

# TOSHIBA

FILE NO. 810-200779GR

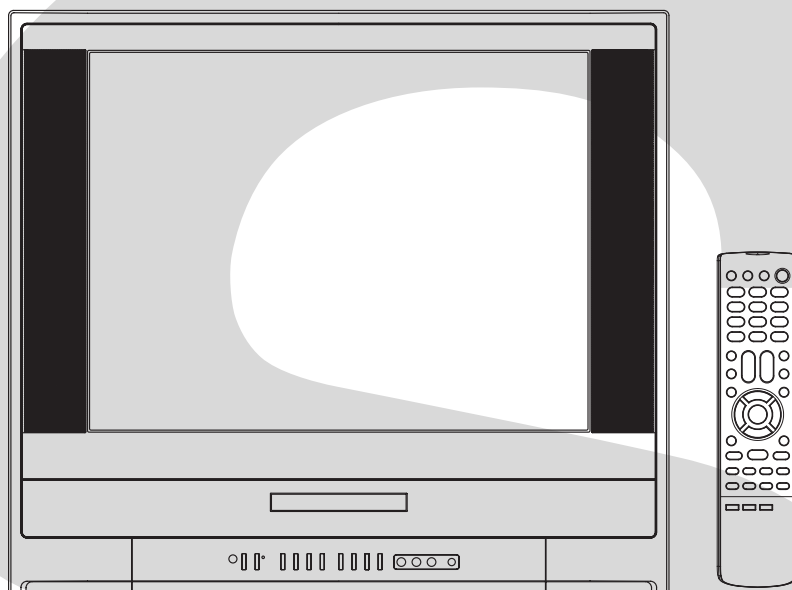
## SERVICE MANUAL



### COMBINATION FLAT COLOR

### TELEVISION AND DVD VIDEO PLAYER

# MD24H63 B



The above model is classified as a green product (\*1), as indicated by the underlined serial number. This Service Manual describes replacement parts for the green product. When repairing this green product, use the part(s) described in this manual and lead-free solder (\*2).

For (\*1) and (\*2), see the next page.

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DOCUMENT CREATED IN JAPAN, August, 2007 GREEN

(\*1)

## GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(\*2)

## LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

### **WARNING**

**This product is manufactured using lead free solder.**

**DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !**

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product — especially when soldering large components, through-hole pins, and on PCBs — as the level of heat required to melt lead-free solder is high.

# TOSHIBA

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Printed in Thailand

**TOSHIBA**



**FST PURE SDTV**

## COMBINATION FLAT COLOR TELEVISION AND DVD VIDEO PLAYER

**MD14H63  
MD20H63  
MD24H63**

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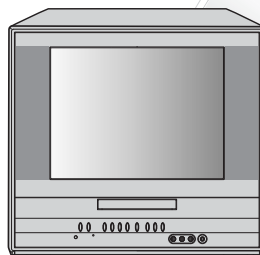


Illustration of MD14H63

©2007 Toshiba Corporation  
This device does not tape-record copy protected DVD video discs.

**Owner's Record**  
The model number and serial number are on the back of your TV. Record these numbers in the spaces below. Refer to these numbers whenever you communicate with your Toshiba dealer about this TV.  
Model number: \_\_\_\_\_  
Serial number: \_\_\_\_\_

### Introduction

#### Dear Customer,

Thank you for purchasing this Toshiba TV. This manual will help you use many exciting features of your new TV. **Before operating the TV, please read this manual completely, and keep it nearby for future reference.**

#### Safety Precautions

**WARNING**  
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning symbol in the triangle tells you that the voltage inside this product may be strong enough to cause an electric shock. **DO NOT TRY TO SERVICE THIS PRODUCT YOURSELF.**

The exclamation mark in the triangle tells you that important operating and maintenance instructions follow this symbol.

**CAUTION:** To reduce the risk of electric shock, do not use the polarized plug with an extension cord, receptacle, or other outlet unless the blades can be inserted completely to prevent blade exposure.

#### NOTE TO CATV INSTALLERS

This is a reminder to call the CATV system installer's attention to Article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical. For additional antenna grounding information, see items 27 and 28 on page 4.

#### NOTICE OF POSSIBLE ADVERSE EFFECTS ON TV PICTURE DISPLAY

If a fixed (non-moving) pattern or image remains on the TV screen for extended periods of time, the image can become permanently ingrained in the cathode ray tube(s) of the TV and cause subtle but permanent ghost images. **This type of damage is NOT COVERED BY YOUR WARRANTY.** See page 4 for details.

### It Makes A Difference Where Your TV Stands

Congratulations on your purchase! As you enjoy your new TV, keep these safety tips in mind:

#### The Issue

If you are like most consumers, you have a TV in your home. Many homes, in fact, have more than one TV. The home theater entertainment experience is a growing trend, and larger TVs are popular purchases; however, they are not always supported on the proper TV stands. Sometimes TVs are improperly secured or inappropriately situated on dressers, bookcases, shelves, desks, audio speakers, chests, or carts. As a result, TVs may fall over, causing unnecessary injury.

#### Toshiba Cares!

The consumer electronics industry is committed to making home entertainment enjoyable and safe.

The Consumer Electronics Association formed the Home Entertainment Support Safety Committee, comprised of TV and consumer electronics furniture manufacturers, to advocate children's safety and educate consumers and their families about television safety.

#### Tune Into Safety

One size does NOT fit all! Use appropriate furniture large enough to support the weight of your TV (and other electronic components). Use appropriate angle braces, straps, and anchors to secure your furniture to the wall (but never screw anything directly into the TV). Carefully read and understand the other enclosed instructions for proper use of this product. Do not allow children to climb on or play with furniture and TVs. Avoid placing any item on top of your TV (such as a VCR, remote control, or toy) that a curious child may reach for. Remember that children can become excited while watching a program and can potentially push or pull a TV over. Share our safety message about this hidden hazard of the home with your family and friends. Thank you!



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## IMPORTANT SAFEGUARDS

### Important Safety Instructions

- 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 a 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 it exits 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.
- 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.

### Additional Safety Precautions

- 14a) **CAUTION:** If the TV is dropped and the cabinet or enclosure surface has been damaged or the TV does not operate normally, take the following precautions:
  - ALWAYS turn off the TV and unplug the power cord to avoid possible electric shock or fire.
  - To prevent personal injury, never handle the damaged television.
  - ALWAYS contact a service technician to inspect the TV any time it has been damaged or dropped.
- 15) **CAUTION:** To reduce the risk of electric shock, do not use the polarized plug with an extension cord, receptacle, or other outlet unless the blades can be inserted completely to prevent blade exposure.

### Installation, Care, and Service

#### Installation

Follow these recommendations and precautions and heed all warnings when installing your TV:

- 16) **WARNING:** To prevent the spread of fire, keep candles or other open flames away from this product at all times.
- 17) Never modify this equipment. Changes or modifications may void: a) the warranty, and b) the user's authority to operate this equipment under the rules of the Federal Communications Commission.
- 18) **DANGER: RISK OF SERIOUS PERSONAL INJURY, DEATH, OR EQUIPMENT DAMAGE!** Never place the TV on an unstable cart, stand, or table. The TV may fall, causing serious personal injury, death, or serious damage to the TV.
- 19) Never place or store the TV in direct sunlight; hot, humid areas; areas subject to excessive dust or vibration; or locations with temperatures at or below 41°F (5°C).
- 20) Always place the TV on the floor or a sturdy, level, stable surface that can support the weight of the unit.
- 21) Never place items such as vases, aquariums, or candles on top of the TV.
- 22) Never block or cover the slots or openings in the TV cabinet back, bottom, and sides. Never place the TV:
  - on a bed, sofa, rug, or similar surface;
  - too close to drapes, curtains, or walls; or
  - in a confined space such as a bookcase, built-in cabinet, or any other place with poor ventilation.
 The slots and openings are provided to protect the TV from overheating and to help maintain reliable operation of the TV.
- 23) Always place the back of the television at least one (1) inch away from any vertical surface (such as a wall) to allow proper ventilation.
- 24) Never allow anything to rest on or roll over the power cord, and never place the TV where the power cord is subject to wear or abuse.
- 25) Never overload wall outlets and extension cords.

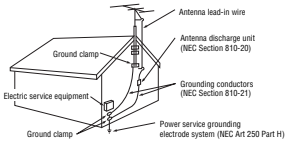
Introduction

## IMPORTANT SAFEGUARDS

26) Always operate this equipment from a 120V AC, 60 Hz power source only.



27) Always make sure the antenna system is properly grounded to provide adequate protection against voltage surges and built-up static charges (see Section 810 of the National Electric Code).



**28) DANGER: RISK OF SERIOUS PERSONAL INJURY OR DEATH!**

- Use extreme care to make sure you are never in a position where your body (or any item you are in contact with, such as a ladder or screwdriver) can accidentally touch overhead power lines or other electrical circuits.
- Never attempt to install any of the following during lightning activity:
  - an antenna system; or
  - cables, wires, or any home theater component connected to an antenna or phone system.

### Care

For better performance and safer operation of your TOSHIBA TV, follow these recommendations and precautions:

29) Always sit approximately 10–25 feet away from the TV and as directly in front of it as possible. The picture can appear dull if you sit too far to the left or right of the TV, or if sunlight or room lights reflect on the screen. Turn the TV off to check for reflections on the screen, and then remove the source of reflections while viewing the TV.

30) Always unplug the TV before cleaning. Never use liquid or aerosol cleaners.



**31) WARNING: RISK OF ELECTRIC SHOCK!** Never spill liquids or push objects of any kind into the TV cabinet slots.

32) For added protection of your TV from lightning and power surges, always unplug the power cord and disconnect the antenna from the TV if you leave the TV unattended or unused for long periods of time.

33) During normal use, the TV may make occasional snapping or popping sounds. This is normal, especially when the unit is being turned on or off. If these sounds become frequent or continuous, unplug the power cord and contact a Toshiba Authorized Service Center.

34) **Possible Adverse Effects on TV Picture Display:** If a fixed (non-moving) pattern or image remains on the TV screen for an extended period of time, the image can become permanently ingrained in the cathode ray tube(s) of the TV and cause subtle but permanent ghost images. **This type of damage is NOT COVERED BY YOUR WARRANTY.** Never leave the TV on for extended periods of time while it is displaying the following images or formats:
 

- Fixed Images**, including but not limited to PIP/POP wind station logos, stock tickers, and websites.
- Special Formats** that do not use the entire screen, including but not limited to widescreen or letterbox format media viewed on a 4:3 aspect ratio display (with gray or black bars at the top and bottom of the screen); or 4:3 aspect ratio format media viewed on a widescreen 16:9 aspect ratio display (with gray or black bars on the left and right sides of the screen).

### Service

**35) WARNING: RISK OF ELECTRIC SHOCK!** Never attempt to service the TV yourself. Opening and removing the covers may expose you to dangerous voltage or other hazards. Refer all servicing to a Toshiba Authorized Service Center.



36) If you have the TV serviced:

- Ask the service technician to use only replacement parts specified by the manufacturer.
- Upon completion of service, ask the service technician to perform routine safety checks to determine that the TV is in safe operating condition.



37) When the TV reaches the end of its useful life, ask a qualified service technician to properly dispose of the TV. Improper disposal may result in a picture tube implosion and possible personal injury.

## SAFETY PRECAUTION/ Power source

**WARNING:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance 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.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance with the FCC (Federal Communications Commission) Rules could void the user's authority to operate this equipment.

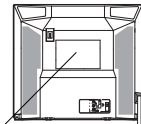
**CAUTION:** THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

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.

USE OF CONTROLS, ADJUSTMENTS OR THE 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 LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

**Location of the required Marking**  
The rating sheet and the safety caution are on the rear of the unit.



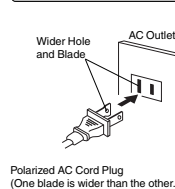
CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

**WARNING:** This product contains a laser beam. Do not attempt to stare at the beam through the DVD disc tray or the ventilation openings. Staring directly at the beam may cause permanent damage to your eyesight.

### IMPORTANT RECYCLING INFORMATION

This product uses both Cathode Ray Tube (CRT) and other components that contain lead. In your community there might be regulations that require you to dispose these materials properly under environmental considerations. Please contact your local authorities, or the Electronic Industries Alliance (<http://www.eiae.org>) for disposal or recycling information.

### Power source



Polarized AC Cord Plug  
(One blade is wider than the other.)

### TO USE AC POWER SOURCE

Use the AC polarized line cord provided for operation on AC. Insert the AC cord plug into a standard 120V 60Hz polarized AC outlet.

#### Notes:

- Never connect the AC line cord plug to other than the specified voltage (120V 60Hz). Use the attached power cord only.
- If the polarized AC cord does not fit into a non-polarized AC outlet, do not attempt to file or cut the blade. It is the user's responsibility to have an electrician replace the obsolete outlet.
- If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.
- If the AC cord plug is plugged in for the first time, wait for approx. 5 seconds before pressing the POWER button.

## Precautions

### Notes on handling

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

### Notes on locating

Place the unit 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 unit. When you place this unit near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the unit away from the TV, radio or VCR.

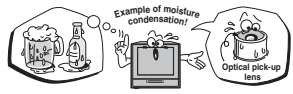
### Notes on cleaning

Use a soft, dry cloth for cleaning. For stubborn dirt, Do not use any type of solvent, such as thinner and benzene, as they may damage the surface of the unit.

### Notes on moisture condensation

Moisture condensation damages the unit. 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 unit.



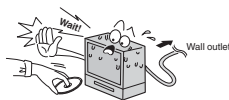
Moisture condensation occurs during the following cases.

- When you bring the unit directly from a cold place to a warm place.
- When you use the unit 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 unit in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the unit in a humid place.



**Do not use the unit when moisture condensation may occur.**

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



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## Notes and Information

### 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.



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.

### On Video CDs

This unit 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)

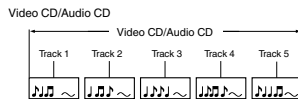
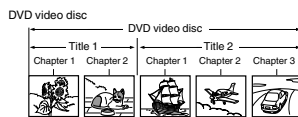
Sound and movie can be played on this unit in the same way as a DVD.

#### • 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.

### 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.



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 region numbers

The region number of this unit is 1. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find "1" or "0" disc playback will not be allowed by the player. (In this case, the unit will display a message on-screen.)

### Notes on copyright

The unauthorized recording, use, distribution, or revision of copyrighted materials including, without limitation, television programs, videotapes, and DVDs, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.

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.

### Playable discs

This unit can play the following discs.

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

The following discs are also available.  
DVD-R/RW discs of DVD video format  
CD-R/CD-RW discs of CD-DA, Video CD or JPEG format  
Kodak picture CD and FUJICOLOR CD format  
Some of these discs may be incompatible.

- You cannot play discs other than those listed above.
- You cannot play discs of DVD-RAM, DVD-ROM, CD-ROM, Photo CD, etc., or non standardized discs even if they may be labeled as above.
- Some CD-R/RW's cannot be played back depending on the recording conditions.
- This unit uses the NTSC color system, and cannot play DVD video discs recorded in any other color system (PAL, SECAM, etc.).

Because of problems and errors that can occur during the creation of DVD and CD Software and/or the manufacture of DVD and CD discs, Toshiba cannot assure that the DVD player contained in this television will successfully play every disc bearing the DVD and CD logos. If you happen to experience any difficulty playing a DVD and/or CD disc on the DVD player contained in this television, please contact Toshiba Customer Service.

DVD is a trademark of DVD Format/Logo Licensing Corporation.

### About this owner's manual

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

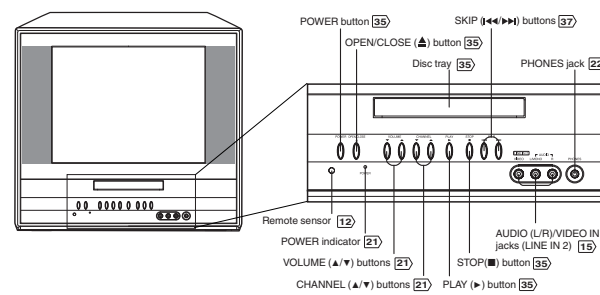
"A" may appear on the TV screen during operation. "A" means that the operation is not permitted by the unit or the disc.  
For example, sometimes it is unable to stop the playback of copyright message of the disc when the STOP ( ) button is pressed. Alternatively, the " " may also indicate that the feature is not available for the disc.

## Identification of controls

See the page in  for details.

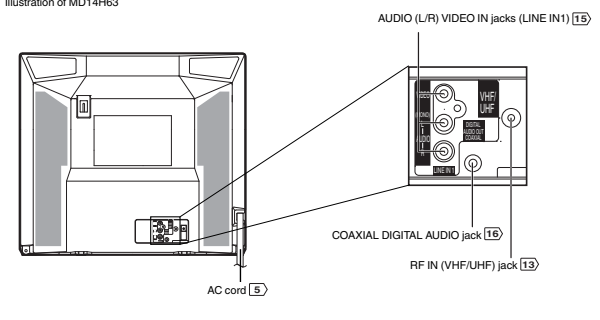
### Front panel

Illustration of MD14H63



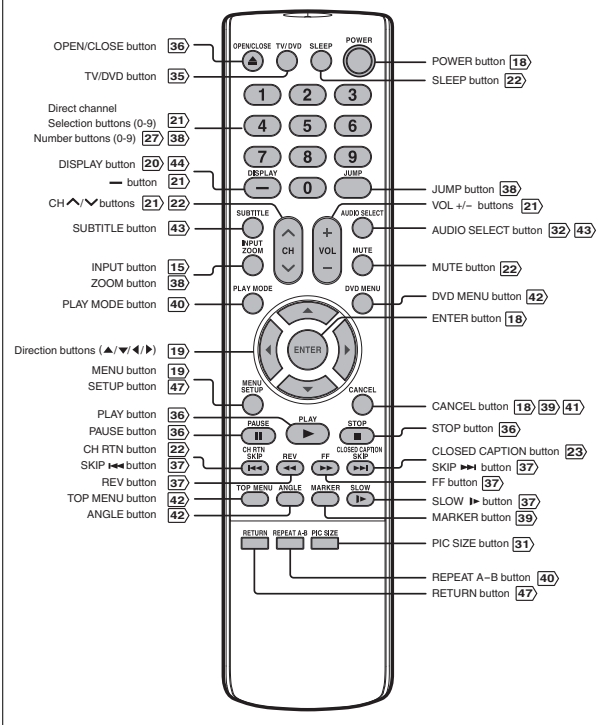
### Rear panel

Illustration of MD14H63



### Remote control

The instructions in this manual describe the function on the remote control. See the page in  for details.



## Identification of controls (Continued)

### Inserting batteries

- 1 Open the battery compartment cover in the direction of the arrow.
- 2 Install two "R03/AAA" batteries (supplied), paying attention to the polarity diagram in the battery compartment.
- 3 Replace the compartment cover.

**Caution:**  
Never throw batteries into a fire.

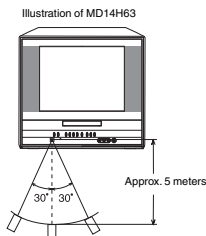
- Notes:**
- Be sure to use AAA size batteries.
  - Dispose of batteries in a designated disposal area.
  - Batteries should always be disposed of with the environment in mind. Always dispose of batteries in accordance with applicable laws and regulations.
  - If the remote control does not operate correctly, or if the operating range becomes reduced, replace batteries with new ones.
  - When necessary to replace batteries in the remote control, always replace both batteries with new ones. Never mix battery types or use new and used batteries in combination.
  - Always remove batteries from remote control if they are dead or if the remote control is not to be used for an extended period of time. This will prevent battery acid from leaking into the battery compartment.

### Remote control basics

- Press **POWER** to turn the unit on or off.
- Select your desired operating mode (TV or DVD) using **TV/DVD**.
- Tap **CH**  $\wedge$  or  $\vee$  to move through the channels one channel at a time.
- The **Direction** buttons ( / / ) are also used to navigate on-screen menu system.
- You can directly access specific channels using **Direct channel selection** buttons.

#### Operation:

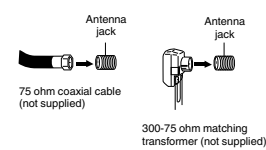
- Aim the remote control at the remote sensor and press control buttons to operate.
- Operate the remote control within 30° angle on either side of the remote sensor, up to a distance of approx. 5 meters.



## Antenna connections

If you are using an indoor or outdoor antenna, follow the instructions below that correspond to your antenna system.  
If you are using a cable TV service (CABLE), see Cable TV connections (E).

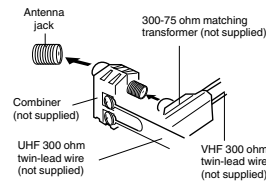
### Combination VHF/UHF antenna (Single 75 ohm cable or 300 ohm twin-lead wire)



Connect the 75 ohm cable from the combination VHF/UHF antenna to the antenna jack.

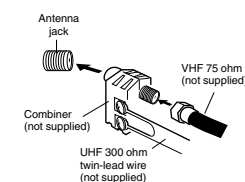
If your combination VHF/UHF antenna has a 300 ohm twin-lead wire, the use of the 300-75 ohm matching transformer (not supplied) may be necessary.

### Combination VHF/UHF antenna (Separate VHF and UHF 300 ohm twin-lead wires)



Connect the UHF 300 ohm twin-lead wire to the combiner (not supplied). Connect the VHF 300 ohm twin-lead wire to the 300-75 ohm matching transformer (not supplied). Attach the transformer to the combiner, then attach the combiner to the antenna jack.

### Separate VHF/UHF antennas (75 ohm VHF cable and 300 ohm UHF twin-lead wires)

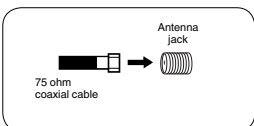


Connect the VHF 75 ohm cable and UHF 300 ohm twin-lead wire to the combiner (not supplied). Attach the combiner to the antenna jack.

## Cable TV connections

This unit has an extended tuning range and can tune most cable channels without using a Cable TV converter box. Some cable companies offer "premium pay channels" in which the signal is scrambled. Descrambling these signals for normal viewing requires the use of a descrambler device which is generally provided by the cable company.

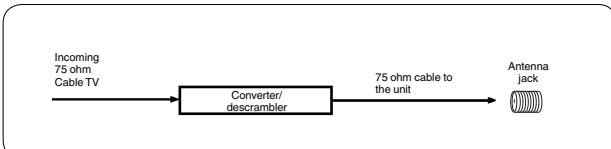
### For subscribers to basic cable TV service



For basic cable service not requiring a converter/descrambler box, connect the Cable TV 75 ohm coaxial cable directly to the Antenna jack on the back of the unit.

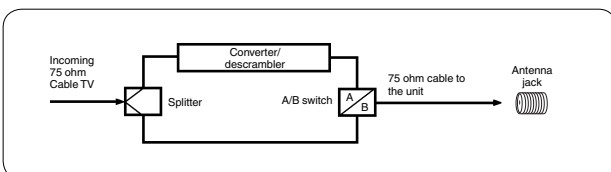
### For subscribers to scrambled cable TV service

If you subscribe to a cable TV service which requires the use of a converter/descrambler box, connect the incoming 75 ohm coaxial cable to the converter/descrambler box. Using another 75 ohm coaxial cable, connect the output jack of the converter/descrambler box to the antenna jack on the unit. Follow the connections shown below. Set the unit to the output channel of the converter/descrambler box (usually channel 3 or 4) and use the converter/descrambler box to select channels.



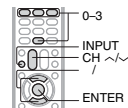
### For subscribers to unscrambled basic cable TV service with scrambled premium channels

If you subscribe to a cable TV service in which basic channels are unscrambled and premium channels require the use of a converter/descrambler box, you may wish to use a signal splitter and an A/B Switch box (available from the cable company or an electronics supply store). Follow the connections shown below. With the switch in the "B" position, you can directly tune any unscrambled channels on your unit. With the switch in the "A" position, tune your unit to the output of the converter/descrambler box (usually channel 3 or 4) and use the converter/descrambler box to tune scrambled channels.



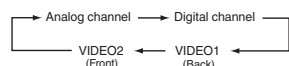
## Connecting to optional equipment

Before connecting the unit to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections. You can enjoy the camcorder or high quality dynamic sounds of DVD video discs or audio CDs by connecting the unit to optional audio equipment.



### Using the audio/video inputs

Press **INPUT**. Press / or **Number buttons (0-3)** to select the desired mode, then press **ENTER**. "VIDEO1", "VIDEO2", Analog channel or Digital channel will display on the screen for 4 seconds.

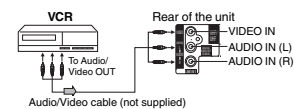


**Note:** This key will not operate in DVD mode.

### Connecting to a VCR

Operate your VCR as usual.

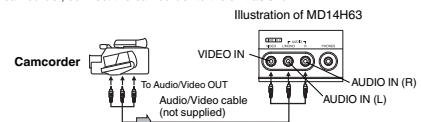
Signal flow



### Connecting to a camcorder

To playback from the camcorder, connect the camcorder to the unit as shown.

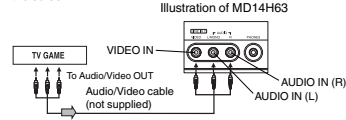
Signal flow



### Connecting to a TV Game

You can enjoy playing a TV game on the screen.

Signal flow



#### Notes:

- You can also change the TV screen to the external input by pressing the **CH**  $\wedge$  buttons.
- The unit can also be used as a display device for many video games. However, due to the wide variety of different types of signal generated by these devices and subsequent hook-up variations required, they have not all been included in the suggested connection diagrams. You'll need to consult each component's Owner's Manual for additional information.
- The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

### Connecting to optional equipment (Continued)

You can enjoy high quality dynamic sounds by connecting the unit to optional audio equipment.

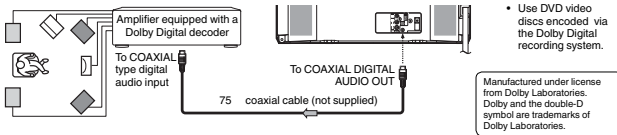
This section uses the following reference mark.



#### 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 unit to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Surround Pro Logic 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.



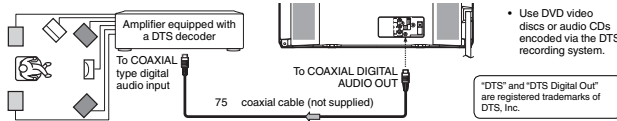
Use DVD video discs encoded via the Dolby Digital recording system.

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

#### Connecting to an amplifier equipped with a DTS® decoder

##### Digital Theater Systems (DTS)

DTS is a high quality surround 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.

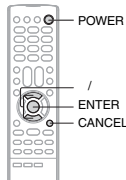


Use DVD video discs or audio CDs encoded via the DTS recording system.

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

### Starting setup

The starting SETUP function help to install your unit easily. It leads you to the Language selection, TV/CABLE selection and auto channel memory automatically. **IMPORTANT: Make sure that the antenna or cable TV system connection is made!**



#### Starting setup

**1 Press POWER.** The starting setup function begins and the Language setup menu appears on the screen. Press or to select your desired language, then press ENTER.



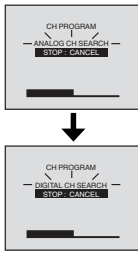
**2 Press or to select "TV" or "CABLE", then press ENTER.**



**3 Press or to select "START", then press ENTER.** If you select "CANCEL" and press ENTER, the STARTING SETUP stops and changes to the TV screen.



**4 Now the "CH PROGRAM" starts.** After the starting setup is completed, the TV channel appears on the screen.



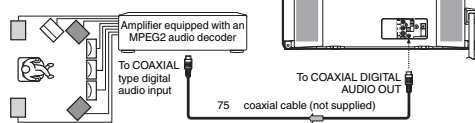
##### Notes:

- The starting setup function will work only when you press **POWER** for the first time.
- The process of "CH PROGRAM" may take 15 - 30 minutes to complete, depending on your regional cable service.
- If you press **CANCEL** in the process of "CH PROGRAM", starting setup function is canceled.

#### Connecting to an amplifier equipped with a MPEG 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.

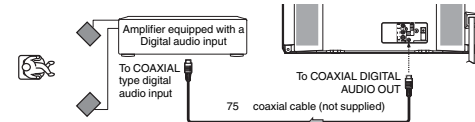


Use DVD video discs encoded via the Dolby Digital recording system.

#### Connecting to an amplifier equipped with a digital audio input

##### 2 channel digital stereo

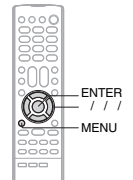
You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).



##### Notes:

- DO NOT connect the COAXIAL DIGITAL AUDIO OUT jack of the unit 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 COAXIAL DIGITAL AUDIO OUT jack of the unit.
- Connect the COAXIAL DIGITAL AUDIO OUT jack of the unit to the "COAXIAL" input of a Receiver or Processor.
- Refer to the owner's manual of the connected equipment as well.
- When you connect the unit 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 unit 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 unit's power cord. If you leave the amplifier's power on, the speakers may be damaged.

### Clock setting



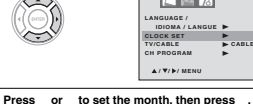
#### Clock setting

Example: Setting the clock to "8:30 AM", 31th. (SAT) March, 2007.

**1 Press MENU, then press or to select option.**



**2 Press or to select "CLOCK SET", then press .**



**3 Press or to set the month, then press .**



**4 Set the day, year and time as in step 3, then press ENTER.**



**5 After setting the clock, date and time starts functioning automatically.**

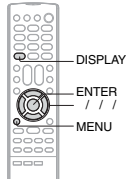


**To make corrections anytime during the process** Press or repeatedly until the item you want to change blinks, then set the item again.

##### Notes:

- If the unit does not operate properly, or No key operation (by the unit and/or the remote control): Static electricity, etc., may affect the player's operation. Disconnect the AC power cord once, then connect it again.
- The TV section has its own menu and also DVD section has its own menu (E).
- If no buttons are pressed for more than about 60 seconds, the TV menu screen will return to normal TV operation automatically.
- After a power failure or disconnection of the power, the clock settings will be lost. In this case, reset the present time.
- When you set the minute, you can change in 10-minutes step by holding down or .

## Setting the language/ TV operation status



### Setting the language

This unit can display the on screen language in English, Spanish or French.

**1** Press **MENU**, then press **ENTER** or to select **TV** option.



**2** Press **ENTER** or to select "LANGUAGE/IDIOMA/LANGUE", then press **ENTER**.



**3** Press **ENTER** or to select the desired language: English (ENGLISH), Spanish (ESPAÑOL) or French (FRANÇAIS), then press **ENTER**.



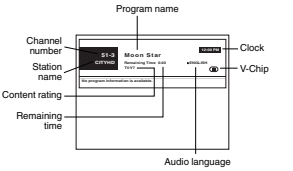
**4** Press **MENU** repeatedly until the menu screen is cleared.



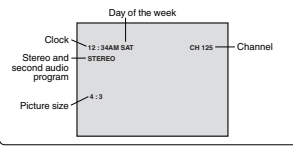
### TV operation status

#### While watching TV

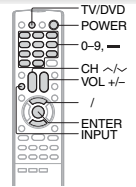
Press **DISPLAY** to display the information on the screen. When the TV receives a digital signal, press once, the digital information will appear.



Press **DISPLAY** again, the analog information will appear. To cancel the display, press **DISPLAY** again.



## TV operation



### TV operation

**1** To turn on the unit, press **POWER**. The power indicator will light.

- Every time you turn on the TV, the unit starts from TV mode. When you use TV after DVD operation, press **TV/DVD**.

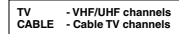


Illustration of MD14H63

**2** Adjust the volume level by pressing **VOL +/-**. The volume level will be indicated on the screen by green bars. As the volume level increases, so do the number of bars. If the volume decreases, the number of green bars also decreases.



**3** Set the **TV/CABLE** selection to the appropriate position (2).



**4** Press **INPUT**. Then press **0** or **1** to select the desired mode (0: ANALOG MODE, 1: DIGITAL MODE), then press **ENTER**.



**5** Press **CH +/-** or **Direct channel selection buttons (0-9)** and **ENTER** to select the channel.

To change to a specific channel (programmed or unprogrammed): Press Direct channel selection buttons (0-9) on the remote control. For example, to select channel 125, press 1, 2, 5.

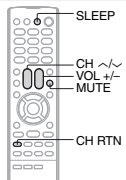
To change to a specific digital channel: Press the first 3 digits, then press **ENTER**, followed by the remaining 3 digits. For example, to select channel 015-001, press 0, 1, 5, **ENTER**, 0, 0, 1.

TV	Cable TV
VHF 2-13	VHF 2-13
UHF 14-69	STD/HRC/IRC 14-36 (A) (W) 37-59 (AA) (WW) 60-85 (AA) (ZZZ) (86) (94) 95-99 (A-5) (A-1)
	100-125 (100) (125) 01 (5A)

#### Notes:

- Digital cable channels may be represented by channel numbers that include a "dash" (e.g., 85-002). These digital channel numbers may not match the numbers in the channel line-up provided by your cable company. This is not a malfunction.
- If a channel with no broadcast is selected, the sound will automatically be muted.

## TV operation (Continued)



### TV operation

#### CHANNEL UP/DOWN

Press and release **CH +/-**. The channel automatically stops at the next channel set into memory. For proper operation, before selecting channels, they should be set into the memory. See page 20 "To memorize channels".



#### CHANNEL RETURN

This button allows you to go back to the last channel selected by pressing **CH RTN**. Press **CH RTN** again to return to the last channel you were watching.



**Note:** The CHANNEL RETURN feature is invalid between other input sources.

#### MUTE

Press **MUTE** to switch off the sound. The unit's sound will be silenced and "MUTE" will appear briefly on the screen. The sound can be switched back on by pressing this button again or **VOL +/-**.



#### SLEEP

To set the unit to turn off after a preset amount of time, press **SLEEP** on the remote control. The clock will count down 10 minutes for each press of **SLEEP** (120, 110, ..., 10, 0). After the sleep time is programmed, the display will appear briefly every ten minutes to remind you that the sleep timer is operating. To confirm the sleep timer setting, press **SLEEP** and the remaining time will be displayed for a few seconds. To cancel the sleep timer, press **SLEEP** repeatedly until the display turns to 0.



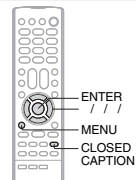
#### HEADPHONES

Insert a stereo headphones (not supplied) with a 1/8" mini plug into the PHONES jack on the front panel. If you connect headphones, the sound from TV speakers is muted.



Illustration of MD14H63

## Closed captions



### Closed captions

#### WHAT IS CLOSED CAPTIONING?

This television has the capability to decode and display closed captioned television programs. Closed captioning will display text on the screen for hearing impaired viewers or it will translate and display text in another language.

The Closed Caption feature has two options:

- Captions—An on-screen display of the dialog, narration, and sound effects of programs and videos that are closed-captioned (usually identified as "CC").
- Text—An on-screen display of information not related to the program, such as weather or stock data (if available in your viewing area.)

#### Notes:

- When selecting closed captions, the captioning will be delayed approximately 10 seconds.
- If no caption signal is received, no captions will appear, but the television will remain in the caption mode.
- Misspellings or unusual characters may occasionally appear during closed captioning. This is normal with closed captioning, especially with live programs. This is because during live programs, captions are also entered live. These transmissions do not allow time for editing.
- When captions are being displayed, on-screen displays, such as volume and mute may not be seen or may interfere with closed captions.
- Some cable systems and copy protection systems may interfere with the closed captioned signal.
- A closed caption signal may not be decoded in the following situations:
  - when a video tape has been dubbed when the signal reception is weak
  - when the signal reception is non-standard

#### NOTICE OF POSSIBLE ADVERSE EFFECTS ON TV PICTURE DISPLAY

Avoid displaying stationary images on your TV screen for extended periods of time. Fixed (non-moving) patterns or images (including but not limited to PIP/POP windows, closed captions, video game patterns, TV station logos, stock tickers, websites, and special formats that do not use the entire screen) can become permanently ingrained in the cathode ray tube(s) of the TV and cause subtle but permanent ghost images. **This type of damage is NOT COVERED BY YOUR WARRANTY.** See item 34 on page 4.

### To view closed captions (analog mode)

**1** Tune the unit to the desired channel in the analog mode. Press **MENU**, then press **ENTER** or to select **TV** option.



**2** Press **ENTER** or to select "CLOSED CAPTION", then press **ENTER**.



**3** Press **ENTER** or to select the desired Closed Caption mode, then press **ENTER**.

- To view captions, select C1 or C2 (C1 displays translation of the primary language in your area.)
- Note: If the program or video you selected is not closed captioned, no captions will display on-screen.
- To view text, select T1 or T2.
- Note: If text is not available in your viewing area, a black rectangle may appear on-screen. If this happens, set the Closed Caption feature to OFF.
- To turn the Closed Caption feature off, select OFF in the Closed Caption menu.



**4** Press **MENU** repeatedly until the menu screen is cleared.



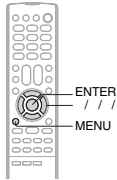
#### Note:

You also can display the CLOSED CAPTION menu screen by pressing **CLOSED CAPTION** on the remote control.

## Closed captions (Continued)

You can customize the closed caption display characteristics by changing the background color, text size, opacity, type, edge, and color.

**Note:** This feature is available for digital channels only.



### To view closed captions (digital mode)

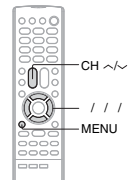
- 1 Tune the unit to the desired channel in the digital mode. Press **MENU**, then press **7** to select **7** option.
- 2 Press **7** or **8** to select "DIGITAL SETUP", then press **7**.
- 3 Press **7** or **8** to select "CLOSED CAPTION", then press **7**.
- 4 Press **7** or **8** to select "ANALOG CAPTION" or "DIGITAL CAPTION", then press **7**.
- 5 Press **7** or **8** to select the desired Closed Caption mode, then press **ENTER**.
- 6 Press **MENU** repeatedly until the menu screen is cleared.

### CC Advanced feature (digital mode)

- 1 Follow steps 1-2 on the left.
  - 2 Press **7** or **8** to select "CC ADVANCED", then press **7**.
  - 3 Press **7** or **8** to select the desired item to adjust, then press **7**.
  - 4 Press **7** or **8** to select the desired setting, then press **ENTER**.
  - 5 Press **MENU** repeatedly until the menu screen is cleared.
- Notes:**
- It is impossible to select the same color with TEXT COLOR and BACKGROUND COLOR.
  - Do not set the TEXT OPACITY and BACKGROUND OPACITY to TRANSPARENT simultaneously or you will not be able to see the text.

## To memorize channels

This unit is equipped with a channel memory feature which allows channels to skip up or down to the next channel set into memory, skipping over unwanted channels. Before selecting channels, they must be programmed into the unit's memory. To use this unit with an antenna, set the TV/CABLE selection to the TV position. When shipped from the factory, this selection is in the CABLE position.



### TV/CABLE selection

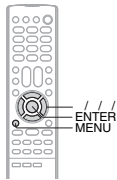
- 1 Press **MENU** in the TV mode, then press **7** or **8** to select **7** option.
- 2 Press **7** or **8** to select "TV/CABLE".
- 3 Press **7** or **8** to select "TV" or "CABLE".
- 4 Press **MENU** repeatedly until the menu screen is cleared.

**Note:** You cannot select "TV/CABLE" and "CH PROGRAM" features if you set the channel to "VIDEO1" or "VIDEO2".

### Automatic memory tuning

- 1 Press **MENU** in the TV mode, then press **7** or **8** to select **7** option.
- 2 Press **7** or **8** to select "CH PROGRAM".
- 3 Press **7** to start "CH PROGRAM". The unit will begin memorizing all the channels available in your area.
- 4 When channel programming is complete, the message "COMPLETED" appears.
- 5 Press **CH** to view the programmed channels.

## To memorize channels (Continued)



### To ADD/ERASE channels (analog mode)

After you have programmed the channels automatically, you can add or erase specific channels manually.

- 1 Press **MENU** in the analog mode, then press **7** or **8** to select **7** option.
- 2 Press **7** or **8** to select "ADD/ERASE", then press **7**.
- 3 Select the desired channel to be memorized or deleted using **7** or **8**. Then press **7** or **8** to select either ADD or ERASE.
- 4 Repeat step 3 for other channels you want to add or erase, then press **ENTER**.
- 5 Press **MENU** repeatedly until the menu screen is cleared.

### To ADD/ERASE channels (digital mode)

After you have programmed the channels automatically, you can add or erase specific channels manually.

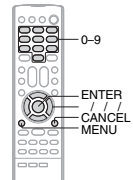
- 1 Press **MENU** in the digital mode, then press **7** or **8** to select **7** option.
- 2 Press **7** or **8** to select "DIGITAL SETUP", then press **7**.
- 3 Press **7** or **8** to select "ADD/ERASE", then press **7**.
- 4 Press **7** or **8** to select "ADD/ERASE", then press **7**. Select the desired channel to be memorized or deleted using **7** or **8**. Then press **7** or **8** to select either ADD or ERASE.
- 5 Repeat step 4 for other channels you want to add or erase.
- 6 Press **MENU** repeatedly until the menu screen is cleared.

To add a digital channel you are watching: Select a channel you want to add. Then select "ADDING CHANNEL" in step 4, then press **7**.

## Setting the V-Chip

An age limitation can be set to forbid children to watch programs according to "TV RATING" and "MOVIE RATING" level set. To use the V-Chip function, you must register a password.

- Notes:**
- If you forget the password, you cannot set the V-Chip.
  - To avoid forgetting the password, write it down and keep in the safe place.



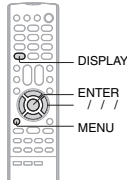
### To register password

- 1 Press **MENU**, then press **7** or **8** to select **7** option.
- 2 Press **7** or **8** to select "V-CHIP", then press **7**.
- 3 Enter the password (4 digits) using Number buttons (0-9), then press **ENTER**.
- 4 Enter the same password again using Number buttons (0-9) for safety, then press **ENTER**.

### To change password

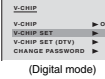
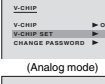
- 1 In the V-CHIP menu, press **7** or **8** to select "CHANGE PASSWORD", then press **7**.
- 2 Enter the new password using Number buttons (0-9), then press **ENTER**.
- 3 Enter the same password again using Number buttons (0-9) for safety, then press **ENTER**.
- 4 Press **MENU** repeatedly until the menu screen is cleared.

## Setting the V-Chip (Continued)



### To set the V-Chip

**1** In the V-CHIP menu, press **ENTER** or **MENU** to select "V-CHIP SET", then press **ENTER**.



**2** Press **ENTER** or **MENU** to select "TV RATING", then press **ENTER** to display the desired setting.

OFF : TV RATING is not set  
 TV-Y7 : All children  
 TV-Y7 : 7 years old and above  
 TV-G : General audience  
 TV-PG : Parental guidance  
 TV-14 : 14 years old and above  
 TV-MA : 17 years old and above



When you select TV-Y7, TV-PG, TV-14 or TV-MA, press **DISPLAY** to show the contained rating. Press **ENTER** or **MENU** to select the desired item you want.

**3** Press **ENTER** or **MENU** to select "MOVIE RATING", then press **ENTER**.

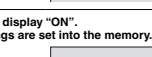


**4** Press **ENTER** or **MENU** to select desired rating, then press **ENTER** twice.

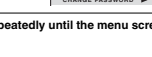


**G** : All ages  
**PG** : Parental guidance  
**PG-13** : Parental guidance less than 13 years old  
**R** : Under 17 years old  
**NC-17** : Parental guidance suggested  
**X** : 17 years old and above  
**X** : Adult only

**5** Press **ENTER** or **MENU** to select "V-CHIP".



**6** Press **ENTER** or **MENU** to display "ON". Now your settings are set into the memory.

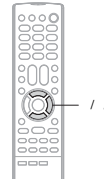


**7** Press **MENU** repeatedly until the menu screen is cleared.

**To use after the TV is protected**  
 When the program applied to the V-Chip setting is received, enter the password, then press **ENTER**. Protection can be canceled.

**Note:**  
 The V-Chip function is activated only on programs that have the rating signal.

As a supplement to the standard V-Chip rating system, your Toshiba Television will be able to download an additional rating system, if such a system becomes available in the future.



### To download the additional V-Chip rating system (when available)

**1** In the V-CHIP menu, press **ENTER** or **MENU** to select "V-CHIP SET (DTV)", then press **ENTER**. (You cannot select this feature if the TV is not receiving a digital signal for the current station.)



**2** If the TV is not storing the additional rating system, the TV will begin downloading it, which may take some time to be completed.



**3** Press **ENTER** or **MENU** to select "RRT SET", then press **ENTER**, and set your preferred content rating limits for the additional rating system.



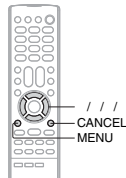
**PLEASE NOTE THE FOLLOWING:**

- You can only download the additional V-Chip rating system when your TV is receiving a digital signal.
- When you download the additional rating system, it may take some time for the download to occur.
- The V-Chip rating information and system are not determined or controlled by the TV or Toshiba.
- The standard V-Chip rating system is available whether your TV is receiving a digital signal or not, and will block both analog and digital programs. To set program blocking using the standard V-Chip rating system, select V-CHIP SET in step 1 (see page 28 for details).

The downloadable V-Chip rating system is an evolving technology, and availability, content, and format may vary.

## Picture control adjustment

Picture controls are factory preset but you can adjust them individually as follows:



### Picture control adjustment

**1** Press **MENU**, then press **ENTER** or **MENU** to select option, then press **ENTER**.



**2** Press **ENTER** or **MENU** to select the item you want to adjust, then press **ENTER** or **MENU** to adjust the setting.



Selection	Pressing
BRIGHTNESS	darker lighter
CONTRAST	lower higher
COLOR	paler deeper
TINT	reddish greenish
SHARPNESS	softer sharper

**Note:**  
 The CONTRAST default setting is set to maximum (+32) at the factory.

**3** Press **MENU** repeatedly until the menu screen is cleared.

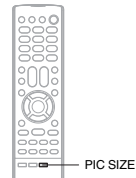


To return all adjustments to the factory preset levels Press **CANCEL** while making picture adjustments.

## Viewing the wide-screen picture formats

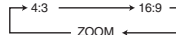
You can view 480i format programs in a variety of picture sizes—4:3, 16:9, ZOOM.

The way the image displays in any of the picture sizes will vary depending on the format of the program you are viewing. Select the picture size that displays the current program the way that looks best to you.



### Viewing the wide-screen picture formats

Press **PIC SIZE** repeatedly on the remote control to cycle among the three picture sizes, as described below.



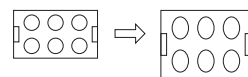
Available picture sizes for the various input sources  
 : available / X: not available

Input source	Picture size		
	4:3	16:9	ZOOM
4:3 format program (analog) or External input			X
4:3 format program (digital)	X	X	
16:9 (Squeeze) format program (digital)			

**4:3 picture size**  
 • If receiving a 4:3 format (analog or digital) program, select 4:3 PIC SIZE will typically display the image in its original formatted proportion.



• If receiving a 16:9 format (digital) program, select 4:3 PIC SIZE will typically display the image stretched taller (squeezed).

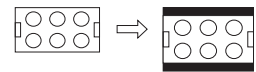


**16:9 picture size**

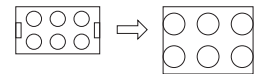
- If receiving a 4:3 format digital program, the 16:9 PIC SIZE is not available.
- If receiving a 4:3 format analog program, select 16:9 PIC SIZE will typically display the image stretched wider with bars at the top and bottom.



- If receiving a 16:9 format (digital) program, select 16:9 PIC SIZE will typically display the image in its original formatted proportion with bars at the top and bottom.

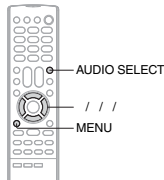


- ZOOM picture size (for 16:9 format programs)**
- If receiving a 4:3 format (analog or digital) program, the ZOOM PIC SIZE is not available.
  - If receiving a 16:9 format (digital) program, select ZOOM PIC SIZE will typically enlarge the image, retaining the original formatted proportion, but with the sides edges hidden.



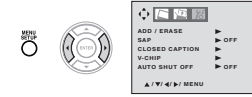
### Stereo and Second Audio Program (SAP)

The unit is equipped with a feature known as multi-channel TV sound or MTS. MTS broadcasts greatly enhance TV viewing by bringing you programs with high fidelity stereo sound. MTS also provides an extra channel called the Second Audio Program or SAP which broadcasters can use to transmit a second language for bilingual transmission or for other purposes.



#### Setting the SAP (analog mode)

1 Press MENU in the analog mode, then press or to select **7** option.



2 Press or to select "SAP", then press or to select ON or OFF.



3 Press MENU repeatedly until the menu screen is cleared.



#### Listening to SAP (Second Audio Program)

When the TV is turned on or a channel selection is made, "SAP" will appear on the screen. This means that the Second Audio Program broadcasting is available.



#### To select desired sound

Press AUDIO SELECT to select the desired sound.

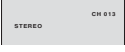


Broadcast	SAP setting	Audio display
MONO	OFF	MONO
	ON	MONO
STEREO	OFF	STEREO MONO
	ON	STEREO MONO
MONO+SAP	OFF	MONO
	ON	SAP
STEREO+SAP	OFF	STEREO MONO
	ON	SAP

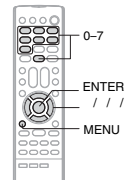
#### Listening to stereo sound

When the TV is turned on or a channel selection is made, the "STEREO" will appear on the screen. This means that Stereo broadcasting is available. You can enjoy stereo sound from the left and right speakers.

- When mono broadcasting is received, no indication is displayed.
- If the broadcast signal is not strong enough or clear stereo sound is not available, press AUDIO SELECT to change to mono sound. The noise should be eliminated. Press it again to return to the stereo sound.



### Setting the digital setup (digital mode)



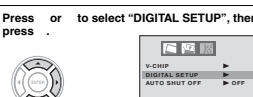
#### Selecting the audio language

When two or more audio languages are included in a digital signal, you can select one of the audio languages.

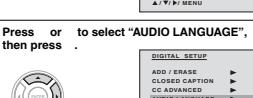
1 Press MENU in the digital mode, then press or to select **7** option.



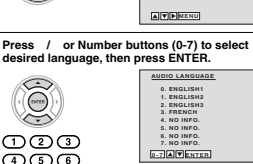
2 Press or to select "DIGITAL SETUP", then press .



3 Press or to select "AUDIO LANGUAGE", then press .



4 Press / or Number buttons (0-7) to select desired language, then press ENTER.



5 Press MENU repeatedly until the menu screen is cleared.

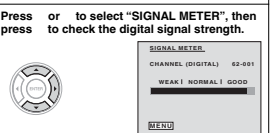


#### Checking the digital signal strength

You can check the strength of the digital signal by viewing the digital signal meter.

1 Follow steps 1-2 on the left.

2 Press or to select "SIGNAL METER", then press .

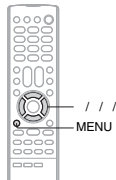


3 Press MENU repeatedly until the menu screen is cleared.



- Notes:
- Signal meter feature is not available for analog channels.
  - When you select a vacant channel, the signal meter may react.

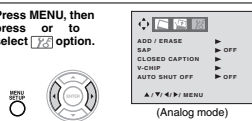
### Using the auto shut off feature



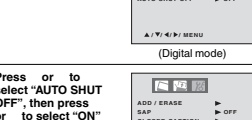
#### To use the auto shut off feature

In case of "AUTO SHUT OFF" is "ON", if a station being viewed stops broadcasting, the TV will automatically shut itself off after 15 minutes.

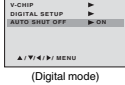
1 Press MENU, then press or to select **7** option.



2 Press or to select "AUTO SHUT OFF", then press or to select "ON" or "OFF".



3 Press MENU repeatedly until the menu screen is cleared.



### Playing a disc

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

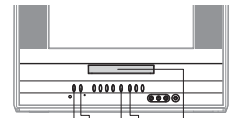


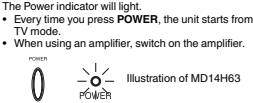
Illustration of MD14H63

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

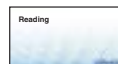
#### Basic playback

- Preparations:
- Insert the AC cord plug into a standard 120V 60Hz polarized AC outlet. If the AC cord plug is plugged in for the first time, you need to set "Starting setup" (18).
  - When connecting to other equipment, turn power off.

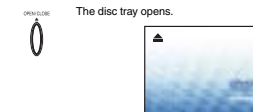
1 Press POWER on the unit or on the remote control to turn on the unit. The Power indicator will light.



2 Press TV/DVD to select DVD mode. The DVD startup screen will appear on the screen. "Reading" display will change to "No Disc". (If DVD disc has already loaded, playback will start automatically.)



3 Press OPEN/CLOSE. The disc tray opens.

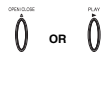


4 Place a disc on the disc tray. With the playback side facing down.



- 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 unit to malfunction.
- Do not place a disc which is unplayable on the disc tray.

5 Press OPEN/CLOSE or PLAY. The disc tray closes automatically. On the TV-screen, "▲" changes to "Reading" and then playback commences.



- A menu screen will appear on the TV screen, if the disc has a menu feature. Press / or / to select title, then press ENTER. Title is selected and play commences.

6 Press STOP to end playback.



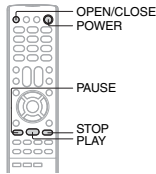
- Resuming facility**
- The unit records the stopped point, depending on the disc. "■" appears on the screen. Press PLAY to resume playback (from the scene point).
  - If you press STOP again ("■" appears on the screen), the unit will clear the stopped point.

To start playback in the stop mode Press PLAY.



**Note:**  
If the unit does not operate properly: Static electricity, etc., may affect the player's operation. Disconnect the AC power cord, then connect it again.

## Playing a disc (Continued)



### Basic playback

#### To pause playback (still mode)

- Press **PAUSE** during playback.
- To resume normal playback, press **PLAY**.
- The sound is muted during still mode.

#### To remove the disc

- Press **OPEN/CLOSE**.
- Remove the disc after the disc tray opens completely.

#### To stop playback

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

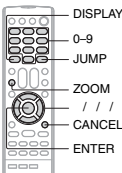
- Notes:**
- If a non-compatible disc is loaded, "Incorrect Disc", "Region Code Error" or "Parental Error" will appear on the TV screen according to the type of loaded disc. In this case, check your disc again (3) (5).
  - Some discs may take a minute or so to start playback.
  - When you set a single-faced disc label downwards (i.e. the wrong way up) and press **OPEN/CLOSE** or **PLAY** on the unit, "Reading" will appear on the display for a few minutes and then "Incorrect Disc" will continue to be displayed.
  - Some discs may not work the resuming facility.
  - Resuming cannot function when you play a PBC-featured Video CD while the PBC is on. To turn off the PBC, see page (4).
  - Some playback operations of DVDs may be intentionally fixed by software producers. Since this unit plays DVDs according to the disc contents the software producers designed, some playback features may not be available. Also refer to the instructions supplied with the DVDs.
  - Do not move the unit during playback. Doing so may damage the disc.
  - Use **OPEN/CLOSE** to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the unit 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 unit 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 **POWER** on your remote control once the movie is completed.
  - There may be a slight delay between you pressing the button and the function activating.

**To obtain a higher quality picture**  
Occasionally, some picture noise not usually visible on the TV screen during a normal broadcast may appear while playing a DVD video disc. It is because due to high resolution pictures on these discs which include a lot of information. The amount of noise depends on the disc you use with this unit. You should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

**About** 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 and CD-R/RW CDs.

## Zooming/Locating desired scene

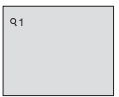


### Zooming

This unit will allow you to zoom in on the frame image. You can then make selections by switching the position of the frame.

#### 1 Press ZOOM during playback.

- The center part of the image will be zoomed in.
- Each press of **ZOOM** will change view at different part of the frame.
- ZOOM** 1 (x 1.3), 2 (x 1.5) and 3 (x 2.0).



#### 2 Press frame.

- You may move the frame from the center position to UP, DOWN, LEFT or RIGHT direction.

#### 3 In the zoom mode, press ZOOM repeatedly to return to a 1:1 view (Q, Off).



- Notes:**
- You can select the Pause or Slow in the zoom mode.
  - Some discs may not respond to zoom feature.

### Locating desired scene

Use the title, chapter and time recorded on the DVD disc to locate the desired point to playback. In the case of VCD/Audio CD discs, time and track are used to locate the desired point to playback.

To check the title, chapter/track and time, press **DISPLAY**.

#### 1 Press JUMP during playback or stop mode.

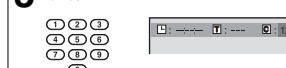
- Use the title, chapter/track and time recorded on the DVD disc to locate the desired point to playback.

- "Time" works only in DVD playback or DVD resume mode.

#### 2 Press or to select the "Time", "Title/Track" or "Chapter".



#### 3 Press Number buttons (0-9) to input the number.



- If you input a wrong number, press **CANCEL**.
- Refer to the package supplied with the disc to check the numbers.

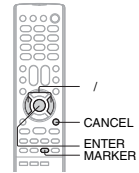
#### 4 Press ENTER. Playback starts.

- When you change the title, playback starts from Chapter 1 of the selected title.
- Some discs may not work in the above operation.

- Notes:**
- In case of the Audio CD and Video-CD, only Track and Time can be selected.
  - In case of the Video-CD playback with PBC, the JUMP does not work. See "To turn off the PBC" (4).

## Marking desired scenes

The unit stores the points that you want to watch again up to 3 points. You can resume playback from each scene.



### Marking the scenes

#### 1 Press MARKER during playback.



#### 2 Select the blank Marker using or , then press ENTER at the desired scene.

- Up to 3 scenes can be selected.
- Repeat this procedure to set the other 2 scenes.



#### 3 Press MARKER to clear this display.



- Notes:**
- Some discs may not work with the marking operation.
  - The marking is canceled when you open the disc tray or turn the power off.
  - Some subtitles recorded around the marker may fail to appear.
  - In case of Video CD with PBC, the MARKER is prohibited.

### Returning to the scenes

#### 1 Press MARKER during playback or stop mode.



#### 2 Press or to select the Marker 1-3.



#### 3 Press ENTER.

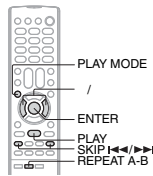
Playback starts from the marked scene.

- To cancel the Marker**  
Follow the above steps 1-2, then press **CANCEL**.

Basic playback

Advanced playback

## Repeat playback/A-B Repeat playback



### Repeat playback

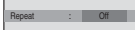
**1** Press **PLAY MODE** during playback or stop mode.



**2** [DVD] Press **/** repeatedly to select "Chapter" or "Title".



The unit automatically starts repeat playback after finishing the current title or chapter.



[Video CD, Audio CD] Press **REPEAT** and then press **ENTER** repeatedly to select "Track" or "All".

The unit automatically starts repeat playback after finishing the current track.



- If you set the repeat mode during stop mode, press **PLAY** to start Repeat playback.

**3** Press **PLAY MODE** again to clear the screen.



To resume normal playback Select Repeat : "Off" in step 2.

**Notes:**

- Some discs may not work with the repeat operation.
- In case of Video CD with PBC, Repeat function is prohibited during playback.
- Chapter/Track repeat function is canceled whenever **SKIP** or **PAUSE** is pressed.

### A-B Repeat playback

A-B repeat playback allows you to repeat a section between two selected points.

**1** Press **REPEAT A-B** during playback.



The start point is selected.



**2** Press **REPEAT A-B** again.



The end point is selected. Playback starts at the point that you selected. Playback stops at the end point and returns to Point A automatically, then starts again.



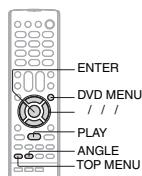
To resume normal playback Press **REPEAT A-B** again.



**Notes:**

- In A-B Repeat mode, subtitles near the A or B locations may not be displayed.
- You cannot set the A-B Repeat for the scenes that include multiple angles.
- A-B Repeat playback does not work when Repeat playback is activated.
- You may not be able to set A-B Repeat during certain scenes of the DVD.
- A-B Repeat does not work with an interactive DVD.
- In case of Video CD with PBC, A-B Repeat is prohibited.

## Changing angles/Title selection/DVD menu



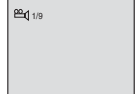
### Changing angles

When playing back a disc recorded with multi-angle facility, you can change the angle that you are viewing the scene from.

**1** Press **ANGLE** during playback.



The current angle will appear.



**2** Press **ANGLE** repeatedly until the desired angle is selected.



**Note:**

Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

### Title selection

Two or more titles are recorded on some discs. If the title menu is recorded on the disc, you can select the desired title.

**1** Press **TOP MENU** during playback.



Title menu appears on the screen.

**2** Press



**3** Press **ENTER** or **PLAY**.



The playback of the selected title will start.

**Note:**

Depending on the DVD, you may not be able to select the title. Depending on the DVD, a "title menu" may simply be called a "menu" or "title" in the instructions supplied with the disc.

### DVD menu

Some DVDs allow you to select the disc contents using the menu.

When you playback these DVDs, you can select the subtitle language and soundtrack language, etc. using the menu.

**1** Press **DVD MENU** during playback.



The DVD menu appears on the screen. Press **DVD MENU** again to resume playback at the scene when you pressed **DVD MENU**.

**2** Press



**3** Press **ENTER**.



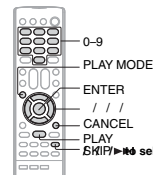
The menu continues to another screen. Repeat steps 2 and 3 to set the item completely.

**Note:**

to select the desired title. Depending on the DVD, you may not be able to resume playback from the scene point when you pressed **DVD MENU**.

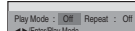
## Program playback/Random playback

You can arrange the playback order of tracks or files on the disc. And also the unit can playback tracks or files in random order. These feature works for Audio CD, Video CD and JPEG CD.

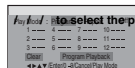


### Program playback

**1** Press **PLAY MODE** in the stop mode.



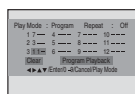
**2** Press **/** or **0-9** to select Play Mode, then press **ENTER** repeatedly to select "Program".



**3** Press position. Use Number buttons (0-9) to input the track or file numbers.



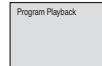
- To program others, repeat step 3.
- If you input a wrong number, press **CANCEL**.



**4** Press and press **ENTER**.

The programs you selected will start to playback in order.

- In case of JPEG file, press **SKIP** to continue the program playback if the JPEG interval is set to "Off", see page 50.
- To resume normal playback, select Play Mode: "Off" in step 2.



**To change the program**

1. In the program mode, press **/** to select the track /file number.

2. Press **Number buttons (0-9)** to select the track/file number to be replaced.

**To clear the program one by one**

In the program mode, press **/** to select the track /file number. Then press **CANCEL**.

To clear all the programs

In the program mode, press **/** to select "Clear". Then press **ENTER**.

**Note:**

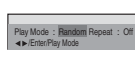
The Program is canceled when you open the disc tray or turn the power off.

### Random playback

**1** Press **PLAY MODE** during playback or stop mode.



**2** Press **/** to select Play Mode, then press **ENTER** repeatedly to select "Random".



**3** Press **PLAY**.



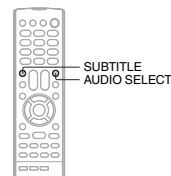
The Random Playback will start.

- In case of JPEG file, press **SKIP** to continue the random playback if the JPEG interval is set to "Off", see page 50.
- If you set "Random" during playback mode, Random playback will begin after the track/file that is currently being played has ended.
- To resume normal playback, select Play Mode: "Off" in step 2.

**Note:**

In case of Video CD with PBC, you cannot set Random function during playback.

## Changing soundtrack language/ Subtitles



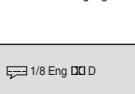
### Changing soundtrack language

You can select the language when you play a multilingual disc.

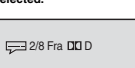
**1** Press **AUDIO SELECT** during playback.



The current soundtrack language will appear.

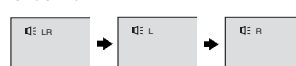


**2** Press **AUDIO SELECT** repeatedly until the desired language is selected.



**In case of Video CD playback**

Audio type changes as follows each time you press **AUDIO SELECT**.



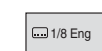
**Notes:**

- If the desired language is not heard after pressing the button several times, the language is not recorded on the disc.
- The selected soundtrack language is canceled when you open the disc tray. The initial default language or available language will be heard if the disc is played back again.
- If you select DTS in playing DTS-encoded disc, no sound will be heard from the TV/DVD's speakers.

### Subtitles

When playing back a disc recorded with subtitles, you can select the subtitle language or turn the subtitle off.

**1** Press **SUBTITLE** repeatedly during playback until the desired language is selected.



**2** To turn off the subtitle, press **SUBTITLE** until "Off" appears.

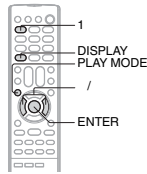


- The on screen display will disappear after a few seconds.

**Notes:**

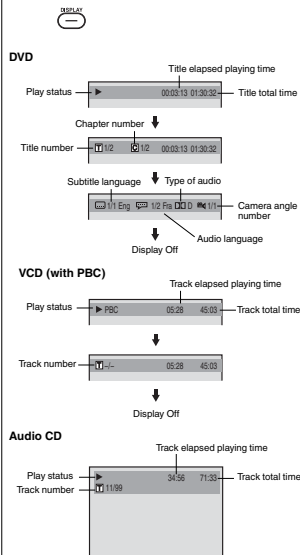
- Depending on the DVD, you may not be able to change subtitles, or to turn subtitles on or off.
- While playing a DVD, the subtitle may change when you open or close the disc tray.
- In some cases, a selected subtitle language may not be changed immediately.

## Disc status/To turn off the PBC



### Disc status

Press **DISPLAY** during playback. The status display of the disc will appear on the screen in order like the figure below.



• When you play an Audio CD, the status display will appear and remain on the screen.

### To turn off the PBC

**1** Press **PLAY MODE** in the stop mode.



**2** Press **/** to select Play Mode, then press **ENTER** repeatedly to select "Off".



**3** Press **PLAY MODE** again to clear the screen.

#### To turn on the PBC

Follow the above steps 1-2, then press **ENTER** repeatedly until "PBC" appear.

**Note:**  
You can also turn off the PBC by pressing number button 1 and **ENTER** in the stop mode.

## JPEG CD information

This unit can playback the JPEG-data which has been recorded on CD-R or CD-RW. To produce the JPEG-data, you need a Windows-PC with CD-R/RW drive and a JPEG-encoding Software (not supplied). The Apple-HFS-System cannot be played.

This player requires discs/recordings to meet certain technical standards in order to achieve optimal playback quality. There are many different types of recordable disc formats (including CD-R containing JPEG files). Not all recordable discs will produce optimal playback quality. The technical criteria set forth in this owner's manual are meant only as a guide. Use of CD-RW for JPEG files is not recommended.

You must obtain any required permission from copyright owners to download or use copyrighted content. Toshiba cannot and does not grant such permission.

### JPEG CD information

#### Limitations on JPEG CD playback

- JPEG CD is the disc that is standardized by ISO9660, its file name must include 3-digits extension letters, ".jpg".
- JPEG CD must be corresponded to the ISO standardized files.
- This unit can read 600 files per directory. If one directory has more than 600 files, it reads up to 600 files, the remaining files will be omitted.
- The unit is able to recognize up to a maximum of 50 directories per disc.
- JPEG CDs cannot be used for the purpose of recording.
- It may take more than one minute for this unit to read JPEG files depending on its structure.

#### Limitations on display

- The maximum number for display is 16 letters.
- Available letters for display are the following: capital or small alphabets of A through Z, numbers of 0 through 9, and \_ (under score).
- Other letters than those above are replaced in hyphen.

#### To playback JPEG CD in the recorded order

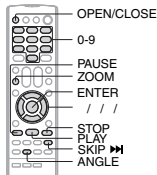
1. Use JPEG software that records data alphabetically or numerically.
2. Name each file including two-digit or three-digit number (ex. "01" "02" or "001" "002").
3. Refrain from making too many sub-folders.

#### CAUTION:

- Some JPEG CDs cannot be played back depending on the recording conditions.
- The CD-R/RW that has no JPEG files cannot be played back.

## JPEG CD playback

You can select your desired JPEG file on the file menu and picture menu. The selected JPEG file is automatically adjusted to the TV screen. (When the aspect ratio of the JPEG file is different to your TV screen, the black bar will appear at the top and bottom, or the both sides of the TV screen).



### JPEG CD playback

**1** Place a JPEG disc on the disc tray, then press **OPEN/CLOSE**.



**2** A file menu screen will appear on the screen. Press **/** to select folder.



**3** Press **ENTER** to select the desired file.



• To display next list, press **SKIP** **←** or **→**.

**4** Press **ENTER**. The selected picture appears on the screen.



#### Rotating an image

You can rotate an image by 90 degrees. Press **ANGLE** during playback of the image. "270°", "90°", "180°" or "0°" appears on the screen.

#### Zooming an image

Zoom function also can be used in viewing JPEG files. Press **ZOOM** (See "Zooming" [83](#)).

**5** Press **STOP** to end playback.

The file menu appears on the screen. If you want to watch the other file, repeat steps 3 ~ 4.



#### Notes:

- During JPEG playback, you cannot use JUMP and A-B Repeat functions.
- You can use Repeat (Track or All), Random and Program functions for JPEG CD playback ([83](#) [85](#)).

### Slide show playback

The slide show enables you to view pictures (files) one after another automatically.

**Preparation:**  
Set "JPEG Interval" setting to "5 Seconds", "10 Seconds" or "15 Seconds" ([80](#)).

**1** Select your desired starting file for the slide show in the step 3 on left.

**2** Press **ENTER** to start slide show from the selected file.



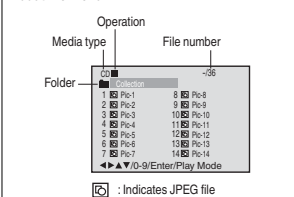
• If you press **PAUSE** during the slide show, the slide show stops temporary. "\*" appears briefly on the screen. Press **PLAY** or **SKIP** **→** again to resume the slide show.

• If the picture appears upside down or sideways, press **ANGLE** repeatedly until it's right side up. "270°", "90°", "180°" or "0°" appears on the screen.

• When the slide show playback finished, the file list appears.

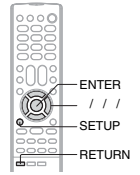
• To stop the slide show, press **STOP**. The file list appears.

#### About file menu



## Customizing the function settings

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



### Setting procedure

**1** Press **SETUP** during stop mode



The following on-screen display appears.



**2** Press **or** to select the desired section, then press **or** **ENTER**.



**3** Press **or** to select the desired option.



**4** Change the selection using **or** by referring to the corresponding pages ([89](#) ~ [95](#)).







- Repeat steps 3 and 4 to change other settings.
- To select another operation, go back to step 2 by pressing repeatedly.

**5** To clear **SETUP** screen, press **SETUP** or **RETURN**.



## Customizing the function settings (Continued)

### Setting details

Section	Option	Details	Page
	<b>Menu Subtitle Audio</b>	To select the language of "Menu", "Subtitle" and "Audio" if more than one language are recorded on the disc.	49
	<b>TV Screen</b>	To select a picture size according to the aspect ratio of your TV.	50
	<b>Display</b>	To turn On or Off the operational status display on the screen.	
	<b>Picture Mode</b>	To select a preferred picture mode from "Video", "Film" or "Auto".	
	<b>JPEG Interval</b>	To select a preferred setting for the slide show playback.	51
	<b>DRC</b>	To select On or Off for DRC (Dynamic Range Control).	
	<b>Password</b>	To change the password.	
	<b>Parental</b>	To select a preferred parental level for the parental setting.	51
	<b>Select Files</b>	To select a preferred file type for playing back a CD containing a mixture of file types.	

## Customizing the function settings (Continued)

### Setting details

#### Picture Mode

There are two types of source content in pictures recorded in DVD video discs: film content (pictures recorded from films at 24 frames per second) and video content (video signals recorded at 30 frames per second). Make this selection according to the type of content being viewed.

**Auto:** Select this selection normally. The DVD player automatically detects source content, film or video of playback source, and converts that signal in an appropriate method.

**Film:** The DVD player converts film content pictures appropriately. Suitable for playback of film content pictures.

**Video:** The DVD player filters video signal and converts it appropriately. Suitable for playback of video content pictures.

**Note:** Depending on the disc, pictures may be cut off or doubled. In this case, select "Video".

#### JPEG Interval

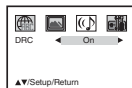
You can continuously playback all JPEG files automatically. After the selection below, the disc will start playback on JPEG files which have been recorded.

**Off:** Plays back one file at a time.

**5 Seconds:** Plays back images in the form of a slide show at 5 second intervals.

**10 Seconds:** Plays back images in the form of a slide show at 10 second intervals.

**15 Seconds:** Plays back images in the form of a slide show in 15 second intervals.



#### DRC

DRC (Dynamic Range Control) enables you to control the dynamic range so as to achieve a suitable sound for your equipment.

**On:** Loud sound such as explosion is toned down slightly when played back. This is suitable when it is connected to a stereo.

**Off:** It plays back at the recording level on the disc.

**Notes:**

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



#### Menu, Subtitle, Audio

You can select the language of "Menu", "Subtitle" and "Audio" if more than one languages are recorded onto the disc.

**English, Francais, Espanol:** The selected language will be heard or seen.

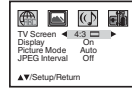
**Other:** Other language can be selected (see "Language code list" (53)).

**Original (Audio):** The unit will select the first-priority language of each disc.

**Off (Subtitle):** Subtitles do not appear.

**Notes:**

- If the selected language is not recorded on the disc, the first-priority language is selected.
- If you want to change the OSD language, you can perform it by TV MENU (29).



#### TV Screen

You have the following screen sizes to choose from:

**4:3 (Letter box)**

Select this mode when connecting to a conventional TV. When playing back a wide screen-DVD disc, it displays the wide picture with black bands at the top and bottom of screen.

**4:3 (Pan & scan)**

It displays the wide picture on the whole screen with left and right edges automatically cut off.

Press **OPEN/CLOSE** to view in the selected screen size.

**Note:** If the DVD disc is not formatted in the Pan & scan style, it will display 4:3 style.

#### Display

On screen display can be switched on or off when you press any buttons.

**On:** On screen displays appear when you press any buttons (factory setting).

**Off:** On screen displays do not appear when you press any buttons.

## Customizing the function settings (Continued)

### Setting details



#### Parental control setting

Some discs are specified as not suitable for children. Such discs can be limited not to playback with the unit.

1) Press or to select "Parental", then press or until the parental level you require to appear.

• **Level Off:** The parental control setting does not function.

• **Level 8:** All DVD software can be played back.

• **Level 1:** DVD software for adults cannot be played back.

Select from the level 1 to level 8. The limitation will be more severe as the level number is lower.

2) Press or to select "Password".

Press **Number buttons (0-9)** to input a 4-digit password. Be sure to remember this number!

If you input a wrong number, press **CANCEL**.

3) Press **ENTER** to store the password.

4) Press **OPEN/CLOSE** to activate Parental control setting. (See "Temporary cancel the rating level by DVD disc" (23).)

#### Notes:

• The parental control level is equivalent to the following USA movie ratings.

Level 1: G	Level 5:
Level 2:	Level 6: R
Level 3: PG	Level 7: NC-17
Level 4: PG-13	Level 8:

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

• Depending on the discs, the unit cannot limit playback.

• Some discs may not be encoded with specific rating level information though its disc jacket says "adult." For those discs, the age restriction will not work.

• The password is required every time when you change the parental level.

#### To change the parental level

1) Press or to select "Password".

2) Press **Number buttons (0-9)** to enter the password you have stored.

3) Press **ENTER**.

• The rating is now unlocked.

4) Press or to select "Parental", then press or to change the parental level.

5) Press or to select "Password", then press

**Number buttons (0-9)** to enter the password.

**Note:** You can change the password if you want.

6) Press **ENTER**.

Now the parental level is changed and locked.

#### If you forget the password.

1. Press **OPEN/CLOSE** to open the disc tray.

2. Remove the disc.

3. Press **OPEN/CLOSE** again to close the disc tray. "No Disc" appears on the screen.

4. Press and hold **STOP** on the front panel, and at the same time press **7** on the remote control until "PASSWORD CLEAR" appears on the screen.

5. Enter a new password again.

#### Select Files

You can select the file types to be displayed on the file menu.

#### All:

Displays all files.

#### Music Only:

Displays files except JPEG file.

#### Pictures Only:

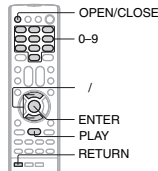
Displays only JPEG files.

#### Note:

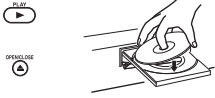
If each setup (23) - (25) has completed, the unit can always work under the same condition (especially with DVD discs). Each setup will be retained in the memory even if you turn the power off.

## Temporary cancel the rating level by DVD disc

Depending on the DVD disc, the disc may try to temporarily cancel the rating level that you have set. It is up to you to decide whether to cancel the rating level or not.



**1** Load a DVD disc and press **PLAY** or **OPEN/CLOSE** on the unit **[ ]**.



**2** If the DVD disc has been designed to temporarily cancel the Rating level, the screen which follows the "Reading" screen will change, depending on which disc is played. If you select "YES" with the **ENTER** key, "Your disc exceeds the parental control level#" screen will then appear.

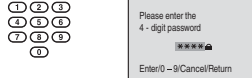


**3** If you wish to cancel the set rating level temporarily, select "Parental Control Level#" with **[ ]**, then press **ENTER**. If the 4-digit password at step 2 on page 52 has been set, the password entering screen will appear as shown in step 4. Alternatively, if the password has not been set, playback will commence. If you don't know (or have forgotten) the password, select "Cancel Picture". The setting screen will disappear. Press **OPEN/CLOSE** to remove the disc.



**4** Enter the password with Number buttons (0-9). Then press **ENTER**.

To exit from the entry, press **RETURN**.



**5** Playback will commence if the entered password is correct.

**Note:** This temporary cancellation of rating level will be kept until the disc is ejected. When the disc is ejected, the original rating level will be set again automatically.

## Language code list

Enter the appropriate code number for the initial settings "Menu", "Subtitle" and/or "Audio" **[ ]**.

Language	Name Code	Language	Name Code	Language	Name Code	Language	Name Code
Abkhazian	1112	Fiji	1620	Lingala	2224	Singhalese	2919
Afar	1111	Finnish	1619	Lithuanian	2230	Slovak	2921
Afrikaans	1116	French	1628	Macedonian	2321	Slovenian	2922
Albanian	2927	Frisian	1635	Malagasy	2317	Somali	2925
Amharic	1123	Galician	1722	Malay	2329	Spanish	1529
Arabic	1128	Georgian	2111	Malayalam	2322	Sundanese	2931
Armenian	1835	German	1415	Maltese	2330	Swahili	2933
Assamese	1129	Greek	1522	Maori	2319	Swedish	2932
Aymara	1135	Greenlandic	2122	Marathi	2328	Tagalog	3022
Azerbaijani	1136	Guarani	1724	Moldavian	2325	Tajik	3017
Bashkir	1211	Gujarati	1731	Mongolian	2324	Tamil	3011
Basque	1531	Hausa	1811	Nauru	2411	Tatar	3030
Bengali; Bangla	1224	Hebrew	1933	Nepali	2415	Telugu	3015
Bhutani	1436	Hindi	1819	Norwegian	2425	Thai	3018
Bihari	1218	Hungarian	1831	Oriya	2528	Tibetan	1225
Breton	1228	Icelandic	1929	Panjabi	2611	Tigrinya	3019
Bulgarian	1217	Indonesian	1924	Pashto Pushto	2629	Tonga	3025
Burmese	2335	Interlingua	1911	Persian	1611	Turkish	3028
Byelorussian	1215	Irish	1711	Polish	2622	Turkmen	3021
Cambodian	2123	Italian	1930	Portuguese	2630	Twi	3033
Catalan	1311	Japanese	2011	Quechua	2731	Ukrainian	3121
Chinese	3618	Javanese	2033	Rhaeto-Romance	2823	Urdu	3128
Corsican	1325	Kannada	2124	Romanian	2825	Uzbek	3136
Croatian	1828	Kashmiri	2129	Russian	2831	Vietnamese	3219
Czech	1329	Kazakh	2121	Samoan	2923	Volapük	3225
Danish	1411	Kirghiz	2135	Sanskrit	2911	Welsh	1335
Dutch	2422	Korean	2125	Scots Gaelic	1714	Wolof	3325
English	1524	Kurdish	2131	Serbian	2928	Xhosa	3418
Esperanto	1525	Laothian	2225	Serbo-Croatian	2918	Yiddish	2019
Estonian	1530	Latin	2211	Shona	2924	Yoruba	3525
Faroese	1625	Latvian Lettish	2232	Sindhi	2914	Zulu	3631

## Troubleshooting

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

SYMPTOMS	CAUSE	POSSIBLE SOLUTIONS	PAGE
<b>POWER</b>			
No power.	The AC power cord is not connected.	Connect the AC power cord to the AC outlet.	5
<b>TV BROADCAST RECEPTION</b>			
Poor or no picture.	TV station experiencing problems.	Try another channel.	21
	Picture control is not adjusted.	Check picture control adjustments.	30
	Possible local interference.	Check for source of reception disturbance.	56
	Antenna (CABLE) connector is not connected or possible local interference.	Check CABLE connection or VHF/UHF antenna, reposition or rotate antenna.	13, 14
Poor or no color.	TV station experiencing problems.	Try another channel.	21
	Picture control is not adjusted.	Check picture control adjustments.	30
	Possible local interference.	Check for source of reception disturbance.	56
	Antenna (CABLE) connector is not connected or possible local interference.	Check CABLE connection or VHF/UHF antenna, reposition or rotate antenna.	13, 14
Picture wobbles or drifts.	TV station experiencing problems.	Try another channel.	21
	Antenna (CABLE) connector is not connected or possible local interference.	Check CABLE connection or VHF/UHF antenna, reposition or rotate antenna.	13, 14
	Cable TV channel is scrambled.	Try another channel.	21
	CABLE connector is not connected.	Check all CABLE connections.	14
No CATV reception.	TV/CABLE selection is set to the TV position.	Set the selection to the CABLE position.	25
	Cable TV service interrupted.	Contact your Cable TV company.	-
	TV/CABLE selection is not set to the appropriate position.	Make sure selection is in the appropriate position.	25
No reception above channel 13.	UHF antenna is not connected.	Check UHF antenna.	13
	TV station experiencing problems.	Try another channel.	21
	Antenna (CABLE) connector is not connected or possible local interference.	Check CABLE connection or VHF/UHF antenna, reposition or rotate antenna.	13, 14
	Possible local interference.	Check for source of reception disturbance.	56
TV shuts off.	The MUTE button is pressed.	Press the MUTE button to cancel mute function.	22
	TV station stopped broadcasting.	Try another channel.	21
	Sleep timer is set.	Set Sleep Timer to "0".	22
Closed caption is not activated.	TV station experiencing problems or program tuned is not closed captions.	Try another channel.	21
	TV signal is weak.	Check CABLE connection of VHF/UHF antenna, reposition or rotate antenna.	13, 14
	The CLOSED CAPTION button is not pressed.	Press the CLOSED CAPTION button to turn on the closed caption.	23, 24

SYMPTOMS	CAUSE	POSSIBLE SOLUTIONS	PAGE
<b>DVD</b>			
The playback picture has occasional distortion.	The disc is dirty.	Eject the disc and clean it.	8
	It is in fast forward or fast reverse playback.	Sometimes a small amount of picture distortion may appear. This is not a malfunction.	-
The unit does not start playback.	No disc is inserted.	Insert a disc.	35
	An unplayable disc is inserted.	Insert a playable disc (Check the disc type and color system).	9
	The disc is placed upside down.	Place the disc with the playback side down.	35
	The disc is not placed within the guide.	Place the disc correctly inside the guide on the disc tray.	35
Playback does not follow the course of the disc's program.	The parental lock function is set.	Cancel the parental lock function or change the parental lock level.	51, 52
* appears on the screen.	It is in the mode of repeat playback, memory playback, etc.	These operations may prevent a proper progress of the contents.	-
	The function is prohibited with the unit or the disc.	-	9
<b>REMOTE CONTROL</b>			
Remote control does not operate.	The remote control is not aimed at the sensor.	Aim the remote control at the remote sensor.	12
	Distance is too far or too much light in the room.	Operate within 5 m or reduce the light of the room.	12
	There is an obstacle in the path of the beam.	Clear the path of the beam.	12
	The batteries are weak.	Replace the batteries.	12
	The batteries are not inserted correctly.	Insert correctly.	12

## Reception disturbances

Most types of television interference can be remedied by adjusting the height and position of the VHF/UHF antenna. Outdoor antennas are recommended for best results. The most common types of television interference are shown below. If one of these symptoms appear when the unit is connected to a Cable TV system, the disturbance may be caused by the local Cable TV company broadcast.

### IGNITION

Black spots or horizontal streaks may appear, the picture may flutter or drift. Usually caused by interference from automobile ignition systems, neon lamps or AC powered tools and appliances such as drills or hair dryers.



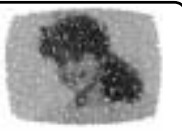
### GHOSTS

Ghosts are caused by the television signal following two paths. One is the direct path and the other is reflected by tall buildings, hills or other large objects. Changing the direction or position of the antenna may improve the reception.



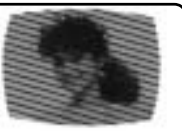
### SNOW

If the unit is located far from the TV station, in a fringe reception area where the signal is weak, small dots may appear in the picture. If the signal is extremely weak, the installation of a larger external antenna may be necessary.



### RADIO FREQUENCY INTERFERENCE (RFI)

Caused by two-way radios, this type of interference produces moving ripples or diagonal streaks in the picture. Some cases may cause a loss of contrast in the picture. Changing the direction and position of the antenna or installing an RFI filter may improve the picture.



### PICTURE SIZE VARIATION

A slight picture size variation is normal when you adjust the CONTRAST or BRIGHTNESS settings.



### CARE AND MAINTENANCE

To prevent fire or shock hazard, disconnect the unit from the power source before cleaning. The finish on the cabinet may be cleaned with mild soap and a soft, damp cloth and cared for as other furniture. Use caution when cleaning or wiping the plastic parts.

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## Specifications

Model	MD14H63	MD20H63	MD24H63
<b>General</b>			
Power supply	AC 120 V 60 Hz		
Power consumption	Operation:	95 W	120 W
	Stand by:	3 W	3 W
Picture tube	14 inches (355.6 mm) diagonal	20 inches (508.0 mm) diagonal	24 inches (600.0 mm) diagonal
Speaker	1-1/2 x 2-1/16 inches (38.1 x 66.6 mm), 8 x 2	1-13/16 x 3-7/8 inches (45.7 x 99.1 mm), 8 x 2	
Audio output power	1.0 W + 1.0 W		
Weight	29.8 lbs (13.5 kg)	55.1 lbs (25.0 kg)	75.0 lbs (34.0 kg)
Dimensions	Width:	17-5/16 inches (440 mm)	22-5/8 inches (574 mm)
	Height:	15-1/2 inches (393 mm)	20-1/4 inches (514.5 mm)
	Depth:	15-7/16 inches (392.5 mm)	18-15/16 inches (481.5 mm)
Television system	NTSC standard, ATSC standard (8VSB), QAM		
Tuner	181 channel freq. synthesized		
	VHF 2-13		
	UHF 14-69		
	CATV 125 Channels		
Antenna input	UHF/VHF: 75 coaxial		
Color system	NTSC		
Applicable disc	DVD (12 cm, 8 cm), CD (12 cm, 8 cm)		
Frequency range	DVD: 4 Hz-22 kHz, CD: 4 Hz-20 kHz		
Operating conditions	Temperature: 5°C-40°C (41°F-104°F), Operating status: Horizontal, Humidity: Less than 80% RH (no condensation)		
<b>Input/Output</b>			
Video input	1.0 V (p-p), 75 Ω, negative sync., pin jack x 2		
Audio input	-8dBm, 50 k Ω, negative sinc., pin jack (L/R) x 2		
Audio output (DIGITAL COAXIAL)	0.5 V (p-p), 75 Ω, pin jack x 1		
Headphone	3.5mm stereo mini jack x 1		
<b>Supplied accessories</b>			
Remote control (SE-R0258)	1		
Batteries (R03/AAA)	2		

\* Screen size is approximate.

- This model complies with the above specifications.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and/or specifications that may be added in the future.

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## Limited United States Warranty

for model MD14H63/MD20H63/MD24H63 ("TV Combination")

Toshiba America Consumer Products, L.L.C. ("TACP") makes the following limited warranties to original consumers in the United States. THESE LIMITED WARRANTIES EXTEND TO THE ORIGINAL CONSUMER PURCHASER OR ANY PERSON RECEIVING THIS TV COMBINATION AS A GIFT FROM THE ORIGINAL CONSUMER PURCHASER AND TO NO OTHER PURCHASER OR TRANSFEREE.

**TV COMBINATIONS PURCHASED IN THE U.S.A. AND USED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, ARE NOT COVERED BY THESE WARRANTIES.**  
**TV COMBINATIONS PURCHASED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, AND USED IN THE U.S.A., ARE NOT COVERED BY THESE WARRANTIES.**

### Limited Ninety (90) Day Warranty on Labor

TACP warrants this TV Combination and its parts against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU FOR PARTS OR LABOR. During this period, TACP Authorized Service Station personnel will come to your home when warranty service is required. Depending on the type of repair required, the service will either be performed in your home or the TV Combination will be taken to a TACP Authorized Service Station for repair and returned to your home at no cost to you.

### Limited One (1) Year Warranty on Parts

TACP further warrants the parts in this TV Combination against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU FOR PARTS OR LABOR, PROVIDED THAT IF A DEFECTIVE PART IS REPAIRED OR REPLACED AFTER NINETY (90) DAYS AFTER THE DATE OF ORIGINAL RETAIL PURCHASE, YOU MUST PAY ALL LABOR CHARGES IN CONNECTION WITH THE REPAIR OR REPLACEMENT THEREOF. After the date that is ninety (90) days after the date of original retail purchase, you may request in-home service at your expense, or you may deliver the entire TV Combination to a TACP Authorized Service Station. If you elect to deliver the entire TV Combination to a TACP Authorized Service Station, you must pay for all transportation and insurance charges for the TV Combination to and from the TACP Authorized Service Station.

### Limited Two (2) Year Warranty on Picture Tube

TACP further warrants the picture tube in this TV Combination against defects in materials or workmanship for a period of two (2) years after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PICTURE TUBE WITH A NEW OR REFURBISHED PICTURE TUBE WITHOUT CHARGE TO YOU, PROVIDED THAT IF A DEFECTIVE PICTURE TUBE IS REPAIRED OR REPLACED AFTER NINETY (90) DAYS AFTER THE DATE OF ORIGINAL RETAIL PURCHASE, YOU MUST PAY FOR ALL LABOR CHARGES IN CONNECTION WITH THE REPAIR OR REPLACEMENT THEREOF. After the date that is ninety (90) days after the date of original retail purchase, you may request in-home service at your expense, or you may deliver the entire TV Combination to a TACP Authorized Service Station. If you elect to deliver the entire TV Combination to a TACP Authorized Service Station, you must pay for all transportation and insurance charges for the TV Combination to and from the TACP Authorized Service Station.

### Rental Units

The warranty for TV Combination rental units begins on the date of the first rental or thirty (30) days after the date of shipment to the rental firm, whichever comes first.

### Limited Warranty for Commercial Units

TACP warrants TV Combinations that are sold and used for commercial purposes as follows: all parts are warranted against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU.

### Owner's Manual and Product Registration Card

Read this owner's manual thoroughly before operating this TV Combination. Complete and mail the enclosed product registration card or register your TV Combination online at [www.toshiba.com/service](http://www.toshiba.com/service) as soon as possible. By registering your TV Combination you will enable TACP to bring you new products specifically designed to meet your needs and help us to contact you in the unlikely event a safety notification is required under the U.S. Consumer Product Safety Act. Failure to complete and return the product registration card does not diminish your warranty rights.

(continued on next page)

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### Your Responsibility

THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS:

- You must retain your original bill of sale or provide other proof of purchase.
- All warranty servicing of this TV Combination must be performed by an Authorized TACP Service Station.
- The warranties from TACP are effective only if this TV Combination is purchased and operated in the Continental U.S.A. or Puerto Rico.
- Labor service charges for set installation, setup, adjustment of customer controls, and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems, misaligned satellite dishes, cable television distribution, VCRs, DVD players/recorders, personal computer level IEEE-1394 devices, and any other connected signal source device are your responsibility.
- Warranties extend only to defects in materials or workmanship as limited above, and do not extend to any TV Combination or parts that have been lost or discarded by you or to damage to the TV Combination or parts caused by fires, misuse, accident, Acts of God (such as lightning or fluctuations in electric power), improper installation, improper maintenance, or use in violation of instructions furnished by TACP; use or malfunction through simultaneous use of this TV Combination and connected equipment; or to units that have been modified or had the serial number removed, altered, defaced, or rendered illegible.

### How to Obtain Warranty Service

If, after following all of the operating instructions in this manual and reviewing the section entitled "Troubleshooting," you find that service is needed:

- To find the nearest TACP Authorized Service Station, visit TACP's website at [www.tacp.toshiba.com/service](http://www.tacp.toshiba.com/service) or contact TACP's Consumer Solution Center toll free at 1-800-631-3811.
- You must present your original bill of sale or other proof of purchase to the TACP Authorized Service Station.

For additional information, visit TACP's website:  
[www.tacp.toshiba.com](http://www.tacp.toshiba.com)

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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 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 the law of any state of the U.S.A.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE IN THE U.S.A. SOME STATES OF THE U.S.A. DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, WHEN AN ACTION MAY BE BROUGHT, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. THEREFORE, THE ABOVE PROVISIONS MAY NOT APPLY TO YOU UNDER SUCH CIRCUMSTANCES.

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## CAUTION

THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

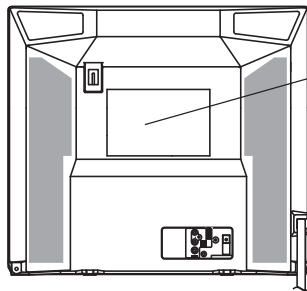
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE 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 LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

### Location of the required Marking

The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA  
RADIATION PERFORMANCE STANDARDS,  
21 CFR SUBCHAPTER J.

## PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.

Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.

Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

## SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES


As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

#### (INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

#### **[Note 1]**

If you have not the 500V insulation resistance meter, use a Tester.

#### **[Note 2]**

External exposure metal: Antenna terminal  
Headphone jack

## HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

#### 1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

#### 2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

# IMPORTANT SAFEGUARDS

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## 1. READ INSTRUCTIONS

All the safety and operating instructions should be read before the unit is operated.

## 2. RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

## 3. HEED WARNINGS

All warnings on the unit and in the operating instructions should be adhered to.

## 4. FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

## 5. CLEANING

Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

## 6. ATTACHMENTS

Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.

## 7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

## 8. ACCESSORIES

Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

- 8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

## 9. VENTILATION

Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

## 10. POWER SOURCES

This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.

## 11. GROUNDING OR POLARIZATION

This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

## 12. POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

## 13. LIGHTNING

To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

## 14. POWER LINES

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

## 15. OVERLOADING

Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

## 16. OBJECT AND LIQUID ENTRY

Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

PORTABLE CART WARNING  
(symbol provided by RETAC)



S3126A

# IMPORTANT SAFEGUARDS

(CONTINUED)

## 17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

## 18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

## 19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the unit.
- c. If the unit has been exposed to rain or water.
- d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
- e. If the unit has been dropped or the cabinet has been damaged.
- f. When the unit exhibits a distinct change in performance, this indicates a need for service.

## 20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.

Unauthorized substitutions may result in fire, electric shock or other hazards.

## 21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

## 22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

## 23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

## 24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

## 25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

## 26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

## 27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

## 28. HEADPHONES

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

## 29. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

## 30. DISC

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

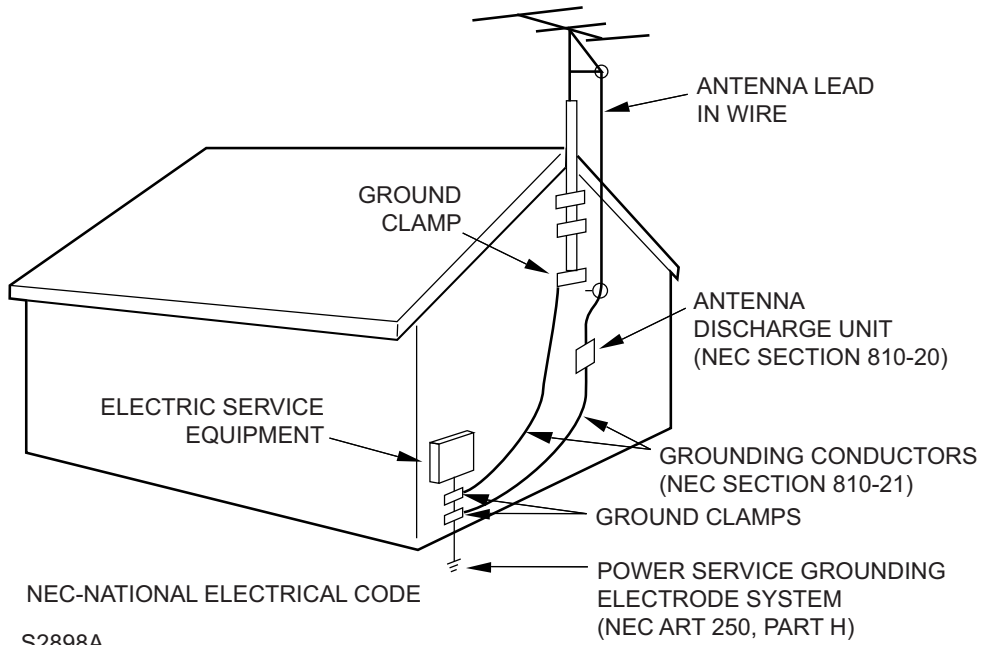
## 31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

# IMPORTANT SAFEGUARDS

(CONTINUED)

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



## WHEN REPLACING DVD DECK

### [ When removing the DVD Deck ]

Before removing Pick Up PCB and DVD MT PCB connector, the short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

### [ When installing the DVD Deck ]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD MT PCB connector.

### NOTE

- Before your operation, please read "PREPARATION OF SERVICING".
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature:  $320 \pm 20^{\circ}\text{C}$
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to keep the Flux smoke away from it.

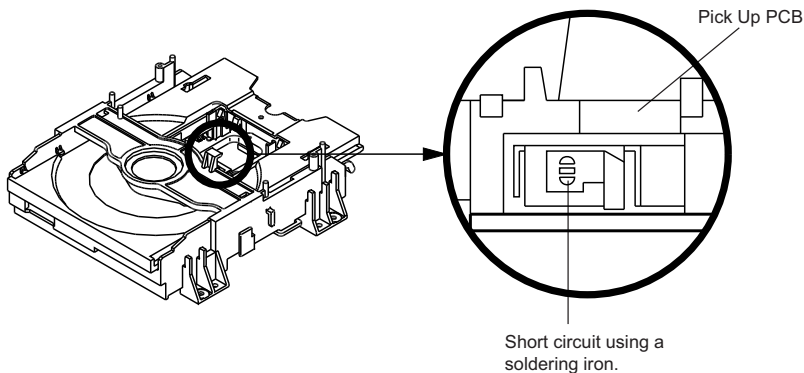


Fig. 1

## DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and AV PCB/DVD Block. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Rotate the Main Gear in the direction of the arrow by hand. (Refer to **Fig. 1**)
3. Manually open the Tray.

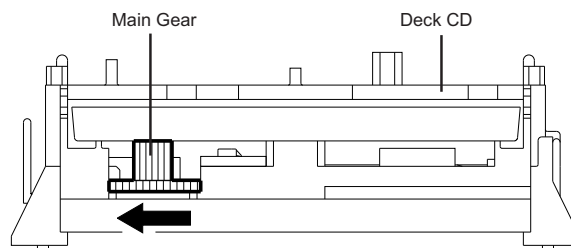


Fig. 1


## **PARENTAL CONTROL - RATING LEVEL 4 DIGIT PASSWORD CANCELLATION**

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.


1. Turn Unit ON.
2. Set the DVD Mode.
3. Confirm that the 'No Disc' will be appeared on the screen.
4. Press and hold the '7' key on the remote control unit.
5. Simultaneously press and hold the 'STOP' key on the front panel.
6. Hold both keys for more than 3 seconds.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared

## **TRAY LOCK**

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message '  ' will appear.
5. The Tray Lock has now been set up.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message '  ' will appear.
5. The Tray Lock has now been cleared.

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## GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	24 inch / 600mmV	
			CRT Type	Flat	
			Magnetic Field	BV/BH	
		Color System		NTSC	
		Speaker	Position	2 Speaker	
		Size	Front Side		
		Impedance	1.8 x 3.9 inch		
	Sound Output	Max	8 ohm	1.0W + 1.0W	
		10%(Typical)			
G-2	DVD System	Color System		NTSC	
		Disc		DVD, CD-DA, CD-R/RW, Video CD DVD-R/RW (Video Format Only)	
		Disc Diameter		120 mm , 80 mm	
		Drive		DM3PB	
		Search speed	Fwd	Actual	4 step 2-120 times(DVD, VIDEO CD) 4-40 times (CD)
			Rev	Actual	4 step 2-120 times(DVD, VIDEO CD) 4-40 times (CD)
		Slow speed		Actual	Fwd 1/7 - 1/2 times -- Rev -- --
				Actual	--
				Actual	--
		G-3	Tuning System	Broadcasting System	Analog
	Digital			ATSC(8VSB), QAM	
Tuner and Receive CH	System			1Tuner	
	Destination			US(w/CABLE)	
Intermediate Frequency	CH Coverage				2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
	Digital				44.00MHz
	Analog			'Picture(FP) Sound(FS) FP-FS	45.75MHz 41.25MHz 4.50MHz
Preset CH					No
Stereo/Dual TV Sound					US-Stereo
Tuner Sound Muting					Yes
G-4	Signal	Video Signal	Input Level	1 V p-p/75 ohm	
			Output Level	--	
			S/N Ratio (Weighted)	--	
			Horizontal Resolution at DVD Mode	--	
				--	
		RGB Signal	Output Level	--	
		Audio Signal	Input Level	-8.0dBm/50k ohm	
			Output Level	--	
			Digital Output Level	0.5 V p-p/75 ohm(DVD/DTV)	
			S/N Ratio at DVD (Weighted)	--	
			Harmonic Distortion	--	
			Frequency Response :	at DVD -- at Video CD -- at SVCD -- at CD --	
		G-5	Power	Power Source	AC
	DC			--	
Power Consumption				at AC 140W at 120V 60Hz at DC --	
	Stand by (at AC) Per Year			3W at 120V 60Hz -- kWh/Year	
Energy Star				No	
Protector	Power Fuse			Yes	
	Safety Circuit	Yes			
	IC Protector(Micro Fuse)	No			
	Dew Sensor	No			
G-6	Regulation	Safety		UL(UL1492)	
		Radiation		FCC	
		X-Radiation		DHHS	
		Laser		DHHS	
G-7	Temperature	Operation		+5°C ~ +40°C	
		Storage		-20°C ~ +60°C	

## GENERAL SPECIFICATIONS

<b>G-8</b>	<b>Operating Humidity</b>		Less than 80% RH	
<b>G-9</b>	<b>OSD Language</b>		English, French, Spanish	
<b>G-10</b>	<b>Clock, Timer and Timer Back-up</b>	Clock	Yes	
		Clock Display	12H	
		Calendar	Yes(1990/1/1 ~ 2081/12/31)	
		Sleep Timer	Max Time	120 Min
			Step	10 Min
		Auto Shut Off	No Signal	15 Min
			No Operation	- Min
		On/Off Timer	Program(On Timer / Off Timer)	No
		Wake Up Timer		No
			Timer Back-up (at Power Off Mode)	more than
<b>G-11</b>	<b>Remote Control</b>	Unit	RC-NQ	
		Glow in Dark Remocon	No	
		Remocon Format	TOSHIBA	
		Format	TOSHIBA	
		Custom Code	40-BF H, 44-BB H, 45-BA H, 45-BC H	
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		47 Key
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Play	Yes
			Stop	Yes
			Search+	Yes
			Search-	Yes
			Closed Caption/Skip+	Yes
			Quick View(CH RTN)/Skip-	Yes
			Slow+	Yes
			Slow-	No
			Pause	Yes
			Display/-	Yes
			TV/DVD	Yes
			Cancel	Yes
			Audio Select	Yes
			Angle	Yes
			Subtitle	Yes
			Top Menu	Yes
			Menu	Yes
			DVD Menu	Yes
			Return	Yes
			CH Up	Yes
			CH Down	Yes
			Vol Up	Yes
			Vol Down	Yes
			MENU Cursor Up	Yes
			MENU Cursor Down	Yes
			MENU Cursor Left	Yes
			MENU Cursor Right	Yes
			Enter	Yes
	Play Mode	Yes		
	Input Select/Zoom	Yes		
	Repeat A-B	Yes		
	Mute	Yes		
	Open/Close	Yes		
	Sleep	Yes		
	Marker	Yes		
	Jump	Yes		
	Game	No		
	Picture Size	Yes		

## GENERAL SPECIFICATIONS

<b>G-12</b>	<b>Features (TV)</b>	Auto Shut Off On/Off	Yes	
		Auto Search	No	
		Game Position	No	
		FM Transmitter	No	
		Picture	Brightness , Contrast , Color, Sharpness	Yes
			Tint	Yes
			Mode (Picture Preference)	No
			Color Temperature	No
			CableClear	No
			Cinema Mode	No
			Aspect	No
			Audio	Tone Control (Bass/Treble/Balance)
		Stable Sound		No
		Surround		No
		Timer		On Timer
			Off Timer	No
			Sleep Timer	Yes
			Game Timer	No
		Tuning	Auto CH Memory	Yes
			ADD/Delete	Yes
		Label	CH Label	No
			Video Label	No
		Favorite CH		No
		Lock	Hotel Lock	No
			Channel Lock	No
			Video Lock	No
			Front Panel Lock	No
		Closed Caption		Yes
		CC Advance		Yes
		Signal Meter		Yes
		Audio Language		Yes
		Auto Setup		Yes
		Picture Size		Yes
		Picture Scroll		No
		Zoom		Yes
		CABLE		Yes
		QAM		Yes
		SAP		Yes
		Comb Filter		Yes 3 D
		VM Circuit		No
		Protect of FBT Leak Circuit		Yes
		Power On Memory		No
		Choke Coil		No
		V-chip	USA V-chip	Yes
			CANADA V-chip	No
RRT Setup		Yes		
Digital Out	Dolby Digital	Yes		
	MPEG	No		
	PCM	No		
	DTS	No		
HDMI Input		No		
Component Input		No		

## GENERAL SPECIFICATIONS

<b>Features (DVD)</b>	Tray Lock		Yes
	Auto Stop	(Pause, and Resume Stop after 5min.)	Yes
	USB	(Some USB devices may not be usable.)	No
	Card Slot Reading	(Not secured Data)	No
	Video CD Playback		Yes
	SVCD Playback		No
	MP3 Playback		Yes (Playability NOT ensured)
	WMA Playback		Yes (Playability NOT ensured)
	JPEG Playback		Yes
	DivX Play back		No
		DMF Support	No
	Digital Out	(Dolby Digital)	Yes
		(MPEG)	Yes
		(PCM)	Yes
		(DTS)	Yes
	Down Mix Out	(Dolby Digital)	Yes
		(DTS)	No
	Closed Caption Signal in VBI (DVD Playback)		Yes
	Screen Saver		No
	Audio DAC		192kHz / 24bit
	3D Surround		No
<b>G-13 Accessories</b>	Owner's Manual	Language w/Guarantee Card	English Yes
	Remote Control Unit		Yes
	Battery		Yes
		UM size x pcs OEM Brand	UM-4 x 2 pcs No
	Rod Antenna		No
		Poles Terminal	No --
	Loop Antenna		No
		Terminal	--
	U/V Mixer		No
	300 ohm to 75 ohm Antenna Adapter		No
	Antenna Change Plug		No
	Guarantee Card		No
	Registration Card		Yes
	Warranty Card		No
	ESP Card		No
	Service Station List		No
	DC Car Cord (Center+)		No
	Columbia Offer Sheet		No
	Information Sheet (Return)		Yes
	Information Sheet (RRT)		No
	Netflix Card		No

## GENERAL SPECIFICATIONS

<b>G-14</b>	<b>Interface</b>	Switch	Front	Power (Tact)	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play	Yes
				Open/Close	Yes
				Skip+ /Search+	Yes
				Skip- /Search-	Yes
				Still/Pause	No
				Stop	Yes
				Main Power SW	No
				Main Power SW	No
		Indicator	Rear	Power	Yes (Red)
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA x 1
Audio Input	RCA x 2(L/MONO, R)				
Other Terminal	Head Phone				
Rear	Video Input		RCA x 1		
	Audio Input		RCA x 2(L/MONO, R)		
	Video Output		No		
	Audio Output		No		
	Diversity		No		
	DC Jack 12V(Center +)		No		
	Digital Audio Output		Coaxial (DTV & DVD Only)		
VHF/UHF Antenna Input	F Type				
<b>G-15</b>	<b>Set Size</b>	Approx. W x D x H (mm)		655x472.5x580	
<b>G-16</b>	<b>Weight</b>	Net (Approx.)		34.0kg (75.0lbs)	
		Gross (Approx.)		38.0kg (83.8lbs)	
<b>G-17</b>	<b>Carton</b>	Master Carton	No		
			Content	--- Sets	
			Material	--- / ---	
			Dimensions W x D x H(mm)	---	
			Description of Origin	---	
		Gift Box	Material	Double/White	
			W/Color Photo Label	No	
			Dimensions W x D x H(mm)	766 x 579.5 x 711	
		Drop Test	Natural Dropping At	1 Corner / 2 Edges / 4 Surfaces	
			Height (cm)	60	
		Container Stuffing (40' container)		180 Sets	
		w/Pallet		No	
w/Wrapping		No			
<b>G-18</b>	<b>Material</b>	Cabinet	Front	PS 94V0 DECABROM	
			Rear	PS 94V0 DECABROM	
			Jack Panel	-	
		PCB	Non-Halogen Demand	No	
			Eyelet Demand	Yes	
<b>G-19</b>	<b>Environment</b>	Environmental standard requirement		Green procurement of TOSHIBA	
		Pb-free		Phase3(Phase3A)	
		Measures of Whisker		Yes	

## DISASSEMBLY INSTRUCTIONS

### 1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

#### 1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 6 screws ①.
2. Remove the 2 screws ② which are used for holding the Back Cabinet.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

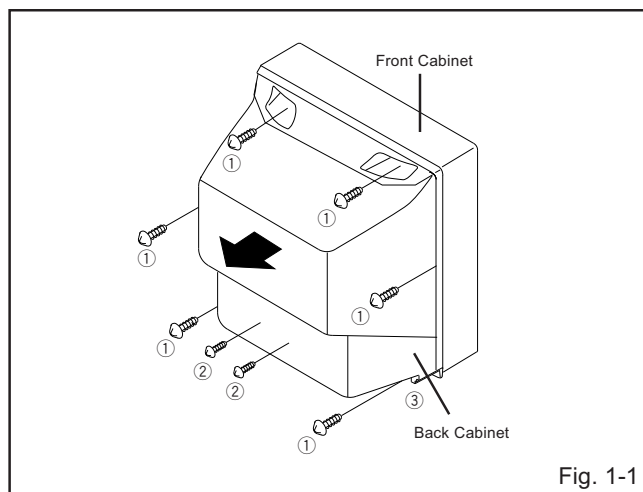


Fig. 1-1

#### 1-2: CRT PCB (Refer to Fig. 1-2)

**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

1. Remove the Anode Cap.  
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connector:  
(CP801).
3. Remove the CRT PCB in the direction of arrow.

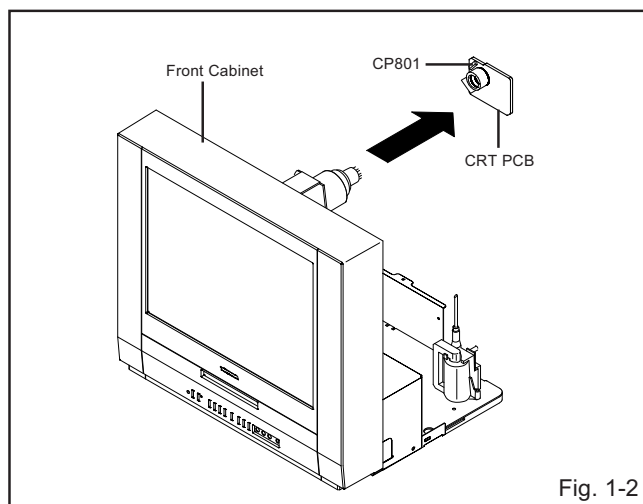


Fig. 1-2

#### 1-3: AV PCB/DVD BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:  
(CP351, CP352, CP3802 and CP404).
3. Remove the AV PCB/DVD Block in the direction of arrow.

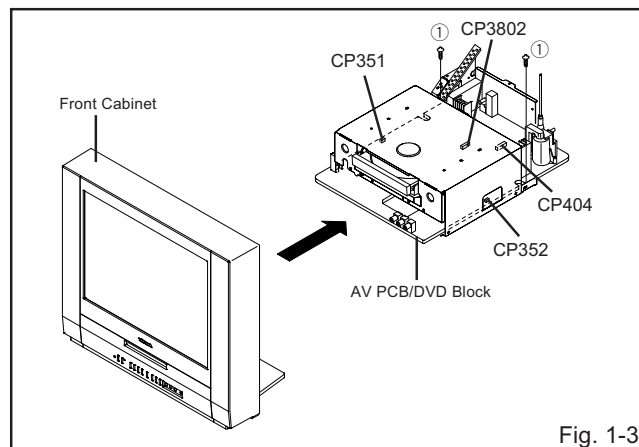


Fig. 1-3

#### 1-4: DVD BLOCK (Refer to Fig. 1-4)

1. Remove the 11 screws ①.
2. Remove the Top Shield in the direction of arrow (A).
3. Disconnect the following connectors:  
(CP8001 and CP8002).
4. Remove the 4 screws ②.
5. Remove the DVD Block in the direction of arrow (B).
6. Remove the 2 screws ③.
7. Remove the Jack Shield.
8. Remove the AV PCB in the direction of arrow (C).

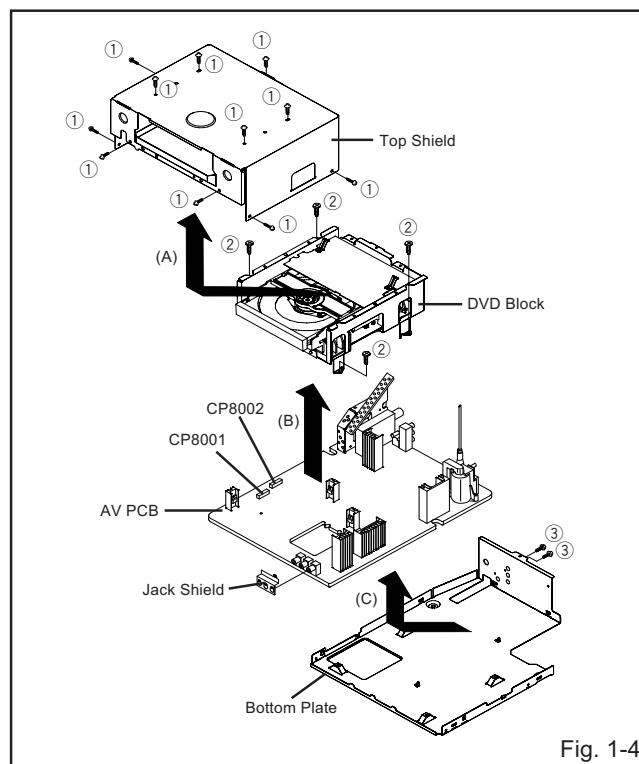


Fig. 1-4

## DISASSEMBLY INSTRUCTIONS

### 1-5: DVD MT PCB/DVD DECK (Refer to Fig. 1-5)

1. Short circuit the position shown in **Fig. 1-5** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 4 supports ①.
3. Remove the DVD Deck in the direction of arrow (A).
4. Remove the 2 screws ②.
5. Remove the DVD MT PCB in the direction of arrow (B).
6. Disconnect the following connectors:  
**(CP2301, CP2302 and CP2303).**

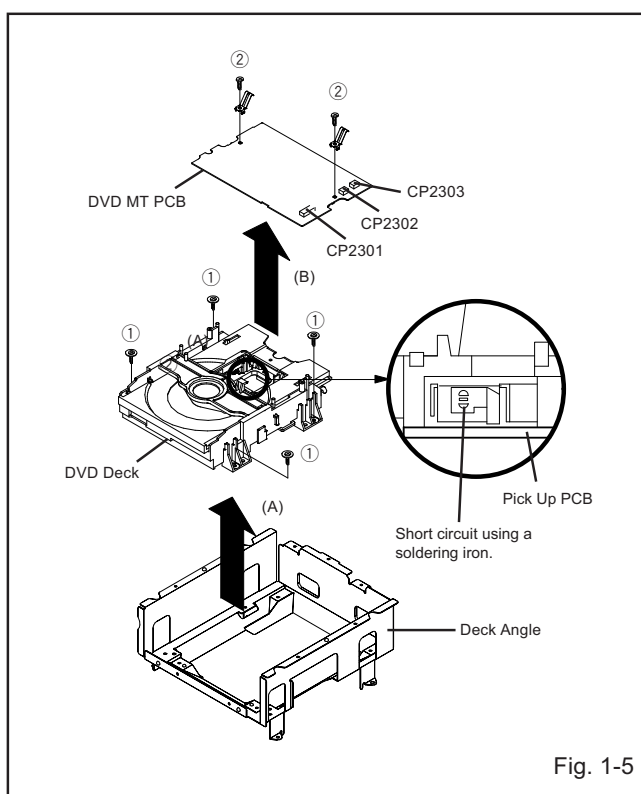


Fig. 1-5

### NOTE

1. Before your operation, please read "PREPARATION OF SERVICING".
2. Use the Lead Free solder.
3. Manual soldering conditions
  - Soldering temperature:  $320 \pm 20^{\circ}\text{C}$
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD MT PCB connector.

# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL OF DVD DECK PARTS

### NOTE

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

### 2-1: TRAY (Refer to Fig. 2-1-A)

1. Set the Tray opened. (Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)
2. Unlock the 2 supports (1) and remove the Tray.

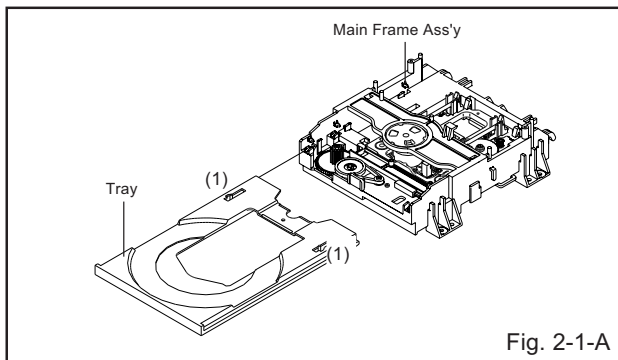


Fig. 2-1-A

### NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 2-1-B so that the each markers are met.

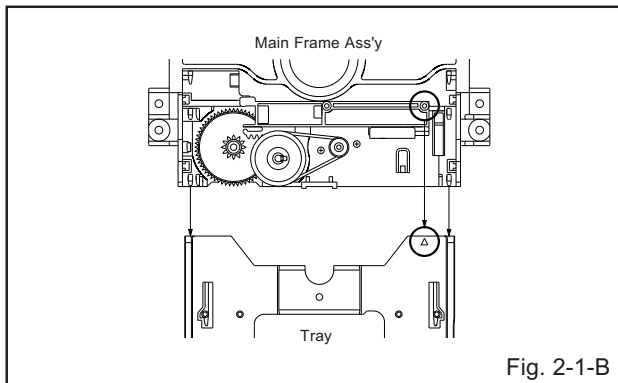


Fig. 2-1-B

### 2-2: MAIN CHASSIS ASS'Y (Refer to Fig. 2-2-A)

1. Remove the screw (1).
2. Unlock the 2 supports (2).
3. Remove the Insulator (R) from the Main Frame Ass'y.
4. Remove the Main Chassis Ass'y.

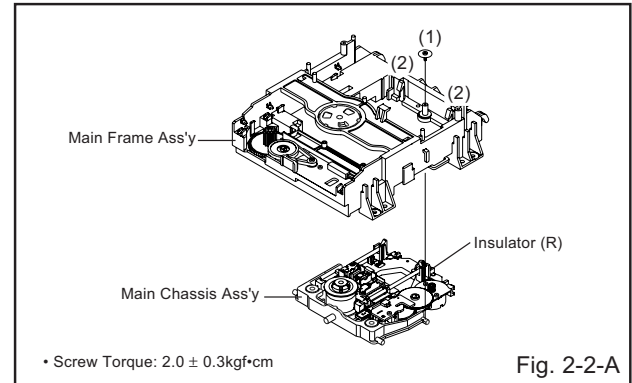


Fig. 2-2-A

### NOTE

1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. (Refer to Fig. 2-2-B)
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 2-2-C.

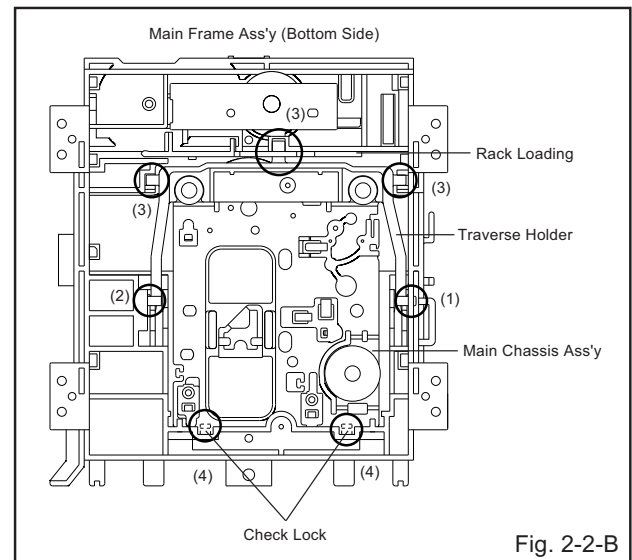


Fig. 2-2-B

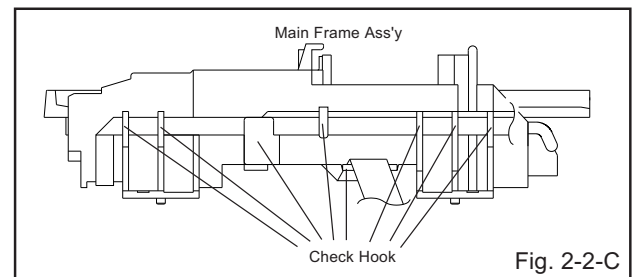
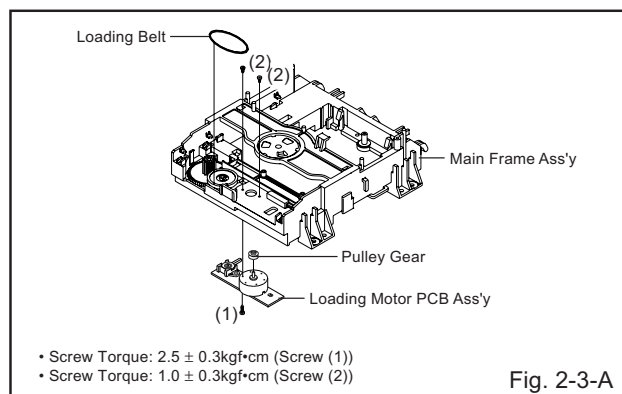


Fig. 2-2-C

## DISASSEMBLY INSTRUCTIONS

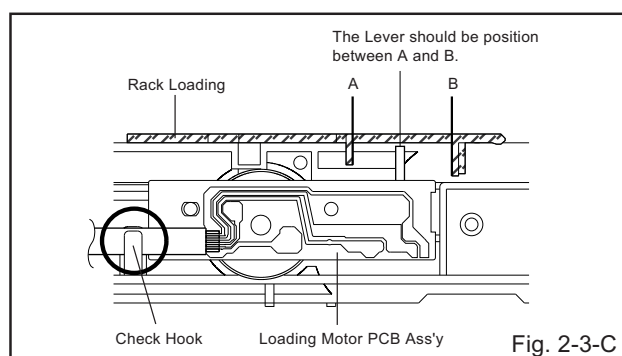
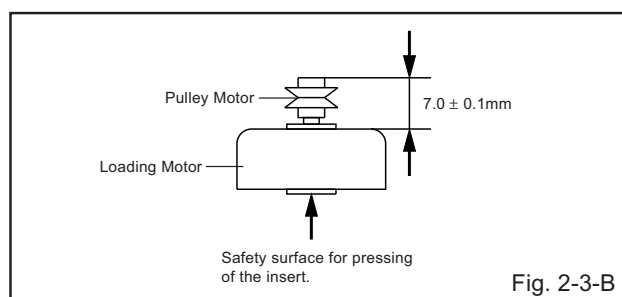
### 2-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 2-3-A)

1. Remove the Loading Belt.
2. Remove the screw (1).
3. Remove the 2 screws (2).
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Gear.



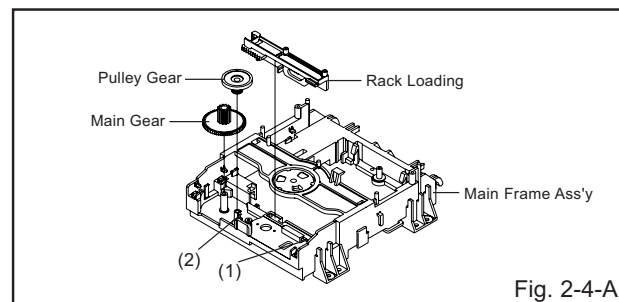
#### NOTE

1. In case of the Pulley Motor installation, check if the value of the Fig. 2-3-B is correct.
2. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 2-3-C.
3. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 2-3-C.



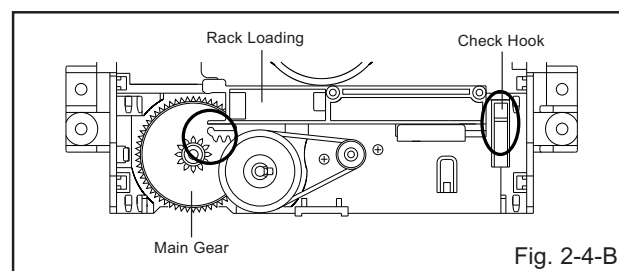
### 2-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 2-4-A)

1. Press down the catcher (1) and slide the Rack Loading.
2. Unlock the support (2) and remove the Pulley Gear.
3. Remove the Main Gear.



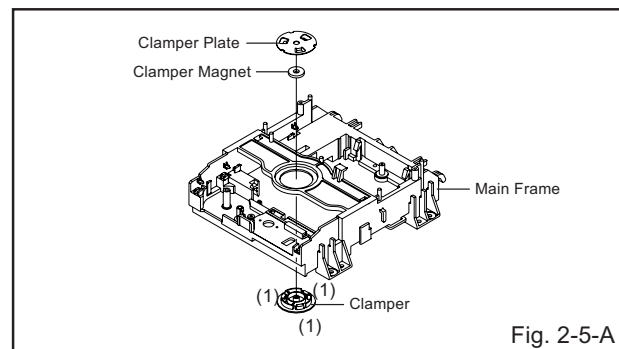
#### NOTE

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 2-4-B.



### 2-5: CLAMPER ASS'Y (Refer to Fig. 2-5-A)

1. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports (1).
2. Remove the Clamper Plate, Clamper Magnet and Clamper.



#### NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 2-5-B.

## DISASSEMBLY INSTRUCTIONS

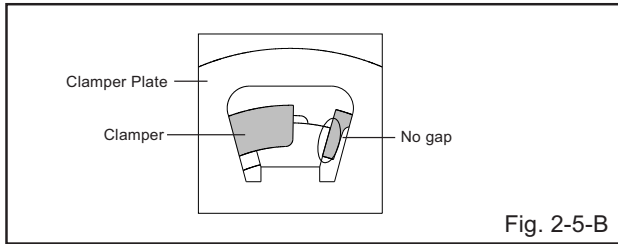


Fig. 2-5-B

### 2-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 2-6-A)

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

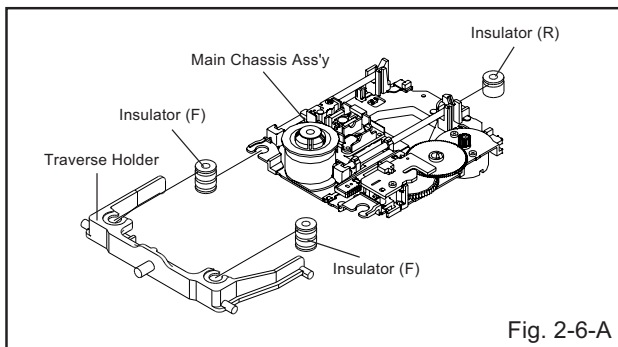


Fig. 2-6-A

#### NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 2-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 2-6-C.

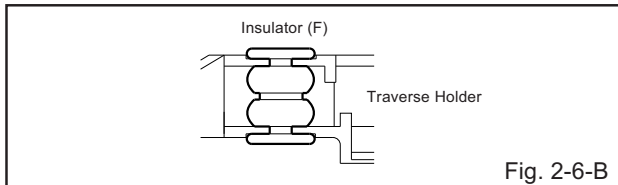


Fig. 2-6-B

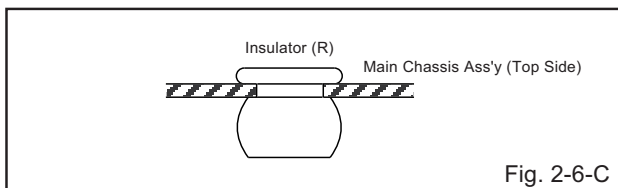


Fig. 2-6-C

### 2-7: SWITCH PCB ASS'Y/MIDDLE GEAR/FEED MOTOR (Refer to Fig. 2-7-A)

1. Remove the screw (1).
2. Remove the Switch PCB Ass'y.
3. Unlock the support (2).
4. Remove the Middle Gear.
5. Remove the 2 screws (3).
6. Remove the Feed Motor.
7. Remove the Motor Gear.

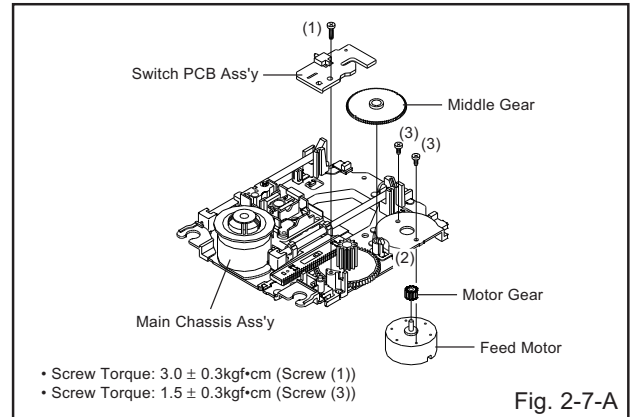


Fig. 2-7-A

#### NOTE

1. In case of the Motor Gear installation, check if the value of the Fig. 2-7-B is correct.
2. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 2-7-C.
3. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 2-7-D.

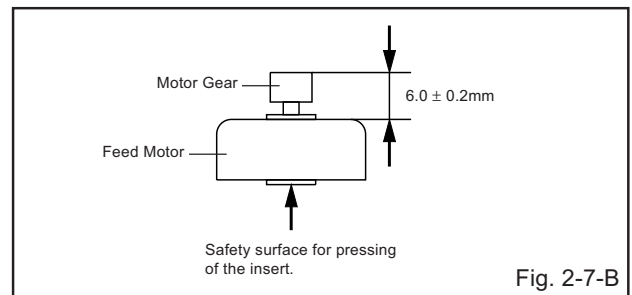


Fig. 2-7-B

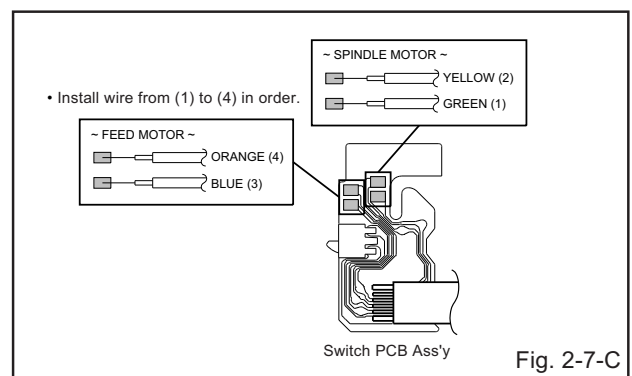


Fig. 2-7-C

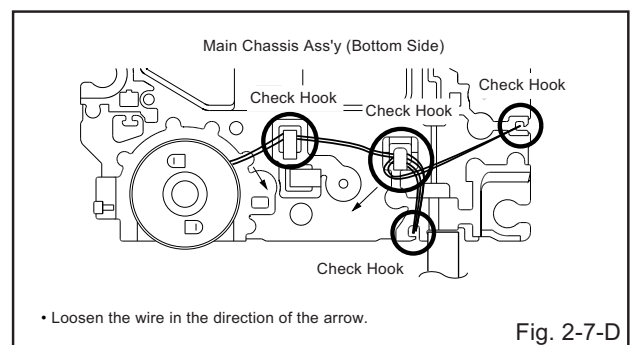


Fig. 2-7-D

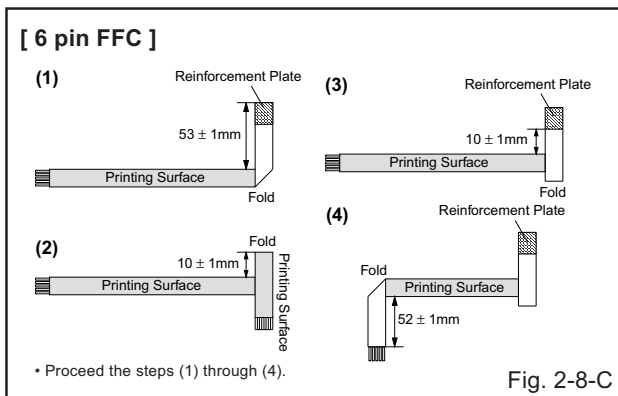
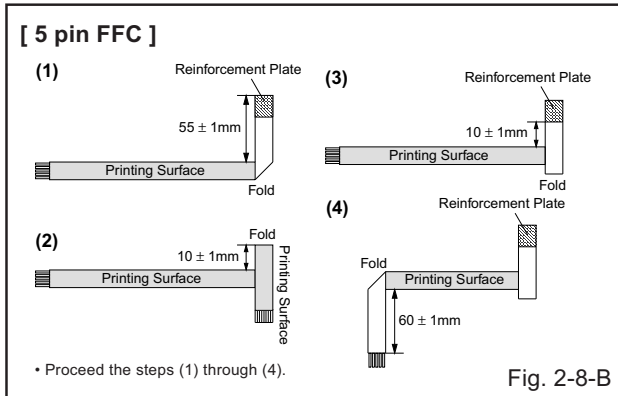
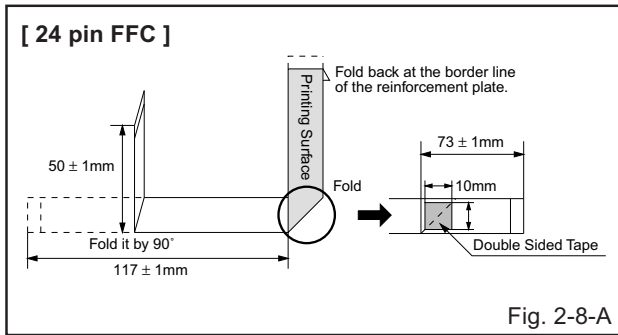
# DISASSEMBLY INSTRUCTIONS

## 2-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 2-8-A to Fig. 2-8-C.

### NOTE

1. Do not make the folding lines except the specified positions for the FFC.



## DISASSEMBLY INSTRUCTIONS

### 3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- \* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- \* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

#### REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 3-1.)  
Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver. A cracking noise will be heard as the voltage is discharged.

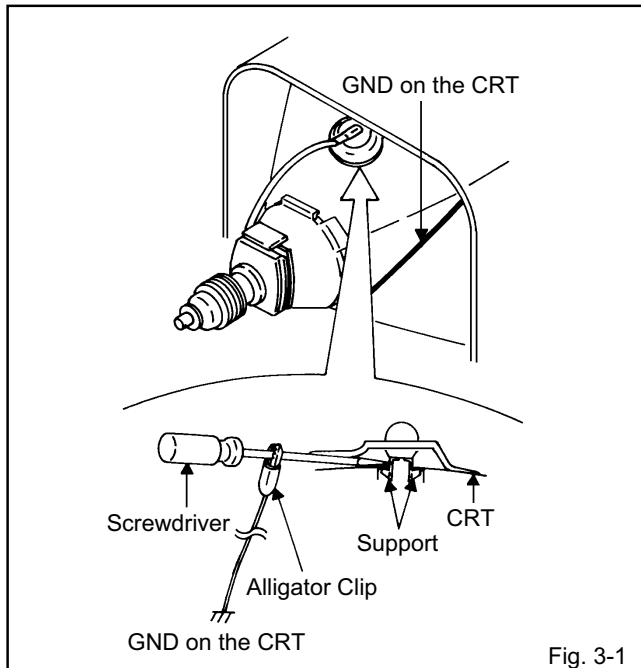


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 3-2.)

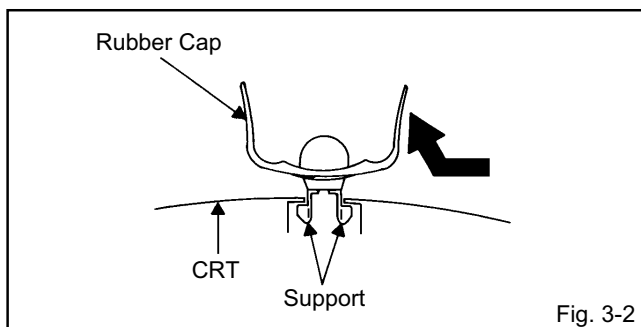


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

#### NOTE

Take care not to damage the Rubber Cap.

#### INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 3-3.)

#### NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

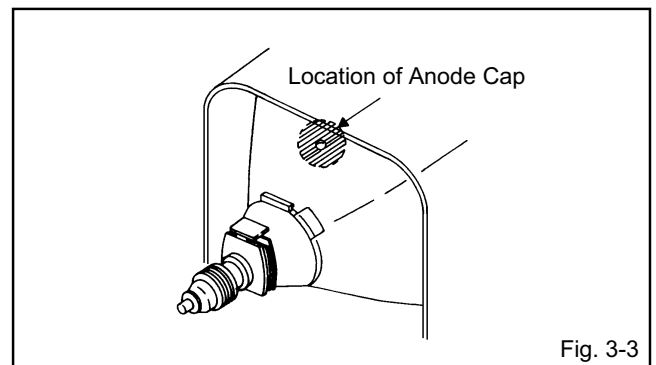


Fig. 3-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 3-4.)

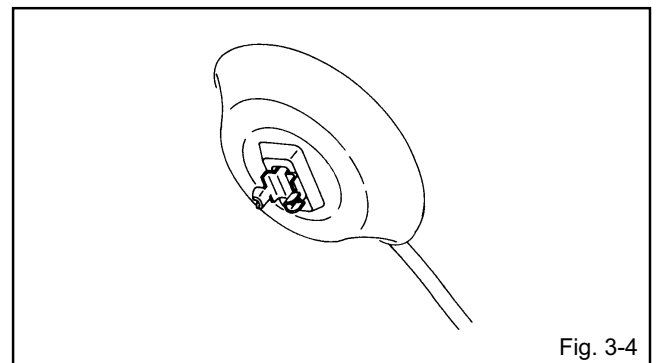


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

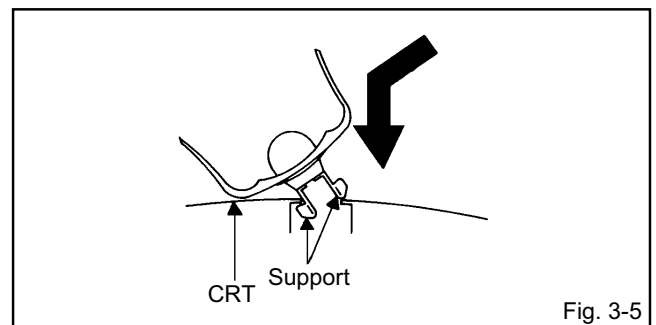


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

## DISASSEMBLY INSTRUCTIONS

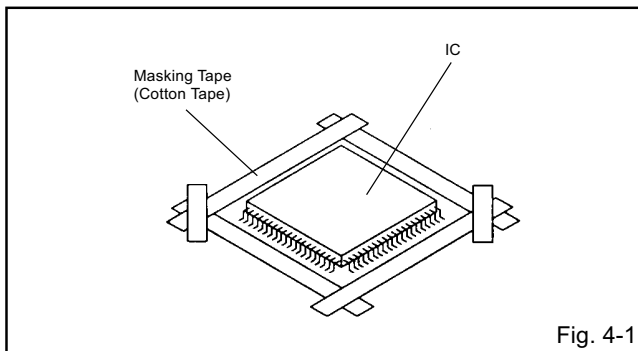
### 4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

#### REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 4-1.)

#### NOTE

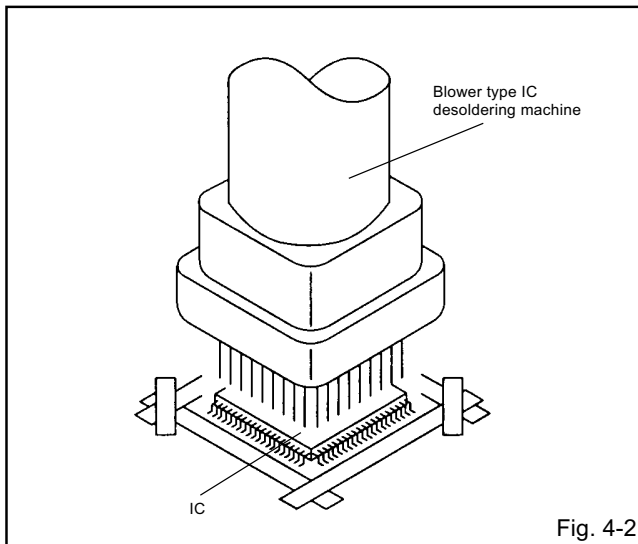
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 4-2.)

#### NOTE

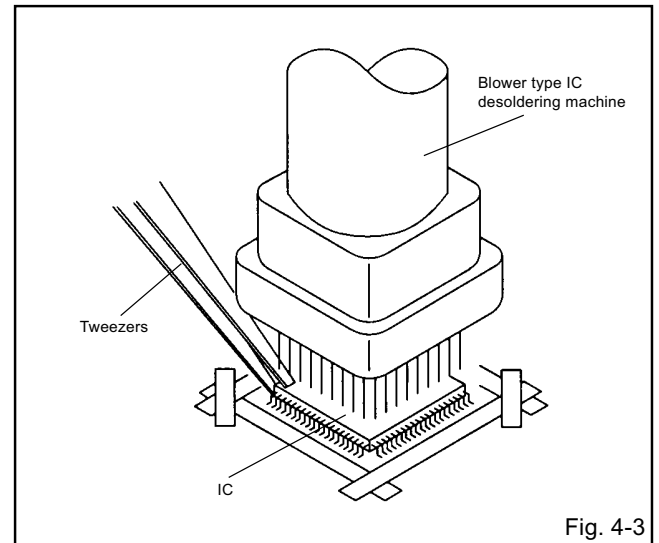
Do not rotate or move the IC back and forth, until IC can move back and forth easily after desoldering the leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 4-3.)

#### NOTE

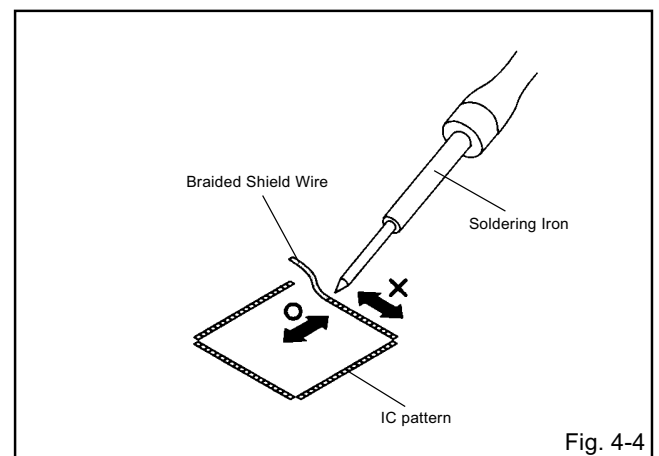
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 4-4.)

#### NOTE

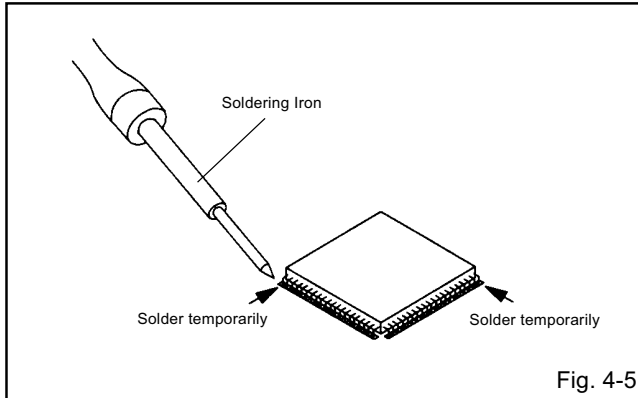
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



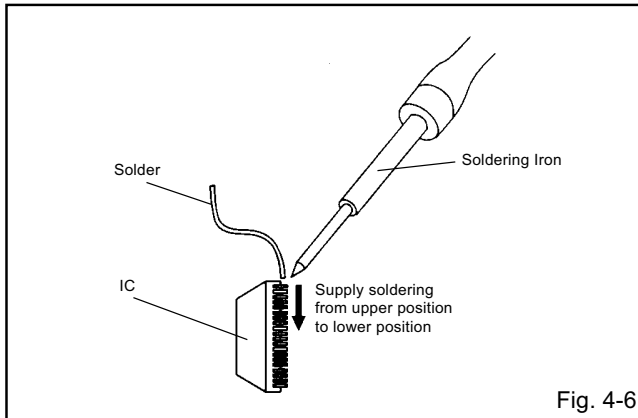
## DISASSEMBLY INSTRUCTIONS

### INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 4-5.)



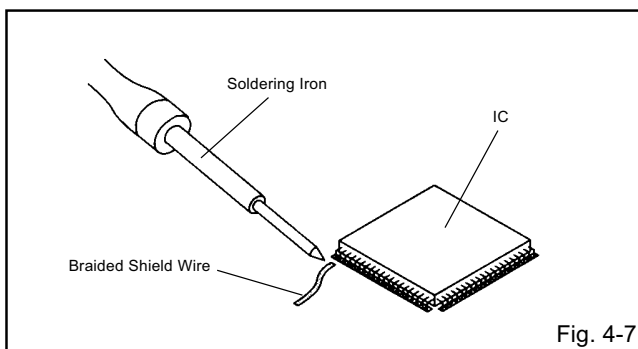
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 4-6.)



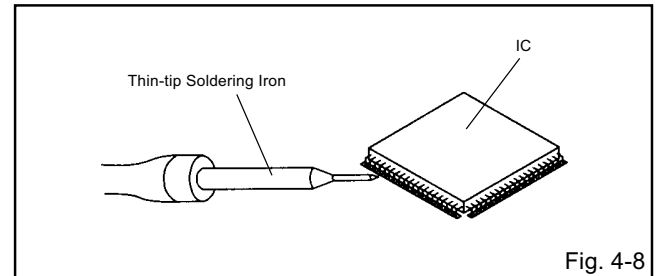
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 4-7.)

### NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 4-8.)



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

### NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

## SERVICE MODE LIST

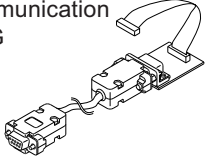
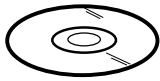
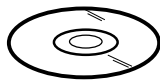
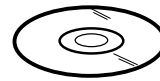
This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit and on the remote control for more than the standard time in the appropriate condition. (See below chart.)

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
TV mode	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
DVD mode (No disc)	VOL. DOWN (Minimum)	4	2 sec.	Initialization of factory DVD data. NOTE: Do not use this for normal servicing. The function will only work without the setting of DVD disc at DVD mode.
DVD mode (No disc)	VOL. DOWN (Minimum)	5	2 sec.	DVD Write mode. Refer to the "RE-WRITE FOR DVD FIRMWARE".
TV mode	VOL. DOWN (Minimum)	6	2 sec.	POWER ON total hours are displayed on the screen. Can check the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
TV mode	VOL. DOWN (Minimum)	8	2 sec.	Check of the SUM DATA and MICON VERSION on the screen. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
ALL mode	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	STOP	1	3 sec.	Check for the firmware version. Refer to the "RE-WRITE FOR DVD FIRMWARE". NOTE: Do not use this for normal servicing.
DVD mode (No disc)	STOP	7	2 sec.	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL".

Method	Operations
Press the following remocon keys continuously. SETUP → SUBTITLE → 3 → AUDIO SELECT → 0	Tray cannot be opened. Refer to the "TRAY LOCK".

## SERVICING FIXTURES AND TOOLS

JG205 Serial Communication Change JIG  	JG206 Flash UP-Date Soft Disc  	JG176 Up-Date Disc  	JG176 2007 SD DTV Rom Disc  
--	---	--	---

Ref. No.	Part No.	Parts Name	Remarks
JG205	APJG20500	Serial Communication Change JIG	Connect the set to personal computer
JG206	APJG20600	Flash UP-Date Soft Disc	Up-Date of the Firmware
JG176	APJG176120	Up-Date Disc	Up-Date of the DVD Firmware
JG176	APJG176125	2007 SD DTV Rom Disc	Up-Date of the DIGITAL Firmware

## RE-WRITE FOR DVD FIRMWARE

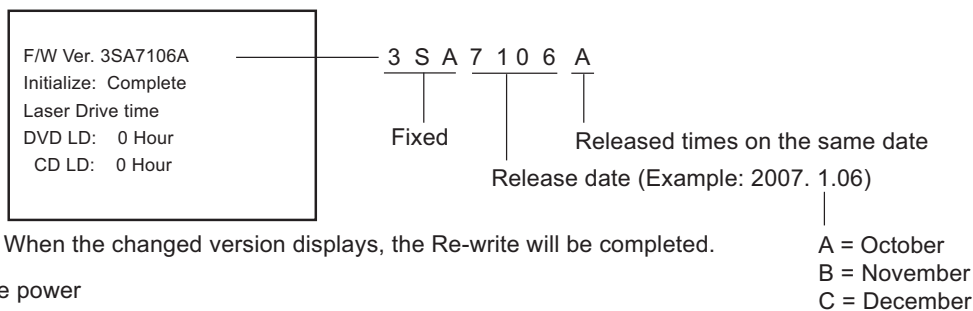
1. Turn on the power, and set the DVD mode.
2. Press both VOL. DOWN button on the set and Channel button (5) on the remote control for more than 2 seconds.
3. Press VOL. UP/DOWN button on the unit to check if all the keys on the unit do not function.  
**NOTE: To check if DVD Write mode is set.**  
**When inserting Up-Date Disc (JG176) at Non DVD Write mode, the read error will happen.**
4. Insert the Up-Date Disc. (Refer to **SERVICING FIXTURE AND TOOLS**)
5. Automatic read will start and "Erase and Program Do Not Power Off" will be displayed on the screen.  
 At this time, the horizontal noise lines may appear. But no problem.  
**NOTE: Do not turn off the unit on the way or operate the keys on the unit and remocon.**  
**Up-Date error will happen and can not be done with the Up-Date of Up-Date Disc (JG176).**
6. After the Up-Date, Logo screen will appear.
7. Unplug the AC cord, then plug it in.

**After the write, set to the initializing of shipping.**

8. Turn on the power, and set the DVD mode.
9. Press both VOL. DOWN button on the set and Channel button (4) on the remote control for more than 2 seconds.  
 The "INITIALIZE 5 ---> COMPLETE" will appear on the screen.
10. Then unplug the AC cord, and plug it in.

**CHECK FOR THE FIRMWARE VERSION**

11. Turn on the power, and set the DVD mode.
12. Press both Channel button (1) on the remote control and the STOP button on the set for more than 3 seconds.  
 Firmware version will be displayed on the top left of the screen.



13. Turn off the power

## RE-WRITE FOR DIGITAL SOFT FIRMWARE

1. Confirm that the AC cord is plugged out.
2. Using the Serial Communication Change JIG (**JG205**), connect the set to personal computer. (**Refer to Fig. 1**)

**NOTE:** It is possible to write only with the personal computer of WINDOWS.

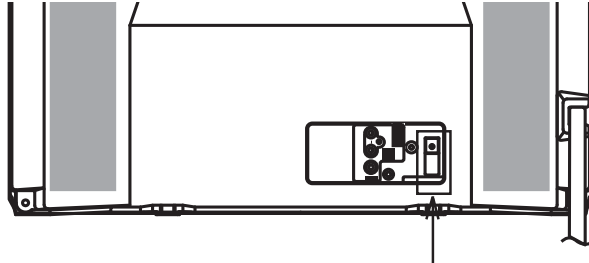


Fig. 1

3. Using the Flash UP-Date Soft Disc (**JG206**) and USA SD DTV ROM DISC (**JG176**), please Re-write the DIGITAL SOFT FIRMWARE.

The operating manual for Re-writing is included in Flash UP-Date Soft Disc (**JG206**).

## WHEN REPLACING EEPROM (MEMORY) IC

### CONFIRMATION OF CHECK SUM, POWER ON TOTAL HOURS AND MICON VERSION AND DIGITAL TV MICON FRIMWARE

Initial total of MEMORY IC, POWER ON total hours, MICON VERSION and Digital TV MICON Firmware can be checked on the screen. Total hours are displayed in 16 system of notation.

**NOTE: If you set a factory initialization, the total hours is reset to "0".**

**Please refer to "CONFIRMATION OF INITIAL DATA" when SUM DATA is not corresponding.**

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(8)** on the remote control for more than 2 seconds.
4. After the confirmation of each check sum, POWER ON total hours, MICON VERSION and Digital TV MICON Firmware, turn off the power.

NOTE: The each item value might be different according to each set.

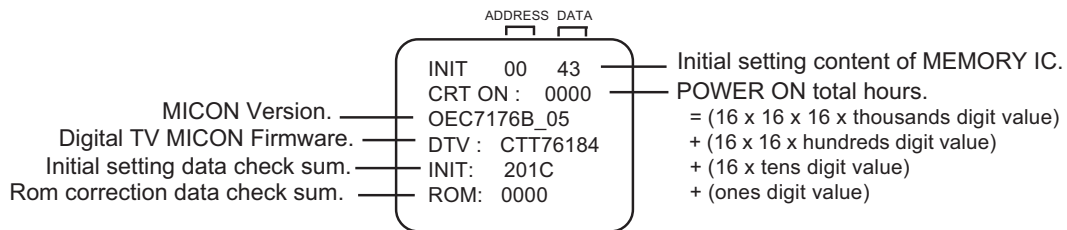


FIG. 1

### CONFIRMATION OF INITIAL DATA

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 2.

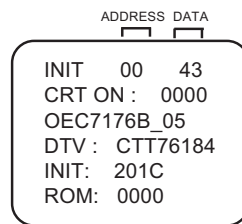


FIG. 2

4. ADDRESS is now selected and should "blink". Using the UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER button to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using UP/DOWN button until required DATA value has been selected.
7. Pressing LEFT/RIGHT button will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 6 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

**After the data input, set to the initializing of shipping.**

10. Turn on the POWER.
11. Set the VOLUME to minimum.
12. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
13. After the finishing of the initializing of shipping, the unit will turn off automatically. The unit will now have the correct DATA for the new MEMORY IC.

## WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	43	06	00	20	09	B3	24	0F	41	8C	00	00	00	00	00	00
10	00	00	00	06	72	8C	10	A1	00	00	00	00	F0	00	10	8C
20	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	08
30	88	00	00	00	00	0B	64	09	09	00	00	00	46	0B	D8	33
40	33	33	03	FC	08	31	2D	30	00	50	60	00	00	80	00	00
50	00	74	06	40	FF	11	44	00	0A	45	A0	00	FF	01	00	00
60	00	8F	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
80	00	00	00	00	00	00	00	00	00	03	00	00	00	00	00	00
90	00	00	00	00	00	00	00	00	00	00	00	04	A0	02	00	92
A0	00	00	00	00	00	04	82	01	00	00	00	06	00	00	04	83
B0	02	00	00	8A	06	00	00	04	00	00	00	00	00	00	00	00
C0	12	14	16	18	1A	1C	1E	20	22	23	24	25	26	27	28	29
D0	2A	2B	2C	2D	2E	2F	30	30	31	31	32	32	33	33	34	34
E0	35	35	36	36	37	37	38	38	39	39	3A	3A	3B	3B	3C	3C
F0	3D	3E	3F	40	43	46	4C	4D	55	59	5C	5F	62	67	6E	76

**Table 1**

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

### CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

### On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in Fig. 1-1.

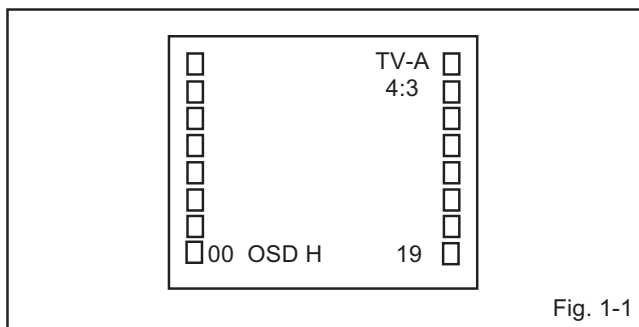


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
4. Press the MENU button on the remote control to end the adjustments.
5. To display the adjustment screen for TV-A, TV-D and AV mode, press the INPUT button on the remote control. To display the adjustment screen for DVD mode, Press the TV/DVD button on the remote control to set to the DVD.  
Press the VOL.DOWN button on the set and the Channel (9) on the remote control for more than 2 seconds.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	31	BRI MIN
01	OSD C	32	CONT CENT
02	CUT OFF	33	CONT MAX
03	H.POSI	34	CONT MIN
04	H.BLK L	35	COL CENT
05	H.BLK R	36	COL MAX
06	V.SIZE	37	COL MIN
07	V.POSI	38	TINT
08	V.LIN	39	SHAR CENT
09	VS.CORR	40	SHAR MAX
10	V.COMP	41	SHAR MIN
11	R.BIAS	42	SUB BIAS
12	G.BIAS	43	H.SIZE
13	B.BIAS	44	PARABOLA
14	R.DRV	45	TRAPEZIUM
15	G.DRV	46	COR TOP
16	B.DRV	47	COR BTM
29	BRI CENT	48	T.STE
30	BRI MAX		

Fig. 1-2

## 2. BASIC SDJUSTMENT

### 2-1: CONSTANT VOLTAGE

1. Place the set in AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to TP401.
4. Adjust the VR3801 until the digital voltmeter is  $115 \pm 0.5V$ .

### 2-2: CUT OFF

1. Adjust the unit to the following settings.  
R.BIAS=127, G.BIAS=127, B.BIAS=127,  
R DRIVE=63, G DRIVE=07, B DRIVE=63,  
BRIGHTNESS=00, CONTRAST=32.
2. Place the set in Aging Test for more than 15 minutes.
3. Place the set in AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of Fig. 1-1 and press the channel button (02) on the remote control to select "CUT OFF".
6. Adjust the Screen Volume until a dim raster is obtained.

### 2-3: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (11) on the remote control to select "R.BIAS".
5. Press the Channel UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the Channel UP/DOWN button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is achieved.

## ELECTRICAL ADJUSTMENTS

### 2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

### 2-5: OSD POSITION

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the LEFT/RIGHT button on the remote control until the difference of A and B becomes minimum. (**Refer to Fig. 2-1**).

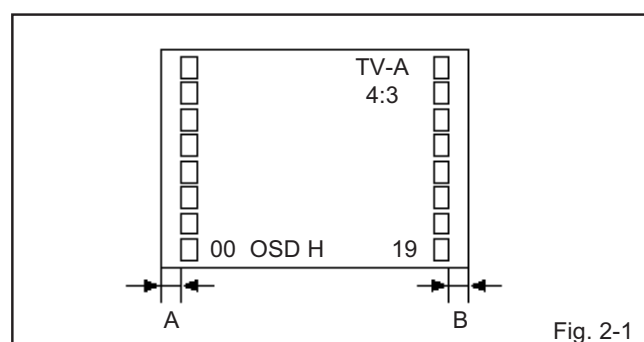


Fig. 2-1

### 2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**03**) on the remote control to select "H.POSI".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

### 2-7: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**43**) on the remote control to select "H.SIZE".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes  $10 \pm 4\%$ .

### 2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**07**) on the remote control to select "V.POSI".
4. Check if the step No. V POSI is "01".
5. Adjust the **VR401** until the horizontal line becomes fit to notch of the shadow mask. (**Refer to Fig. 2-2**).

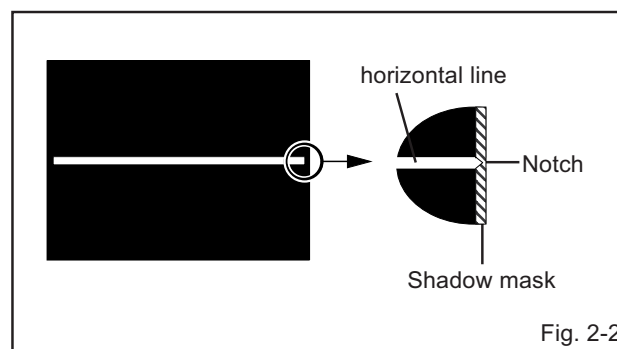


Fig. 2-2

### 2-9: VERTICAL LINEARITY

**NOTE:** Adjust after performing adjustments in section 2-7. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**08**) on the remote control to select "V.LIN".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

### 2-10: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**06**) on the remote control to select "V.SIZE".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes  $10 \pm 2\%$ .
5. Receive a broadcast and check if the picture is normal.

## ELECTRICAL ADJUSTMENTS

### 2-11: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(44)** on the remote control to select "PARABOLA".
4. Press the LEFT/RIGHT button on the remote control until the right and left vertical lines are straight.

### 2-12: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(45)** on the remote control to select "TRAPEZIUM".
4. Press the LEFT/RIGHT button on the remote control until the the upper section of the both ends vertical lines are straight.

### 2-13: CORNER CORR TOP

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(46)** on the remote control to select "COR TOP".
4. Press the LEFT/RIGHT button on the remote control until the the upper section of the both ends vertical lines are straight.

### 2-14: CORNER CORR BOTTOM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(47)** on the remote control to select "COR BTM".
4. Press the LEFT/RIGHT button on the remote control until the the upper section of the both ends vertical lines are straight.

### 2-15: BRIGHT CENTER

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "BRI CENT".
4. Press the LEFT/RIGHT button on the remote control until the screen begin to shine.
5. Receive the digital broadcast. (RF Input)
6. Press the INPUT button on the remote control to set to the DIGITAL mode.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "BRI CENT".
8. Press the LEFT/RIGHT button on the remote control to until the screen begin to shine.
9. Receive the monoscope pattern. (VIDEO Input)
10. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
11. Playback the DVD(480i) disc.
12. Press the TV/DVD button on the remote control to set to the DVD mode.
13. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "BRI CENT".
14. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

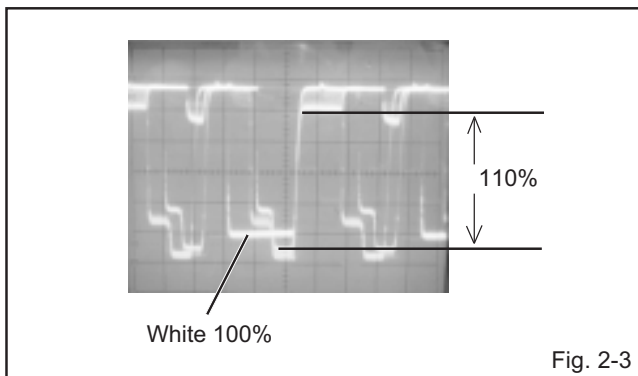
### 2-16: CONTRAST MAX

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT MAX".
4. Adjust the WINDOW PATTERN until the contrast step numbers becomes "70"
5. Receive a broadcast and check if the picture is normal.
6. Receive the digital broadcast. (RF Input)
7. Press the INPUT button on the remote control to set to the DIGITAL mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT MAX".
9. Adjust the WINDOW PATTERN until the contrast step numbers becomes "70"
10. Receive the monoscope pattern. (VIDEO Input)
11. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
12. Playback the DVD(480i) disc.
13. Press the TV/DVD button on the remote control to set to the DVD mode.
14. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT MAX".
15. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

## ELECTRICAL ADJUSTMENTS

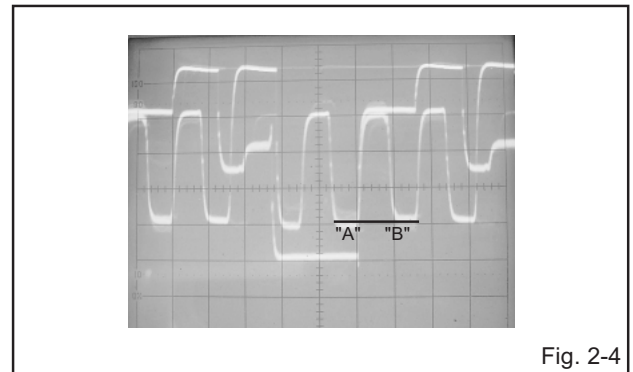
### 2-17: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP803**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**35**) on the remote control to select "COL CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is the set to 4 scales on the screen of the oscilloscope.
6. Press the LEFT/RIGHT button on the remote control until the red color level is adjusted to  $110 \pm 5\%$  of the white level. (**Refer to Fig. 2-3**)
7. Receive the digital broadcast. (RF Input)
8. Press the INPUT button on the remote control to set to the DIGITAL mode. Then perform the above adjustments 2~6.
9. Receive the color bar pattern. (VIDEO Input)
10. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
11. Playback the DVD(480i) disc.
12. Press the TV/DVD button on the remote control to set to the DVD mode.
13. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**35**) on the remote control to select "COL CENT".
14. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.



### 2-18: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP801**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**38**) on the remote control to select "TINT".
5. Press the LEFT/RIGHT button on the remote control until the section "A" and "B" becomes a straight line. (**Refer to Fig. 2-4**)
6. Receive the digital broadcast. (RF Input)
7. Press the INPUT button on the remote control to set to the DIGITAL mode. Then perform the above adjustments 2~5.
8. Receive the color bar pattern. (VIDEO Input)
9. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.
10. Playback the DVD(480i) disc.
11. Press the TV/DVD button on the remote control to set to the DVD mode.
12. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**38**) on the remote control to select "TINT".
13. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.



## ELECTRICAL ADJUSTMENTS

### 2-19: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment item is set correctly referring below.

NO.	FUNCTION	ANALOG		DIGITAL	DVD
		TV-A	VIDEO1, VIDEO2 AV	TV-D	
01	OSD C	03	03	03	03
04	H.BLK L	07	07	07	07
05	H.BLK R	02	02	02	02
09	VS.CORR	05	05	05	05
10	V.COMP	03	03	03	03
15	G DRV	07	07	07	07
30	BRI MAX	100	100	100	90
31	BRI MIN	35	35	35	35
32	CONT CENT	50	50	50	30
34	CONT MIN	20	20	20	10
36	COL MAX	100	100	100	127
37	COL MIN	00	00	00	00
39	SHAR CENT	25	25	25	25
40	SHAR MAX	63	63	63	63
41	SHAR MIN	10	10	10	10
42	SUB BIAS	30	20	20	20
48	T.STE	00	00	00	00

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

### NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**  
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

#### NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.  
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

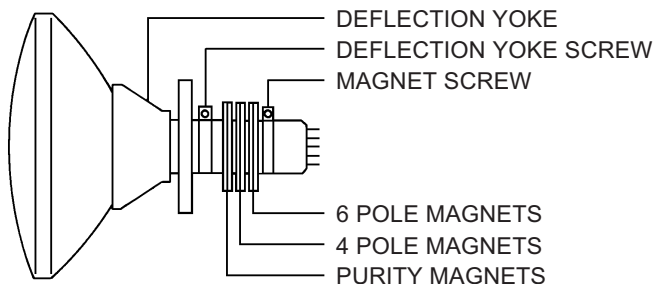


Fig. 3-1

### 3-3: STATIC CONVERGENCE

#### NOTE

Adjust after performing adjustments in section 3-2.

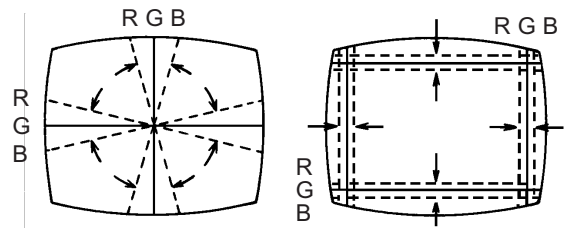
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

#### NOTE

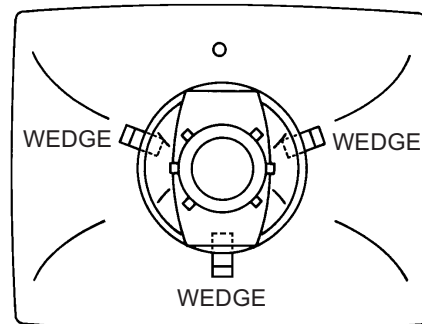
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT    RIGHT/LEFT SLANT

Fig. 3-2-a

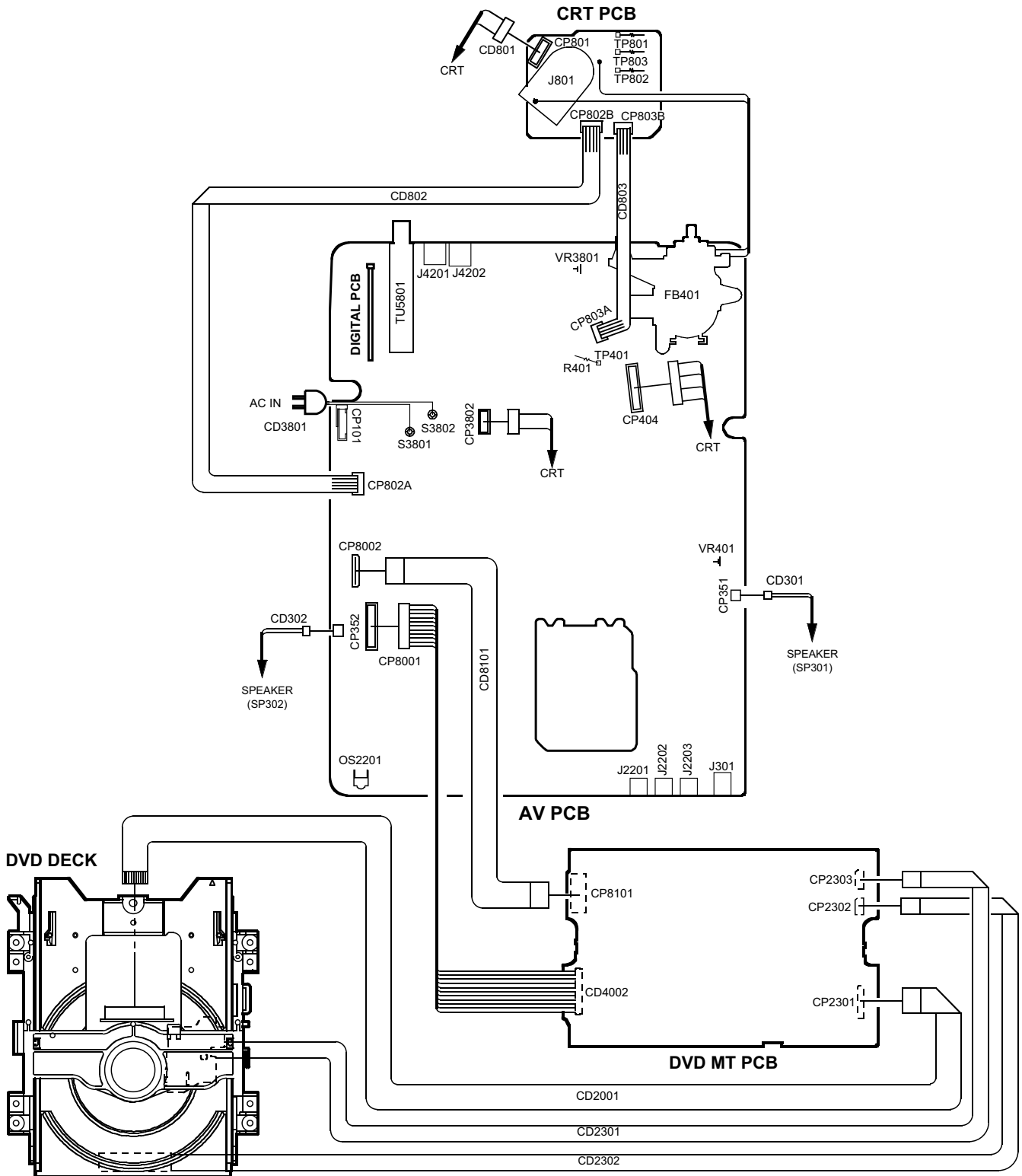


WEDGE POSITION

Fig. 3-2-b

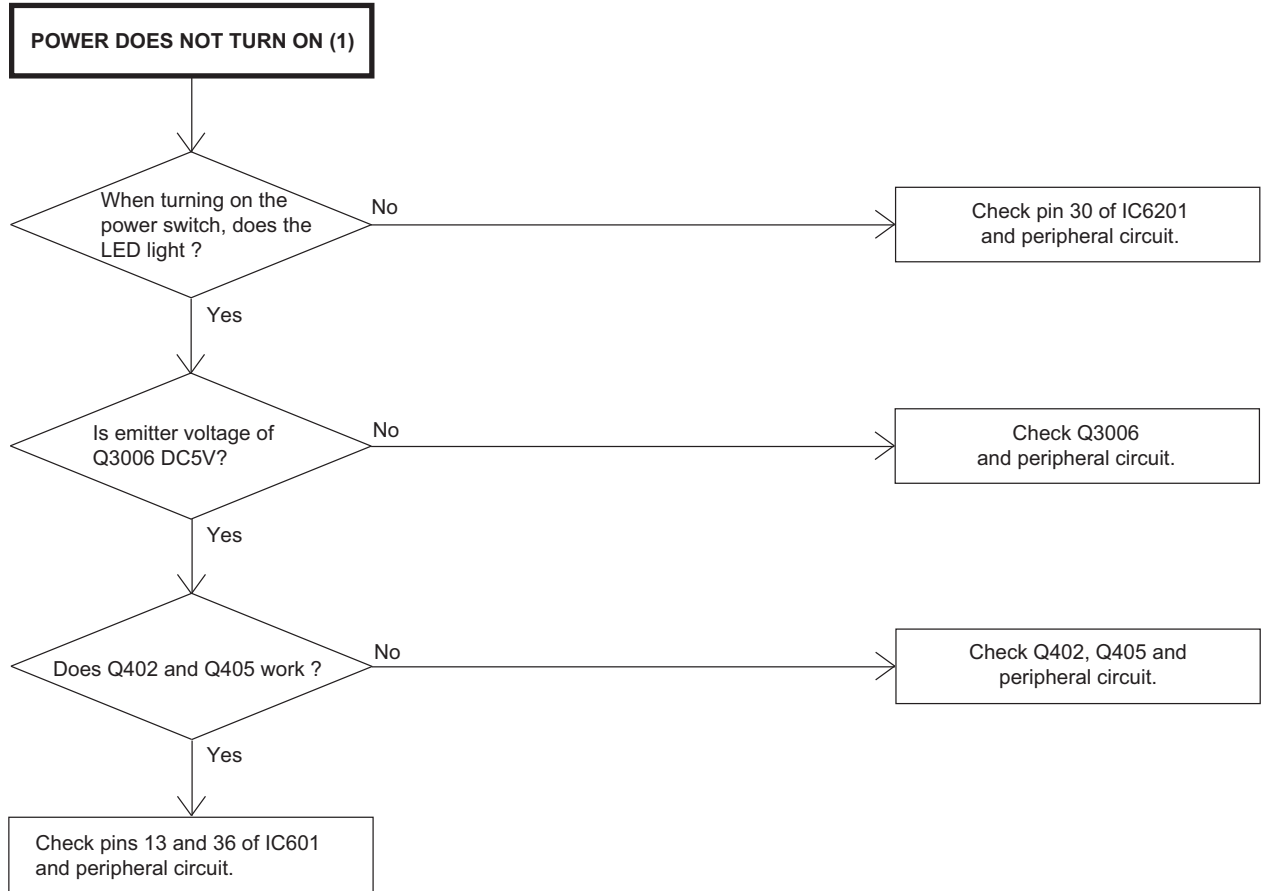
# ELECTRICAL ADJUSTMENTS

## 4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

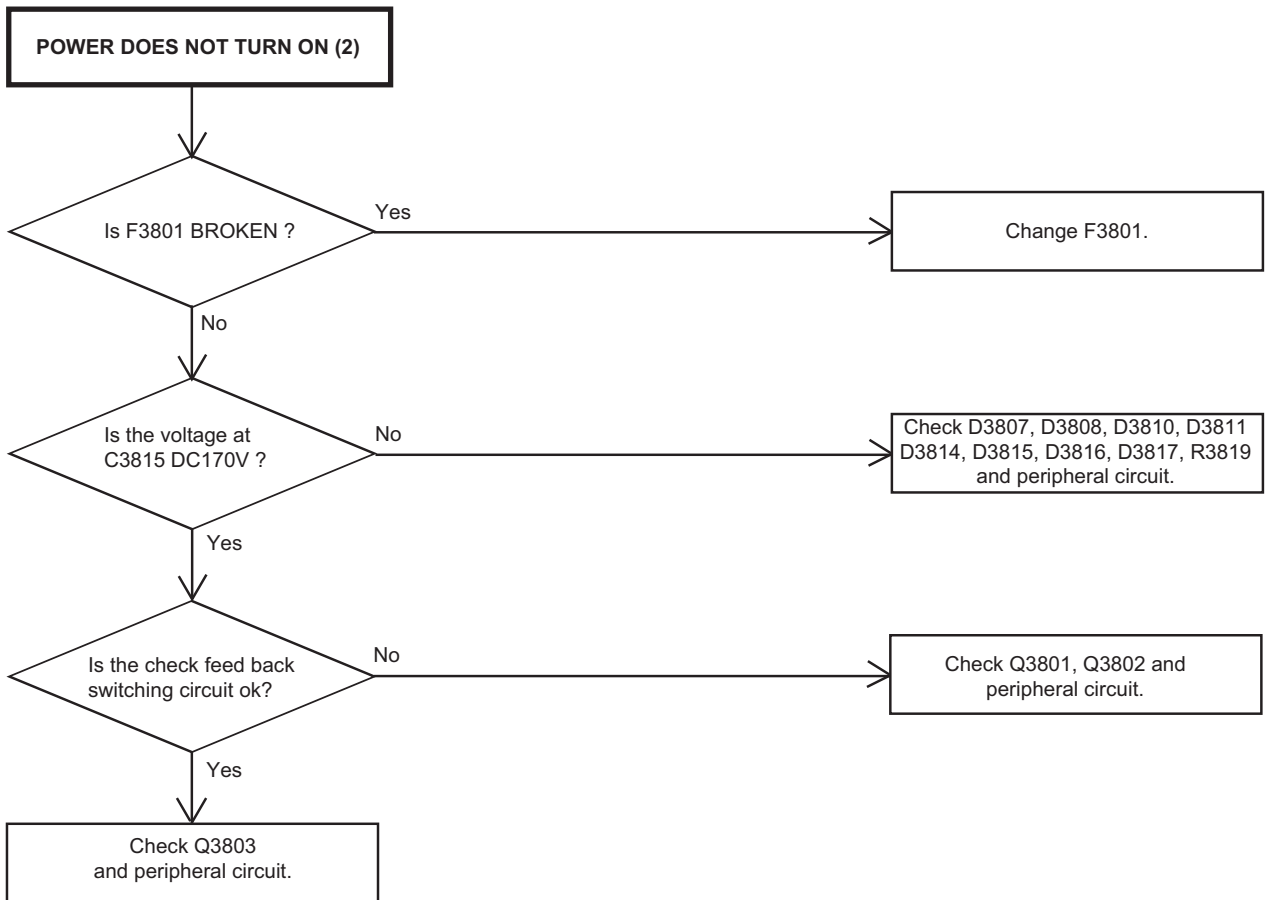


# TROUBLESHOOTING GUIDE

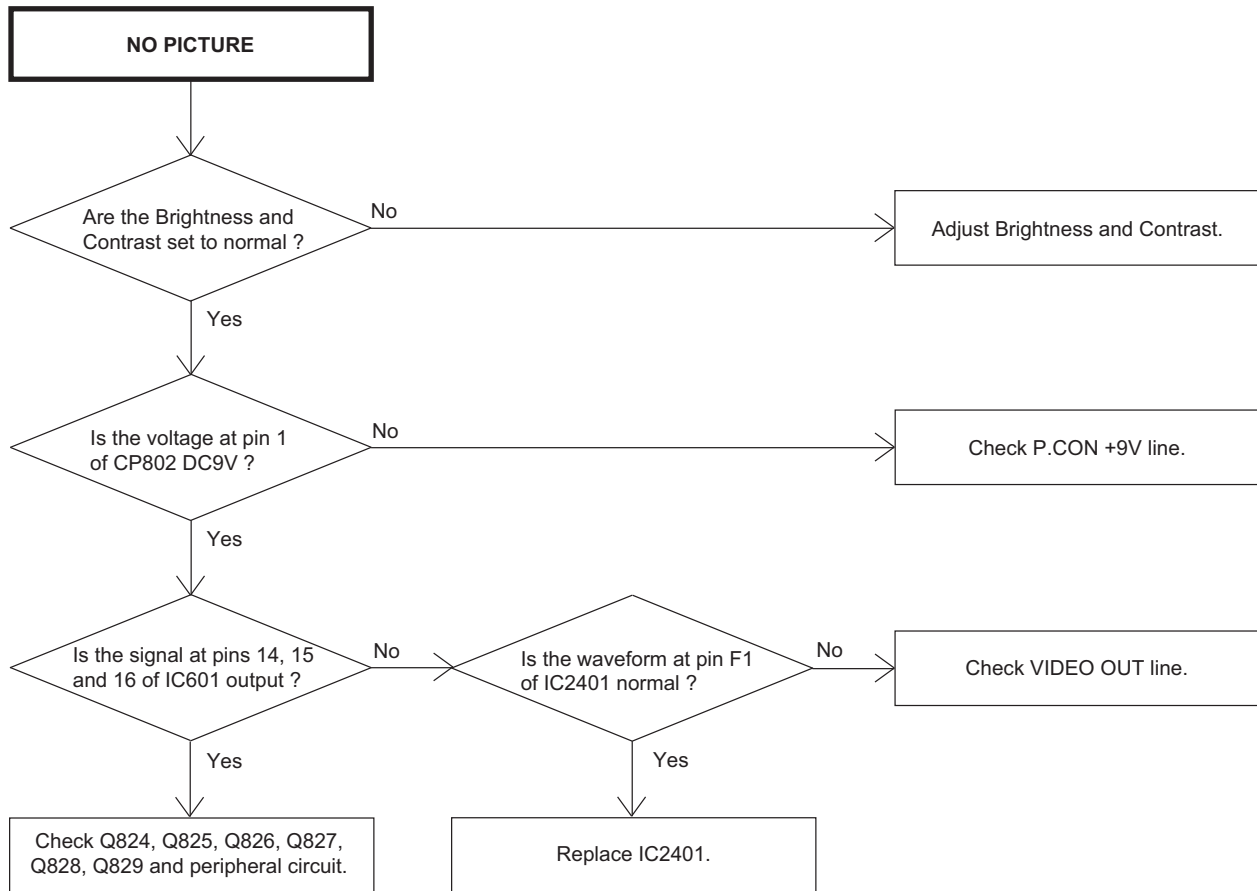
## (TV SECTION)



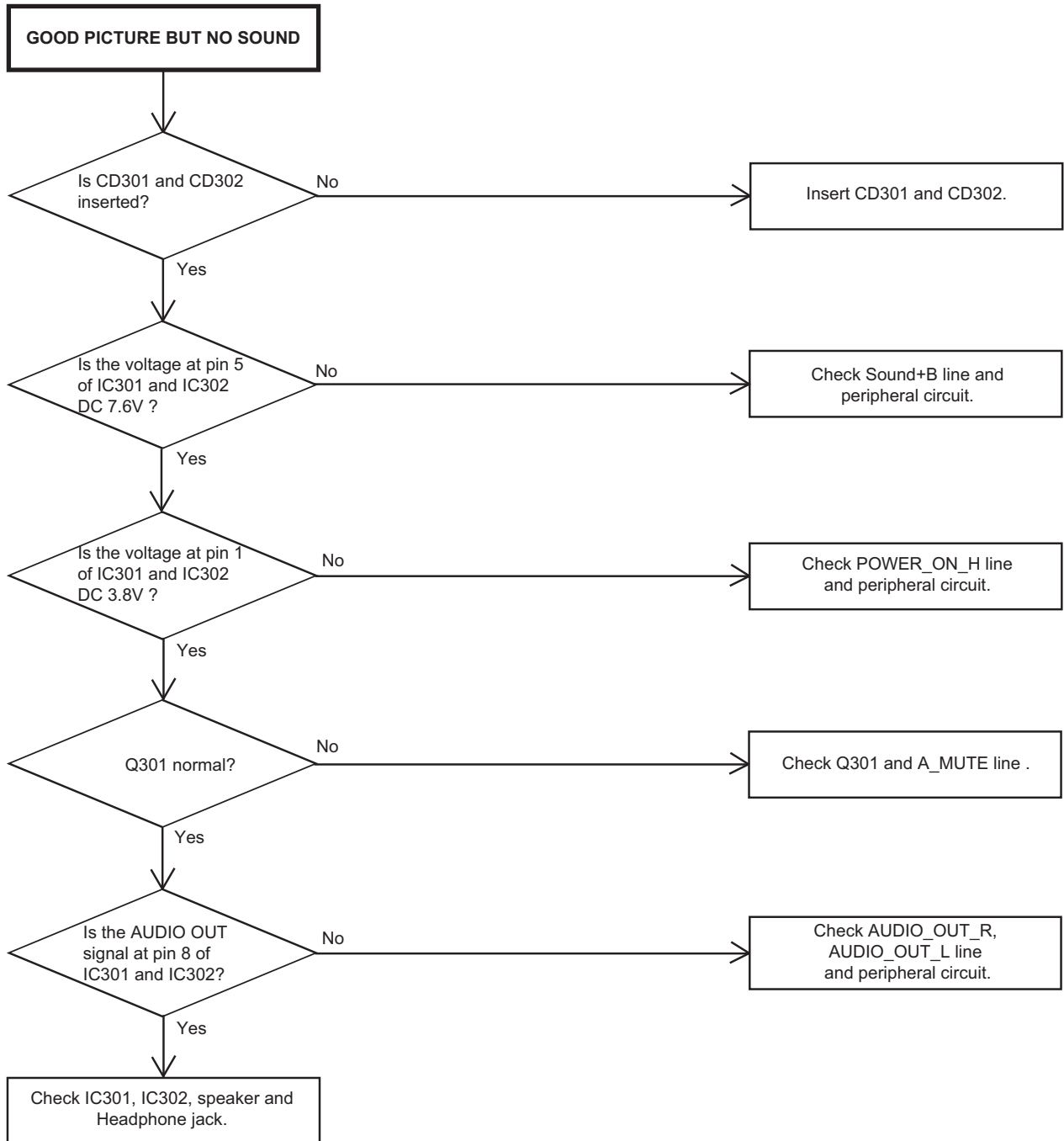
## TROUBLESHOOTING GUIDE



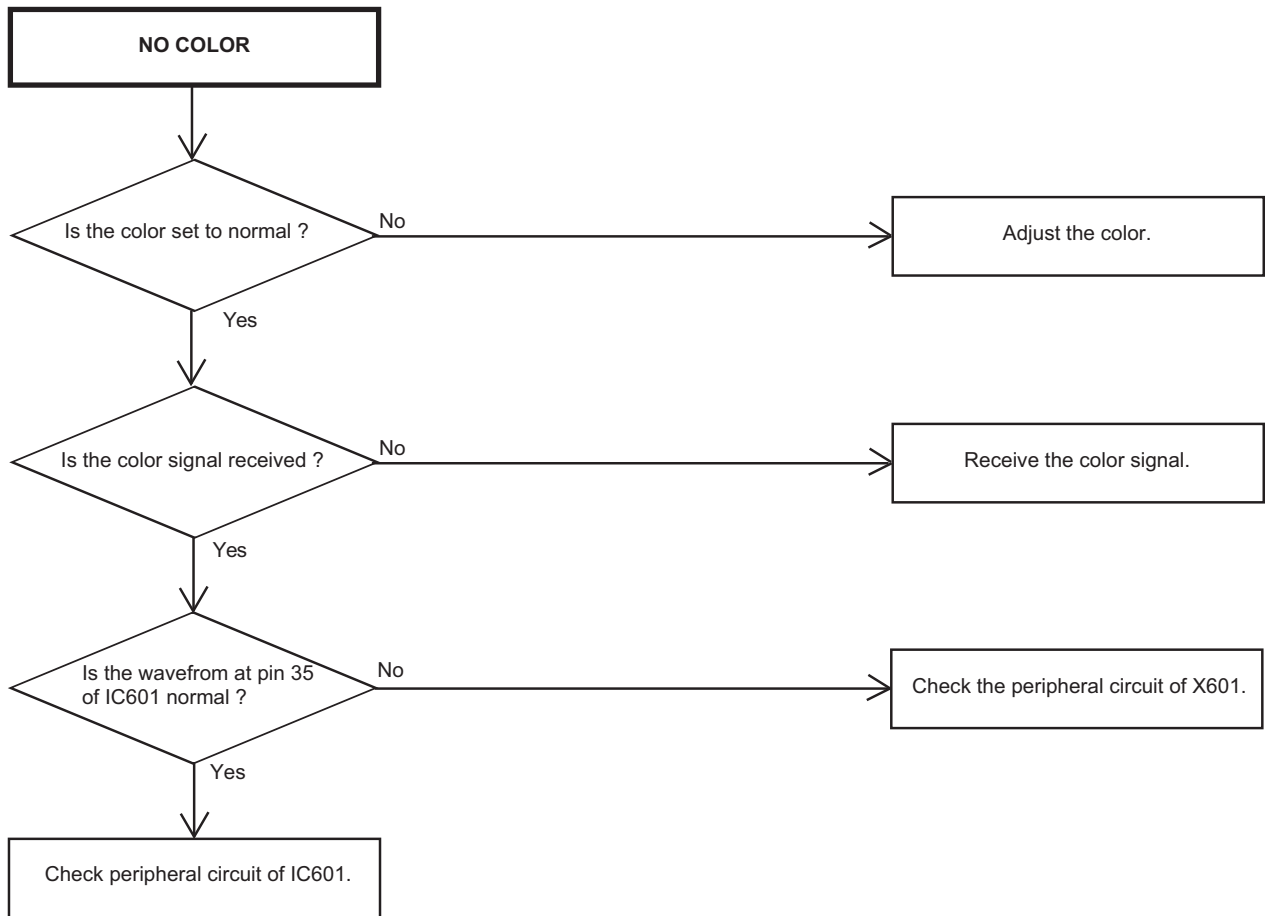
# TROUBLESHOOTING GUIDE



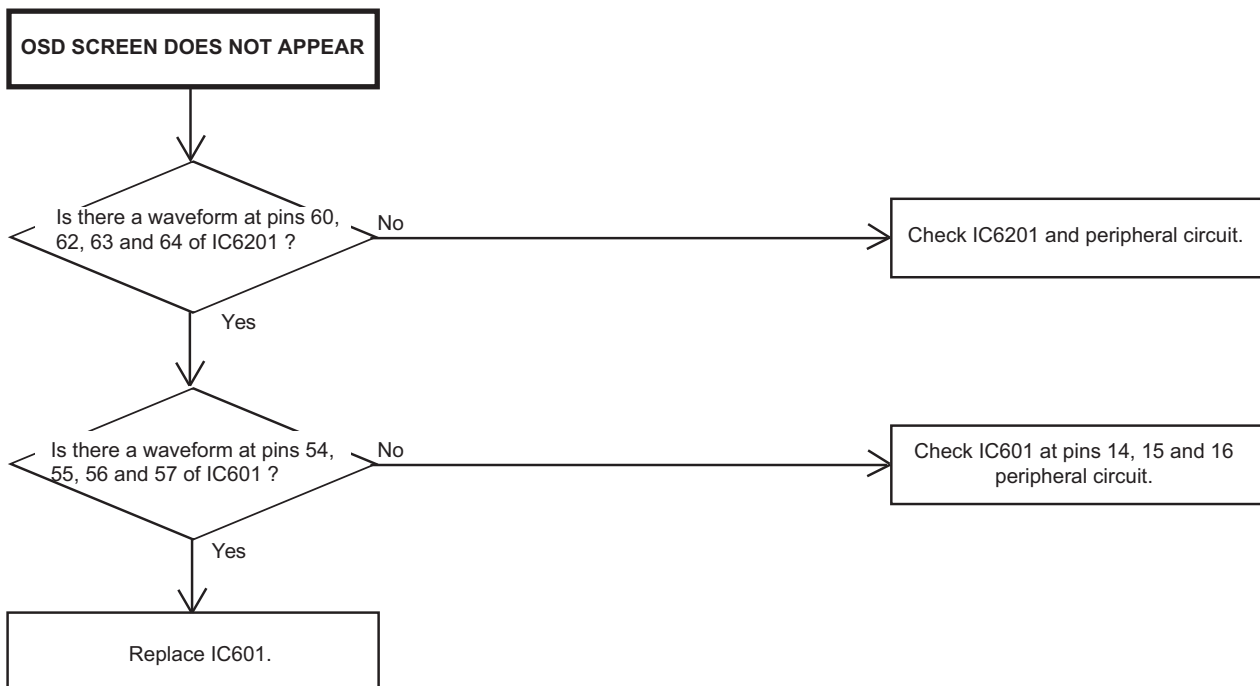
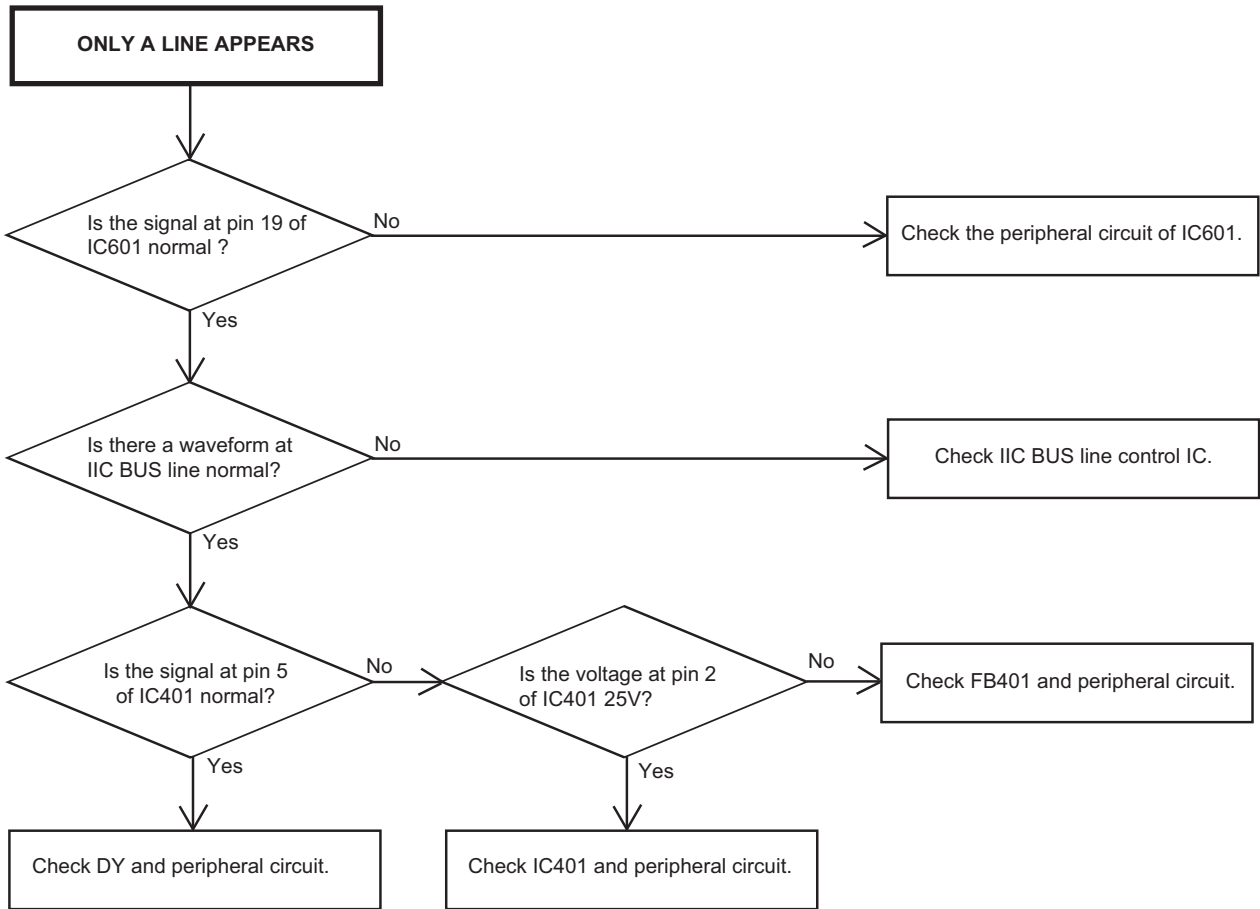
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

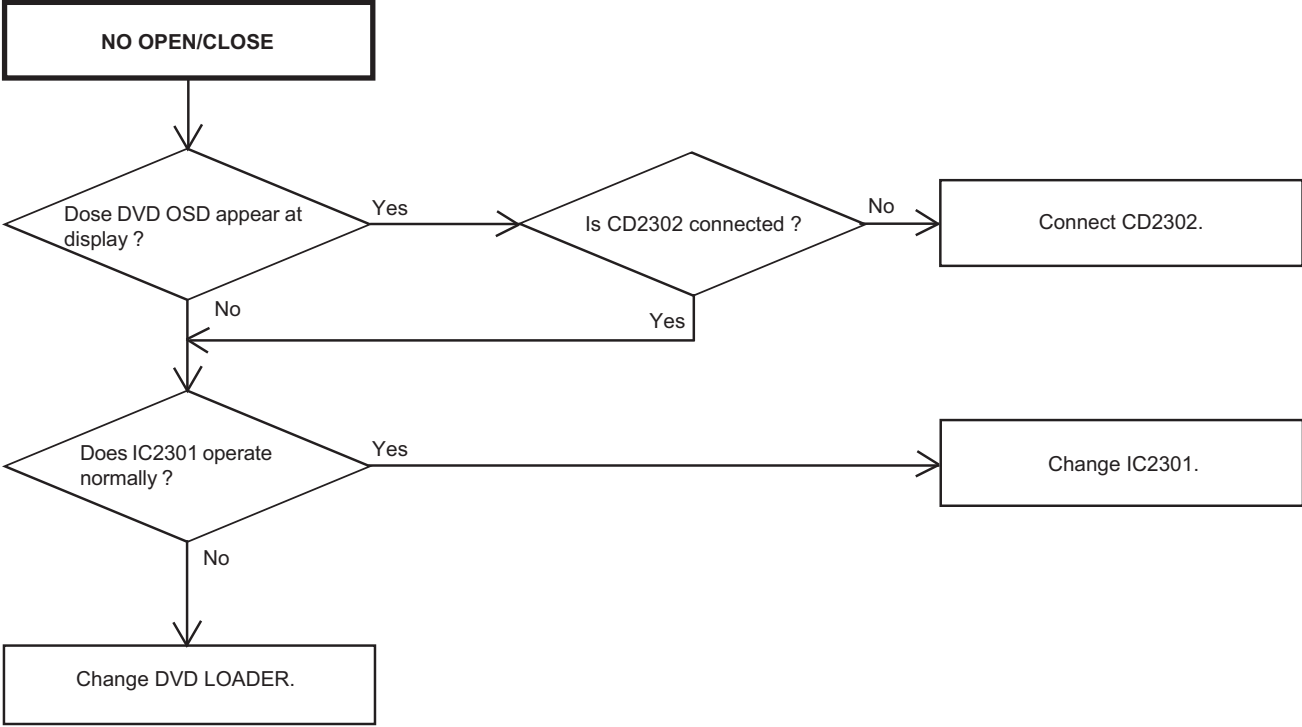


## TROUBLESHOOTING GUIDE

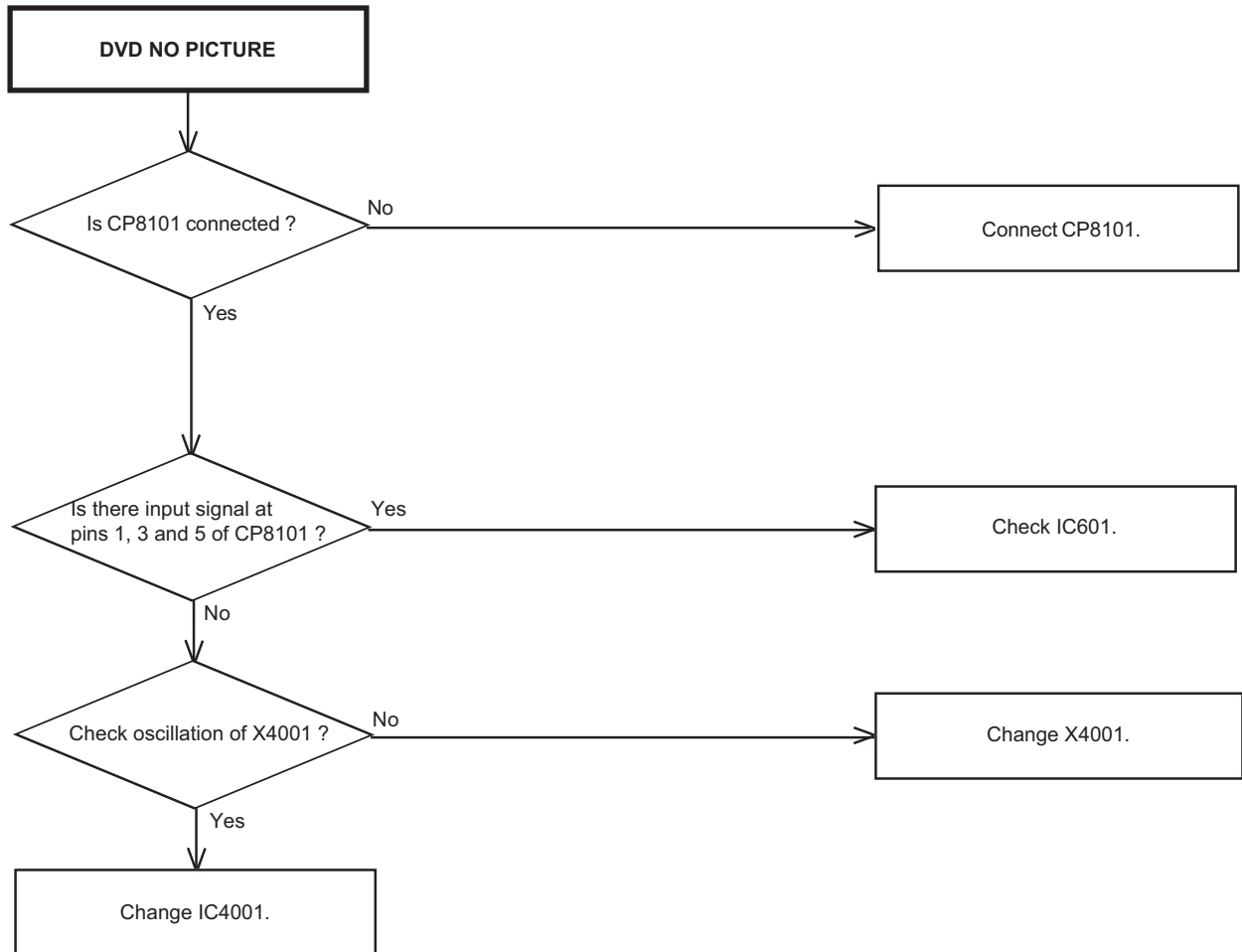


# TROUBLESHOOTING GUIDE

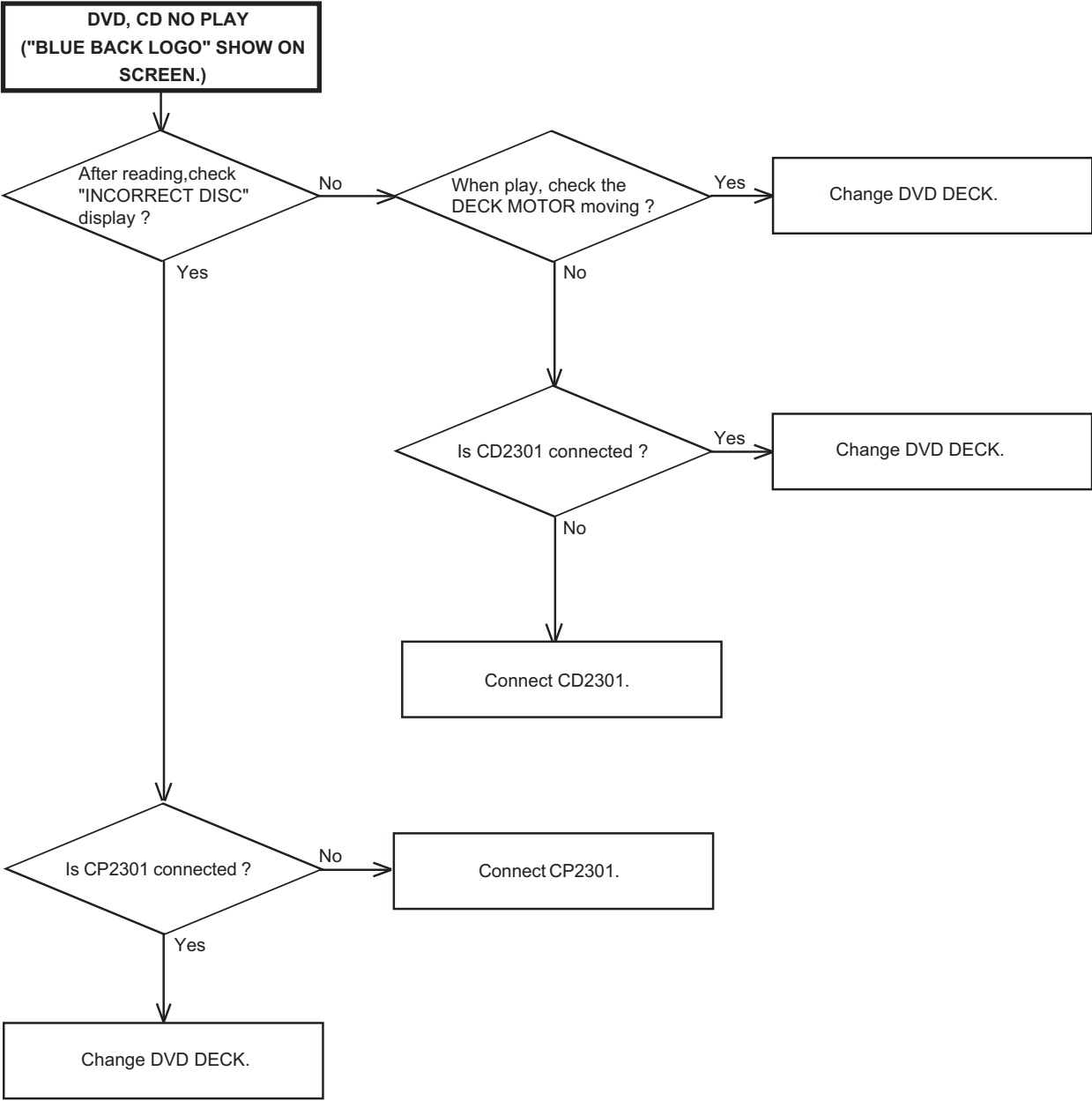
## (DVD SECTION)



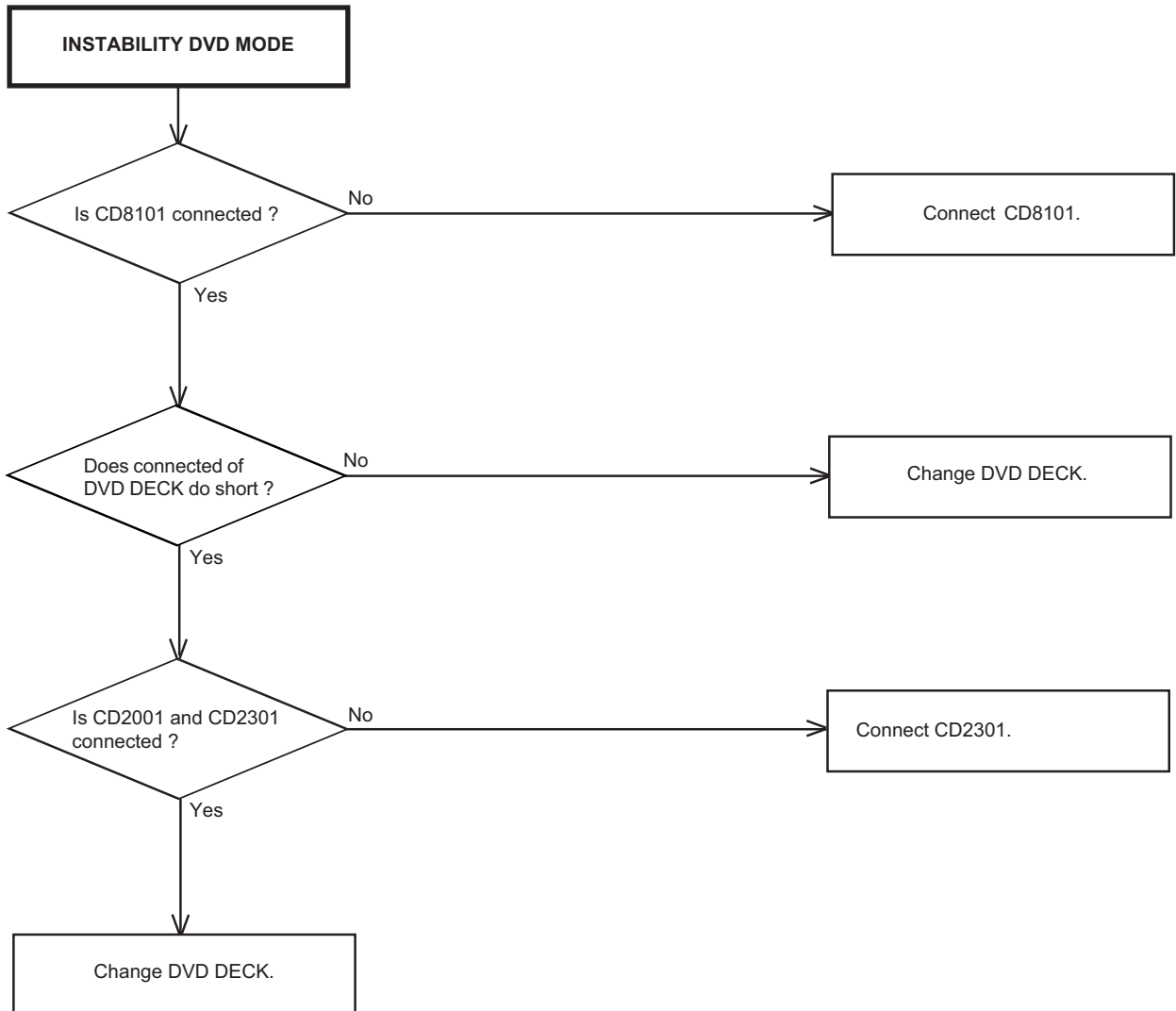
## TROUBLESHOOTING GUIDE



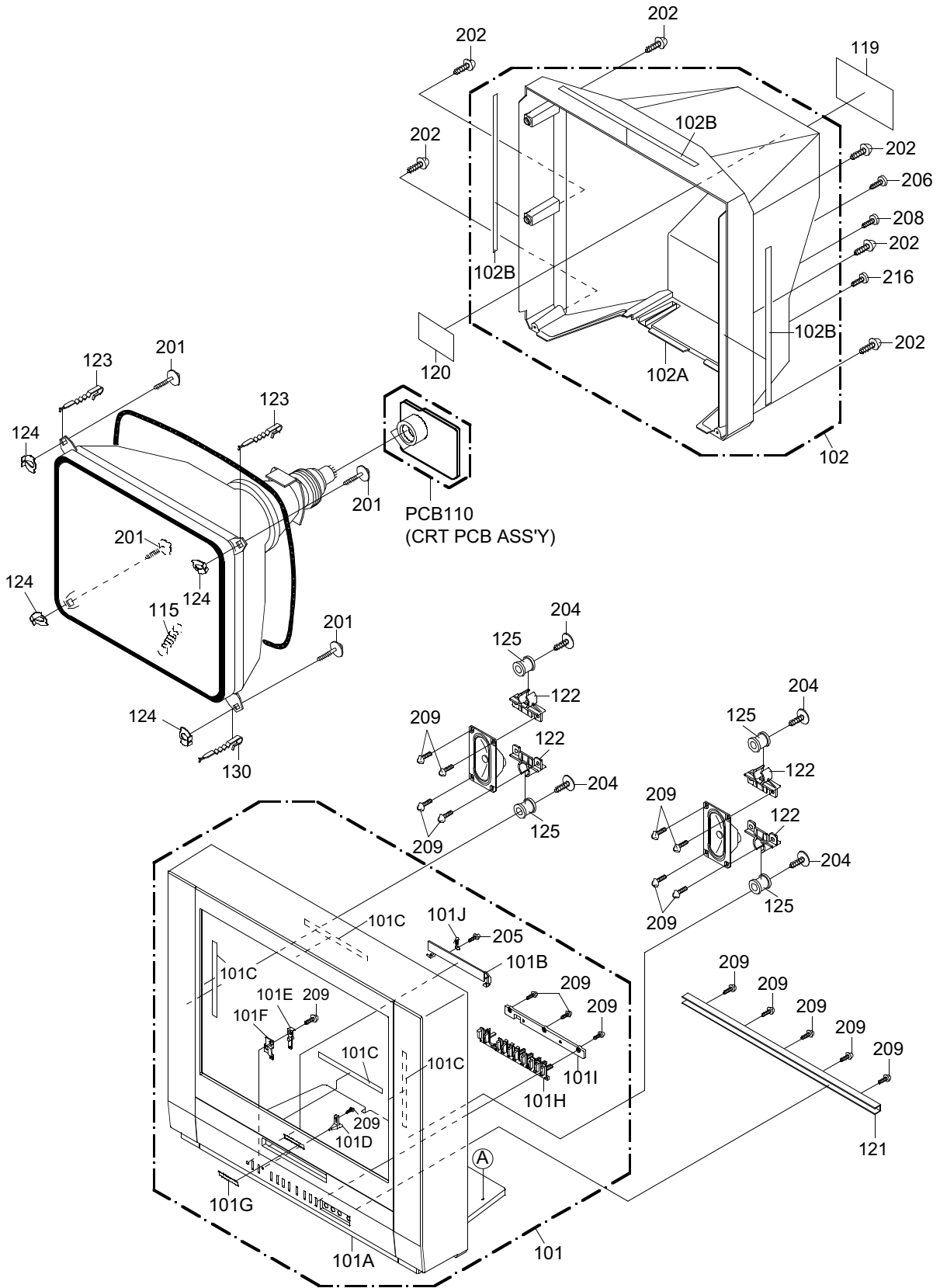
# TROUBLESHOOTING GUIDE



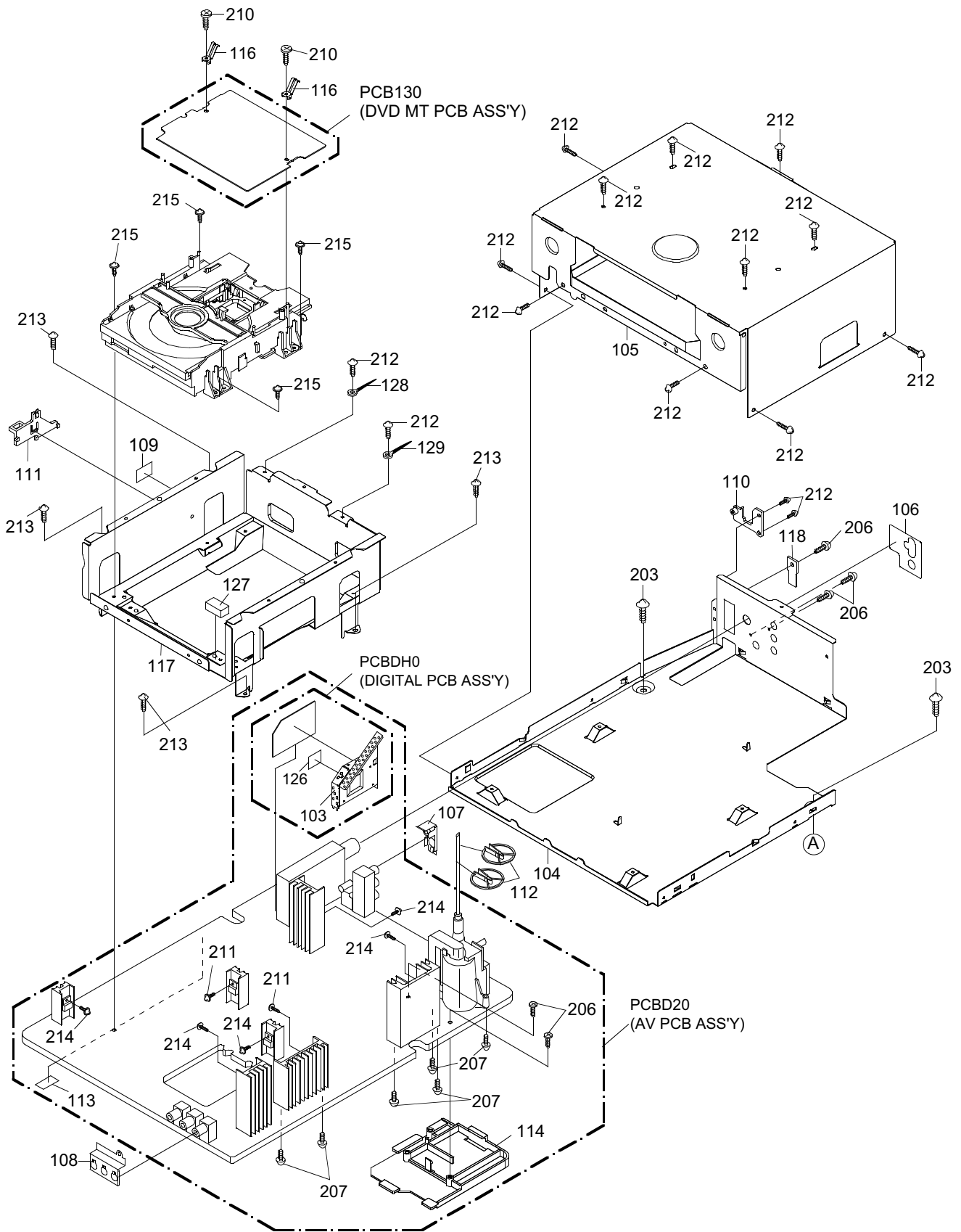
# TROUBLESHOOTING GUIDE



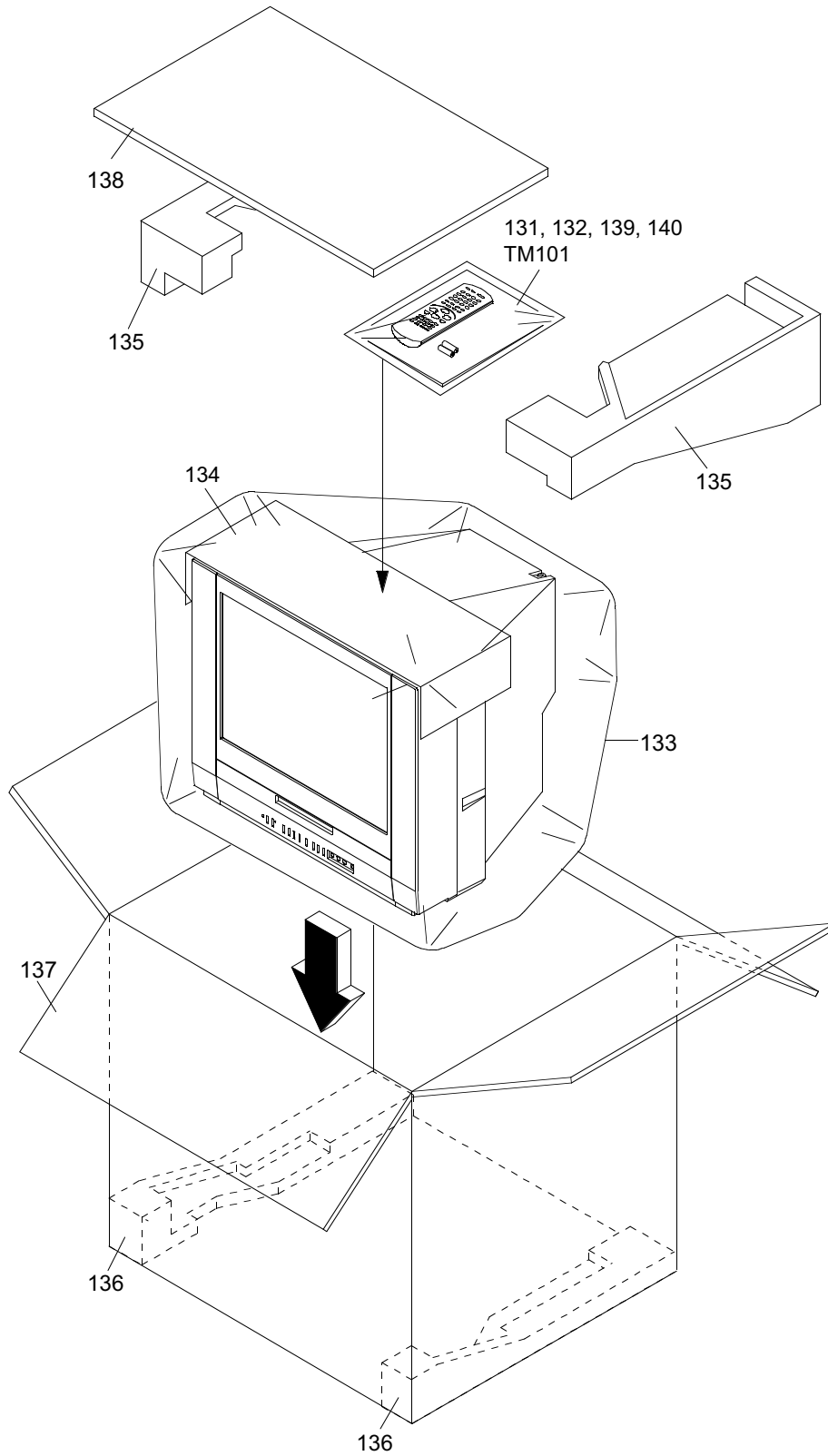
# MECHANICAL EXPLODED VIEW



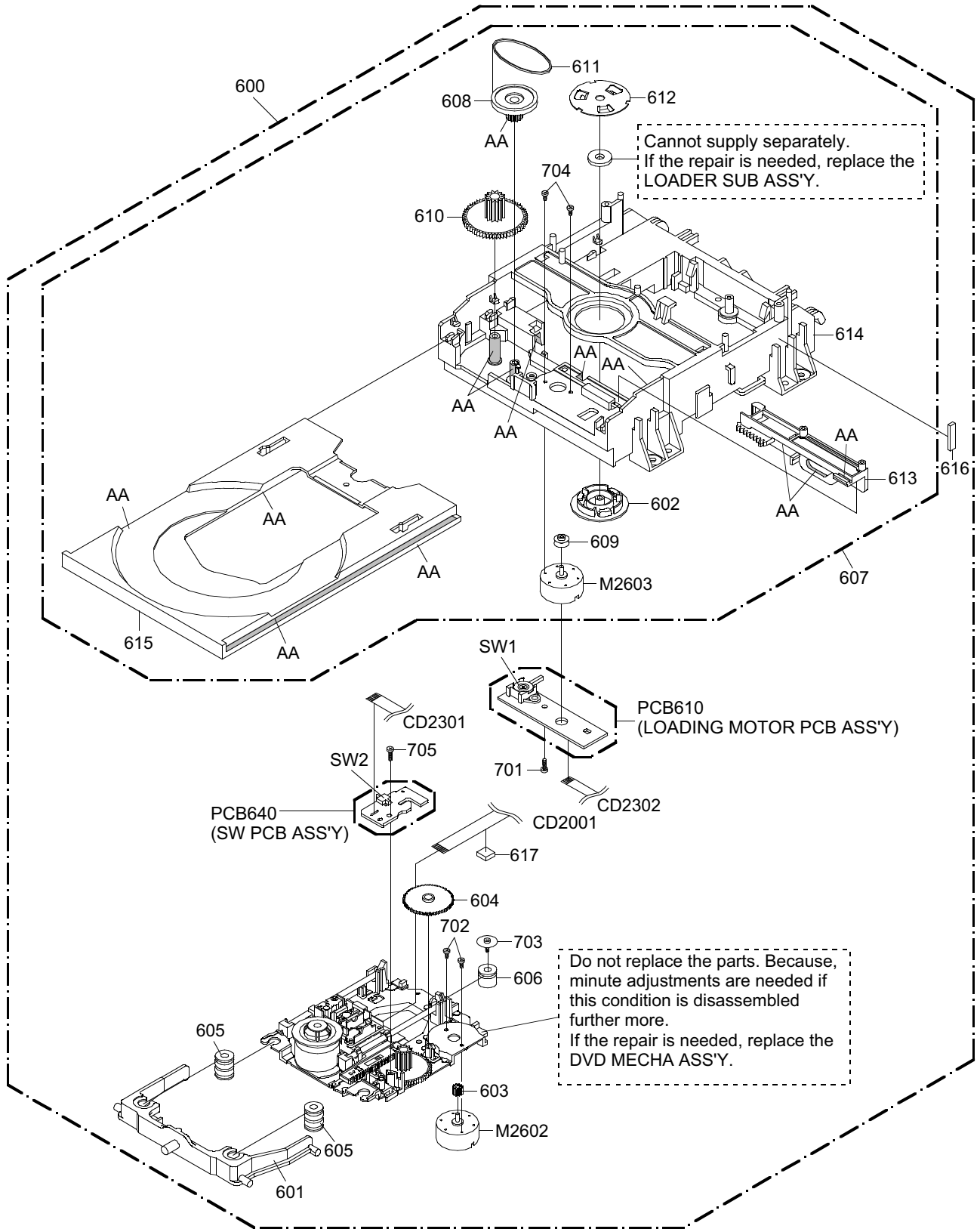
# MECHANICAL EXPLODED VIEW



# MECHANICAL EXPLODED VIEW (PACKING DIAGRAM)



# DVD DECK EXPLODED VIEW



CLASS	MARK
GREASE	AA

**NOTE:** Applying positions AA for the grease are displayed for this section.  
Check if the correct grease is applied for each position.

# MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
101	AE009440	7A701A944A	FRONT CABI ASS'Y
101A	AE009441	701WPJD491	CABINET FRONT
101B	AE009442	712WPJC322	FLAP DVD
101C	AE003110	800WQ0A052	FELT SHEET
101D	75006366	713WPAA265	GLASS LED
101E	75006367	713WPAA266	GUIDE REMOCON
101F	75002712	711WPA0275	PLATE FRONT
101G	AE008779	723549A054	BADGE BRAND
101H	75006369	735WPBB587	BUTTON FRAME-DVD
101I	75006370	735WPAB057	STOPPER BUTTON
101J	AE001324	742WKA0001	SPRING DVD-FLAP
102	75006371	7A702A267A	BACK CABI ASS'Y
102A	75006372	702WPAB024	CABINET BACK
102B	AE006226	800WQ0A090	FELT SHEET
103	75006373	7G7520045A	SHIELD BOTTOM ASS'Y
104	75006374	702WSAA189	PLATE BOTTOM
105	AE005249	702WSA0213	SHIELD TOP
106	75006375	723000D473	SHEET JACK
107	BZ710659	752WSA0290	SHIELD COMPO
108	AD302077	752WSA0333	SHIELD JACK
109	72783197	753WEA0033	SHEET CU
110	75006376	761WPAA150	HOLDER AC CORD
111	AE003511	774WPA0006	HOLDER WIRE
112	BZ710260	899HV3T000	HOLDER ANODE WIRE
113	AE006447	724WNAA008	SHEET PC
114	75006602	761WPAA153	HOLDER FBT
115	BZ710660	741WUA0021	SPRING EARTH
116	AE004480	753WUA0069	SPRING EARTH
117	75006377	761WSAA066	ANGLE DECK
118	75006378	706WPAA013	COVER CONNECTOR
119	AE009443	722549A722	SHEET RATING
120	72783403	726000A131	SHEET CRT SERVICEMAN
121	75006291	752WSAA138	ANGLE FRONT
122	AE005207	761WPAA115	HOLDER SPEAKER
123	BZ710259	762WPA0011	HOLDER CRT WIRE
124	AE006374	769WSAA008	WASHER CRT T=0.5
125	AD300518	801WR00001	DAMPER SPEAKER
126	75006289	800WR00081	SHEET SILICONE
127	AE001853	8965TS1017	CUSHION 65TS10-10(17.5*20*14)
128	AD301370	899EFBA002	WIRING-CLIP
129	BZ710039	8995034000	CORD CLIP UL CO.
130	75002726	762WPAA005	HOLDER,CRT WIRE 2
131	AE009444	J5Y80101B	INSTRUCTION BOOK
132	AE007451	J3N51617A	REGISTRATION CARD
133	AE006145	791WHAA116	FILM,BAG
134	72782503	791WHAA138	LIGHTRON SHEET
135	AE003292	792WHA0520	PACKAGE,TOP
136	AE003293	792WHA0521	PACKAGE,BOTTOM
137	75006382	793WCDD389	GIFT BOX
138	AE007308	795WCDA025	PAD
139	AE007590	JB5ND300	POLYBAG INSTRUCTION(RED CAUTION)
140	AE007627	J5S10229A	INFORMATION SHEET(RETURN)USA

## MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
201	AE003521	8141H60C5U	SCREW,TAP TITE(P) GW20 6*35 CH HEXAGON
202	AE003522	8117540B0U	SCREW TAPPING(B0) TRUSS 4*20 CH
203	AE003523	811754080U	SCREW TAPPING(B0) TRUSS 4*8 CH
204	AE005398	8162540A6U	SCREW TAPPING (BO) WASHER 18
205	AE003527	8110E3080U	SCREW TAP TITE(P) WH10 3*8 CH
206	AE003526	810923080U	SCREW TAP TITE(B) BIND 3*8 CH
207	AE005917	810963080Q	SCREW TAP TITE(B) BRAZIER 3*8 STAINLESS
208	AE003528	8110630A0U	SCREW TAP TITE(P) BRAZIER 3*10 CH
209	AE003529	811063080U	SCREW TAP TITE(P) BRAZIER 3*8 CH
210	AE003530	811022680U	SCREW TAP TITE(P) BIND 2.6*8 CH
211	AE003531	810763080U	SCREW TAP TITE(S) BRAZIER 3*8 CH
212	AE005675	810923060U	SCREW TAP TITE(B) BIND 3*6 CH
213	AE005474	810923070U	SCREW TAP TITE(B) R BIND 3*7 CH
214	AE005659	810913080U	SCREW TAP TITE(B) WH7 3*8 CH
215	AE005541	810F13080U	SEMS(F) 3*8 CH
216	AE004847	8117540A6U	SCREW TAPPING(B0) TRUSS 4*16 CH

## DVD DECK REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
△ 600	AE009105	A2J901T650	DVD MECHA ASS'Y A2J901T650
601	AE005003	92P100109A	HOLDER, TRAVERSE
602	AE003550	92P100094A	CLAMPER
603	AE003551	92P100088A	GEAR, MOTOR
604	AE009106	92P100108B	GEAR, MIDDLE
605	AE003538	92P200013A	INSULATOR(F)
606	AE003539	92P200014A	INSULATOR(R)
607	AE006115	92SBB0029A	LOADER SUB ASS'Y
608	AE003541	92P100095A	GEAR, PULLEY
609	AE003542	92P100097A	PULLEY, MOTOR
610	AE003549	92P100096A	GEAR, MAIN
611	AE005810	92P200015A	BELT, LOADING
612	AE003545	92P000014A	PLATE, CLAMPER
613	AE003546	92P100093A	RACK, LOADING
614	AE003547	92P100091A	FRAME, MAIN
615	AE003548	92P100092A	TRAY
616	BZ710149	800WFAA008	CUSHION C
617	AE007578	7230007850	SHEET, FFC
701	AE003530	811022680U	SCREW TAP TITE(P) BIND 2.6*8 CH
702	AE003554	814011723U	SCREW, PAN M1.7*2.3 P3 CH
703	AE003555	816112080U	SEMS. TAP TITE(P) PAN W10 2*8 CH
704	AE003556	814011730U	SCREW, PAN M1.7*3 P3 CH
705	AE003557	811022080U	SCREW, TAP TITE(P) BIND 2*8 CH
CD2001	AE008247	122J401903	CORD JUMPER 127000-2928
CD2301	AE003558	122H062102	CORD JUMPER 2H062102
CD2302	AE003559	122H052601	CORD JUMPER 2H052601
△ M2602	AE005930	1515S98003	FEED MOTOR BCZ3B03B
△ M2603	AE005931	1596S18003	MOTOR, LOADING BCZ3B52B
PCB610	AE005932	A5R801V610	LOADING MOTOR PCB ASS'Y DED003A
PCB640	AE006740	A2F401H640	SW PCB ASS'Y DED012B
SW1	AE003564	0515S32002	SWITCH SSS-13-2
SW2	AE003565	0500101037	PUSH SWITCH ESE22MH24

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>RESISTORS</b>				
△R401	AE006276	R3K58AR68J	R,METAL OXIDE	0.68 OHM 2W
△R409	AE006429	R4K1T4472F	R,METAL	4.7K OHM 1/4W
△R412	AE006428	R4K1T4183F	R,METAL	18K OHM 1/4W
△R414	BZ210053	R002T22R2J	RC	2.2 OHM 1/2W
△R416	72783394	R4K1T4153F	R,METAL	15K OHM 1/4W
△R418	BZ210130	R002T21R5J	RC	1.5 OHM 1/2W
△R419	AE005729	R3K58A151J	R,METAL OXIDE	150 OHM 2W
△R428	AE005692	R3K58A221J	R,METAL OXIDE	220 OHM 2W
△R432	BZ210277	R3X181101J	R,METAL OXIDE	100 OHM 1W
△R441	AE002243	R5X34F5R6J	R,CEMENT	5.6 OHM 10W
△R444	AE003590	R655822R2J	R,FUSE	2.2 OHM 1/2W
△R449	AE003588	R65581010J	R,FUSE	1 OHM 1W
△R450	75006345	R638811R8J	R,FUSE	1.8 OHM 1W
△R454	AE005687	R3K581102J	R,METAL OXIDE	1K OHM 1W
△R455	AE006490	R63881330J	R,FUSE	33 OHM 1W
△R804	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
△R808	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
△R812	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
△R3003	BZ210006	R3K28B1R8J	R,METAL OXIDE	1.8 OHM 3W
R3024	AE006340	R3X181150J	R,METAL OXIDE	15 OHM 1W
△R3801	AE005697	R4K1T4332F	R,METAL	3.3K OHM 1/4W
△R3807	BZ210206	R002T2155J	RC	1.5M OHM 1/2W
△R3808	BZ210080	R0G3K2275K	RC	2.7M OHM 1/2W
△R3812	AE005868	R3K581331J	R,METAL OXIDE	330 OHM 1W
△R3819	AD301596	R5X2AE010J	R,CEMENT	1 OHM 7W
△R3820	75006578	R3K581R18J	R,METAL OXIDE	0.18 OHM 1W
△R3826	AE005735	R63881R22J	R,FUSE	0.22 OHM 1W
△R3827	BZ210011	R3X28B1R8J	R,METAL OXIDE	1.8 OHM 3W
<b>CAPACITORS</b>				
△C305	75007414	E7EPT2102M	CE	1000 UF 16V
△C409	75006552	E7EPU8220M	CE	22 UF 100V
△C413	75006230	E7ESF3102M	CE	1000 UF 25V
△C414	75007415	E7ESU4101M	CE	100 UF 35V
△C417	BZ110211	P4N8FK133H	CMPP	0.013 UF 1.5KV
△C418	BZ110054	P3N1F5333J	CPP	0.033 UF 630V
△C420	75006230	E7ESF3102M	CE	1000 UF 25V
△C424	72783562	P4N8FK472H	CMPP	0.0047UF 1.5KV
C425	75006226	E8EBFD100M	CE	10 UF 250V
△C429	75006229	E7ESF4102M	CE	1000 UF 35V
△C430	75007351	E7EPU4101M	CE	100 UF 35V
△C433	75006227	E7ESFD220M	CE	22 UF 250V
C435	AE001019	P4J7F3434J	CMPP	0.43 UF 250V PMS
△C436	AE001196	COPLRR7B3K	CC	0.0012 UF 2KV R
C802	BZ110226	COJBB07H3K	CC	0.0022UF 2KV B
△C3803	AE003965	P2122B334M	CMP	0.33 UF 275V ECQUL
△C3810	AD301702	COPLRR7G3K	CC	0.0018 UF 2KV R
△C3811	BZ110061	COJTB0513K	CC	0.001 UF 500V B
△C3813	BZ110061	COJTB0513K	CC	0.001 UF 500V B
△C3814	AE002878	CD39E0MQ3M	CC	0.0047UF 250V
△C3815	75006228	E7EWHC681M	CE	680 UF 200V
△C3816	BZ110182	C03LOR713K	CC	0.001 UF 2KV R
△C3817	75006347	E7ESF2332M	CE	3300 UF 16V
△C3818	AE009309	E7EPU54R7M	CE	4.7 UF 50V
△C3820	AE004799	E61SFC221M	CE	220 UF 200V
△C3821	AE009316	E7EST2102M	CE	1000 UF 16V
△C3822	75006230	E7ESF3102M	CE	1000 UF 25V
△C3824	75006224	E7ESF3222M	CE	2200 UF 25V
<b>DIODES</b>				
D402	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D403	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D405	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D406	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
△D407	BZ410063	D2WTAU02A0	DIODE,SILICON	AU02A-EIC
D408	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D409	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D410	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D411	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D412	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D413	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D414	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
△D415	BZ410117	D2BFRS4FS0	DIODE,SILICON	RS-4FS
△D416	BZ410118	D2BFRU4AM0	DIODE,SILICON	RU-4AM
D417	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
△D418	BZ410063	D2WTAU02A0	DIODE,SILICON	AU02A-EIC
△D419	BZ410063	D2WTAU02A0	DIODE,SILICON	AU02A-EIC

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>DIODES</b>				
△D420	BZ410063	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D601	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D602	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D603	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D604	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D605	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D606	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D801	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D804	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D2201	BZ410087	0021E2Q140	LED	LTL-1CHEE-002A
D2303	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D2304	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D3002	75004679	D2LXN40020	DIODE SILICON	1N4002-F
D3003	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
D3004	BZ410066	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77
D3005	AD300732	D28XQS04N0	DIODE SCHOTTKY	11EQS04N-TA2B5
D3007	75006232	D4CRSK34A0	DIODE SCHOTTKY	SK34A
D3008	BZ410066	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77
D3009	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D3801	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3804	BZ410094	D97U01501B	DIODE,ZENER	MTZJ15B T-77
D3805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3806	AD300731	D2WXN49370	DIODE SILICON	1N4937
△D3807	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3808	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
D3809	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D3810	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3811	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
D3812	AD300671	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D3813	AD300731	D2WXN49370	DIODE SILICON	1N4937
△D3814	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3815	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3816	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3817	BZ410085	D2WXN40050	DIODE SILICON	1N4005-EIC
△D3818	AD300731	D2WXN49370	DIODE SILICON	1N4937
D3819	AE008585	D2LXSR2900	DIODE SCHOTTKY	SR290-F
△D3820	AE008585	D2LXSR2900	DIODE SCHOTTKY	SR290-F
△D3821	BZ410126	D2WXR03AM0	DIODE SILICON	RU3AM-EIC
△D3822	AE008585	D2LXSR2900	DIODE SCHOTTKY	SR290-F
△D3823	AE008585	D2LXSR2900	DIODE SCHOTTKY	SR290-F
△D3824	AE008585	D2LXSR2900	DIODE SCHOTTKY	SR290-F
△D3825	AE006082	D28FOPRA60	DIODE RECTIFIER	30PRA60-FC
D3826	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3827	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3828	BZ410067	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
D3829	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3830	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D3831	BZ410064	D97U03R91B	DIODE,ZENER	MTZJ3.9B T-77
D3832	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3833	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3834	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D4003	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4004	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4005	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4006	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4007	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D6201	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D6202	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D6203	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D6204	BZ410073	D28TEQS040	DIODE,SCHOTTKY	11EQS04TA1B2
D6205	BZ410073	D28TEQS040	DIODE,SCHOTTKY	11EQS04TA1B2
D6206	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D8111	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D8112	BZ410086	DD7R0S3550	DIODE SILICON	1SS355 TE-17
<b>ICS</b>				
△IC301	72783215	I01DP75130	IC	AN7513
△IC302	72783215	I01DP75130	IC	AN7513
△IC401	BZ611117	I03TD80410	IC	LA78041
IC601	75006233	I03FC6327B	IC	LA76327M-B-MPB-E

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>ICS</b>				
△IC2301	AE008194	I03FV65650	IC	LA6565VR-TLM-E
IC2401	AE009251	ICQK039740	IC	ZR39740HGCF-B0
IC2402	AE009191	ICLJ022ET5	IC	HY5DU561622ETP-D43
IC2403	75006237	ICRJ004SU0	IC	AT24C04N-10SU-2.7
IC2405	75007116	S30J01HF01	MEMORY DATA	EN25P16-50HCP
IC2406	AE009253	I1FF043450	IC	CS4345-CZZ
△IC3001	AE001070	I1KA98R06A	IC	KIA78R06API
△IC3002	AD301931	I1KA78R050	IC	KIA278R05PI
△IC3003	AE008636	I03T057740	IC	LA5774-E
△IC3004	AD301931	I1KA78R050	IC	KIA278R05PI
△IC3005	AE007825	I07F0C0WFO	IC	BA00BC0WFP-E2
△IC3006	AE007825	I07F0C0WFO	IC	BA00BC0WFP-E2
IC4001	AE008145	ICQK068621	IC	ZR36862PQCG-B
△IC4003	AE006061	I07F9E00W0	IC	BA33E00WHFP-TR
IC4007	AE009445	S5Y701FM04	MEMORY DATA	SST39VF1601-70-4C-EKE
IC4009	72783221	IF9J0161A7	IC	M12L16161A-7TG
IC4201	72783381	I0QF027500	IC	NJM2750M(TE1)
IC5801	BZ611073	I5CF040520	IC	SN74LV4052APW
IC6201	AE009448	I56F07176B	IC	OEC7176B
IC6202	AD301641	I9UF032310	IC	PST3231NR
IC6203	AE009447	S5Y701FE02	MEMORY DATA	AT24C08AN-10SU-2.7
IC8102	AE003584	I17F017530	IC	PCM1753DBQR
<b>TRANSISTORS</b>				
Q301	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
△Q401	BZ510030	TA3T01624E	TRANSISTOR,SILICON	2SA1624E-AA
△Q402	BZ510097	TCAT03227Y	TRANSISTOR SILICON	KTC3227_Y-AT
Q403	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△Q404	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
△Q405	75006241	TD50027110	TRANSISTOR SILICON	2SD2711
△Q406	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
△Q407	BZ510110	TC30041590	TRANSISTOR,SILICON	2SC4159(D,E)
Q601	AE005873	T8RA030520	TRANSISTOR SILICON	2SC3052-T1
Q602	BZ510077	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
Q603	AE005941	TPRAB05002	COMPOUND TRANSISTOR	RT1P141C-T112-1
Q604	AE005876	TNRAB05004	COMPOUND TRANSISTOR	RT1N141C-T112-1
Q605	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q606	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q607	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
△Q824	BZ510091	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
△Q825	BZ510100	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
△Q826	BZ510091	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
△Q827	BZ510100	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
△Q828	BZ510091	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
△Q829	BZ510100	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q2201	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q2301	AE008330	TAAA1505SY	TRANSISTOR SILICON	KTA1505S-Y-RTK/P
Q2302	AE008331	TAAA1544T0	TRANSISTOR SILICON	KTA1544T-RTK/P
Q2303	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q2304	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q2305	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q2420	AE009258	TCAA040754	TRANSISTOR SILICON	KTC4075E-Y-RTK/P
Q2421	AE009258	TCAA040754	TRANSISTOR SILICON	KTC4075E-Y-RTK/P
Q3001	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3002	BZ510077	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
△Q3003	BZ510057	TAAT01281Y	TRANSISTOR SILICON	KTA1281_Y
Q3004	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
△Q3005	BZ510105	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
△Q3006	BZ510070	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q3008	BZ510070	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
△Q3801	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
△Q3802	AE002809	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
△Q3803	BZ510070	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
△Q3804	72783392	TJXG10NK50	FET	STF10NK50Z
Q3805	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4006	BZ510113	T27T030180	FET	2SK3018T106
Q4201	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4202	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4203	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4204	BZ510107	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q4205	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4206	BZ510109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q5801	AE008379	T2AA5132E0	FET	KTK5132E-RTK/P
Q5802	AE008379	T2AA5132E0	FET	KTK5132E-RTK/P
Q5803	AE005872	T6RA015300	TRANSISTOR SILICON	2SA1530A-T1
Q6201	AE005872	T6RA015300	TRANSISTOR SILICON	2SA1530A-T1

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>COILS &amp; TRANSFORMERS</b>				
L401	BZ310125	02D1000001	COIL	ELC16B501EN
▲L402	BZ310063	022100027A	COIL,LINEARITY	ELH5L4113
L404	AD301644	021L75472J	COIL	4.7 MH
L601	BZ310005	02167D101K	COIL	100 UH
L602	AE009018	02167B220J	COIL	22 UH
L604	AD301608	0216A6220J	COIL	22 UH
L801	BZ310005	02167D101K	COIL	100 UH
L2401	AE009260	021AS9224J	COIL	0.22 UH
L2421	72783384	0216SDR47J	COIL	0.47 UH
L2422	72783384	0216SDR47J	COIL	0.47 UH
L3001	AE008608	021WOG330M	COIL	33 UH
L3002	BZ310150	02167E220K	COIL	22 UH
▲L3801	BZ310180	029T000105	COIL,LINE FILTER	2R2A752F28
▲L3802	72783671	028T250021	COIL,DEGAUSS	T028R25021
L3803	BZ310181	02A6B2E0A1	CORE,FERRITE	HF70T22*10*14
L4001	AE009073	02167B2R2J	COIL	2.2 UH
L4002	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L4201	BZ310196	02167B101K	COIL	100 UH
L4202	BZ310201	0216A6101K	COIL	100 UH
L5801	AE009018	02167B220J	COIL	22 UH
L5802	AE009017	02167B101J	COIL	100 UH
L6201	AD301706	0216A62R2K	COIL	2.2 UH
L8102	AE009074	02167B1R0J	COIL	1 UH
L8103	AE009074	02167B1R0J	COIL	1 UH
L8104	AE009074	02167B1R0J	COIL	1 UH
T401	AE002190	0450190171	TRANS,HORIZONTAL DRIVE	ETH19Y206AY
▲T3801	75006355	0481390434	TRANSFORMER,SWITCHING	81390434
<b>JACKS</b>				
▲J301	AE003431	060J131016	HEADPHONE JACK	MSJ-2000_AG
▲J801	75004681	066F130026	SOCKET,CATHODE RAY TUBE	ISHD62S
J2201	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J2202	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J2203	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4201	AE003568	060J401102	RCA JACK	MSP-251V-05NI-FE-LF
J4202	AE002759	060J431020	RCA JACK	MSP-213V2-432_NI_LF
<b>SWITCHES</b>				
SW2201	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2202	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2203	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2204	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2205	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2206	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2207	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2208	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2209	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2210	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
<b>VARIABLE RESISTORS</b>				
VR401	BZ210255	V1K62H3BT8	VOLUME,SEMI FIXED	NVG6THTB222
VR3801	BZ210265	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
<b>P.C. BOARD ASSEMBLIES</b>				
PCB110	AE009436	A5Y702F110	CRT PCB ASS'Y	CCF077B
PCB130	AE009437	A5Y702F130	DVD MT PCB ASS'Y	DME064A
PCBD20	AE009438	A5Y702FD20	AV PCB ASS'Y	CMF099B
PCBDH0	AE009439	A5Y702FDH0	DIGITAL PCB ASS'Y	CEF242A
<b>MISCELLANEOUS</b>				
B301	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B351	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B352	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B353	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B354	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B401	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B403	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B2301	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B2302	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B2304	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B2305	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B2401	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2402	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2403	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2404	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2405	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2406	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2407	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2408	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>MISCELLANEOUS</b>				
B2409	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2410	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2415	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2416	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2417	AE009268	024HC16014	CORE,BEADS	HCB3216KF-601T20
B2418	AE009269	024HC13014	CORE,BEADS	HCB3216KF-301T25
B2419	AE009268	024HC16014	CORE,BEADS	HCB3216KF-601T20
B2421	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B3801	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B3802	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B4001	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4002	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4003	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4004	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4005	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4006	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4007	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4008	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4009	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4010	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4011	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4012	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4013	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4014	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4015	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4016	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4017	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4018	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
B4201	AE007762	024AC5600E	CORE,BEADS	BLM18BB600SN1D
B5802	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B5803	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B5804	AE008609	024HC51023	CORE,BEADS	FCM1608KF-102T02
B5805	AE008610	024HC51513	CORE,BEADS	FCM1608KF-151T06
B8103	AE008552	024NC51021	CORE,BEADS	EBMS160808A102_RDC45
BT001	AE008217	141U004016	BATTERY,MANGAN	MNAAA(R03)
BT002	AE008217	141U004016	BATTERY,MANGAN	MNAAA(R03)
CD301	72782833	06CH123808	CORD CONNECTOR	CH123808
CD302	72782833	06CH123808	CORD CONNECTOR	CH123808
CD801	BZ614378	06CU823001	CORD CONNECTOR	CU823001
CD802	75006360	WDL6050038	FLAT CABLE AWM2468	AWG26 6C BLACK 500MM
CD803	75006361	WBL6040038	FLAT CABLE AWM2468	AWG26 4C BLACK 400MM
CP101	BZ614458	069S290629	CONNECTOR PCB SIDE	A2001WV2-9P
CP351	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
CP352	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
△CP404	AE004859	069S460089	CORD UX CONNECTOR	A1561WV2-A6P
CP801	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP804	BZ614058	069W010010	CONNECTOR PCB SIDE	005P-2100
△CD3801	75005151	120Q414913	CORD AC BUSH	P201-2469-2
CD4002	72783178	06CU2D2202	CORD CONNECTOR	CU2D2202
CD8101	AE003576	122F0C1602	CORD JUMPER	2F0C1602
CP2301	AE008156	069KY0T159	CONNECTOR PCB SIDE	LD07T2-24ND-03
CP2302	AE005934	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2303	AE005935	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
CP2403	AE009271	069J2S004A	CONNECTOR PCB SIDE	IMSA-6029B-1-28Z136-PT1
CP2420	BZ614239	069S290639	CONNECTOR PCB SIDE	A2001WR2-9P
△CP3802	BZ614283	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP3803	BZ614444	069D01001A	CONNECTOR PCB SIDE	003P-2100
CP3804	BZ614444	069D01001A	CONNECTOR PCB SIDE	003P-2100
CP8001	BZ614420	069S2D0629	CONNECTOR PCB SIDE	A2001WV2-13P
CP8002	AE004335	069J7C0599	CONNECTOR PCB SIDE	IMSA-9604S-12C
CP802A	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP803A	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP803B	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP8101	AE006053	069J7C0589	CONNECTOR PCB SIDE	IMSA-9604S-12F
CUSD21	BZ710149	800WFAA008	CUSHION C	
ELD201	BZ614043	124116281A	EYE LET	XRY16X28BD
ELD202	BZ614044	124120301A	EYE LET	XRY20X30BD
△F3801	BZ614504	081PC05005	FUSE	51MS050L
△FB401	AE003085	043224007F	TRANSFORMER,FLYBACK	FSU24A001_M
FH3801	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
FH3802	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
NR2401	AE009272	110P4150M5	R,NETWORK	4D02WVGJ0150TCE
NR2402	AE009272	110P4150M5	R,NETWORK	4D02WVGJ0150TCE
NR2403	AE009272	110P4150M5	R,NETWORK	4D02WVGJ0150TCE

## ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
NR2404	AE009272	110P4150M5	R.NETWORK	4D02WGJ0150TCE
NR2405	AE009272	110P4150M5	R.NETWORK	4D02WGJ0150TCE
NR2406	AE009272	110P4150M5	R.NETWORK	4D02WGJ0150TCE
NR2407	AE009272	110P4150M5	R.NETWORK	4D02WGJ0150TCE
NR2408	AE008573	110P4470M5	R.NETWORK	4D02WGJ0470TCE
NR2409	AE009272	110P4150M5	R.NETWORK	4D02WGJ0150TCE
OS2201	72783677	077A031003	REMOTE RECEIVER	ROM-V3138SR
▲RY3801	AE007598	0560V20119	RELAY	ALKS321_M60
▲SP301	AE006459	070N546012	SPEAKER	YDP4010-2
▲SP302	AE006459	070N546012	SPEAKER	YDP4010-2
TM101	75006362	076D0NQ010	TRANSMITTER	000-103000490
▲TH3801	AD302000	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
▲TU5801	AE008869	0164100022	DIGITAL TUNER	ENG36E03KF
▲V801	72783422	098W250404	CRT W/DY	A60MAU095X80
X601	75006272	100GT3R543	CRYSTAL	B03579H006
X2401	AE009282	100GA02502	CRYSTAL	B25000H006
X4001	AE008161	100GT02720	CRYSTAL	B27000C005
X6201	BZ613006	100DA32R01	CRYSTAL	DT-26
X6202	AE009137	100GT01215	CRYSTAL	B12000E011

### RESISTOR

RC..... CARBON RESISTOR

### CAPACITORS

CC..... CERAMIC CAPACITOR  
 CE..... ELECTROLYTIC CAPACITOR  
 CP..... POLYESTER CAPACITOR  
 CPP..... POLYPROPYLENE CAPACITOR  
 CPL..... PLASTIC CAPACITOR  
 CMP..... AL POLYESTER CAPACITOR  
 CMPL..... METAL PLASTIC CAPACITOR  
 CMPP..... POLYPROPYLENE CAPACITOR

# **TOSHIBA CORPORATION**

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