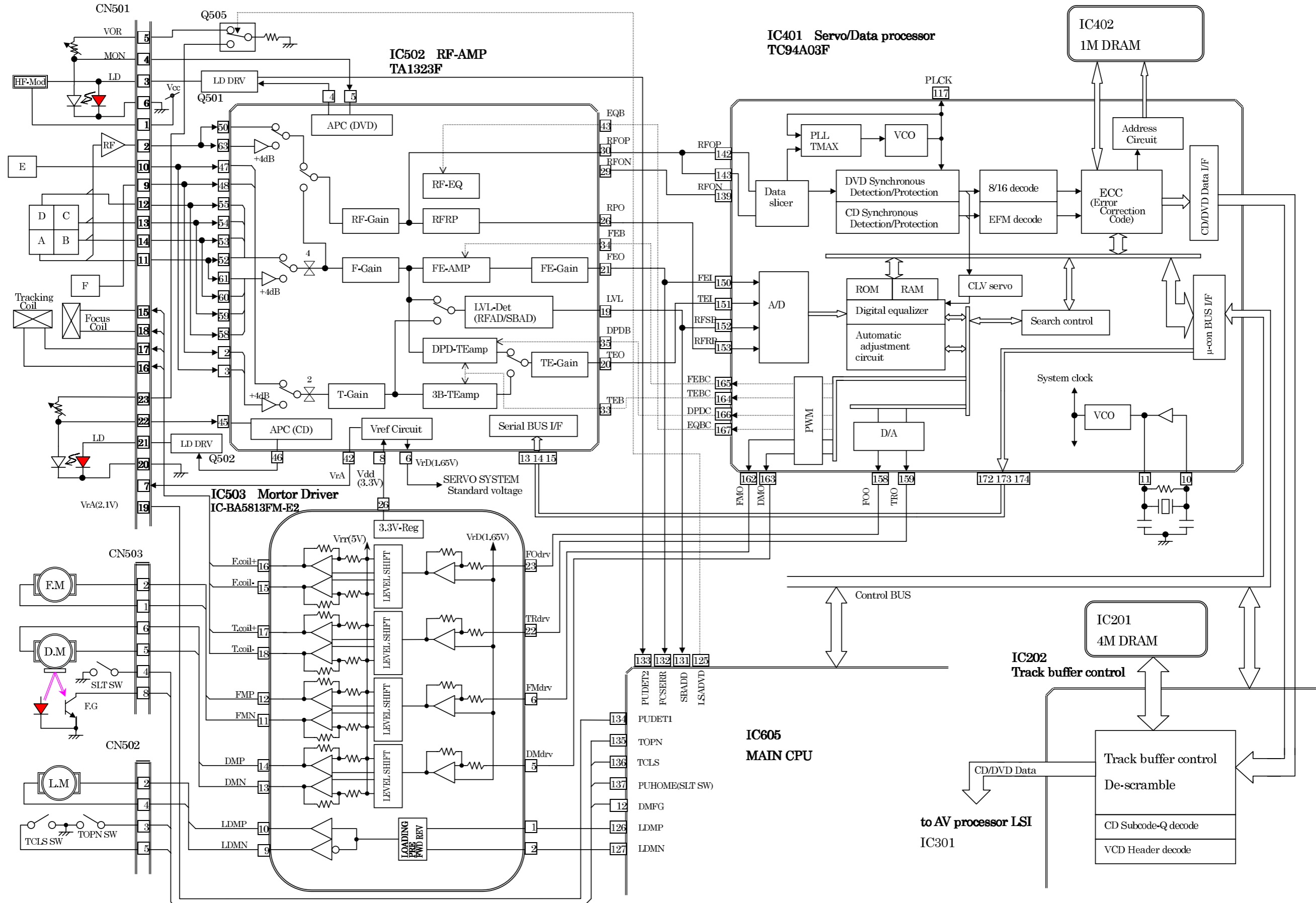


Fig.3-4-6

4-4-2. Logical System Block Diagram

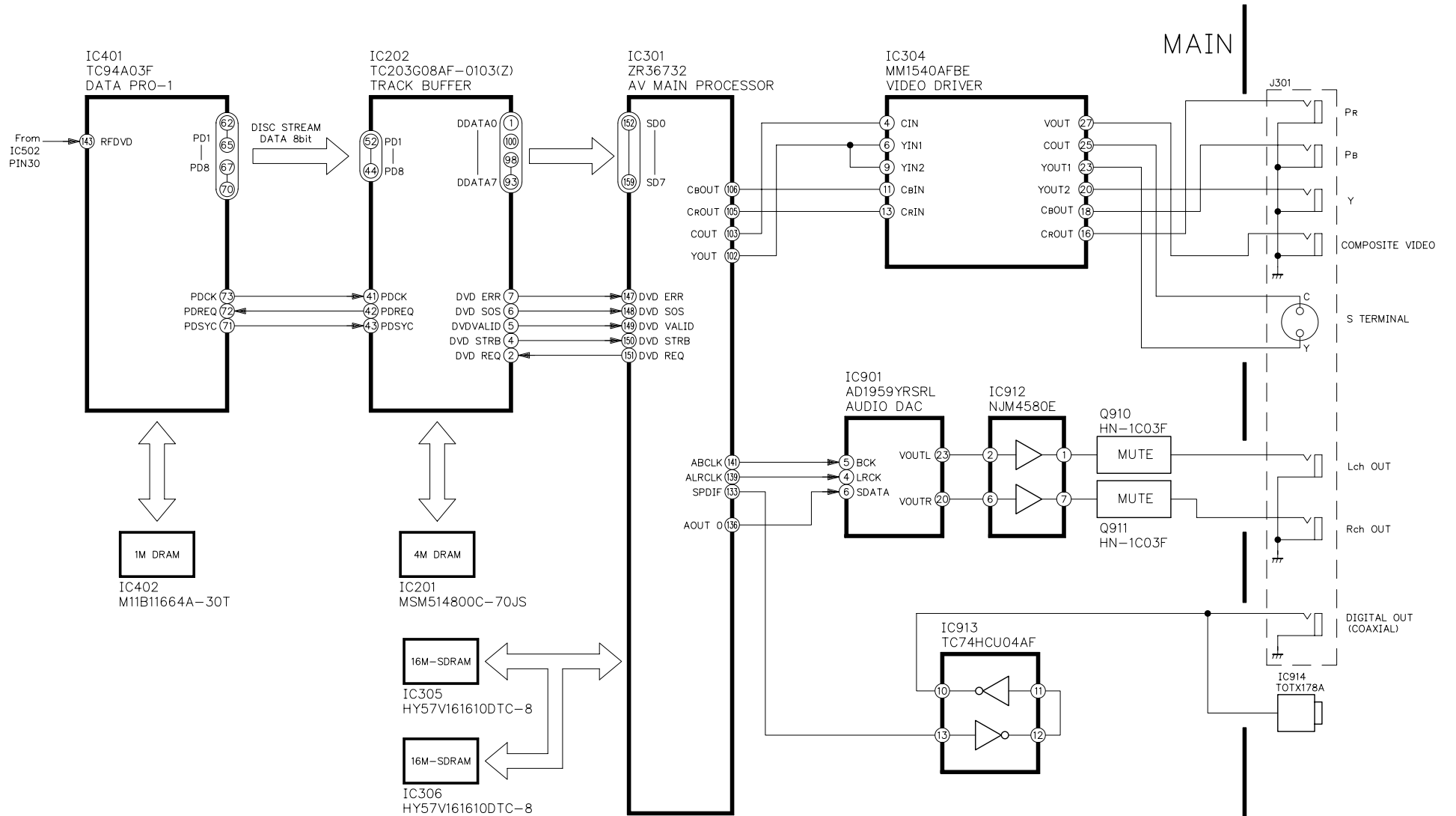


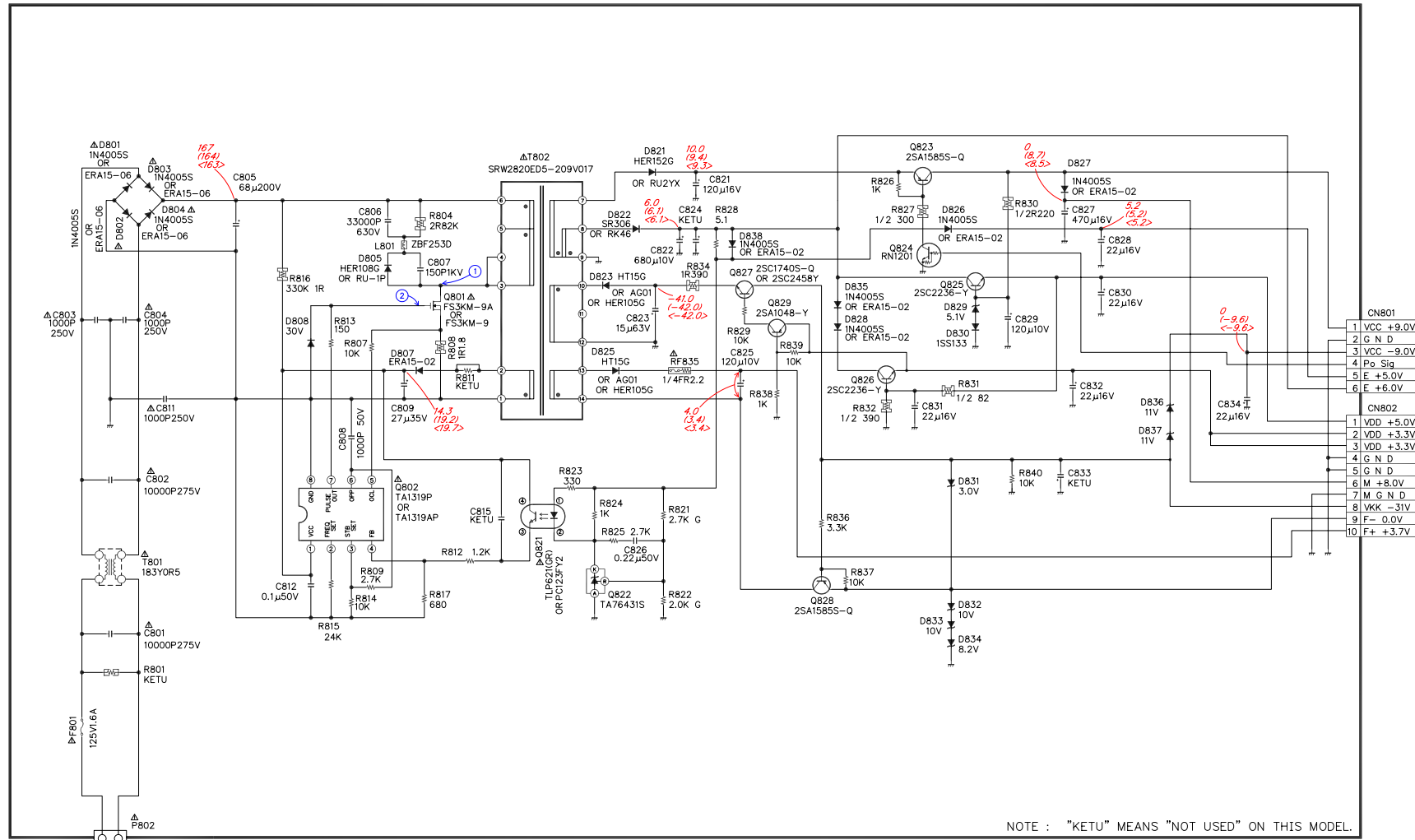
Fig. 3-4-7

5. CIRCUIT DIAGRAMS

5-1. Power Supply Circuit Diagram

POWER

AC120V60Hz in < : OFF
> : ON
> : PLAY



NOTE : "KETU" MEANS "NOT USED" ON THIS MODEL.

	Q802								Q822				Q823				Q824			
	1	2	3	4	6	8	K	R	A	E	C	B	E	C	B	E	C	B		
OFF	14.3	1.5	1.1	2.8	1.1	0	4.1	2.5	0	10.0	0	10.0	0	0	0	9.9	0			
ON	19.2	1.0	1.1	2.1	1.1	0	4.3	2.5	0	9.4	9.3	8.7	0	0.1	5.0					
PLAY	19.7	1.0	1.1	2.1	1.1	0	4.3	2.5	0	9.3	9.2	8.6	0	0.1	5.0					

	Q825				Q826				Q827				Q828				Q892			
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B		
OFF	0	6.0	0	0	5.5	0	-41.0	0	-38.0	0	-3.9	0	0	-38.0	0					
ON	5.2	6.1	5.9	3.5	4.5	4.2	-31.0	-31.0	-30.0	-27.5	-27.6	-28.3	3.5	3.5	2.8					
PLAY	5.2	6.1	5.9	3.5	4.5	4.2	-31.0	-31.0	-30.0	-27.5	-27.6	-28.3	3.5	3.5	2.8					

Fig. 3-5-1

Power Supply Circuit Diagram

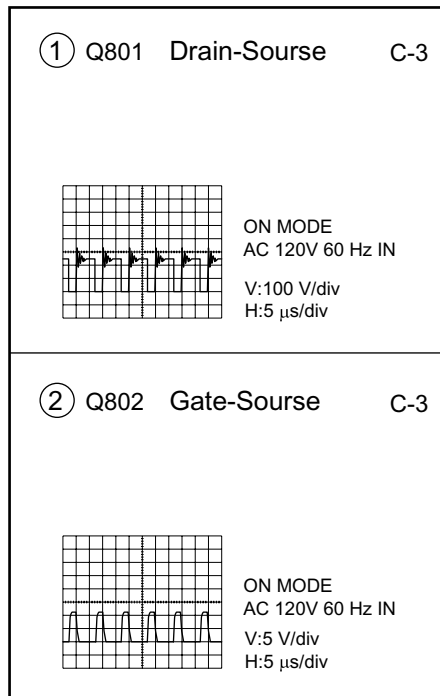


Fig. 3-5-2

Part No.	Location	Part No.	Location	Part No.	Location
C801	E2	D807	D3	Q829	C5
C802	D2	D808	C2	R801	E2
C803	C2	D821	B5	R804	C3
C804	C2	D822	C4	R807	C3
C805	B2	D823	C4	R808	C3
C806	C3	D825	D4	R809	E3
C807	C3	D826	C6	R811	D3
C808	D3	D827	B7	R812	E3
C809	D3	D828	C6	R813	C3
C811	D2	D829	C6	R814	E3
C812	E2	D830	C6	R815	E3
C815	E4	D831	D6	R816	C2
C821	B5	D832	E6	R817	E3
C822	C5	D833	E6	R821	D5
C823	C4	D834	E6	R822	E5
C824	C5	D835	C6	R823	D4
C825	D5	D836	D7	R824	D4
C826	E4	D837	D7	R825	E4
C827	C7	D838	C5	R826	B6
C828	C7	F801	F2	R827	C6
C829	C7	L801	C3	R828	C5
C830	C7	P801	G2	R829	C5
C831	D6	P802	F2	R830	C7
C832	D7	Q801	C3	R831	D6
C833	D7	Q802	D3	R832	D6
C834	D8	Q821	E4	R834	C5
CN801	C9	Q822	E4	R836	E6
CN802	D9	Q823	B6	R837	E6
D801	B1	Q824	C6	R838	D5
D802	C2	Q825	C6	R839	C5
D803	C2	Q826	D6	R840	D7
D804	C2	Q827	C5	RF835	D5
D805	C3	Q828	E6	T801	E2
				T802	B4

5-2. Front Display, Power Switch Circuit Diagram

FRONT

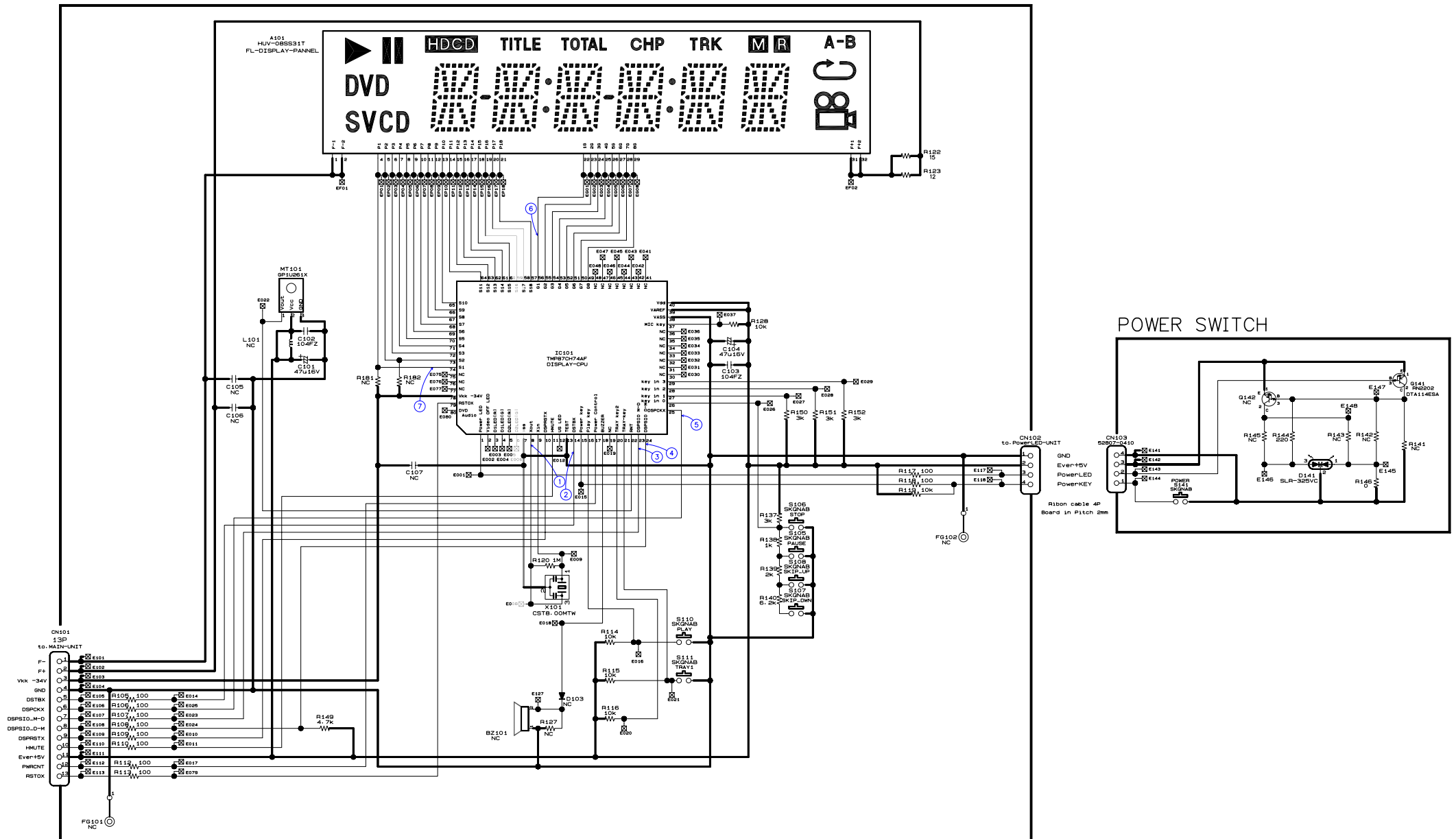
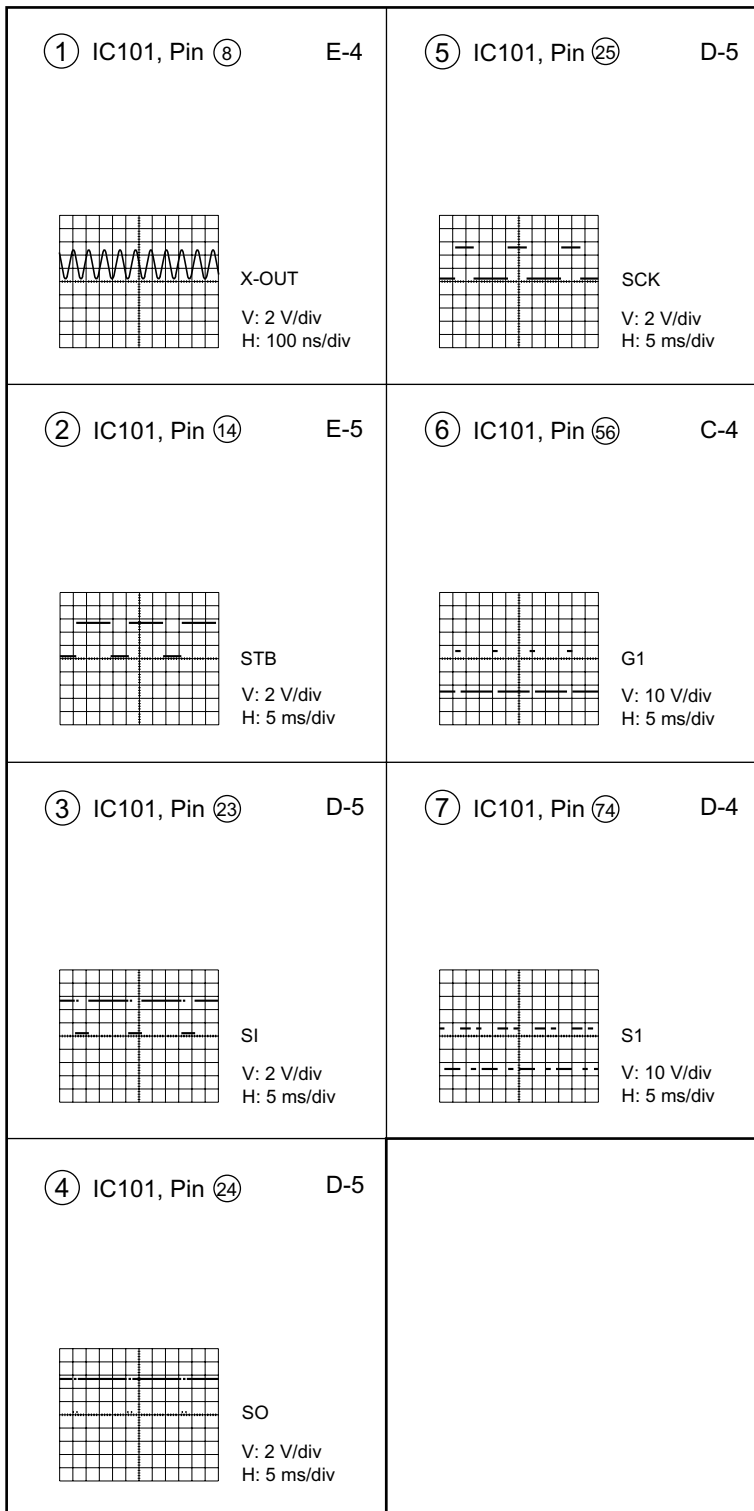


Fig. 3-5-3

Front Display, Power Switch Circuit Diagram



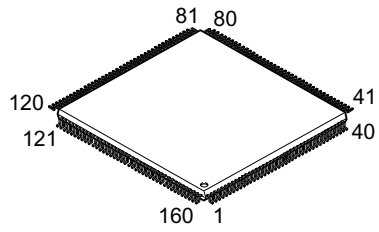
Part No.	Location	Part No.	Location
A101	A3	E146	E9
BZ101	G4	E147	D10
C101	D3	E148	D10
C102	D3	EF01	B3
C103	D6	EF02	C7
C104	D6	EG01	C5
C105	D2	EG02	C5
C106	D2	EG03	C5
C107	E3	EG04	C5
CN101	F1	EG05	C5
CN102	D8	EG06	C5
CN103	D8	EG07	C5
D103	F5	EG08	C5
D141	E10	EP01	C3
E001	E4	EP02	C3
E002	E4	EP03	C3
E003	D4	EP04	C3
E004	E4	EP05	C3
E005	D4	EP06	C4
E006	E4	EP07	C4
E008	F4	EP08	C4
E009	E5	EP09	C4
E010	G2	EP10	C4
E011	G2	EP11	C4
E012	E4	EP12	C4
E014	F2	EP13	C4
E015	F5	EP14	C4
E017	G2	EP15	C4
E018	F4	EP16	C4
E019	D5	EP17	C4
E020	G5	EP18	C4
E022	C2	FG101	G1
E023	F2	FG102	E7
E024	F2	IC101	D5
E025	F2	L101	D2
E026	D6	MT101	C3
E027	D6	Q141	D10
E028	D6	Q142	D9
E029	D7	R105	F1
E030	D5	R106	F1
E031	D5	R107	F1
E032	D5	R108	F1
E034	D5	R109	G1
E035	D5	R110	G1
E036	D5	R112	G1
E037	C6	R113	G1
E041	C5	R114	F5
E042	C5	R115	F5
E043	C5	R116	F5
E044	C5	R117	E7
E045	C5	R118	E7
E046	C5	R119	E7
E047	C5	R120	E4
E048	C5	R122	B7
E075	D4	R123	B7
E076	D4	R127	F4
E077	D4	R128	D6
E079	G2	R137	E6
E080	D4	R138	E6
E101	F1	R139	E6
E102	F1	R140	F6
E103	F1	R141	D10
E104	F1	R142	D10
E105	F1	R143	D10
E106	F1	R144	D10
E107	F1	R145	D9
E108	F1	R146	E10
E109	G1	R149	F3
E110	G1	R150	D6
E111	G1	R151	D6
E112	G1	R152	D7
E113	G1	R181	D3
E117	E7	R182	D3
E118	E7	S105	E6
E127	F4	S106	E6
E141	D9	S107	F6
E142	E9	S108	E6
E143	E9	S110	F5
E144	E9	S111	F5
E145	E10	S141	E9
		X101	F4

Fig. 3-5-4

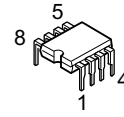
5-3. Main Circuit Diagrams

5-3-1. New Main ICs Information

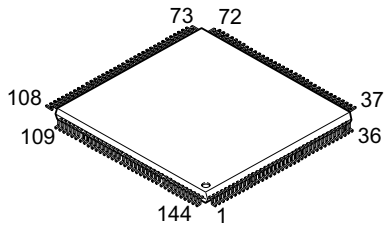
ZR36732



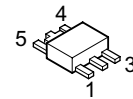
TA1319P/TA1319AP



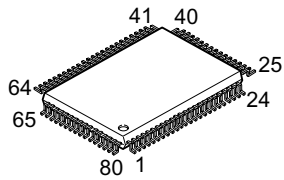
TMP94C251AF(Z)



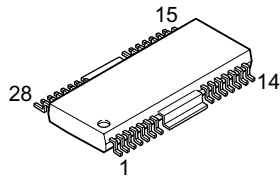
S-814A50AUC-BDO-T2



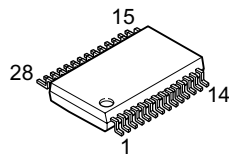
TMP87CH74AF-2C07



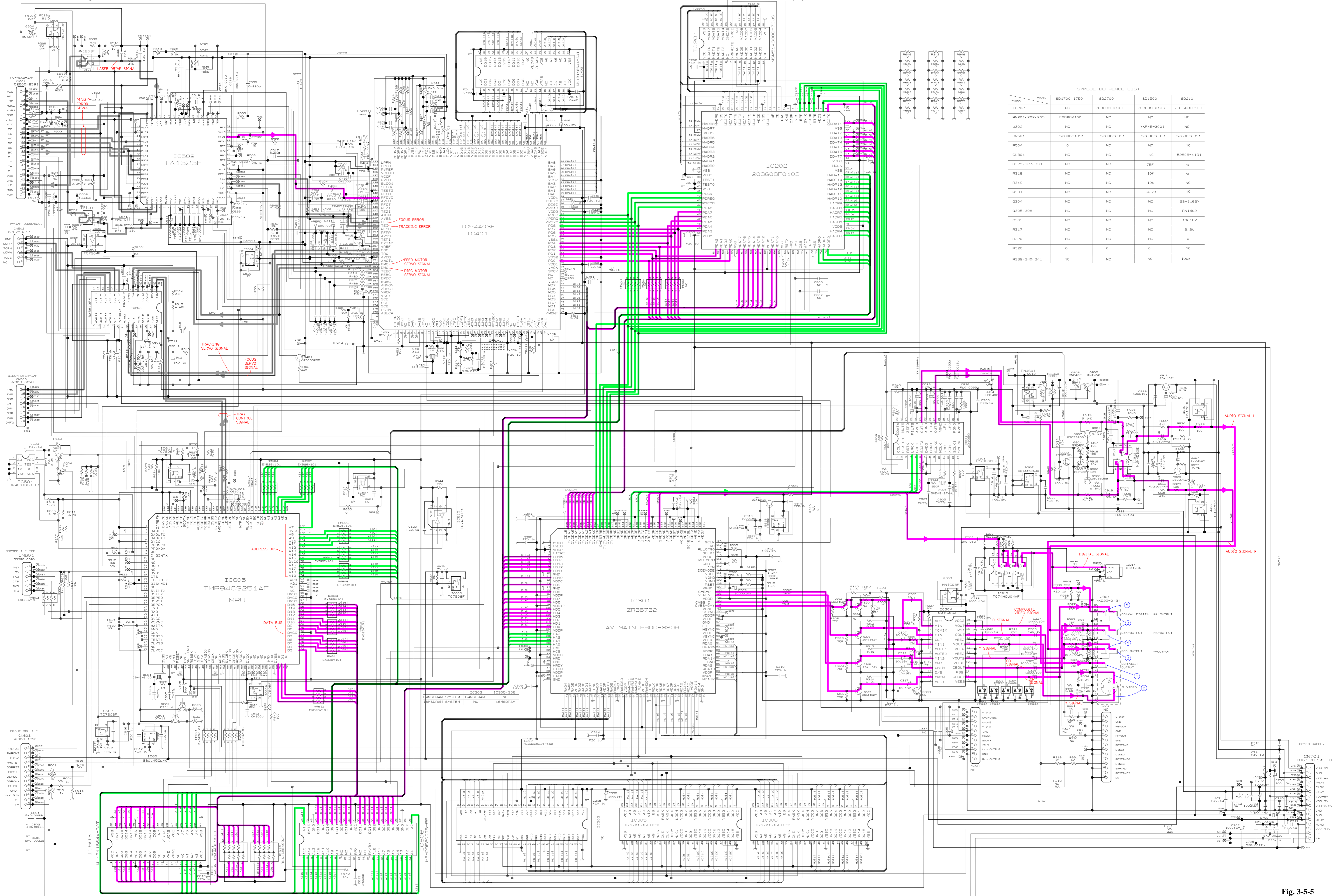
BA5813FM-E2



AD1959YRSRL



5-3-2. Main Circuit Diagram

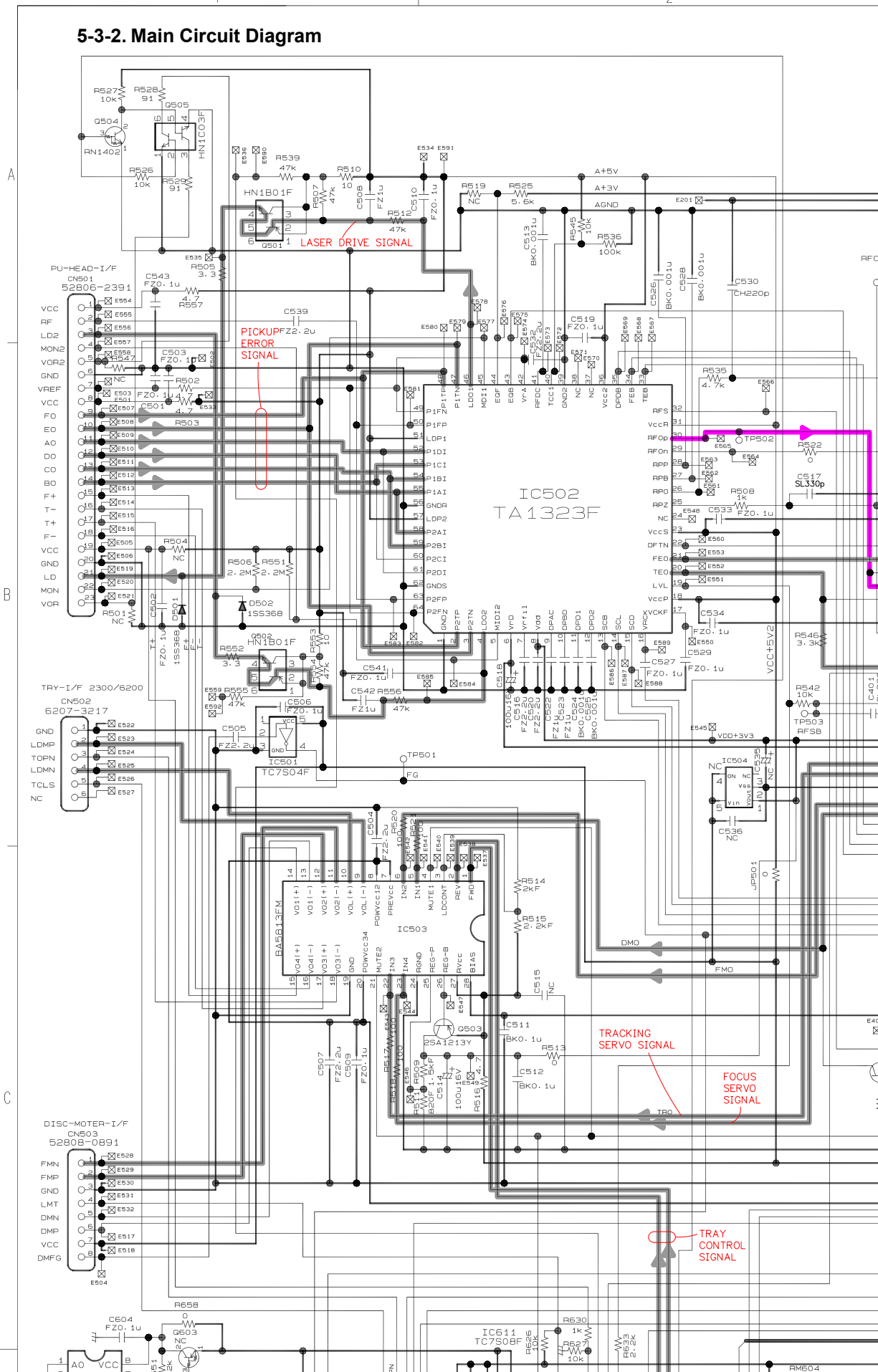


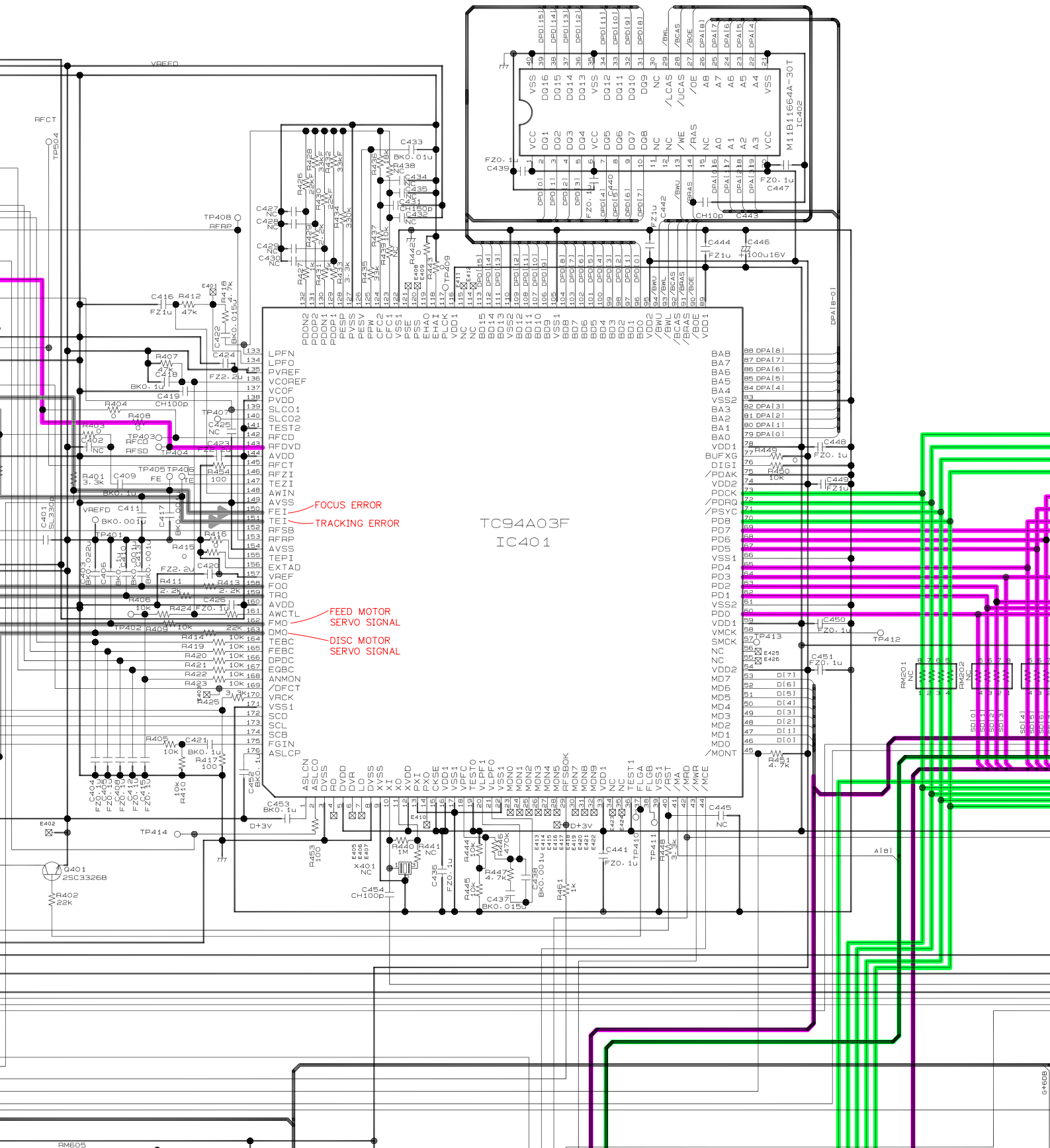
SYMBOL DIFFERENCE LIST

SYMBOL	MODEL	SD1700-1750	SD2700	SD1500	SD210
IC202	NC	20300BF0103	20300BF0103	20300BF0103	
RM201-202-203	EXB8V100	NC	NC	NC	
J302	NC	NC	YKF45-3001	NC	
CN501	52806-1891	52806-2391	52806-2391	52806-2391	
R504	0	NC	NC	NC	
CN301	NC	NC	NC	52806-1191	
R325-327-330	NC	NC	75P	NC	
R318	NC	NC	10K	NC	
R319	NC	NC	18K	NC	
R331	NC	NC	4.7K	NC	
G304	NC	NC	NC	PSA1162Y	
G305-308	NC	NC	NC	RM1402	
C305	NC	NC	NC	10u15V	
R317	NC	NC	NC	2.2K	
R320	NC	NC	NC	0	
R328	0	0	0	0	
R339-340-341	NC	NC	NC	100K	

Fig. 3-5-5

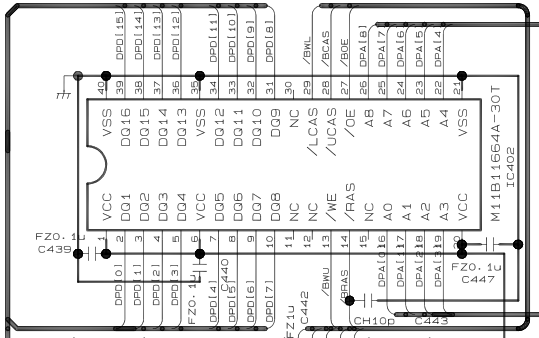
5-3-2. Main Circuit Diagram

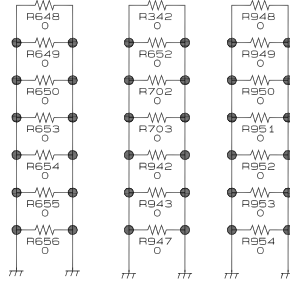
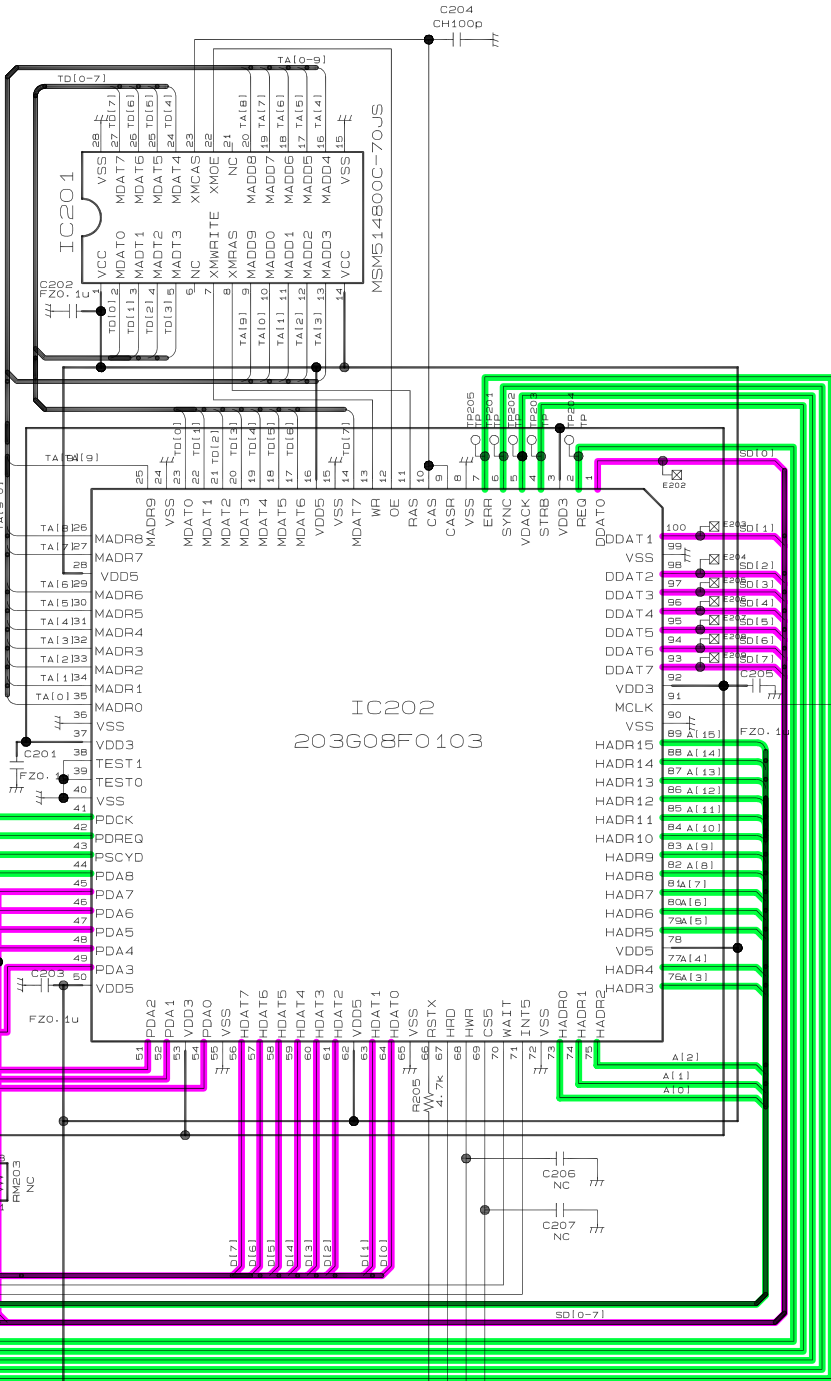




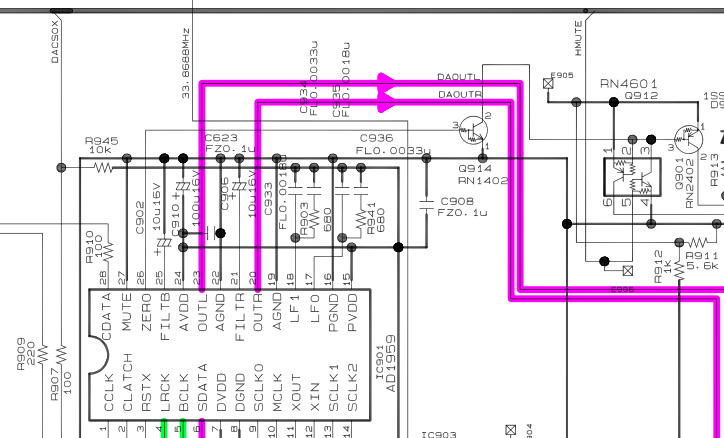
TC94A03F
IC401

FOCUS ERROR
TRACKING ERROR
FEED MOTOR
SERVO SIGNAL
DISC MOTOR
SERVO SIGNAL



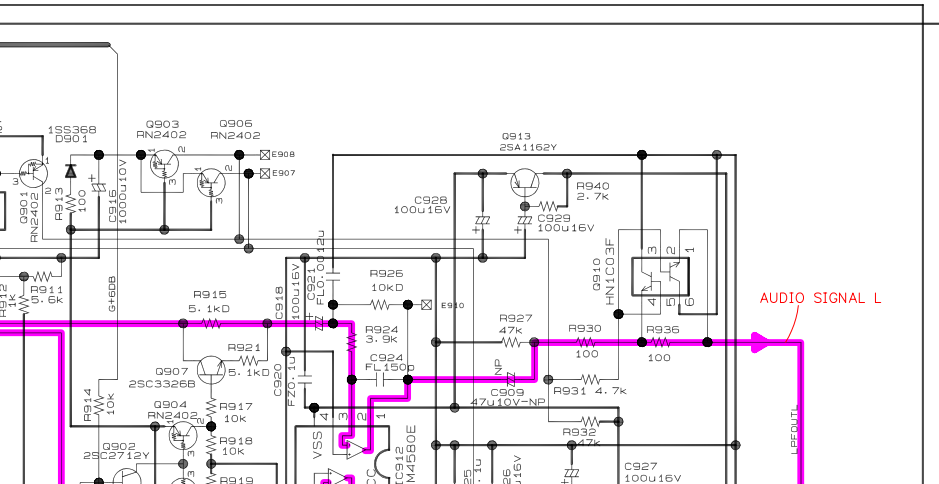


SYMBOL	MODEL
IC202	
RM201, 202, 203	
J302	
CN501	
R504	
CN301	
R325, 327, 330	
R316	
R319	
R331	
Q304	
Q305, 308	
C305	
R317	
R320	
R328	
R339, 340, 341	



SYMBOL DEFERENCE LIST

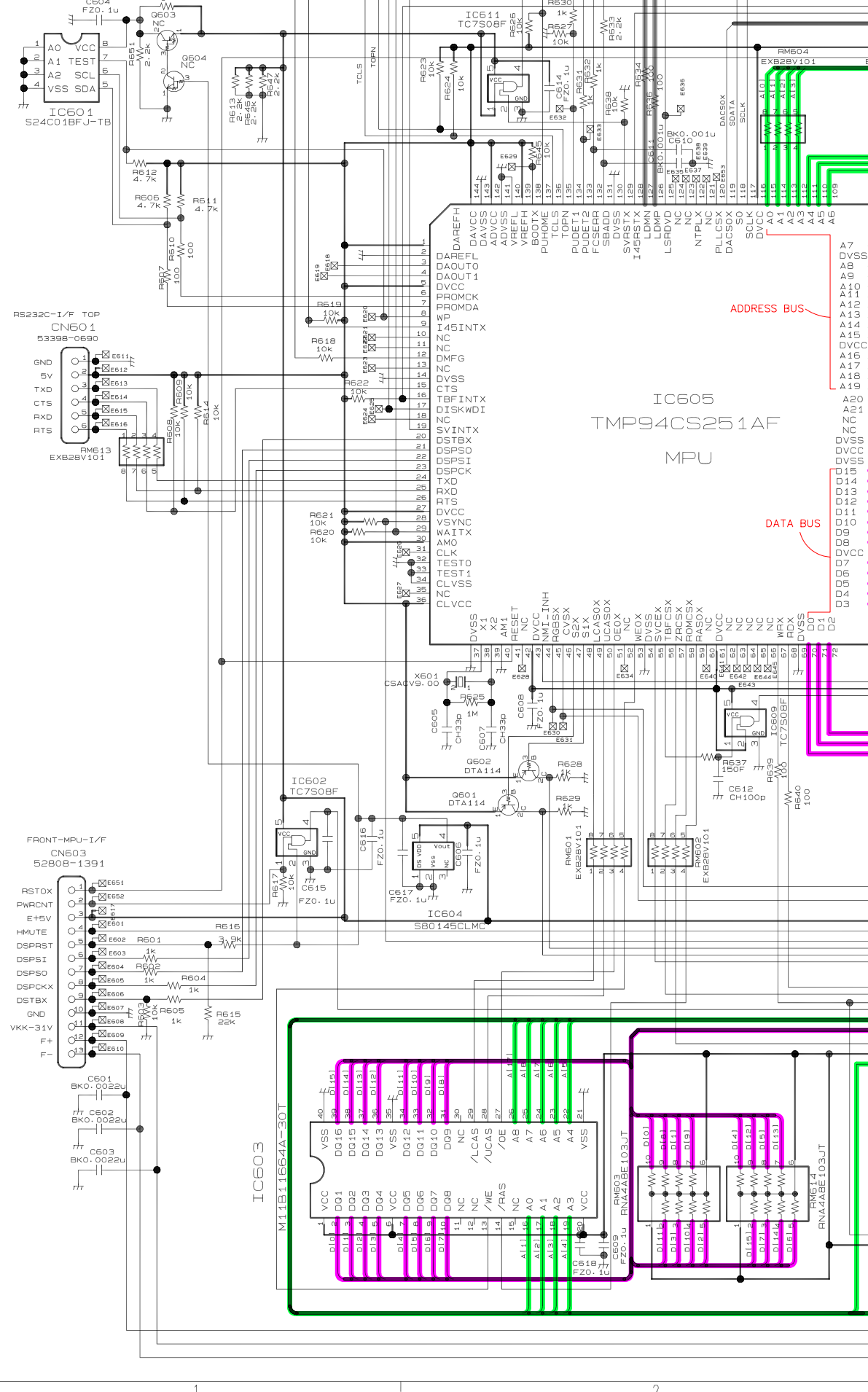
MODEL	SD1700. 1750	SD2700	SD1500	SD210
	NC	203G08F0103	203G08F0103	203G08F0103
203	EXB28V100	NC	NC	NC
	NC	NC	YKF45-3001	NC
	52806-1891	52806-2391	52806-2391	52806-2391
	0	NC	NC	NC
	NC	NC	NC	52806-1191
330	NC	NC	75F	NC
	NC	NC	10K	NC
	NC	NC	12K	NC
	NC	NC	4.7K	NC
	NC	NC	NC	2SA1162Y
	NC	NC	NC	RN1402
	NC	NC	NC	10u16V
	NC	NC	NC	2.2k
	0	0	0	NC
341	NC	NC	NC	100k



A

B

C

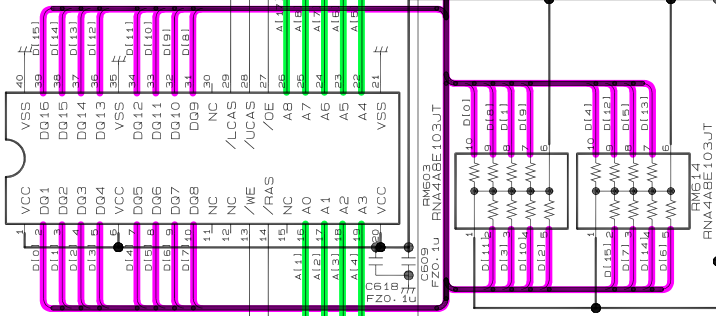


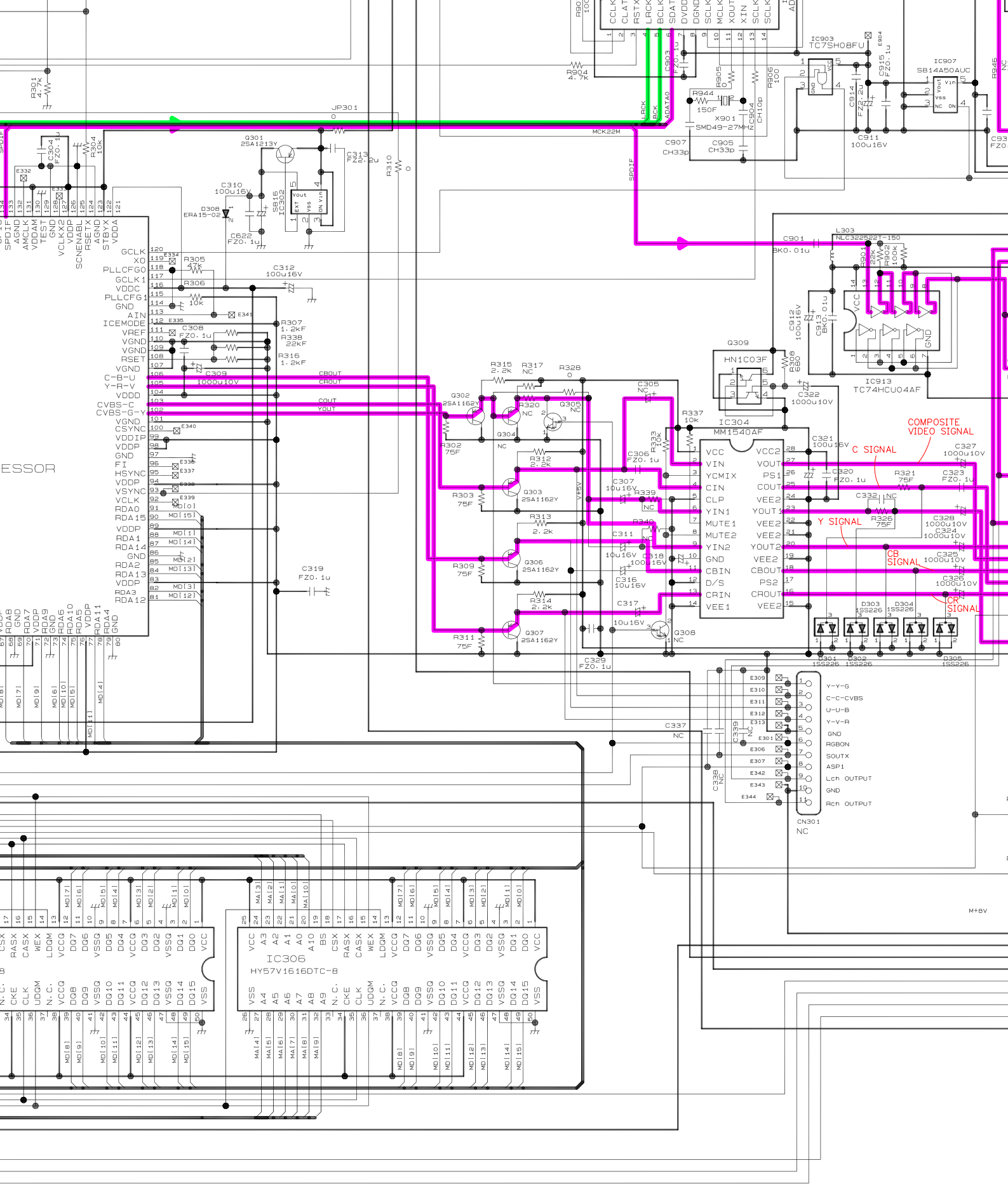
ADDRESS BUS

DATA BUS

IC605
TMP94CS25 1AF
MPU

IC603





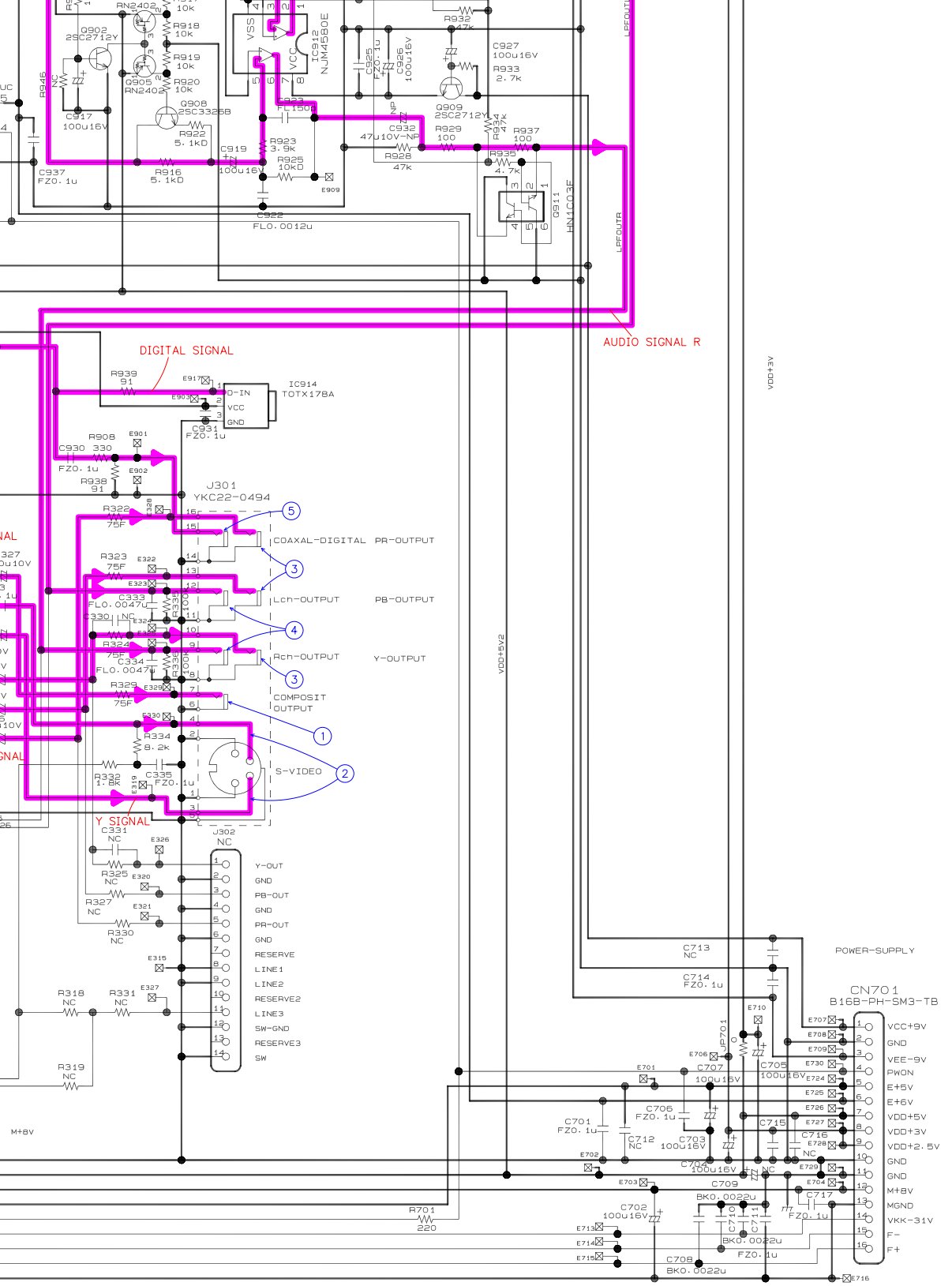
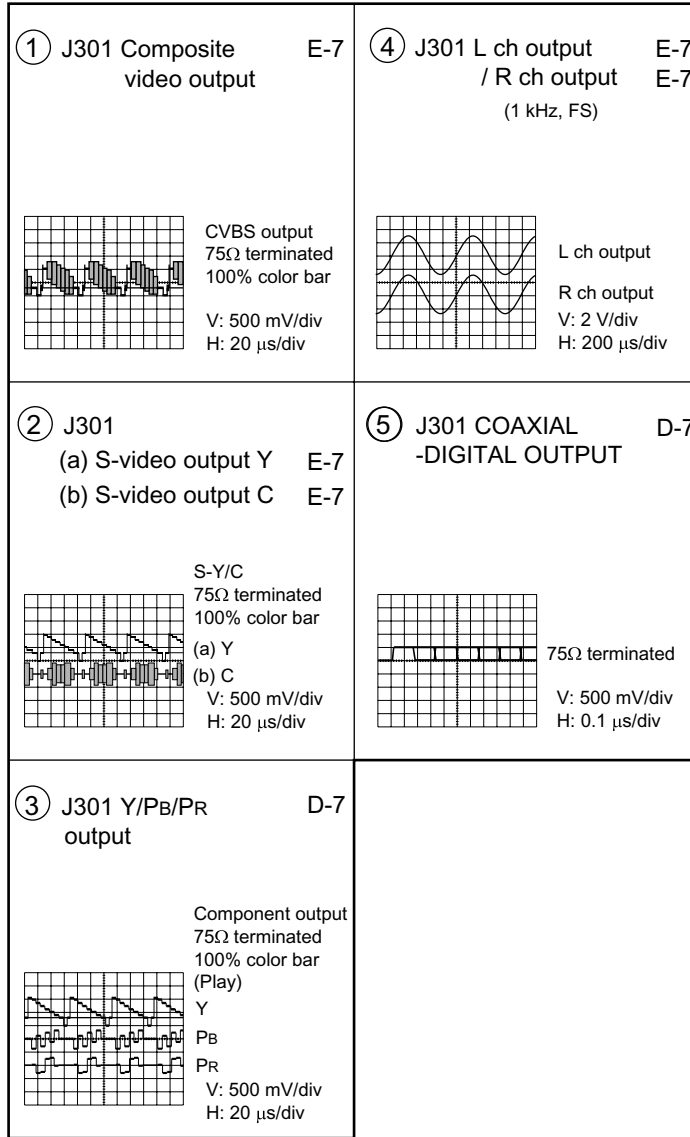


Fig. 3-5-5

Main Circuit Diagram



Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
C201	B5	C505	B1	C928	C7	E426	B4
C202	A5	C506	B1	C929	C7	E501	B1
C203	B5	C507	C1	C930	D7	E502	B1
C204	A5	C508	A1	C931	D7	E503	B1
C205	B6	C509	C1	C932	D7	E504	C1
C206	C5	C510	A1	C933	C6	E505	B1
C207	C5	C511	C2	C934	C6	E506	B1
C301	D4	C512	C2	C935	C6	E507	B1
C302	D4	C512	E2	C936	C6	E508	B1
C303	E4	C513	A2	C937	D7	E509	B1
C304	D5	C514	C2	CN301	E6	E510	B1
C305	D6	C515	C2	CN501	A1	E511	B1
C306	D6	C516	B2	CN502	B1	E512	B1
C307	E6	C517	B2	CN503	C1	E513	B1
C308	D5	C518	B2	CN601	D1	E514	B1
C309	D5	C519	A2	CN603	E1	E515	B1
C310	D5	C520	B2	CN701	E8	E516	B1
C311	E6	C522	B2	D301	E6	E517	C1
C312	D5	C523	B2	D302	E6	E518	C1
C313	D5	C524	B2	D303	E6	E519	B1
C314	E4	C525	B2	D304	E6	E520	B1
C315	E4	C526	A2	D305	E7	E521	B1
C316	E6	C527	B2	D308	D5	E522	B1
C317	E6	C528	A2	D501	B1	E523	B1
C318	E6	C529	B2	D502	B1	E524	B1
C319	E5	C530	A2	D901	C7	E525	B1
C320	D6	C532	A2	E201	A2	E526	B1
C321	D6	C533	B2	E202	B6	E527	B1
C322	D6	C534	B2	E203	B6	E528	C1
C323	D7	C535	B2	E204	B6	E529	C1
C324	E7	C536	B2	E205	B6	E530	C1
C325	E7	C539	A1	E206	B6	E531	C1
C326	E7	C541	B1	E207	B6	E532	C1
C327	D7	C542	B1	E208	B6	E533	B1
C328	E7	C543	A1	E209	B6	E534	A2
C329	E6	C601	F1	E301	E6	E535	A1
C330	E7	C602	F1	E302	E4	E536	A1
C331	E7	C603	F1	E303	E4	E537	C2
C332	E6	C604	C1	E304	E4	E538	C2
C333	E7	C605	E2	E305	E4	E539	C2
C334	E7	C606	E2	E306	E6	E540	C2
C335	E7	C607	E2	E307	E6	E541	C2
C336	E4	C608	E2	E309	E6	E542	C1
C337	E6	C609	F2	E310	E6	E543	C1
C338	E6	C610	D2	E311	E6	E544	C1
C339	E6	C611	D2	E312	E6	E545	B2
C401	B2	C612	E2	E313	E6	E546	C1
C402	B2	C613	F3	E314	E4	E547	C2
C403	B2	C614	D2	E315	E7	E548	B2
C404	C3	C615	E1	E316	D4	E549	C2
C405	C3	C616	E1	E317	D4	E550	B2
C406	B3	C617	E2	E318	D4	E551	B2
C408	C3	C618	F2	E319	E7	E552	B2
C409	B3	C619	D3	E320	E7	E553	B2
C410	B3	C620	D3	E321	E7	E554	A1
C411	B3	C621	D3	E322	D7	E555	A1
C412	C3	C622	D5	E323	D7	E556	A1
C413	B3	C623	C6	E324	E7	E557	A1
C415	C3	C701	E8	E325	E7	E558	B1
C416	B3	C702	F8	E326	E7	E559	B1
C417	B3	C703	E8	E327	E7	E560	B2
C418	B3	C704	F8	E328	D7	E561	B2
C419	B3	C705	E8	E329	E7	E562	B2
C420	B3	C706	E8	E330	E7	E563	B2
C421	C3	C707	E8	E331	D4	E564	B2
C422	B3	C708	F8	E332	D5	E565	B2
C423	B3	C709	F8	E333	D5	E566	B2
C424	B3	C710	F8	E334	D5	E567	A2
C425	B3	C711	F8	E335	D5	E568	A2
C426	B3	C712	E8	E336	D5	E569	A2
C427	B3	C713	E8	E337	D5	E570	B2
C428	B3	C714	E8	E338	E5	E571	B2
C429	B3	C715	E8	E339	E5	E572	A2
C430	B3	C716	E8	E340	D5	E573	A2
C431	B3	C717	F8	E341	D5	E574	A2
C432	B3	C901	D6	E342	E6	E575	A2
C433	A3	C902	C6	E343	E6	E576	A2
C434	A3	C903	D6	E344	E6	E577	A2
C435	A3	C904	D6	E401	B3	E578	A2
C436	C3	C905	D6	E402	C2	E579	A2
C437	C3	C906	C6	E403	C3	E580	A2
C438	C3	C907	D6	E405	C3	E581	B1
C439	A3	C908	C6	E406	C3	E582	B1
C440	A4	C909	C7	E407	C3	E583	B1
C441	C4	C910	C6	E408	B3	E584	B2
C442	B4	C911	D6	E409	B3	E585	B2
C443	B4	C912	D6	E410	C3	E586	B2
C444	B4	C913	D6	E411	B3	E587	B2
C445	C4	C914	D6	E412	B3	E588	B2
C446	B4	C915	D6	E413	C3	E589	B2
C447	A4	C916	C7	E414	C3	E590	A1
C448	B4	C917	D7	E415	C3	E591	A2
C449	B4	C918	C7	E416	C4	E592	B1
C450	B4	C919	D7	E417	C4	E601	E1
C451	B4	C920	C7	E418	C4	E602	E1
C452	C3	C921	C7	E419	C4	E603	E1
C453	C3	C922	D7	E420	C4	E604	E1
C454	C3	C923	D7	E421	C4	E605	E1
C501	B1	C924	C7	E422	C4	E606	E1
C502	B1	C925	D7	E423	C4	E607	E1
C503	B1	C926	D7	E424	C4	E608	E1
C504	B1	C927	D8	E425	B4	E609	E1

Fig. 3-5-6

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
E610	E1	IC907	C7	R417	C3	R624	D2	RM609	D3
E611	D1	IC912	D7	R418	B3	R625	E2	RM610	D3
E612	D1	IC913	D6	R419	B3	R626	C2	RM611	E3
E613	D1	IC914	D7	R420	B3	R627	C2	RM612	E3
E614	D1	J301	D7	R421	C3	R628	E2	RM613	D1
E615	D1	J302	E7	R422	C3	R629	E2	RM614	F2
E616	D1	JP301	D5	R423	C3	R630	C2	TP201	A5
E617	E1	JP501	C2	R424	B3	R631	D2	TP202	A5
E618	D1	JP701	E8	R425	C3	R632	D2	TP203	A5
E619	D1	L302	E4	R426	A3	R633	C2	TP204	A5
E620	D1	L303	D6	R427	B3	R634	D2	TP205	A5
E621	D1	Q301	D5	R428	A3	R635	D3	TP303	D4
E622	D1	Q302	D5	R429	B3	R636	D2	TP401	B3
E623	D1	Q303	E6	R430	B3	R637	E2	TP402	B3
E624	D1	Q304	D6	R431	B3	R638	D2	TP403	B3
E625	D1	Q305	D6	R432	A3	R639	E2	TP404	B3
E626	E2	Q306	E6	R433	B3	R640	E2	TP405	B3
E627	E2	Q307	E6	R434	B3	R641	D3	TP406	B3
E628	E2	Q308	E6	R435	B3	R642	F3	TP407	B3
E629	D2	Q309	D6	R436	A3	R643	D3	TP408	B3
E630	E2	Q401	C2	R437	B3	R644	D3	TP409	B3
E631	E2	Q501	A1	R438	A3	R645	D2	TP410	C4
E632	D2	Q502	B1	R439	B3	R646	D1	TP411	C4
E633	D2	Q503	C2	R440	C3	R647	D1	TP412	B4
E634	E2	Q504	A1	R441	C3	R648	A6	TP413	B4
E635	D2	Q505	A1	R442	B3	R649	A6	TP414	C3
E636	D2	Q601	E2	R443	B3	R650	A6	TP501	B1
E637	D2	Q602	E2	R444	C3	R651	D1	TP502	B2
E638	D2	Q603	C1	R445	C3	R652	A6	TP503	B2
E639	D2	Q604	D1	R446	C3	R653	A6	TP504	A2
E640	E2	Q901	C7	R447	C3	R654	A6	X401	C3
E641	E2	Q902	C7	R448	C4	R655	A6	X601	E2
E642	E2	Q903	C7	R449	B4	R656	B6	X901	D6
E643	E2	Q904	C7	R450	B4	R658	C1		
E644	E2	Q905	D7	R451	C4	R701	F7		
E645	E2	Q906	C7	R453	C3	R702	A6		
E646	D2	Q907	C7	R454	B3	R703	A6		
E647	D2	Q908	D7	R461	C4	R901	D6		
E648	D2	Q909	D7	R501	B1	R902	D6		
E649	D2	Q910	C7	R502	B1	R903	C6		
E650	D3	Q911	D8	R503	B1	R904	D6		
E651	E1	Q912	C7	R504	B1	R905	D6		
E652	E1	Q913	C7	R505	A1	R906	D6		
E653	D2	Q914	C6	R506	B1	R907	C6		
E701	E8	R205	B5	R507	A1	R908	D7		
E702	F8	R301	D5	R508	B2	R909	C6		
E703	F8	R302	D5	R509	C2	R910	C6		
E704	F8	R303	E6	R510	A1	R911	C7		
E706	E8	R304	D5	R511	C2	R912	C7		
E707	E8	R305	D5	R512	A1	R913	C7		
E708	E8	R306	D5	R513	C2	R914	C7		
E709	E8	R307	D5	R514	C2	R915	C7		
E710	E8	R308	D6	R515	C2	R916	D7		
E713	F8	R309	E6	R516	C2	R917	C7		
E714	F8	R310	D5	R517	C1	R918	C7		
E715	F8	R311	E6	R518	C1	R919	D7		
E716	F8	R312	D6	R519	A2	R920	D7		
E724	E8	R313	E6	R520	B1	R921	C7		
E725	E8	R314	E6	R521	B1	R922	D7		
E726	E8	R315	D6	R522	B2	R923	D7		
E727	E8	R316	D5	R525	A2	R924	C7		
E728	E8	R317	D6	R526	A1	R925	D7		
E729	F8	R318	E7	R527	A1	R926	C7		
E730	E8	R319	E7	R528	A1	R927	C7		
E901	D7	R320	D6	R529	A1	R928	D7		
E902	D7	R321	E6	R535	B2	R929	D7		
E903	D7	R322	D7	R536	A2	R930	C7		
E904	D6	R323	D7	R539	A1	R931	C7		
E905	C6	R324	E7	R542	B2	R932	C7		
E906	C7	R325	E7	R545	A2	R933	D8		
E907	C7	R326	E6	R546	B2	R934	D8		
E908	C7	R327	E7	R547	B1	R935	D8		
E909	D7	R328	D6	R551	B1	R936	C8		
E910	C7	R329	E7	R552	B1	R937	D8		
E917	D7	R330	E7	R553	B1	R938	D7		
IC201	A5	R331	E7	R554	B1	R939	D7		
IC202	B5	R332	E7	R555	B1	R940	C7		
IC301	D4	R333	D6	R556	B1	R941	C6		
IC302	D5	R334	E7	R557	A1	R942	A6		
IC303	F4	R335	E7	R601	E1	R943	A6		
IC304	D6	R336	E7	R602	E1	R944	D6		
IC305	F4	R337	D6	R603	E1	R945	C6		
IC306	F5	R338	D5	R604	E1	R946	D7		
IC401	B3	R339	E6	R605	E1	R947	B6		
IC402	A4	R340	E6	R606	D1	R948	A6		
IC501	B1	R342	A6	R607	D1	R949	A6		
IC502	B2	R401	B2	R608	D1	R950	A6		
IC503	C1	R402	C2	R609	D1	R951	A6		
IC504	B2	R403	B2	R610	D1	R952	A6		
IC601	D1	R404	B3	R611	D1	R953	A6		
IC602	E1	R405	C3	R612	D1	R954	B6		
IC603	F1	R406	B3	R613	D1	RM201	C4		
IC604	E2	R407	B3	R614	D1	RM202	C4		
IC605	D2	R408	B3	R615	E1	RM203	C5		
IC606	F3	R409	B3	R616	E1	RM601	E2		
IC607	D3	R410	C3	R617	E1	RM602	E2		
IC608	D3	R411	B3	R618	D1	RM603	F2		
IC609	E2	R412	B3	R619	D1	RM604	D2		
IC610	D3	R413	B3	R620	D1	RM605	D2		
IC611	C2	R414	B3	R621	D1	RM606	D3		
IC901	C6	R415	B3	R622	D1	RM607	D3		
IC903	D6	R416	B3	R623	D2	RM608	D3		

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5-4. Motor System Circuit Diagram

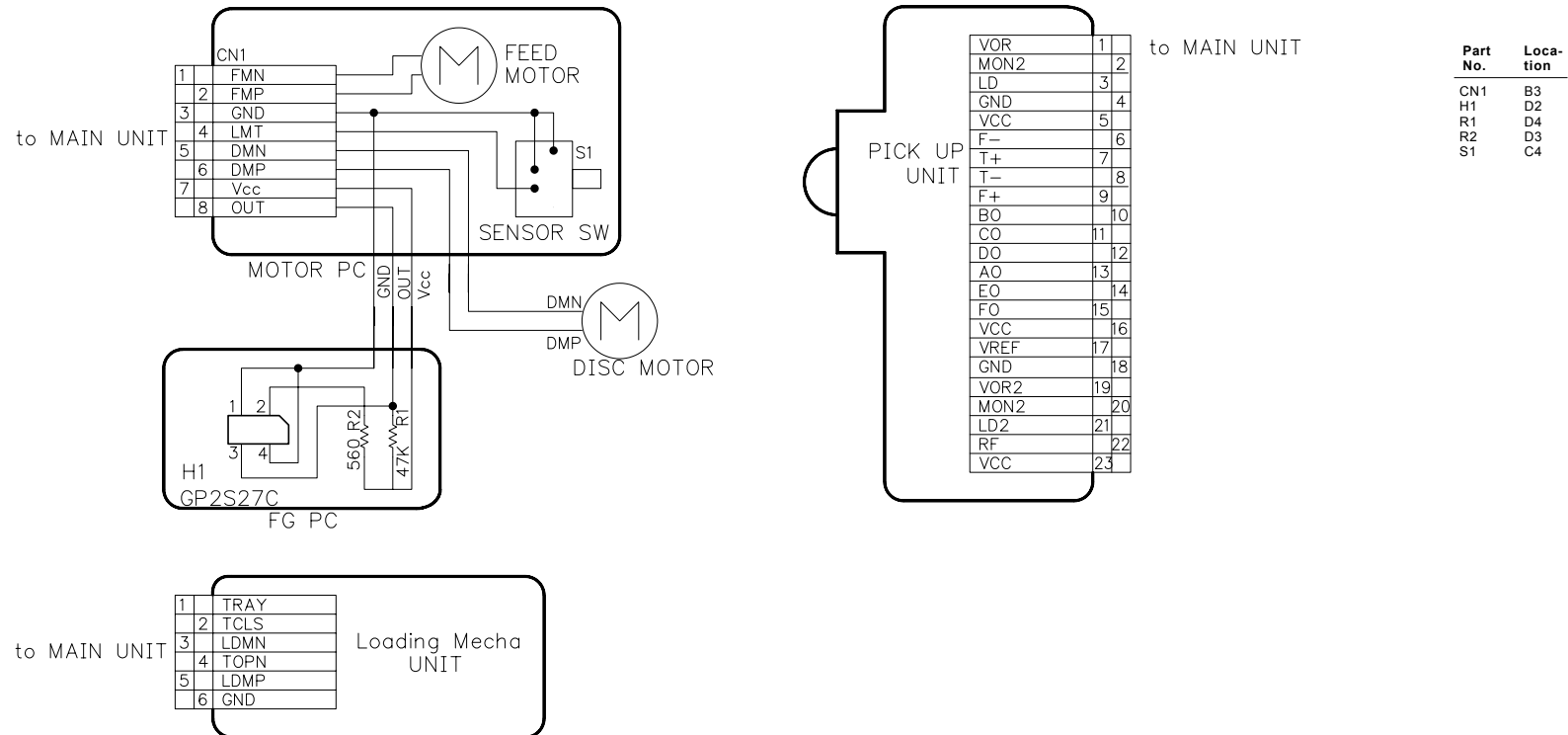
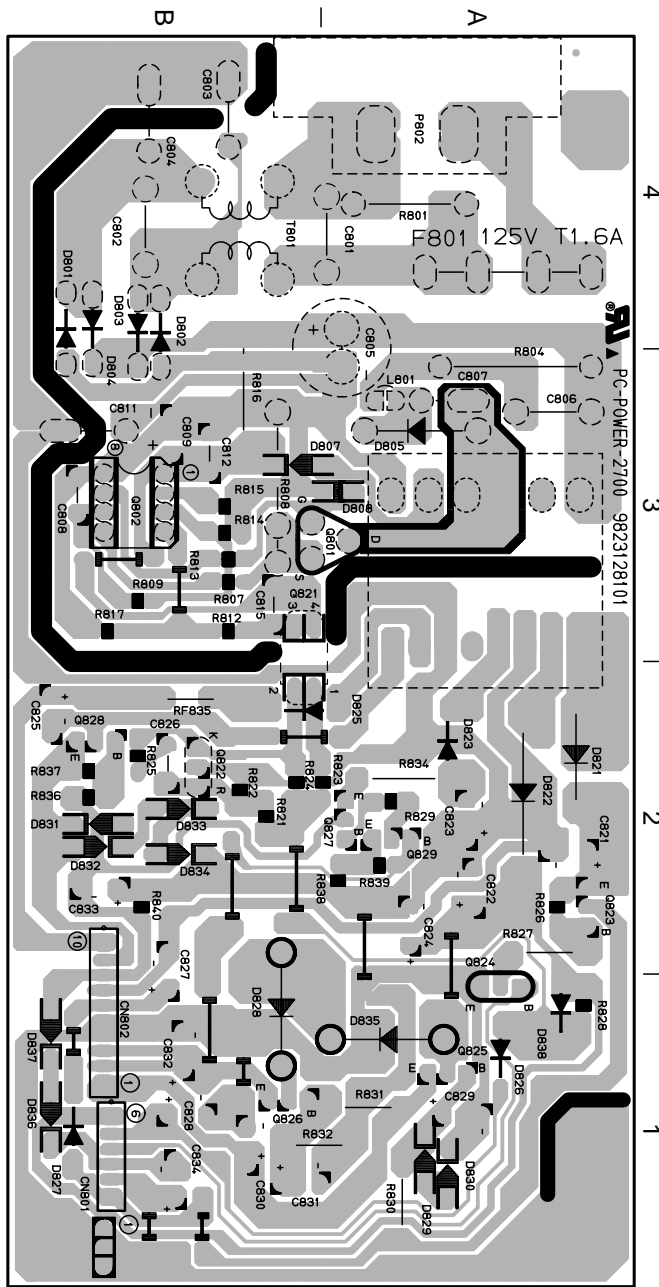


Fig. 3-5-7

6. PC BOARDS

6-1. Power Supply PC Board



Part No.	Location	Part No.	Location
C801	A4	D836	B1
C802	B4	D837	B1
C803	B4	D838	A1
C804	B4	F801	A4
C805	A3	L801	A3
C806	A3	P802	A4
C807	A3	Q801	B3
C808	B3	Q802	B3
C809	B3	Q821	B3
C811	B3	Q822	B2
C812	B3	Q823	A2
C815	B3	Q824	A1
C821	A2	Q825	A1
C822	A2	Q826	B1
C823	A2	Q827	A2
C824	A2	Q828	B2
C825	B2	Q829	A2
C826	B2	Q801	A4
C827	B2	R804	A3
C828	B1	R807	B3
C829	A1	R808	B3
C830	B1	R809	B3
C831	B1	R812	B3
C832	B1	R813	B3
C833	B2	R814	B3
C834	B1	R815	B3
CN801	B1	R816	B4
CN802	B2	R817	B3
D801	B4	R821	B2
D802	B4	R822	B2
D803	B3	R823	A2
D804	B3	R824	B2
D805	A3	R825	B2
D807	B3	R826	A2
D808	A3	R827	A2
D821	A2	R828	A1
D822	A2	R829	A2
D823	A2	R830	A1
D825	B2	R831	A1
D826	A1	R832	B1
D827	B1	R834	A2
D828	B1	R836	B2
D829	A1	R837	B2
D830	A1	R838	A2
D831	B2	R839	A2
D832	B2	R840	B2
D833	B2	RF835	B2
D834	B2	T801	B4
D835	A1	T802	A3

Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

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6-2. Power Switch PC Board

A

B

C

D

E

F

G

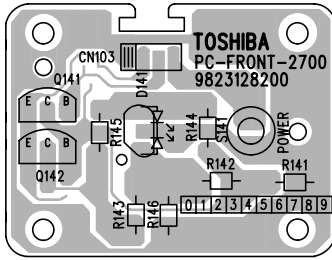


Fig. 3-6-2 EU04
Power Switch PC Board
(Top side)

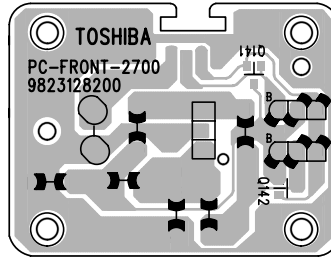


Fig. 3-6-3 EU04
Power Switch PC Board
(Bottom side)

6-3. Main PC Board

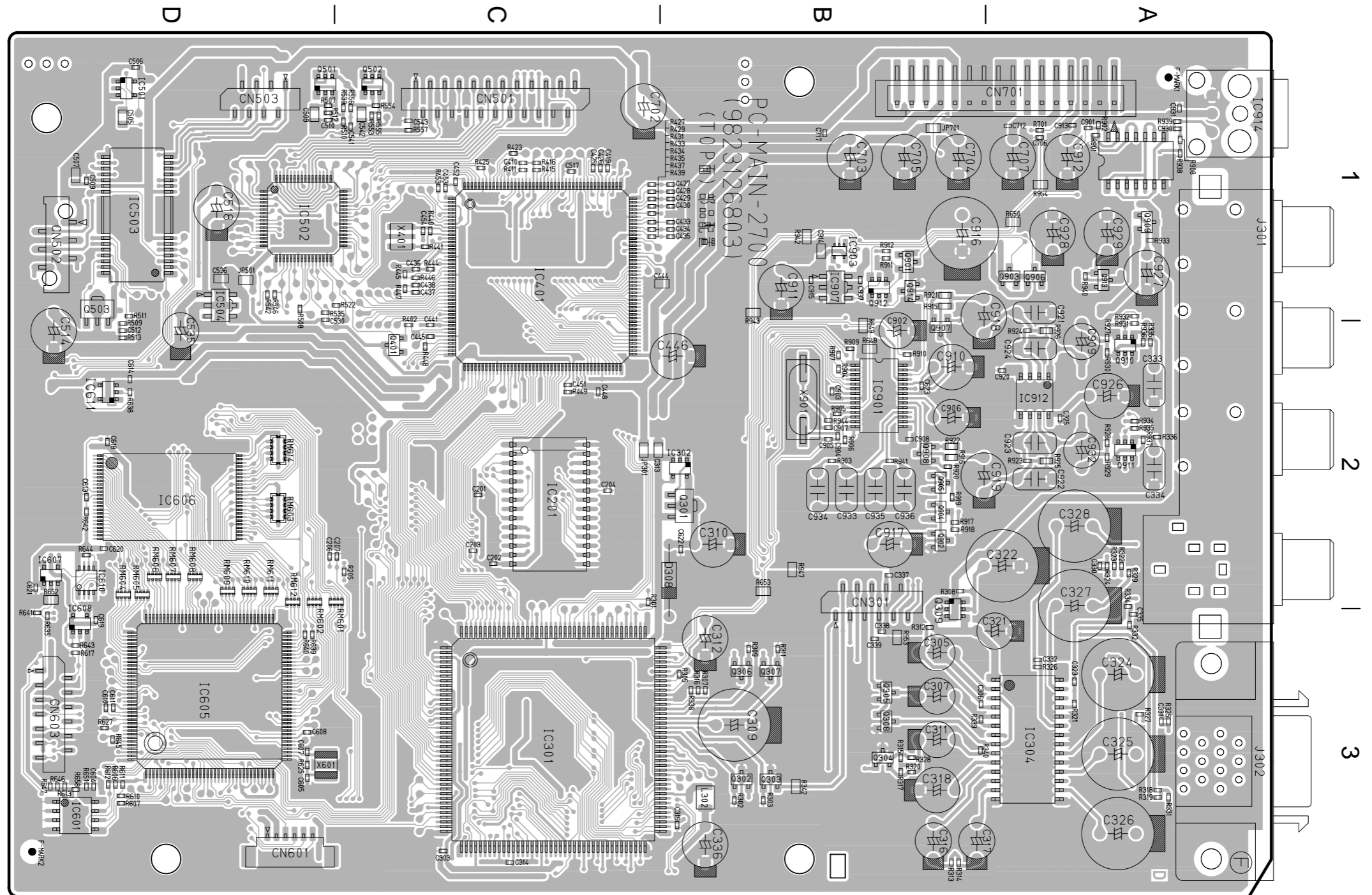


Fig. 3-6-4 EU01 Main PC Board (Top pattern and Top parts location diagram)

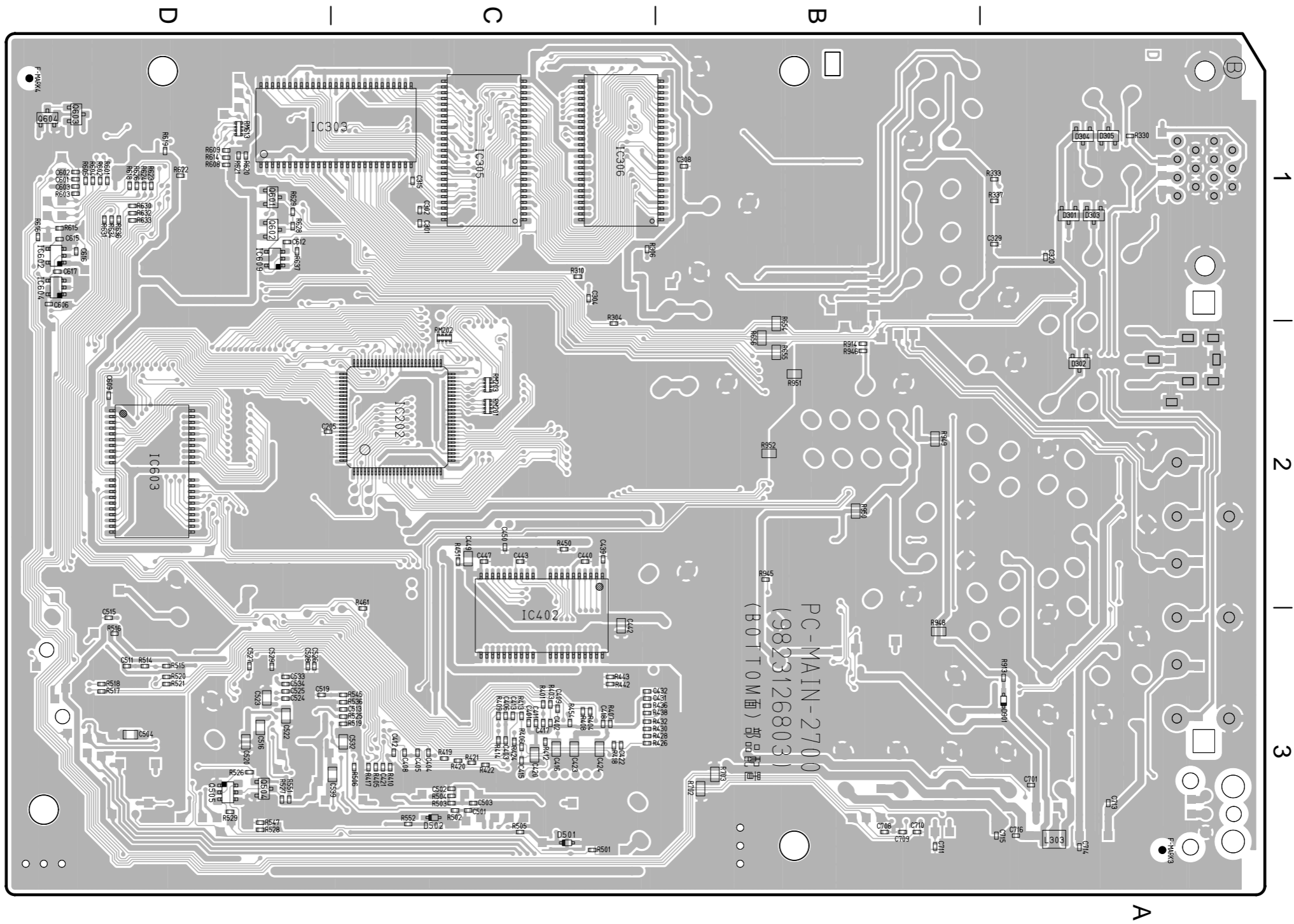


Fig. 3-6-5 EU01 Main PC Board (Bottom pattern and bottom parts location diagram)

Main PC Board (Top Side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
C201	C2	C611	D3	IC913	A1	R435	C1	R928	A2
C202	C2	C613	D2	IC914	A1	R437	C1	R929	A2
C203	C2	C614	D2	J301	A1	R439	C1	R930	A2
C204	C2	C618	D2	J302	A3	R440	C1	R931	A2
C206	D2	C619	D3	JP301	C2	R441	C1	R932	A1
C207	C2	C620	D2	JP501	D1	R444	C1	R933	A1
C303	C3	C621	D2	JP701	B1	R445	C1	R934	A2
C305	B3	C622	B2	L302	B3	R446	C1	R935	A2
C306	B3	C623	B2	Q301	B2	R447	C1	R936	A2
C307	B3	C702	C1	Q302	B3	R448	C2	R937	A2
C309	B3	C703	B1	Q303	B3	R449	C2	R938	A1
C310	B2	C704	B1	Q304	B3	R453	C1	R939	A1
C311	B3	C705	B1	Q305	B3	R507	D1	R940	A1
C312	B3	C706	A1	Q306	B3	R508	D1	R941	B2
C313	C2	C707	A1	Q307	B3	R509	D2	R942	B1
C314	C3	C712	A1	Q308	B3	R510	C1	R943	B1
C316	B3	C717	B1	Q309	B3	R511	D1	R944	B2
C317	B3	C901	A1	Q401	C2	R512	D1	R947	B2
C318	B3	C902	B2	Q501	D1	R513	D2	R953	B3
C319	B3	C903	B2	Q502	C1	R522	C1	R954	A1
C321	A3	C904	B2	Q503	D1	R535	D1	RM601	C2
C322	A2	C905	B2	Q901	B1	R539	C1	RM602	D2
C323	A3	C906	B2	Q902	B2	R542	D1	RM603	D2
C324	A3	C907	B2	Q903	A1	R546	D1	RM604	D2
C325	A3	C908	B2	Q904	B2	R553	C1	RM605	D2
C326	A3	C909	A2	Q905	B2	R554	C1	RM606	D2
C327	A2	C910	B2	Q906	A1	R555	C1	RM607	D2
C328	A2	C911	B1	Q907	B2	R556	C1	RM608	D2
C330	A2	C912	A1	Q908	B2	R557	C1	RM609	D2
C331	A3	C913	A1	Q909	A1	R606	D3	RM610	D2
C332	A3	C914	B1	Q910	A2	R607	D3	RM611	D2
C333	A2	C915	B1	Q911	A2	R610	D3	RM612	D2
C334	A2	C916	B1	Q912	B1	R611	D3	RM614	D2
C335	A3	C917	B2	Q913	A1	R612	D3	X401	C1
C336	B3	C918	B1	Q914	B1	R613	D3	X601	D3
C337	B2	C919	B2	R205	C2	R617	D3	X901	B2
C338	B3	C920	A2	R301	C2	R625	D3		
C339	B3	C921	A1	R302	B3	R627	D3		
C410	C1	C922	A2	R303	B3	R635	D3		
C419	C1	C923	A2	R305	B3	R638	D2		
C425	C1	C924	A2	R307	B3	R639	D3		
C426	C1	C925	A2	R308	B2	R640	D3		
C427	B1	C926	A2	R309	B3	R641	D3		
C428	B1	C927	A1	R311	B3	R642	D2		
C429	B1	C928	A1	R312	B3	R643	D3		
C430	B1	C929	A1	R313	B3	R644	D2		
C433	B1	C930	A1	R314	B3	R645	D3		
C434	B1	C931	A1	R315	B3	R646	D3		
C435	B1	C932	A2	R316	B3	R647	D3		
C436	C1	C933	B2	R317	B3	R648	B2		
C437	C1	C934	B2	R318	A3	R649	B2		
C438	C1	C935	B2	R319	A3	R650	A1		
C441	C2	C936	B2	R320	B3	R651	D3		
C444	B1	C937	B1	R321	A3	R652	D2		
C445	C2	CN301	B2	R322	A2	R653	B2		
C446	B2	CN501	C1	R323	A2	R658	D3		
C448	C2	CN502	D1	R324	A2	R701	A1		
C451	C2	CN503	D1	R325	A3	R901	A1		
C452	C1	CN601	D3	R326	A3	R902	A1		
C453	C1	CN603	D3	R327	A3	R903	B2		
C454	C1	CN701	A1	R328	B3	R904	B2		
C505	D1	D308	B2	R329	A2	R905	B2		
C506	D1	IC201	C2	R331	A3	R906	B2		
C507	D1	IC301	C3	R332	A3	R907	B2		
C508	D1	IC302	B2	R334	A2	R908	A1		
C509	D1	IC304	A3	R335	A2	R909	B2		
C510	D1	IC401	C1	R336	A2	R910	B2		
C512	D2	IC501	D1	R338	B3	R911	B1		
C514	D2	IC502	D1	R339	B3	R912	B1		
C517	C1	IC503	D1	R340	B3	R915	B1		
C518	D1	IC504	D1	R342	B3	R916	B2		
C530	D1	IC601	D3	R402	C2	R917	B2		
C535	D2	IC605	D3	R411	C1	R918	B2		
C536	D1	IC606	D2	R415	C1	R919	B2		
C541	C1	IC607	D2	R416	C1	R920	B2		
C542	C1	IC608	D3	R423	C1	R921	B1		
C543	C1	IC610	D2	R425	C1	R922	B2		
C604	D3	IC611	D2	R427	C1	R923	A2		
C605	D3	IC901	B2	R429	C1	R924	A2		
C607	D3	IC903	B1	R431	C1	R925	A2		
C608	D3	IC907	B1	R433	C1	R926	A2		
C610	D3	IC912	A2	R434	C1	R927	A2		

Main PC Board (Bottom Side)

Part No.	Location	Part No.	Location	Part No.	Location
C205	D2	C708	B3	R501	C3
C301	C1	C709	B3	R502	C3
C302	C1	C710	B3	R503	C3
C304	C1	C711	B3	R504	C3
C308	B1	C713	A3	R505	C3
C315	C1	C714	A3	R506	C3
C320	A1	C715	A3	R514	D3
C329	A1	C716	A3	R515	D3
C401	C3	D301	A1	R516	D3
C402	C3	D302	A2	R517	D3
C403	C3	D303	A1	R518	D3
C404	C3	D304	A1	R519	C3
C405	C3	D305	A1	R520	D3
C406	C3	D501	C3	R521	D3
C408	C3	D502	C3	R525	C3
C409	C3	D901	A3	R526	D3
C411	C3	IC202	C2	R527	D3
C412	C3	IC303	C1	R528	D3
C413	C3	IC305	C1	R529	D3
C415	C3	IC306	C1	R536	C3
C416	C3	IC402	C3	R545	C3
C417	C3	IC602	D1	R547	D3
C418	C3	IC603	D2	R551	D3
C420	C3	IC604	D1	R552	C3
C421	C3	IC609	D1	R601	D1
C422	C3	L303	A3	R602	D1
C423	C3	Q504	D3	R603	D1
C424	C3	Q505	D3	R604	D1
C431	C3	Q601	D1	R605	D1
C432	C3	Q602	D1	R608	D1
C439	C2	Q603	D1	R609	D1
C440	C2	Q604	D1	R614	D1
C442	C3	R304	C2	R615	D1
C443	C2	R306	C1	R616	D1
C447	C2	R310	C1	R618	D1
C449	C2	R330	A1	R619	D1
C450	C2	R333	A1	R620	D1
C501	C3	R337	A1	R621	D1
C502	C3	R401	C3	R622	D1
C503	C3	R403	C3	R623	D1
C504	D3	R404	C3	R624	D1
C511	D3	R405	C3	R626	D1
C513	C3	R406	C3	R628	D1
C515	D3	R407	C3	R629	D1
C516	D3	R408	C3	R630	D1
C519	D3	R409	C3	R631	D1
C520	D3	R410	C3	R632	D1
C522	D3	R412	C3	R633	D1
C523	D3	R413	C3	R634	D1
C524	D3	R414	C3	R636	D1
C525	D3	R417	C3	R637	D1
C526	D3	R418	C3	R654	B2
C527	D3	R419	C3	R655	B2
C528	D3	R420	C3	R656	B2
C529	D3	R421	C3	R702	B3
C532	C3	R422	C3	R703	B3
C533	D3	R424	C3	R913	A3
C534	D3	R426	C3	R914	B2
C539	C3	R428	C3	R945	B2
C601	D1	R430	C3	R946	B2
C602	D1	R432	C3	R948	B3
C603	D1	R436	C3	R949	B2
C606	D1	R438	C3	R950	B2
C609	D2	R442	C3	R951	B2
C612	D1	R443	C3	R952	B2
C615	D1	R450	C2	RM201	C2
C616	D1	R451	C2	RM202	C2
C617	D1	R454	C3	RM203	C2
C701	A3	R461	C3	RM613	D1

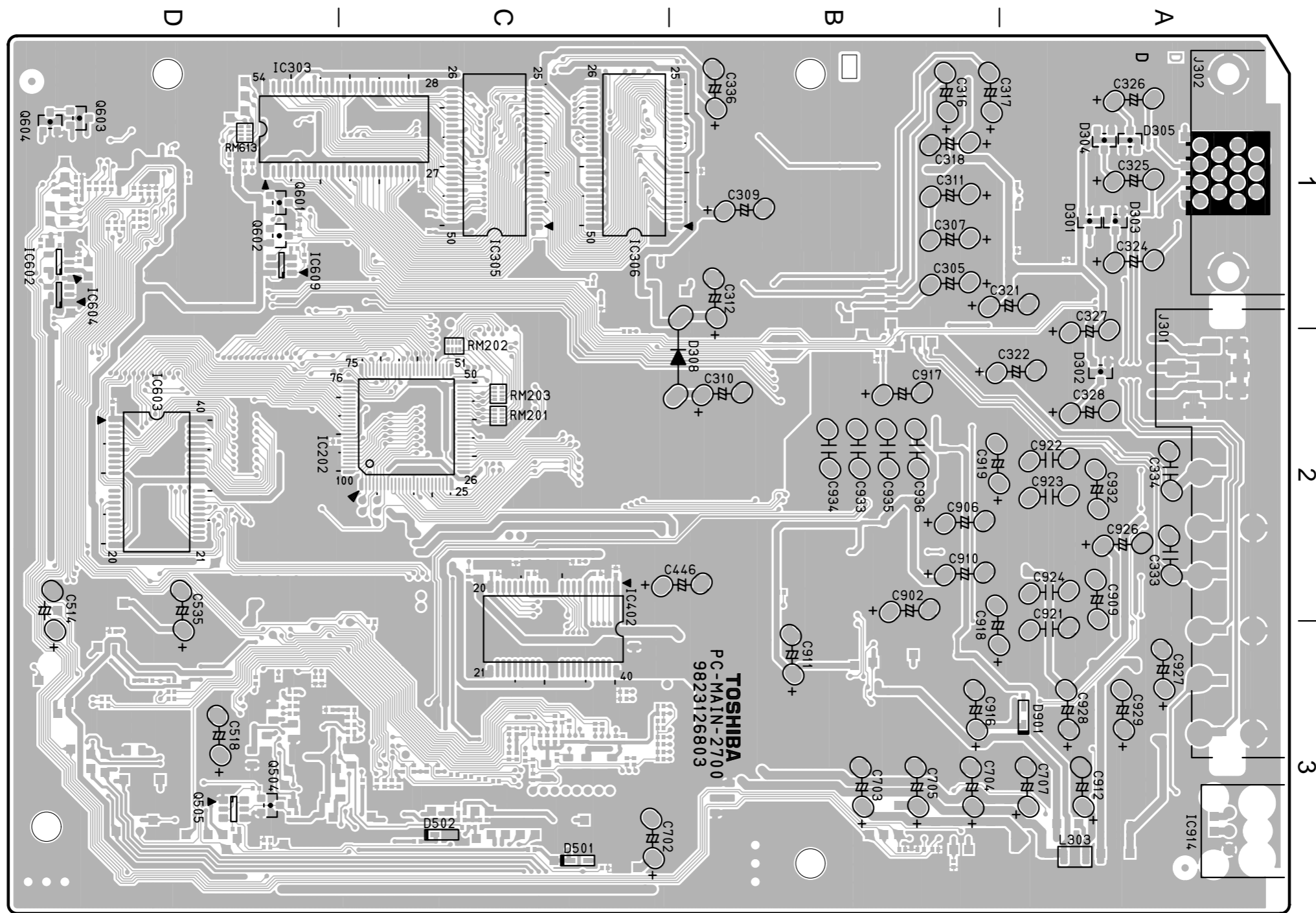


Fig. 3-6-7 EU01 Main PC Board (Bottom pattern, character/symbol)

6-4. Front Display PC Board

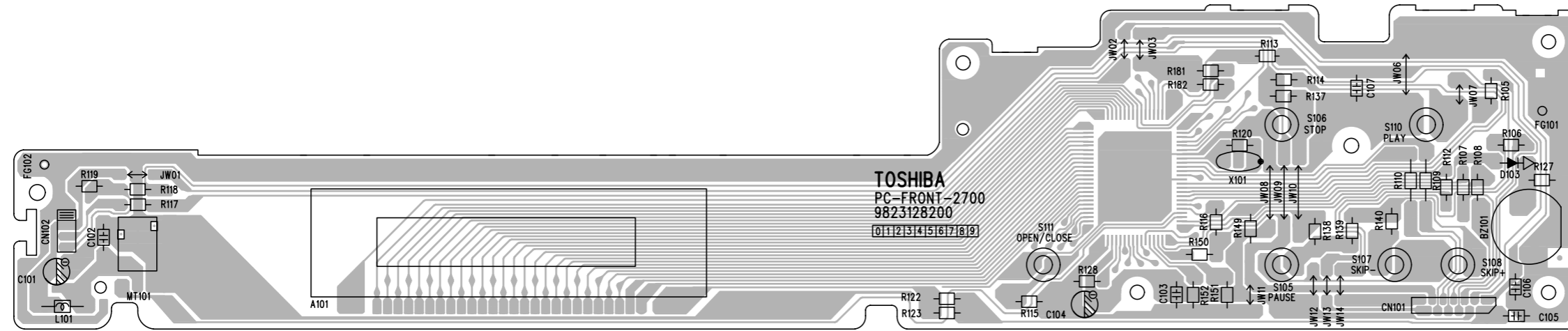


Fig. 3-6-8 EU3 Front Display PC Board (Top Side)

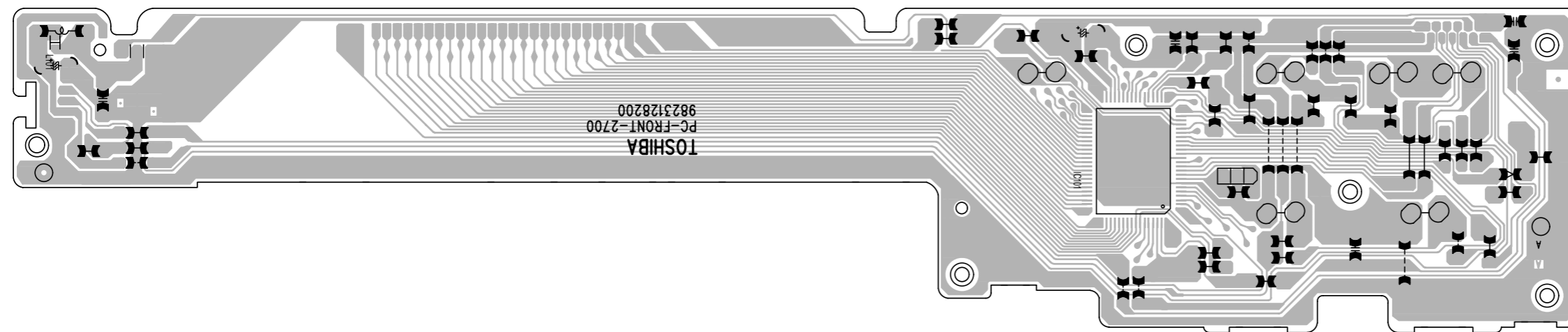


Fig. 3-6-9 EU3 Front Display PC Board (Bottom Side)

The parts location list shows ex. A1/B1 = top side/bottom side.

Part No.	Location
A101	C3/-
BZ101	B8/-
C101	C1/-
C102	C1/-
C103	C7/-
C104	C6/-
C105	C9/-
C106	C9/-
C107	B8/-
CN101	C8/-
CN102	C1/-
D103	B9/-
FG101	B9/-
FG102	B1/-
IC101	-/E6
JW01	B2/-
JW02	B6/-
JW03	B6/-
JW06	B8/-
JW07	B8/-
JW08	B7/-
JW09	B7/-
JW10	B7/-
JW11	C7/-
JW12	C8/-
JW13	C8/-
JW14	C8/-
L101	C1/ D1
MT101	C2/-
R105	B8/-
R106	B9/-
R107	B8/-
R108	B8/-
R109	B8/-
R110	B8/-
R112	B8/-
R113	B7/-
R114	B8/-
R115	C6/-
R116	B7/-
R117	B2/-
R118	B2/-
R119	B1/-
R120	B7/-
R122	C6/-
R123	C6/-
R127	B9/-
R128	C6/-
R137	B8/-
R138	B8/-
R139	B8/-
R140	B8/-
R149	B7/-
R150	C7/-
R151	C7/-
R152	C7/-
R181	B7/-
R182	B7/-
S105	C7/-
S106	B8/-
S107	C8/-
S108	C8/-
S110	B8/-
S111	B6/-
X101	B7/-

SECTION 4 PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (\triangle) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- Capacitance Tolerance (for Nominal Capacitance more than 10pF)

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 - 10	+ 50 - 10	+ 75 - 10	+ 20 - 10	+ 100 - 10	+ 40 - 20	+ 150 - 10	+ 80 - 20

Ex. 10MF J = $10\mu\text{F} \pm 5\%$

- Capacitance Tolerance (for Nominal Capacitance 10pF or less)

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = $10\text{pF} \pm 2\text{pF}$

3. Resistor (Res)

- Resistance tolerance

Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ohmJ = $470\text{ohm} \pm 5\%$

4. EXPLODED VIEWS

4-1. Packing Assembly

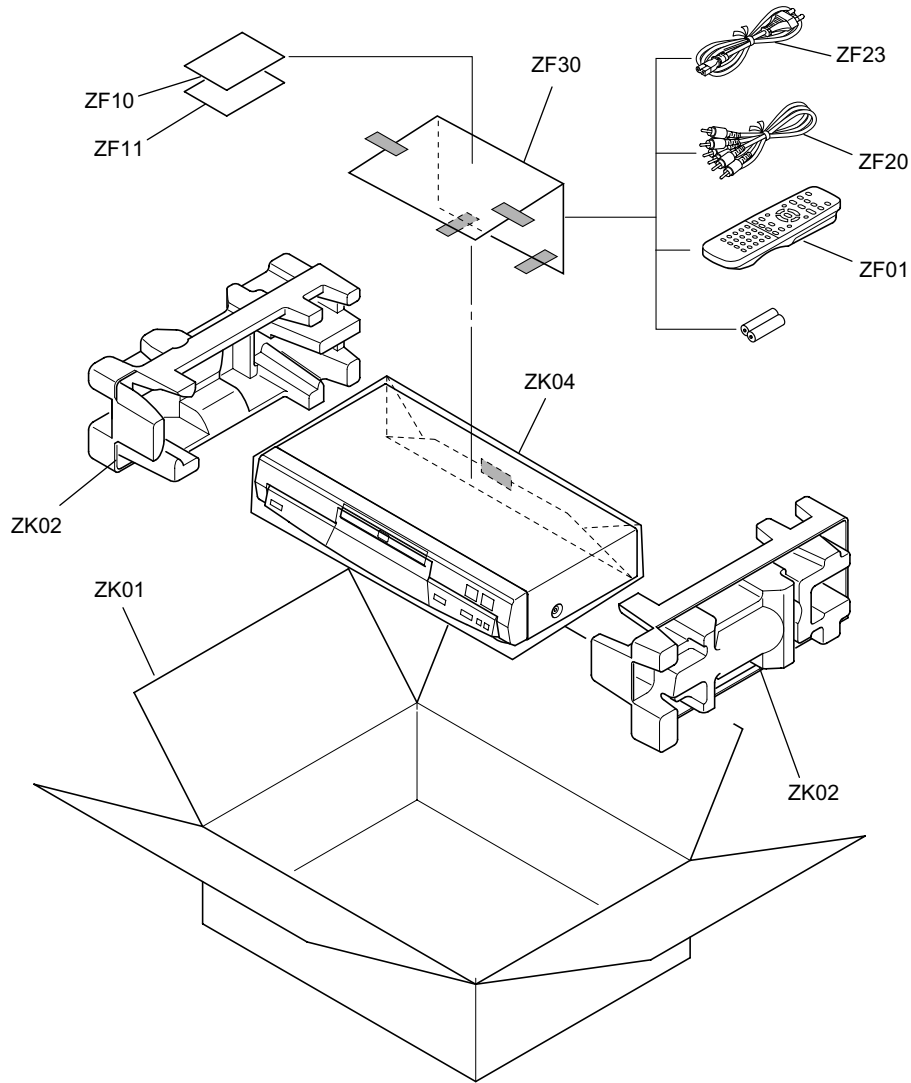


Fig. 4-4-1

4-2. Chassis Assembly

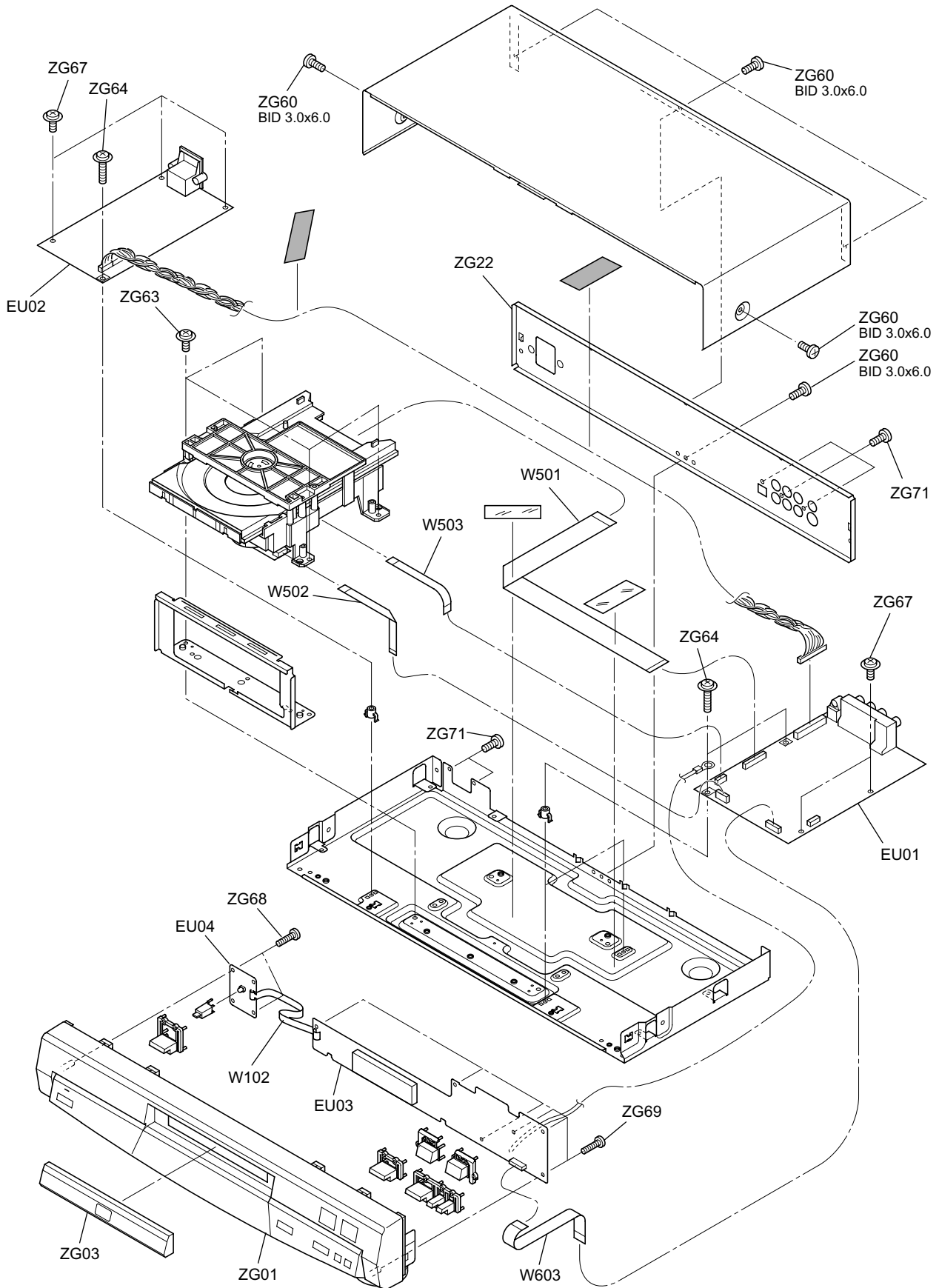


Fig. 4-4-2

4-3. Mechanism Assembly

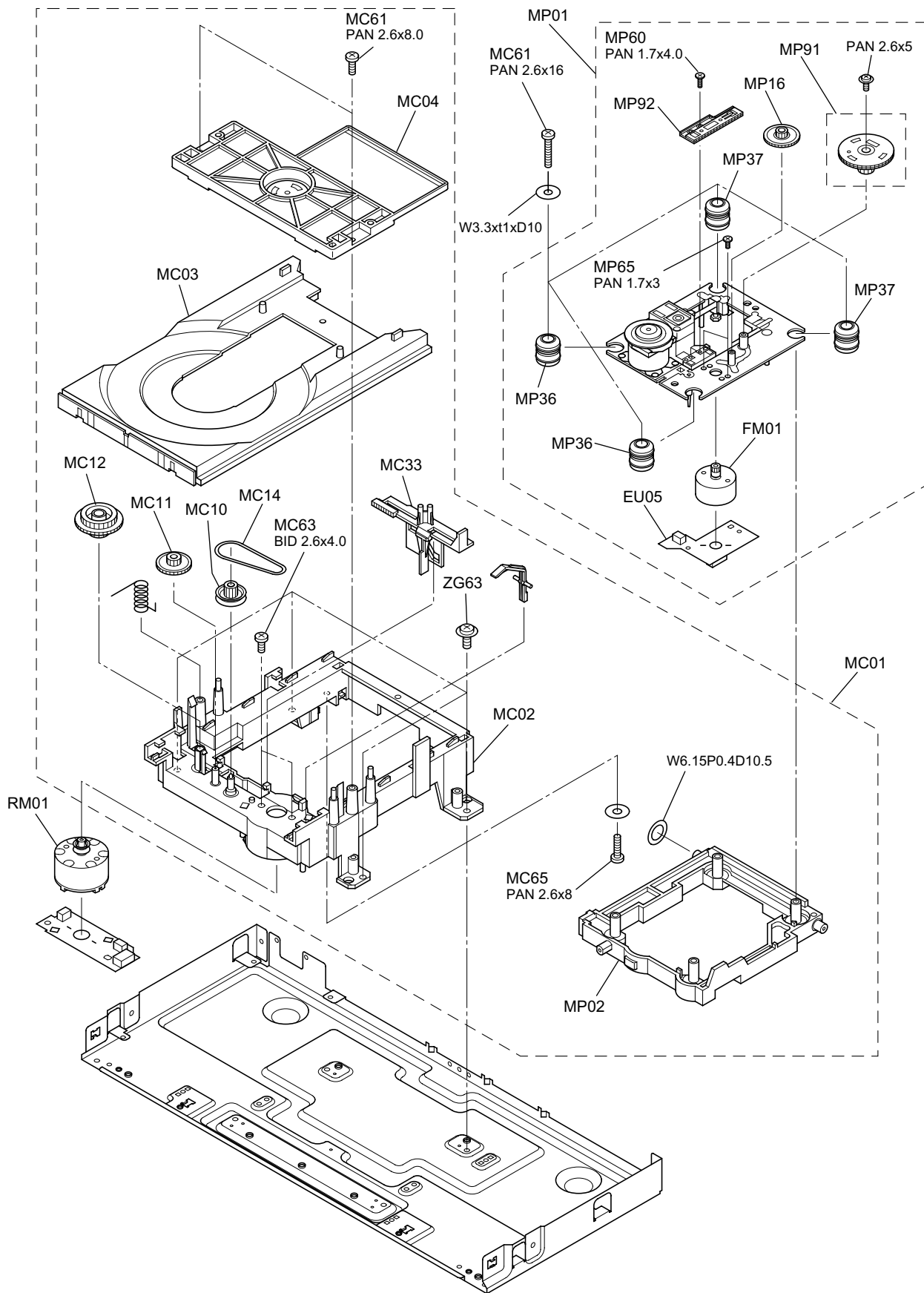


Fig. 4-4-3

LOCATION PART

NUMBER NUMBER DESCRIPTION

- MECHANICAL PARTS -

	FM01	79070421	Motor Assy,Feed	
	MC01	79070416	Chassis Assy,Mechanism	
	MC14	79070428	Belt,Loading	
!	MP01	79070470	Mechanism Assy,Pickup	
	MP16	79070422	Gear	
	MP36	79070458	Rubber,Dumper Kit	
	MP37	79070458	Rubber,Dumper Kit	
	MP60	79070020	Screw	1.7x4.0mm
	MP61	79079005	Screw	TZPAN2.6x15
	MP65	79079038	Screw	PAN1.7x3.0
	MP91	79070419	Gear Assy,Kit B	
	MP92	79070420	Gear Assy,Rack	
	RM01	79070427	Motor Assy,Loading	
	W501	79080273	Cable,Flexible	FFC,23P,L297
	W502	79080192	Cable,Flexible	FFC,6P,L110
	W503	79080193	Cable,Flexible	FFC,8P,L85
	W603	79080190	Cable,Flexible	FFC,13P,L150
	ZF01	79078066	Remote Control Unit	SE-R0047
!	ZF10	79077119	Owners Manual	English
!	ZF11	79077120	Owners Manual	Spanish
!	ZF11	79077121	Owners Manual	French
	ZF20	79070037	Cable,AV	
!	ZF23	79088007	Power Cord	
	ZG01	79071180	Front Panel	
	ZG03	79071179	Panel,Tray	
	ZG20	79073087	Cover,Top	Black
!	ZG27	79070469	Label,Caution	
	ZZ03	79080074	Kit,Data Update	

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN