

# TOSHIBA

FILE NO. 810-200588

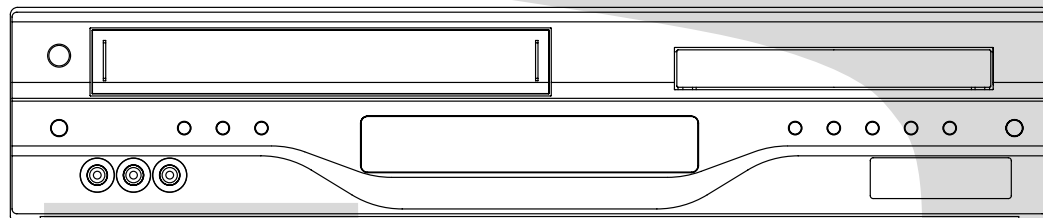
## SERVICE MANUAL



VHS Hi-Fi SQPB

# DVD VIDEO PLAYER & VIDEO CASSETTE RECORDER

# ***SD-V393SU2***



# TOSHIBA

ColorStream and ColorStream Pro are registered trademarks of Toshiba America Consumer Products, L.L.C.

# TOSHIBA



## DVD VIDEO PLAYER & VIDEO CASSETTE RECORDER

# SD-V393SU SD-V393SU2

### OWNER'S MANUAL

VHS Hi-Fi SQPB



©2005 Toshiba Corporation  
This device does not tape-record copy protected DVD Video Discs.

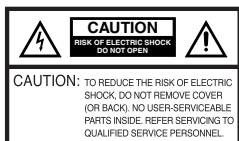
Introduction	2
Connections	14
Basic setup (VCR)	22
Playback (VCR)	29
Recording (VCR)	34
Other functions (VCR)	39
Basic playback (DVD)	42
Advanced playback (DVD)	45
Function setup (DVD)	55
Others	61



Printed in Thailand

## Introduction

### SAFETY PRECAUTIONS



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

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

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, do not expose this appliance to rain or moisture.

**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

**FCC NOTICE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC 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 separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

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

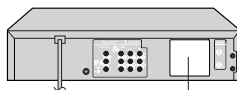
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS USER'S GUIDE CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION.

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.

### IMPORTANT SAFEGUARDS

#### 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 soft dry cloth for cleaning the exterior cabinet only.

#### 6. ATTACHMENTS

The manufacturer of this unit does not make any recommendations for attachments, as they may cause hazards.

#### 7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, 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.

- 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 back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating.

These 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 and/or the manufacturer's instructions have been adhered to.

#### 10. POWER SOURCE

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.

#### 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 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.

PORTABLE CART WARNING  
(symbol provided by RETAC)



S3125A

## Introduction

## IMPORTANT SAFEGUARDS

### 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 onto or against 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.

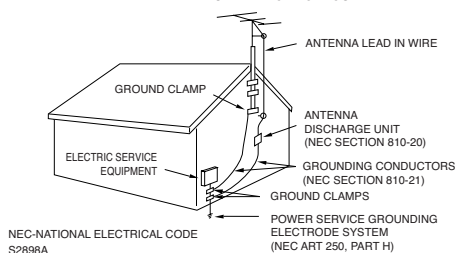
### 16. OBJECT AND LIQUID ENTRY

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.

### 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 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.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



### 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.

For example:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the unit.
- If the unit has been exposed to rain or water.
- 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.
- If the unit has been dropped or the cabinet has been damaged.
- When the unit exhibits a distinct change in performance, this indicates a need for service.

## IMPORTANT SAFEGUARDS / Power source

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

### 20. 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.

### 21. HEAT

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

### 22. DISC TRAY

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

### 23. 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 a product damage. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

### 24. 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.

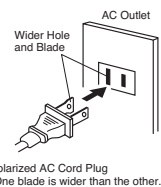
### 25. DISC

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

### 26. NOTE TO CABLE TV SYSTEM INSTALLER

This reminder is provided to call the Cable TV 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.

### Power source



### 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.

## Precautions

### Notes on handling

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

### Notes on locating

- Place the DVD/VCR 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 or the video tape may become dis-aligned and damage the DVD/VCR.
- When you place this DVD/VCR near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD/VCR away from the TV, radio or VCR.

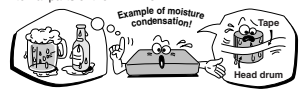
### Notes on cleaning

- Use a soft, dry cloth for cleaning.
- Use a dry cloth to wipe.
- Do not use any type of solvent, such as thinner and benzene, as they may damage the surface of the DVD/VCR.
- If you use a chemical saturated cloth to clean the unit, follow that product's instructions.

### Note on moisture condensation

Moisture condensation damages the DVD/VCR. 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 head drum or the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD/VCR.



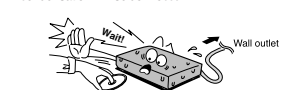
Moisture condensation occurs during the following cases.

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



Do not use the DVD/VCR when moisture condensation may occur.

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



## Notes on discs

### 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.

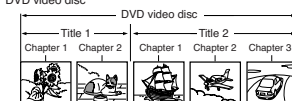
### On storing discs

- 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.

### Structure of disc contents

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

#### DVD video disc



#### Video CD/Audio CD



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

There may be discs that do not have these numbers.

### Notes on copyright

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.

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

## Notes on discs (continued)

## About this owner's manual

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

\* may appear on the TV screen during operation. A \* means that the operation is not permitted by the DVD/VCR 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.

## Notes on region numbers

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

## On Video CDs

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

## • Video CD not equipped with PBC function (Version 1.1)

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

## • Video CD equipped with PBC function (Version 2.0)

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

## Playable discs

This DVD/VCR can play the following discs.

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

The following discs are also available.

- DVD-R/RW discs of DVD video format
- CD-R/CD-RW discs of CD-DA, Video CD, SVCD, MP3, WMA 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, 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 DVD/VCR 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 Video CD software and/or the manufacture of DVD and Video CD discs, Toshiba cannot guarantee that this DVD/VCR will play every feature of every DVD bearing the DVD logo and/or every Video CD bearing the CD logo. As one of the creators of DVD technology, Toshiba DVD players are manufactured using the highest standards of quality, and as a result, such incompatibilities are rare. If you happen to experience any difficulty playing a DVD or a Video CD on a this DVD/VCR, please feel free to call our Contact listed in "How to Obtain Warranty Services" (page 65).

## Contents

## Introduction

SAFETY PRECAUTIONS .....	2
IMPORTANT SAFEGUARDS .....	3
Power source .....	5
Precautions .....	6
Notes on discs .....	7
Contents .....	9
Identification of controls .....	10

## Connections

Antenna connections .....	14
Cable TV connections .....	16
Connecting to a TV .....	18
Connecting to optional equipment .....	20

## Basic setup (VCR)

Setting the video channel .....	22
Setting the language .....	23
Clock setting .....	24
Tuner setting .....	27

## Playback (VCR)

Loading and unloading a cassette tape .....	29
Cassette tape playback .....	30
Special playback .....	31
Convenience function .....	32

## Recording (VCR)

Recording a TV program .....	34
One-touch Timer Recording (OTR) .....	36
Timer recording .....	37

## Other functions (VCR)

Stereo recording and playback .....	39
Second Audio Program (SAP) .....	39
Duplicating a video tape .....	40
Recording a DVD/CD disc .....	41

## Basic playback (DVD)

Playing a disc .....	42
----------------------	----

## Advanced playback (DVD)

Zooming .....	45
Locating desired scene .....	45
Marking desired scenes .....	46
Repeat playback .....	47
A-B Repeat playback .....	47
Program playback .....	48
Random playback .....	48
Changing angles .....	49
Title selection .....	49
DVD menu .....	49
Changing soundtrack language .....	50
Setting surround sound .....	50
Subtitles .....	51
To turn off the PBC .....	51
MP3/WMA/JPEG operation .....	52

## Function setup (DVD)

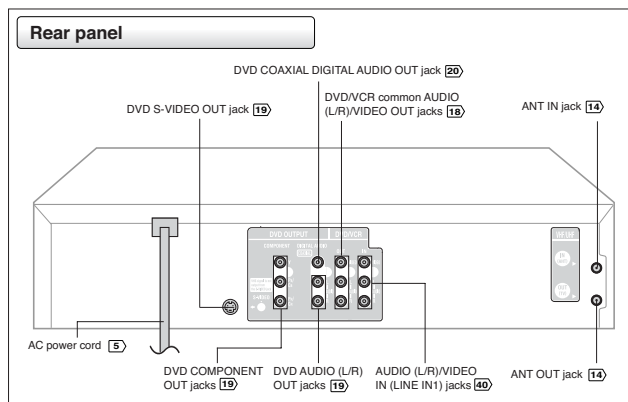
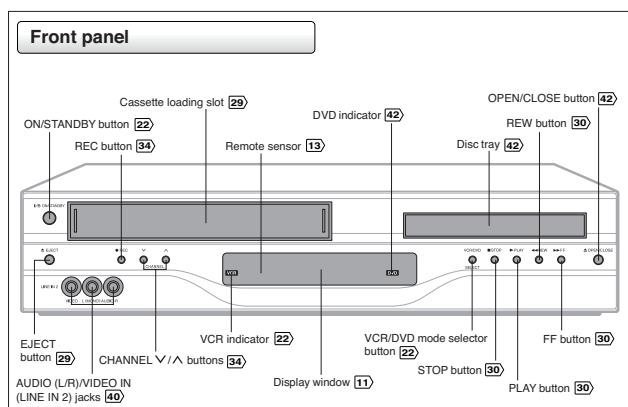
Customizing the function settings .....	55
Temporary disabling of rating level by DVD disc .....	60

## Others

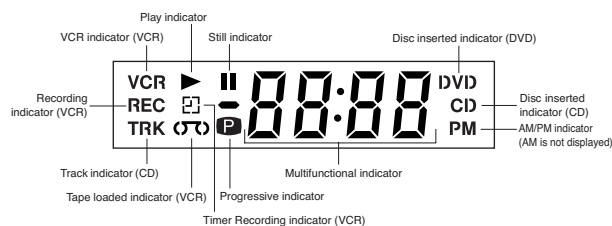
Language code list .....	61
Troubleshooting .....	62
Specifications .....	63
Limited warranty .....	64

## Identification of controls

See the page in for details.



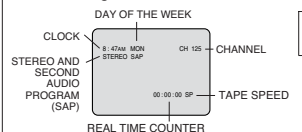
## Display window



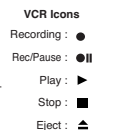
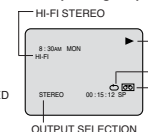
## VCR operation status

Press **CALL** to display VCR operation status on the screen. To cancel the display, press **CALL** again.

## While watching TV

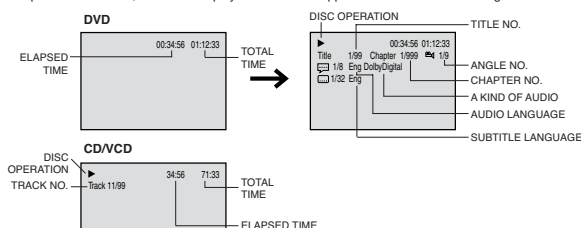


## While operating a tape



## DVD/CD/VCD operation status

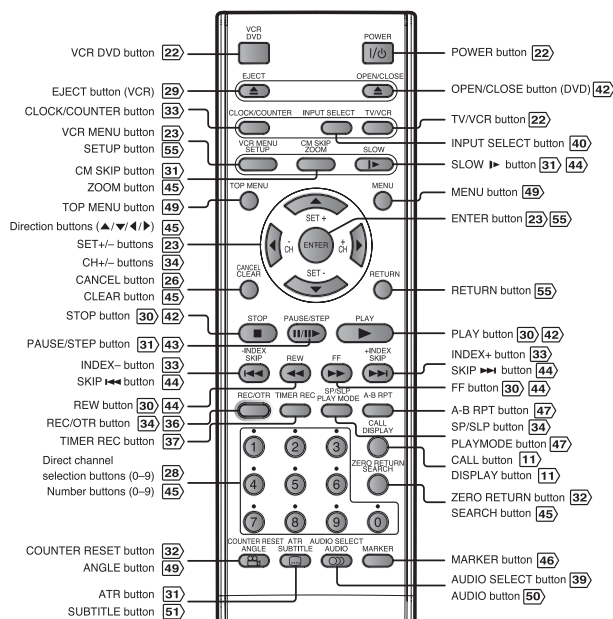
Each press of **DISPLAY**, the status display of the disc will appear on the screen and change as follows.



## Identification of Controls (Continued)

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

### Remote control



#### MENU button

Use the MENU button to display the menu included on many DVD video discs. To operate a menu, follow the instructions in "DVD Menu." **[49]**

### Inserting batteries

- 1 Open the battery compartment cover in the direction of the arrow.
- 2 Install two "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:

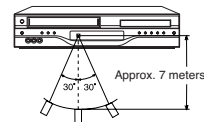
- Be sure to use AAA size batteries.
- Dispose of batteries in a designated disposal area.
- Batteries should always be disposed of with the environment in mind. Always dispose of batteries in accordance with applicable laws and regulations.
- If the remote control does not operate correctly, or if the 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 DVD/VCR on or off.
- Select your desired operating mode (DVD or VCR) using **VCR DVD**. (DVD or VCR indicator on the front panel will show you which mode is selected.)
- Press **CH +** or **CH -** to move through the channels one channel at a time.
- The **▲/▼/◀/▶** are also used to navigate on-screen menu system.
- You can directly access specific channels using **Direct channel selection buttons (0-9)**.
- Each press of **VCR DVD** on the remote control, switches the screen between the VCR screen (VCR mode) and the DVD screen (DVD mode).

#### 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. 7 meters.



## Connections

## Antenna connections

If you are using an antenna system, follow these instructions. If you are a Cable TV subscriber, skip ahead to page 16 for the proper connections.

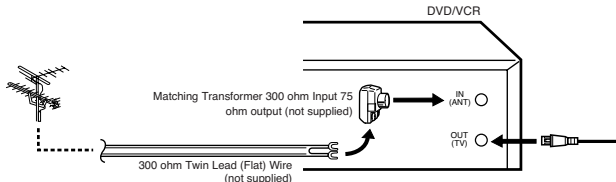
### Antenna to DVD/VCR connection

The DVD/VCR must be connected "between" the antenna and the TV. First, disconnect the antenna from the TV and connect it to the DVD/VCR. Then connect the DVD/VCR to the TV. Below are 3 common methods of connecting an antenna system to a DVD/VCR. Find the type of antenna system you are using and follow the connection diagram.

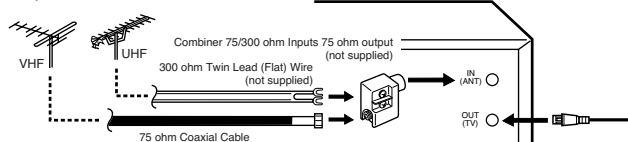
#### 1 Combination VHF/UHF Antenna with 75 ohm Coaxial Cable



#### 2 Combination VHF/UHF Antenna with 300 ohm Twin Lead (Flat) Wire



#### 3 Separate VHF and UHF Antennas



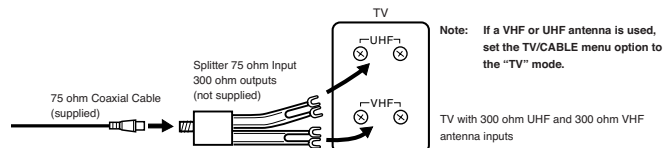
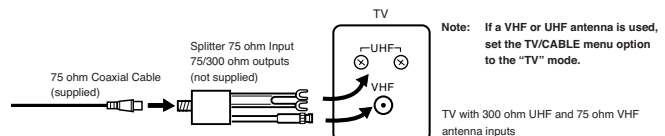
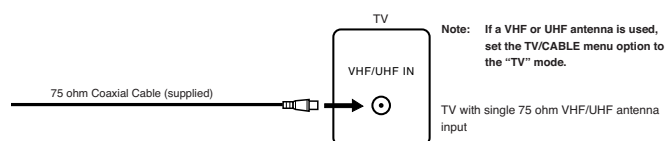
**Note:** If both VHF and UHF antennas have 300 ohm twin lead (flat) wires, use a combiner having two 300 ohm inputs and one 75 ohm output.

- Notes:**
- A clear picture will not be obtained by the DVD/VCR unless the antenna signal is good. Connect the antenna to the DVD/VCR properly.
  - For better quality recording, an indoor antenna or a telescopic antenna is not recommended. The use of an outdoor type antenna is required.
  - If you are not sure about the connection, please refer to qualified service personnel.

### DVD/VCR to TV connection

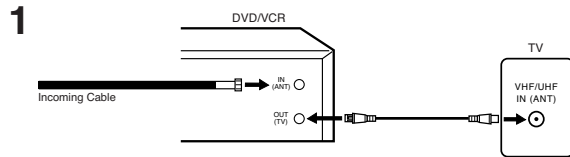
After you have connected the antenna to the DVD/VCR, you must connect the DVD/VCR to the TV. Below are 3 common methods of connecting your DVD/VCR to a TV. Find the type of TV you are using and follow the connection diagram.

This DVD/VCR has a single 75 ohm output for connection to a TV. If your TV has separate VHF and UHF antenna inputs (numbers 2 and 3 below), use a splitter to connect the DVD/VCR to the TV for VHF and UHF reception.

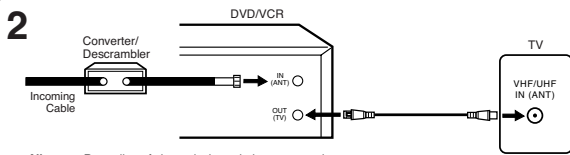


## Cable TV connections

Many cable companies offer services permitting reception of extra channels including pay or subscription channels. This DVD/VCR has an extended tuning range and can be tuned to most cable channels without using a cable company supplied converter box, except for those premium channels which are intentionally scrambled. If you subscribe to a premium channel which is scrambled, you must have a descrambler box for proper reception.

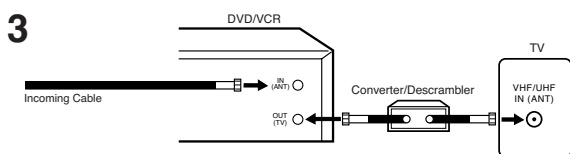


- Allows:**
- Recording of nonscrambled channels.
  - Use of the programmable timer.
  - Recording of one channel while watching another.



- Allows:**
- Recording of channels through the converter box (scrambled and unscrambled).
  - Using the programmable timer to record only the channel selected at the converter box.
- Prevents:**
- Recording one channel while watching another.
  - Using the DVD/VCR tuner to select channels.

**Note:** To record from converter/descrambler, DVD/VCR tuner must be tuned to the converter output channel, usually channel 3 or 4.



- Allows:**
- Recording of nonscrambled channels.
  - Use of the programmable timer.
  - Recording an unscrambled channel while watching any channel selected at the converter box.
- Prevents:**
- Recording scrambled channels.

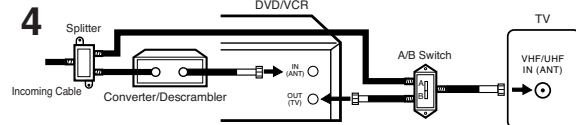
**Note:** If you are playing a tape or using the tuner built into the DVD/VCR, the converter must be set to the video channel output of the DVD/VCR (either 3 or 4).

**Note:** Whenever a Converter/Descrambler box is placed before the DVD/VCR, you must tune the DVD/VCR to the output of the Converter/Descrambler box, usually channel 3 or 4.

16

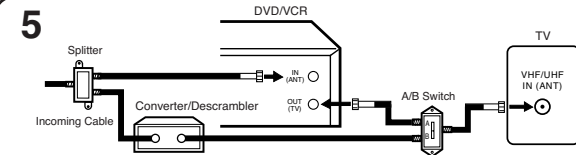
**IMPORTANT: Make sure the TV/CABLE menu option is set to the "CABLE" mode.**

This DVD/VCR cannot receive scrambled programs since it does not contain a descrambler. In order to receive scrambled programs, your existing descrambler must be used. Descrambler boxes are available from cable companies. Consult your local cable company for more information concerning connection to their descrambler equipment. There are many ways to connect your DVD/VCR to a cable system. Below are six common methods of connection.



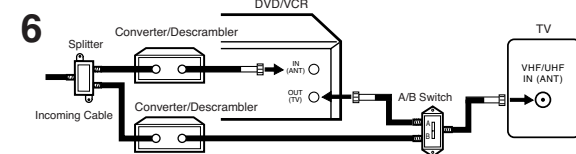
- Allows:**
- Recording of one channel while watching another.
  - Using the programmable timer to record only the channel selected at the converter box.
  - Recording of all channels through the converter box.

- Prevents:**
- Watching scrambled channels while recording another channel.
  - Using the DVD/VCR tuner to select channels.



- Allows:**
- Recording of nonscrambled channels.
  - Recording of one channel while watching another.
  - Watching premium channels through the converter while recording nonscrambled channels.
  - Using the programmable timer.

- Prevents:**
- Recording scrambled channels.



- Allows:**
- Recording of all channels through the converter box.
  - Recording a scrambled or unscrambled channel while watching another (scrambled or unscrambled) channel.
  - Using the programmable timer to record only the channel selected at the converter box.

- Prevents:**
- Using the DVD/VCR tuner to select channels.

Connections

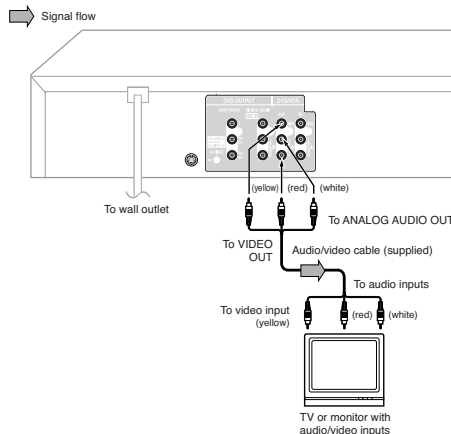
17

## Connecting to a TV

Connect the DVD/VCR to your TV.

**Note:** This method transports VHS and DVD-video signals. For enhanced DVD-video performance, we recommend you also connect the S-video or ColorStream® component video outputs to your TV/monitor.

### Connecting to a TV



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

18

### S-video output

An S-Video connection is superior to Video (Yellow) output. Use this method for DVD playback when the connected television has S-Video input, and does not have component video inputs.

### Component video outputs

#### ■ PROGRESSIVE outputs

Some TVs or monitors are equipped with component video inputs that are capable of reproducing a progressively scanned video signal. Connecting to these inputs allows you to view the highest quality pictures with less flicker.

#### ■ INTERLACED outputs

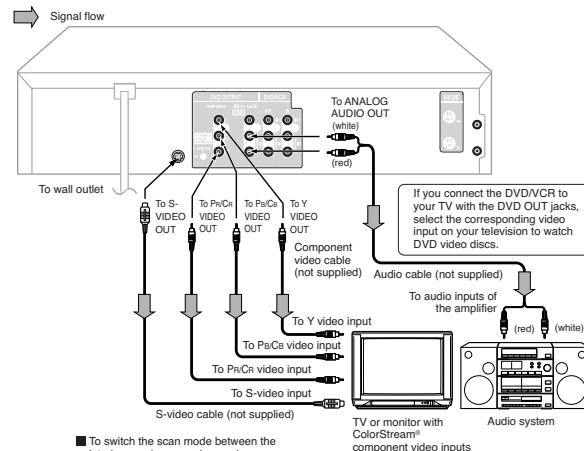
Some TVs or monitors are equipped with component video inputs. Connecting to these inputs allows you to enjoy the highest quality DVD picture playback.

#### Notes:

- Actual labels for component video inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or Y, CB, CR)
- In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

### Connecting to an audio system and TV equipped with S-video input/component video inputs

The S-video output and component video output transports the DVD-video signal exclusively and will deliver enhanced DVD video picture performance.



- To switch the scan mode between the interlace and progressive modes, see page 59.

#### Notes:

- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD/VCR to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD/VCR near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD/VCR away from the tuner and radio.
- The output sound of the DVD/VCR has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD/VCR's power cord. If you leave the amplifier power on, the speakers may be damaged.
- When connecting to a TV using the Video or S-video jack, make sure that the Progressive indicator "P" on the display window is not lit. If it is lit, the Video and S-video outputs do not feed the correct signals and you cannot see any picture. To turn off the Progressive indicator, select PROGRESSIVE scan Off

Connections

19

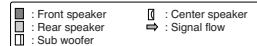


## Connecting to optional equipment

You can enjoy high quality dynamic sounds of DVD video discs or audio CDs by connecting the DVD/VCR to optional audio equipment.

For connection to your TV, see "Connecting to a TV" 18/19.

• This selection uses the following reference mark.



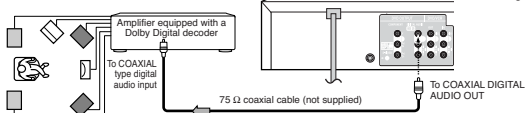
### Connecting to an amplifier equipped with a Dolby Digital decoder

#### 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 encoded via the Dolby Digital recording system with this dynamic realistic sound by connecting the DVD/VCR to a 5 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Pro Logic Surround decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.

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

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



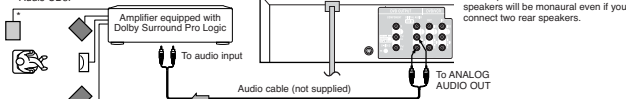
### Connecting to an amplifier equipped with Dolby Surround Pro Logic

#### Dolby Surround Pro Logic

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

• With an amplifier equipped with Dolby Digital  
Connect the equipment the same way as described in "Connecting to an amplifier equipped with a Dolby Digital decoder." Refer to that amplifier's owner's manual and set the amplifier so you can enjoy Dolby Surround Pro Logic sound.

• With an amplifier not equipped with Dolby Digital  
Connect the equipment as follows.  
• This connection is only suitable for Video CDs and Audio CDs.



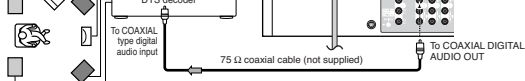
### Connecting to an amplifier equipped with a DTS decoder

#### 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.

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

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



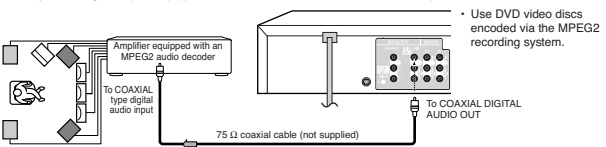
#### Warning

When playing DTS-encoded discs (audio CDs), excessive noise may be output from the analog stereo jacks. To avoid possible damage to the audio system, you should take proper precautions when the ANALOG AUDIO OUT (L/R) jacks of the DVD/VCR are connected to an amplification system. (Do not leave the ANALOG AUDIO OUT (L/R) wires dangling.) To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM AUDIO OUT jack of the DVD/VCR.

### Connecting to an amplifier equipped with an MPEG2 audio decoder

#### MPEG2 sound

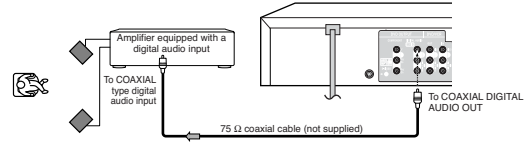
You can enjoy motion picture and live concert DVD video discs encoded via the MPEG2 recording system with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.



### 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).



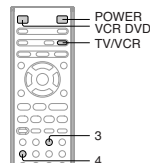
#### Notes:

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

## Basic setup (VCR)

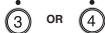
### Setting the video channel

When a TV is connected with the 75 ohm coaxial cable only. To view playback of a recorded tape or DVD disc, or to watch a program selected by the VCR's channel selector, the TV must be set to channel 3 or 4 (video channel).

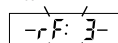


### Setting the video channel

**1 Press and hold 3 or 4 on the remote for 3 seconds in standby mode.**



The video channel will start to flash for 3 seconds in the display window.



**2 Press POWER to turn on the DVD/VCR.**



**Note:**  
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.

**3 Press VCR DVD selector to select the VCR mode.**



The VCR indicator on the front panel will light.



**4 Turn ON the TV and set to CH 3 or 4 to correspond with the channel selected in step 1.**

**5 Press TV/VCR to select the VCR position.**



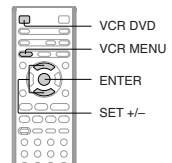
The VCR indicator will appear in the display window.



**6 Select any channel to receive a TV station in your area. The channel number will appear on the screen for about 4 seconds.**

### Setting the language

You can choose from three different languages (English, French and Spanish) for the on-screen displays.



### Setting the language

#### Preparation:

- Turn ON the TV and select to the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)

**1 Press VCR MENU.**



The VCR menu screen will appear. Press **SET +** or **-** to select "SYSTEM SETUP", then press **ENTER**. If you use the unit for the first time and press **VCR MENU**, instead of the main menu screen the "SYSTEM SETUP" menu screen in step 2 may appear.



MENU  
TIMER REC SET ON/OFF  
AUTO REPEAT ON/OFF  
SAP ON/OFF  
VCR SETUP  
SYSTEM SETUP  
(+/-)ENTER(MENU)

**2 Press SET + or - to select "LANGUAGE", then press ENTER.**



SYSTEM SETUP  
VCR SETUP  
LANGUAGE/IDIOMLANGUE  
NO NOISE BACKGROUND ON/OFF  
AUTO CLOCK ON/OFF  
STANDARD TIME  
DAYLIGHT SAVING TIME  
(+/-)ENTER(MENU)

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



LANGUAGE/IDIOMLANGUE  
ENGLISH  
ESPAÑOL  
FRANÇAIS  
(+/-)ENTER(MENU)

**4 Press VCR MENU until the MENU screen is cleared.**

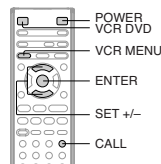


#### Notes:

- Both the VCR and the DVD have their own player menus 55.
- If no buttons are pressed for more than 60 seconds, the VCR MENU screen will return to normal TV-operation automatically.

## Clock setting

The AUTO CLOCK function will automatically set the built-in clock (Month, Day, Year and Time) when the DVD/VCR is connected to an Antenna or Cable system and it is turned off. The DVD/VCR searches for a station in your area containing the necessary AUTO CLOCK setting signals. Once received, it will take approximately 4 minutes for the clock to set itself automatically.



### AUTO CLOCK setting

#### Preparation:

- Turn ON the TV and select the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)

- 1 Connect the Antenna or Cable system.**  
If you use a cable box, turn it on.
- 2 Plug the AC power cord to the AC outlet.**
- 3 Make sure the DVD/VCR is turned off.**  
If you press **POWER**, the Auto Clock set is not programmed.
- 4 Wait at least three minutes and press POWER.**
- 5 Press CALL to check the clock setting on the on screen display.**
- 6 If the clock is not set, check the antenna condition. The AUTO CLOCK may not function properly if the reception condition is not good.**

### AUTO CLOCK adjustment

The auto clock adjustment will be updated at 6:00 AM, 12:00 PM and 6:00 PM everyday when the DVD/VCR turned off.

- If you use a cable box and you want AUTO CLOCK adjustment to be performed, the cable box must be left on.
- The AUTO CLOCK adjustment is not effective when there is a difference of more than 5 minutes exists between the built-in clock time and the actual time.

### To set AUTO CLOCK to off

When shipped from factory the AUTO CLOCK is set to "ON". But if you do not want AUTO CLOCK setting:

- 1 Press VCR MENU.**
- 2 Press SET + or - to select "SYSTEM SETUP", then press ENTER.**
- 3 Press SET + or - to select "AUTO CLOCK".**
- 4 Press ENTER to select "OFF".**
- 5 Press VCR MENU repeatedly to return to the normal screen.**

- When the AUTO CLOCK is set to "OFF", the AUTO CLOCK adjustment does not function.
- Set the clock manually (26).

### To set STANDARD TIME

In the rare event that you live within broadcast range of two stations in two different time zones, the DVD/VCR may recognize the wrong station for the AUTO CLOCK setting.

To correct the situation:

- 1 Press VCR MENU.**
- 2 Press SET + or - to select "SYSTEM SETUP", then press ENTER.**
- 3 Press SET + or - to select "STANDARD TIME", then press ENTER.**
- 4 Press SET + or - to select your time zone, then press ENTER.**
- 5 Press VCR MENU until the MENU screen is cleared.**

#### Notes:

- To be able to select the standard time, the clock must first be set by AUTO CLOCK once.
- If you live in Newfoundland and the AUTO CLOCK does not function properly, set the AUTO CLOCK menu option to "OFF" and set the clock manually.

### To set DAYLIGHT SAVING TIME

You can set the DAYLIGHT SAVING TIME automatically or manually.

- 1 Press VCR MENU.**  
Press SET + or - to select "SYSTEM SETUP", then press ENTER.
- 2 Press SET + or - to select "DAYLIGHT SAVING TIME", then press ENTER.**
- 3 Press SET + or - to select one of the options, then press ENTER. Press VCR MENU until the MENU screen is cleared.**

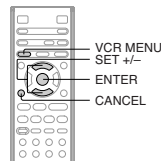
- ON:** for manual setting (forward one hour)  
**OFF:** for manual setting (back one hour)  
**AUTO:** for automatic setting (read XDS in the signal)
- When you want to set the DAYLIGHT SAVING TIME manually, on the first Sunday in April you set to "ON", and on the last Sunday in October you set to "OFF".

#### Notes:

- When shipped from factory, the DAYLIGHT SAVING TIME is set to "AUTO" position.
- When the clock is not set, DAYLIGHT SAVING TIME setting is not available.
- When there is no DAYLIGHT SAVING TIME in your area, always select "OFF" position in step 3.

## Clock setting (Continued)

If the AUTO CLOCK process did not set the date and time correctly, you must set them manually for timer recording and DAYLIGHT SAVING TIME.



### Manual clock setting

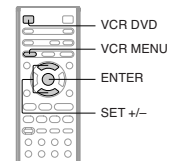
**EXAMPLE:** Setting the clock to "8:30 AM" March, 26 (SAT), 2005.

- 1 Press VCR MENU.**
- 2 Press SET + or - to select "SYSTEM SETUP", then press ENTER.**
- 3 Press SET + or - to select "CLOCK SET", then press ENTER.**
- 4 Press SET + or - to set the month, then press ENTER.**
- 5 Set the day, year and time as in step 4.**

- 6 After setting the clock, date and time starts functioning automatically.**
- To make corrections any time during the process**  
Press **CANCEL** repeatedly until the item you want to change blinks, then press **SET + or -**.
- Note:**  
After a power failure or disconnection of the power, the timer settings will be lost. In this case, reset the present time.

## Tuner setting

This DVD/VCR 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 DVD/VCR's memory. In addition to normal VHF and UHF channels, this DVD/VCR can receive up to 113 Cable TV channels. To use this DVD/VCR with an antenna, set the TV/CABLE menu option to the TV mode. When shipped from the factory, this menu option is in the CABLE mode.



### TV/CABLE selection

- Preparation:**
- Turn ON the TV and select to the corresponding video input.
  - Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)

- 1 Press VCR MENU. Press SET + or - to select "CH SETUP", then press ENTER.**
- 2 Press SET + or - to select "TV/CABLE".**
- 3 Press ENTER to select the TV or CABLE mode.**  
The arrow indicates the selected mode.
- 4 Press VCR MENU until the menu screen is cleared.**

#### Notes:

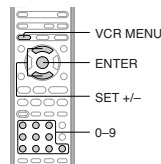
- You can't select "CH SETUP" if you set the channel to "L1" or "L2".

### Setting channels automatically

- 1 Repeat left step 1 and press SET + or - to select "AUTO CH MEMORY".**
- 2 Press ENTER.**  
Auto tuning will begin. The channel display will count up and when finished, the screen returns to normal.



## Tuner setting (Continued)



### To ADD/DELETE channels

- 1** Repeat the step 1 on page 27. Then press **SET + or -** to select the "ADD/DELETE" and press **ENTER**.



### 2 To Add or Delete desired channels

- 1)** Press **Direct channel selection buttons (0-9)** or **SET +/-** to select a channel number you want to add or delete.
- 2) To add channels**  
Press **ENTER** until "ADD" appears on the screen.  
**To delete channels**  
Press **ENTER** until "DELETE" appears on the screen. The channel number will blink.
- 3)** Repeat 1) to 2) to add or delete other channel.



- 3** Press **VCR MENU** until the menu screen is cleared.



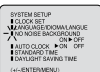
### Noise elimination

When you don't want to receive a weak signal broadcast, a Blue back screen can be obtained by selecting the NO NOISE BACKGROUND "ON". When the unit is shipped from the factory, the NO NOISE BACKGROUND is set to "ON".

- 1** Repeat the steps 1-2 on page 26 and press **SET + or -** to select "NO NOISE BACKGROUND".



- 2** Press **ENTER** to select "ON" or "OFF" position.

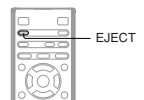


- 3** Press **VCR MENU** until the menu screen is cleared.



## Loading and unloading a cassette tape

Use only video cassette tapes marked **VHS**.

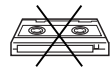
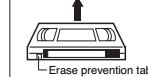


### Loading

Push the center of the tape until it is automatically inserted.



Insert the cassette tape with its labeled side facing up and the erase prevention tab positioned at your left. An inverted cassette tape cannot be inserted.



#### Automatic power ON

When you insert a cassette tape the DVD/VCR power will turn ON automatically.

#### Automatic playback

When loading a cassette tape without an erase prevention tab, playback will start automatically.

### Unloading

- 1** Press **EJECT** on the front panel or on the remote.



- 2** Remove the cassette tape.



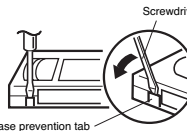
#### Automatic tape eject

This DVD/VCR will automatically rewind the tape when the tape has ended. Once the tape is rewound to its beginning, the cassette tape will be ejected automatically.

### To prevent accidental erasure

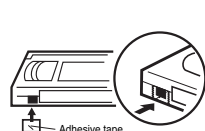
#### To prevent accidental erasure

Remove the erase prevention tab with a screwdriver.



#### To record again

Cover the hole with a piece of adhesive tape.

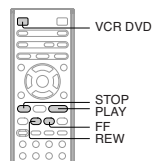


### Tape speed and maximum recording time

Tape Speed	Video cassette tape				
	T-160	T-120	T-90	T-60	T-30
SP (Standard Play)	2-2/3 hours	2 hours	1-1/2 hours	1 hour	30 minutes
SLP (Super Long Play)	8 hours	6 hours	4-1/2 hours	3 hours	1-1/2 hours

## Cassette tape playback

To play a prerecorded tape.



### Playback

**Preparation:**

- Turn ON the TV and select the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light).

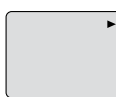
- 1** Load a prerecorded tape

(When loading a cassette tape without the erase prevention tab, playback will start automatically).



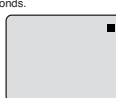
- 2** To start playback

Press **PLAY**.  
Playback will start. "▶" will appear on the screen for about 4 seconds.



#### To stop playback

Press **STOP** once.  
The tape will stop but remain fully loaded and ready to play.  
"■" will appear on the screen for about 4 seconds.



#### Notes:

- This VCR selects the playback tape speed SP, LP or SLP automatically.
- The Cassette tape and DVD disc can be played back simultaneously. If you press **DVD/VCR** selector, the tape playback and DVD playback alternate with each other on the screen (via CH3, 4 or video connection).

### Rewind or forward the tape

Stop the playback or recording via **STOP** on remote.

#### To rewind the tape:



#### To forward the tape:

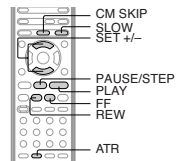


To discontinue the tape-winding, press **STOP**. To switch to playback directly (without **STOP**), press **PLAY**.

#### Forward/Reverse picture search mode

When the tape is being wound, you can switch to picture search mode (see next page). To do this, press **REW** or **FF** and hold it down. The unit will resume the tape advance or rewinding as soon as the button is released.

## Special playback



### Picture search

#### Reverse picture search function

Press **REW** once or twice during playback.

#### Forward picture search function

Press **FF** once or twice during playback.

To return to playback, press **PLAY**.

#### SPEED SEARCH TIMES

TAPE SPEED	PICTURE SEARCH SPEED	
	PRESS ONCE	PRESS TWICE
SP (Standard Play)	3 X	5 X
LP (Long Play)	7 X	9 X
SLP (Super Long Play)	9 X	15 X

### Still picture

Press **PAUSE/STEP** during playback.

To resume normal playback, press **PLAY** or **PAUSE/STEP**.

### Slow motion

During playback press **SLOW**.

To return to playback, press **PLAY** or **SLOW**.

#### Slow tracking and vertical lock adjustment

If noise bars appear in the picture during slow motion, press the **SET +/-** to reduce the noise bars. If the still picture jitters excessively, press **SET +/-** to stabilize the still picture.

### Frame by frame picture

Press **PAUSE/STEP** during playback.

The picture advances frame by frame.

To return to playback, press **PLAY** or **PAUSE/STEP**.

### CM skip

Press **CM SKIP** during playback. The DVD/VCR will search forward through approximately 30 seconds of the tape (e.g. unwanted commercial time) for each press of **CM SKIP** (maximum six presses) and then resume normal playback.

For example : 1 press: 30 seconds of tape  
2 press: 60 seconds of tape  
3 press: 90 seconds of tape

### Adjusting tracking condition

#### Automatic tracking adjustment

Whenever you insert a tape and start playback, the automatic tracking feature continuously analyzes the signal to enable optimum picture quality during playback.

#### Manual tracking adjustment

If automatic tracking cannot eliminate noises well during playback, press **SET +/-** to eliminate the noise. "MANUAL TR." will appear on the screen. Press it briefly for a fine adjustment, or press and hold for a coarse adjustment.

Press **ATR** to reactivate automatic tracking again. "AUTO TR." will appear on the screen.



#### Notes:

- The audio output is muted during PICTURE SEARCH, STILL, FRAME ADVANCE and SLOW MOTION.
- During picture search mode there will be noise bars. This is not a defect.
- Playback will commence after approx. 5 minutes to protect the video tape against excessive wear during pause mode.

### Video head cleaning

#### Video head clogging

The video heads are the means by which the DVD/VCR reads the picture from the tape during playback. In the unlikely event that the heads become dirty enough to be clogged, no picture will be displayed. This can easily be determined if, during playback of a known good tape, there is good sound, but no picture (picture is extremely snowy). If this is the case, have the DVD/VCR checked and cleaned by qualified service personnel.



Good Picture

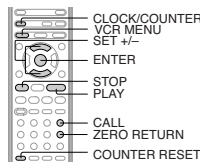


Snowy Picture

#### Notes:

- DO NOT ATTEMPT TO CLEAN THE VIDEO HEADS OR SERVICE THE UNIT BY REMOVING THE REAR COVER.
- Video heads may eventually wear out and should be replaced when they fail to produce clear pictures.
- To help prevent video head clogging, use only good quality VHS tapes. Discard worn out tapes.

## Convenience function



### Repeat playback

The entire video tape will play until its end. The tape will automatically rewind to the beginning and the playback will be repeated.

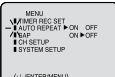
#### 1 Press VCR MENU.

Press **SET +/-** or **-** to select "AUTO REPEAT".



#### 2 Press ENTER to select "ON" or "OFF".

If "ON" is selected, the playback will be repeated endlessly.



#### 3 Press VCR MENU until the menu screen is cleared.

If you press **CALL**, "CALL" will appear on the screen.



#### 4 To commence playback, press PLAY.

The playback will be repeated endlessly.



#### To cancel repeat mode:

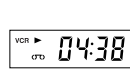
Follow the above step 1, then press **ENTER** to select "OFF" position. Press **VCR MENU** to return to the TV.

### Zero return function

This function rewinds the tape to the "00:00:00" counter position automatically.

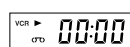
#### 1 Press CLOCK/COUNTER.

The counter display shows the tape running time during playback or recording.



#### 2 Press COUNTER RESET at the desired tape position.

The counter display will be reset to "00:00:00" position (e.g. the beginning of recording).



#### 3 Press STOP when playback or recording is completed.

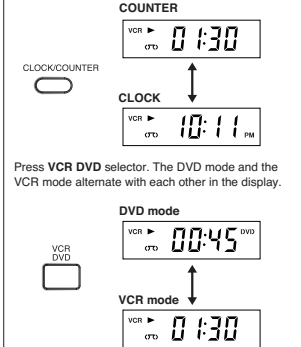
Press **ZERO RETURN**.

The tape will automatically rewind or fast forward to the "00:00:00" counter position.



### Clock/counter display

Press **CLOCK/COUNTER**. The clock and tape counter alternate with each other in the display window.



#### Notes:

- If you rewind the tape beyond "00:00:00", a minus sign ("−") will be displayed in front of the time.
- When you load a tape, the counter will reset to "00:00:00".
- The counter does not function on nonrecorded (blank) sections of the tape. When you rewind, fast forward or play tapes through blank sections, the counter stops.

### Video index search system

This function enables you to locate the beginning of any recording made on the VCR.

#### Recording an INDEX mark

The Index Search function automatically records an INDEX mark on the tape whenever a recording is initiated.

#### Index search

Press **INDEX +/-** or **-** during stop or play mode.

For Succeeding programs: Press **INDEX +/-**. For Preceding programs: Press **INDEX -**. (As many as 9 index points can be accessed via this method.)

When the **INDEX +/-** or **-** is pressed, the unit starts searching the INDEX NO. selected and finds the portion, then playback starts automatically. To stop the Index Search, press **STOP**.

INDEX NO. (up to 9) is displayed. INDEX NO. is displayed.

#### Notes:

- When you record an INDEX mark at the very beginning of the tape, the mark may not be found.
- During INDEX search, the tape may stop and begin to play at a slightly different location.
- INDEX may not function properly with old or worn out videotapes.
- INDEX marks may not be found if it is extremely close to the point where the search began.
- In recording, if you stop recording temporarily, the INDEX mark is not recorded on the tape.

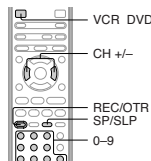
### SQPB (S-VHS Quasi Playback)

You can playback video cassette tapes recorded in the S-VHS system. However, the picture will not have the high resolution of S-VHS system.

**Note:** You cannot record S-VHS video format with this VCR.

## Recording a TV program

Recording and viewing the same TV program.



### Recording a TV program

#### Preparation:

- Turn ON the TV and select to the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)

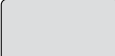
#### 1 Load a cassette tape with the erase prevention tab intact.

The DVD/VCR will automatically turn on.



#### 2 Press SP/SLP to select the desired tape speed.

The tape counter and "SP" or "SLP" will appear on the screen for about 4 seconds.



#### 3 Select "TV" or "CABLE" to the appropriate position.

TV - VHF/UHF channels  
CABLE - Cable TV channels

#### 4 Press Number buttons or CH +/- to select the channel to be recorded.



#### TV mode direct channel selection:

All channels can be instantly selected by using two buttons. (For example, to select channel 2, press "0", then "2". If you press only "2", channel selection will be delayed for two seconds.) For channels 10 and above, press the 2 digits in order.

#### CABLE mode direct channel selection:

1-9 Press 0 twice and then 1-9 as required.  
Example: To select "2", Press **002**.  
10-12 Press 0 first and then the remaining 2 digits in order from left to right.  
Example: Press **012** for "12".  
13-99 Press 2 digits in order.  
Example: Press **22** for "22".  
100-125 Press the 3 digits in order.  
Example: Press **110** for "110".

#### VHF/UHF/CABLE TV CHANNELS

TV	CABLE TV
VHF 2-13	VHF 2-13
UHF 14-69	STD/HRC/IRC 14-36 (A) (W) 37-55 (AA) (WW) 56-85 (AA) (ZZZ) 86-94 (86) (94) 95-99 (A-5) (A-1) 100-125 (100) (125) 01 (SA)

#### 5 Press REC/OTR.

"REC" will appear on the screen for about 4 seconds and "REC" will appear on the display window.



### To stop recording

#### Press STOP to stop recording.

"STOP" will appear on screen for about 4 seconds.



### To stop recording temporarily

Press **PAUSE/STEP** to avoid recording unwanted material. Press again to continue the recording.

"PAUSE" will appear on screen for about 4 seconds.



#### Notes:

- The pause function will be released after 5 minutes to prevent damage to the tape or the VCR. The VCR will change to the STOP mode.
- You can select a recording channel in the recording pause mode.

### Recording one program while watching another

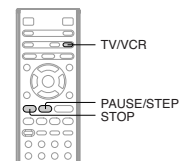
While the VCR is recording, select your desired channel on the TV.

When a TV is connected with an antenna cable only, press **TV/VCR** to select the TV position.

The "VCR" display will go off and recording will continue. Select the TV channel you want to watch by using the TV channel selector.

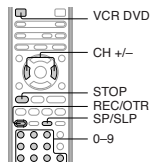
#### Note:

Some Cable TV hookups do not permit viewing one channel while recording another. See pages 16 and 17.



## One-touch Timer Recording (OTR)

The One-touch Timer Recording feature provides a simple and convenient way to make a timed recording.



### One-touch Timer Recording (OTR)

#### Preparation:

- Turn ON the TV and select to the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)

**Example:** One-touch Timer Recording for 30 minutes.

#### 1 Load a cassette tape with the erase prevention tab intact.

The VCR will automatically turn on.



#### 2 Press SP/SLP to select the desired tape speed SP or SLP.

The tape counter and "SP" or "SLP" will appear on the screen for about 4 seconds.



#### 3 Set "TV" or "CABLE" option to the appropriate position (27).

TV - VHF/UHF channels  
CABLE - Cable TV channels

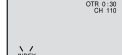
#### 4 Press Direct channel selection buttons (0-9) or CH +/- to select the channel to be recorded.



#### 5 Press REC/OTR. Recording begins. Press the button again to stop recording after 30 minutes. Each additional press of REC/OTR will increase recording time as shown in the chart below, up to a maximum of 6 hours.

The OTR and recording time will appear on the screen for about 4 seconds. And, "●" will appear on the display.

Press	Recording time	Press	Recording time
once	NORMAL REC	6 times	3:00
twice	0:30	7 times	4:00
3 times	1:00	8 times	5:00
4 times	1:30	9 times	6:00
5 times	2:00	10 times	NORMAL REC



#### To cancel OTR

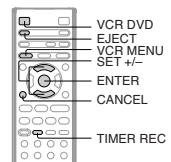
Press **STOP** or turn off the power.



**Note:**  
If you wish to watch the DVD playback during OTR or standard recording, press **VCR DVD** selector to change to DVD mode and perform the DVD playback (42).

## Timer recording

Timer recording can be programmed on-screen with the remote control. The built-in timer allows automatic unattended recording of up to 8 programs within 1 month.



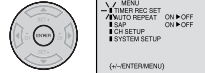
### Timer recording

#### Preparation:

- Press **VCR DVD** selector to select the VCR mode.
- Load a cassette tape with the erase prevention tab intact.
- Check the time and date are correct (24).

**Example:** Program a timer recording for the 26th day, channel 125 (Cable TV), 11:00 - 11:30 PM on timer program number 1 (Tape speed: SLP).

#### 1 Press VCR MENU. Select "TIMER REC SET", then press ENTER.



#### 2 Press SET + or - to select one of the program line, then press ENTER.



#### 3 Press SET + or - to select the date, then press ENTER.



#### 4 Set the start time, end time, channel and tape speed as in step 3.



**Notes:**  
• Press **CANCEL** to move cursor backward for correction.  
• To record from external source set the channel to "L1" or "L2".

#### 5 To enter other programs, repeat step 2 through 4.



- To return to the normal screen, press **VCR MENU** twice.



#### 6 Press TIMER REC. The timer symbol (T) will appear on the display and the VCR stands by for recording.

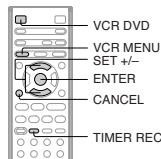


At the same time, VCR mode will change to DVD mode automatically. You can use DVD even if the VCR is in the timer recording mode. If you do not use the DVD, turn the power off.

#### Notes:

- The timer recording will start at 5 seconds before the time you predetermined.
- If the timer symbol (T) does not appear on the display in spite of the pressing of **TIMER REC**, the cassette may not have been loaded (29).
- If the cassette is ejected in spite of the pressing of **TIMER REC**, the erase prevention tab of the cassette may have been removed (29).
- If the timer symbol (T) blinks when the timer recording ended, the TV program has not been completely recorded because of an insufficient tape length. Press **TIMER REC** to cancel the timer program or press **EJECT** to remove the cassette tape.
- During timer recording standby mode, the VCR mode cannot be operated. To use the VCR, press **TIMER REC** at first, then press **VCR DVD** selector to change to VCR mode. After you use the VCR, press **TIMER REC** again to put the VCR into timer recording standby mode.
- If you press **TIMER REC** during timer recording, the recording operation will be interrupted. If you press **TIMER REC** again within the programmed time, the recording operation will start again.
- After a power failure or disconnection of the power plug, all programmed recording settings and time display will be lost upon resumption of power. In this case, reset the clock (24) and reprogram any timer recording.

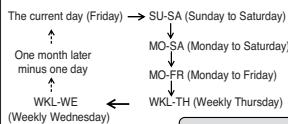
## Timer recording (Continued)



### To set daily/weekly timer

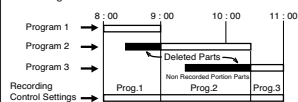
**Weekly (e.g. WK-L-TU: each Tuesday) or daily (e.g. MO-SA: Monday to Saturday) Timer recording**  
Follow the procedure of timer recording on the previous page. At step 3 press **SET +** or **-** repeatedly until the desired setting appears. Then press **ENTER**.

When you press **SET -** repeatedly, the DATE indicator will change as follows, in this case the day is Friday.



### If the programs overlap another

Do not overlap timer programs as portions of the conflicting programs will be lost. The first recording time has priority over the next recording time as shown in the diagram below.



**Notes:**  
• The daily/weekly recording can be made continuously until the recording is canceled or the tape reaches the end.  
• During timer recording the automatic rewinding mechanism does not function.

### To confirm or cancel a program

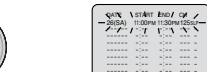
#### 1 If the Timer has been activated, press TIMER REC to deactivate the Timer.

The timer symbol (T) will disappear. Then press **VCR DVD** selector to change to VCR mode.



#### 2 To confirm Timer program:

At step 1 on the previous page select "TIMER REC SET" and press **ENTER**. The timer program list will appear on the screen.



#### 3 To cancel Timer program:

Press **SET +** or **-** to select the unwanted program, then press **CANCEL** to cancel the program.

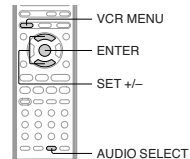


#### 4 Press VCR MENU repeatedly until the menu screen is cleared.



**Notes:**  
• If there are other timer record programs remaining, **TIMER REC** must be pressed to reactivate the timer, otherwise the remaining timer record programs will be ignored.  
• You cannot confirm the Timer program during timer recording operation.  
• You can correct or cancel a programmed setting in program confirm mode.

## Stereo recording and playback / Second Audio Program (SAP)



### Stereo recording and playback

The VHS Hi-Fi audio system permits high fidelity recording of MTS STEREO TV broadcasts.

When a MTS STEREO broadcast is received, "STEREO" will appear on the screen for about 4 seconds and the program can be viewed or recorded in stereo. The Hi-Fi stereo recording procedure is the same as for normal recordings.

**Note:**  
When using a Cable TV system, stereo TV programs may be transmitted over a mono cable channel. In this case "STEREO" will not appear and the sound will be in mono.



#### Output selection

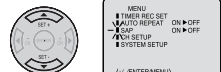
When viewing an MTS stereo TV program, or playing a prerecorded VHS Hi-Fi stereo videotape, press **AUDIO SELECT** to select how the audio will be heard through the speakers. Normally set to the Hi-Fi stereo position, this button can be set to the MONO position if the stereo broadcast or videotape audio is of poor quality. The "R" and "L" positions allow the audio from the Right or Left Hi-Fi channel to be heard over both TV speakers. This button has no effect when viewing a MONO videotape or TV program. Each time when you press the button, OUTPUT SELECTION display appears on the screen for several seconds. Refer to the chart below.

OUTPUT SELECTION	SOUND HEARD ON BOTH SPEAKERS
STEREO	STEREO
L ch	LEFT CHANNEL AUDIO
R ch	RIGHT CHANNEL AUDIO
MONO	MONO

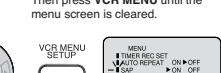
### Second Audio Program (SAP)

Your DVD/VCR is fitted with a SAP broadcast system which enables you to switch to a second audio program when viewing a selected channel. This function applies only when the program is broadcast in multi-languages through the SAP broadcast system.

#### 1 Press VCR MENU. Then press SET + or - to select "SAP".



#### 2 Press ENTER to select "ON".



#### Listening to SAP

When the VCR is turned on or a channel selection is made, make certain the letters "SAP" appears on the screen for about 4 seconds. This means that the "Second Audio Program" broadcasting is available.

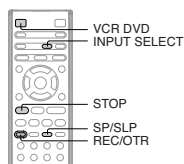


#### Notes:

- When playing back a tape that is not recorded in Hi-Fi stereo mode, the audio will automatically be monaural.
- When listening to a VHS Hi-Fi video tape or MTS broadcast through the VHF/UHF jack (Audio/Video cable not connected), the sound will be monaural.

## Duplicating a video tape

If you connect the DVD/VCR to another VCR or Camcorder, you can duplicate a previously recorded tape. Make all connections before turning on the power.



### Duplicating a video tape

#### Preparation:

- Turn ON the TV and select the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)
- Load a cassette tape with the erase prevention tab intact.
- Load a previously recorded tape into the playback VCR or Camcorder.

#### 1 Press SP/SLP to select the desired tape speed SP or SLP.



It is recommended that you set the tape speed to the SP mode on the recording VCR for best results.

#### 2 Press INPUT SELECT once or twice to select AUDIO/VIDEO input position.



"L1" or "L2" will appear in the display.

L1: on the rear panel  
L2: on the front panel

#### 3 Press PLAY on the playback VCR or Camcorder.

#### 4 Press REC/OTR on the recording VCR.

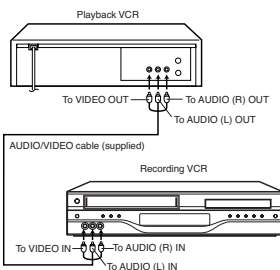


The duplicating process begins.

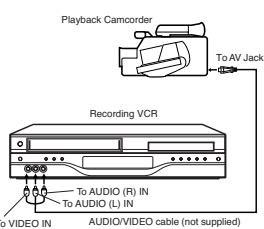
#### 5 Press STOP after duplicating a video tape.



#### Connection with second VCR



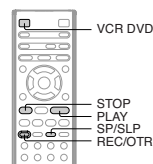
#### Connection with Camcorder



For duplicating a previously recorded tape from a camcorder, follow the camcorder manufacturer's instructions. A typical camcorder dubbing hookup is shown above.

## Recording a DVD/CD disc

You can record disc material in DVD, Audio CD, etc. onto a Video tape with this DVD/VCR.



### Duplicating a DVD or CD disc

#### Preparation:

- Turn ON the TV and select the corresponding video input.
- Press **VCR DVD** selector to select the VCR mode. (The VCR indicator will light.)
- Load a cassette tape with the erase prevention tab intact.
- Load a DVD/CD disc.

#### 1 Press SP/SLP to select the desired tape speed SP or SLP.



#### 2 Press VCR DVD selector to select the DVD mode.



The DVD indicator will light.

#### 3 Press PLAY to start playback.



#### 4 Press REC/OTR to start recording.



The DVD/VCR will change to the VCR mode automatically and the playback picture or sound will be duplicated on the video cassette tape.

#### 5 Press STOP if you finish recording.



If you wish to stop a DVD/CD disc, press **VCR DVD** selector to change the DVD mode, then press **STOP**.

#### Notes:

- You may not be able to record the beginning of the disc. Begin VCR recording once program playback commences on the DVD.
- When the scanning mode is set to the progressive mode, you cannot duplicate a disc material onto a video tape. When **REC/OTR** is pressed, the **PROGRESSIVE** indicator on the display window will flash and "Please Set Off" will appear on the screen.
- You cannot record discs encoded with copy guard function. The following icon and text will show up on the TV screen.

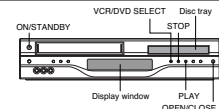


DISC IS COPY PROTECTED

## Playing a disc

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

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



### Basic playback

#### Preparations:

- When you want to view a disc, turn on the TV and select the corresponding video input connected to the DVD. This may include S-video or component video inputs which are exclusive to DVD playback.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD/VCR.

#### 1 Press ON/STANDBY.



The DVD/VCR turns on.

#### 2 Press VCR/DVD SELECT to select the DVD mode.



The DVD indicator will light.

#### 3 Press OPEN/CLOSE.



The disc tray opens.

#### 4 Place the disc on the disc tray.



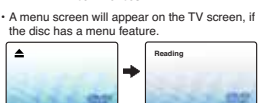
With the playback side down

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

#### 5 Press OPEN/CLOSE or PLAY on the unit.



The disc tray closes automatically. On the TV-screen, "▲" changes to "Reading" and then playback commences.



#### 6 Press ▲/▼ or ◀/▶ to select title.



#### 7 Press ENTER.



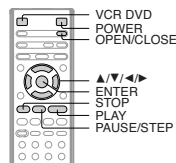
Title is selected and play commences.

#### 8 Press STOP to end playback.



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 or unload the disc ("■" appears on the screen), the unit will clear the stopped point.

■ To start playback in the stop mode  
Press **PLAY**.



#### ■ To obtain a higher quality picture

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

#### ■ About icons

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

○ : You can use this function with DVD video discs.

○ : You can use this function with Video CDs.

○ : You can use this function with Audio CDs and CD-R/RW CDs.

#### ■ To pause playback (still mode)

Press **PAUSE/STEP** during playback.



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

- The sound is muted during still mode.

#### ■ To stop playback

Press **STOP**.



#### ■ To remove the disc

Press **OPEN/CLOSE**.



Remove the disc after the disc tray opens completely.



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

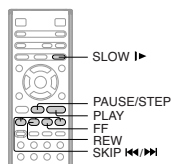
#### Notes:

- 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 (B) (E).
- 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 51.
- 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 the **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.



## Playing a disc (Continued)

You can play discs at various speeds.



### Playing in fast reverse or fast forward directions

Press REW or FF during playback.

REW: Fast reverse playback  
FF: Fast forward playback

Each time you press REW or FF, the playback speed changes.

#### To resume normal playback

Press PLAY.



Notes:

- The DVD/VCR mutes sound and subtitles during reverse and forward scan of DVD/VCD video discs. However, this unit plays sound during fast forward or fast reverse play of audio CDs.
- The playback speed may differ depending on the disc.

### Playing frame by frame

Press PAUSE/STEP during still playback.

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

#### To resume normal playback

Press PLAY.



Note:

The sound is muted during frame by frame playback.

### Playing in slow-motion

Press SLOW (I) during playback.

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

#### To resume normal playback

Press PLAY.



Note:

The sound is muted during slow-motion playback.

### Locating a chapter or track

Press SKIP (I) or (II) repeatedly to display the chapter or track number you want.

Playback starts from the selected chapter or track.

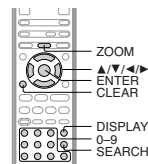
To locate succeeding chapters or tracks.

Playback starts from the beginning of the current chapter or track. When you press twice in quick succession, playback starts from the beginning of the preceding chapter or track.

Notes:

- A "Prohibition" symbol (a circle with a diagonal line) may appear at the upper left of the screen. This symbol means either the feature you tried is not available on the disc, or the DVD/VCR cannot access the feature at this time. This does not indicate a problem with the DVD/VCR.
- The unit is capable of holding a still video image or On screen display image on your television screen indefinitely. If you leave the still video image or On screen display image displayed on your TV for an extended period of time, you risk permanent damage to your television screen. Projection televisions are very susceptible.

## Zooming/Locating desired scene

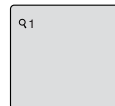


### Zooming

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

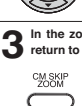
#### 1 Press ZOOM during playback.

The center part of the image will be zoomed in. Each press of ZOOM will change the ZOOM Q1 (x 1.3), Q2 (x 1.5) and Q3 (x 2.0).

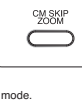


#### 2 Press (I) or (II) to view a different part of the frame.

You may move the frame from the centre 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, Slow or Search playback 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 play back. In the case of VCD/CD discs, time and track are used to locate the desired point to play back. To check the title, chapter and time, press DISPLAY.

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

Time : 00:00:00  
Title : --- -6  
Chapter : --- -1-  
▲▼/Enter0-9/Clear/Search

\* "Time" only works in playback or resume stop mode.

#### 2 Press (I) or (II) to select the "Time", "Title" or "Chapter".

Time : 00:00:00  
Title : --- -6  
Chapter : --- -1-  
▲▼/Enter0-9/Clear/Search

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

Time : 00:00:00  
Title : --- -6  
Chapter : 12  
▲▼/Enter0-9/Clear/Search

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

#### 4 Press ENTER. Playback starts.

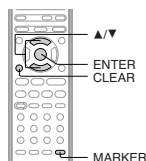
When you change the title, playback starts from Chapter 1 of the selected title. Some discs may not work in the above operation.

Note:

In case of the Video-CD playback with PBC, the SEARCH does not work. To turn off PBC (5).

## 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.

Marker 1 : 00:27:54  
Marker 2 : 01:16:25  
Marker 3 : 02:08:31  
▲▼/Enter/Clear/Marker

#### 2 Select the blank Marker using (I) or (II). Then press ENTER at the desired scene.

\* Repeat this procedure to set the other 2 scenes.

Marker 1 : 00:27:54  
Marker 2 : 01:16:25  
Marker 3 : 02:08:31  
▲▼/Enter/Clear/Marker

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

Marker 1 : 00:27:54  
Marker 2 : 01:16:25  
Marker 3 : 02:08:31  
▲▼/Enter/Clear/Marker

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.

### Returning to the scenes

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

Marker 1 : 00:27:54  
Marker 2 : 01:16:25  
Marker 3 : 02:08:31  
▲▼/Enter/Clear/Marker

#### 2 Press (I) or (II) to select the Marker 1-3.

Marker 1 : 00:27:54  
Marker 2 : 01:16:25  
Marker 3 : 02:08:31  
▲▼/Enter/Clear/Marker

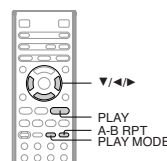
#### 3 Press ENTER.

Playback starts from the marked scene.

#### To cancel the Marker

Follow the above steps 1~2, then press CLEAR.

## Repeat playback/A-B Repeat playback



### Repeat playback

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

Repeat : Off  
▶▶/Play Mode

#### 2 [DVD] Press (I) or (II) to select "Chapter" or "Title".

Repeat : Off  
▶▶/Play Mode

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

[Audio CD, Video CD, MP3/WMA CD]  
Press (I) to select "Repeat".  
Press (II) to select "Track" or "All".

Repeat : Off  
▶▶/Play Mode

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 make the screen disappear.

#### 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 functions are prohibited during playback.

### A-B Repeat playback

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

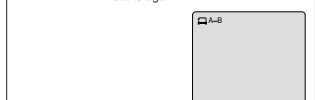
#### 1 Press A-B RPT during playback.

The start point is selected.



#### 2 Press A-B RPT again.

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



#### To resume normal playback

Press A-B RPT again.

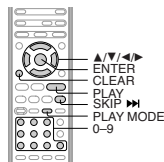
A-B RPT "Off" appears on the screen.

- 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, MP3/WMA/JPEG CD.
  - A-B Repeat is prohibited when PBC is on.



## Program playback/Random playback

You can arrange the playback order of tracks or files on the disc. And also the unit selects tracks or files at random and playback them. These feature works for Audio CD, Video CD and MP3/WMA/JPEG CD.



### Program playback

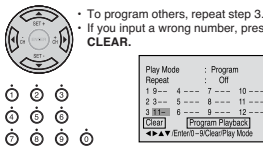
#### 1 Press PLAY MODE during stop mode.



#### 2 Press ▲/▼ to select Play Mode, then press ◀▶ to select "Program".



#### 3 Press ▲/▼ or ◀▶ to select the programming position. Use Number buttons (0-9) to input the track or file numbers.



#### 4 Press ▲/▼/◀▶ to select "Program Playback" and press ENTER.

The programs you selected will start to playback in the order.

- In case of JPEG file, press SKIP ▶▶ to continue the program playback.
- To resume normal playback, select Play Mode: "Off" in step 2.



#### To change the program

- In the program mode, press ▲/▼/◀▶ to select the track number.
- Press Number buttons (0-9) to select the track number to be replaced.

#### To clear the program one by one

- In the program mode, press ▲/▼/◀▶ to select the track number. Then press CLEAR.

#### To clear all the programs

- In the program mode, press ▲/▼/◀▶ to select "Clear". Then press ENTER.

#### Notes:

- In playing back the Video CD with PBC, you cannot set Program playback.
- The program is cancelled 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 ◀▶ to select "Random".



#### 3 Press PLAY.

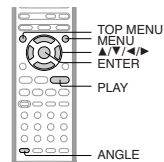
The Random Playback will start.

- If you set "Random" during playback mode, Random playback will begin after the track that is currently being played has ended.
- To resume normal playback, select Play Mode: "Off" in step 2.

#### Notes:

- In playing back the Video CD with PBC, you cannot set Random playback.

## Changing angles/Title selection/DVD menu

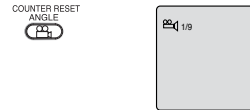


### Changing angles

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:

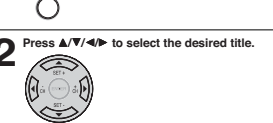
Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

### 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 ▲/▼/◀▶ to select the desired title.

#### 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.

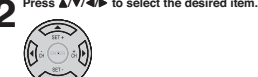
When you play back these DVDs, you can select the subtitle language and sound-track language, etc. using the menu.

#### 1 Press MENU during playback.

The DVD menu appears on the screen.

- Press MENU again to resume playback at the scene when you pressed MENU.

#### 2 Press ▲/▼/◀▶ to select the desired item.



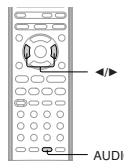
#### 3 Press ENTER.

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

#### Note:

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

## Changing soundtrack language/ Setting surround sound



### Changing soundtrack language

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

#### 1 Press AUDIO during playback.

The current soundtrack language will appear.



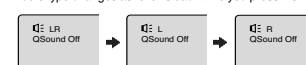
#### 2 Press AUDIO repeatedly until the desired language is selected.



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

#### In case of Video CD playback

Audio type changes as follows each time you press AUDIO.



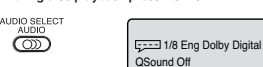
#### Notes:

- If the desired language is not heard after pressing the button several times, the language is not recorded on the disc.
- Changing soundtrack language is cancelled when you open the disc tray. The initial default language or available language will be heard if the disc is played back again.

### Setting surround sound

This DVD video player equipped with a "QSound". It can produce the effect of being in a cinema or a concert hall.

#### 1 During disc playback press AUDIO.



#### 2 Press ◀ or ▶ to select "On".



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

#### To cancel Surround mode:

Follow the left steps 1-2, then press ◀ or ▶ to select the "Off" position.

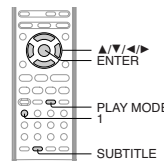
#### Notes:

- The "QSound" is effective only for the sound of disc.
- The QSound setting can also be changed in the function setting (58).



Manufactured under license from QSound Labs, Inc. U.S. patent Nos. 5,105,462; 5,208,860 and 5,440,638 and various foreign counterpart. Copyright QSound Labs, Inc. 1998-2002. QXpander™ is a trademark of QSound Labs, Inc. All rights reserved.

## Subtitles/To turn off the PBC



### 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 your desired language appears.



#### 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.

### To turn off the PBC

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



#### 2 Press ▲/▼ to select Play Mode, then press ◀▶ to select "Off".



#### 3 Press PLAY MODE again to make the screen disappear.

#### To turn on the PBC

Follow the above steps 1-2, then press ◀ or ▶ to select "PBC".

#### Note:

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

## MP3/WMA/JPEG operation

This player can play back the MP3/WMA/JPEG data which has been recorded on CD-R or CD-RW. To produce the MP3/WMA/JPEG data, you need a Windows-PC with CD-RW drive and a MP3/WMA/JPEG-encoding Software (not supplied). The Apple-HFS-System cannot be played.

**Note:**

This unit requires discs/recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3/WMA files). Given the fact that technology in this area is still maturing, Toshiba cannot guarantee that all genre of recordable discs will produce optimal playback quality. The technical criteria set out in this owner's manual are meant as a guide only.

Please be advised that you must obtain permission from the applicable copyright owners to download copyrighted content, including music files, in any format, including the MP3 and WMA formats, prior to the downloading thereof. Toshiba has no right to grant and does not grant permission to download any copyrighted content.

## MP3/WMA/JPEG CD information

**Limitations on MP3/WMA/JPEG CD playback**

- MP3/WMA/JPEG CD is the disc that is standardized by ISO9660, its file name must include 3-digits extension letters, "mp3", "wma", "jpg".
- MP3/WMA/JPEG CD must be correspond to the ISO standardized files.
- This unit can read 600 files per disc. 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.
- MP3/WMA/JPEG CDs cannot be used for the purpose of recording.
- If the CD has both audio tracks and MP3/WMA/JPEG files, only audio tracks are played.
- It may take more than one minute for this unit to read MP3/WMA/JPEG files depending on its structure.
- Music recorded by "Joliet Recording Specification" can be played back, the file name is displayed (within 16 letters) on the screen. Long file names will be condensed.
- The music files recorded by "Hierarchical File System" (HFS) cannot be played.

**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.

**Notes on MP3/WMA/JPEG files**

- To play back MP3/WMA/JPEG CD in the recorded order.
- Use MP3/WMA/JPEG software that records data alphabetically or numerically.
- Name each file including two-digit or three-digit number (ex. "01" "02" or "001" "002").
- Refrain from making too many sub-folders.

**CAUTION:**

- Some MP3/WMA/JPEG CDs cannot be played back depending on the recording conditions.
- The CD-R/RW that has no music data or non MP3/WMA/JPEG files cannot be played back.

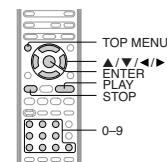
**Standard, sampling frequency, and the bit rate:****MP3 CD**

- MPEG-1 Audio
- 32kHz, 44.1kHz, 48kHz
- 32kbps ~ 320kbps (constant bit rate or variable bit rate)
- The recommend recording setting for a high-quality sound is 44.1kHz of sampling frequency and 128kbps of constant bit rate.

**WMA CD**

- WMA version 7, and 8
- 32kHz, 48kbps
- 44.1kHz, 48kbps ~ 192kbps
- 48kHz, 128kbps ~ 192kbps
- The file recorded by mono, 48kHz, 48 kbps is not available to this unit.

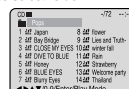
Microsoft, Windows Media, and Windows Logo are trademarks or registered trademarks of Microsoft Corporation in both the United States and other countries.



## MP3/WMA CD playback

- Place a disc on which MP3 or WMA files have been recorded onto the disc tray.

- A file menu screen will appear on the screen. Press **ENTER** or **ENTER** to select folder.



- Press **▲/▼/◀/▶** or Number buttons (0-9) to select the desired file.



- In case the folder includes more than 15 files, press **◀** or **▶** to display next file list.



- When **PLAY** has been pressed after displaying the file menu, or when the disc tray has been closed using **PLAY**, playback begins automatically starting from the first file. In this case, if the first file is an MP3/WMA file, only MP3/WMA files are played back in order. If the first file is a JPEG file, the first JPEG file is played back.

- Press **ENTER**.

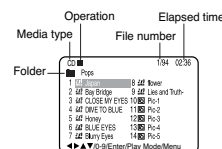
The selected file starts playing back.



- Press **STOP** to end playback.



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

**About file menu**

- Indicates MP3-file
- Indicates WMA-file
- Indicates JPEG-file

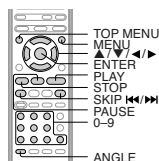
**Notes:**

- The picture menu is displayed when the FUJICOLOR CD or the Kodak Picture CD are played. To display the file menu, press **TOP MENU**.
- In the case of a CD containing a mixture of MP3, WMA and JPEG files, the files are played back by selecting them from the file menu.
- MP3 or WMA file on the Kodak Picture CD is not recognized on this unit.

**Notes:**

- During MP3/WMA/JPEG-Playback, you cannot use SEARCH, A-B Repeat functions.
- You can use Repeat (Track or All), Random functions and Program playback for MP3/WMA/JPEG CD Playback (47/48).

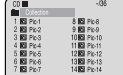
## MP3/WMA/JPEG operation (Continued)



## JPEG CD playback

- Place a disc on which JPEG files have been recorded onto the tray.

- A file menu screen will appear on the screen. Press **ENTER** or **ENTER** to select folder.



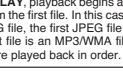
- Press **▲/▼/◀/▶** or Number buttons (0-9) to select the desired file.



- To display a picture menu, press **MENU**.
- (To return to a file menu, press **TOP MENU**.)
- Press **◀/▶** or **▲/▼** to select the desired file.

- To display next list, press **SKIP** **▶/▶**.
- When **PLAY** has been pressed after displaying the file menu, or when the disc tray has been closed after pressing **PLAY**, playback begins automatically starting from the first file. In this case, if the first file is a JPEG file, the first JPEG file is played back. If the first file is an MP3/WMA file, only MP3/WMA files are played back in order.

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



- Rotating an image
- You can rotate an image by 90 degrees by pressing **ANGLE** during playback of the image.
- "**ANGLE**", "**ANGLE**", "**ANGLE**" or "**ANGLE**" appears briefly on the screen.

- Press **STOP** to end playback.



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



## 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" (58).

- Select your desired starting file for the slide show in the step 3 as left.

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



- If you press **PAUSE** during the slide show, the slide show stops temporary. "II" appears briefly on the picture.

- If the picture appears upside down or sideways, press **ANGLE** repeatedly until it's right side up.

- "**ANGLE**", "**ANGLE**", "**ANGLE**" or "**ANGLE**" appears briefly on the screen.

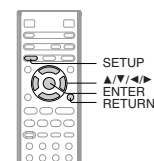
- Press **PLAY** or **SKIP** **▶/▶** again to resume the slide show.

- When the slide show playback finished the file list appears.

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

## Customizing the function settings

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



## Setting procedure

- Press **SETUP** during stop mode.



The following on-screen display appears.



- Press **◀** or **▶** to select the desired section, then press **Y** or **ENTER**.



- Press **▲** or **▼** to select the desired option.



- Change the selection using **◀** or **▶**, by referring to the corresponding pages 57-59.







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

- To make **SETUP** screen disappear, 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 available on the disc.	57
	<b>E.B.L.</b>	To select On or Off for E.B.L. (Enhanced Black Level).	57
	<b>Tv Screen</b>	To select a picture size according to the aspect ratio of your TV.	57
	<b>Display</b>	To turn on or de-activate the operational status display on the screen.	57
	<b>Picture Mode</b>	To select a preferred picture mode from "Video", "Film" or "Auto".	58
	<b>Dialogue</b>	To select On or Off for DRC (Dynamic Range Control).	58
	<b>QSound</b>	To select On or Off for QSound.	58
	<b>Password</b>	Input 4-digit password to set the parental level.	59
	<b>Parental</b>	To select a preferred parental level for the parental setting.	
	<b>Select Files</b>	To select a preferred file type for playing back a CD containing a mixture of file types.	
	<b>Output</b>	To select a preferred video output signal from "Progressive" or "Interlace".	



#### 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 the "Language code list" (61)).

##### Original: (Audio)

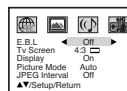
The unit will select the first priority language of each disc.

##### 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 VCR MENU (23).



#### E.B.L.

To select the black level of playback pictures, set your preference and monitor's ability.

- On:** Enhanced grey scale (0 IRE cut off)  
**Off:** Standard grey scale (7.5 IRE cut off)

#### 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.

##### 16:9 (Wide):

Select this mode when connecting to a wide-screen TV. A wide screen picture is displayed full size.

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

##### Note:

If the DVD disc is not formatted in the pan & scan style, it displays 4:3 style.

#### Display

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

- On:** On screen displays appear when you press the buttons (factory setting).  
**Off:** On screen displays do not appear when you press any buttons.

## 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 position normally. The DVD player automatically detects source content, film or video, of playback source, and converts that signal in the progressive output format in an appropriate method.

**Film:** The DVD player converts film content pictures in the progressive output format appropriately. Suitable for playback of film content pictures. The progressive output feature will be most effective under this selection.

**Video:** The DVD player filters video signal, and converts it in the progressive output format 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

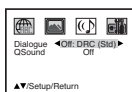
You can continuously play back all JPEG files automatically. After the setting below, start playing the disc on which JPEG files have been recorded.

**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.



#### Dialogue

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

##### On: DRC (TV):

Loud sound such as explosion or similar is toned down slightly when played back. This makes it suitable for when it is connected to a stereo.

##### Off: DRC (Std):

It plays back at the recording level on the disc.

##### Notes:

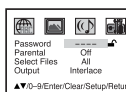
- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on DVD video disc.

#### QSound

This DVD video player equipped with a "QSound". It can produce the effect of being in a cinema or a concert hall.

- On:** The QSound operates.  
**Off:** The QSound is disengaged.

**Note:** The QSound setting can also be changed with **AUDIO** on the remote control (60).



#### Parental control setting

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

- Press **▲** or **▼** to select "Parental", then press **◀** or **▶** until the level you require appears.
  - 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.
- 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 **CLEAR**.
  - Press **ENTER** to store the password.
- Note:** Now the rating is locked and the setting cannot be changed unless you enter the correct password.
- Press **OPEN/CLOSE** to activate Parental control setting. (See "Temporary disabling of rating level by DVD disc" (60).)

##### Notes:

- 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.

#### To change the parental level

- Press **▲** or **▼** to select "Password".
- Press **Number buttons (0-9)** to enter the password you have stored.
- Press **ENTER**.
  - The rating is now unlocked.
- Press **▲** or **▼** to select "Parental", then press **◀** or **▶** to change the parental level.
- Press **▲** or **▼** to select "Password", then press **Number buttons (0-9)** to enter the password.
- Note:** You can change the password if you want. Press **ENTER**. Now the parental level is changed and locked.

#### If you forget the password...

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

- While holding **7** down on the remote control and then press **STOP** on the front panel. "PASSWORD CLEAR" appears on the screen.
- Select a new password again.

#### Select Files

When playing back a CD containing a mixture of MP3, WMA and JPEG files, only MP3/WMA or JPEG files can be displayed on the file menu.

##### All:

Displays all files.

##### Music Only:

Displays only MP3/WMA files.

##### Pictures Only:

Displays only JPEG files.

#### Output

You can select the video output signal of the DVD video player to the TV from "Interlace" or "Progressive".

- Press **▲** or **▼** to select "Output".
- Press **▶**, then press **▲** or **▼** to select "Interlace" or "Progressive".

##### Interlace:

Select when connecting to a composite TV or a TV equipped with component video inputs but progressive scan is not compatible.

##### Progressive:

Select when connecting to a TV equipped with component video inputs, progressive scan compatible.

##### Warning:

Once "Progressive" is selected when connecting to a TV progressive scan incompatible, no image will be seen on the video display.

In this case, you must reset the unit by pressing **STOP** on the front panel for five seconds. The video output will be restored to "Interlace" setting, and a picture will once again be seen on a conventional analog display.

##### Notes:

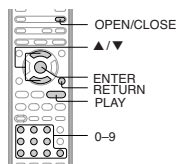
- Some discs may not be played back with the progressive scanning mode correctly because of the disc characteristics or recording condition.
- Once Progressive scan on, all other video outputs are disabled except component video outputs.

##### Note:

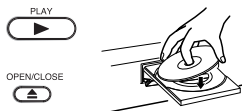
If each setup (pages 57-59) has been completed, the unit can always be worked under the same conditions (especially with DVD discs). Each setup will be retained in the memory even if you turn the power off.

## Temporary disabling of rating level by DVD disc

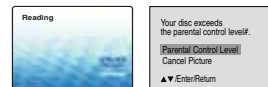
Depending on the DVD disc, the disc may try to temporarily cancel the rating level that you have set. It is up to you to decide whether to cancel the rating level or not.



### 1 Load a DVD disc and press PLAY or OPEN/CLOSE on the unit (42).



### 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 ▲ or ▼, then press ENTER. If the 4-digit password at step 2 on page 58 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.



Please enter the 4-digit password  
Enter/0 - 9/Clear/Return

### 5 Playback will commence if the entered password was 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" (67).

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	Twí 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	Laotian 2225	Serbo-Croatian 2918	Yiddish 2019
Estonian 1530	Latin 2211	Shona 2924	Yoruba 3525
Faroese 1625	Latvian, Lettish 2232	Sindhi 2914	Zulu 3631

## Troubleshooting

Before calling a service technician, please check the following table for a possible cause of the symptoms and some solutions.

Symptoms	Solutions	Page
<b>DVD/VCR</b>		
DVD/VCR does not operate.	<ul style="list-style-type: none"> <li>Make sure the power cord is plugged in.</li> <li>Try another AC outlet.</li> <li>Unplug unit, then plug it back in.</li> <li>Select the DVD or VCR mode before operating.</li> </ul>	5 - 5, 42 30, 42
No picture.	<ul style="list-style-type: none"> <li>Antenna connection is not correct or antenna cable is disconnected.</li> <li>The video channel is not in the correct position or the TV is not set to the video channel 3 or 4.</li> <li>Check the unit is connected correctly.</li> <li>The video input selector of the TV is not set to VIDEO. Set to VIDEO (or equivalent).</li> <li>Channel is set to the external mode.</li> </ul>	14-17 - - -
No sound.	<ul style="list-style-type: none"> <li>Check the unit is connected correctly.</li> <li>Check the input selector of the amplifier is set properly.</li> <li>The unit is in the Special playback mode.</li> </ul>	14-19 31, 44 -
The remote control does not function.	<ul style="list-style-type: none"> <li>Aim the remote control at the remote sensor.</li> <li>Operate within Approx. 7 Meters or reduce the light in the room.</li> <li>Clear the path of the beam.</li> <li>The batteries are weak. Replace the batteries.</li> <li>Check the batteries are inserted correctly.</li> </ul>	13
No Cable TV reception.	<ul style="list-style-type: none"> <li>Check all Cable TV connections.</li> <li>Station or Cable TV system problems, try another station.</li> </ul>	16, 17
<b>VCR</b>		
TV recording does not work.	<ul style="list-style-type: none"> <li>The erase prevention tab of the video cassette is broken off.</li> <li>The unit is in the external input mode.</li> </ul>	29, 34
Timer recording does not work.	<ul style="list-style-type: none"> <li>The time is not set correctly.</li> <li>The recording start/end time is not set correctly.</li> <li>The TIMER REC has not been pressed (2) is not lit.</li> </ul>	24 37 37
Noise bars on screen.	<ul style="list-style-type: none"> <li>Tracking adjustment beyond range of automatic tracking circuit. Try Manual tracking adjustment.</li> <li>Video heads are dirty.</li> <li>The tape is worn or damaged.</li> </ul>	31 - -
<b>DVD</b>		
Display is not shown in your language.	Select proper language in the menu options.	57
Playback doesn't start.	<ul style="list-style-type: none"> <li>No disc is inserted.</li> <li>The disc may be dirty. Clean up the disc.</li> <li>The unit cannot play DVD-ROMs, etc.</li> </ul>	42 7 8
Stopping playback, slow-motion play, repeat play, or memory play, etc. cannot be performed.	Some discs may not do some of the functions.	-
No picture, or the screen is blurred or divided into two parts.	The PROGRESSIVE scan is "On" although the unit is connected to a TV via the VIDEO OUT or the S-VIDEO OUT jack.	59
No 4:3 (16:9) picture.	The setup does not match your TV.	57
No on-screen display.	Select Display "On".	57
No surround sound.	The setup does not match your stereo system.	20
The unit or remote operation key is not functioning.	Turn off the unit and unplug the AC power cord for several minutes, then plug it.	-
Playback does not start when the title is selected.	Check the Parental setup.	59, 60
Audio soundtrack and/or subtitle language is not changed when you play back a DVD.	Multilingual language is not recorded on the DVD disc.	50, 51
No subtitle.	Some discs have no subtitles. Subtitles are cleared. Press SUBTITLE.	51
Angle cannot be changed.	Multi-angles are not recorded on the DVD disc.	49
● appears on the screen.	The function is prohibited with the unit or the disc.	44

## Specifications

### General

Power supply	AC 120 V 60 Hz
Power consumption	Operation: 18 W, Stand by: 2 W
Weight	7.7 lbs (3.5 kg)
Dimensions	Width: 16-1/16 inches (430 mm) Height: 3-1/2 inches (89.5 mm) Depth: 9-1/16 inches (230 mm)
Tuner	181 channel freq. synthesized VHF 2-13 UHF 14-69 Cable TV 113 Channels
Antenna input/output	UHF/VHF In/Out: 75 Ω coaxial
RF channel output	Channel 3 or 4, Switchable
Color system	NTSC
Video head	4 Rotary heads
Audio track	Hi-Fi sound - 2 Tracks / MONO sound - 1 Track
Hi-Fi frequency response	20 Hz to 20,000 Hz
Hi-Fi dynamic range	More than 90dB
FF/REW time at 25°C (77°F)	Approx. 1 minute and 48 seconds (with T-120 Cassette Tape)
Applicable disc	DVD (12 cm, 8 cm), CD (12 cm, 8 cm)
Frequency range	DVD: 4 Hz-22 kHz, CD: 4 Hz-20 kHz
S/N ratio	90dB (DVD)
Harmonic distortion	0.02% (DVD)
Wow and flutter	Less than 0.01% Wrms
Operating conditions	Temperature: 5°C-40°C (41°F-104°F), Operating status: Horizontal

### Input/Output

<b>DVD/VCR</b>	
Video input	1.0 V (p-p), 75 Ω, negative sync., pin jack x 2
Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack x 1
Audio input	-8 dBm, 50 kΩ, negative sync., pin jack (L/R) x 2
Audio output	-8 dBm, 1 kΩ, negative sync., pin jack (L/R) x 1
<b>DVD</b>	
S-video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin x 1 (C) 0.286 V (p-p), 75 Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack x 1 (P <sub>1</sub> )/(P <sub>2</sub> ) 0.7 V (p-p), 75 Ω, pin jack x 2
Audio output (BITSTREAM/PCM COAXIAL)	0.5 V (p-p), 75 Ω, pin jack x 1
Audio output (ANALOG)	-12 dBm, 1 kΩ, pin jacks (L, R) x 1

### Supplied accessories

Audio/video cable	1
Remote control (SE-R0170)	1
Batteries (R03/AAA)	2
75 Ω coaxial cable	1

- 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.

## Limited warranty

### Limited United States Warranty

#### DVD/VCR Combinations - Exchange Warranty

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 DVD/VCR COMBINATION AS A GIFT FROM THE ORIGINAL CONSUMER PURCHASER AND TO NO OTHER PURCHASER OR TRANSFEREE.**

**PRODUCTS 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.**

**PRODUCTS 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

TACP warrants this DVD/VCR Combination and its parts against defects in materials or workmanship for period of ninety (90) days after the date of original retail purchase. **DURING THE FIRST NINETY (90) DAYS AFTER THE DATE OF ORIGINAL RETAIL PURCHASE, TACP WILL EXCHANGE A DEFECTIVE DVD/VCR COMBINATION WITH A NEW OR REFURBISHED DVD/VCR COMBINATION WITHOUT CHARGE TO YOU. YOU MUST CONTACT TACP'S CONSUMER SOLUTIONS CENTER FOR INSTRUCTIONS ON HOW TO PROCESS YOUR WARRANTY EXCHANGE REQUEST. THE CONSUMER IS RESPONSIBLE FOR ALL INBOUND TRANSPORTATION AND INSURANCE CHARGES FOR THE DVD/VCR COMBINATION TO THE EXCHANGE CENTER. DURING THE PERIOD THAT COMMENCES ON THE DATE THAT IS NINETY ONE (91) DAYS AFTER THE DATE OF ORIGINAL RETAIL PURCHASE AND BEYOND, TACP WILL EXCHANGE A DEFECTIVE DVD/VCR COMBINATION WITH A NEW OR REFURBISHED DVD/VCR COMBINATION FOR A NOMINAL FEE. YOU MUST CONTACT TACP'S CONSUMER SOLUTIONS CENTER FOR INSTRUCTIONS ON HOW TO PROCESS YOUR EXCHANGE REQUEST. THE CONSUMER IS RESPONSIBLE FOR ALL INBOUND TRANSPORTATION AND INSURANCE CHARGES FOR THE DVD/VCR COMBINATION TO THE EXCHANGE CENTER.**

#### \* Rental Units

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

#### \* Commercial Units

DVD/VDR Combinations sold and used for commercial purposes have a limited ninety (90) day warranty for all parts and labor.

### Owner's Manual and Product Registration Card

Read this owner's manual thoroughly before operating this DVD/VCR Combination. Complete and mail the enclosed product registration card or register your product on-line at [www.tacp.toshiba.com/](http://www.tacp.toshiba.com/) service as soon as possible. By registering your DVD/VCR 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 that a safety notification is required under the Consumer Product Safety Act. Failure to complete and return the product registration card does not diminish your warranty rights.

#### Your Responsibility

**THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS:**

- (1) You must retain your bill of sale or provide other proof of purchase.
- (2) All warranty servicing of this product must be made by an Authorized TACP Service Station.
- (3) The warranties from TACP are effective only if the product is purchased and operated in the Continental U.S.A. or Puerto Rico.
- (4) 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 are your responsibility.
- (5) Warranties extend only to defects in materials or workmanship as limited above, and do not extend to any DVD/VCR Combination or parts that have been lost or discarded by you or to damage to the DVD/VCR 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 product 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 Services

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

- (1) For instructions on how to obtain warranty service for exchange program DVD/VCR Combinations, contact TACP's Call Center toll free at 1-866-583-7353.
- (2) You must include the original bill of sale (or a copy of the original bill of sale) or other proof of purchase along with the entire DVD/VCR Combination when sending the DVD/VCR Combination to the Authorized TACP Service Station specified by TACP's Call Center. You must pay for all transportation and insurance charges for the DVD/VCR Combination to and from the Authorized TACP Service Station.

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

**ALL WARRANTIES IMPLIED BY THE LAW OF ANY STATE OF THE U.S.A., INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED TO THE DURATION OF THE LIMITED WARRANTIES SET FORTH ABOVE. WITH THE EXCEPTION OF ANY WARRANTIES IMPLIED BY THE LAW OF ANY STATE OF THE U.S.A. AS HEREBY LIMITED, THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, AGREEMENTS, AND SIMILAR OBLIGATIONS OF TACP WITH RESPECT TO THE REPAIR OR REPLACEMENT OF ANY PARTS. IN NO EVENT SHALL TACP BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, BUSINESS INTERRUPTION, OR MODIFICATION OR ERASURE OF RECORDED DATA CAUSED BY USE, MISUSE OR INABILITY TO USE THIS PRODUCT).**

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 state law.

## Memo

## Memo



## CAUTION

THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

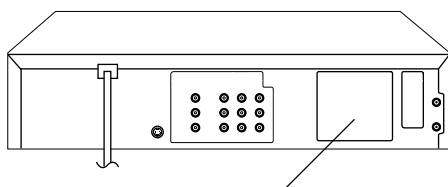
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

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.

## IMPORTANT SERVICE SAFETY INFORMATION

Safety precautions to be followed during servicing:

1. Parts marked with an  $\triangle$  are critical parts for safety. Replace only with the one described in the parts list.
2. Before returning the DVD product to the customer, make the appropriate leakage current check or resistance measurements to ensure that exposed parts are properly insulated from the supply circuit.

A leakage current check is recommended for this unit. Plug the AC line cord directly into a 120V 60Hz AC outlet (do not use an isolation transformer for this check). Use a leakage current tester (Fig. 1) or a metering system which complies with Underwriters Laboratories (UL 1492). Measure for current from all exposed metal parts of the cabinet to a known earth ground: particularly, any exposed metal part having a return path to the chassis. Any current measured must not exceed 0.5mA. Any measurement not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the unit to the customer.

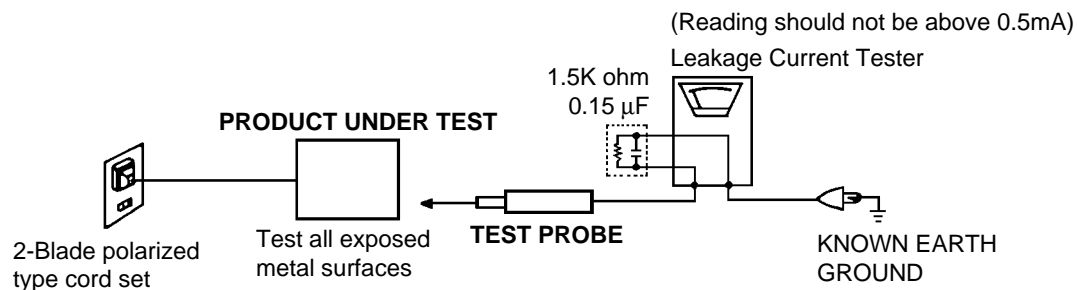


Fig. 1 AC Leakage Test

# IMPORTANT SAFEGUARDS

## 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)



S3125A

## 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.

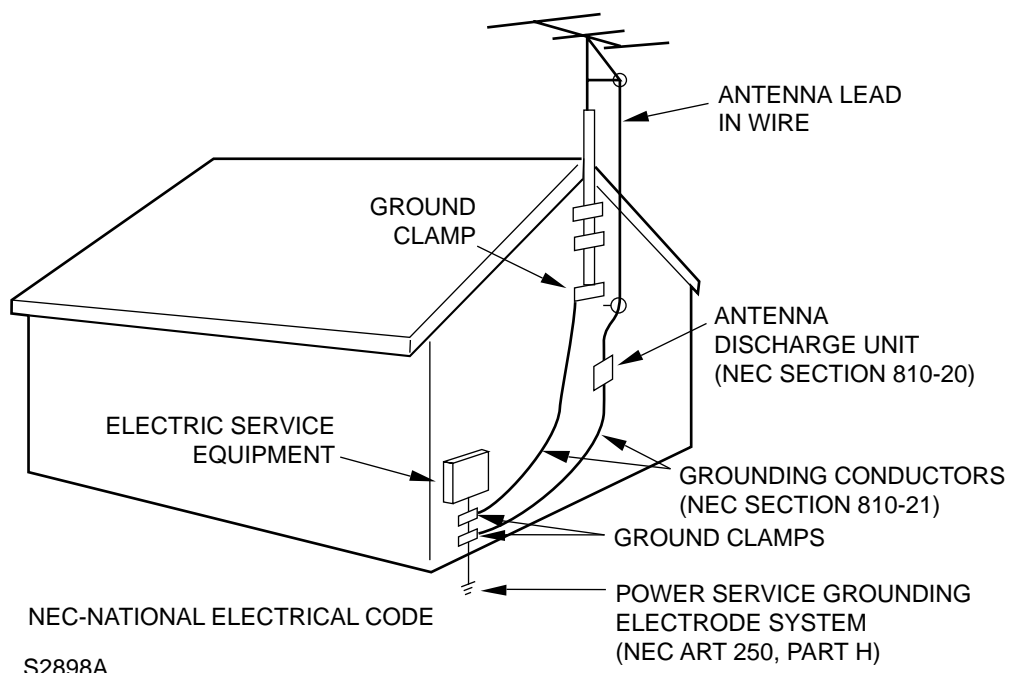
## 30. DISC

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.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE





## WHEN REPLACING DVD DECK

### [ When removing the DVD Deck ]

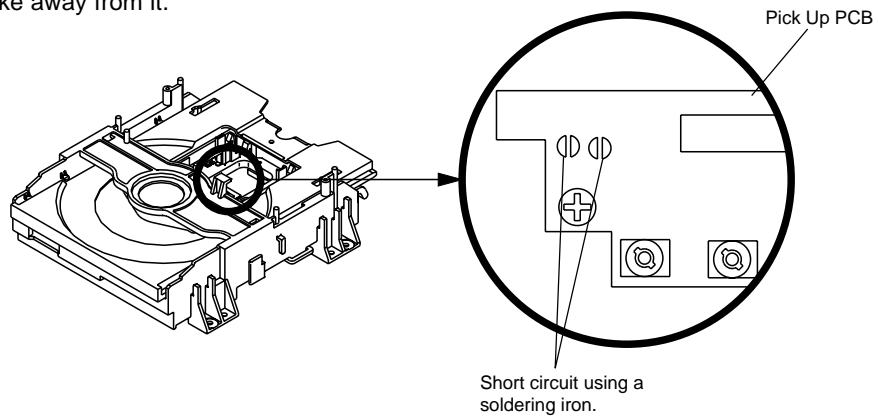
Before removing Pick Up PCB and DVD PCB connector, the short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

### [ When installing the DVD Deck ]

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

### NOTE

- Before your operation, please read "PREPARATION OF SERVICING".
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature:  $350 \pm 5^{\circ}\text{C}$
  - Soldering time: Within 2 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**

## TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet, Front Cabinet and DVD Block. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor. (Refer to Fig. 2)
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
4. Rotate the Clutch Ass'y either direction to wind the Video Tape in the Cassette Case.
5. Repeat steps 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch the tape.

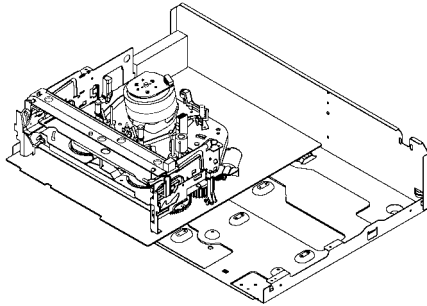


Fig. 1

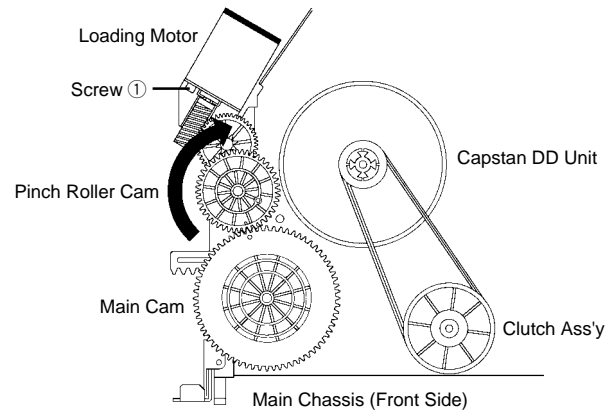


Fig. 2

## DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top and Front Cabinet. (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.

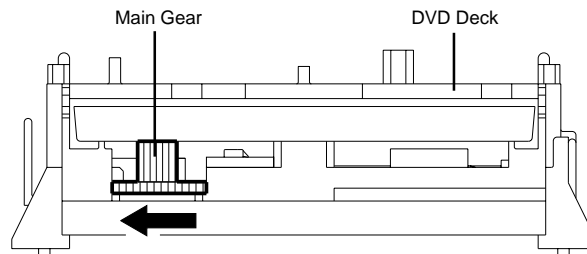


Fig. 1

## **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' 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' and '0' key of a remote control unit.
4. The On Screen Display message '  ' will appear.
5. The Tray Lock has now been cleared.

## ABOUT LEAD FREE SOLDER (PbF)

### Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.  
(Please refer to figures.)



### Caution:

- Pb free solder has a higher melting point than standard solder;  
Typically the melting point is 50°F~70°F(30°C~40°C) higher.  
Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).  
In case of using high temperature soldering iron, please be careful not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.  
When soldering or unsoldering, completely remove all of the solder from the pins or solder area,  
and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

### Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

# TABLE OF CONTENTS

## • OWNER'S MANUAL

<b>CAUTION</b> .....	A1-1
<b>PREPARATION OF SERVICING</b> .....	A1-1
<b>IMPORTANT SERVICE SAFETY INFORMATION</b> .....	A1-2
<b>IMPORTANT SAFEGUARDS</b> .....	A1-3~A1-5
<b>WHEN REPLACING DVD DECK</b> .....	A1-6
<b>TAPE REMOVAL METHOD AT NO POWER SUPPLY</b> .....	A1-7
<b>DISC REMOVAL METHOD AT NO POWER SUPPLY</b> .....	A1-7
<b>PARENTAL CONTROL-RATING LEVEL</b> .....	A1-8
<b>TRAY LOCK</b> .....	A1-8
<b>ABOUT LEAD FREE SOLDER (PbF)</b> .....	A1-9
<b>TABLE OF CONTENTS</b> .....	A2-1
<b>GENERAL SPECIFICATIONS</b> .....	A3-1~A3-7
<b>DISASSEMBLY INSTRUCTIONS</b>	
1.REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS .....	B1-1, B1-2
2.REMOVAL OF VCR DECK PARTS .....	B2-1~B2-6
3.REMOVAL OF DVD DECK PARTS .....	B3-1~B3-3
4.REMOVAL AND INSTALLATION OF FLAT PACKAGE IC .....	B4-1, B4-2
<b>KEY TO ABBREVIATIONS</b> .....	C1-1, C1-2
<b>SERVICE MODE LIST</b> .....	C2-1
<b>PREVENTIVE CHECKS AND SERVICE INTERVALS</b> .....	C3-1, C3-2
<b>RE-WRITE FOR DVD FIRMWARE</b> .....	C4-1
<b>WHEN REPLACING EEPROM (MEMORY) IC</b> .....	C4-2
<b>RF SIGNAL CHECK OF DVD PCB</b> .....	C4-3
<b>SERVICING FIXTURES AND TOOLS</b> .....	D1-1
<b>PREPARATION FOR SERVICING</b> .....	D1-1
<b>MECHANICAL ADJUSTMENTS</b> .....	D2-1~D2-4
<b>ELECTRICAL ADJUSTMENTS</b> .....	D3-1, D3-2
<b>TROUBLESHOOTING GUIDE</b> .....	E-1~E-33
<b>BLOCK DIAGRAMS</b>	
DVD .....	F-1, F-2
Y/C/AUDIO/CCD/HEAD AMP .....	F-3, F-4
SYSTEM CONTROL .....	F-5, F-6
OPERATION/DISPLAY .....	F-7, F-8
Hi-Fi/DEMODULATOR .....	F-9, F-10
TUNER/JACK .....	F-11, F-12
POWER .....	F-13, F-14
<b>PRINTED CIRCUIT BOARDS</b>	
DVD .....	G-1,G-2
VCR .....	G-3~G-6
OPERATION 1/OPERATION 2/LOADING MOTOR/SW .....	G-7, G-8
<b>SCHEMATIC DIAGRAMS</b>	
MPEG/MICON/DSP .....	H-1, H-2
MEMORY .....	H-3, H-4
MOTOR DRIVE .....	H-5, H-6
AUDIO/VIDEO .....	H-7, H-8
Y/C/AUDIO/CCD/HEAD AMP .....	H-9, H-10
SYSCON .....	H-11, H-12
TUNER/JACK .....	H-13, H-14
OPERATION/DISPLAY .....	H-15, H-16
Hi-Fi/DEMODULATOR .....	H-17, H-18
POWER .....	H-19, H-20
OPERATION1,2 .....	H-21, H-22
LOADING MOTOR/SW .....	H-23, H-24
<b>INTERCONNECTION DIAGRAM</b> .....	H-25, H-26
<b>WAVEFORMS</b> .....	I-1, I-2
<b>MECHANICAL EXPLODED VIEW</b> .....	J1-1, J1-2
<b>CHASSIS EXPLODED VIEW</b> .....	J2-1, J2-2
<b>DVD DECK EXPLODED VIEW</b> .....	J3-1
<b>MECHANICAL REPLACEMENT PARTS LIST</b> .....	K1-1
<b>CHASSIS REPLACEMENT PARTS LIST</b> .....	K2-1
<b>DVD DECK REPLACEMENT PARTS LIST</b> .....	K3-1
<b>ELECTRICAL REPLACEMENT PARTS LIST</b> .....	K4-1~K4-4



# GENERAL SPECIFICATIONS

G-1	Outline of the product		DVD VIDEO PLAYER & VHS Player / Recorder
G-2	DVD System	Color System	NTSC
		Disc	DVD, CD-DA, CD-R/RW, VIDEO CD, SVCD, DVD-R/RW (VIDEO FORMAT ONLY)
		Disc Diameter	120 mm , 80 mm
		Drive	DM3S
		Search speed	Fwd 4 steps 2-120 times (DVD) 4-40 times (CD)
		Actual	Rev 4 steps 2-120 times (DVD) 4-40 times (CD)
		Slow speed	Fwd 1/7-1/2 times --
		Actual	Rev --
		Actual	--
		Actual	--
G-3	VCR System	System	VHS Player / Recorder
		Video System	NTSC
		Hi-Fi STEREO	Yes
		NTSC PB(PAL60Hz)	No
		Deck	OVD-7S
		Heads	4Head
		Video Head	4Head
		FM Audio Head	2Head
		Audio / Control	Mono/Yes
		Erase (Full Track Erase)	Yes
		Erase (Normal Audio Track Erase)	No
		Tape Rec	-
		Speed PAL	SP/SLP(EP)
		NTSC	-
		Play PAL	-
		NTSC	SP/SLP(EP)
G-4	Tuning System	Fast Forward / Rewind Time (Approx.) at 25oC	FF:1'48"/REW:1'48"
		with Cassette	T-120
		Forward/Reverse	NTSC or PAL-M
		Picture Search	PAL or SECAM
		Frame Advance	-
		Slow Speed	Yes
			1/10
		Broadcasting System	US System M
		Tuner and System	1Tuner
		Receive CH Destination	US (w/CABLE)
		CH Coverage	2-69,4A,A-5~ A-1,A~I, J~ W, W+1-W+84
		Intermediate	45.75 MHz
		Frequency	41.25 MHz
		FP-FS	4.50 MHz
G-5	Power	Preset CH	-
		RF Converter Output	Yes
		Channel	3 or 4 ch
		Level / Impedance	66 dBu / 75 Ohm
		Sound Selector	No
		Stereo / Dual TV Sound	US-ST
		Tuner Sound Muting	Yes
		Power Source	120V 60Hz
		AC	-
		DC	-
G-6	Regulation	Power Consumption	18 W at 120V 60Hz 2 W at 120V 60Hz -- W
		Stand by	Yes
		Per Year	Yes
		Protector	No
G-7	Temperature	Power Fuse	Yes
		Safety Circuit	Yes
		IC Protector(Micro Fuse)	No
G-8	Operating Humidity	Safety	UL
		Radiation	FCC
		Laser	DHHS
G-9	Temperature	Operation	5oC - 40oC
		Storage	-20oC - 60oC
G-10	Operating Humidity		Less than 80% RH

## GENERAL SPECIFICATIONS

G-9	Signal	Video Signal	Output Level	1 V p-p/75 ohm (DVD,VCR)
			S/N Ratio (Weighted)	65 dB(DVD) 50 dB(VCR)
			Horizontal Resolution	500 Lines (DVD) 230 Lines(VCR Mode)
		RGB Signal	Output Level	-
		Audio Signal	Input Level Microphone	-
			Input Level Line	-8 dBm/ 50k ohm (VCR, 0dBm=0.775Vrms)
			Output Level Line	-8 dBm/ 1k ohm (VCR, 0dBm=0.775Vrms) -12dBm/ 1k ohm (DVD, -20dBfs 0dBfs=2.0Vrms)
			Digital Output Level	0.5 V p-p / 75 ohm(DVD)
			S/N Ratio at (Weighted)	90dB(DVD), 42dB(VCR at SP)
			Harmonic Distortion (1KHz) Typical	0.02% (1KHz) (DVD) , 1.5% (1KHz) (VCR)
			Frequency Response : DVD Mode at DVD	4 Hz - 22 KHz
			DVD Mode at VIDEO CD	4 Hz - 20 KHz
			DVD Mode at CD	4 Hz - 20 KHz
			VCR Mode at SP	100Hz - 10 KHz
			VCR Mode at LP	-
			VCR Mode at SLP	100Hz - 4 KHz
		Hi-Fi Audio Signal	Dynamic Range : More than	90dB
			Frequency Response	20Hz ~20kHz
			Wow And Flutter : Less than	0.01 %Wrms
			Channel Separation : More than	60 dB
			Harmonic Distortion : Less than	0.01

# GENERAL SPECIFICATIONS

G-10	On Screen Display (DVD)	Menu	Menu Type		Yes
			Language		Icon
			Menu		Yes
			Subtitle		Yes
			Audio		Yes
			OSD Language (Set up Language)		No
			Video		Yes
			E.B.L. (Enhanced Black Level)		Yes
			TV Screen Size		Yes
			OSD Display On/Off		Yes
			Picture Mode (Video/File/Auto)		Yes
			JPEG Interval		Yes
			Audio		Yes
			DRC (Dynamic Range Control)		No
			Dialogue On: DRC(TV)/ Off: DRC(Std)		Yes
			dts Decode		No
			Surround (Qsound)		Yes
			System		Yes
			Disc/Card Slot		No
			Password Lock/Unlock		Yes
			Parental (Rating Level)		Yes
			Select Files		Yes
			HDMI (480p/1080i/720p)		No
			Output		Progressive/Interlace
			Open		Yes
			Close		Yes
			No disc		Yes
			Reading		Yes
			Play		Yes
			Still/Pause		Yes
			Stop		Yes
			Prohibit Mark		Yes
			Step		Yes
			PBC		Yes
			Skip (>>)		Yes
			Skip (<<)		Yes
			Random		Yes (CD, VIDEO CD, SVCD MP3, WMA, JPEG )
			Repeat		Yes
			Slow+		Yes
			Slow-		No
			Search+		Yes
			Search-		Yes
			Jump		Yes
			Resume		Yes
			Title No.		Yes
			Chapter No.		Yes
			Track No.		Yes
			Time		Yes
			Subtitle No.		Yes
			Angle No.		Yes
			Vocal On/Off		No
			Audio No.		Yes
			Audio Stereo L/R		Yes (VIDEO CD, SVCD)
			Zoom		Yes
			Marker No.		Yes
			Surround On/Off		Yes
			Program Play Back		Yes (CD, VIDEO CD, SVCD, MP3, WMA, JPEG )
			MP3/WMA/JPEG	Folder Name	Yes
				File Name	Yes
				File No	Yes
				Time	Yes (MP3, WMA)
				Track No	Yes
			Progressive Scan Out ON/OFF		No

# GENERAL SPECIFICATIONS

	<b>On Screen Display(VCR)</b>	Menu	Menu Type	Yes
			Timer Rec Set	Character
			Auto Repeat On/Off	Yes
			SAP On/Off	Yes
			CH Set-Up	Yes
			TV/CABLE	Yes
			Auto CH Memory	Yes
			Add/Delete	Yes
			System Set Up	Yes
			Clock Set	Yes (Calendar 12H)
			Language	Yes
			No Noise Back Ground	Yes
			Auto Clock	Yes
			Standard Time	Yes
			Daylight Saving Time	Yes
			G-CODE(or SHOWVIEW or PLUSCODE)No. Entry	No
			Stereo, Audio Output, SAP	Yes
			Play/Stop/FF/Rew/Rec/OTR/Pause/Eject/Tape In/Repeat (Symbol Mark)	Yes
			CH/AV(LINE)	Yes
			Clock	Yes
			Repeat	Yes
			Tape Counter	Yes
			Index	Yes
			Tape Speed	Yes
			ATR / Manual Tracking	Yes
			ZERO Return	Yes
			Hi-Fi	Yes
G-11	OSD Language			English / French / Spanish
G-12	<b>Clock,Timer and Timer Back-up</b>	Calendar		1990/1/1 ~ 2081/12/31
		Timer Events		8 Program/ 1 Month
		One Touch Recording Max Time		6 Hours
		Timer Back-up (at Power Off Mode)		5sec
G-13	<b>Display</b>	DISPLAY		Yes
			DISPLAY type	LED Module (Amber, "Rec" &Timer symbol = Red)
			Clock/Counter,CH,Timer Rec,OTR, Play Rec,FF(Cue),Rew(Rew),Stop,ATR,Eject	No
			VCR	Yes
			DVD	Yes
			CD	Yes
			Clock	Yes (12h)
			AM	No
			PM	Yes
			Counter	Yes (hour:min)
			VCR	Yes (hour:min)
			DVD	Yes (min:sec)
			CD	Yes
			Eject	Yes
			Counter Remain	No
			Play	Yes
			Stop	No
			Rec	Yes
			FF / Cue	No
			REW / Review	No
			Pause / Still	Yes
			OTR (ITR)	No
			T-Rec	Yes
			Chapter	No
			TITLE	No
			TRACK	Yes
			Repeat	No
			Hi-Fi	No
			SP	No
			LP	No
			SLP	No
			CH	Yes
			RF Output CH	Yes
			Tape In	Yes
			Remocon Custom Code	No
			Progressive Scan Out	Yes

## GENERAL SPECIFICATIONS

G-14	Remote Control	Unit	RC-KU
		Glow in Dark Remocon	No
		Remocon Format	TOSHIBA
		Format	TOSHIBA
		Custom Code	45-BA
		Power Source	3V
		Voltage(D.C)	UM-4 x 2 pcs
		UM size x pcs	
		Total Keys	46 Key
		Keys	
		Power	Yes
		DISPLAY/CALL	Yes
		1	Yes
		2	Yes
		3	Yes
		4	Yes
		5	Yes
		6	Yes
		7	Yes
		8	Yes
		9	Yes
		0	Yes
		Input Select	Yes
		Input Select / PROGRESSIVE	No
		UP/ SET+ / TRACKING+	Yes
		DOWN/ SET- / TRACKING-	Yes
		LEFT/CH-	Yes
		RIGHT/CH+	Yes
		VCR/DVD	Yes
		TV/VCR	Yes
		DVD MENU(MENU)	Yes
		TITLE (TOP MENU)	Yes
		SETUP MENU/VCR MENU	Yes
		SELECT/ENTER	Yes
		CLEAR/CANCEL	Yes
		RETURN	Yes
		PLAY	Yes
		STOP	Yes
		PAUSE/STILL/STEP	Yes
		FF(Cue)/SEARCH+	Yes
		REW(Review)/SEARCH-	Yes
		REC/OTR	Yes
		SKIP+ / INDEX+	Yes
		SKIP- / INDEX-	Yes
		AUDIO / AUDIO SELECT	Yes
		ANGLE/COUNTER RESET	Yes
		SUBTITLE/ATR	Yes
		PLAY MODE/SPEED	Yes
		T-REC	Yes
		CLOCK / COUNTER	Yes
		JUMP/ZERO RETURN	Yes
		ZOOM/CM SKIP	Yes
		REPEAT A-B	Yes
		SLOW (Forward)	Yes
		MARKER	Yes
		OPEN/CLOSE	Yes
		EJECT	Yes

## GENERAL SPECIFICATIONS

G-15	Features (DVD)	Auto Power Off	No
		Video CD Playback	Yes
		SVCD Playback	Yes
		Overlay Graphics And Text	No
		Command List	No
		Entry Point Jump	No
		MP3 Playback	Yes
		WMA Playback	Yes
		JPEG Playback	Yes
		Progressive Scan Out	Yes
		Digital Out	Dolby Digital
			MPEG
			PCM
			DTS
		Down Mix Out	(Dolby Digital)
			(DTS)
			No
		Surround	Qsound
		Screen Saver	Yes
		Tray Lock	Yes
		Auto Stop	No
		Audio DAC	192kHz / 24bit
		Closed Caption signal in VBI (DVD Playback)	Yes
	Features (VCR)	Auto Head Cleaning	No
		Auto Power Off	No
		Forward/Reverse Picture Search	Yes
		VIDEO PLUS+ (SHOWVIEW, G-CODE)	No
		One Touch Playback	No
		Auto CH Memory	Yes
		AREA CODE	No
		Auto Clock Set	Yes
		Index Search	Yes
		SQPB	Yes
		CATV	Yes
		Energy Star	No
		MTS (SAP)	Yes
		CM Skip (30sec x 6 Times)	Yes
		Copy (Disc to Tape)	Yes (by Conditioning)
G-16	Accessories	Owner's Manual	Language
			w/Guarantee Card
			English
		Remote Control Unit	Yes
		Guarantee Card	No
		Registration Card	Yes
		Warning Sheet	No
		Service Station List	No
		Important Tag	No
		AC Plug Adapter	No
		Quick Set-up Sheet	Yes (Spanish)
		Battery	Yes
			UM size x pcs
			UM-4 x 2 pcs
		AC Cord	No
		AV Cord (1.2m)	Yes
		75 Ohm Coaxial Cable (0.9m)	Yes
		S-Video Cable	No
		21pin cable	No
		800 No Sticker	No
		Toll Free Insert Sheet	No
		Safety Tip	No
		Sheet Information (Return)	Yes
		Netflix Card	No
		PVC Warning Sheet	Yes

## GENERAL SPECIFICATIONS

G-17	Interface	Switch	Front	Power	Yes
				Play	Yes
				Eject (VCR)	Yes
				Stop	Yes
				Rec/OTR	Yes
				Open/Close (DVD)	Yes
				CH +	Yes
				CH -	Yes
				FF/ Search(>>)	Yes
				Rew/Search(<<)	Yes
				Still/Pause	No
				Shuttle (Search/REV/FWD)	No
				DVD/VCR	Yes
				Main Power SW	No
		Rear	Attenuator	No	
			S-Video/Component Video Selector	No	
			RF Out (Slide SW)	No	
			Main Power SW	No	
		Terminals	Front	Video In	RCA x 1 (Black/Silver)
				Audio In	RCA x 2 (L/MONO,R Black/Silver)
			Rear	Video Output	RCA x1 (Yellow) S-Video x 1 (DVD Signal Only) Component x1 (RCA 3pin, DVD Signal Only)
				Audio Output	RCA x 4(L,R White,Red) Coaxial x 1 (Digital Audio, DVD Signal Only)
				Optical Out (Option)	No
				Video Input (Option)	RCA x 1 (Yellow)
				Audio Input (Option)	RCA x 2 (L,R White,Red)
				RF Input / Output	Yes
				Euro Scart	No
				AC Inlet	No
		Indicator	LED	Power	No
				Rec	No
				T-Rec	No
				TV/VCR	No
				DVD	Yes (GREEN)
				VCR	Yes (GREEN)
				Surround	No
				Level Meter	No
Set Size				Approx. W x D x H (mm)	430 x 230 x 89.5
Weight	Net (Approx.)			3.5 kg( 7.7lbs)	
	Gross (Approx.)		4.5 kg( 9.9lbs)		
G-20	Carton	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)		497 x 340 x 174
			Description of Origin		Yes
		Drop Test			Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)		80 cm
		Container Stuffing		2,015 Sets/40' container	
G-21	Material	Cabinet	Front	PS 94V2 or More / DECABROM	
		PCB	Non-Halogen Demand	No	
			Eyelet Demand	No	
G-22	Environment	Environmental standard requirement (by buyer)		Green procurement of TOSHIBA	
		Pb-free		Phase3(Phase3A)	

# DISASSEMBLY INSTRUCTIONS

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

### 1-1: TOP CABINET, FRONT CABINET AND OPERATION 1/2 PCB (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connectors: (CP651 and CP652).
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 9 screws ③.
7. Remove the Operation 1/2 PCB in the direction of arrow (C).

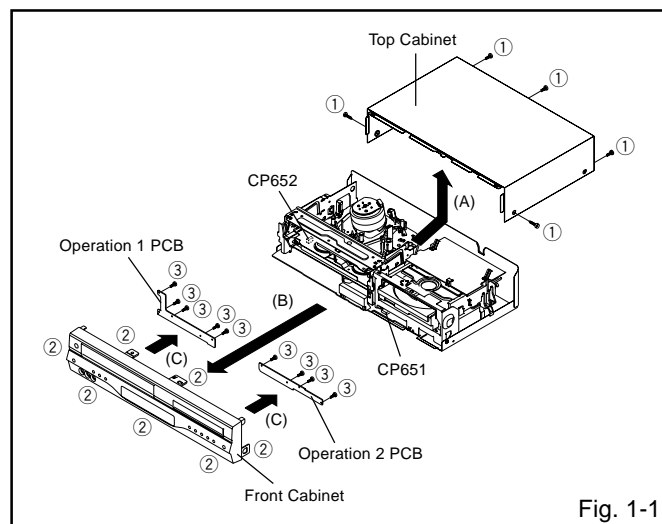


Fig. 1-1

### 1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

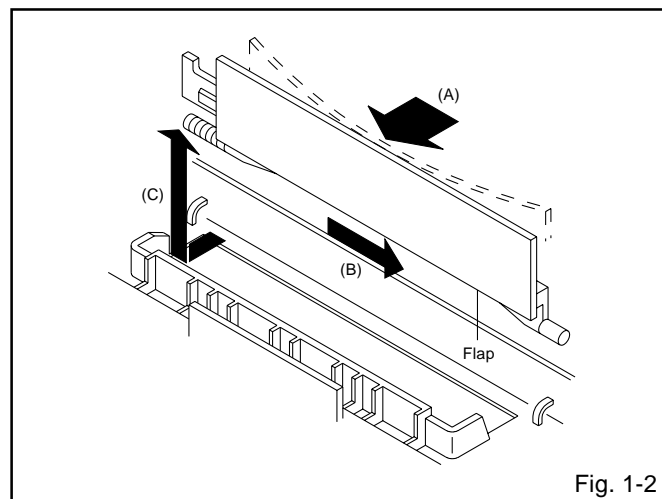


Fig. 1-2

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

1. Short circuit the position shown in Fig. 1-3 using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Unlock the support ① and remove the Deck Top Holder in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the 2 screws ③.
5. Disconnect the following connectors: (CP501, CP8001).
6. Remove the DVD Deck in the direction of arrow (B).
7. Disconnect the following connectors: (CP2301, CP2302, CP2303).
8. Remove the 2 screws ④.
9. Remove the DVD PCB in the direction of arrow (C).
10. Remove the 3 screws ⑤.
11. Remove the Front Angle in the direction of arrow (D).

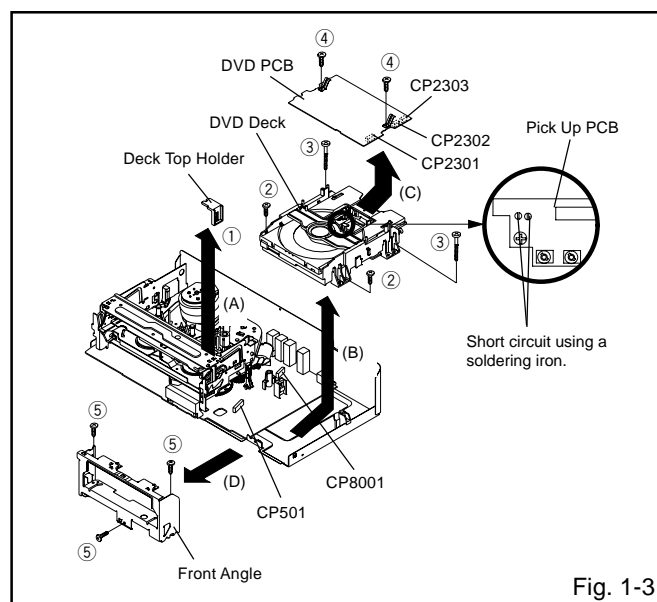


Fig. 1-3

## NOTE

1. Before your operation, please read "PREPARATION OF SERVICING".
2. Use the Lead Free solder.
3. Manual soldering conditions
  - Soldering temperature:  $350 \pm 5^{\circ}\text{C}$
  - Soldering time: Within 2 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 PCB connector.



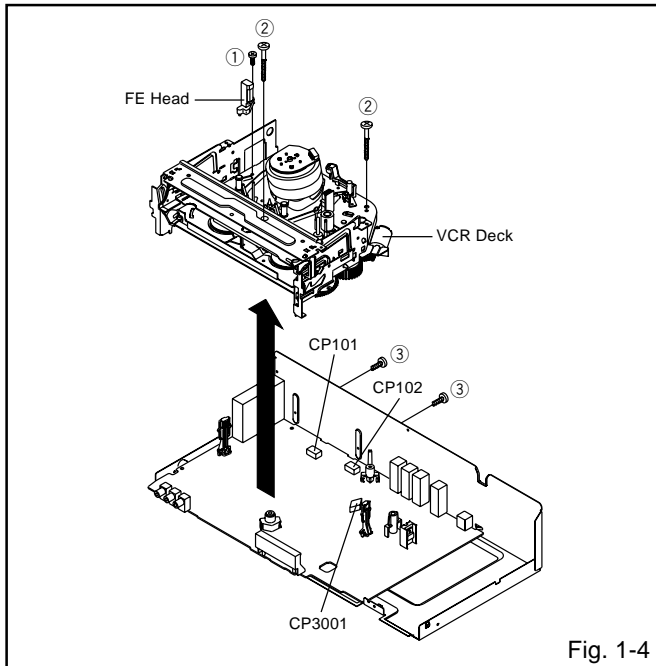
## DISASSEMBLY INSTRUCTIONS

### 1-4: VCR DECK (Refer to Fig. 1-4)

#### NOTE

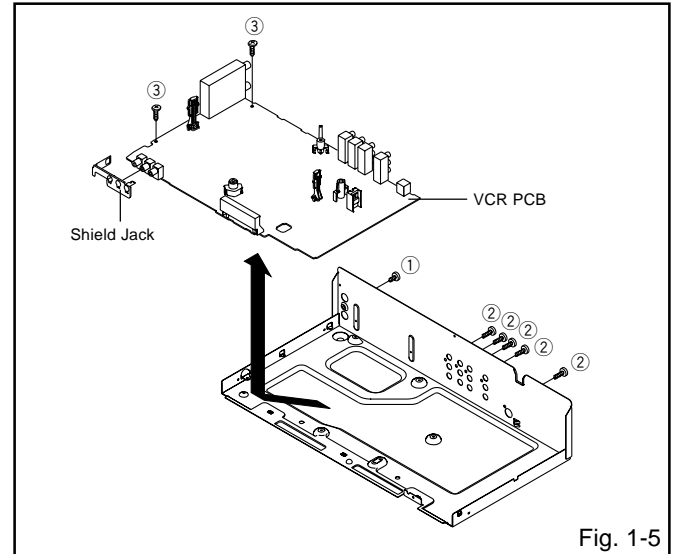
Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the screw ①.
2. Remove the FE Head.
3. Move the Cassette Holder Ass'y to the back side.
4. Remove the 2 screws ②.
5. Remove the 2 screws ③.
6. Disconnect the following connectors:  
**(CP101, CP102, CP3001).**
7. Remove the VCR Deck in the direction of arrow.



### 1-5: VCR PCB (Refer to Fig. 1-5)

1. Remove the screw ①.
2. Remove the 5 screws ②.
3. Remove the 2 screws ③.
4. Remove the Shield Jack.
5. Remove the VCR PCB in the direction of arrow.



# DISASSEMBLY INSTRUCTIONS

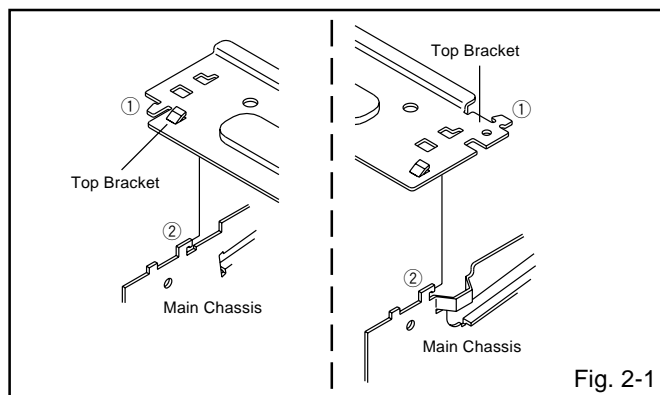
## 2. REMOVAL OF VCR DECK PARTS

### 2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

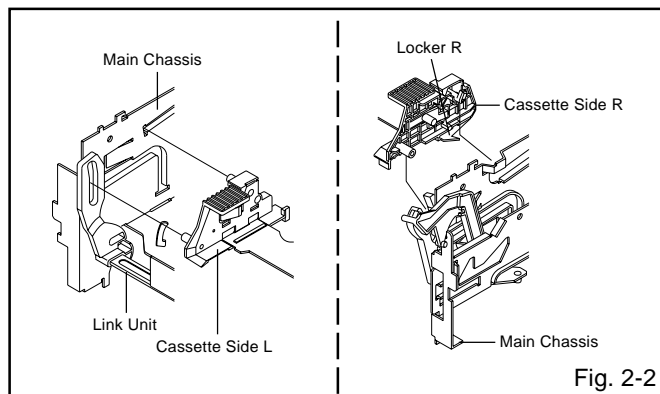
#### NOTE

1. After installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



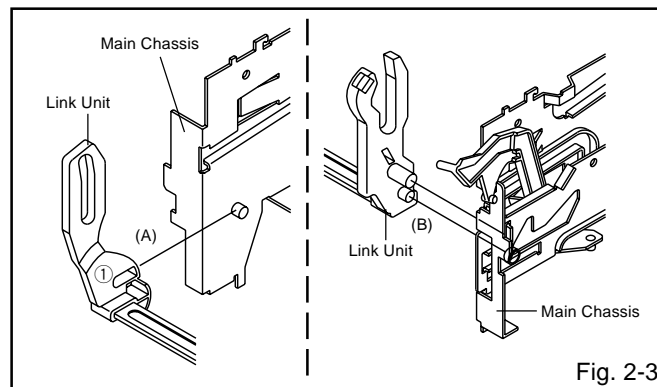
### 2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



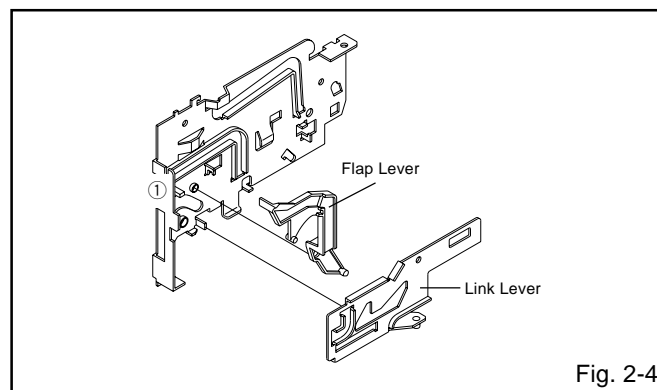
### 2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



### 2-4: LINK LEVER/FLAP LEVER (Refer to Fig. 2-4)

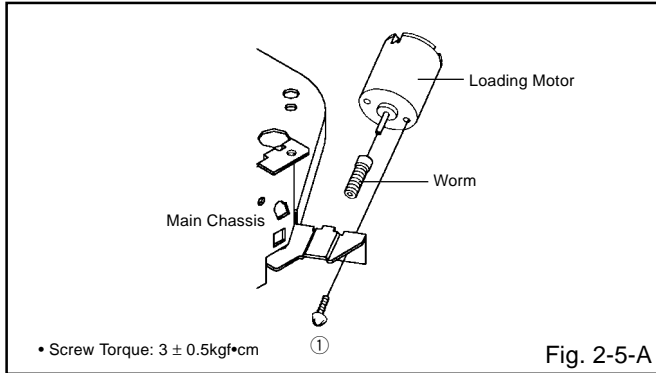
1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.



## DISASSEMBLY INSTRUCTIONS

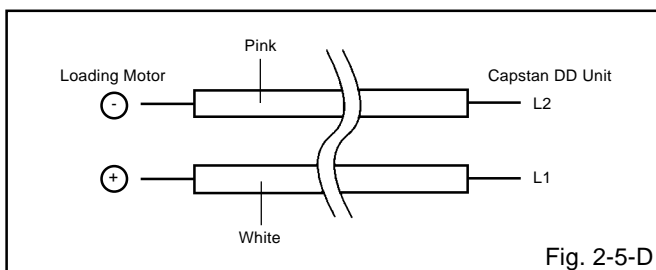
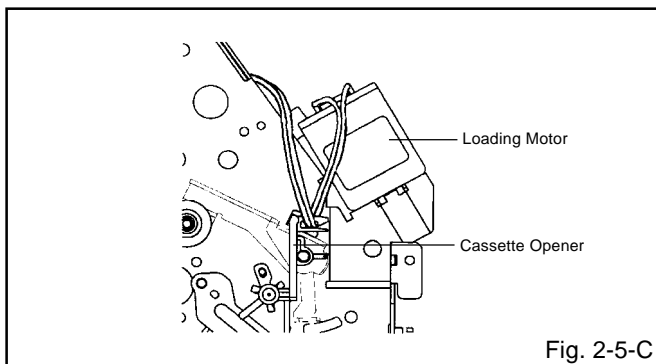
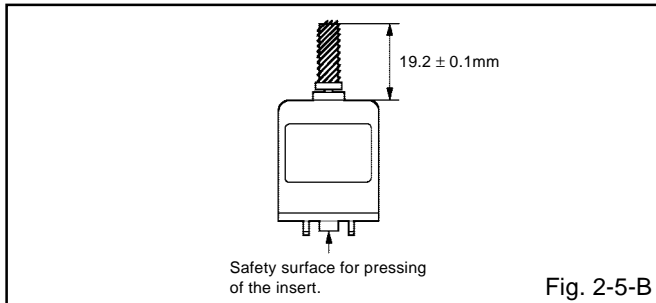
### 2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



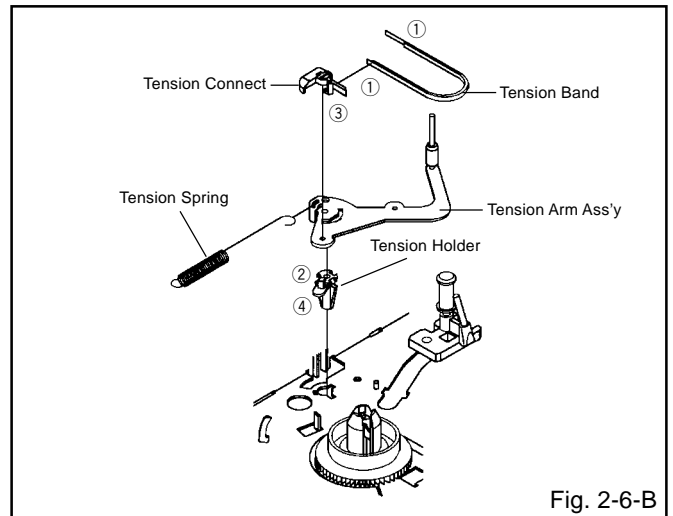
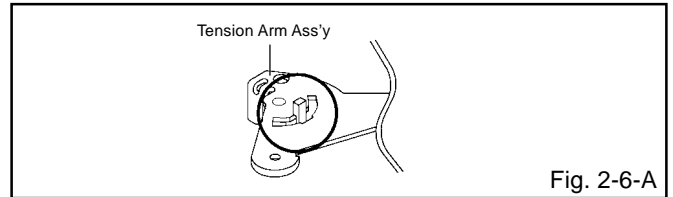
#### NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.



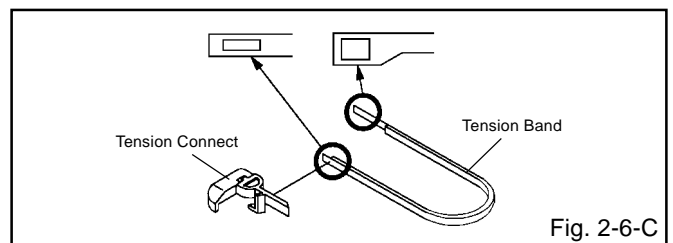
### 2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

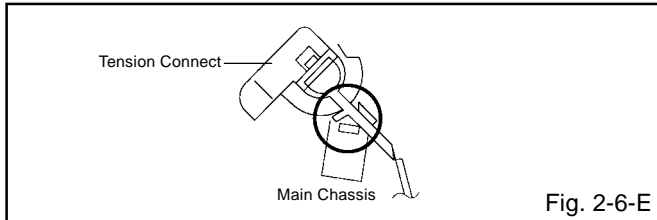
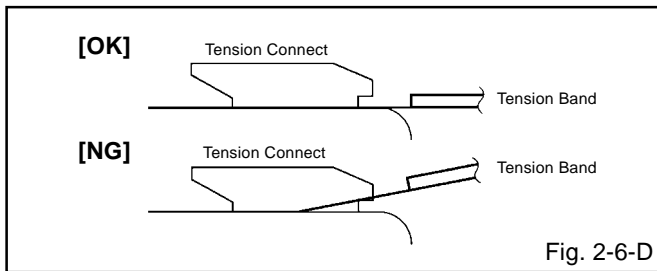


#### NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-6-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

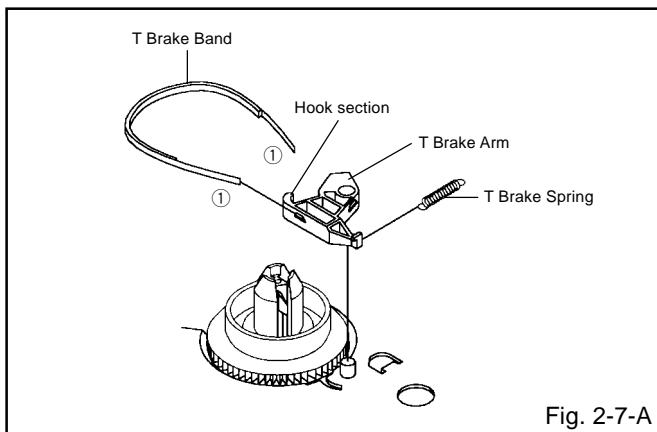


## DISASSEMBLY INSTRUCTIONS



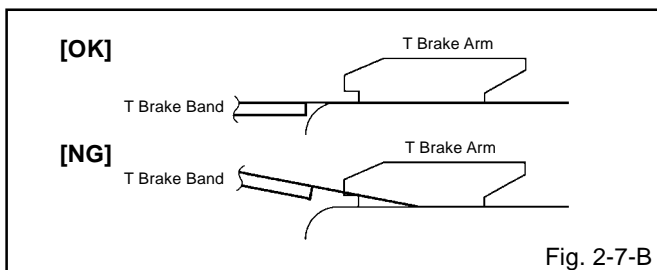
### 2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.



#### NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

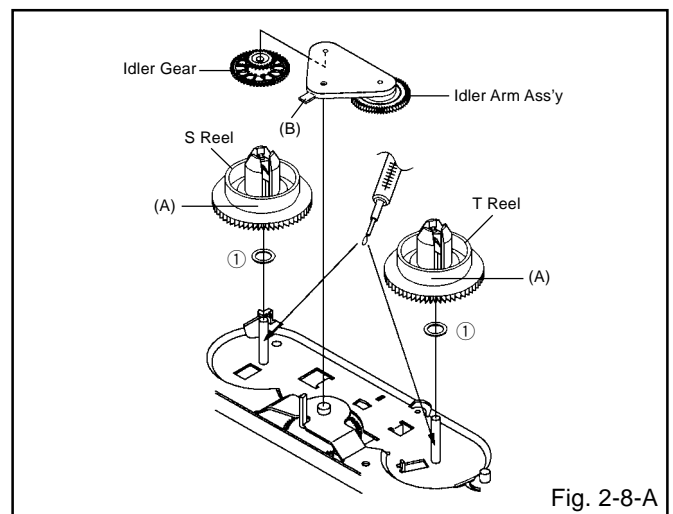


### 2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

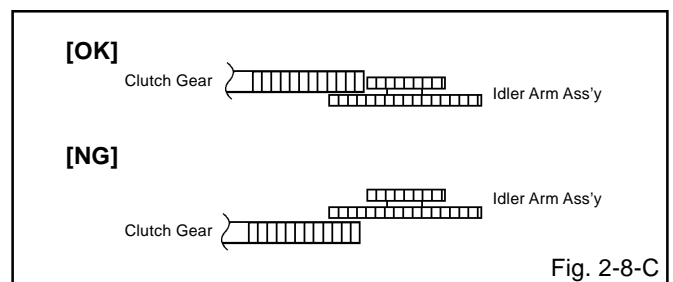
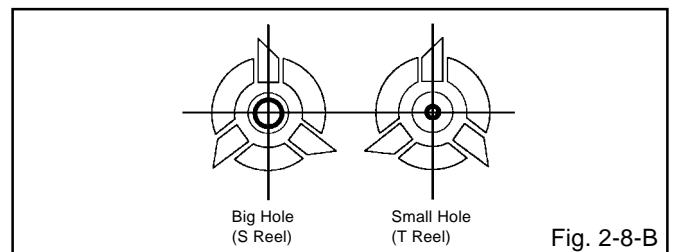
#### NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-8-A) Touching may leave stains on section "A".
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)



#### NOTE

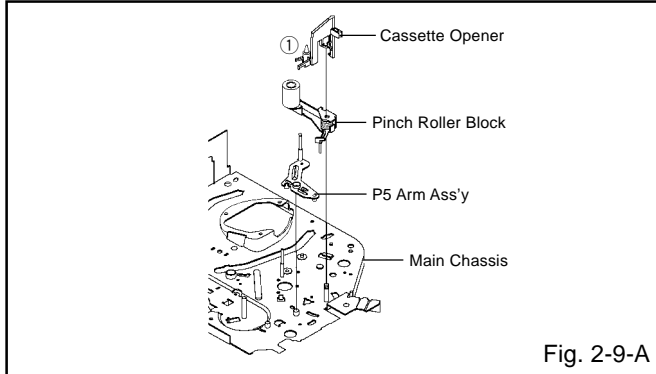
1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-8-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.



# DISASSEMBLY INSTRUCTIONS

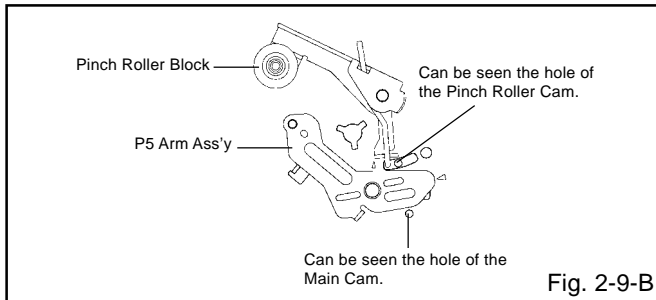
## 2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



### NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

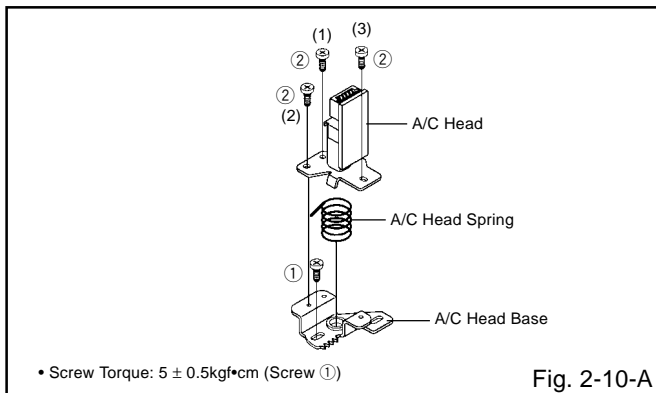


## 2-10: A/C HEAD (Refer to Fig. 2-10-A)

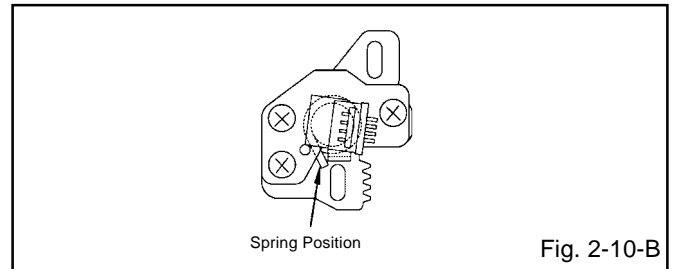
1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

### NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

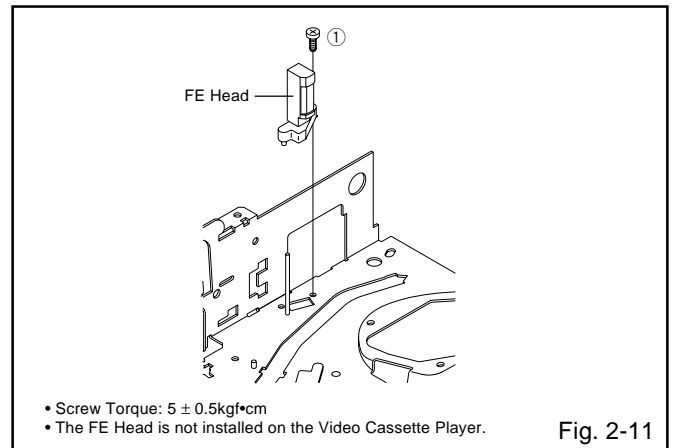


• Screw Torque:  $5 \pm 0.5\text{kgf}\cdot\text{cm}$  (Screw ①)



## 2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.



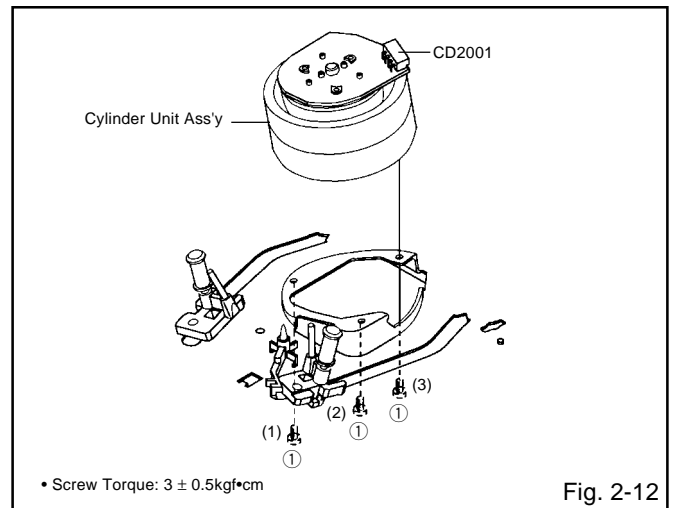
- Screw Torque:  $5 \pm 0.5\text{kgf}\cdot\text{cm}$
- The FE Head is not installed on the Video Cassette Player.

## 2-12: CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

1. Disconnect the following connector: (CD2001).
2. Remove the 3 screws ①.
3. Remove the Cylinder Unit Ass'y.

### NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

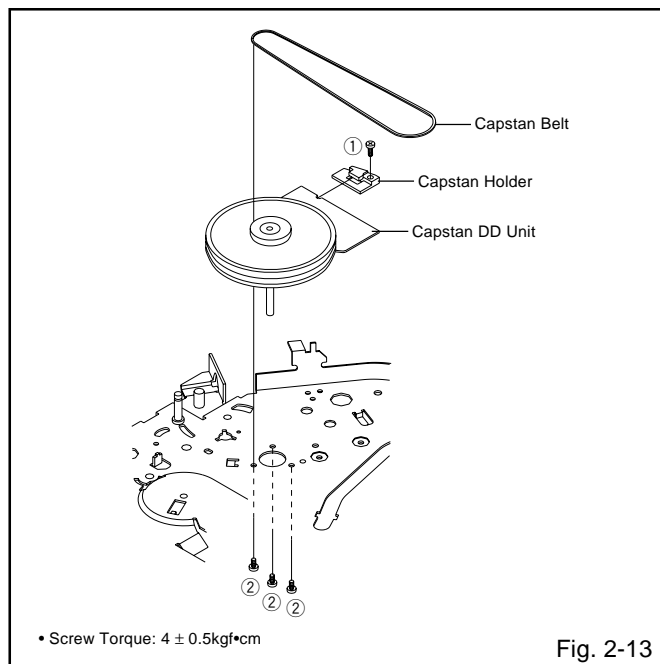


• Screw Torque:  $3 \pm 0.5\text{kgf}\cdot\text{cm}$

## DISASSEMBLY INSTRUCTIONS

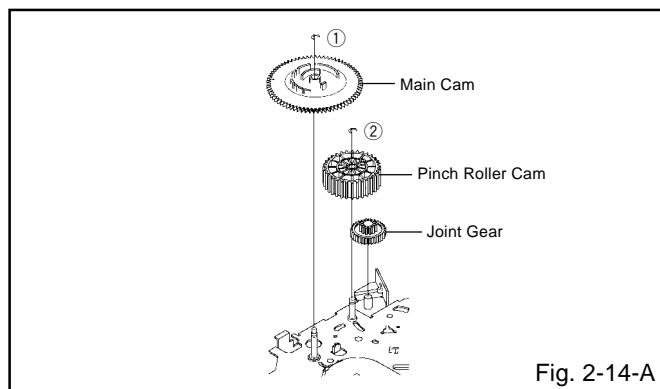
### 2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13)

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. Remove the Capstan DD Unit.



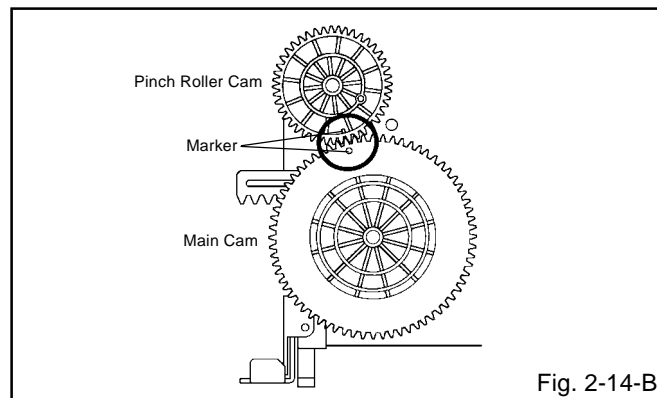
### 2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.



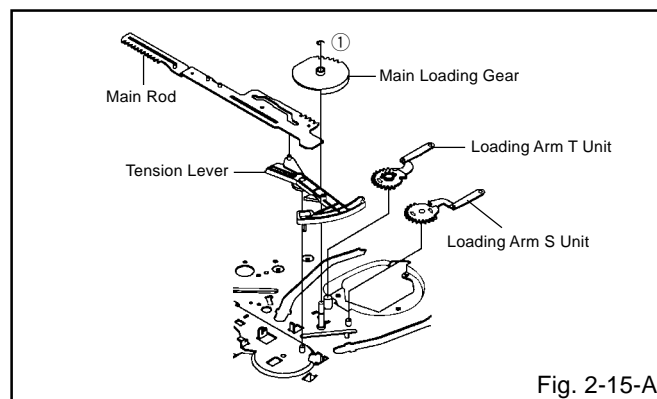
### NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as shown in the circled section of Fig. 2-14-B so that the markers meet. (Refer to Fig. 2-14-B) And also can be seen the Main Chassis hole through the Main Cam maker hole.



### 2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)

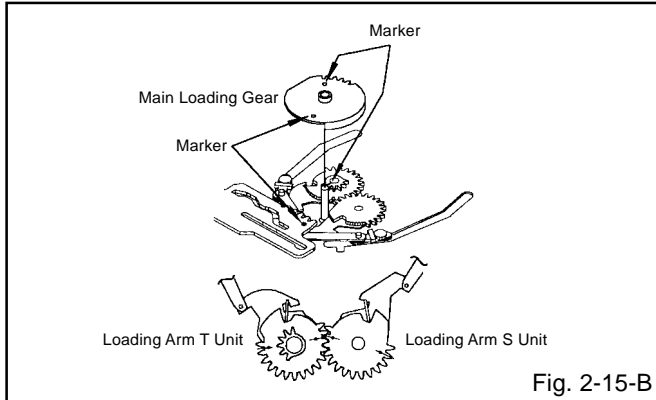
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



# DISASSEMBLY INSTRUCTIONS

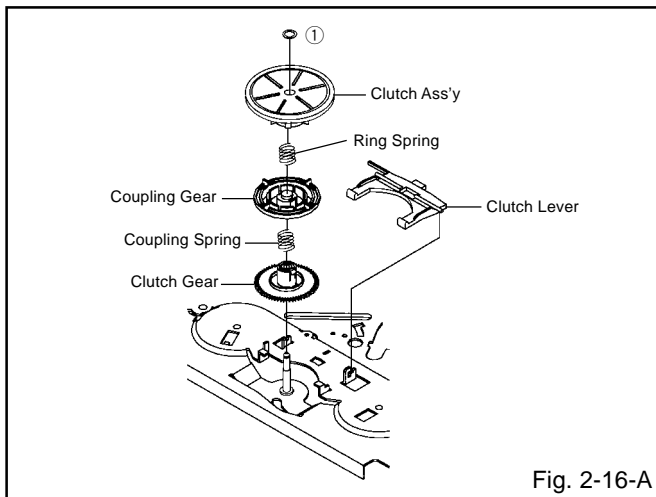
## NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. (Refer to Fig. 2-15-B)



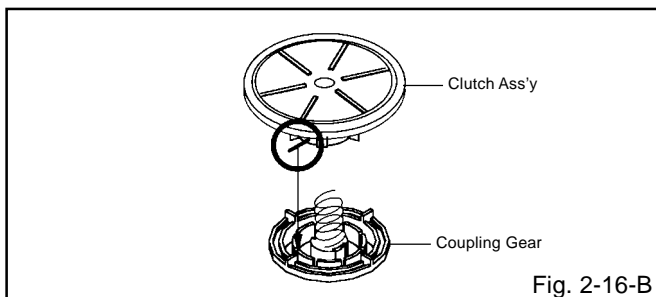
## 2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



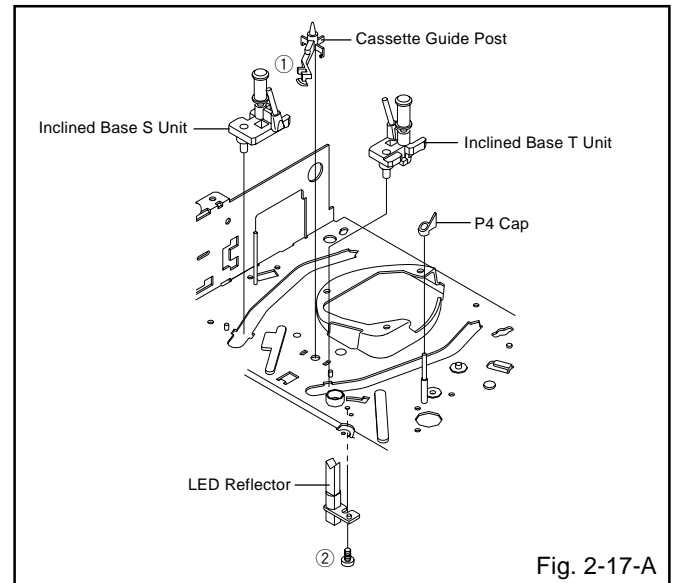
## NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-16-B)



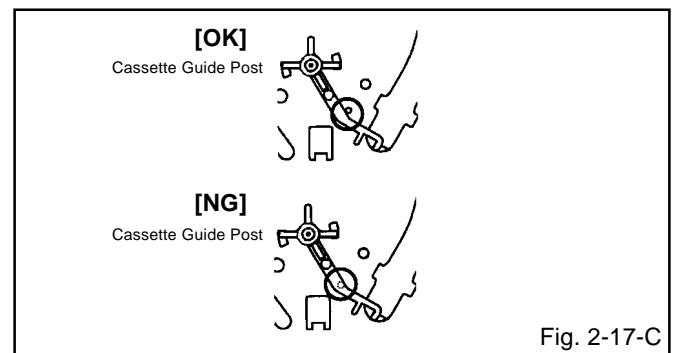
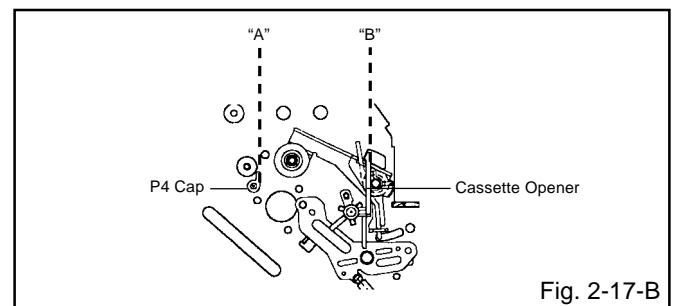
## 2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.



## NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.





# DISASSEMBLY INSTRUCTIONS

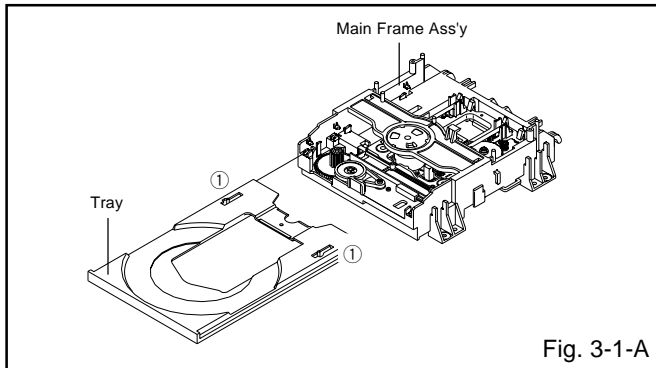
## 3. REMOVAL OF DVD DECK PARTS

### NOTE

1. Do not disassemble the DVD DECK PARTS except listed parts here. Minute adjustments are needed if the disassemble is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

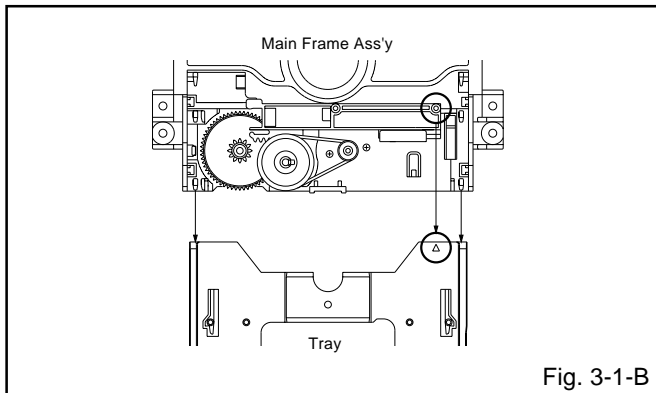
### 3-1: TRAY (Refer to Fig. 3-1-A)

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.



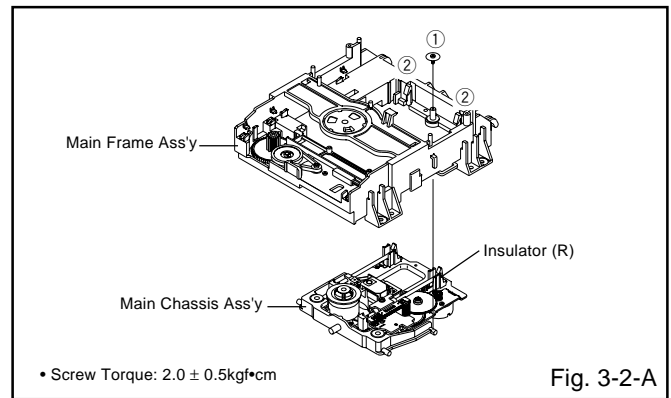
### NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.



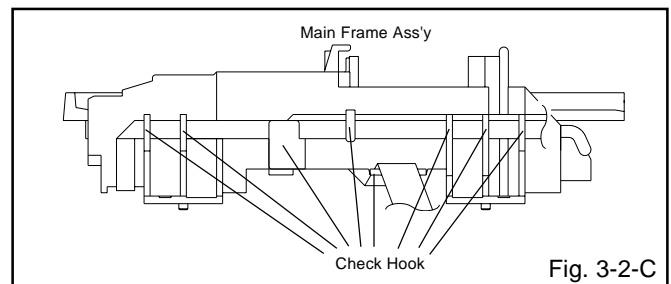
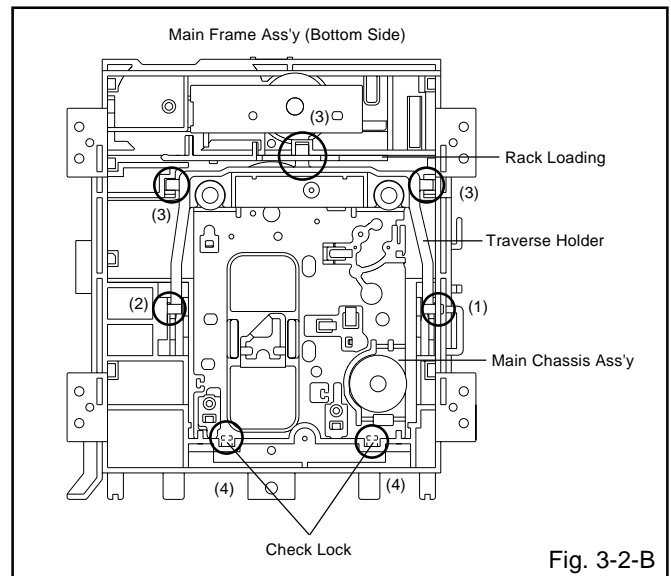
### 3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)

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.



### NOTE

1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. (Refer to Fig. 3-2-B)
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-2-C.



# DISASSEMBLY INSTRUCTIONS

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

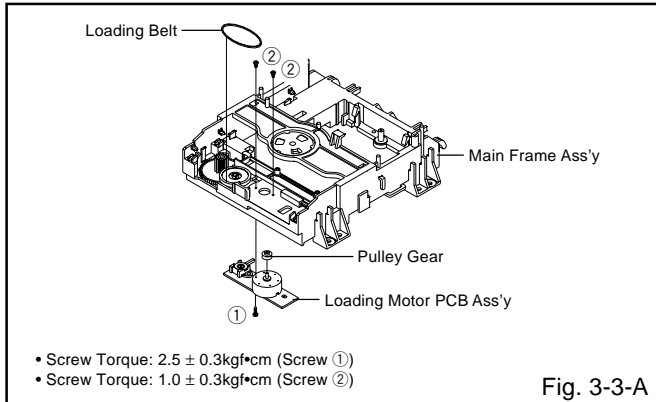


Fig. 3-3-A

### NOTE

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

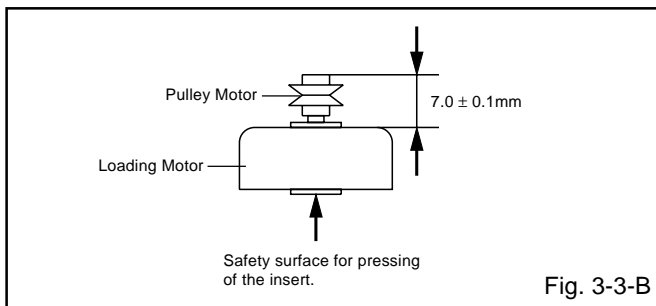


Fig. 3-3-B

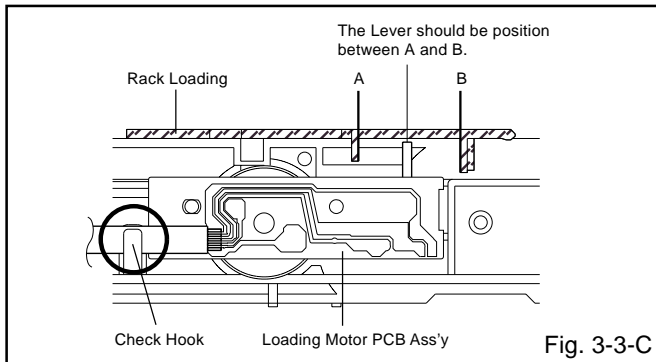


Fig. 3-3-C

## 3-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 3-4-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.

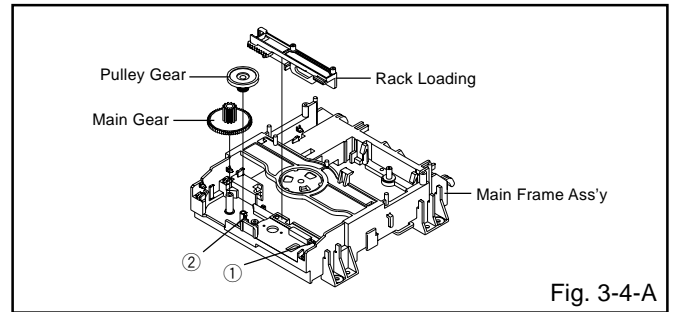


Fig. 3-4-A

### NOTE

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 3-4-B.

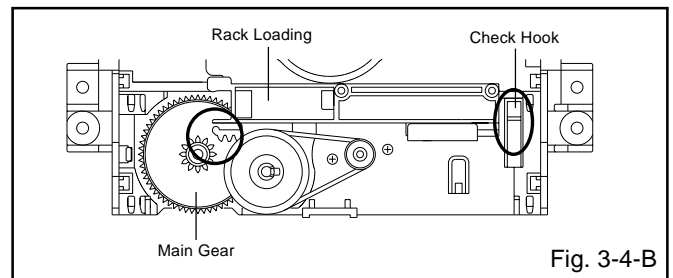


Fig. 3-4-B

## 3-5: CLAMPER ASS'Y (Refer to Fig. 3-5-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.

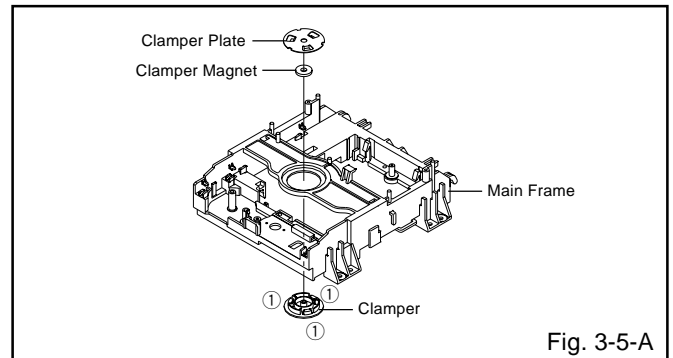


Fig. 3-5-A

### NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 3-5-B.

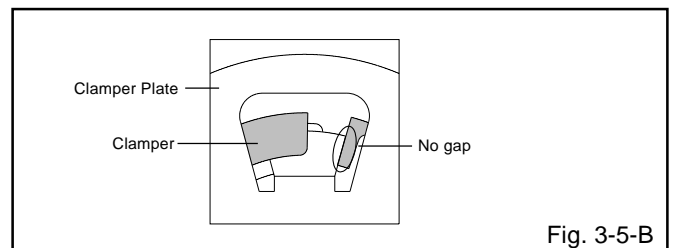
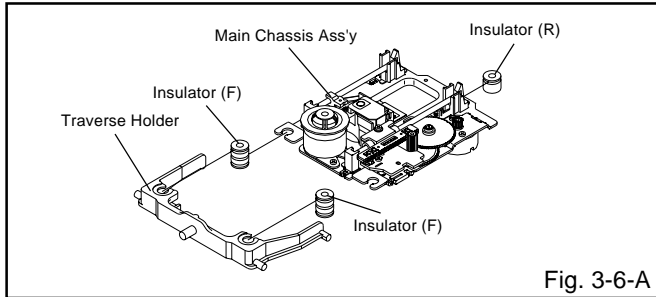


Fig. 3-5-B

## DISASSEMBLY INSTRUCTIONS

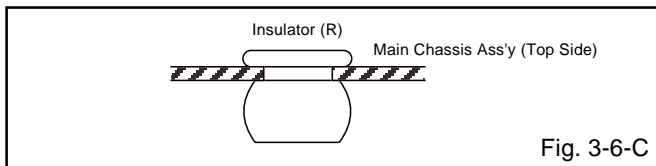
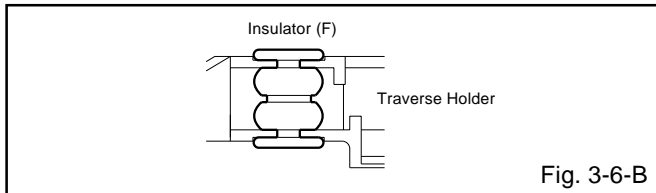
### 3-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 3-6-A)

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



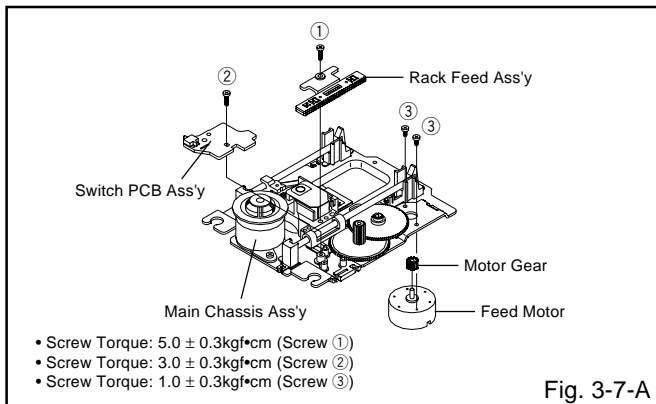
#### NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 3-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 3-6-C.



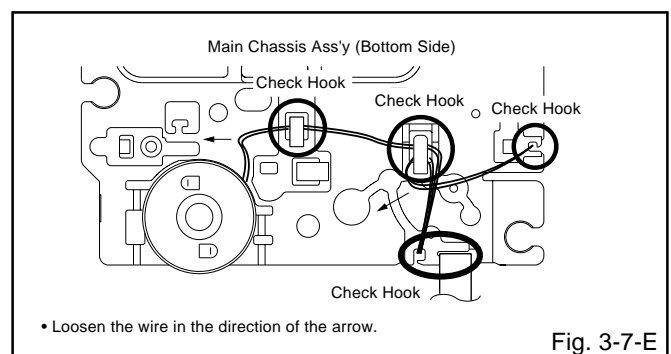
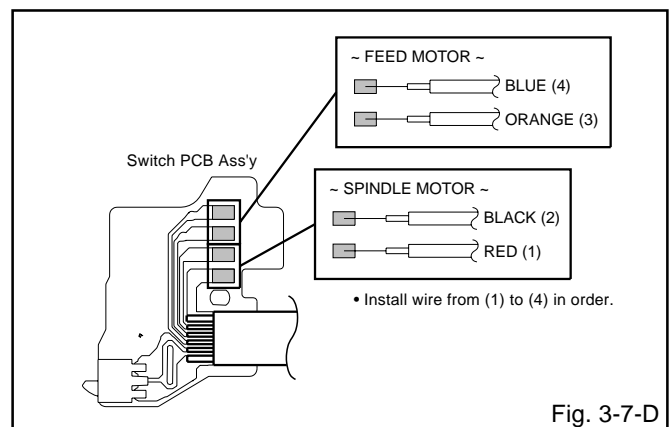
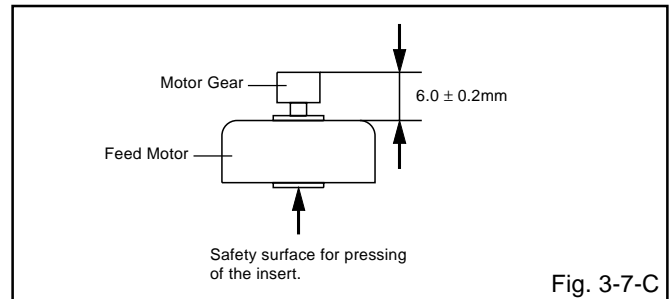
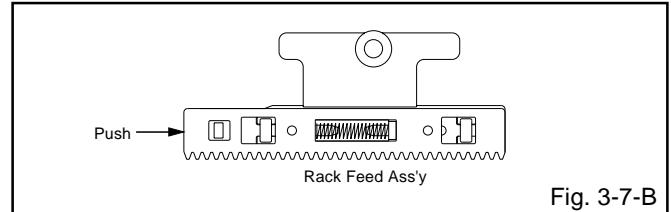
### 3-7: RACK FEED ASS'Y/SWITCH PCB ASS'Y/FEED MOTOR (Refer to Fig. 3-7-A)

1. Remove the screw ①.
2. Remove the Rack Feed Ass'y.
3. Remove the screw ②.
4. Remove the Switch PCB Ass'y.
5. Remove the 2 screw ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.



#### NOTE

1. When pushing the Rack Feed in the direction of the arrow, it should be restored to the original position by the spring force. (Refer to Fig. 3-7-B)
2. In case of the Motor Gear installation, check if the value of the Fig. 3-7-C is correct.
3. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-D.
4. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-E.



## DISASSEMBLY INSTRUCTIONS

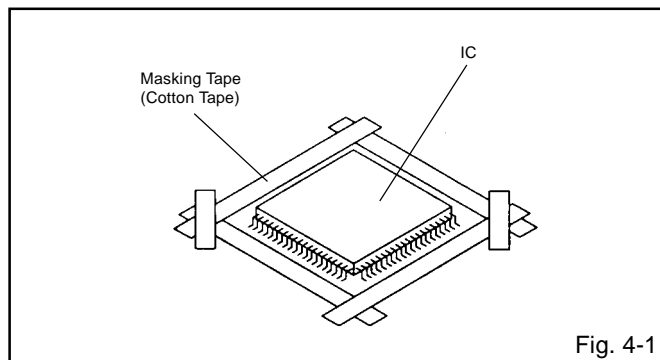
### 4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

#### 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

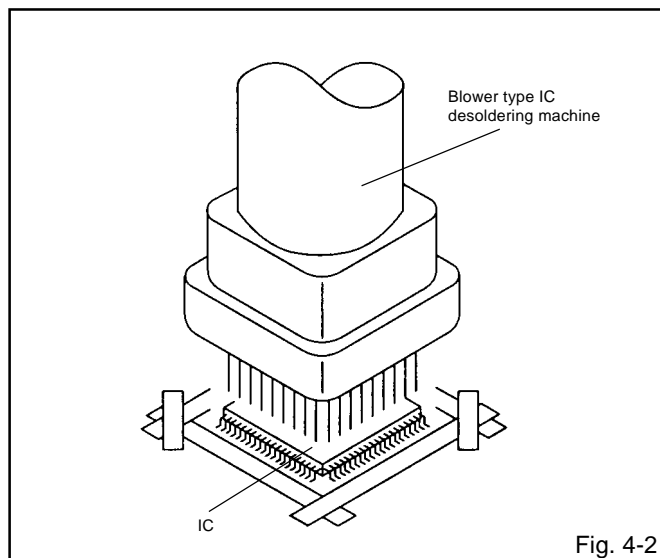
Masking is carried out on all the parts located within 10 mm distance from IC leads.



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

#### NOTE

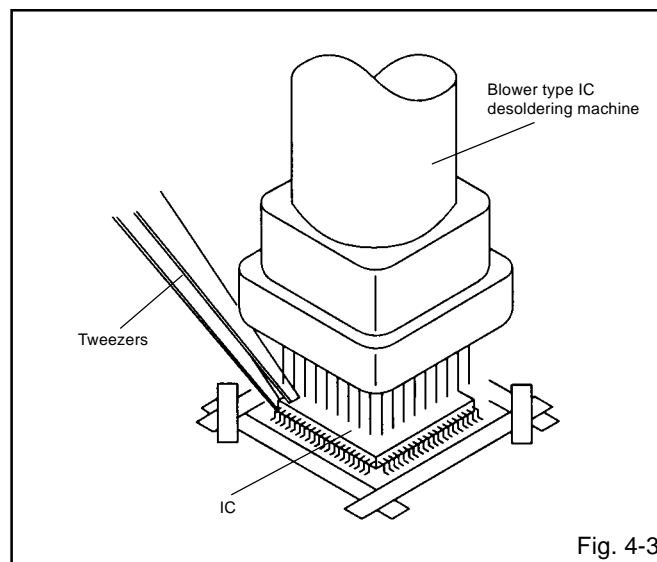
Do not rotate or move the IC back and forth, until IC can move back and forth easily after desoldering the leads completely.



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

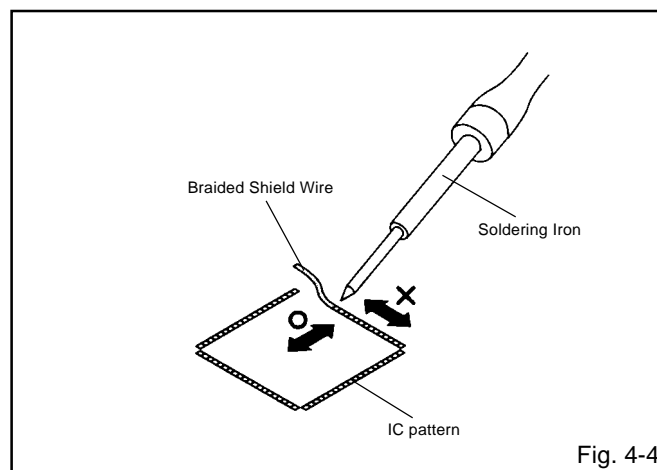
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



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

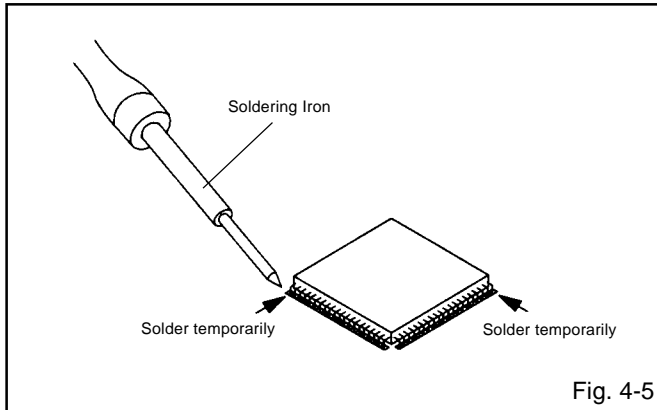
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



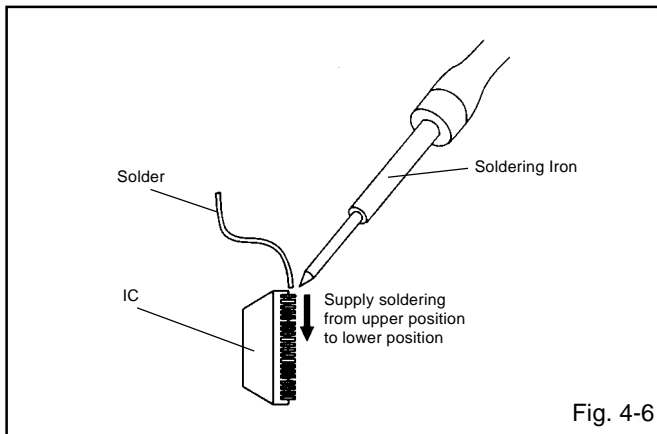
# DISASSEMBLY INSTRUCTIONS

## 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.)**



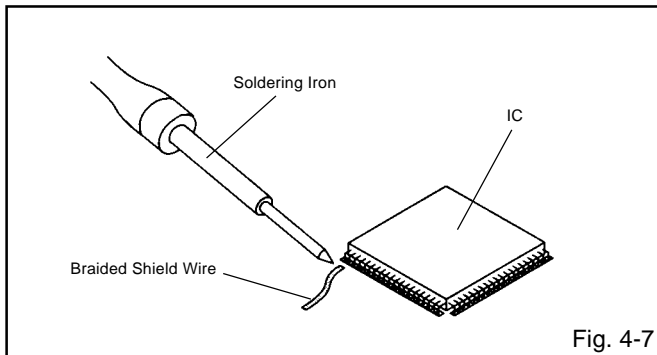
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**



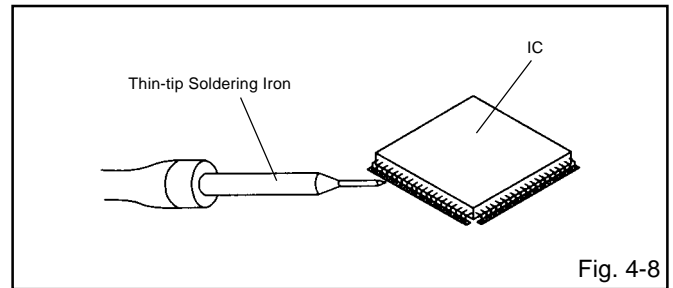
3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

### 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.

## KEY TO ABBREVIATIONS

<b>A</b>	<b>A/C</b>	: Audio/Control	<b>H</b>	<b>H.P.F</b>	: High Pass Filter
	<b>ACC</b>	: Automatic Color Control		<b>H.SW</b>	: Head Switch
	<b>AE</b>	: Audio Erase		<b>Hz</b>	: Hertz
	<b>AFC</b>	: Automatic Frequency Control	<b>I</b>	<b>IC</b>	: Integrated Circuit
	<b>AFT</b>	: Automatic Fine Tuning		<b>IF</b>	: Intermediate Frequency
	<b>AFT DET</b>	: Automatic Fine Tuning Detect		<b>IND</b>	: Indicator
	<b>AGC</b>	: Automatic Gain Control		<b>INV</b>	: Inverter
	<b>AMP</b>	: Amplifier	<b>K</b>	<b>KIL</b>	: Killer
	<b>ANT</b>	: Antenna	<b>L</b>	<b>L</b>	: Left
	<b>A.PB</b>	: Audio Playback		<b>LED</b>	: Light Emitting Diode
	<b>APC</b>	: Automatic Phase Control		<b>LIMIT AMP</b>	: Limiter Amplifier
	<b>ASS'Y</b>	: Assembly		<b>LM, LDM</b>	: Loading Motor
	<b>AT</b>	: All Time		<b>LP</b>	: Long Play
	<b>AUTO</b>	: Automatic		<b>L.P.F</b>	: Low Pass Filter
	<b>A/V</b>	: Audio/Video		<b>LUMI.</b>	: Luminance
<b>B</b>	<b>BGP</b>	: Burst Gate Pulse	<b>M</b>	<b>M</b>	: Motor
	<b>BOT</b>	: Beginning of Tape		<b>MAX</b>	: Maximum
	<b>BPF</b>	: Bandpass Filter		<b>MINI</b>	: Minimum
	<b>BRAKE SOL</b>	: Brake Solenoid		<b>MIX</b>	: Mixer, mixing
	<b>BUFF</b>	: Buffer		<b>MM</b>	: Monostable Multivibrator
	<b>B/W</b>	: Black and White		<b>MOD</b>	: Modulator, Modulation
<b>C</b>	<b>C</b>	: Capacitance, Collector		<b>MPX</b>	: Multiplexer, Multiplex
	<b>CASE</b>	: Cassette		<b>MS SW</b>	: Mecha State Switch
	<b>CAP</b>	: Capstan	<b>N</b>	<b>NC</b>	: Non Connection
	<b>CARR</b>	: Carrier		<b>NR</b>	: Noise Reduction
	<b>CH</b>	: Channel	<b>O</b>	<b>OSC</b>	: Oscillator
	<b>CLK</b>	: Clock		<b>OPE</b>	: Operation
	<b>CLOCK (SY-SE)</b>	: Clock (Syscon to Servo)	<b>P</b>	<b>PB</b>	: Playback
	<b>COMB</b>	: Combination, Comb Filter		<b>PB CTL</b>	: Playback Control
	<b>CONV</b>	: Converter		<b>PB-C</b>	: Playback-Chrominance
	<b>CPM</b>	: Capstan Motor		<b>PB-Y</b>	: Playback-Luminance
	<b>CTL</b>	: Control		<b>PCB</b>	: Printed Circuit Board
	<b>CYL</b>	: Cylinder		<b>P. CON</b>	: Power Control
	<b>CYL-M</b>	: Cylinder-Motor		<b>PD</b>	: Phase Detector
	<b>CYL SENS</b>	: Cylinder-Sensor		<b>PG</b>	: Pulse Generator
<b>D</b>	<b>DATA (SY-CE)</b>	: Data (Syscon to Servo)		<b>P-P</b>	: Peak-to Peak
	<b>dB</b>	: Decibel	<b>R</b>	<b>R</b>	: Right
	<b>DC</b>	: Direct Current		<b>REC</b>	: Recording
	<b>DD Unit</b>	: Direct Drive Motor Unit		<b>REC-C</b>	: Recording-Chrominance
	<b>DEMOD</b>	: Demodulator		<b>REC-Y</b>	: Recording-Luminance
	<b>DET</b>	: Detector		<b>REEL BRK</b>	: Reel Brake
	<b>DEV</b>	: Deviation		<b>REEL S</b>	: Reel Sensor
<b>E</b>	<b>E</b>	: Emitter		<b>REF</b>	: Reference
	<b>EF</b>	: Emitter Follower		<b>REG</b>	: Regulated, Regulator
	<b>EMPH</b>	: Emphasis		<b>REW</b>	: Rewind
	<b>ENC</b>	: Encoder		<b>REV, RVS</b>	: Reverse
	<b>ENV</b>	: Envelope		<b>RF</b>	: Radio Frequency
	<b>EOT</b>	: End of Tape		<b>RMC</b>	: Remote Control
	<b>EQ</b>	: Equalizer		<b>RY</b>	: Relay
	<b>EXT</b>	: External	<b>S</b>	<b>S. CLK</b>	: Serial Clock
<b>F</b>	<b>F</b>	: Fuse		<b>S. COM</b>	: Sensor Common
	<b>FBC</b>	: Feed Back Clamp		<b>S. DATA</b>	: Serial Data
	<b>FE</b>	: Full Erase		<b>SEG</b>	: Segment
	<b>FF</b>	: Fast Forward, Flip-flop		<b>SEL</b>	: Select, Selector
	<b>FG</b>	: Frequency Generator		<b>SENS</b>	: Sensor
	<b>FL SW</b>	: Front Loading Switch		<b>SER</b>	: Search Mode
	<b>FM</b>	: Frequency Modulation		<b>SI</b>	: Serial Input
	<b>FSC</b>	: Frequency Sub Carrier		<b>SIF</b>	: Sound Intermediate Frequency
	<b>FWD</b>	: Forward		<b>SO</b>	: Serial Output
<b>G</b>	<b>GEN</b>	: Generator		<b>SOL</b>	: Solenoid
	<b>GND</b>	: Ground		<b>SP</b>	: Standard Play

## KEY TO ABBREVIATIONS

<b>S</b>	<b>STB</b>	:	Serial Strobe
	<b>SW</b>	:	Switch
	<b>SYNC</b>	:	Synchronization
	<b>SYNC SEP</b>	:	Sync Separator, Separation
<b>T</b>	<b>TR</b>	:	Transistor
	<b>TRAC</b>	:	Tracking
	<b>TRICK PB</b>	:	Trick Playback
	<b>TP</b>	:	Test Point
<b>U</b>	<b>UNREG</b>	:	Unregulated
<b>V</b>	<b>V</b>	:	Volt
	<b>VCO</b>	:	Voltage Controlled Oscillator
	<b>VIF</b>	:	Video Intermediate Frequency
	<b>VP</b>	:	Vertical Pulse, Voltage Display
	<b>V.PB</b>	:	Video Playback
	<b>VR</b>	:	Variable Resistor
	<b>V.REC</b>	:	Video Recording
	<b>VSF</b>	:	Visual Search Fast Forward
	<b>VSR</b>	:	Visual Search Rewind
	<b>VSS</b>	:	Voltage Super Source
	<b>V-SYNC</b>	:	Vertical-Synchronization
	<b>VT</b>	:	Voltage Tuning
<b>X</b>	<b>X'TAL</b>	:	Crystal
<b>Y</b>	<b>Y/C</b>	:	Luminance/Chrominance



## 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 or on the main unit and on the remote control for more than a standard time in the appropriate condition. (See below chart.)

In case of the main unit and remote control, press the remote control buttons first, then press the main unit buttons.

Set Condition	Set Key	Set Key	Standard Time	Operations
VCR mode	CH UP	FF	2 sec.	PLAY/REC total hours are displayed on the TV Monitor. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED).  Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VCR mode	CH UP	PLAY	2 sec.	Initialization of factory VCR data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the clock setting, the channel setting, and PLAY/REC total hours.
VCR mode (Playback)	CH UP	STOP	2 sec.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT".
Power Off	CH DOWN	ON/ STANDBY	2 sec.	VCR operation mode at no connection of DVD. Refer to the "PREPARATION FOR SERVICING" NOTE: Although the DVD is connected, the DVD mode cannot be selected.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
DVD mode (No disc)	REC	4	2 sec.	Initialization of factory DVD data. NOTE: Do not use this for normal servicing.
DVD mode (Stop)	REC	6	2 sec.	DVD Write mode. Refer to the "RE-WRITE FOR DVD FIRMWARE". NOTE: Do not use this for the normal servicing.
DVD mode (Stop)	STOP	1	3 sec.	Check for the firmware version. Refer to the "RE-WRITE FOR DVD FIRMWARE". NOTE: Do not use this for the normal servicing.
DVD mode (No disc)	STOP	7	3 sec.	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL".

Method	Operations
Press the following remocon keys continuously. SETUP → SUBTITLE → 3 → AUDIO → 0	Tray cannot be opened. Refer to the "TRAY LOCK".
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

## PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.

Parts replacing time does not mean the life span for individual parts.

Also, long term storage or misuse may cause transformation and aging of rubber parts.

The following list means standard hours, so the checking hours depends on the conditions.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

## CONFIRMATION OF HOURS USED

PLAY/REC total hours can be checked on the screen.

Total hours are displayed in 16 system of notation.

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

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.  
The Fig. 1 screen will appear on TV Monitor.
4. After the confirmation of using hours, turn off the power.

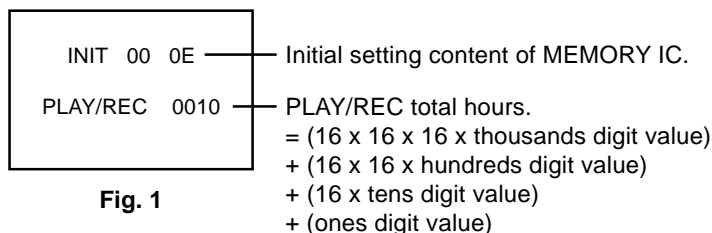


Fig. 1

# PREVENTIVE CHECKS AND SERVICE INTERVALS

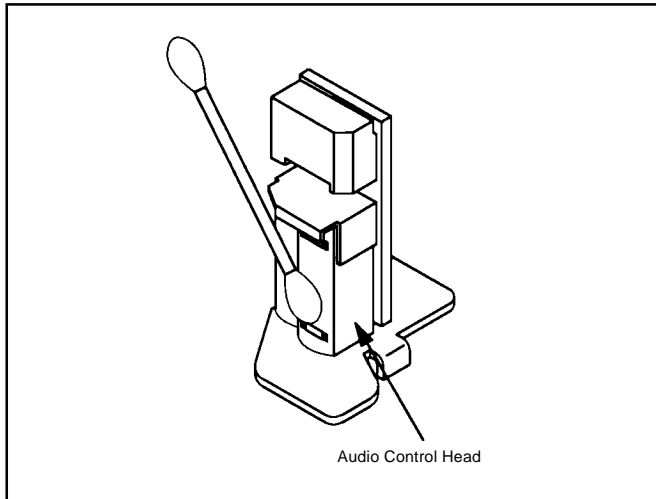
## CLEANING

### NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

### 1. AUDIO CONTROL HEAD

Clean the Audio Control Head with a cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



### 2. TAPE RUNNING SYSTEM

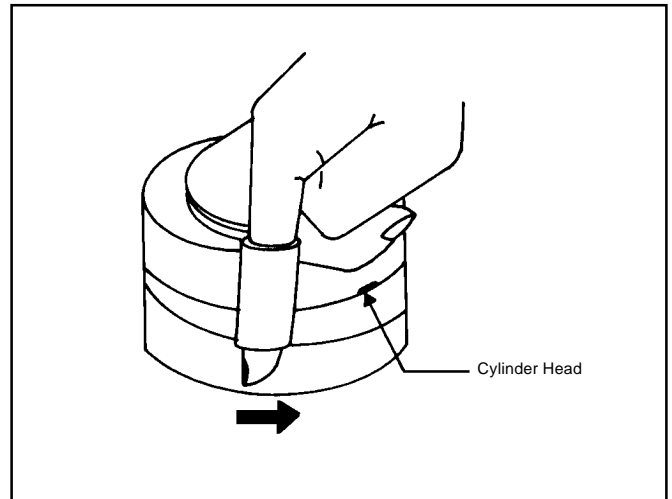
When cleaning the tape transport system, use gauze moistened with isopropyl alcohol.

### 3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

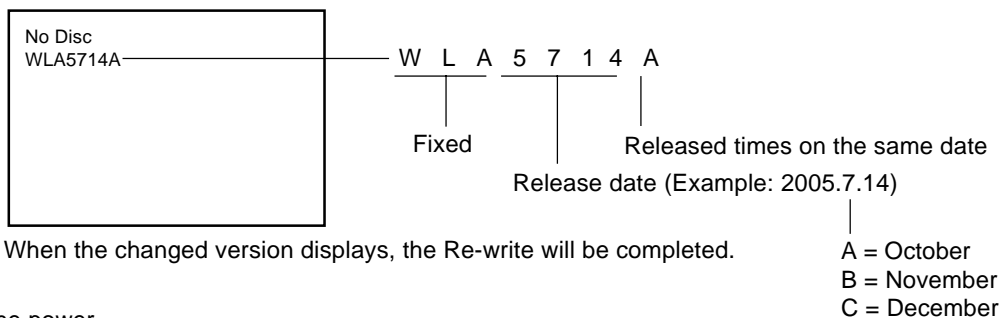
### NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



## RE-WRITE FOR DVD FIRMWARE

1. Turn on the power, and set the DVD mode.
2. Confirm that the "No Disc" will be appeared on the screen.
3. Open the DVD tray.
4. Press both Channel button **(6)** on the remote control and the REC button on the set for more than 2 seconds.
5. Press OPEN/CLOSE 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 at Non DVD Write mode, the read error will happen.**
6. Place the Up-Date Disc and close the tray by hand. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Automatic read will start and "CD-R UPDATE PROCESS" will be displayed on the screen.  
 At this time, the horizontal noise lines may appear. But no problem.
8. Approx. 20 seconds later, the tray will open automatically. Remove the Up-Date Disc.
9. Then, Approx. 40 seconds later, the above indication will disappear and the tray will close automatically.  
 When the "No Disc" appears on the screen, the write will end.  
**NOTE: Do not turn off the unit or push the tray by hand to close it.**  
**Up-Date error will happen and can not be done with the Up-Date of Up-Date Disc.**
10. Unplug the AC cord, then plug it in.
11. **After the write, set to the initializing of shipping.**  
 Set to the DVD mode, press both Channel button **(4)** on the remote control and the REC button on the set for more than 2 seconds.
12. The "INITIALIZE 5 ---> COMPLETE" will appear on the screen.  
 Then unplug the AC cord, and plug it in.
13. **CHECK FOR THE FIRMWARE VERSION**  
 Set to the DVD mode, 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.



14. Turn off the power

## WHEN REPLACING EEPROM (MEMORY) IC

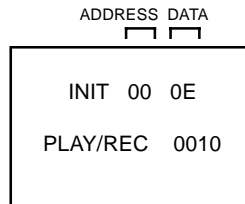
If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE: INI 32 and INI 33 cannot be set. Because, the total time for the PLAY/REC of the main unit is recorded.**

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0E	22	9E	60	64	64	4A	86	0B	2B	86	32	8A	C8	0A	01
10	AF	97	95	8A	00	00	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	29	3A	00	0B	00	40	C5	9A	B0	00	37
30	03	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**Table 1**

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.  
ADDRESS and DATA will appear on TV Monitor as **Fig 1**.



**Fig. 1**

4. ADDRESS is now selected and should "blink". Using the SET + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using SET + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 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.

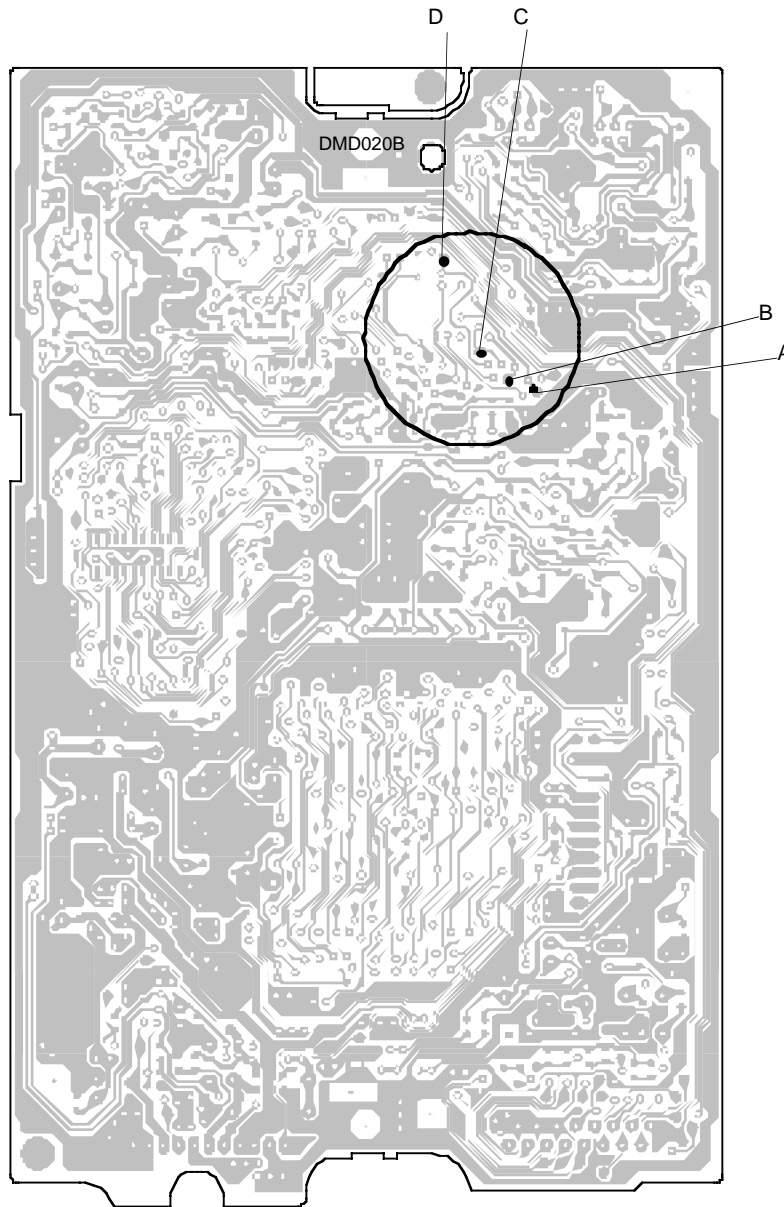
### **After the data input, set to the initializing of shipping.**

10. Turn on the POWER, and set to the VCR mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. 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.

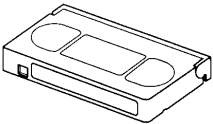
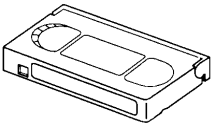
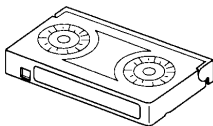
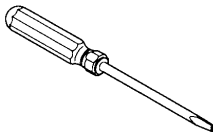
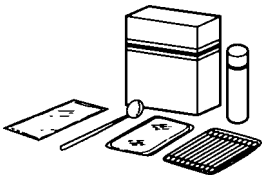


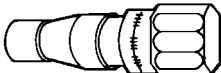
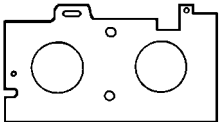
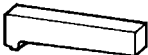
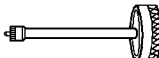
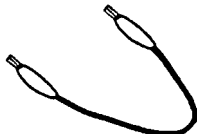
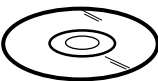
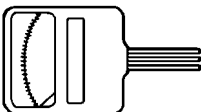
## RF SIGNAL CHECK OF DVD PCB

RF signal check can be done at the following A~D resistance points on the DVD PCB.

**DVD PCB (BOTTOM SIDE)**



## SERVICING FIXTURES AND TOOLS

<p>Alignment Tape</p>  <p>ST-N5 ST-NF</p>	<p>Back tension cassette gauge</p>  <p>70909103</p>	<p>Torque cassette gauge (KT-300NR)</p>  <p>70909199</p>	<p>Taper nut driver</p>  <p>70909228</p>
<p>VTR cleaning kit</p> 	<p>VTR lubrication kit</p> 	<p>Grease</p> 	<p>JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm)</p> 
<p>JG022 Master Plane</p> 	<p>JG024A Reel Disk Height Adjustment Jig</p> 	<p>JG153 X Value Adjustment Screwdriver</p> 	<p>JG154 Cable</p> 
<p>JG176 Up-Date Disc</p> 	<p>JG185 Tentelometer</p> 		

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND
JG176	APJG176084	Up-Date Disc	Up-Date of the Firmware
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

## PREPARATION FOR SERVICING

### How to use the Servicing Fixture

- While pressing the CH DOWN button on the set for more than 2 seconds, press the ON/STANDBY button on the set simultaneously at the Power OFF. Although the DVD is connected, the DVD mode cannot be selected.
- Short circuit between **TP3001** and **Ground** with the cable JG154.  
(The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
- In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.  
Turn on the power and re-check the cable before checking the trouble points.

**When you servicing with connection of DVD, perform the operations above step 2 to step 3.**



# MECHANICAL ADJUSTMENTS

## 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
- Adjust the other reel in the same way.

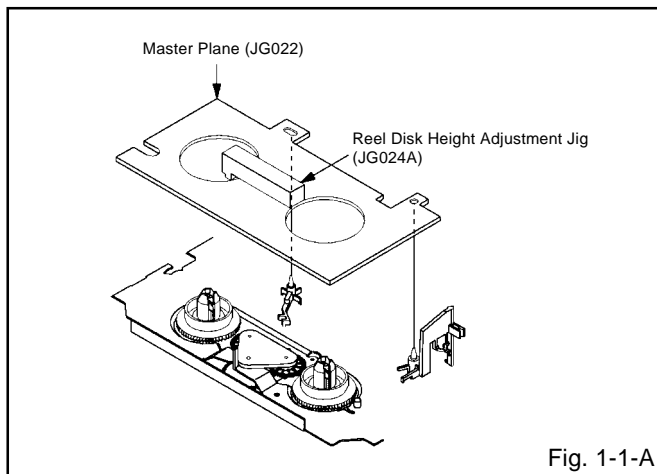


Fig. 1-1-A

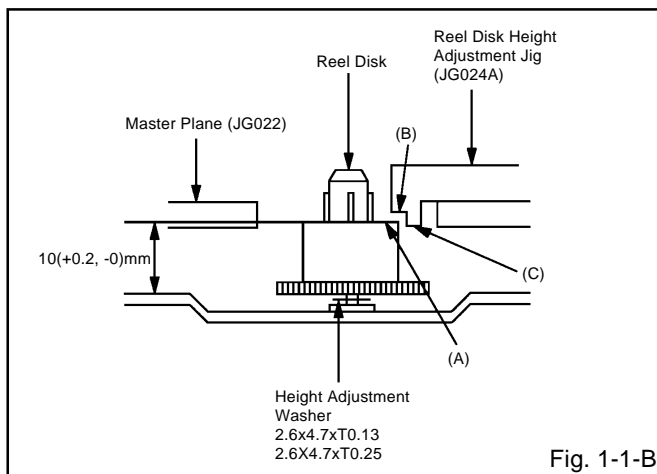


Fig. 1-1-B

### 1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

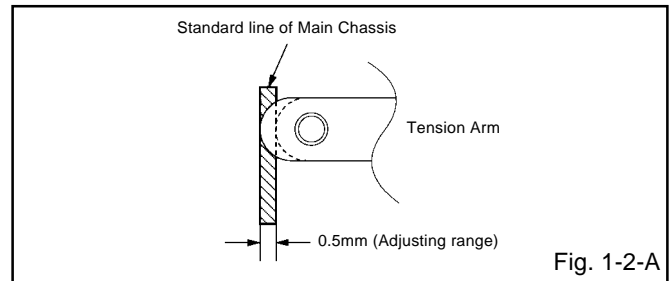


Fig. 1-2-A

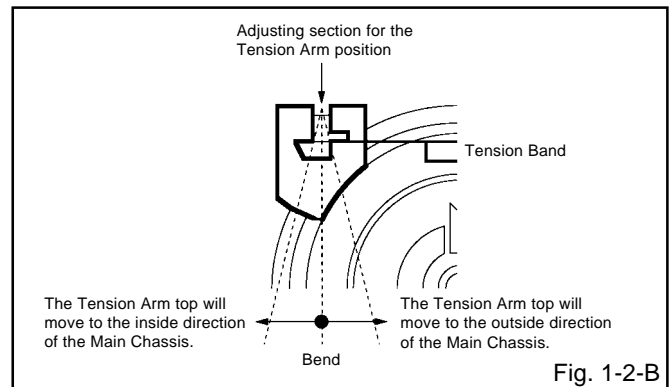


Fig. 1-2-B

### 1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates  $20 \pm 2\text{gf}$  in the beginning of playback.

#### • USING A CASSETTE TYPE TORQUE TAPE (KT-300NR)

- After confirmation and adjustment of Tension Post position (**Refer to item 1-2**), load the cassette type torque tape (**KT-300NR**) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

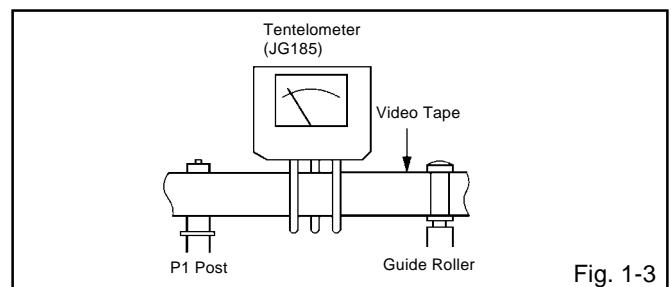


Fig. 1-3

# MECHANICAL ADJUSTMENTS

## 1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

### NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

## 1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

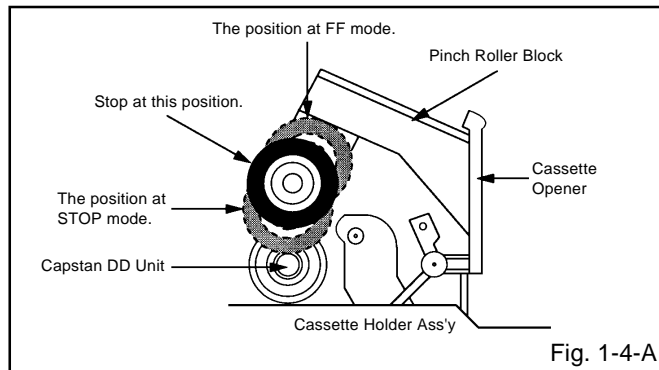


Fig. 1-4-A

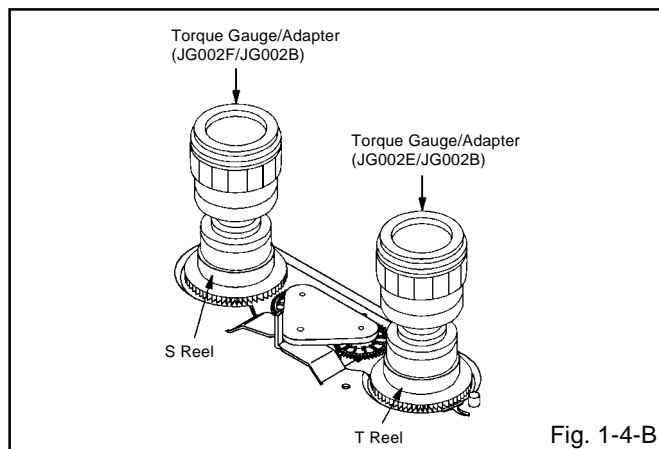


Fig. 1-4-B

### NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

## 2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

### 2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
2. Connect CH-1 of the oscilloscope to **TP101 (Envelope)** and CH-2 to **TP3002 (SW Pulse)**.
3. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
4. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
5. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
6. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

### NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

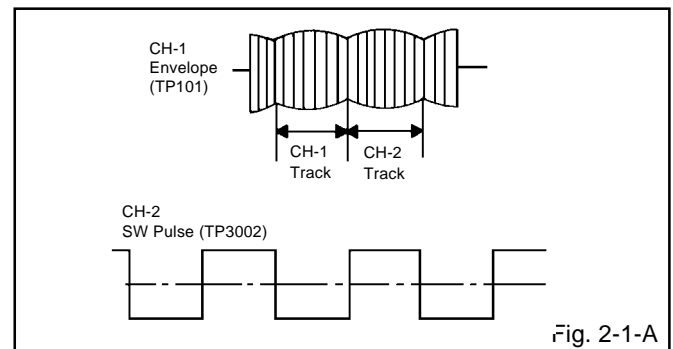


Fig. 2-1-A

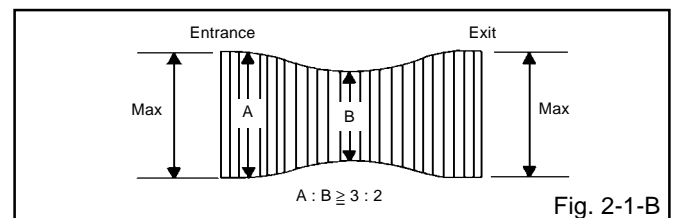


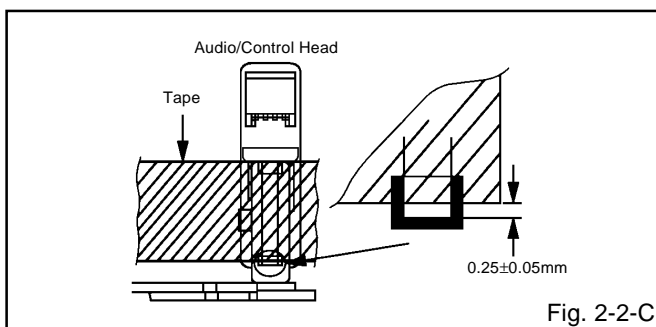
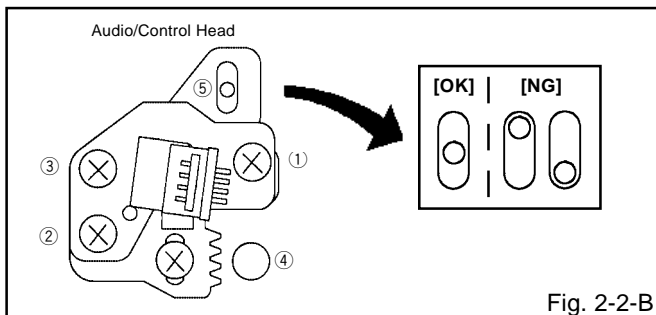
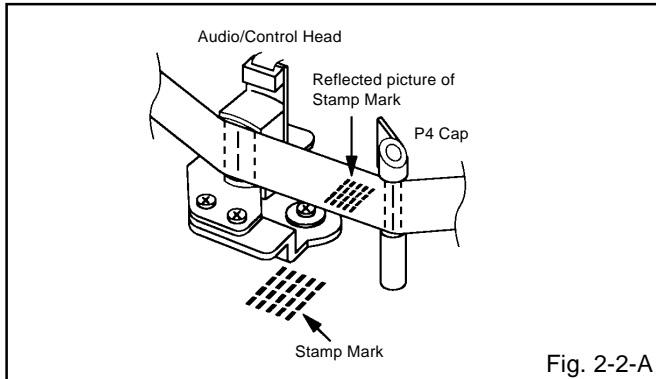
Fig. 2-1-B

## MECHANICAL ADJUSTMENTS

### 2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
  - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
  - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
  - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

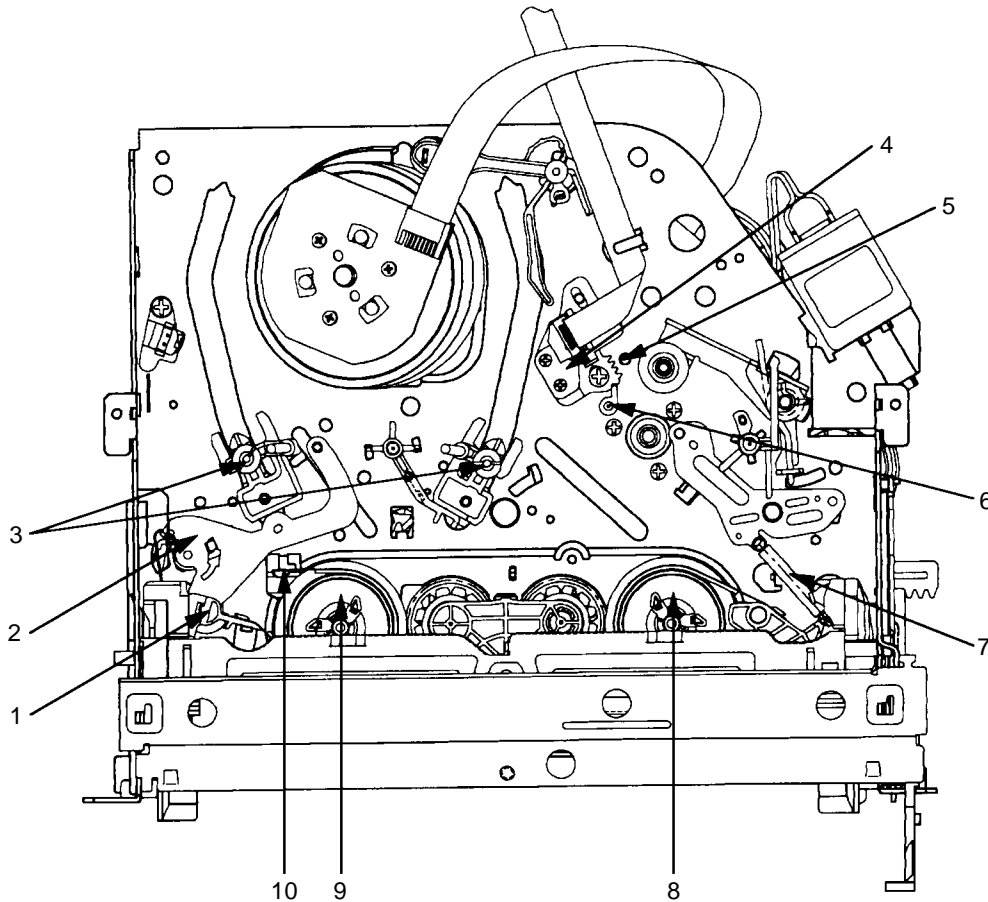


### 2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (**Refer to item 1-1**)
2. Confirm and adjust the position of the Tension Post. (**Refer to item 1-2**)
3. Adjust the Guide Roller. (**Refer to item 2-1**)
4. Confirm and adjust the Audio/Control Head. (**Refer to item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP3002** and CH-2 to **TP101**.
6. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
7. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Then, check if the ⑤ section of **Fig. 2-2-B** is on the center position (or rather to the cylinder side). In case of the envelope maximum at the difference position from the center, adjust the matching of picture and sound again.

# MECHANICAL ADJUSTMENTS

## 3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- |                                   |  |
|-----------------------------------|--|
| 1. Tension Connect                | 6. P4 Post   |
| 2. Tension Arm                    | 7. T Brake Spring                                  |
| 3. Guide Roller                   | 8. T Reel  |
| 4. Audio/Control Head             | 9. S Reel  |
| 5. X value adjustment driver hole | 10. Adjusting section for the Tension Arm position |

# ELECTRICAL ADJUSTMENTS

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

## 1. BASIC ADJUSTMENT

### CAUTION

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.)

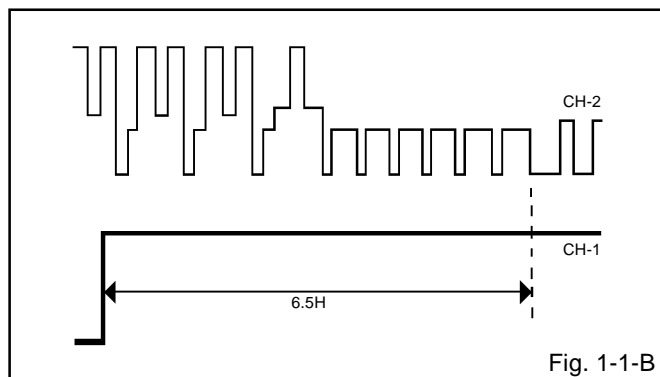
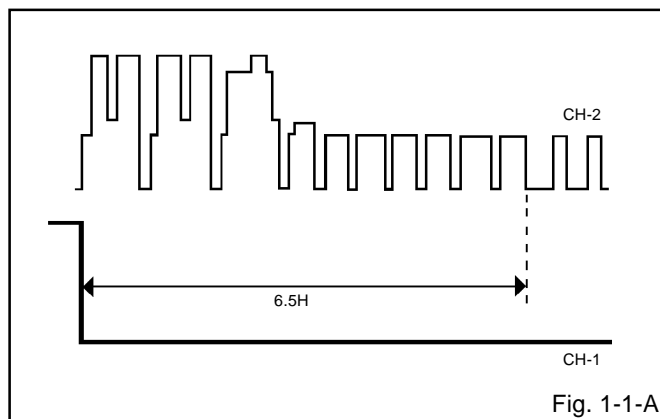
### 1-1: PG SHIFTER

#### CONDITIONS

MODE-PLAYBACK  
Input Signal-Alignment Tape

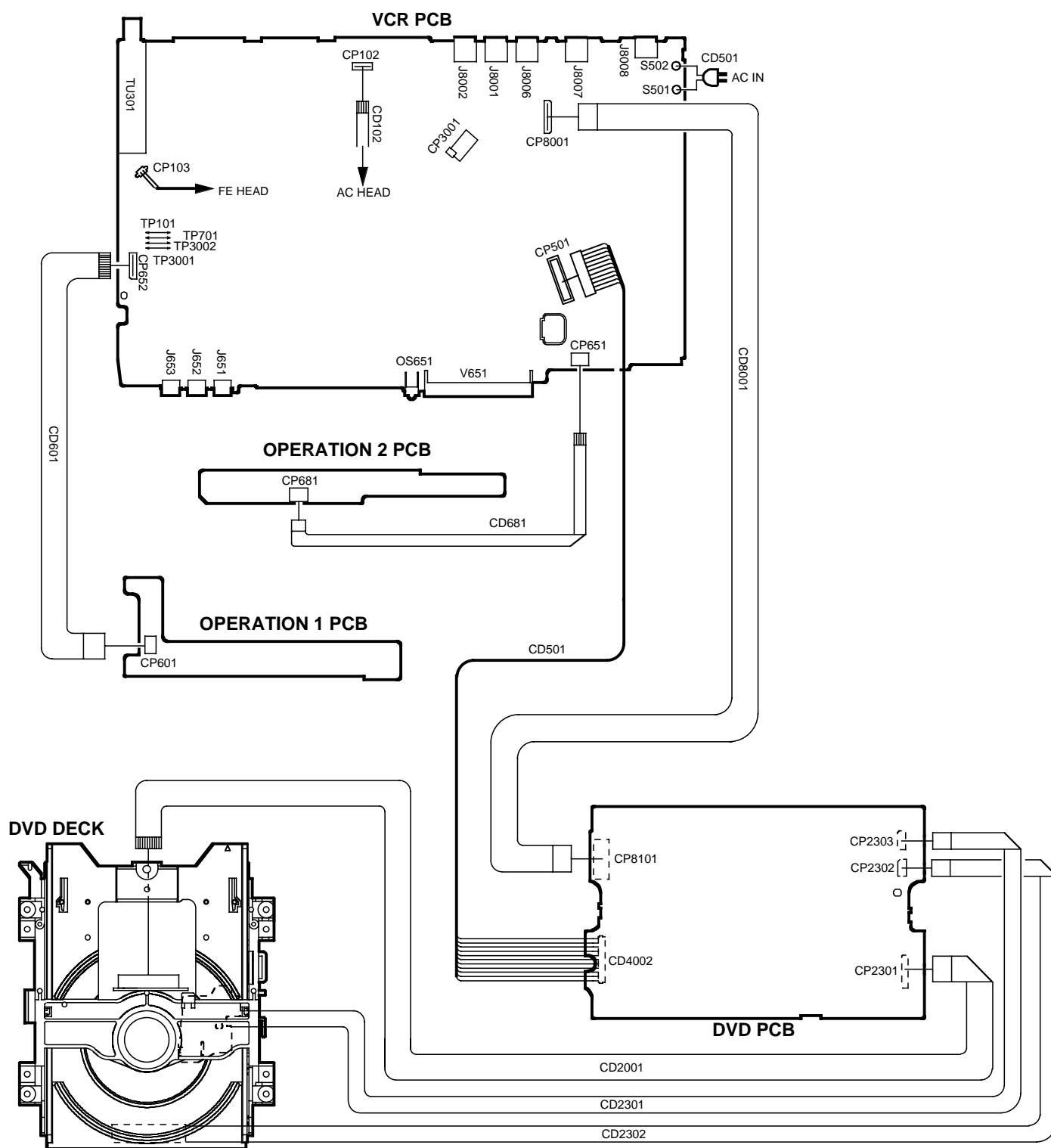
#### INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP3002** and CH-2 to **Video Out Jack**.
2. Playback the alignment tape.
3. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.



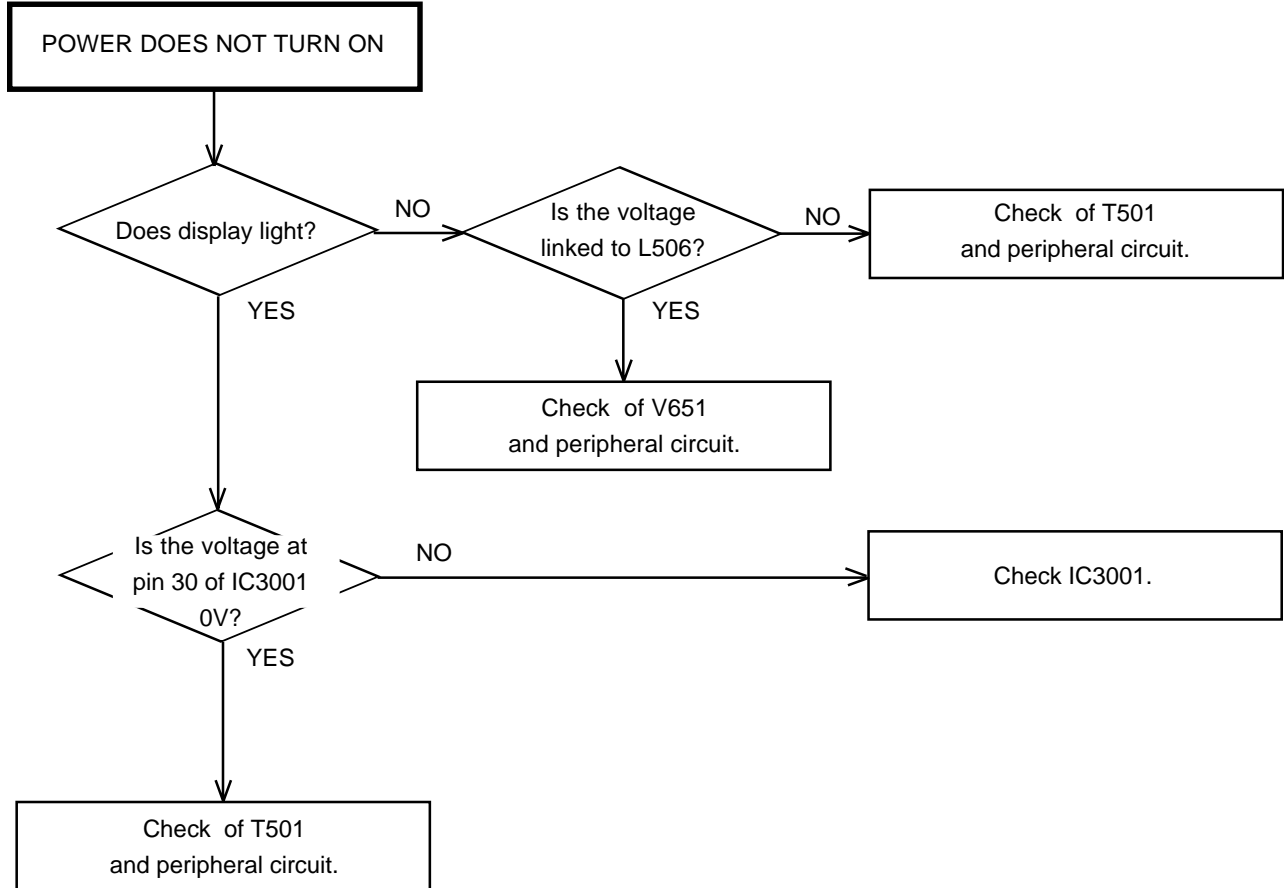
# ELECTRICAL ADJUSTMENTS

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

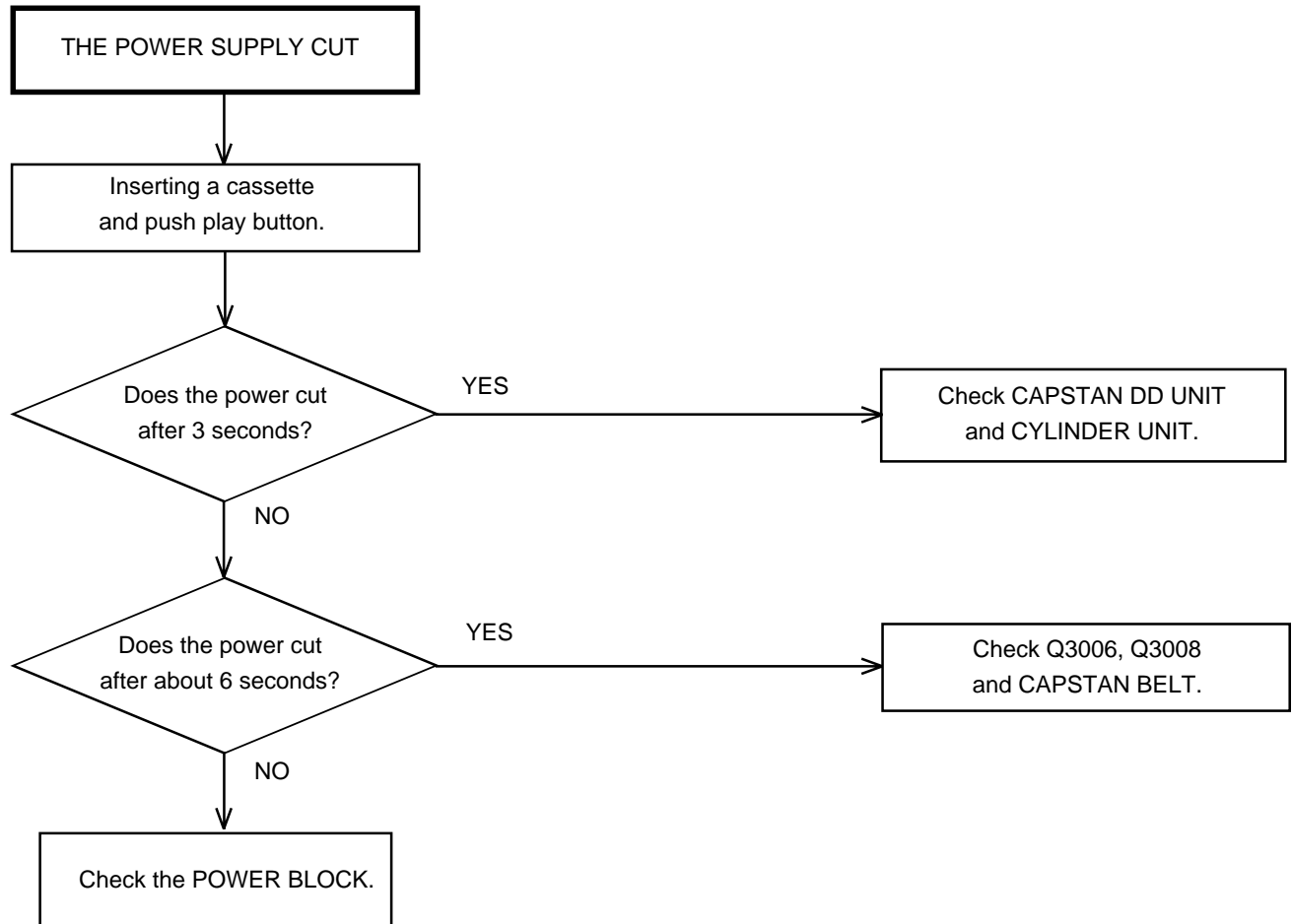


# TROUBLESHOOTING GUIDE

## (VCR SECTION)

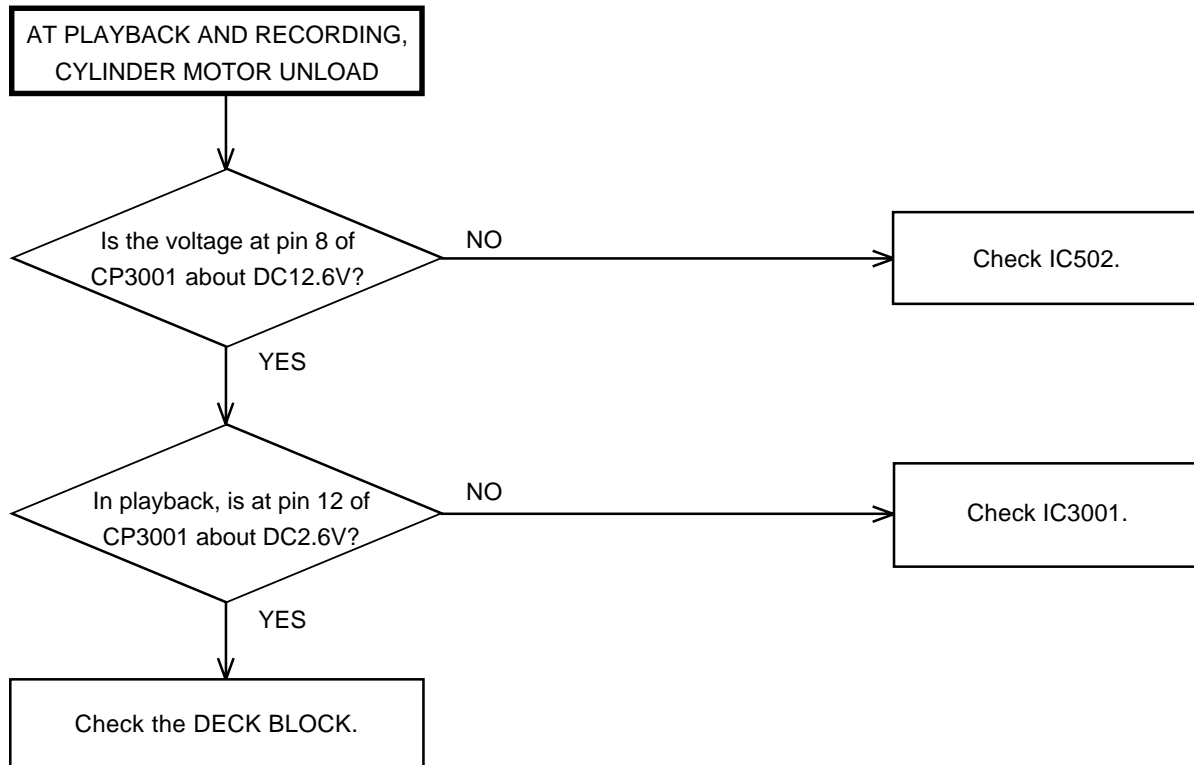


## TROUBLESHOOTING GUIDE

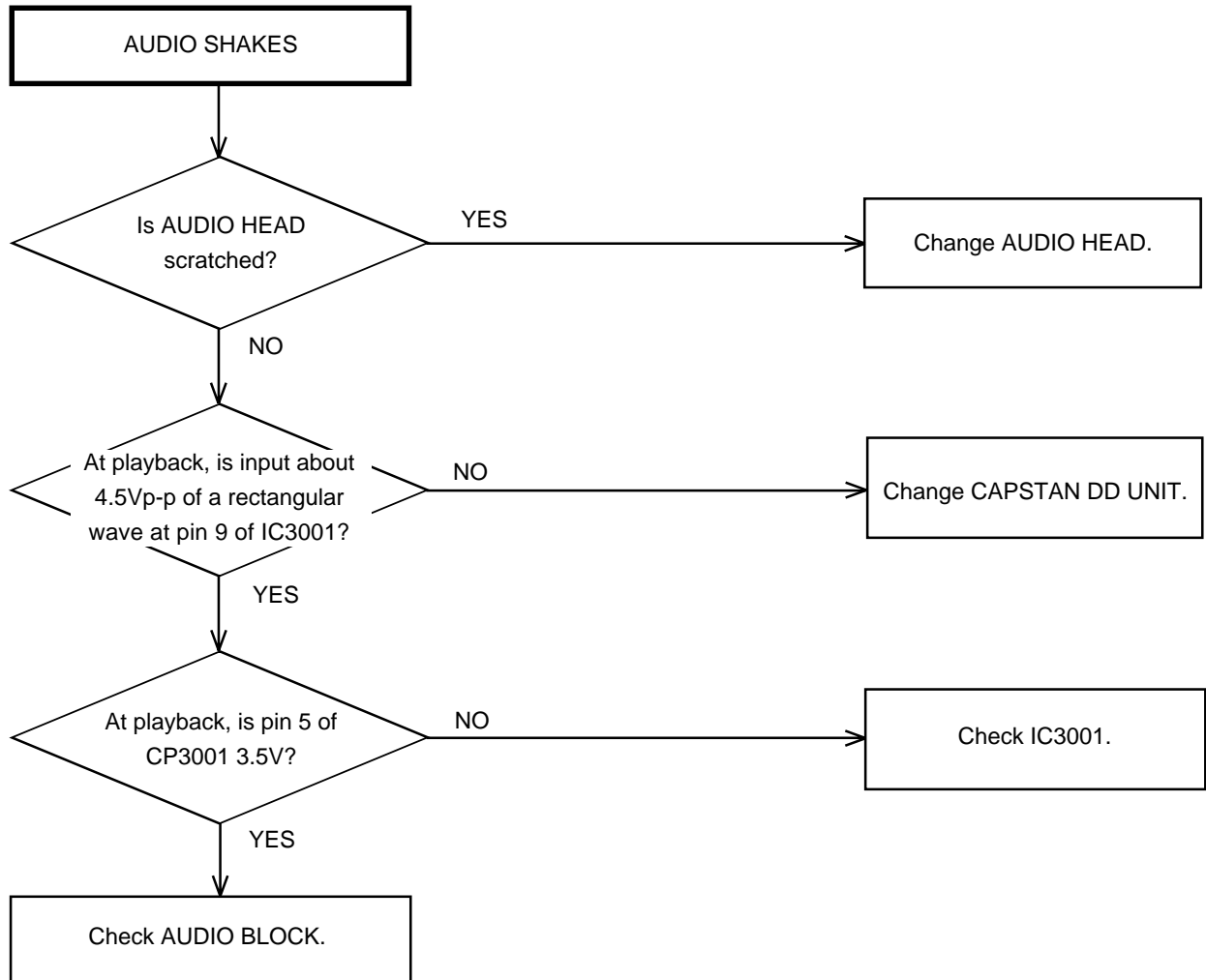




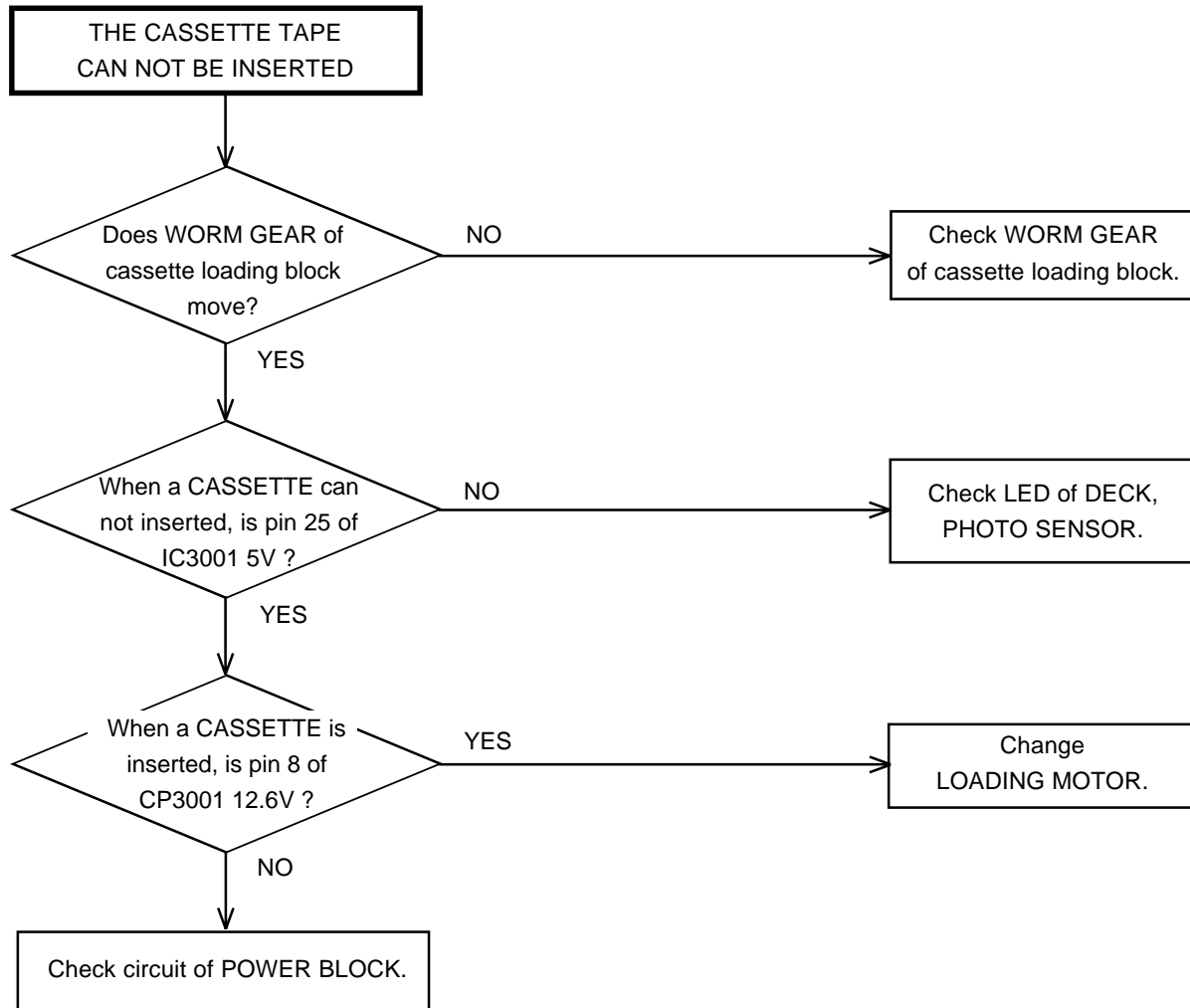
## TROUBLESHOOTING GUIDE



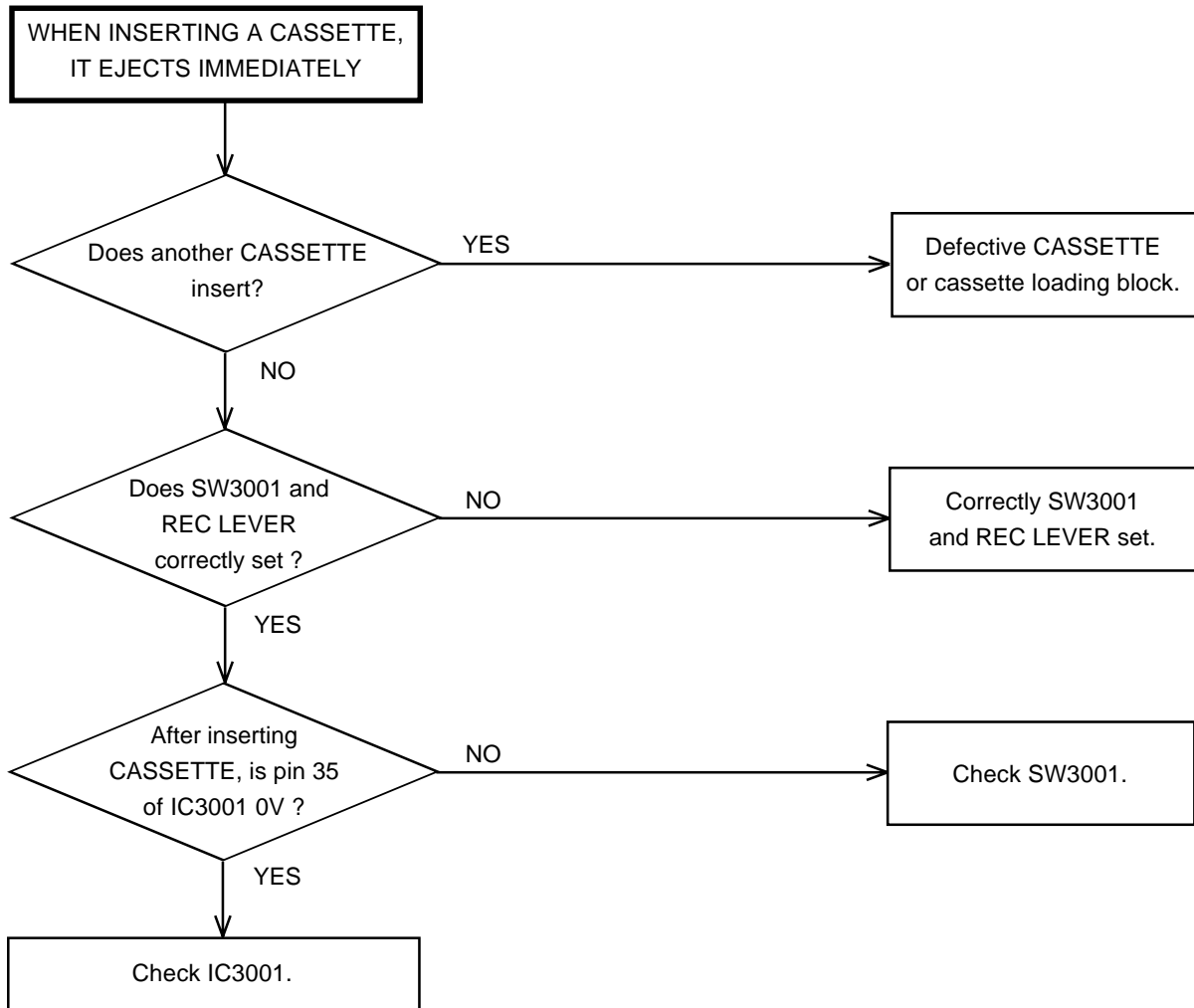
## TROUBLESHOOTING GUIDE



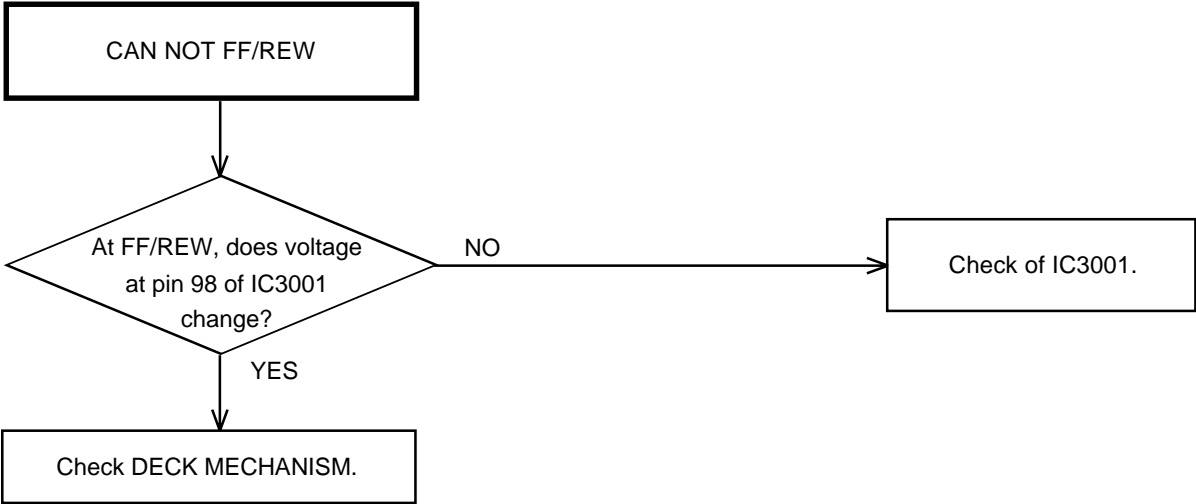
## TROUBLESHOOTING GUIDE



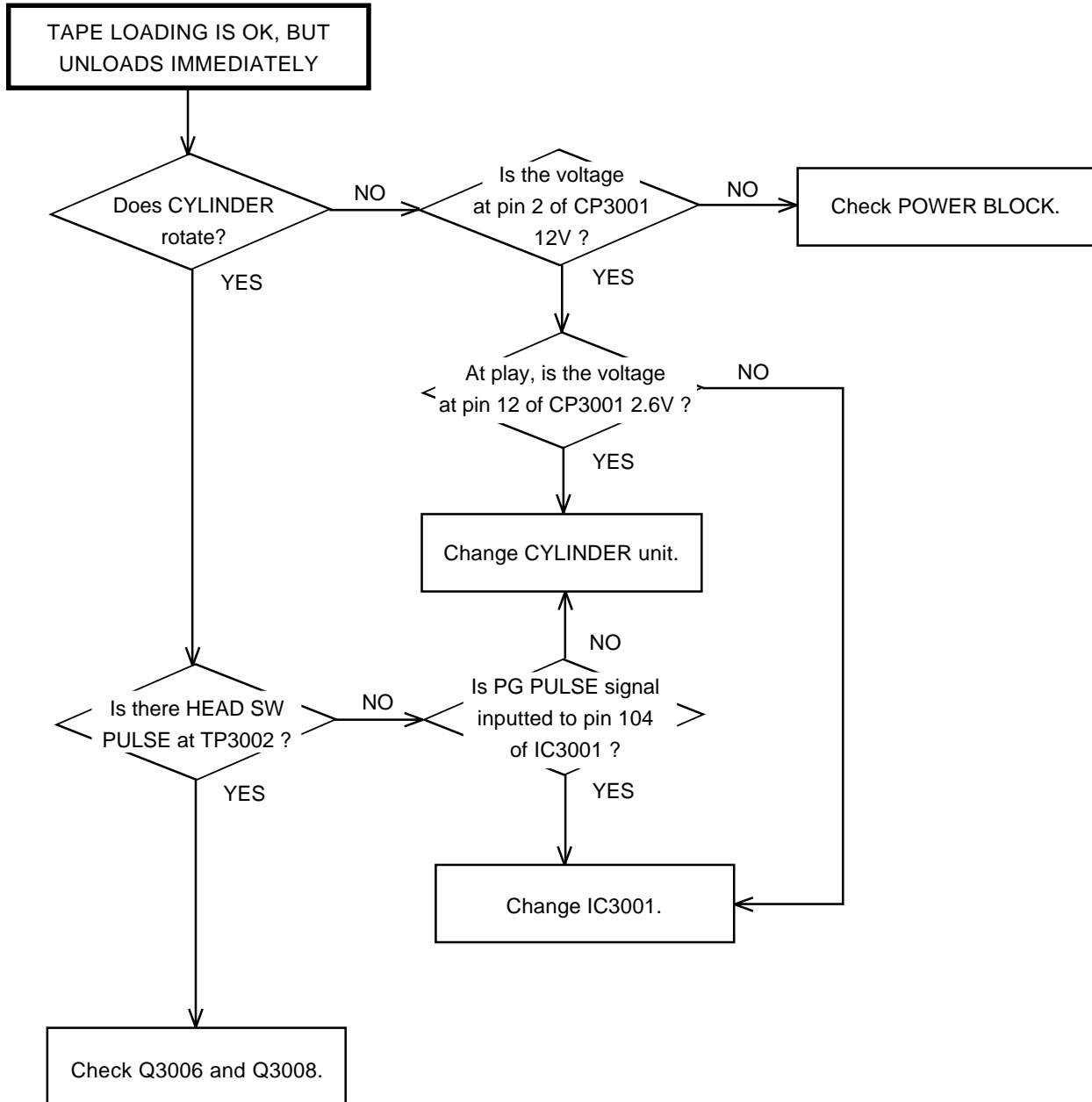
## TROUBLESHOOTING GUIDE



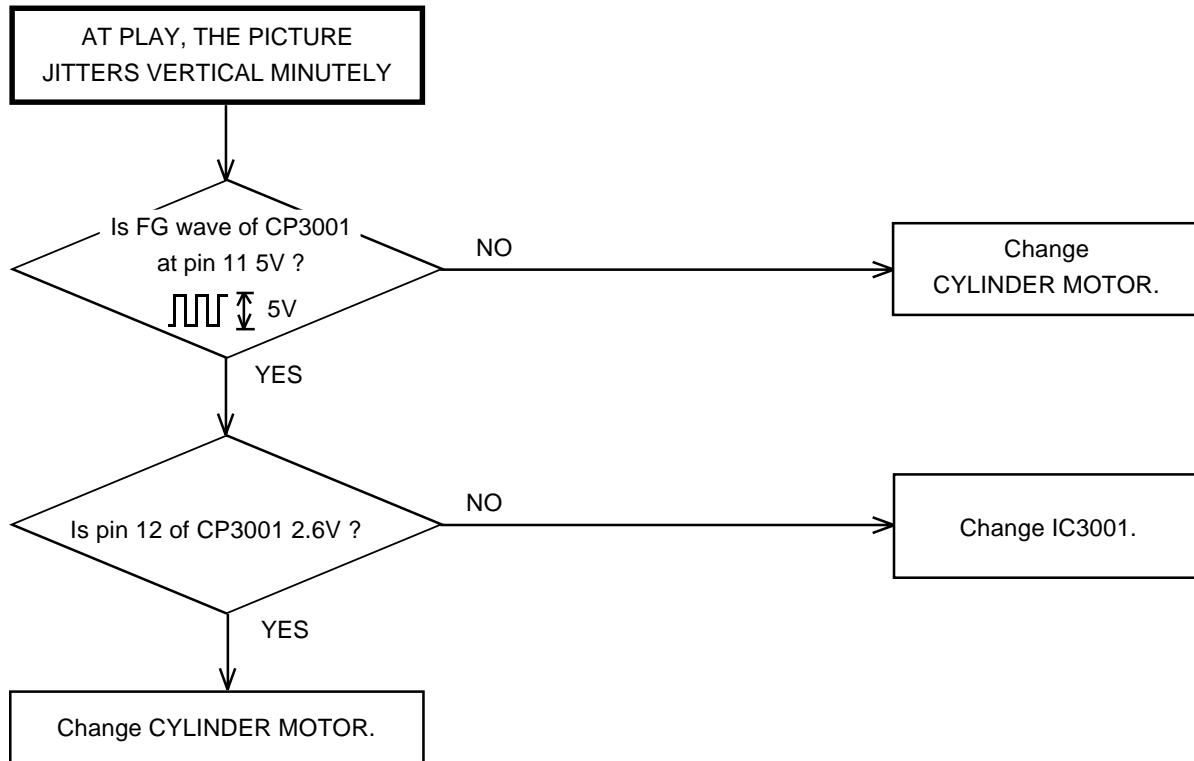
# TROUBLESHOOTING GUIDE



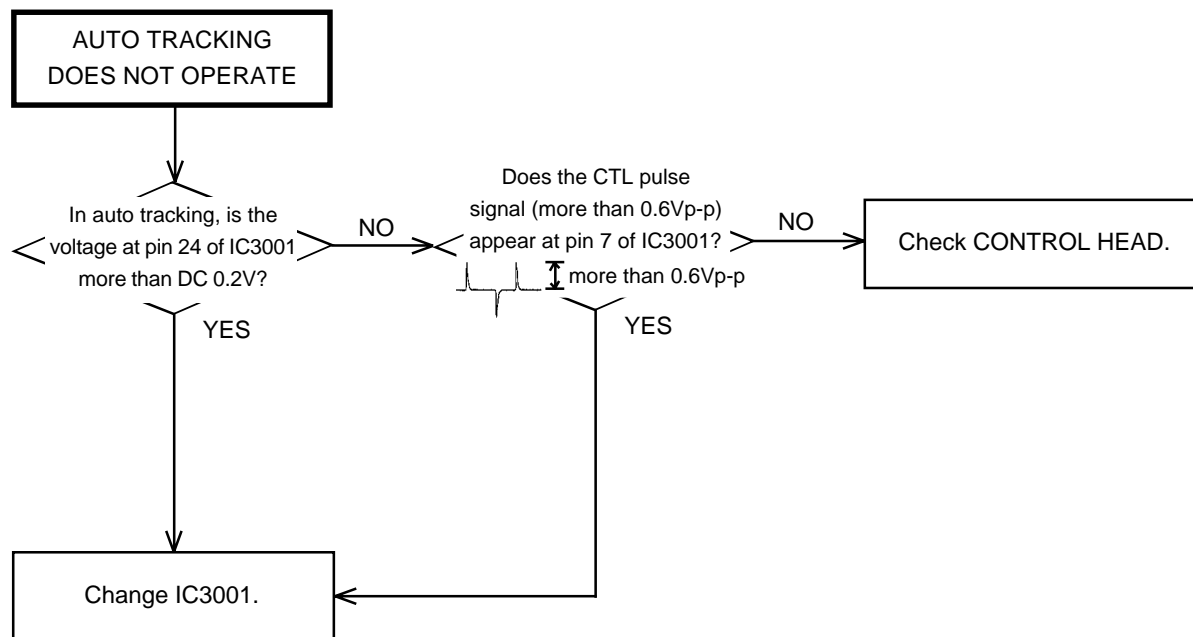
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

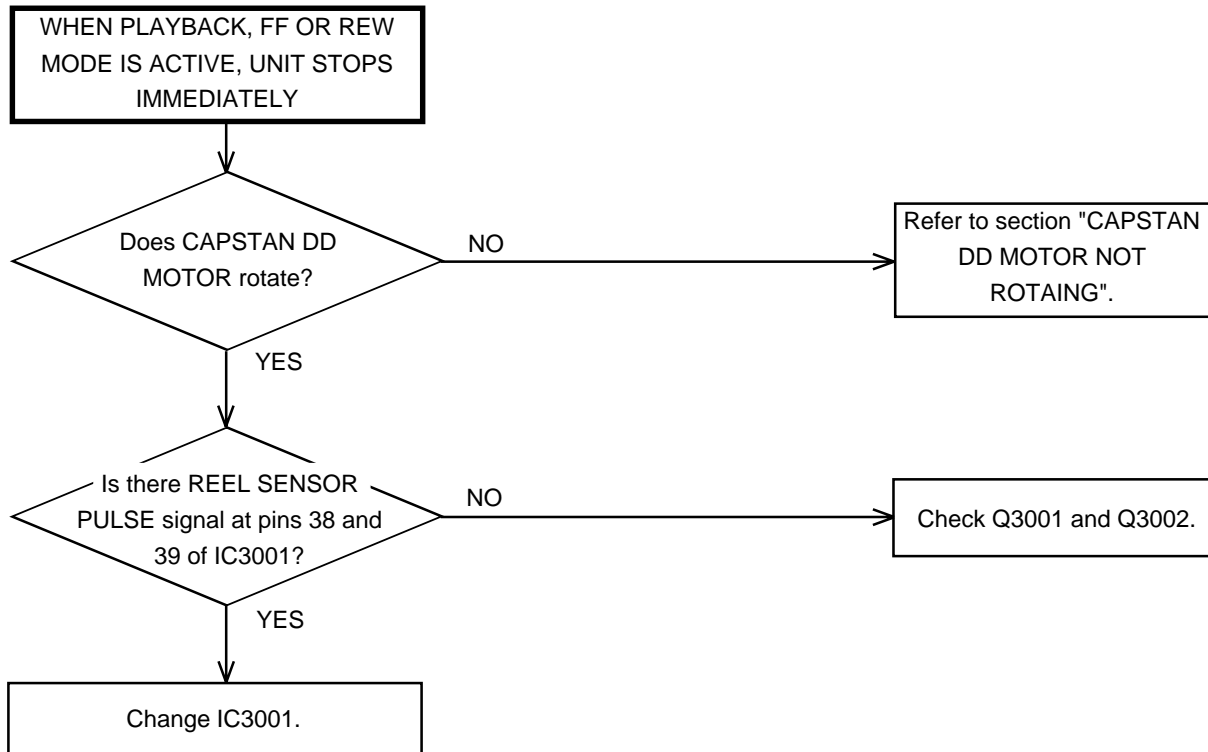


## TROUBLESHOOTING GUIDE

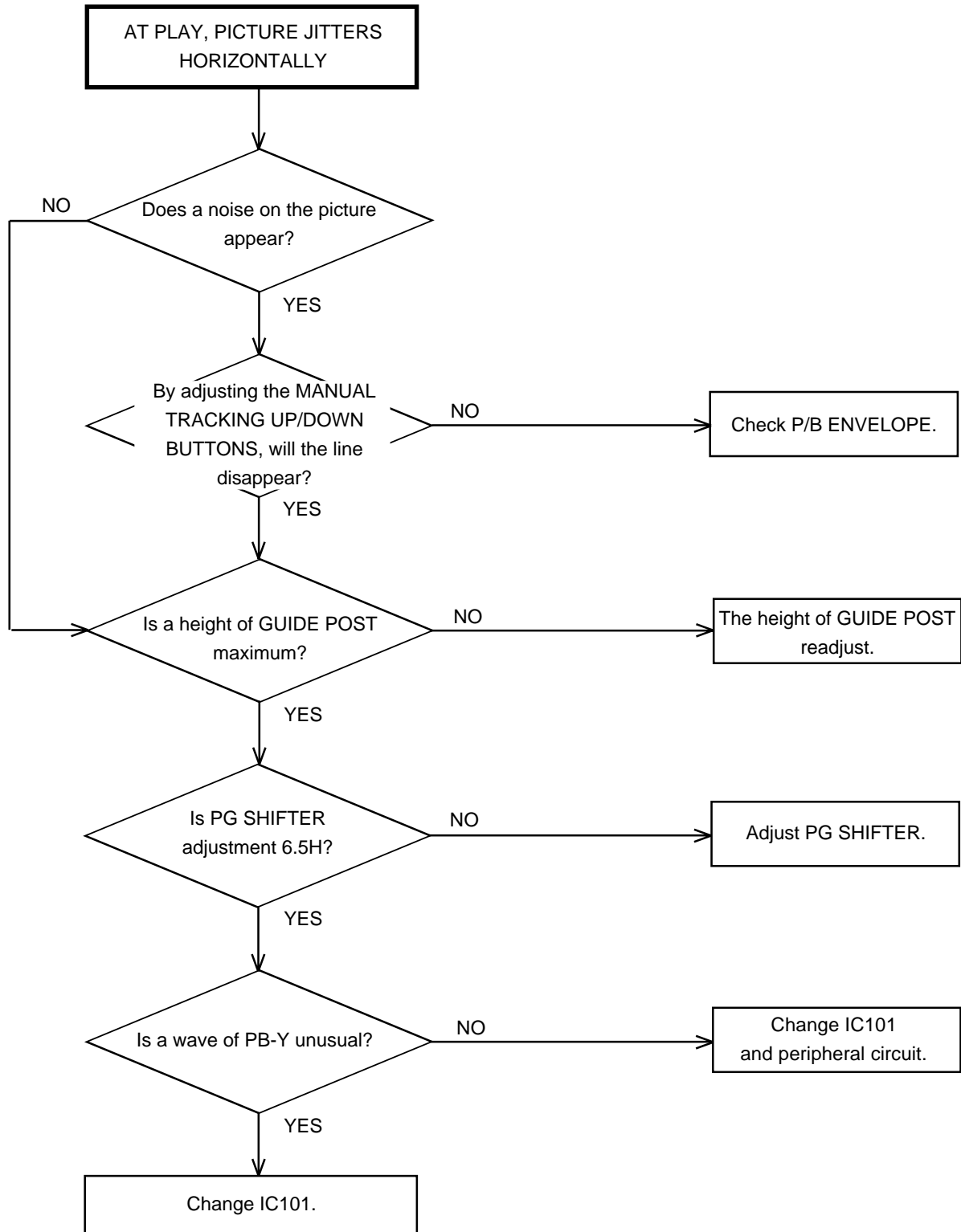




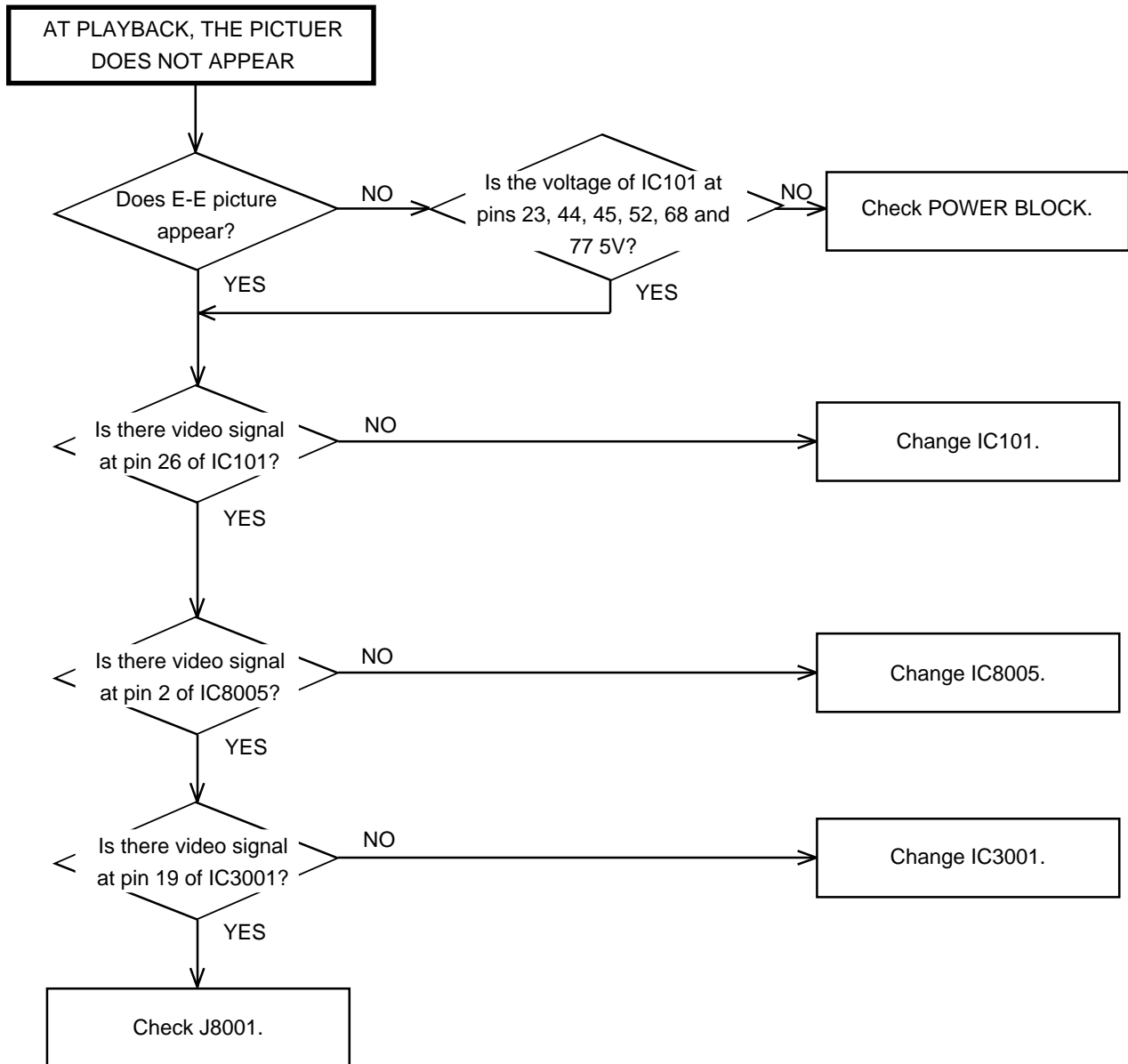
## TROUBLESHOOTING GUIDE



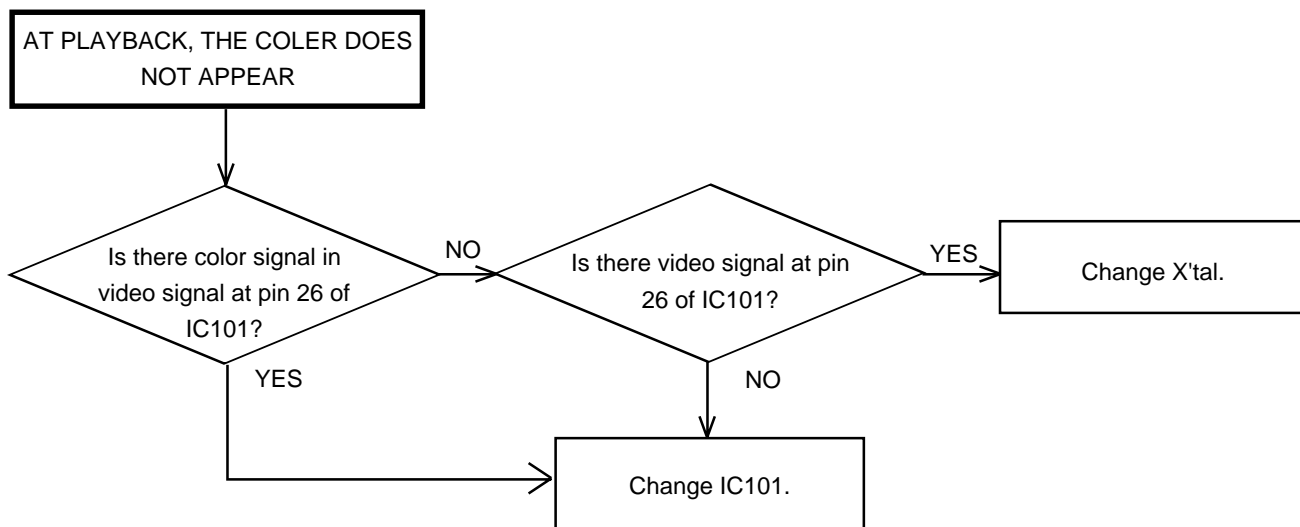
## TROUBLESHOOTING GUIDE



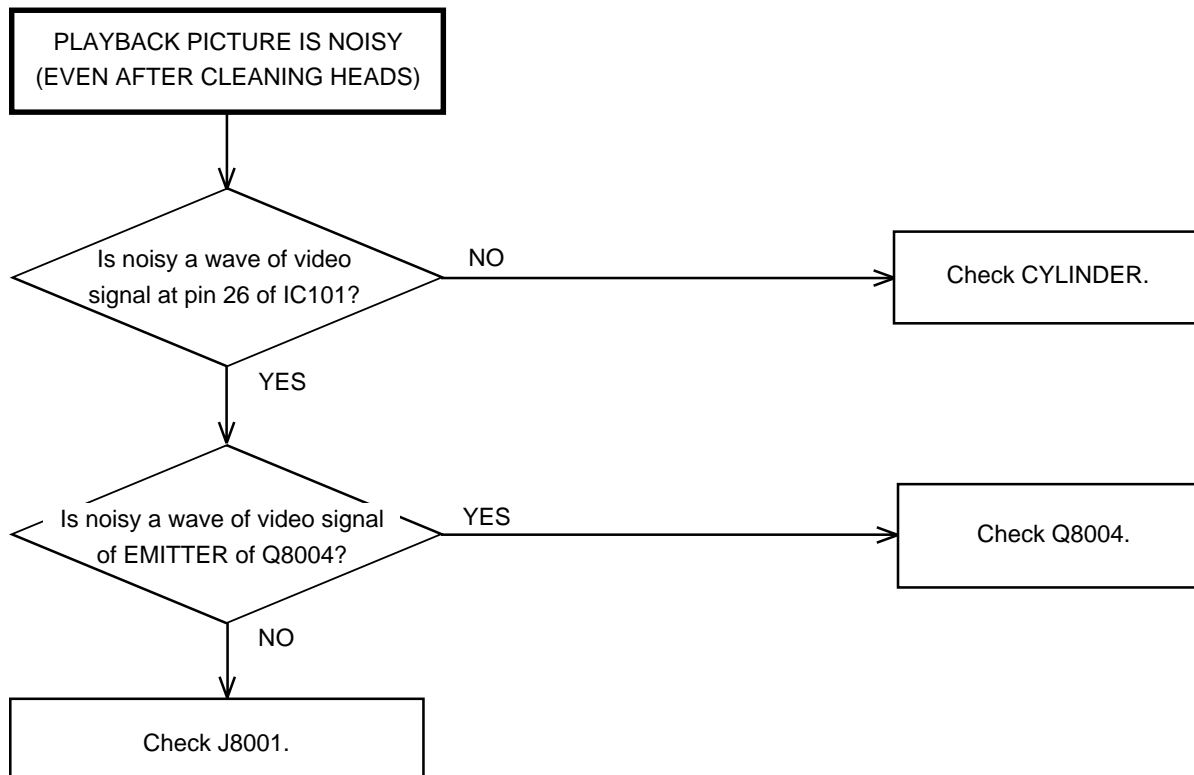
## TROUBLESHOOTING GUIDE



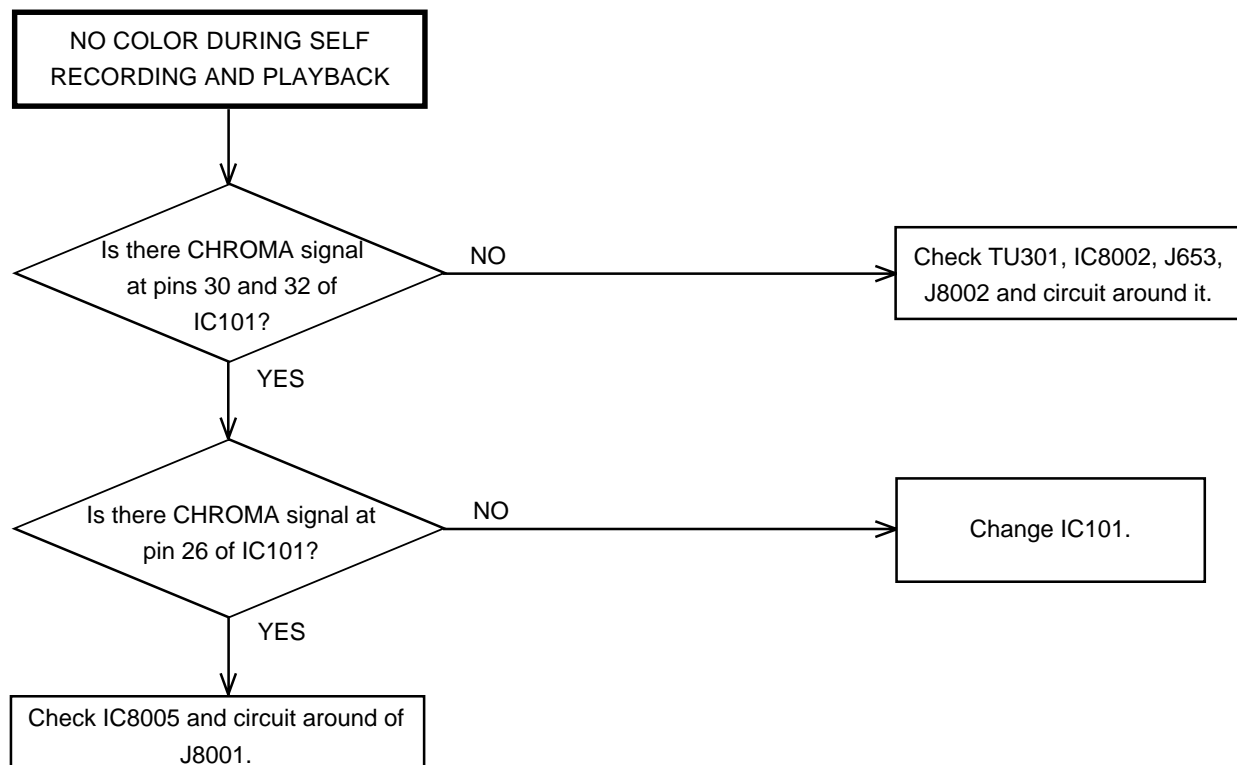
## TROUBLESHOOTING GUIDE



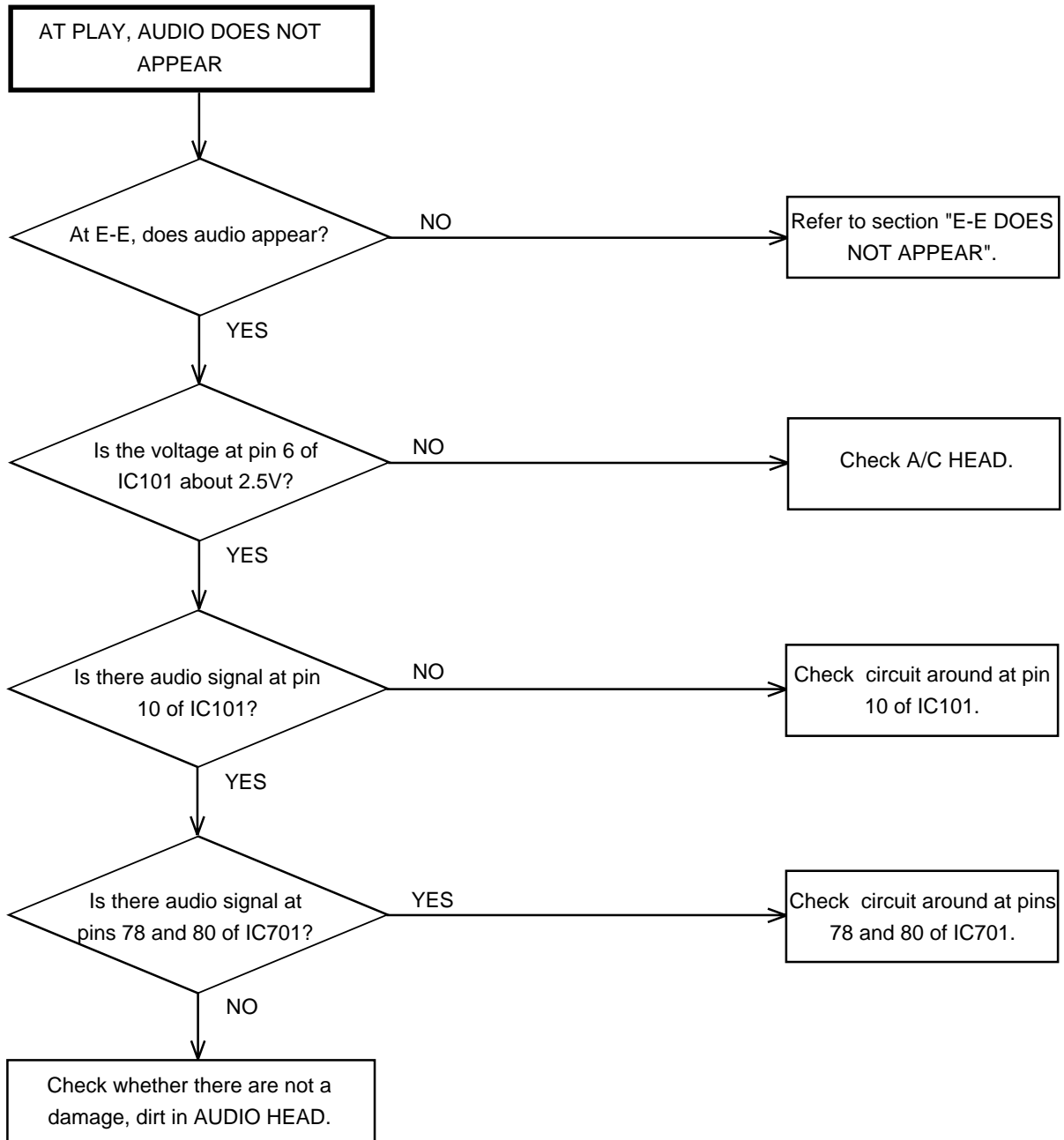
## TROUBLESHOOTING GUIDE



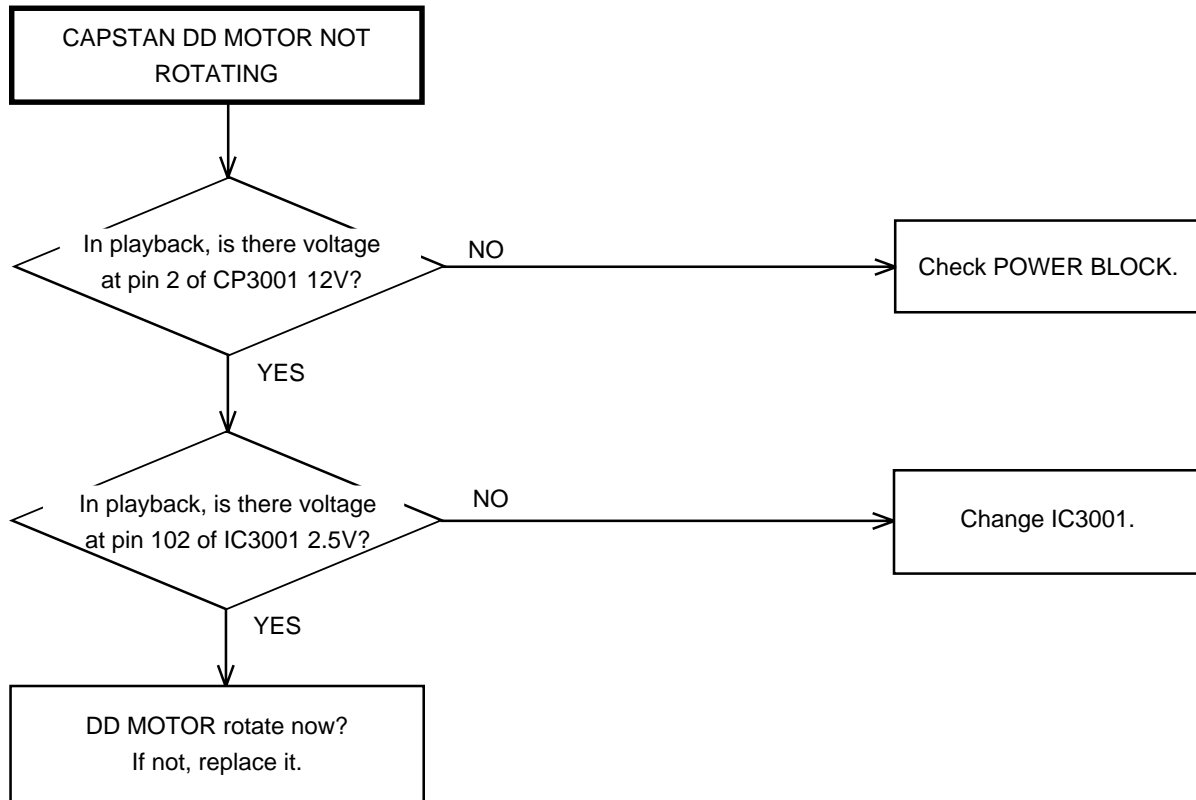
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

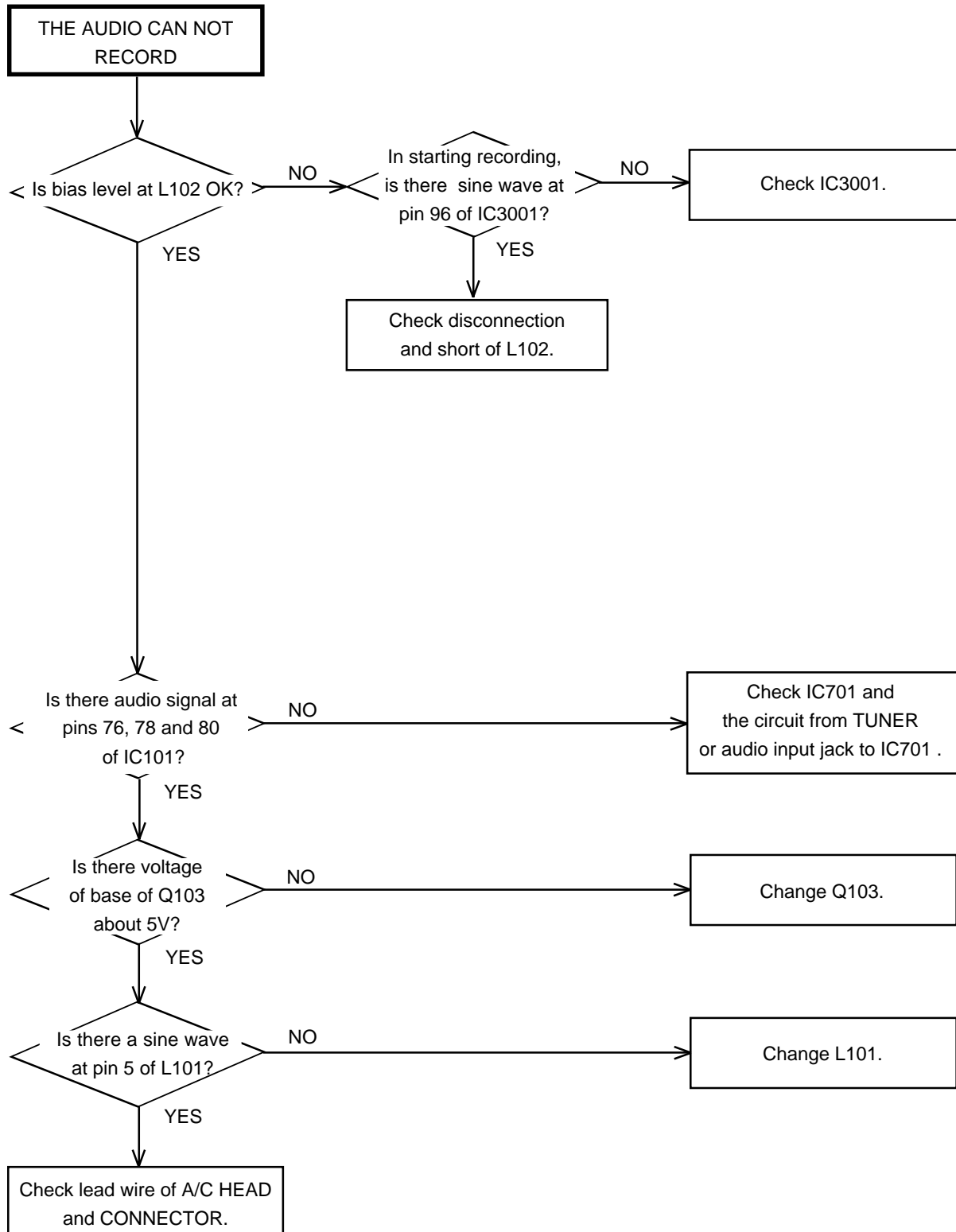


## TROUBLESHOOTING GUIDE

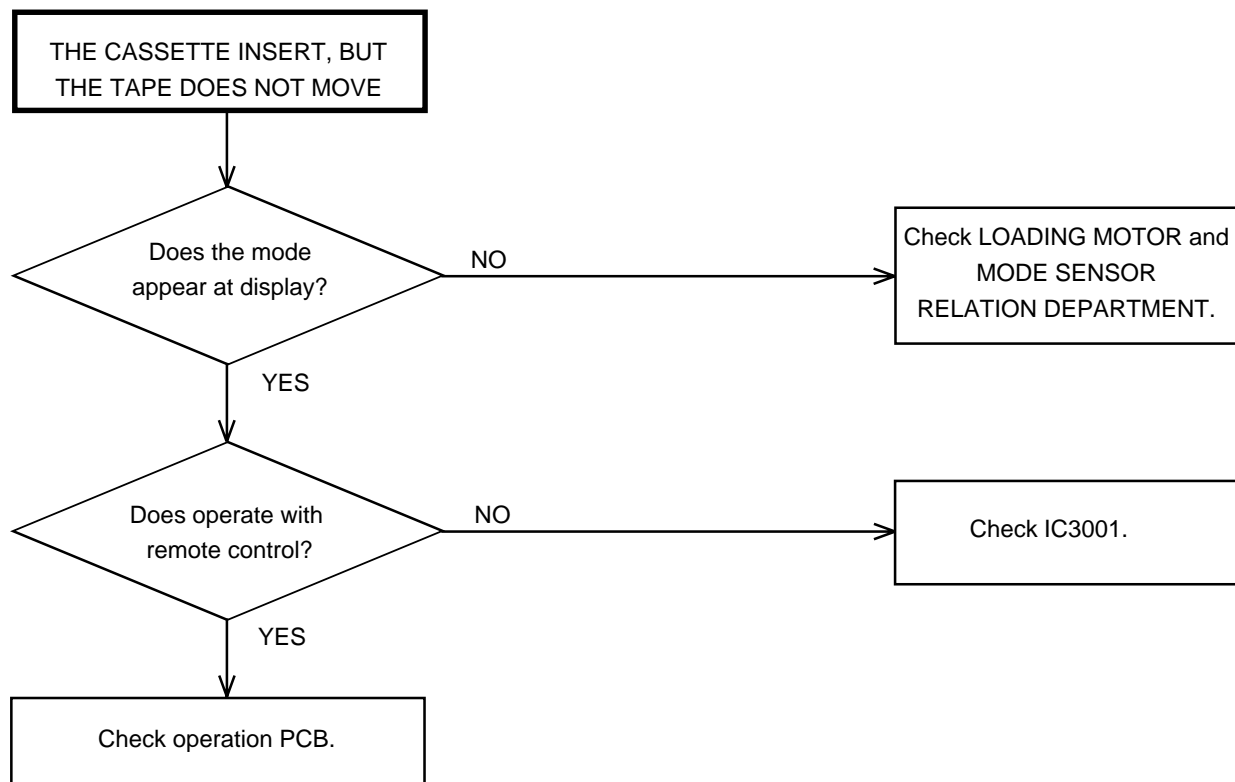




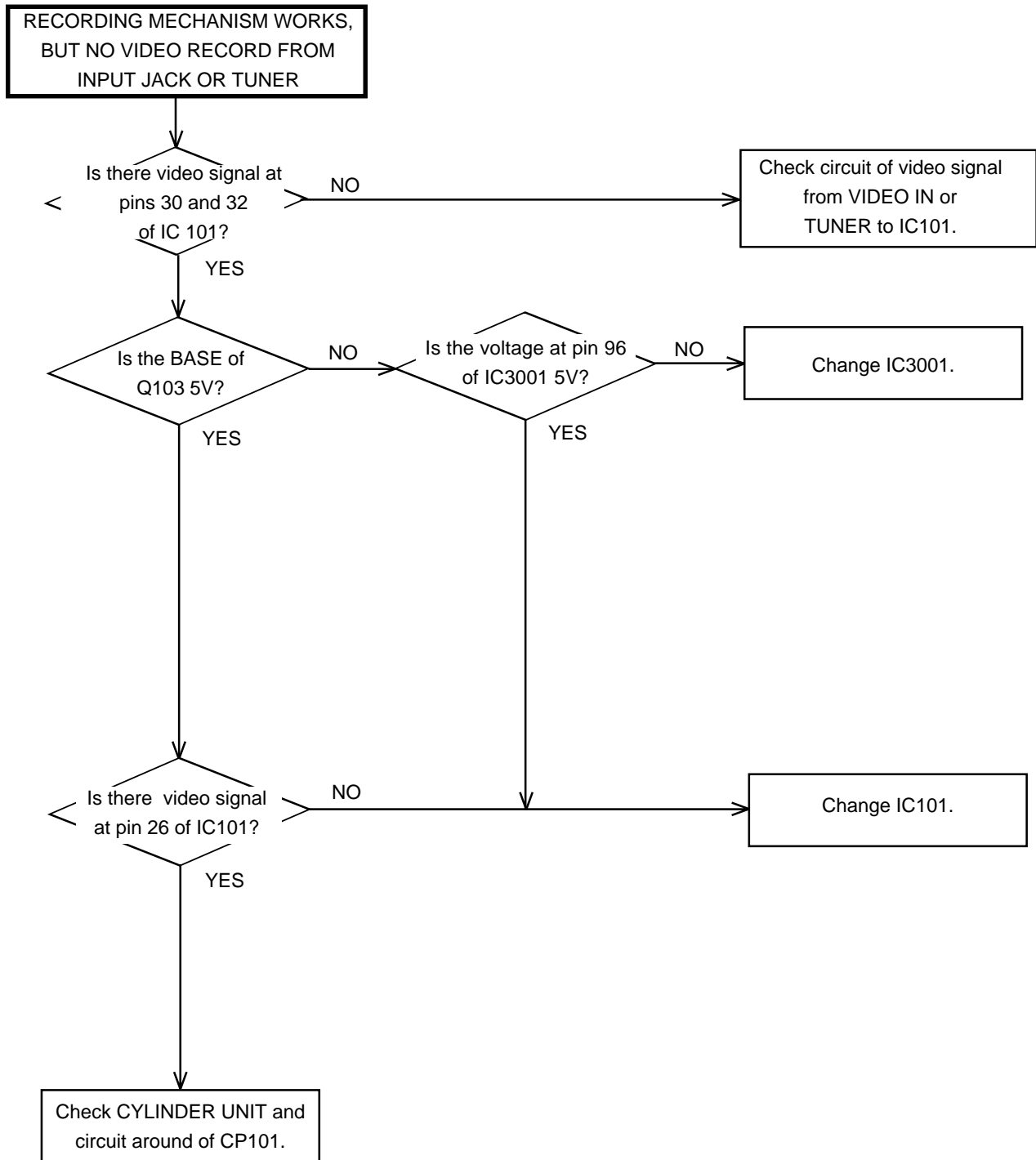
## TROUBLESHOOTING GUIDE



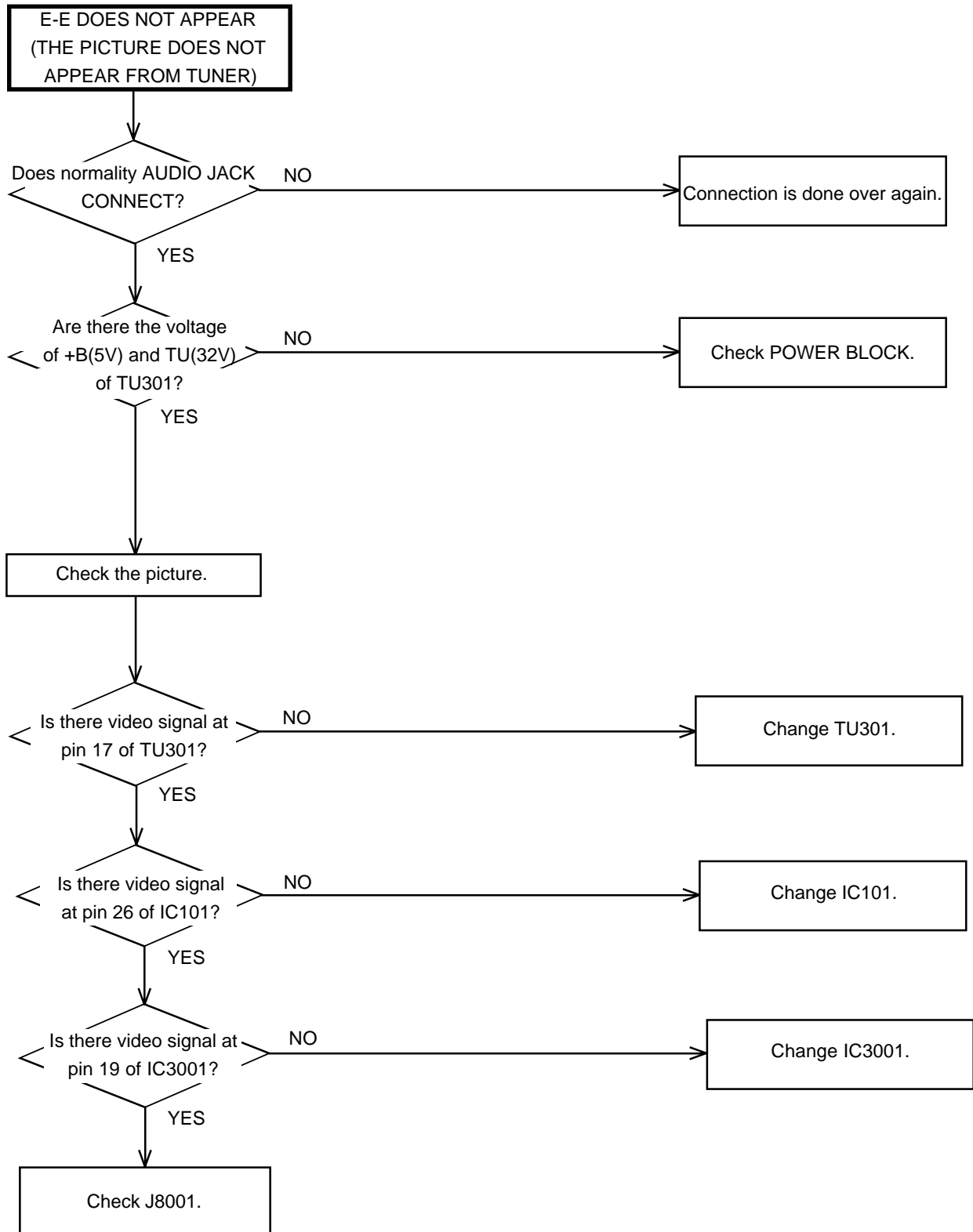
## TROUBLESHOOTING GUIDE



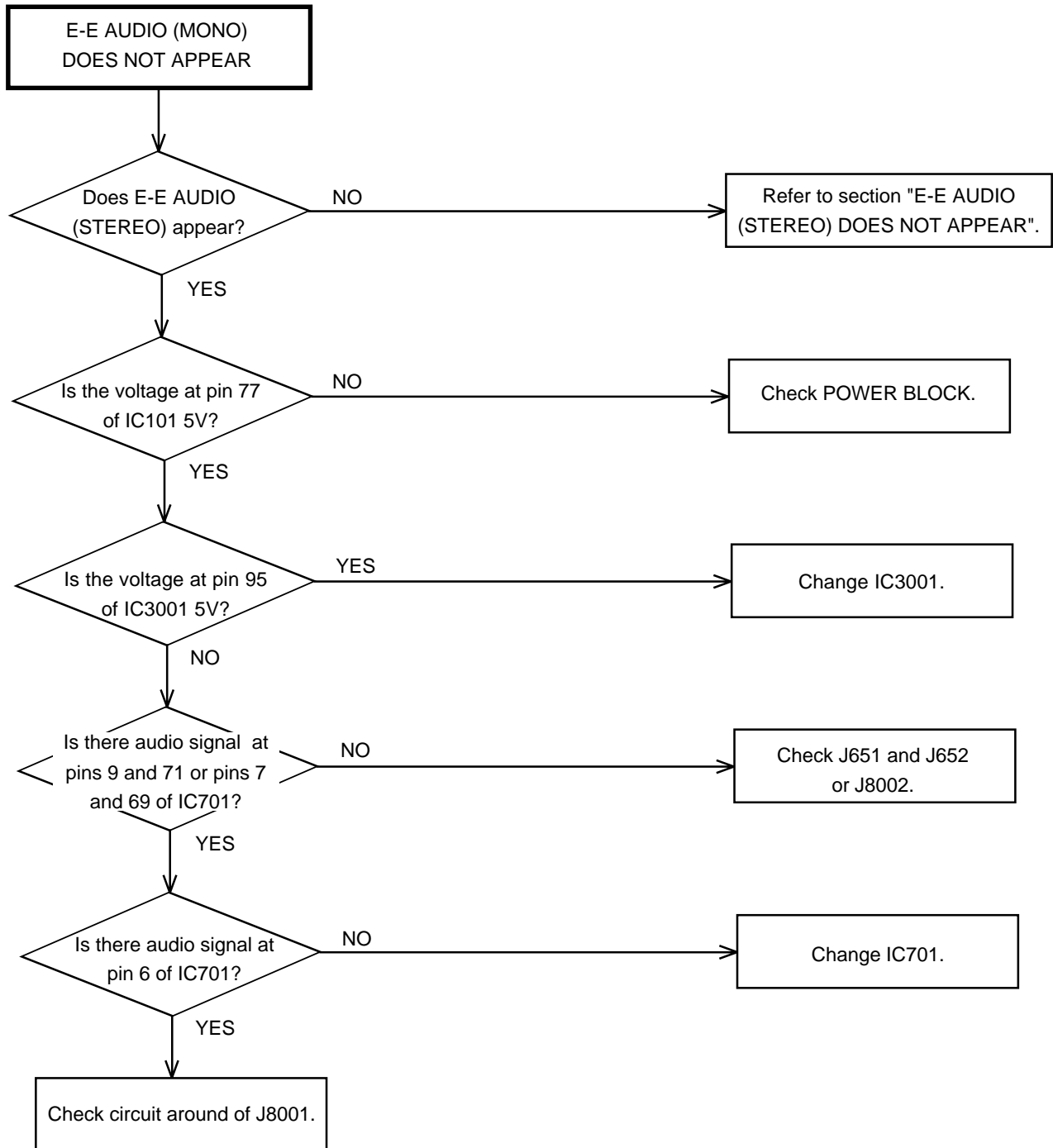
## TROUBLESHOOTING GUIDE



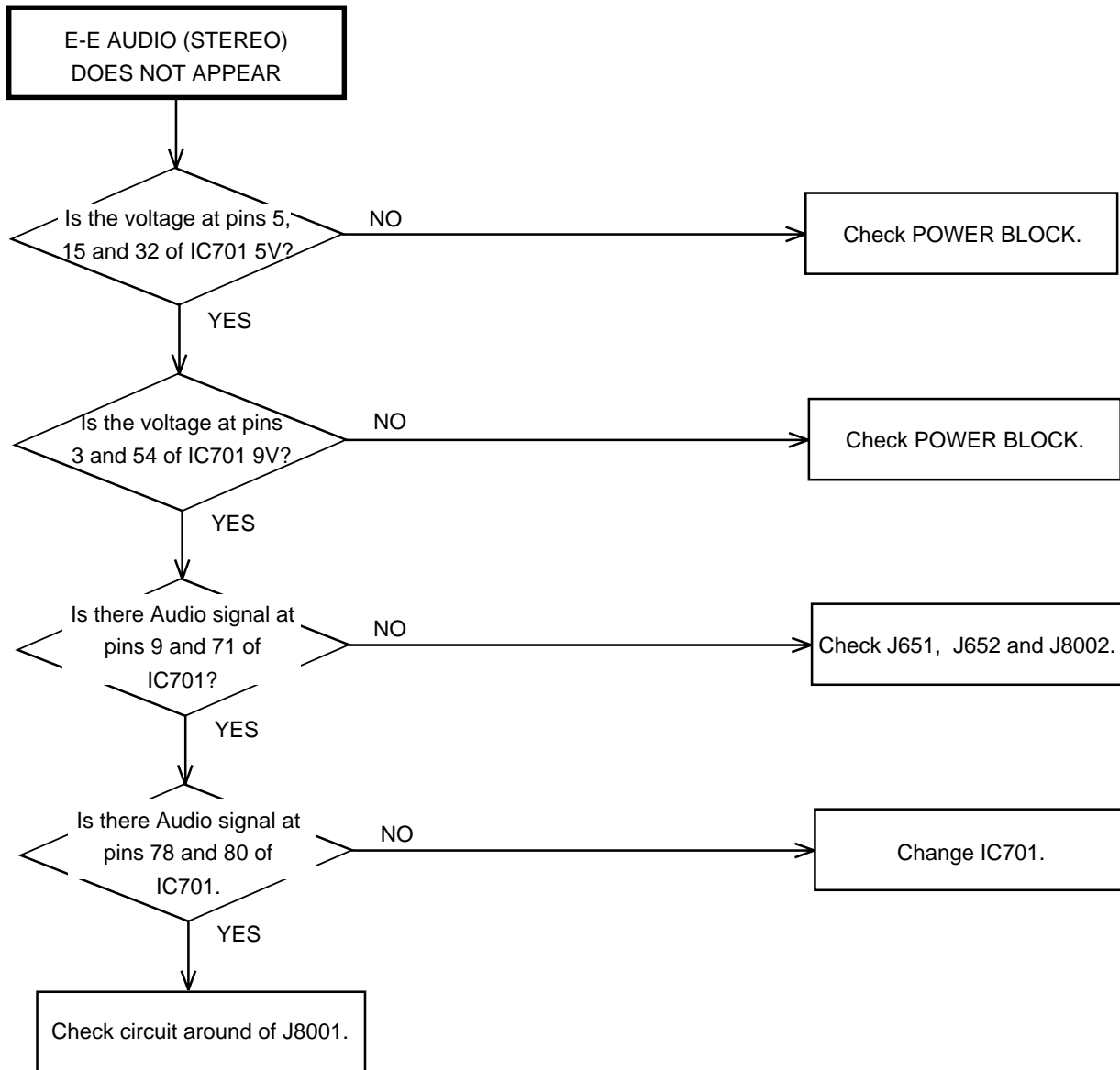
## TROUBLESHOOTING GUIDE



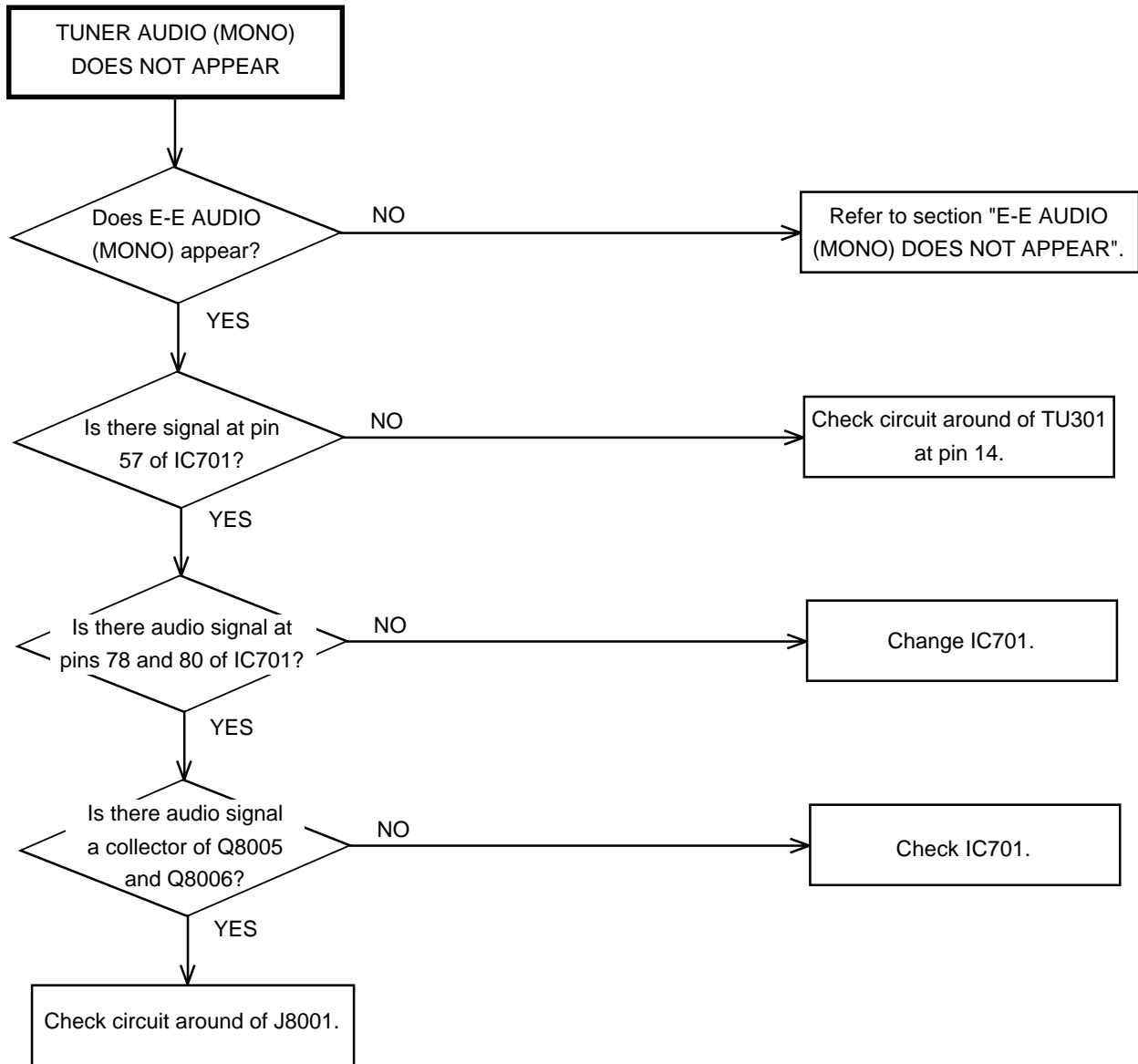
## TROUBLESHOOTING GUIDE



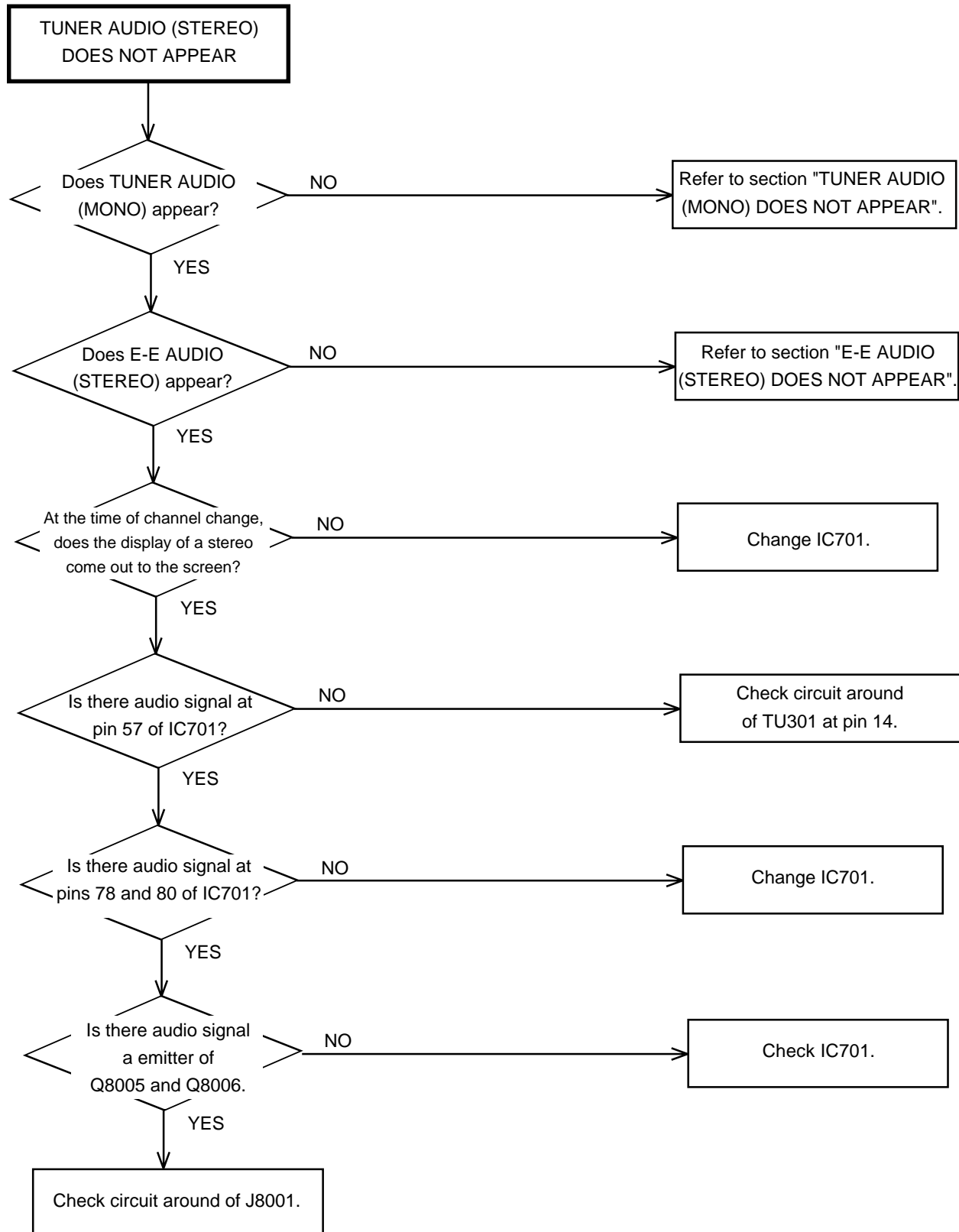
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

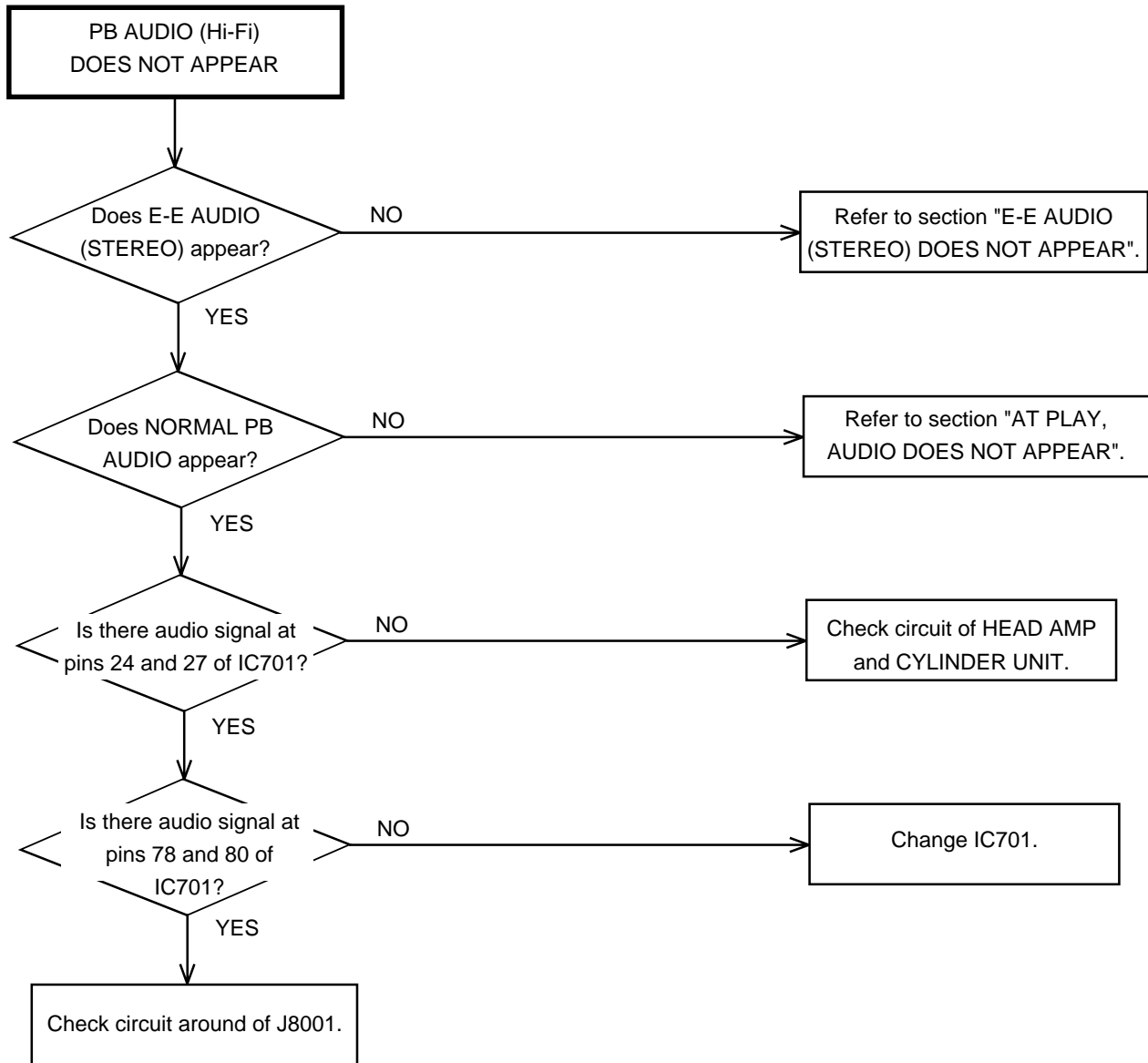


## TROUBLESHOOTING GUIDE

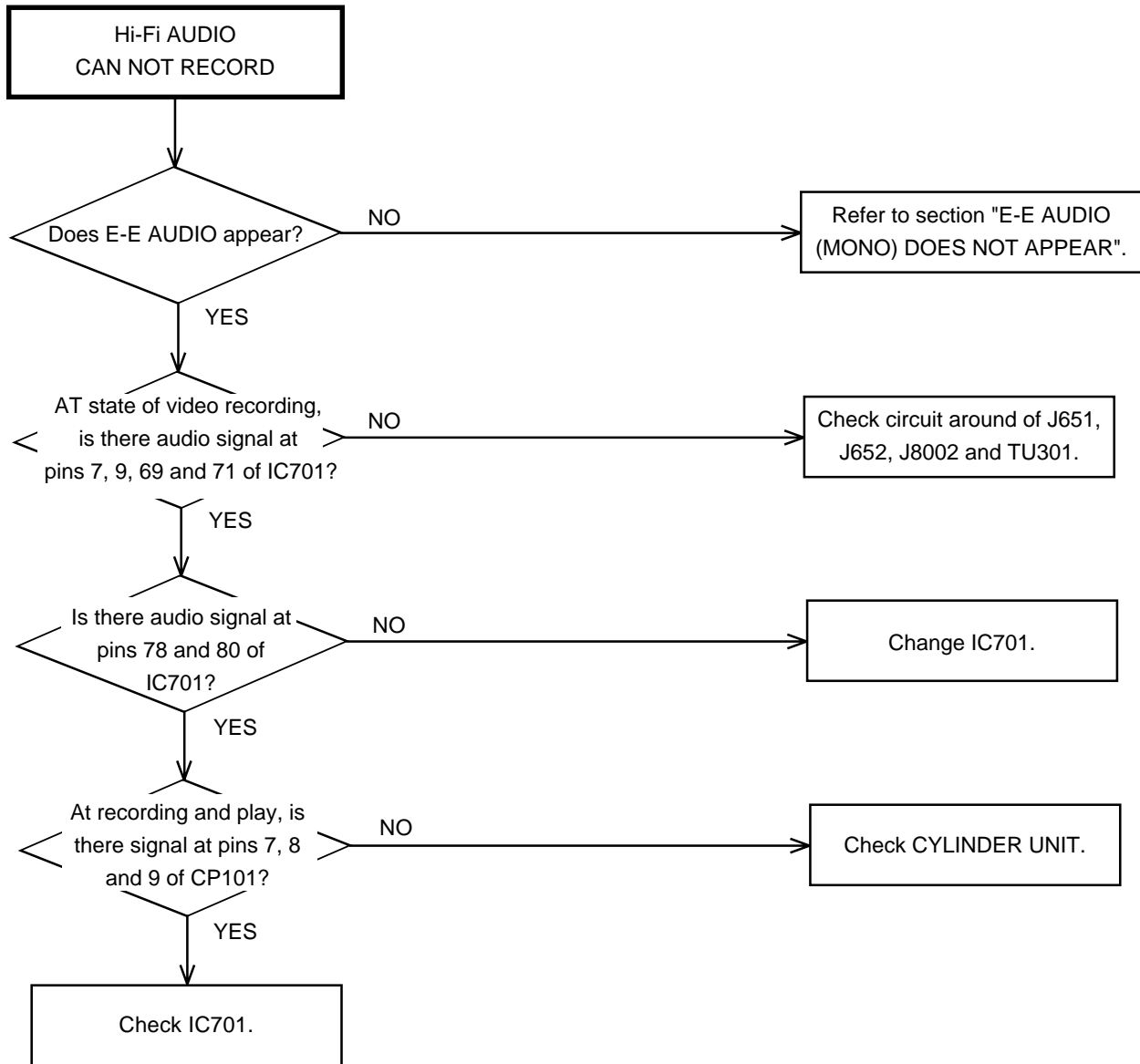




## TROUBLESHOOTING GUIDE

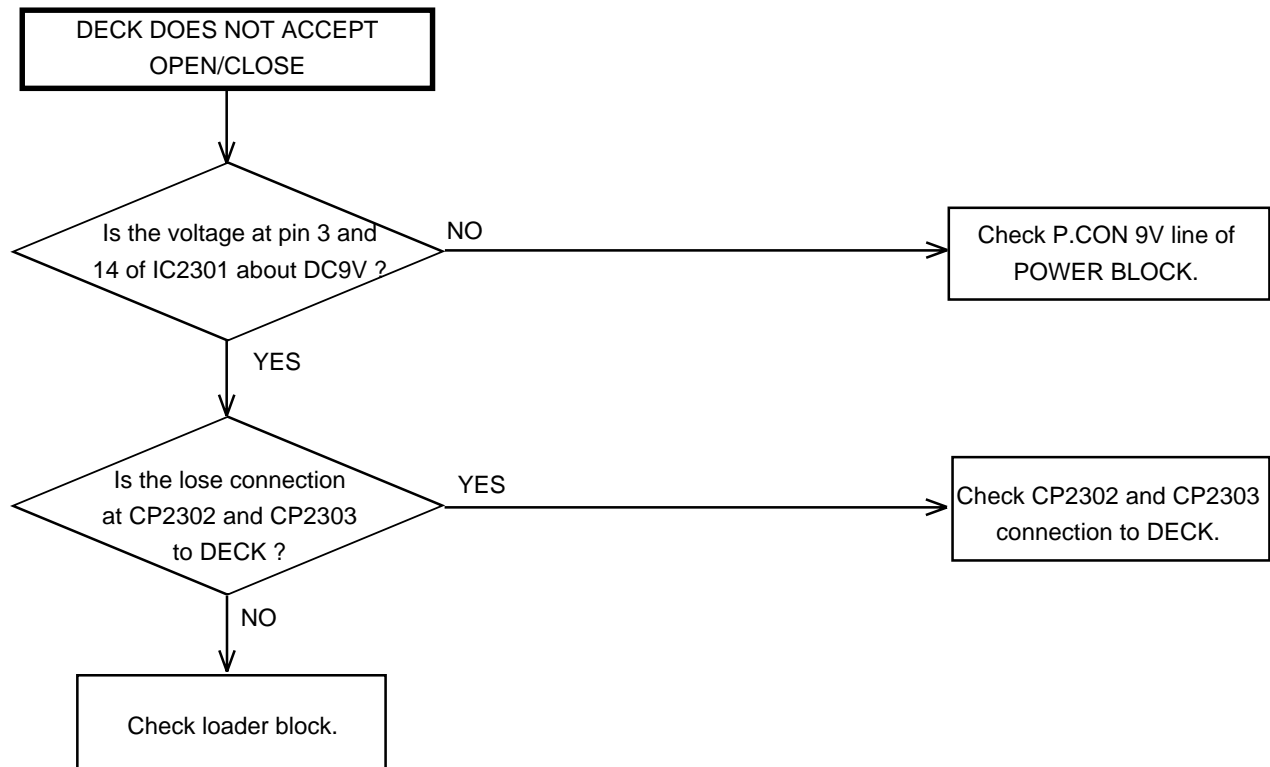


## TROUBLESHOOTING GUIDE

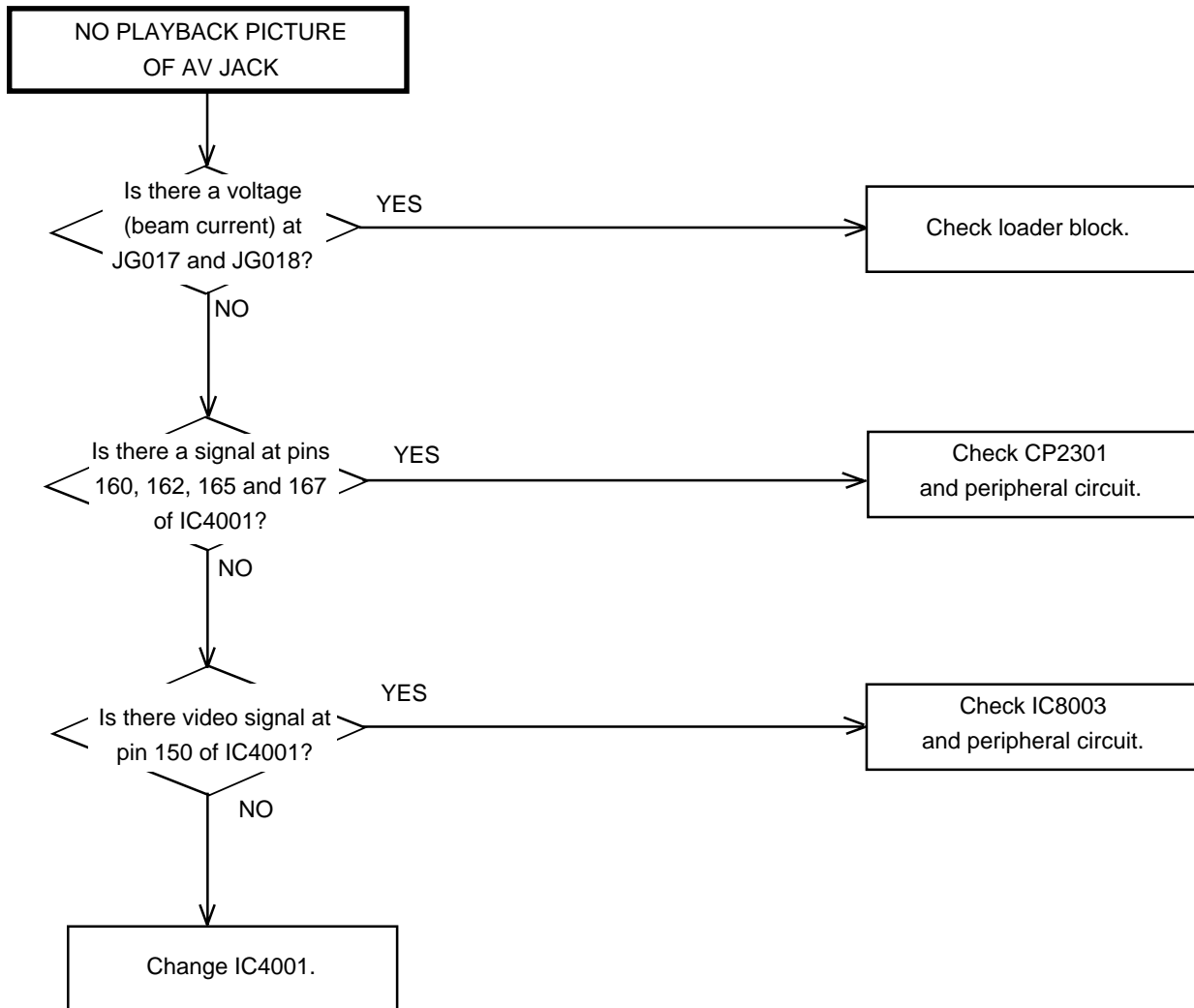


## TROUBLESHOOTING GUIDE

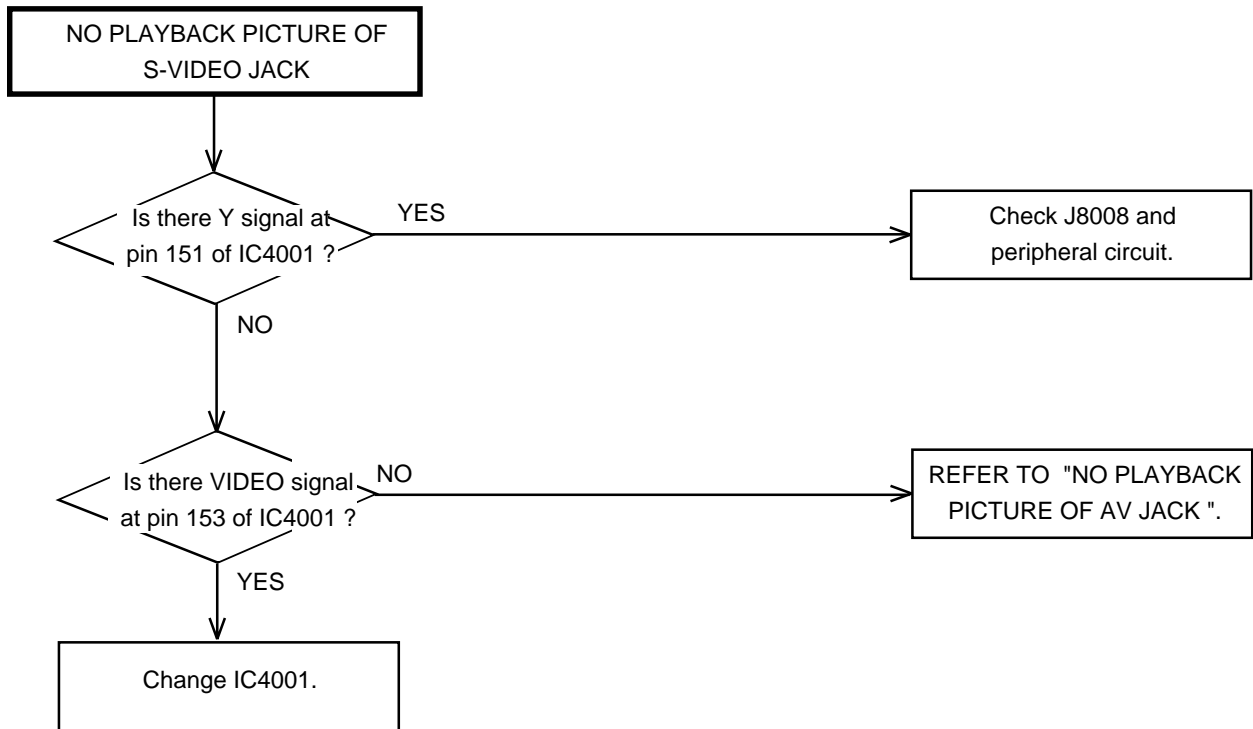
### (DVD SECTION)



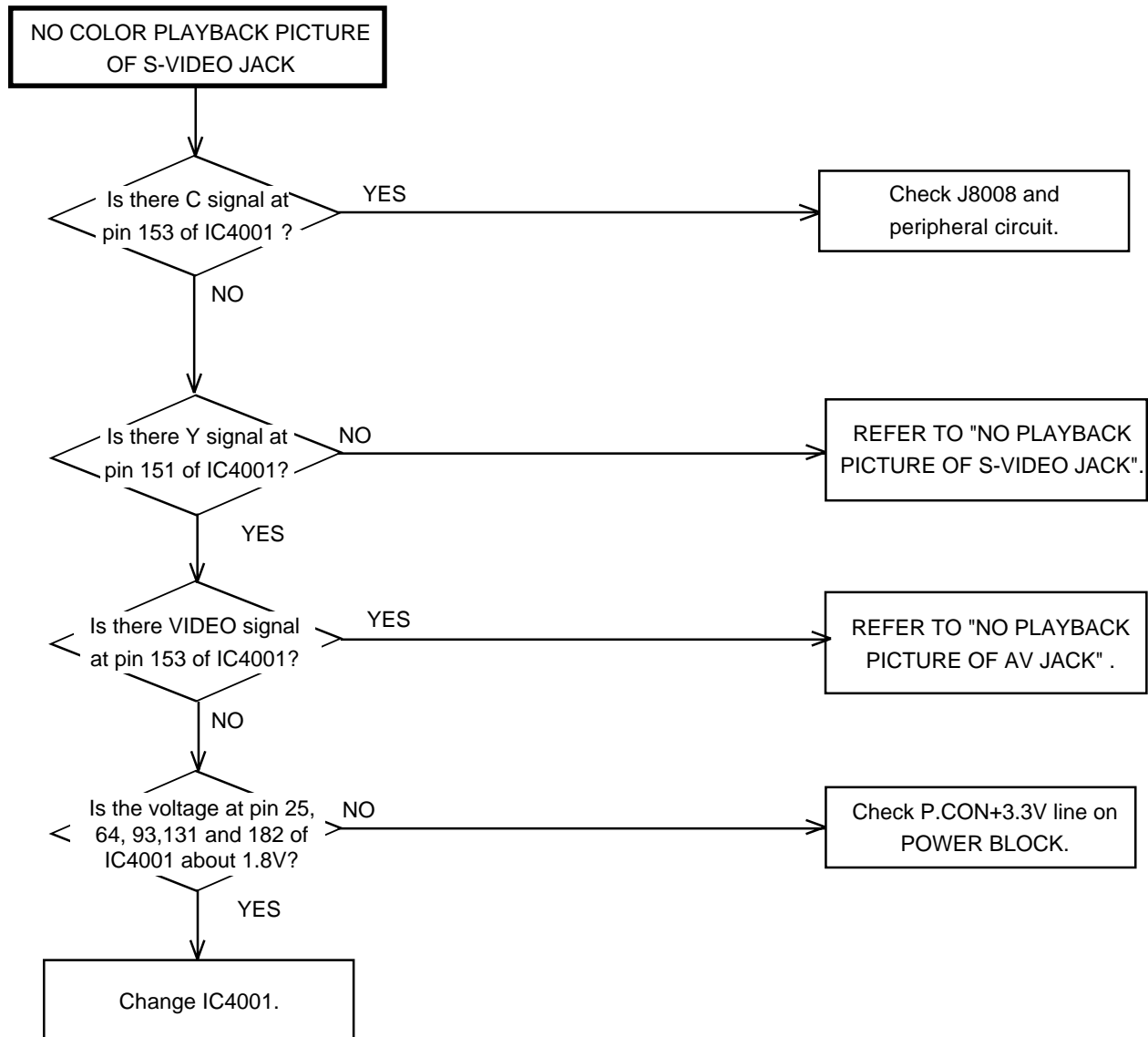
## TROUBLESHOOTING GUIDE



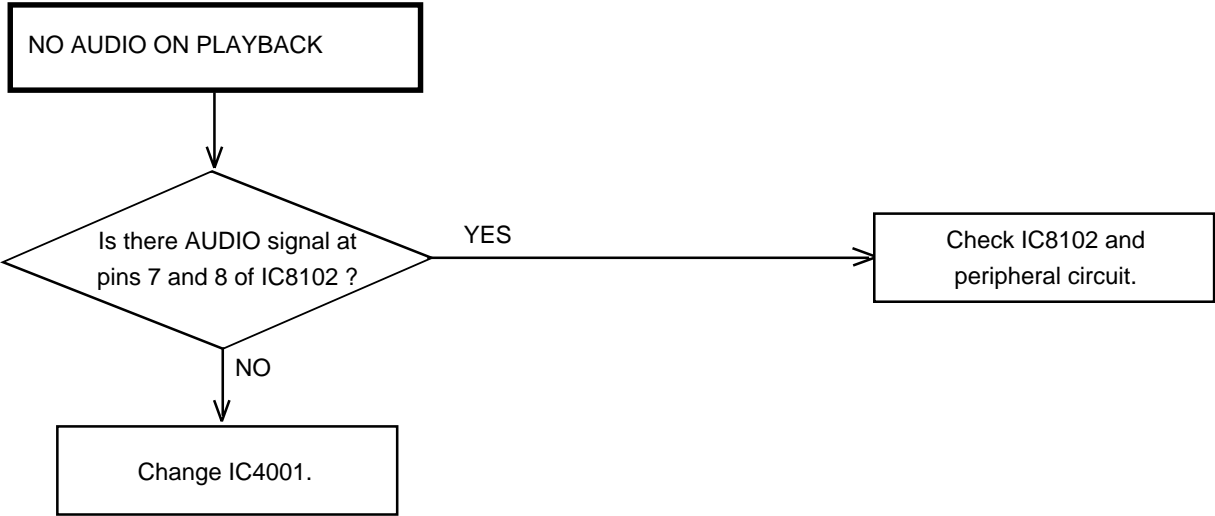
## TROUBLESHOOTING GUIDE



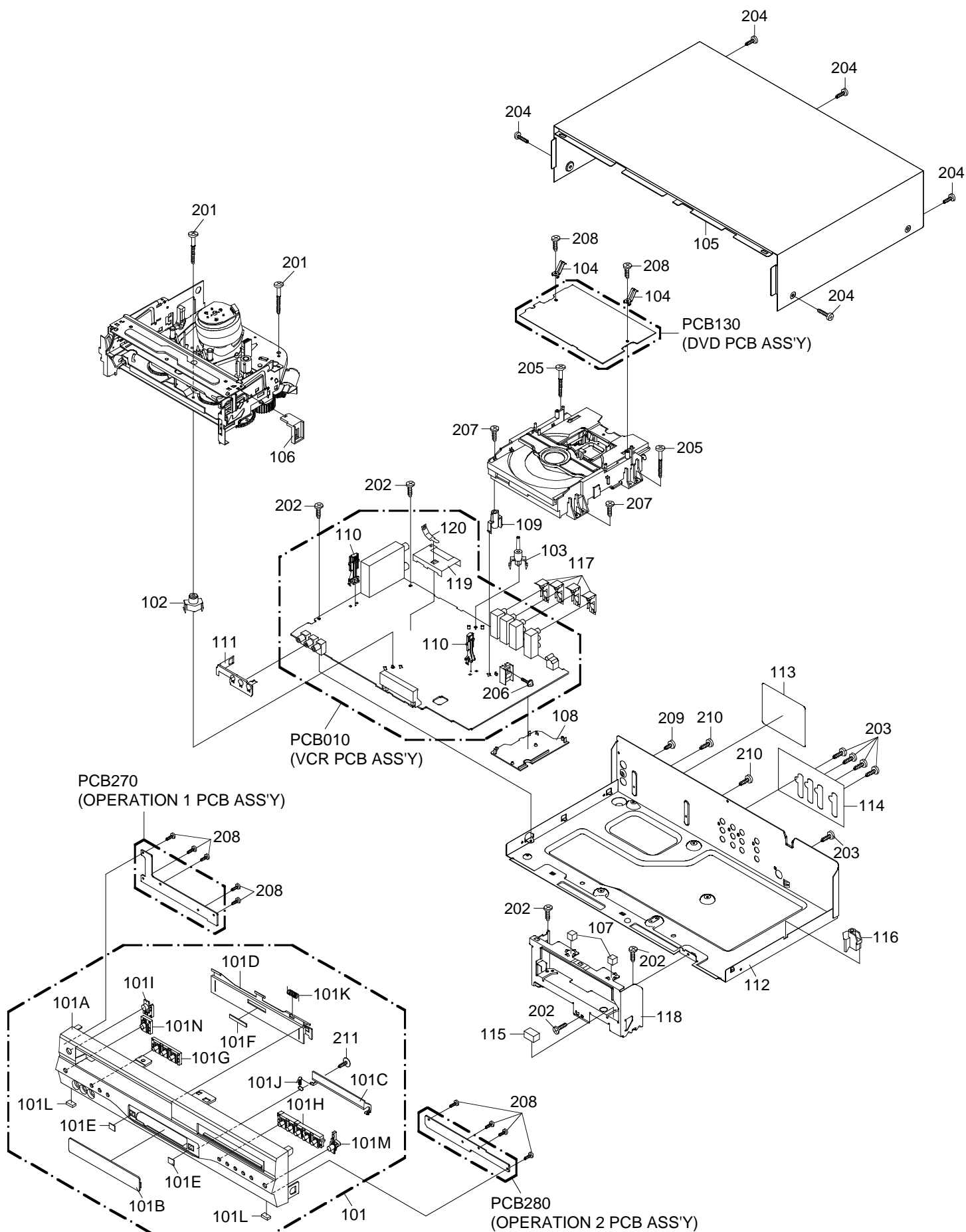
## TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE

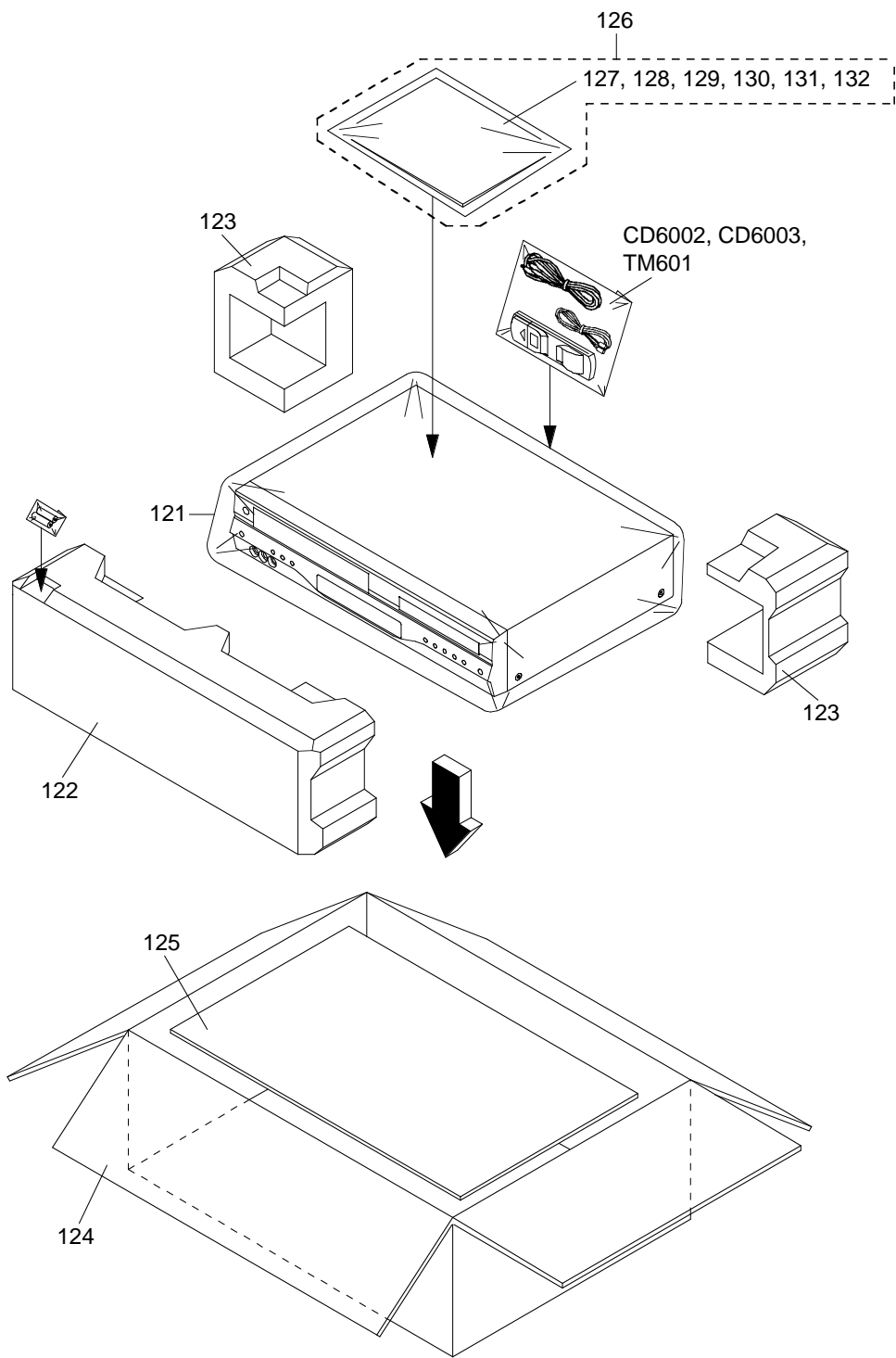


# MECHANICAL EXPLODED VIEW

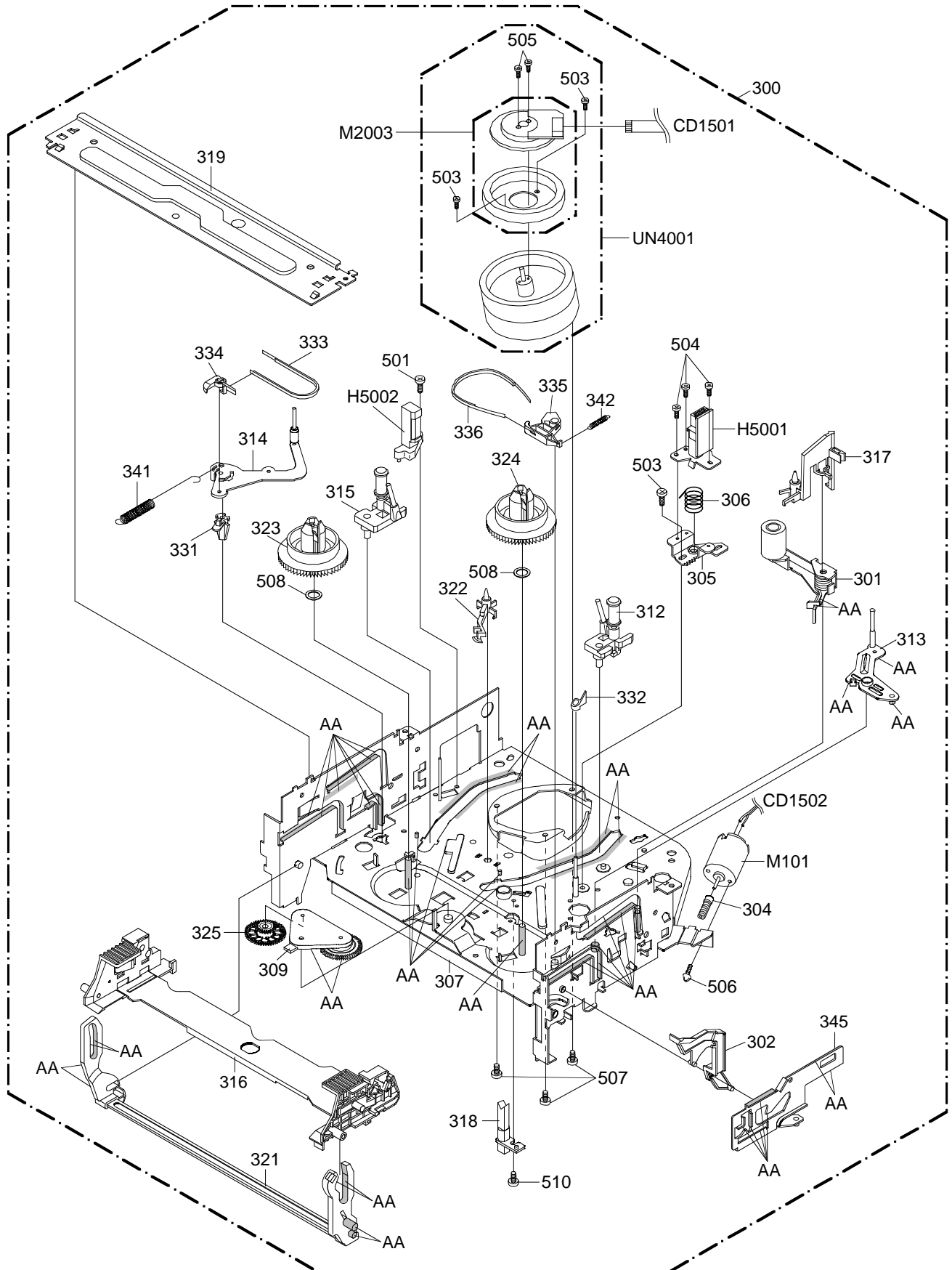




**MECHANICAL EXPLODED VIEW  
(PACKING DIAGRAM)**



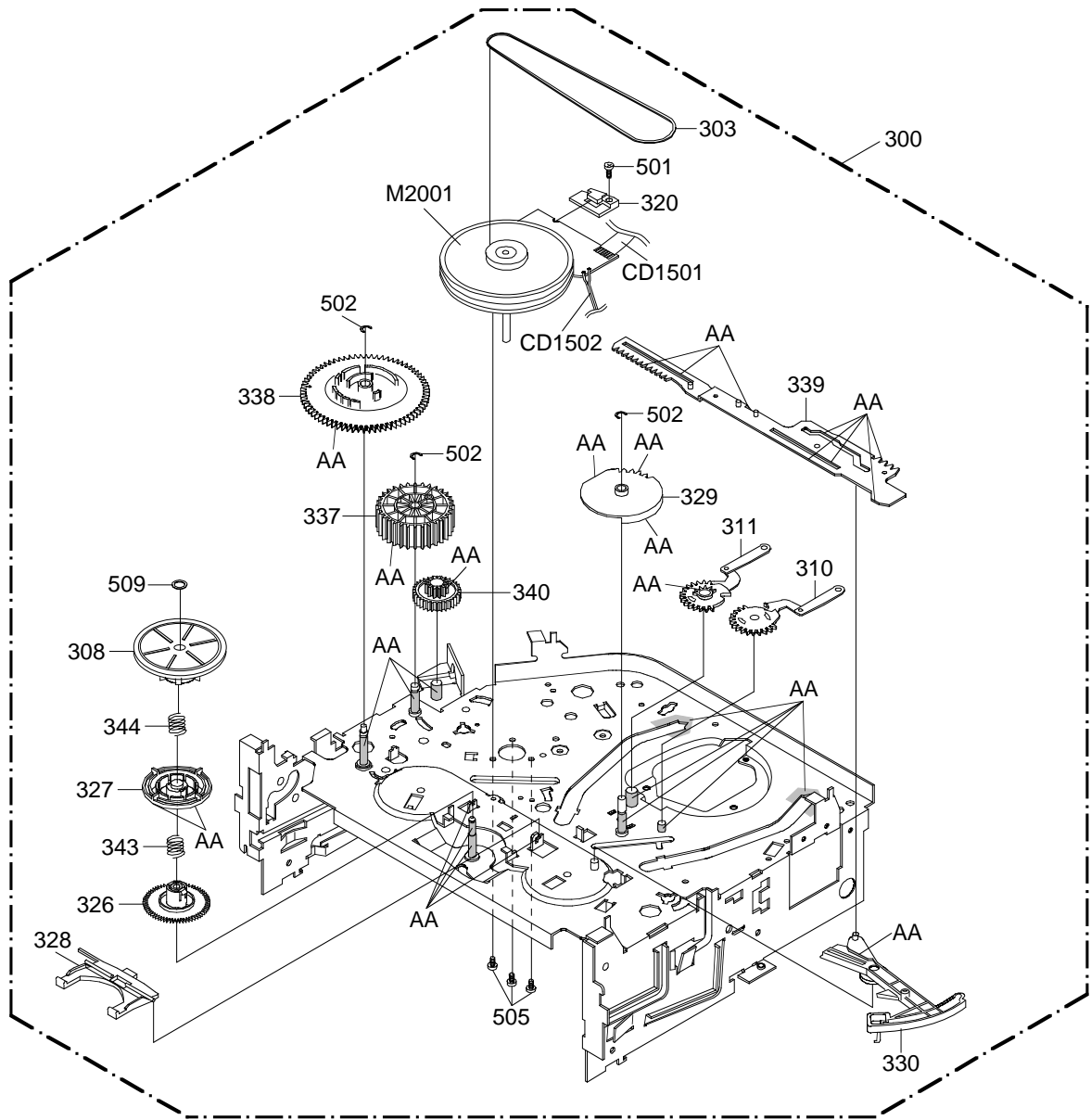
# CHASSIS EXPLODED VIEW (TOP VIEW)



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.

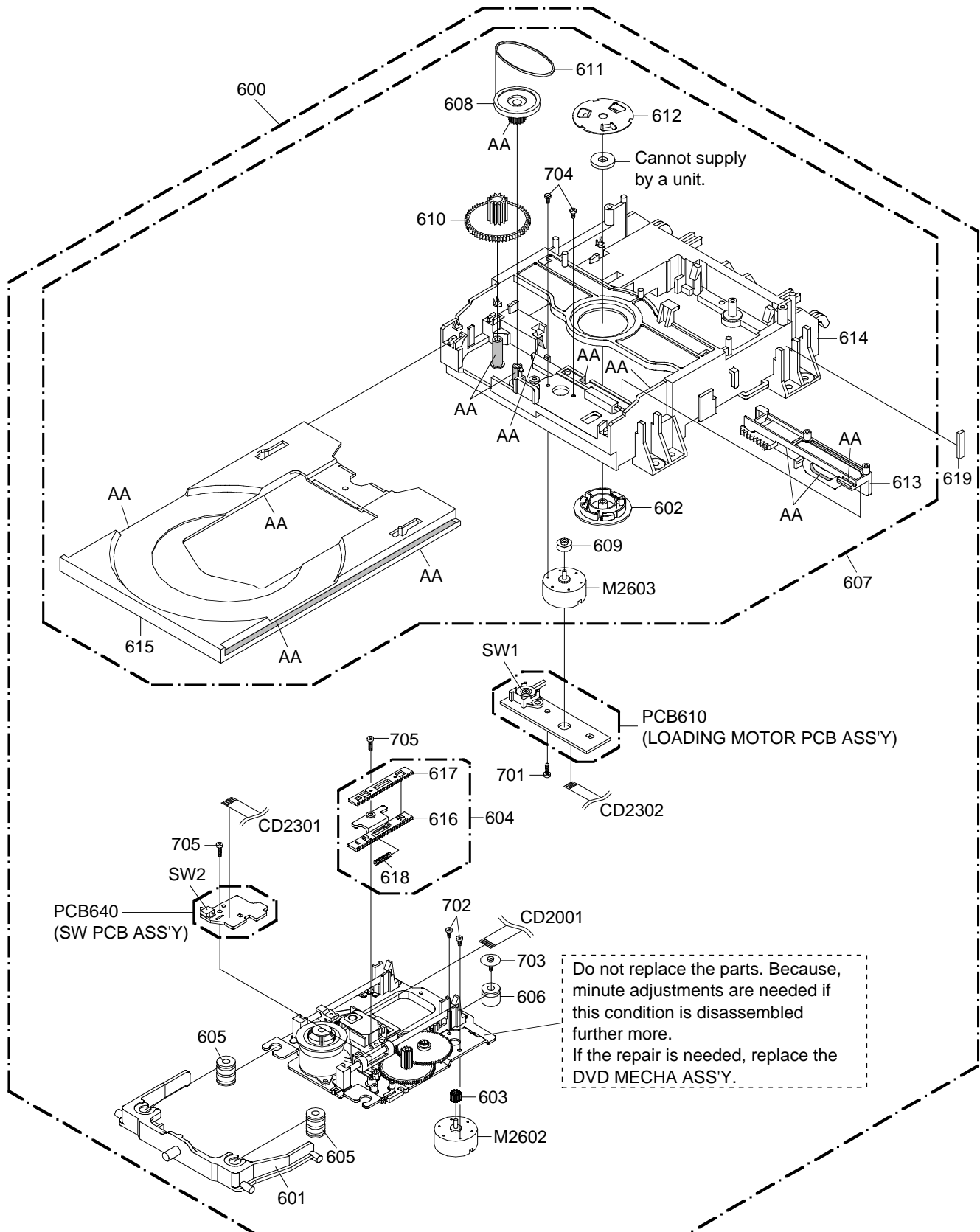
# CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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.

# 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	AE006718	7A7010086A	FRONT CABI ASS'Y
101A	AE006719	701WPJ1347	CABINET,FRONT
101B	AE006720	711WPD0678	PLATE DISPLAY
101C	AE006721	712WPJ0904	FLAP DVD
101D	AE007195	712WPJ0926	FLAP VCR
101E	AE001167	7230007689	SHEET LED
101F	AE001847	7235490018	BADGE BRAND
101G	AE006722	736WPB0005	BUTTON FRAME-VCR
101H	AE006723	736WPB0006	BUTTON FRAME-DVD
101I	AE007196	736WPB0016	BUTTON POWER
101J	AE001324	742WKA0001	SPRING DVD-FLAP
101K	AE001848	743WKA0042	SPRING FLAP
101L	AE004701	800WFAA015	CUSHION LEG
101M	AE007197	736WPB0014	BUTTON OPEN
101N	AE007198	736WPB0017	BUTTON EJECT
102	AE006652	701WPA1363	HOLDER DECK
103	AE006653	701WPA1364	HOLDER DECK
104	AE003509	753WUA0065	SPRING EARTH
105	AE006725	702WSA0241	CABINET TOP
106	AE006726	761WPA0382	HOLDER DECK TOP
107	AE001852	8965TS1010	CUSHION 65TS10-10(10*10*25)
108	AE007201	761WPA0406	COVER PCB
109	AE004703	761WPA0321	HOLDER DVD BL
110	BZ710498	85OP700038	HOLDER END SENSOR
111	AE006728	752WUA0010	SHIELD JACK
112	AE006729	702WSA0242	PLATE BOTTOM
113	AE008138	7225490222	SHEET,RATING
114	AE007199	7230007952	SHEET JACK
115	AE001853	8965TS1017	CUSHION 65TS10-10(17.5*20*14)
116	79091466	761WPA0261	HOLDER DVD BR
117	BZ710659	752WSA0290	SHIELD COMPO
118	AE007977	761WSA0278	ANGLE FRONT
119	BZ710466	752WSA0230	SHIELD CASE H/AMP
120	BZ710331	753WUAA006	SPRING EARTH H/AMP
121	AD301577	791WHA0100	GIFT SHEET
122	AE006734	792WHA0601	PACKAGE FRONT
123	AE006733	792WHA0603	PACKAGE BACK
124	AE006735	793WCD1619	GIFT,BOX
125	AE005535	795WCA0674	PAD FLAT
126	AE006736	A2H201H975	INSTRUCTION BOOK KIT
127	AE004981	JB5KD500	POLYBAG INSTRUCTION(RED CAUTION)
128	AE004983	J2D60117A	REGISTRATION CARD
129	AE004982	J2D60129A	INFORMATION SHEET
130	AE005534	J2E50628A	WARNING SHEET
131	AE008139	J2H20101B	INSTRUCTION BOOK
132	AE008140	J2H20107B	QUICK SET-UP SHEET
201	AE006673	8109130B7U	SCREW TAP TITE(B)R PAN 3*27 CH
202	AE007202	810923053U	SCREW TAP TITE(B) R BIND 3*5.3 CH
203	AE003526	810923080U	SCREW TAP TITE(B) BIND 3*8 CH
204	AE004724	8109K3060U	SCREW TAP TITE(B) BIND(3D) 3*6 CH
205	AE005537	8154D3033U	SCREW TAP TITE(B) WH8 3*33R CH
206	AE003524	8109I30A0U	SCREW TAP TITE(B) WH7 3*10 CH
207	AE005541	810F13080U	SEMS(F) 3*8 CH
208	AE003530	811Q22680U	SCREW TAP TITE(P) BIND 2.6*8 CH
209	AE005539	810713040U	SCREW TAP TITE(S) PAN 3*4 CH
210	AE005540	810722660U	SCREW TAP TITE(S) BIND 2.6*6 CH
211	AE006822	8110E2680U	SCREW TAP TITE(P) WH10 M2.6*8 CH

# CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
300	AE008141	A2F403H420K	DECK ASSY A2F403H420K
301	AE005514	85OA400245	PINCH ROLLER BLOCK VA2
302	AE006679	85OP900759	LEVER,FLAP(S)
303	BZ710193	85OP200290	BELT,CAPSTAN (S)
304	BZ710515	85OP600581	WORM
305	BZ710094	85OP500083	BASE,AC HEAD
306	BZ710112	85OP800324	SPRING,AC HEAD
307	AE006676	85OA000529	MAIN CHASSIS ASS'Y(S)
308	BZ710517	85OA200089	CLUTCH ASS'Y
309	AE005920	85OA200092	ARM IDLER ASS'Y
310	AE005836	85OA300068	LOADING ARM S UNIT
311	AE005837	85OA300070	LOADING ARM T UNIT
312	BZ710521	85OA400223	INCLINED BASE T UNIT 3S
313	AE005838	85OA400249	P5 ARM ASS'Y 2
314	AE005839	85OA400248	TENSION ARM ASS'Y 2
315	BZ710524	85OA400231	INCLINED BASE S UNIT
316	AE006677	85OA900236	CASS HOLDER ASS'Y(S)
317	BZ710552	85OP900745	CASS,OPENER
318	BZ710106	85OP700035	REFLECTOR,LED
319	AE006678	85OP900756	BRACKET,TOP(S)
320	AE007221	85OP400554	HOLDER,CAPSTAN
321	AE005842	85OA900233	LINK UNIT
322	BZ710531	85OP000496	POST,CASS GUIDE
323	BZ710532	85OP200316	REEL,S (S)
324	BZ710533	85OP200317	REEL,T (S)
325	BZ710534	85OP200308	GEAR,IDLER
326	BZ710535	85OP200311	GEAR,CLUTCH
327	BZ710536	85OP200312	GEAR,COUPLING
328	BZ710537	85OP200313	LEVER,CLUTCH
329	BZ710538	85OP300194	GEAR,MAIN LOADING
330	BZ710092	85OP400490	LEVER,TENSION
331	BZ710093	85OP400492	HOLDER,TENSION
332	BZ710366	85OP400520	CAP.P4
333	BZ710762	85OP400542	BAND,TENSION
334	BZ710540	85OP400533	CONNECT,TENSION
335	BZ710541	85OP600573	ARM,BRAKE T
336	BZ710763	85OP600584	BAND,BRAKE T
337	BZ710543	85OP600577	CAM,PINCH ROLLER
338	BZ710544	85OP600578	CAM,MAIN
339	AE005843	85OP600585	ROD,MAIN
340	BZ710546	85OP600582	GEAR,JOINT
341	BZ710110	85OP800322	SPRING,TENSION
342	BZ710547	85OP800360	SPRING,BRAKE T
343	BZ710548	85OP800355	SPRING,COUPLING
344	BZ710549	85OP800356	SPRING,RING
345	AE005844	85OP900754	LEVER,LINK
501	AE005845	810722680U	SCREW,TAP TITE(S) BIND M2.6*8 CH
502	AE005846	83ETW3000U	E-RING 3.0
503	AE005847	810722640U	SCREW,TAP TITE(S) BIND M2.6*4 CH
504	AE005848	810212060U	SCREW,PAN M2*6 CH
505	AE005849	810912660U	SCREW,TAP TITE(B) PAN M2.6*6 CH
506	AE005850	810A13040U	SCREW/WASHER(A) M3*4 CH
507	AE005851	810A12650U	SCREW/WASHER(A) M2.6*5 CH
508	BZ710056	82Q264713N	POLYSLIDER WASHER 2.6*4.7*T0.13
509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT) 1.8*4.5*T0.5
510	AE005540	810722660U	SCREW TAP TITE(S) BIND 2.6*6 CH
CD1501	BZ614292	122H071704	CORD JUMPER 2H071704
CD1502	BZ614339	122Y021902	CORD JUMPER 2Y021902
H5001	AE004714	1523Q91004	HEAD,AUDIO CONTROL VTR-1X2RPE22-772
H5002	AD301676	1543Q02014	HEAD (FULL ERASE) VTR-1X2ERS11-154
△ M101	AE005552	1596S98002	MOTOR,LOADING MDB2B66B
△ M2001	AE005853	1510S98044	CAPSTAN DD UNIT F2QVB73B
△ M2003	AE006792	1589S11025	MICRO MOTOR I20AL34K
△ UN4001	AE008130	A2F3PDH500	CYLINDER UNIT ASS'Y A2F3PDH500

# DVD DECK REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
△ 600	AE008142	A2G702T650	DVD MECHA ASS'Y A2G702T650
601	AE005003	92P100109A	HOLDER, TRAVERSE
602	AE003550	92P100094A	CLAMPER
603	AE003551	92P100088A	GEAR, MOTOR
604	AE003537	92AAA0013A	FEED RACK ASS'Y
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	AE003544	92P200012A	BELT, LOADING
612	AE003545	92P000014A	PLATE, CLAMPER
613	AE003546	92P100093A	RACK, LOADING
614	AE003547	92P100091A	FRAME, MAIN
615	AE003548	92P100092A	TRAY
616	AE003535	92P100089A	RACK, FEED 1
617	AE003536	92P100090A	RACK, FEED 2
618	AE003543	92P300020A	SPRING, RACK FEED
619	BZ710149	800WFAA008	CUSHION C
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	AD301855	122H001901	CORD JUMPER 2H001901
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	AE003562	A5M4016610	PCB ASS'Y DED003A
PCB640	AE008143	A5N813W640	PCB ASS'Y DED002B
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>				
△R501	BZ210219	R0G3K2335K	RC	3.3M OHM 1/2W
△R502	BZ210039	R3X181010J	R,METAL OXIDE	1 OHM 1W
△R503	BZ210206	R002T2155J	RC	1.5M OHM 1/2W
△R504	AE000145	R002T2561J	RC	560 OHM 1/2W
△R512	AE001779	R3X181683J	R,METAL OXIDE	68K OHM 1W
△R516	AE005735	R63881R22J	R,FUSE	0.22 OHM 1W
△R517	BZ210180	R002T2102J	RC	1K OHM 1/2W
R8033	AE007385	R00202471J	RC	470 OHM 1/2W
<b>CAPACITORS</b>				
△C501	BZ110119	E02LF2222M	CE	2200 UF 16V
△C502	BZ110025	P2122B224M	CMP	0.22 UF 275V ECQUL
△C504	BZ110076	E02LF1222M	CE	2200 UF 10V
△C505	AD301535	E02LU2101M	CE	100 UF 16V
△C511	BZ110186	E62QFC470M	CE	47 UF 200V
C513	BZ110175	C03L0R7H2K	CC	220 PF 2KV R
△C514	AD301535	E02LU2101M	CE	100 UF 16V
△C515	AE001722	C0J0B0514K	CC	0.01 UF 500V B
△C516	BZ110256	CC3LE0MH3M	CC	0.0022UF 250V
△C518	AE004691	E61FF0222D	CE	2200 UF 6.3V
△C519	AD301535	E02LU2101M	CE	100 UF 16V
C525	BZ110172	C03L0R7U2K	CC	680 PF 2KV R
△C526	BZ110256	CC3LE0MH3M	CC	0.0022UF 250V
△C531	AE001723	C0JTB05S2K	CC	560 PF 500V B
△C540	BZ110186	E62QFC470M	CE	47 UF 200V
<b>DIODES</b>				
D501	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D502	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
△D503	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
D504	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D505	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
△D506	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
△D507	BZ410007	D23TGP15J0	DIODE,SILICON	RGP15J-G23
D508	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D509	BZ410103	D2WXP10J0	DIODE,RECTIFIER	RGP10J-EIC
△D510	BZ410113	D97U02201B	DIODE,ZENER	MTZJ22B T-77
△D511	BZ410115	D2LKB340L0	DIODE,SCHOTTKY	SB340L-6737
D512	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D513	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
D514	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
△D515	BZ410033	D28T21DQN4	DIODE,SCHOTTKY	21DQ04N-TA2B1
D516	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D518	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D519	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
△D522	AE006060	D28T0ERB20	DIODE,RECTIFIER	10ERB20-TA1B2
△D523	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D524	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D526	AD302208	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
△D527	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
D528	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D529	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
D602	AE001703	0021E5Q212	LED	LTL-1CHGT-002A
D656	BZ410085	D2WYN40050	DIODE,SILICON	1N4005-EIC
D685	AE001703	0021E5Q212	LED	LTL-1CHGT-002A
D2303	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D2304	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3001	AD301638	0010E00330	INFRARED LED	LTE-3271T-012A-O
D3002	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3007	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3009	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4002	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4003	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4004	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4005	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8004	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D8005	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D8006	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>				
IC101	AE005890	I03F3206ME	IC	LA71206M-MPB-E
△IC501	AD302211	I1KJ9A431A	IC	KIA431A-AT
△IC502	BZ611089	I1KA98R09A	IC	KIA78R09API
△IC503	AE002809	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC701	AE004692	I03F670BMO	IC	LA72670BM-L-MPB-E
△IC2301	AE003581	I03F065650	IC	LA6565-TE-L-E



# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description ICS	
IC2304	AE005769	I07J003580	IC	BA10358FV-E2
IC3001	AE007384	I54F50157A	IC	OEC0157A
IC3003	AD301641	I9UF032310	IC	PST3231NR
IC3099	AE008144	A2F403H015	INIT DATA	BR24L02F-WE2
IC4001	AE008145	ICQK068621	IC	ZR36862PQCG-B
IC4002	AE005421	I57J0L02F0	IC	BR24L02F-WE2
△IC4003	AE006061	I07F9E00W0	IC	BA33E00WHFP-TR
IC4005	AE005215	IFLJ0632H7	IC	K4S641632H-UC75
IC4007	AE008146	S2F403HF01	MEMORY DATA	SST39VF800A-70-4C-EKE
IC8001	AE006711	I04J045800	IC	RC4580IDR
IC8002	AD301988	I0UF015010	IC	MM1501XNRE
IC8003	AE005771	I0UF015110	IC	MM1511XNRE
IC8005	AD301988	I0UF015010	IC	MM1501XNRE
IC8102	AE003584	I17F017530	IC	PCM1753DBQR
<b>TRANSISTORS</b>				
Q101	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q102	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q103	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q104	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q105	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q107	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q109	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q301	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
△Q501	AE002251	T25F035630	FET	2SK3563(ORION_Q)
△Q502	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
△Q503	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
△Q504	BZ510077	TAAT012714	TRANSISTOR,SILICON	KTA1271_Y-AT
△Q505	AE006717	TD3T018350	TRANSISTOR,SILICON	2SD1835S/T-AA
Q506	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
△Q507	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q509	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
△Q510	AE006717	TD3T018350	TRANSISTOR,SILICON	2SD1835S/T-AA
Q513	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q514	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q651	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q652	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q653	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q654	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q655	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q656	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q657	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q658	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q659	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q660	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q661	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q662	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q663	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q664	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q665	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q666	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q2301	BZ510112	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2302	AE003592	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2303	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2304	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2305	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q3001	BZ410107	0002700690	PHOTO COUPLER	RPI-303
Q3002	BZ410107	0002700690	PHOTO COUPLER	RPI-303
Q3003	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q3004	BZ410106	0002700680	PHOTO COUPLER	RPI-352C40N
Q3005	BZ410106	0002700680	PHOTO COUPLER	RPI-352C40N
Q3006	BZ410097	0000M00390	PHOTO TRANSISTOR	ST-304L
Q3007	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q3008	BZ410097	0000M00390	PHOTO TRANSISTOR	ST-304L
Q8001	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8002	BZ510045	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q8003	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8004	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q8005	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8006	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8007	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q8008	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8009	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q8010	BZ510081	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q8011	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8012	AE002626	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
<b>TRANSISTORS</b>				
Q8019	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8020	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8021	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8022	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8023	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8024	BZ510020	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
<b>COILS &amp; TRANSFORMERS</b>				
L101	AE004672	031626010R	COIL,BIAS OSC	1626010
L102	BZ310041	02167F101J	COIL	100 UH
L103	AE002102	021LA65R6K	COIL	5.6 UH
L104	BZ310039	02167F220J	COIL	22 UH
L107	BZ310039	02167F220J	COIL	22 UH
L301	BZ310039	02167F220J	COIL	22 UH
ΔL501	AE004671	029X000117	COIL,LINE FILTER	SS11VL-05230
L505	BZ310039	02167F220J	COIL	22 UH
L506	BZ310150	02167E220K	COIL	22 UH
L701	BZ310183	021LA6220J	COIL	22 UH
L702	BZ310183	021LA6220J	COIL	22 UH
L703	BZ310039	02167F220J	COIL	22 UH
L704	BZ310039	02167F220J	COIL	22 UH
L705	BZ310039	02167F220J	COIL	22 UH
L3002	BZ310150	02167E220K	COIL	22 UH
L3003	AE000773	021LA6120J	COIL	12 UH
L4001	BZ310191	02167F2R2J	COIL	2.2 UH
L8001	BZ310147	021LA6R33M	COIL	0.33 UH
L8002	BZ310147	021LA6R33M	COIL	0.33 UH
L8006	BZ310041	02167F101J	COIL	100 UH
L8007	BZ310041	02167F101J	COIL	100 UH
L8008	BZ310041	02167F101J	COIL	100 UH
L8009	BZ310041	02167F101J	COIL	100 UH
L8010	BZ310041	02167F101J	COIL	100 UH
L8102	AE000828	02167F1R0K	COIL	1 UH
L8103	AE000828	02167F1R0K	COIL	1 UH
L8104	AE000828	02167F1R0K	COIL	1 UH
L8105	AE000828	02167F1R0K	COIL	1 UH
ΔT501	AE004673	0481291244	TRANSFORMER,SWITCHING	81291244
<b>JACKS</b>				
J651	AE006693	060J421038	RCA JACK	MSP-281V30-A
J652	AE006692	060J401097	RCA JACK	MSP-281V41-B
J653	AE006692	060J401097	RCA JACK	MSP-281V41-B
J8001	AE002758	060J411031	RCA JACK	MSP-213V1-432_NI_LF
J8002	AE002759	060J431020	RCA JACK	MSP-213V2-432_NI_LF
J8006	AE002760	060J411033	RCA JACK	MSP-213V1-732_NI_LF
J8007	AE002761	060J411032	RCA JACK	MSP-213V1-652_NI_LF
J8008	AE002813	063D700008	JACK	MDC-070V-B_LF
<b>SWITCHES</b>				
SW601	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW602	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW603	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW604	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW605	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW685	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW686	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW687	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW689	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW690	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW691	AE001707	0504R01T38	SWITCH TACT	EVQ11L05R
SW3001	BZ612016	0508S11001	SWITCH (LEAF)	LSA-1144EAU
<b>P.C.BOARD ASSEMBLIES</b>				
PCB010	AE008147	A2F403H010	PCB ASS'Y	DME043A
PCB130	AE008148	A2F403H130	PCB ASS'Y	DMD020B
PCB270	AE007388	A2F402H270	PCB ASS'Y	DEE042A
PCB280	AE007389	A2F402H280	PCB ASS'Y	DEE043A
<b>MISCELLANEOUS</b>				
B501	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B2301	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2302	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2303	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2304	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2305	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4001	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4002	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4003	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4005	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4006	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			<b>MISCELLANEOUS</b>	
B4007	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4008	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4009	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4010	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4011	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4012	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4013	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4014	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4016	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B8103	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
BT601	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
CD102	AE004682	122F041508	CORD,JUMPER	2F041508
CD103	AE007029	W9L6012042	FLAT CABLE	AWM2468 AWG26 2C BLACK 120MM
△CD501	AE004681	1209414910	CORD,AC BUSH	9414910
CD601	AE006700	122H061106	CORD,JUMPER	2H061106
CD681	AE006699	122H050801	CORD,JUMPER	2H050801
CP101	BZ614011	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP102	AE004674	069J740599	CONNECTOR PCB SIDE	IMSA-9604S-04C
CP103	AD301649	067U002019	WIRE HOLDER	B2013H02-2P
CP501	BZ614214	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP601	AE006694	069EV63050	CONNECTOR PCB SIDE	00_6232_006_102_800+
CP651	AE004675	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CP652	AE006695	069WV6002A	CONNECTOR PCB SIDE	TOC-B06X-B1
CP681	AE001711	069J750019	CONNECTOR PCB SIDE	IMSA-9604S-05Z13
CD4002	AE007190	06C32B1104	CORD,CONNECTOR	C32B1104
CD6002	AE001243	06CPL02006	CABLE	CPL02006
CD6003	AE006433	06CPBA2006	CORD,RCA PIN	TD-OR0201R
CD8001	AE004683	122F0E1001	CORD,JUMPER	2F0E1001
CP2301	AE003571	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2302	AE005934	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2303	AE005935	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
△CP3001	BZ614289	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP8001	AE004677	069J7E0599	CONNECTOR PCB SIDE	IMSA-9604S-14C
CP8101	AE004676	069J7E0589	CONNECTOR PCB SIDE	IMSA-9604S-14F
△F501	AE001715	081PC2R505	FUSE	51MS025L
FH501	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
FH502	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
OS651	AE002815	077Q037009	REMOTE RECEIVER	PIC-37043LO-H
TM601	AE006697	076D0KU010	TRANSMITTER	ORD203N1204518-E
△TU301	AE006569	0162300044	RF UNIT	115-V-HA35ARE
V651	AE006690	0040E34005	LED DISPLAY	LTG-0338AM-J
X101	AE001717	100DT3R528	CRYSTAL	HC-49/U
X3001	AE004679	100GT01006	CRYSTAL	B10000C001
X4001	AD301803	100BT02701	CRYSTAL	HC-49U/S

## RESISTOR

RC..... CARBON RESISTOR

## CAPACITORS

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

# **TOSHIBA CORPORATION**

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