

***DVD RECORDER***  
***CR-D10***  
***Service Manual***

**HDA-NY1**

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**Hitachi Kokusai Electric Inc.**

## **Contents**

|                                                     |      |
|-----------------------------------------------------|------|
| <b>1. Specification</b>                             | 1-1  |
| <b>2. Operating Instructions</b>                    | 2-1  |
| <b>3. Disassembly</b>                               | 3-1  |
| <b>4. Block diagrams</b>                            | 4-1  |
| <b>5. Schematic diagram</b>                         |      |
| • IF                                                | 5-1  |
| • IF-SUB                                            | 5-9  |
| • CPU/PWR                                           | 5-11 |
| • MIC SW                                            | 5-17 |
| • FRONT                                             | 5-19 |
| • LCD SW                                            | 5-21 |
| • NAVI SW                                           | 5-23 |
| • LED SUB                                           | 5-25 |
| • BNC Y/C USB                                       | 5-27 |
| • AUDIO                                             | 5-29 |
| • MIC                                               | 5-31 |
| • REMOTE                                            | 5-33 |
| • DC IN                                             | 5-35 |
| • PIN JACK                                          | 5-37 |
| • PWR SW                                            | 5-39 |
| • EJECT                                             | 5-41 |
| <b>6. Parts arrangement</b>                         |      |
| • IF                                                | 6-1  |
| • IF-SUB                                            | 6-2  |
| • CPU/PWR                                           | 6-3  |
| • MIC SW, FRONT                                     | 6-4  |
| • LCD SW, NAVI SW                                   | 6-5  |
| • LED SUB, BNC, Y/C, USB, AUDIO, MIC                | 6-6  |
| • REMOTE, DC IN, PIN JACK, PWR SW, EJECT            | 6-7  |
| <b>7. Electrical parts list</b>                     |      |
| • IF                                                | 7-1  |
| • IF-SUB                                            | 7-5  |
| • CPU/PWR                                           | 7-6  |
| • MIC SW                                            | 7-8  |
| • FRONT, LCD SW, NAVI SW, LED SUB                   | 7-9  |
| • USB, Y/C, BNC, AUDIO, MIC, REMOTE, DC IN,         | 7-10 |
| • PIN JACK, PWR SW, EJECT                           | 7-10 |
| <b>8. Mechanical parts list &amp; exploded view</b> |      |
| • Mechanical Parts                                  | 8-1  |
| • Exploded View                                     | 8-3  |

# 1. Specification

## 1-1. General

The CR-D10(P) is a DVD dockable type adaptor for Z3000, Z3000W, S3000, S3000W.  
8cm DVD-RAM and DVD-R Recording Capability  
High Quality MPEG2 Video Recording (DVD Video Recording Standard)

## 1-2. Principal features

### 2.1 DVD-RAM Recording

- (1) Variable Bit Rate (VBR) and Constant Bit Rate (CBR) Recording Capability
- (2) Min. 18 minutes Recording in Extra Fine Quality Mode  
(single side, 704x480 (NTSC) , 704x576 (PAL) , 3~9Mbps VBR)
- (3) Approx. 30 minutes Recording in Fine Quality Mode  
(single side, 704x480 (NTSC) , 704x576 (PAL) , 6Mbps CBR)
- (4) Approx. 60 minutes Recording in Std Quality Mode  
(single side, 352x480 (NTSC) , 352x576 (PAL) , 3Mbps CBR)

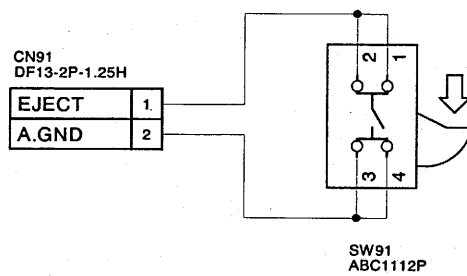
### 2.2 DVD-R Recording

- (1) Constant Bit Rate (CBR) Recording Capability
- (2) Approx. 30 minutes Recording in Fine Quality Mode  
(single side, 704x480 (NTSC) , 704x576 (PAL) , 6Mbps CBR)
- (3) Approx. 60 minutes Recording in Std Quality Mode  
(single side, 352x480 (NTSC) , 352x576 (PAL) , 3Mbps CBR)

## 1-3. Specification

- (1) Color system : Based on NTSC / PAL
- (2) Recording media : 8cmDVD-RAM, DVD-R
- (3) Video recording system : DVD video recording standard (MPEG2)
- (4) Audio recording system : MPEG Audio layer-2 (fs=48KHz 2ch)
- (5) Record time :
  - Approx. 18 minutes ~ 60 minutes (Extra Fine , VBR method) : DVD-RAM
  - Approx. 30 minutes (Fine , CBR method) : DVD-RAM / R
  - Approx. 60 minutes (Std , CBR method) : DVD-RAM / R
- (6) Picture input ( Multi-Pin connector from Camera)
  - Y : 1.0Vp-p, 1k $\Omega$
  - C : 0.286Vp-p, 1k $\Omega$  (Burst , NTSC)
  - 0.3Vp-p, 1k $\Omega$  (Burst , PAL)
- (7) External Picture input
  - 1) BNC connector : VBS 1.0Vp-p, 75 $\Omega$
  - 2) YC connector : Y 1.0Vp-p, 75 $\Omega$ 
    - C 0.286Vp-p, 75 $\Omega$  (Burst , NTSC)
    - 0.3Vp-p, 1k $\Omega$  (Burst , PAL)
- (8) Audio input CH1/CH2
  - 1) FRONT (Multi-Pin connector from Camera) :
    - 4dBm, 600 $\Omega$ , Balanced
  - 2) REAR MIC (XLR connector) : -40dBu, 10k $\Omega$ , Balanced
  - 3) REAR LINE (XLR connector) : +4dBm, 600 $\Omega$ , Balanced

- (9) Power supply input ( XLR connector) : 12VDC
- (10) Battery input ( Autonbauer adaptor) : 10.5V~17.0V
- (11) Analog video output
  - 1) BNC connector : VBS 1.0Vp-p,75Ω
  - 2) YC connector : Y 1.0Vp-p, 75Ω
  - C 0.286Vp-p, 75Ω (Burst, NTSC)
  - 0.3Vp-p, 75 (Burst, PAL)
- (12) Audio output CH1/CH2
  - RCA pin : 0dBm, 600Ω, Unbalanced
- (13) Digital output : USB1.1
- (14) DC output (5pin) : 12VDC Max 250mA
- (15) REMOTE (6pin)
- (16) LCD : 2.5"color TFT LCD ( approx. 120k picture elements)
- (17) Surroundings temperature : 0°C ~ +40°C
- (18) Rating input voltage : 12VDC
  - (Stability with the DC power supply of 10.5 ~ 17.0V)
- (19) Consumption electric power : approx. 7W (LCD monitor off)
- (20) Measure :120 (width) x 200 (height) x 285 (depth) mm (with camera)
- (21) Mass : Approx. 2.3 kg ( Camera, lens, viewfinder, and battery are eliminated)



CR-D10  
 EJECT (PT-2008A)  
 SCHEMATIC DIAGRAM

SMEJECT.sch

# HITACHI

## DVD RECORDER CR-D10

### OPERATING INSTRUCTIONS

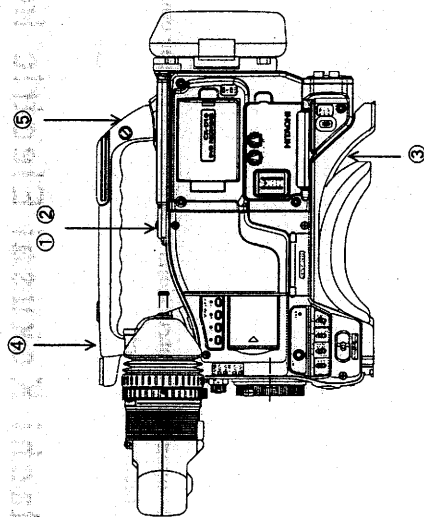
## CONTENTS

|                                            |    |
|--------------------------------------------|----|
| CONTENTS                                   |    |
| Attaching DVD Recorder                     | 3  |
| Section names and functions                | 5  |
| Setting and Recording                      |    |
| Setting Date and Time                      | 11 |
| On-Screen Information                      | 13 |
| Setting Up Record Functions                | 16 |
| Initial Settings                           | 19 |
| Initializing All Settings to Defaults      | 21 |
| Disc Navigation                            |    |
| Disc Navigation                            | 23 |
| Using Disc Navigation                      | 24 |
| Understanding Flow of Disc Navigation Menu | 30 |
| Program                                    | 31 |
| Play List                                  | 36 |
| Scene                                      | 47 |
| Disc Management                            | 58 |
| Emergency Eject                            | 63 |
| Trouble Messages                           | 65 |
| Trouble shooting                           | 70 |
| Service information                        | 73 |
| External View                              | 75 |

Please read this operating instructions carefully for proper operation,  
and keep it for future reference.

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## Attaching DVD Recorder



1. Align the adapter with the camera guide. Attach the adaptor and engage the connector.
2. Tighten the screws provided with the handle to secure the DVD Recorder to the camera.
3. Install the handle with two screws.

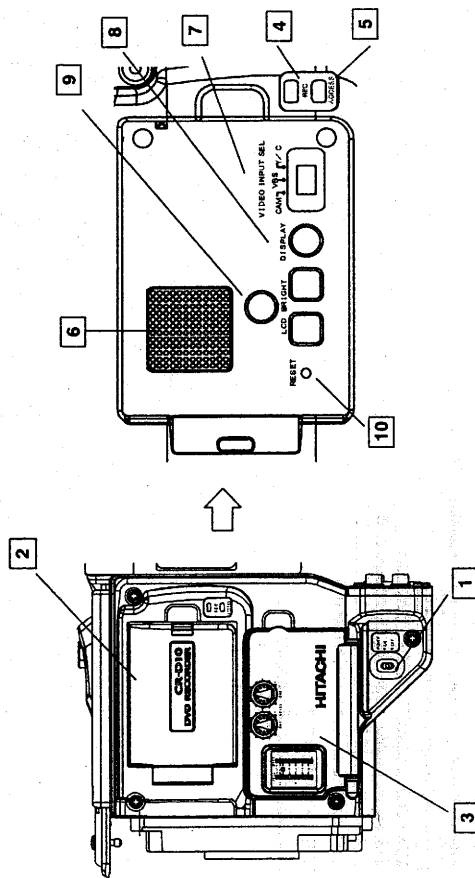
The handle is able to use the standard handle of the camera accessories.



### CAUTION

Tighten the screws completely.  
Check for absence of wobble between  
the camera and adapter.

## Setting names and functions



- 1 POWER ON/OFF SWITCH**  
DVD recorder ON/OFF switch.  
This switch controls power from the battery or the external power supply connected to EXT DC IN/C.

In the ON position, the **color POWER LED** on the camera head and LED indicator **[17]** are lit.  
**Precaution:** When turning power OFF, allow 3 to 10 seconds before completely disconnecting the power source to allow disc unlock and spin down. LED **[17]** should be allowed to shut off.

- 2 LCD MONITOR 2.5-Inch**  
**3 AUDIO CONTROL SWITCH COVER**  
**4 REC LED**  
Lit only while recording.  
**5 DISK ACCESS LED**  
Lit during playback as drive accesses data on the disc.

- 6 SPEAKER**  
Monitor for audio recording during record and playback operations.  
Sound level is adjustable with **[19]** **[20]** **[21]**.

- 7 VIDEO INPUT SELECT SLIDE SWITCH**  
Selection switch for source of video and audio recording as follows:  
CAM: Record video from camera head.

**VBS:** Record from external video source via the BNC connector **[31]** on the CR-D10 recorder chassis.

**Y/C:** Record from the external video source via the S-video connector **[30]** on CR-D10 recorder chassis.

The input video signal selected will be displayed on the LCD monitor.

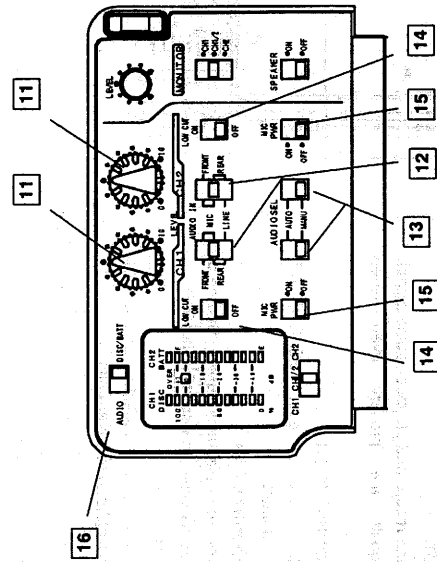
- 8 DISPLAY BUTTON**  
Displays the status of the CR-D10 in character form superimposed on the video. The display is visible in the LCD and output video.

- 9 LCD BRIGHTNESS SWITCH**  
Controls the LCD brightness.

By pressing the button **①** and **④** or **②** within 5 seconds, the LCD display brightness can be increased or decreased.  
By pressing **③** or **⑤** the relative audio level is displayed on the LCD, but it is invalid.

- 10 RESET SWITCH**  
Resets the record timer.  
Press this button after turning the unit off and removing DC power either from the battery or the DC IN connector.

## Setting names and functions



- 11 AUDIO LEVEL CONTROL**

Potentiometers for adjusting the record audio level by  $\pm 20\text{dB}$  (approx.). The initial audio level should be below 0dB on the left side LCD display **[17]**. Set up the AUDIO CH1 volume of the camera in the center. The camera record level control has an additional  $\pm 10\text{dB}$  adjustment range.

- 12 AUDIO INPUT SELECT (SLIDE) SWITCH**  
Selects the source of the audio to be recorded on CH1 and CH2.

**FRONT:** Audio record is assigned to the front-mounted microphone on the camera head. If specified by the microphone manufacturer, turn on phantom power using the camera's microphone settings menu.

**REAR MIC:** Assigns audio recording the rear panel AUDIO IN connector. Connect 3-pin XLR microphones to **[23]**, with an input signal level about  $-40\text{dBm}$   $\pm 20\text{dB}$ .

**REAR LINE:** Assigns audio recording the rear panel AUDIO IN connector. Connect 3-pin XLR audio sources

to **[23]**, with an input signal level about  $+4\text{dBm}$   $\pm 20\text{dB}$ . When using this mode, MIC PWR **[15]** is disabled.

- 13 AUDIO SEL (SLIDE) SWITCH**

Selects the method of audio level adjustment.  
**AUTO:** Audio level is adjusted automatically and the CH1 and CH2 potentiometers **[11]** are disabled.

**MANU:** Allows manual adjustment of the audio level with CH1 and CH2 potentiometers **[11]**.

- 14 WIND SWITCH**

High pass filter on/off switch. Reduces the wind distortion noise picked up by the microphone.

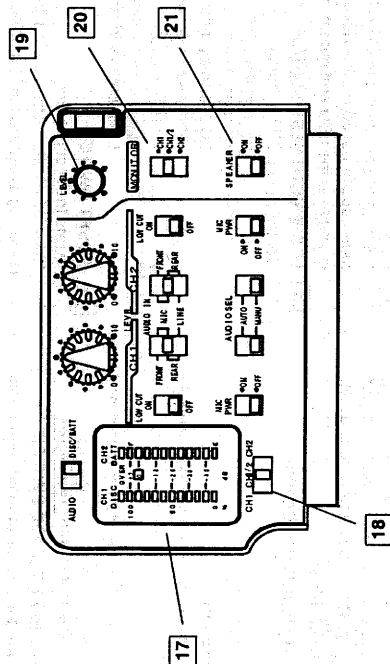
- 15 MIC PWR SWITCH**

Supplies DC phantom power to the microphone connected on the rear panel 3-pin XLR **[23]**.

- 16 LED DISPLAY SELECT SWITCH**

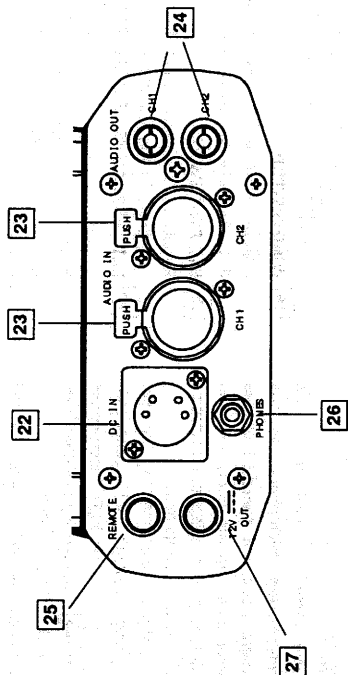
**AUDIO:** Input Audio level CH1/CH2.  
**DISC/BATT:** Available disc capacity in the left column, and battery remainder in the right column.

# Setting names and functions

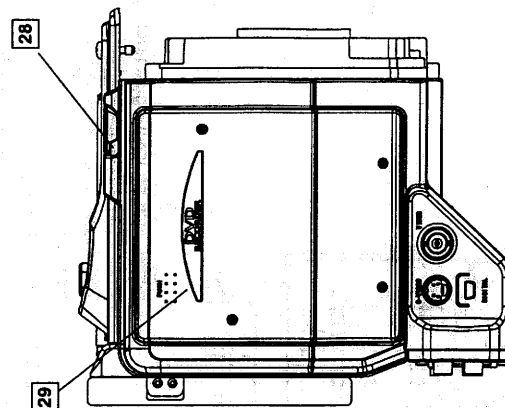


- 17 LED BAR INDICATOR**  
LED bar indicator for function selected with **16**.
- 18 AUDIO LEVEL INDICATOR ASSIGNMENT**  
Displays the level of CH1 or CH2 only or, a mix of CH1 and CH2 in the camera viewfinder.
- 19 MONITOR LEVEL**  
Adjusts the level of the audio monitor speaker **6** and the earphone monitor **26**.
- 20 MONITOR SELECT (SLIDE) SWITCH**  
Selects the audio output for the speaker **6** and earphone **26**. Monitored audio can be CH1 or CH2 or a mix of CH1 and CH2.
- 21 SPEAKER SWITCH**  
Speaker monitor **6** on/ off switch.

# Setting names and functions



- 22 DC IN CONNECTOR**  
Input connector for an external 12VDC power supply.
- 23 CH1, CH2 AUDIO IN CONNECTORS**  
3-Pin XLR connectors for input of audio to be recorded. Inputs can be from a microphone or line according to selection with **12**.
- 24 AUDIO OUT**  
Output of the record and playback audio signal. Audio signals are present even when recording.
- 25 REMOTE CONNECTOR**  
Provides the ability to trigger REC ON/ OFF from a remote place.
- 26 PHONES CONNECTOR**  
Output of record or playback audio. Source of audio can be as selected with **19** and **20**.
- 27 DC 12V OUT**  
12VDC power output connector for use with wireless microphone receiver units.



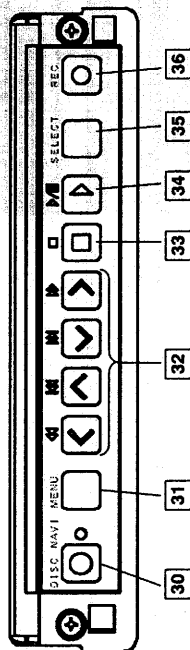
## Setting names and functions

### 28 EJECT SWITCH

Ejects the DVD disc. Pressing once unlocks the disc and prepares for ejection. Once the unit beeps and prompts its disc release in the LCD display [2], press once again to eject the disc.

### 29 DISC COVER

Compartment for 8-cm Disc. Once [28] is operated, gently open the disc cover to expose the edge of the DVD disc caddy. Remove or insert the disc without applying undue pressure. Gently close the cover and confirm that the unit has disc access with LED [5]



### 30 DISC NAVIGATION BUTTON (p.26)

### 31 MENU BUTTON

Press this button to display the menu for setting recording functions and Disc Navigation. The camera menu will appear even if disc is not loaded.

### 32 LEFT/UPPER/LOWER/RIGHT BUTTON

To move LEFT/UPPER/LOWER/RIGHT way.

### 33 STOP/cancel BUTTON

To end playback or set menu.

### 34 PLAY BUTTON

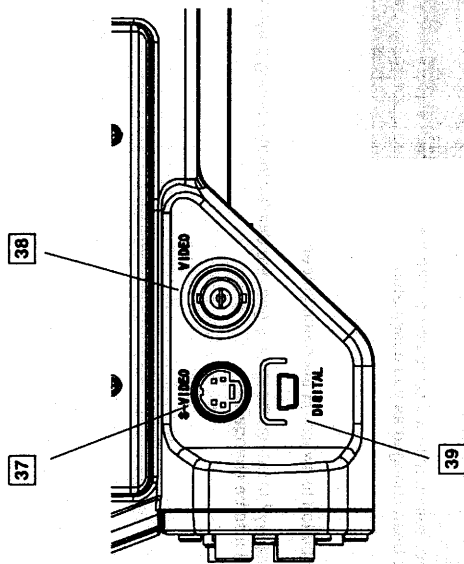
To play back scenes and enter the selection.

### 35 SELECT BUTTON (p.26)

### 36 RECORD BUTTON

To record the image.

## Setting names and functions



### 37 S-VIDEO IN/OUT

Input/Output combined use connector. Select the Y/C side at the INPUT SEL SWITCH [7]. The video signal is output at the time of the playback.

### 38 VIDEO IN/OUT Input/Output combined use connector

Select the VBS side at the INPUT SEL SWITCH [7]. The video signal is output at the time of the playback.

### 39 DIGITAL CONNECTOR

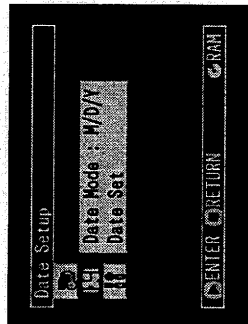
Serial digital output connector of USB1.1

## Setting Date and Time

Set the current date and the correctly so that the date and time you make a recording can be recorded correctly.

Setting the correct date and time will allow you to store the correct information on recording. (The following procedure can also be used to correct the date and time you have already set.)

- 1 Use the button to choose "Date Setup" and then "Date Set".



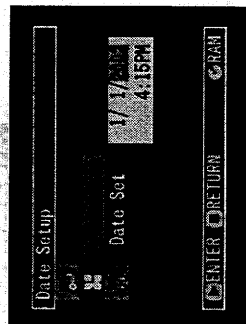
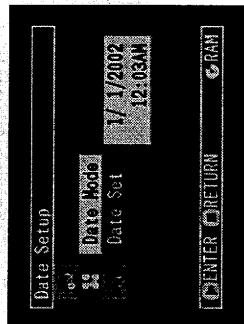
- 2 Press the button.

The figure for the month will be selected. [The digit that is highlighted first depends on the date display format (set up in Date Mode): The digit on the left end of the date display will be first highlighted.]

**Note:** After setting the figure for the month, tilt the button to right to select the digit to be set. If you press the button after selecting the figure for the month, the screen for verifying the set date will appear instead of screen for setting day, year or time.

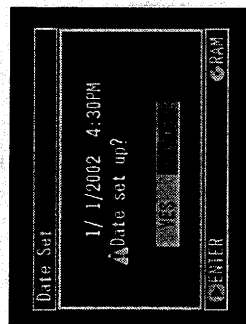
- 3 Tilt the button to left or right to select the digit you want to set in sequence.

Tilt the button up or down to select the number for current date/time, and then repeat step 3 to set the current date and time.



- 4 After setting the current date and time, press the button.

The screen for verifying the set date will appear.



- 5 If the displayed date and time are correct, use the to choose "YES", and then press the button.

The date and time will be set, and the DVD recorder will enter the recording pause status. Choosing "NO" will restore the menu screen.

**Note:** This DVD recorder incorporates a rechargeable battery to store the date and time in memory. If this built-in battery is exhausted, the date and time will be reset. To prevent this, connect the AC adapter to DVD recorder, and leave them for at least 24 hours with the DVD recorder turned off: The built-in battery will be charged.

## Changing Display Format of Date and Time

You can select one of three date display formats: month/day/year, day/month/day. Associated with the selected date display, the time display format will also change as follows:

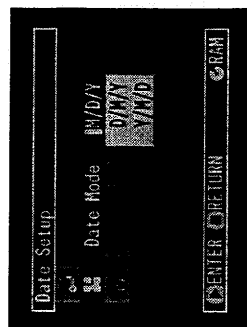
| Display format | Example of display  |
|----------------|---------------------|
| M/D/Y          | 5:30PM<br>5/25/2002 |
| D/M/Y          | 17:30<br>25/5/2002  |
| Y/M/D          | PM5:30<br>2002/5/25 |

- 1 Press the MENU button  
The menu screen will appear.
- 2 Use the button to choose "Date Mode" on the "Date Setup" menu screen, and then press the button.

The options will appear on the right of "Date Mode": The mark will be attached to the currently selected option.

- 3 Use the button to select the desired date display format, and then press the button.

The menu screen for setting date will be restored, and the "Date Mode" has been changed as you designated.



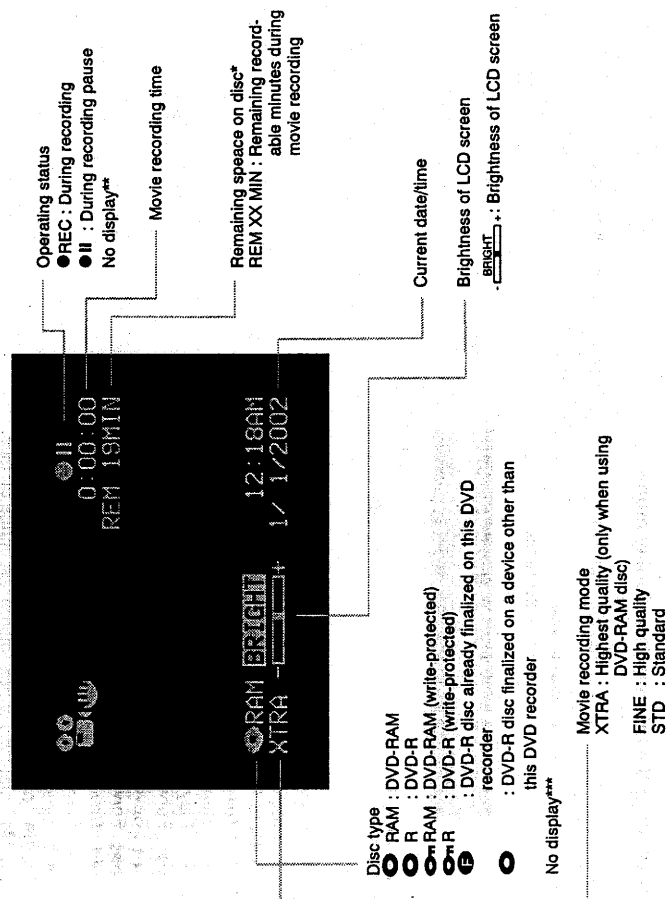
- 4 Press the MENU button to switch off the menu screen.

**Note:** If the date display format has been changed, the display format during playback as well as during recording will also be changed.

## On-Screen Information

Various types of information will appear on the LCD screen during recording and playback.

### Information Display During Recording



\*No remaining time will be displayed with write-protected disc or finalized DVD-R disc.  
 \*\*When no disc is in the DVD recorder, or disc has not yet been initialized, write-protected disc or disc with no remaining space has been inserted.  
 \*\*\*Will not appear when a disc that cannot be used in this DVD recorder is inserted.

## Switching the Information display mode

You can switch the display mode of on-screen information:

Press the DISPLAY button.

- Full display mode: All types of information will appear.
- Minimum display mode: Only the recording mode, status display and warning will appear.

The full and minimum display modes will alternate.

**Note:** The DVD recorder does not record the recording date/time as a part of image. However, this information when recording will be recorded with image as data which can be checked on Disc Navigation screen during playback.

## Display when recording an image of yourself

When recording with the LCD screen facing the same direction as the lens, only the operating status and battery remaining level will appear, and the battery remaining level will appear only when the battery has almost no remaining charge.

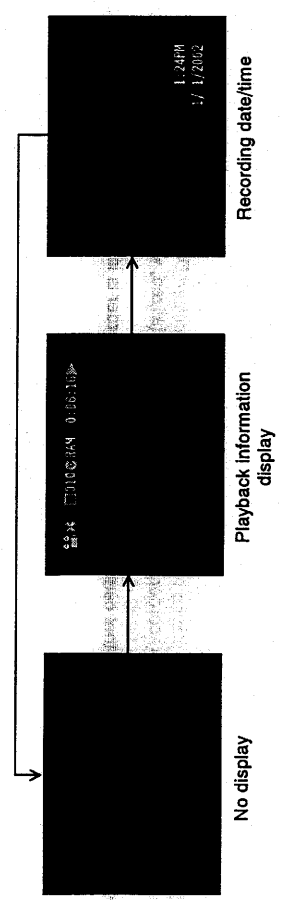
The following operating status indicator will blink to give warning message to user. The message can be checked when returning the LCD monitor 180° to the original status from the status in which the LCD screen was facing the same direction as the lens.

- : The disc has almost no free space.
- : Write-protected disc is loaded.
- No display : Disc that cannot be used has been loaded.
- II : The disc is full, or you are attempting to record a copy-guarded image.

**Note:** If the LCD screen is set facing the same direction as the lens, the LCD screen will display a mirror image (left and right reversed).

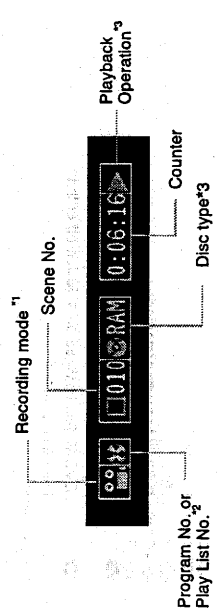
## Information Display During Playback

Various types of information on recording will be superimposed on playback image you are viewing on the LCD screen.



### Switching the Information display mode

Press the DISPLAY button: You can switch the display mode of on-screen information.



- \*1 VIDEO
  - \*2 Program or Play List
  - \*3 Refer to "Disc type".
  - \*4 Will appear when "Repeat play: On" is specified.
  - \*5 Standard playback
  - II : Playback pause
  - ▶▶ : Forward search playback
  - ◀◀ : Reverse search playback
  - ▶▶▶ : Forward skip playback
  - ◀◀◀ : Reverse skip playback
  - II▶ : Forward frame advance
  - ◀II : Reverse frame back
- The "II" mark will appear on the first image on disc.  
The "▶▶" mark will appear on the last image on disc.

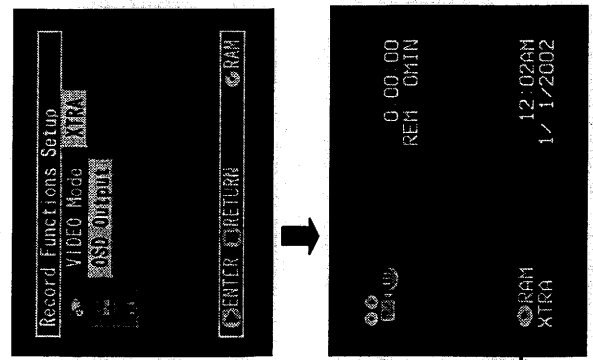
- **Playback information display:** Shows the status of DVD recorder during playback.
- **Recording date/time display:** Shows the date/time when recording was started.
- **No display:** No information will appear. However, when the mode of playback operation is switched, the symbol will appear for approx. 3 seconds.

## Setting UP Record Functions

### Switching Movie Quality mode

Choose the movie quality from "XTRA" (only with DVD-RAM disc), "FINE" and "STD". However, it is recommended that you record critical subjects in the "XTRA" or "FINE" mode when you are using a DVD-RAM disc, or in the "FINE" mode with a DVD-R disc.

- 1 Press the MENU button in the recording pause status.  
The menu screen will appear.
- 2 Use the button to choose "VIDEO Mode" on the "Record Functions Setup" screen, and then press the button.  
Options will be displayed on the right of "VIDEO Mode". The will be attached to the currently selected option.
- 3 Use the to select the desired quality mode, and then press the button.
- 4 Press the MENU button.  
The menu screen will disappear.



**Note:** The "VIDEO Mode" setting will not change even after the DVD recorder is turned off.

## •Recordable times in each movie quality mode (on one side of disc)

| Quality mode | Disc used        |                |
|--------------|------------------|----------------|
|              | DVD-RAM          | DVD-R          |
| XTRA*        | approx. 18~60min | —              |
| FINE         | approx. 30 min   | approx. 30 min |
| STD          | approx. 60 min   | approx. 60 min |

**Note:** when using DVD-R disc, you cannot switch the movie quality mode during recording on the disc:  
The DVD recorder will be automatically set to the quality mode first used with the disc for recording.

**Note:** The setting of movie quality mode is effective only during movie.

## Setting On-Screen Display Output On or Off

If you connect this DVD recorder to a Monitor and operate it while watching the Monitor, you can switch off the on-screen information (displayed on the LCD monitor) from the Monitor.

1 Press the MENU button.

The menu screen will appear.

2 Choose "OSD Output" on the "Record Functions Setup" menu screen, and then press the  button.

The options will appear on the right of "OSD Output": The  mark will be attached to the currently selected option.

3 Choose the desired option and press the  button.

4 Press the MENU button.

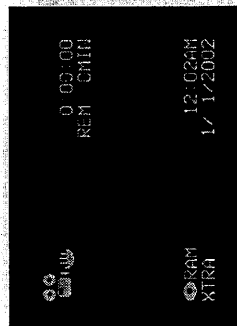
The menu screen will disappear.

The "OSD Output" setting will not change even if the DVD recorder is turned off.

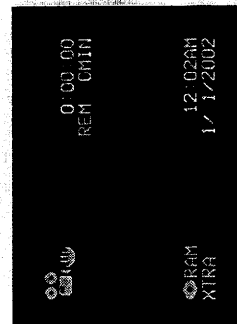
**Note:** Even if "Off" is chosen, the on-screen information will appear during playback, for playback on-screen information display.

**Note:** Even after the on-screen information is removed from the Monitor, it will still appear on the LCD screen.

LCD screen or viewfinder

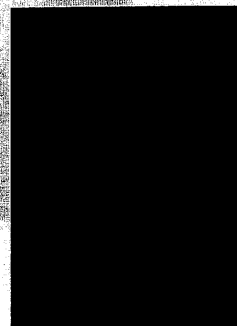


"On" setting



Monitor

"Off" setting



Monitor

## Initial settings

### Switching operating Sound On or Off

This DVD recorder will emit sound when the power switch is changed over, the REC button is pressed, or other operations are engaged. If you do not need operating sound, you can switch it off.

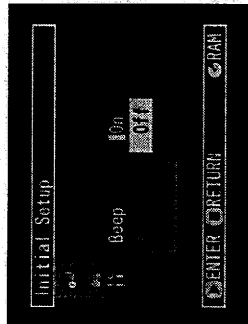
- 1 Press the MENU button.

The menu screen will appear.

- 2 Use the button to choose "Beep" on the "Initial Setup" menu screen, and then press the  button.

The options will appear on the right of "Beep".

The  will be attached to the currently selected option.



- 3 Use the button to choose "On" or "Off" and then press the  button.

- 4 Press the MENU button.

The menu screen will disappear.

**Note:** The "Beep" setting will not change even if the DVD recorder is turned off.

### Changing Display Language

You can change the language used to display the menu and information.

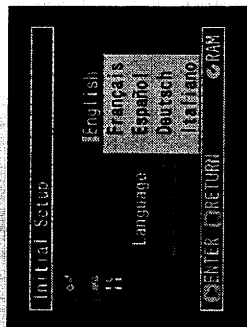
- 1 Press the MENU button.

The menu screen will appear.

- 2 Use the button to choose "Language" on the "Initial Setup" menu screen, and then press the  button.

The options will appear on the right of "Language".

The  will be attached to "English".



- 3 Use the button to choose "Language" that wants to set up, and then press the  button:

- 4 Press the MENU button.

The menu screen will disappear.

The language setting will not change even if the DVD recorder is turned off.

## Initializing All Settings to Defaults

You can restore all menu settings to defaults (initial settings at the factory). (The date and time will not be reset.)

1 Press the MENU button.

The menu screen will appear.

2 Use the ☐ ☐ ☐ ☐ ☐ button to choose "Reset" on the "Initial Setup" menu screen, and then press the  button.

The "Reset" verification screen will appear.

3 If you are sure that you wish to reset, use the ☐ ☐ ☐ ☐ ☐ button to choose "YES", and then press the  button.

All the setting items have now been reset to defaults.

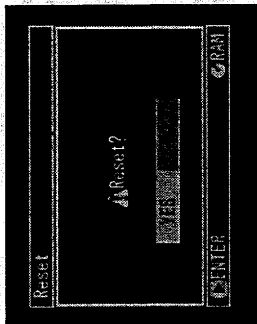
4 Press the MENU button.

The menu screen will disappear.

**Note:** To cancel resetting midway, choose "NO" on the screen for verification in step 2 or press the  button.

5 Remove the DC power.

**Note:** If you don't remove the DC power, you can't see the normal picture from a camera.



## Disc Navigation

This section explains about how to edit recorded images using the Disc Navigation function.

### Before using Disc Navigation

Disc Navigation is a tool for editing scenes recorded on this DVD recorder. Here is an explanation on "scene" and "program", so that you will be able to make most use of Disc Navigation function.

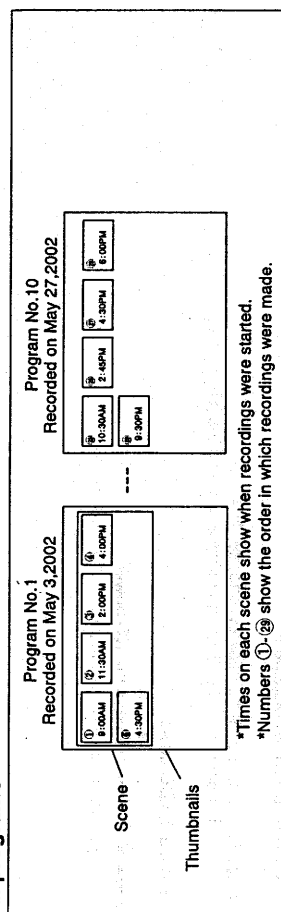
### Structure of Data Recorded On This DVD recorder

Video recorded using this DVD recorder will be stored on disc in units, of scene, in the order of recording.

• **Movie:** One scene refers to images recorded between each press of the REC button until recording is temporarily stopped by pressing REC again.

The recorded scenes are collected as "programs" on each recording date.

### All programs



Scenes of one program are lined up in the order of recording. Usually, when the [ ] button is pressed immediately after recording, the last scene of the last program on disc (scene ⑩ of program No. 10 in the above diagram) will be played back.

To view previously recorded scenes (scenes ①-⑩ in the above diagram), you can use the skip and search playback functions to find any desired scene. By using the Disc Navigation function, you can easily find any desired scene, since you can specify a program or a scene.

You can also fade the image recorded on the DVD recorder, and rearrange the order of scenes.

**Note:** Thumbnails (first images of recorded scenes) are displayed from the top left of screen, and up to 12 thumbnails can appear on one screen. If there are 13 scenes or more recorded, tilt down the [ ] button and hold it to display 13th and any later scenes as thumbnails.

**Note:** "Scene No." is not inherent to that scene, but is a serial number of thumbnails being displayed. Therefore, the Scene No. when all programs are displayed may be different from that for the same scene when a specific program is displayed.

**Note:** Disc Navigation thumbnail screen, skip and title attached to each scene, and special effects (fade) are original functions of this DVD recorder. They will not operate on devices other than this DVD recorder.

**Note:** Even though thumbnails may not appear, depending on the recording conditions, playback of the images may be possible.

## Using Disc Navigation

### Functions Available with Disc Navigation

Disc Navigation allows you to do the following:

- **Selecting scene(s) (Select)** [DVD-NAV] [DVD-R]

You can select a scene from all programs or a specific program and start playback from that scene. You can also select adjacent multiple scenes and play back only the selected scenes.

- **Switching/playback back program (Switch/Play)** [DVD-NAV] [DVD-R]

You can select one program to be viewed from all programs and play it back.

- **Changing title** [DVD-NAV]

You can change titles of programs and play lists.

- **Editing scene(s)** [DVD-NAV]

You can delete unnecessary scenes, skip scenes you do not want to play back, or arrange the order of scenes for playback.

You can also divide a scene on play list or arrange scenes on play list.

- **Displaying information on scenes (Detail)** [DVD-NAV] [DVD-R]

You can get the information on movie quality mode, recording time, etc. of a scene or adjacent multiple scenes.

- **Displaying remaining free space on disc (Capacity)** [DVD-NAV] [DVD-R]

You can display how much free space the disc being driven has.

- **Settings on disc** [DVD-NAV]

You can check the remaining free space of disc being used, and initialize an unformatted disc. You can also update the control information of disc.

- **Finalizing disc** [DVD-NAV]

If you wish to view a DVD-R disc that was recorded with this DVD recorder on other devices that are compatible with 8 cm DVD-R disc, the recorded DVD-R disc must be finalized.

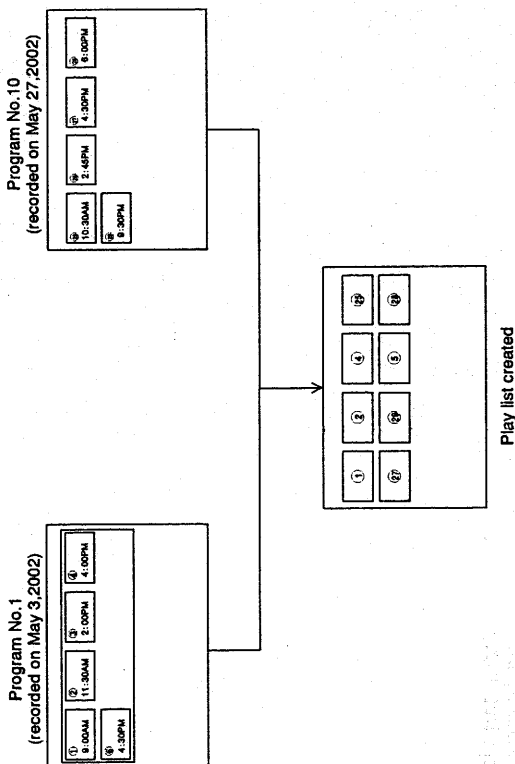
- **Repeat playback** [DVD-R]

If "Repeat Play: On" is specified, all programs, or, any selected program or scene, will be repeatedly played back.

## • Create and Edit Play List

You can display all programs or a specific program, select scenes, and create up to 99 original stories (up to 999 scenes in 99 play lists).  
 Program various scenes in a play list to create your own original movie (play list, P.36).  
 Only the data will be stored in play list. If you create, edit or delete a play list, the original scenes will not be erased from the disc.  
 Since scenes are not duplicated, the disc capacity will not decrease.

### Example: To select scenes from program No. 1 and program No.10 and create a play list



## Starting Disc Navigation and Interpreting Navigation Screen

**Note:** Do not proceed with a following step while the disc is being recognized or the DISK ACCESS LED is blinking.

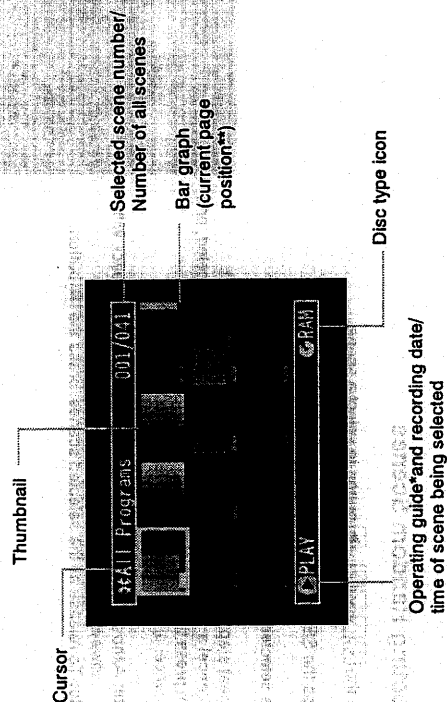
1 Press the DISC NAVIGATION button.

The thumbnails for all programs will appear.

**Note:** The DISC NAVIGATION button will not work without a disc inserted.

2 Press the DISC NAVIGATION button.

Disc Navigation will be terminated and the DVD recorder will enter the recording pause status. You can also press the  button to end Disc Navigation.



\* The operating guide will vary depending on the current status of DVD recorder.

\*\* When there are two or more thumbnail display pages.

You can know the status of scenes from the colors of cursor and bar graph:

| Cursor | Bar graph | Status of scenes        |
|--------|-----------|-------------------------|
| Yellow | Blue      | Current cursor position |
| Blue   | Blue      | Range of scenes being   |
| Red    | Red       | Scenes already selected |

Tilt the button to right when the yellow cursor is in the scene at the bottom right corner of thumbnail display screen, or tilt down the button when the yellow cursor is in any scene on the bottom row: The following 12 thumbnails (following page) will appear.  
Note that when the following pages cannot be displayed, you are on the last page.

Tilt the button to left when the yellow cursor is in the scene at the top left corner, or tilt up the button when the yellow cursor is in any scene on the top row: The preceding 12 thumbnails (preceding page) will appear.  
Note that when the previous pages cannot be displayed, you are on the first page.

**Note:** Tilting up or down the button and holding it will continuously change the page in units of 12 thumbnails.

**Note:** Each time Disc Navigation is started with a DVD-R disc inserted, message "Creating Thumbnail..." will appear. After the message appears, the thumbnail display screen will appear.

**Note:** If the following discs are inserted, the Disc Navigation screen will appear or some message will be displayed:

- Write-protected disc
- Finalized DVD-R disc

## Playing Back Scenes

1 Press the DISC NAVIGATION button.

The thumbnails for all programs will appear.

2 Use the button to select a scene.

The selected scene will be framed. This is called a "cursor".

3 Press the button.

Playback will start from the selected scene, and continue to the last scene on disc.

### • When playback finishes:

The mark will appear in the last image on disc, and after approx. 5 minutes the thumbnail screen will be restored.

**Note:** Press the button to temporarily stop, playback. Pressing again will start from that point.

**Note:** If you press the button after playback of the last scene on disc finishes, playback will start again from the first image of first scene on disc.

**Note:** Pressing the button will always restore the thumbnail screen.

**Note:** You can select scenes randomly and play them back. See below for how to select scenes

## Selecting Random Scenes

1 Use the button to select a scene.

2 Press the SELECT button once.

The selected scene will be framed in red.

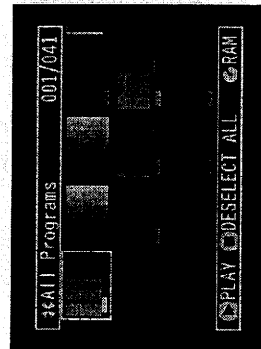
Repeat steps 1 and 2 to randomly select multiple scenes.

To cancel a selected scene, select the scene to be canceled, and then press the SELECT button.

To cancel all selected scenes, press the button.

**Note:** Although scenes can be randomly selected, playback will always start from the lowest scene number.

**Note:** To release all the selected scenes, press the button.



## Selecting Consecutive Scenes Together

1 Use the    button to select the first scene.

2 Hold down the SELECT button for at least one second.

The selected scene will be double-framed in yellow and blue.

3 Use the    button to select the last scene in the range you want, and then press the  button.

The scenes in the specified range will be framed in red, and then selected.

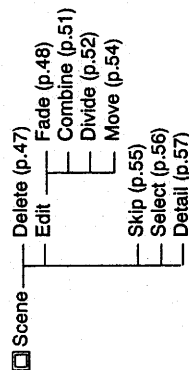
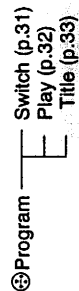
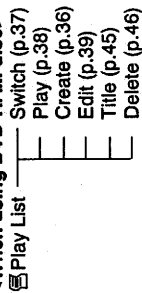
**Note:** You can also select scenes in reverse from the last scene in the range.

**Note:** To release multiple selection, press the SELECT or  button after step 3.

## Understanding Flow of Disc Navigation Menu

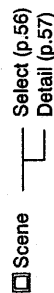
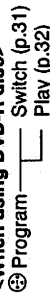
Press the DISC NAVIGATION button and then the MENU button: The menu screens for Disc Navigation and DISC management will appear.  
For details on each menu item, see pages explaining each separate function.

### <When using DVD-RAM disc>



ETC. Others — Repeat Play (p.62)

### <When using DVD-R disc>



ETC. Others — Repeat Play (p.62)

\*Will not appear when a finalized disc is loaded.

## Program

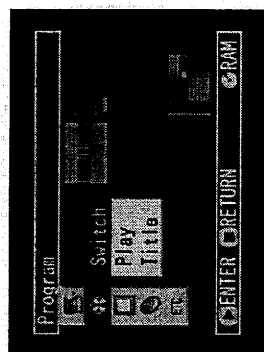
### Switching to Thumbnail Display of Specific Date (selecting Program)

Since the scenes recorded on this video camera/recorder are collected as "programs" for each recording date, selecting a program will allow you to display only the scenes on a specific date.

- 1 Press the DISC NAVIGATION button.
- 2 Press the MENU button.

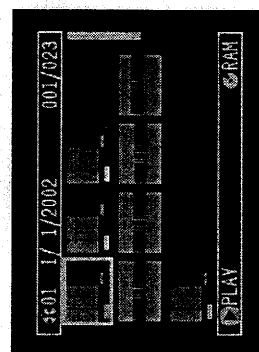
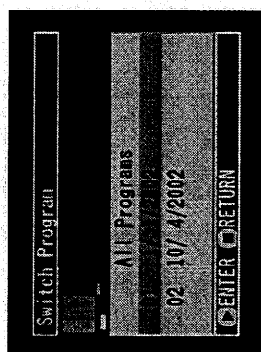
The Disc Navigation menu screen will appear.

- 3 Use the button to choose "Switch" on the "Program" menu screen, and then press the button.



- 4 Use the button to select the program to be displayed, and then press the button.

The Disc Navigation screen will be restored, and the thumbnails of the selected program will appear.



**Note:** If you press the button to stop program selection midway, the original screen (thumbnail select screen) will be restored.

**Note:** The dates displayed on the program select screen will be in the Date Mode used when the first scenes of programs were recorded, and the date displays M/D/Y, D/M/Y and Y/M/D may be mixed.

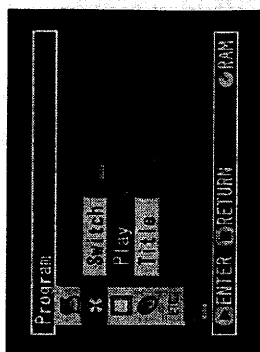
### Playing Back Program

You can play back only the selected program.

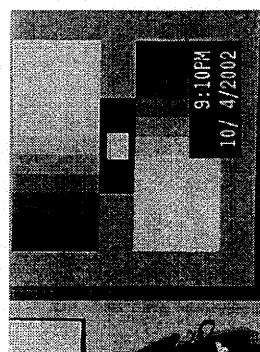
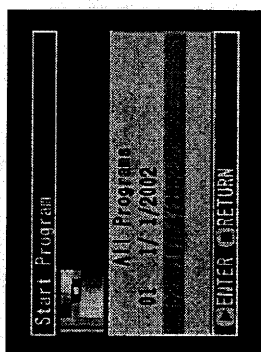
- 1 Press the DISC NAVIGATION button and then the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the button to choose "Play" on the "Program" menu screen, and then press the button.



- 3 Use the button to select the program to be played back, and then press the button. Playback will start from the first scene of the selected program.



## Changing Title of program

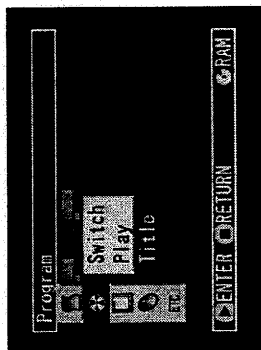
The recording date/time has initially been attached to any program: You can change the recording date/time to any desired title.

1 Press the DISC NAVIGATION button and then the MENU button.

The Disc Navigation menu screen will appear.

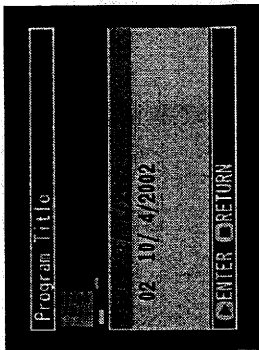
2 Use the     button to choose "Title" on the "program" menu screen, and then press the  button.

The "Program Title" screen will appear.

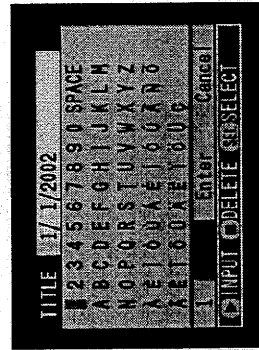


3 Use the     button to select the program whose title you want to change, and then press the  button.

The screen for entering a title will appear.



4 Use the     button to select a letter and then press the  button: The selected letter will be entered.



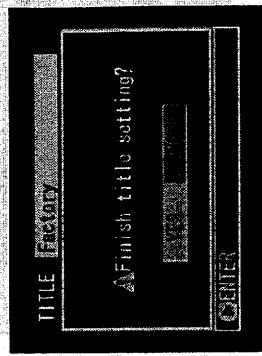
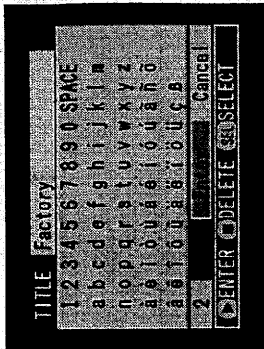
Repeat this procedure to create a title.

5 After entering the title, use the     button to choose "Enter" and then press the  button.

The screen for verifying the

entered title will appear: Choose "YES" and then press the  button.

After the following message appears, the thumbnail display screen of the program whose title was set will be restored. Choosing "NO" or pressing the  button will restore the screen for inputting a title.



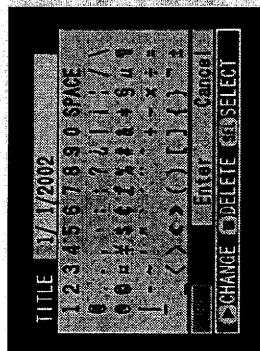
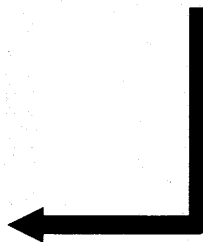
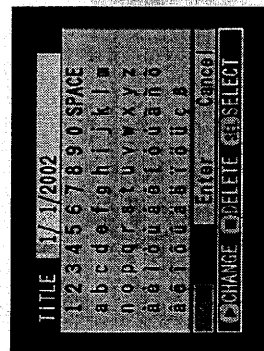
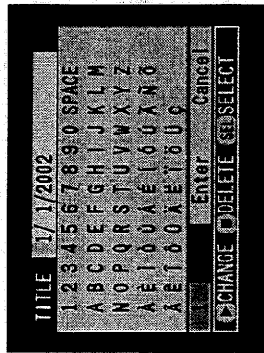
**Note:** If you wish to delete the letter for title, press the  button once: The input letter will be deleted. Holding down the stop button will delete all letters in the TITLE column. You can also use the DELETE button on remote control to delete any input letters.

**Note:** To cancel the setting of title, choose "NO" on the screen for verifying the entered title: The screen for verifying cancellation of title setting will appear. To cancel title setting, choose "YES".

## • Characters available for entering title

You can select characters from the "capital letter", "small letter" and "symbol" input modes. With step 4, select the input mode and then press the **▶** button, of press the **DISPLAY** button on the DVD recorder.

### Input mode



## Play List

### Creating New Play List

Use play list to edit recorded scenes.

- 1 Use the **[◀]** **[▶]** **[◀▶]** **[▶]** button to select a scene to be programmed in a play list.

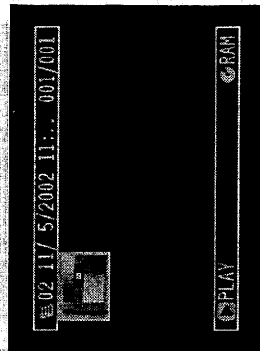
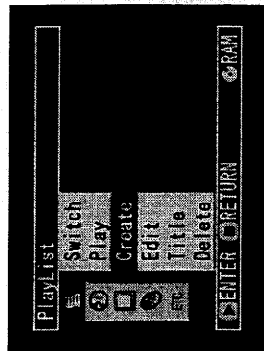
When selecting multiple scenes, refer to "Selecting Consecutive Scenes Together" or "Selecting Random Scenes" on page 28.  
With the created play list, you can also add scenes recorded on another day or unnecessary scenes afterwards.

- 2 Press the **MENU** button.

The Disc Navigation menu screen will appear.

- 3 Use the **[◀]** **[▶]** **[◀▶]** **[▶]** button to choose "Create" on the "Play List" menu screen, and then press the **[▶]** button.

The "Create Play List" screen will appear.  
A new play list including the selected scenes will be created, and a thumbnail of the created play list will appear.



**Note:** If the scene added to play list had skip or fade setting, that information will also be added to the play list.

**Note:** The time when the play list was created will appear in the title bar.

**Note:** If you have selected multiple scenes, you can stop the creation of play list midway by pressing the **[▶]** button. In this case, the play list will be created with the scenes up to the point where the **[▶]** button was pressed.

**Note:** If free space available on disc is insufficient, creation of new play list may not be possible; Delete unnecessary scenes.

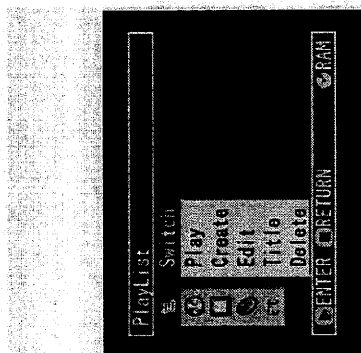
## Switching Play List (Switching to Display of Each Play List)

If multiple play lists are stored on disc, you can switch the thumbnail display for each play list or switch to the thumbnail display of all programs.

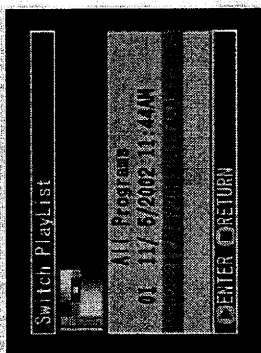
1 Press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the     button to choose "Switch" on the "Play List" menu screen, and then press the  button.

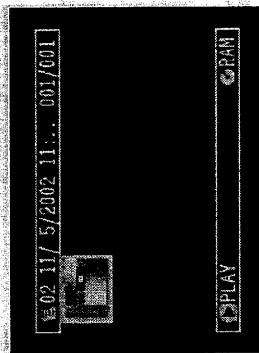


The "Switch Play List" screen will appear.



3 Select the play list you wish to display, and then press the  button.

The thumbnail screen of the selected play list will appear.



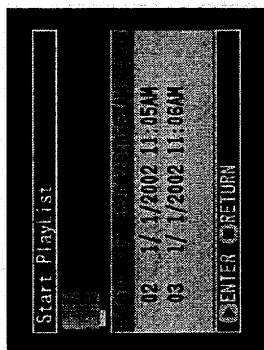
**Note:** To display the thumbnails of all programs (all recorded scenes), choose "All Programs" on the "Switch Program" screen.

## Playing Back A Play List

1 Press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the     button to choose "Play" on the "Play List" menu screen, and then press the  button. The "Start Play List" screen will appear.



3 Use the     button to select the play list, and then press the  button.

The selected play list will be played back from the first scene. To cancel playback midway, press the  button. The thumbnail screen of the play list being played back will appear.

**Note:** If "Repeat Play On" is specified, the play list will be repeatedly played back (see page 61).

## Adding Scenes to Play List

You can later add scenes to the created play list.

- 1 Display the thumbnails of scenes to be added to the play list, and then press the MENU button.

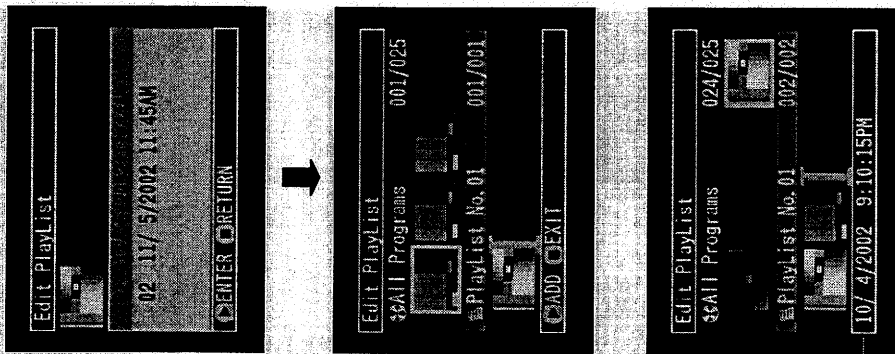
See "Switching to Thumbnail Display of Specific Data (Selecting Program)" on page 31 for how to display the thumbnails.

The Disc Navigation menu screen will appear.

- 2 Use the button to choose "Edit" on the "Play List" menu screen, and then press the button. The "Edit play List" screen will appear.

- 3 Use the button to select the play list to which you wish to add scenes and then press the button.

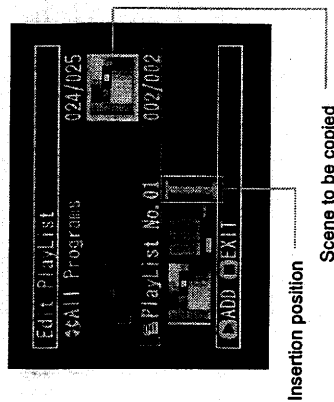
The thumbnails of the program that was displayed in step 1 will appear in the upper row, and the thumbnails of selected play list will appear in the lower row.



**Note:** If the DISPLAY button is pressed when the thumbnails are displayed, the recording date/time of the selected scene will appear across the bottom of screen. Press DISPLAY to restore the previous screen.

Recording date/time

- 4 Tilt the button down to move the cursor to the lower row, and tilt it to left or right to select the point where the scene is to be inserted.



- 5 Tilt the button up to move the cursor to the upper row, and tilt it to left or right to point the cursor to the scene to be added.

To select multiple scenes, refer to "Selecting Consecutive Scenes" or "Selecting Random Scenes" on page 70.

- 6 Press the button to copy the scene. The screen showing that the scene is being copied will appear.

While multiple scenes are being copied, copying can be cancelled at any time by pressing the button. The scenes up to the point where the button was pressed will be added. After adding scenes is completed, the edited play list of thumbnails will appear.

**Note:** Pressing in steps 3-5 will display the screen for verifying an exit from "Edit Play List". Choose "YES" to exit the edition of play list. Choosing "NO" will restore the "Edit Play List" screen.

**Note:** Pressing the button on the screen for verification will restore the thumbnail display screen.

**Note:** If you press the MENU button in step 5, the menu screen for editing play list will appear. You can also use this menu to add scenes. (See page 41.)

## Deleting Scenes from Play List

1 Display the "Edit Play List" menu screen of the play list to be edited.

Perform steps 1 - 3 on page 39.

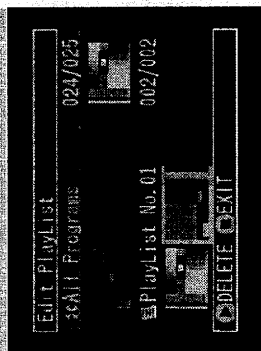
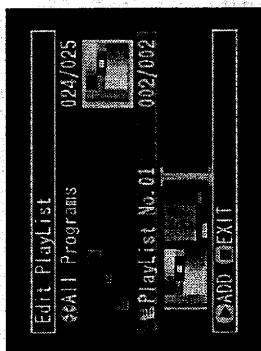
2 From the play list in lower row, point the cursor to the scene you want to delete.

To select multiple scenes, refer to "Selecting Consecutive scenes Together" or "Selecting Random Scenes on page 28.

3 If you are sure that you wish to delete the scene, press the  button:  
The screen being deleted will appear.

When multiple scenes are being deleted, you can stop deletion midway. Press the  button. The scenes up to the point where the  button was pressed will be deleted.

**Note:** Place the cursor on scene to be deleted, and then press the DELETE button on remote control: You can also delete the scene.



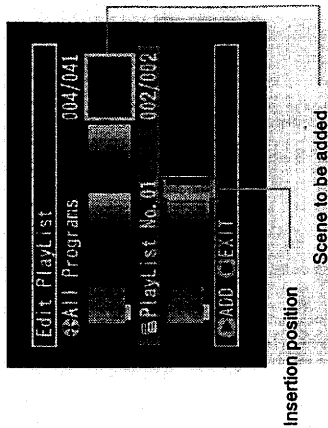
## Editing Play List (Adding Scenes using Menu)

You can use the menu screen to add scenes to a created play list.

1 Display the "Edit Play List" menu screen of the Play list to be edited.

Perform steps 1-3 on page 39.

2 Select the scenes to be added from the upper row.



3 Press the MENU button.

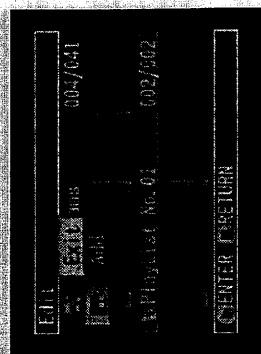
The menu screen for editing play list will appear.



4 Choose "Add", and then press the  button.

The selected scenes will be added to the end of play list to be edited.

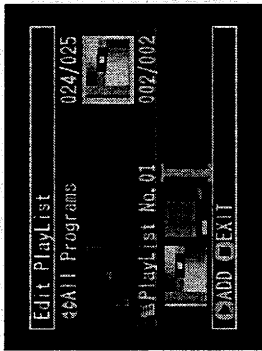
**Note:** The selected scenes will be added in the insertion position.



## Editing Play List (Deleting Scenes using Menu)

If, by mistake, you insert undesired scenes to the play list to be edited in "Editing Play List (Adding Scenes using Menu)" on page 41, or if there are unnecessary scenes in the play list to be edited, you can delete the scenes without exiting the screen for editing play list.

- 1 Display the "Edit Play List" menu screen of the play list to be edited. Perform steps 1-3 on page 39.



- 2 Move the cursor to the play list to be edited in lower row, and select the scene(s) to be deleted.

- 3 Press the MENU button.  
The menu screen for editing play list will appear.



- 4 Choose "Delete" on the "Edit" menu screen, and then press the [ENTER] button.

The selected scene(s) will be deleted.

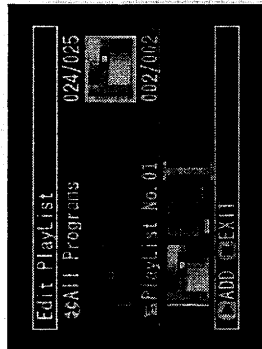
**Note:** If all scenes on play list are deleted, the play list itself will also be deleted.

## Editing Play List (Selecting Scenes Using Menu)

You can specify the range of scenes when adding or deleting consecutive multiple scenes to/from play list. This "Select" menu item is useful when selecting consecutive multiple scenes in items for adding or deleting scenes using menu on page 41.

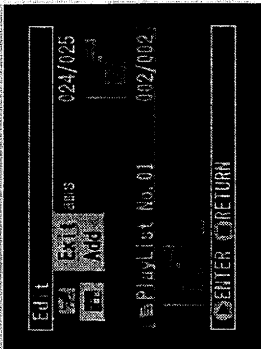
- 1 Display the "Edit Play List" menu screen of the play list to be edited.

Perform steps 1-3 on page 39.

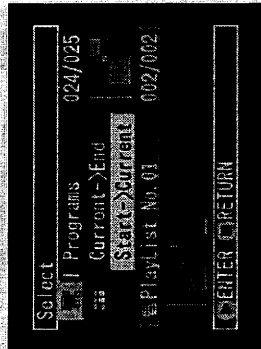


- 2 Specify the first scene of those you wish to select, and then press the MENU button.

The menu screen for editing play list will appear.



- 3 Choose "Current → End" or "Start → Current" on the "Select" menu screen, and then press the [ENTER] button.



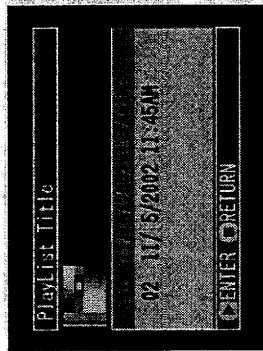
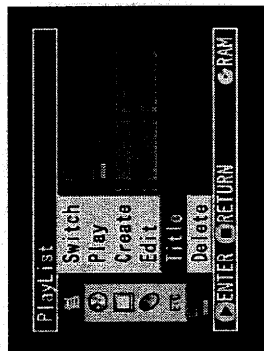
## Changing Title of Play List

The play lists have serial numbers in the order you have created them. At any time you can change the title of play list, which was the recording date/time set on this DVD recorder.

1 Press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the     button to choose "Title" on the "Play List" menu screen, and then press the  button.

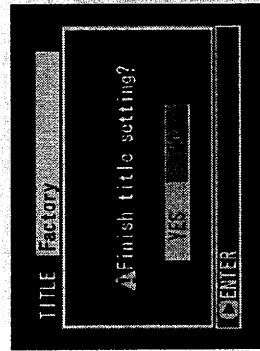


The "Play List Title" screen will appear. See "Changing Title of Program" on page 33 for how to enter a title.

3 After entering the title, use the     button to choose "Enter", and then press the  button.

The screen for verifying registration of title will appear.

**Note:** The registered title can be changed at any time using the same procedure.

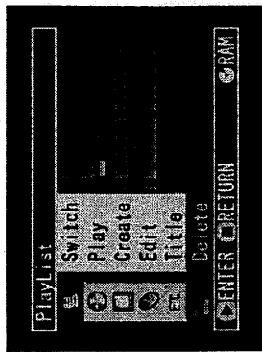


## Deleting Play List

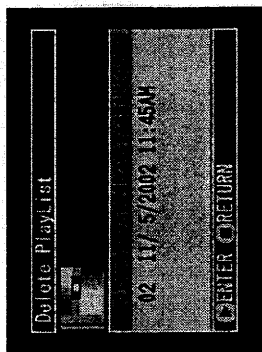
1 Press the MENU button.

The Disc Navigation menu screen will appear.

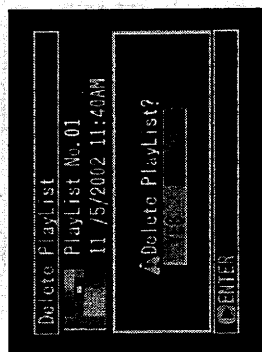
2 Use the     button to choose "Delete" on the "Play List" menu screen, and then press the  button: The "Delete Play List" screen will appear.



3 Use the     button to select the play list you wish to delete, and then press the  button.



The screen for verifying deletion of play list will appear.



4 If you are sure that you wish to delete the play list, use the     button to choose "YES", and then press the  button.

The selected play list will be deleted, and the original screen will be restored.

**Note:** If you choose "NO" on the screen for verifying deletion of play list, deletion will be canceled, and the original screen will be restored.

**Note:** Pressing the  button on the screen for verification will restore the thumbnail display screen.

**Note:** Even if you delete a play list, the original scenes stored on disc will not be deleted.

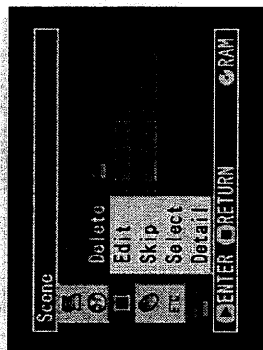
## Scene

### Deleting Scenes

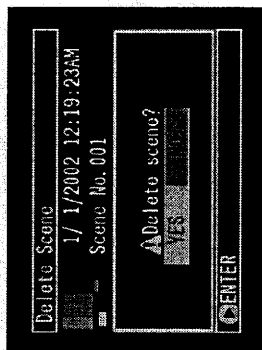
- 1 Use the button to select the scene to be deleted, and then press the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the button to choose "Delete" on the "Scene" menu screen, and then press the button.



The screen for verifying deletion will appear.



- 3 Use the button to choose "YES", and then press the button.

The message "Deleting..." → "Finished" will appear and the selected scene will be deleted, after which the thumbnail display screen will be restored. To cancel deletion, choose "NO", and then press the button while the screen for verification is being displayed.

**Note:** Pressing the button on the screen for verification will restore the thumbnail display screen.

**Note:** If you wish to delete multiple scenes, select them referring to "Selecting Consecutive Scenes Together" or "Selecting Random Scenes" on page 28.

**Note:** If you delete all data on disc, initializing the disc will be recommended.

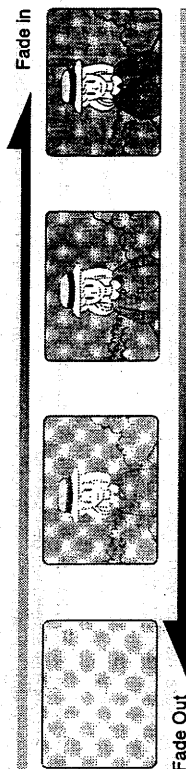
**Note:** If even one play list has been created, message "Same scenes on Play List will be deleted. Delete scenes?" will appear before deleting scene(s).

This message will appear even if the scene(s) to be deleted is not used in the corresponding play list. In this case, choose "YES" and then press the button to delete the scene(s).

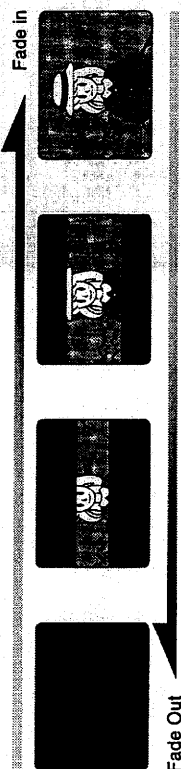
### Adding Special Effects (Fade)

When switching scenes, you can add fading to the beginning and/or end of scene. There are three types of special effects:

**White:** Fades in from white screen, fades out to white screen



**Wipe:** Fades in from black screen to vertical direction of screen, Fades out from vertical direction of screen to black screen



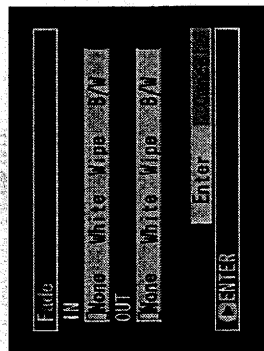
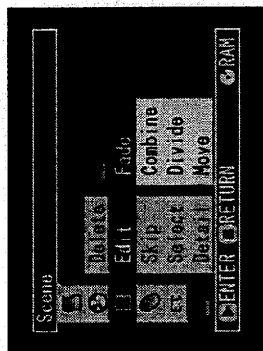
**B/W:** Fades in from Black and White screen to color screen, Fades out from color screen to Black and White screen



1 Select the scene for adding special effects and press the MENU button.

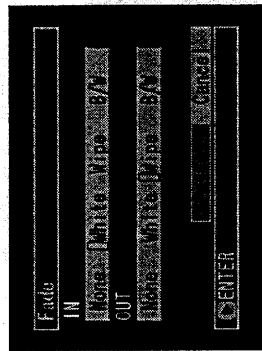
The Disc Navigation menu screen will appear.

2 Use the button to choose, "Scene", "Edit", "Fade", and then press the button. The fade setting screen will appear.

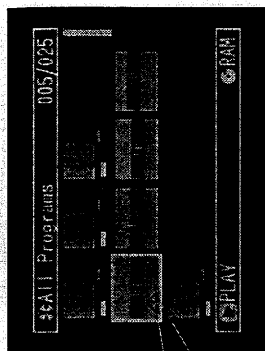


The options will appear under IN and OUT: The mark will be attached to the currently selected option.

3 Use the button to select the special effects for "IN" and "OUT", choose "Enter", and then press the button.



After the proceeding message appears, the thumbnail display screen will be restored. The scenes for which special effects have been set will be attached with marks .



"In" effect

"Out" effect

Note: Setting fade will also fade the sound.

Note: Fading can also be set to either "IN" or "OUT".

Note: Any registered fade can be changed at any time using the same procedure as above.

Note: Fade can also be added to on-screen information displayed during playback.

Note: If the playback time of scene is short, fade will cut off midway.

Note: If you set fade-in and fade-out to a still image or a movie with recording time of no more than 3 seconds, only fade-in will be valid.

Note: No fade effect will operate if you start playback in the recording pause status.

Note: If you locate the start of a scene by skipping, the image at the start of the scene will appear for a moment, and then fade will operate.

Note: The fade effect will not function during frame advance, frame back, slow Playback or search playback.

Note: Pressing the button on the screen for verification will restore the thumbnail display



## Combining Multiple Scenes

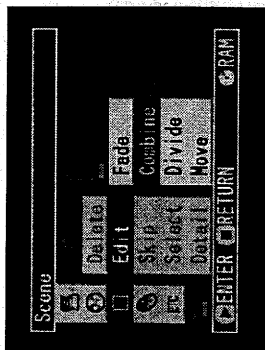
You can combine multiple scenes into one. Be sure to select consecutive multiple scenes when combining.

- 1 Use the button to select the scenes to be combined, referring to "Selecting Consecutive Scenes Together" on page 28, and then press the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the button to choose, "Scene", "Edit", "Combine", and then press the button.

The screen for verifying combination of scenes will appear.



- 3 If you are sure that you wish to combine the scenes, use the button to choose "YES", and then press the button.

The selected movies will be combined into one, and the thumbnail display screen will be restored. The first scene before combination will appear as a thumbnail.

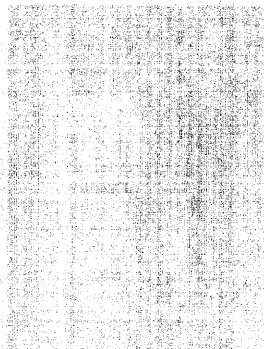
**Note:** If you choose "NO" on the screen for verifying combination, combination will be canceled.

**Note:** To restore the separated status of a combined scene, divide it.

**Note:** With special effects, the "in" effect of the first scene in the selected range and the "out" effect of the last scene will be chosen.

**Note:** If you combine scenes from different programs (different recording dates), a message that prompts you to update the control information will appear each time Disc Navigation is started. Even if you have chosen "YES" and updated the control information, the same message will appear when Disc Navigation is started next time. To prevent this, when combining scenes from different programs, create a new play list and then combine the scenes on it.

**Note:** Pressing the button on the screen for verification will restore the thumbnail display screen.



## Dividing Movies

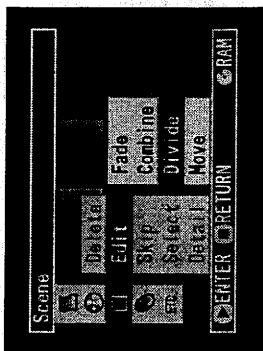
You can divide a scene into two parts. To delete unnecessary portion of scene, first divide the scene, and then delete the unnecessary portion. You can also cut out a part of scene and use it in the play list.

- 1 Use the button to select the scene to be divided, and then press the MENU button.

The Disc Navigation menu screen will appear.

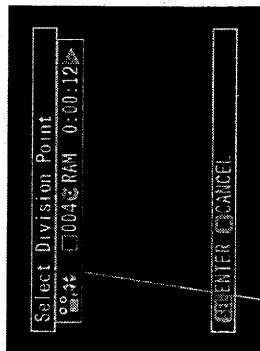
- 2 Use the button to choose, "Scene", "Edit", "Divide", and then press the button.

The "Select Division Point" screen will appear, and playback of the selected scene will start.

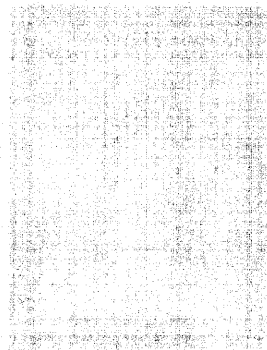


- 3 When you reach the point where you want to divide the scene, press the SELECT button.

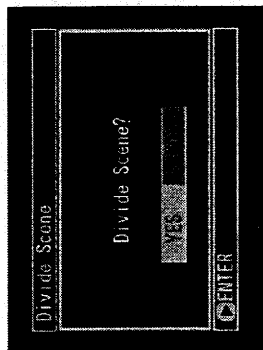
The screen for verifying division of scene will appear.



Status bar of scene being played back



4 If you are sure that you wish to divide the scene, use the    button to choose "YES", and then press the  button.



The scene will be divided at the specified point, and the thumbnail display screen will be restored, with the divided thumbnails, appearing side by side.

**Note:** The status bar of scene being played back can be switched off or on by pressing the DISPLAY button.

**Note:** If you choose "NO" on the screen for verifying division in step 4, division will be canceled.

**Note:** Search and frame advance are useful when designating division points.

**Note:** If you press the MENU button while the scene to be divided is being played back in step 2, the DVD recorder will enter the playback pause status, and the "Go To" menu will appear. You can jump to the first image, end image or any specified point of the scene. (See "Searching for Scene You Wish to View by Specifying It (Go To)" for details on "Go To".)

You can divide the scene at the point you have jumped to.

**Note:** If a special effect has been added to the original scene, the "In" effect will be added to the first half of scene, and the "Out" effect, to the latter half.

**Note:** The division point may drift before or after the designated point by approximately 0.5 seconds.

**Note:** Since a scene with a skip set cannot be played back, no division point can be specified. Release the skip for the scene before dividing it.

**Note:** If the division point is at a still, a message will appear, but no division will be made.

**Note:** If the division point is at the start or end of a scene, a message will appear, but no division will be made.

**Note:** A scene of 0.5 seconds or less cannot be divided.

**Note:** If free space available on disc is insufficient, division will not be possible. Delete unnecessary scenes.

**Note:** Pressing the  button on the screen for verification will restore the thumbnail display screen.

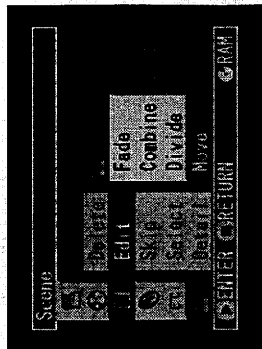
## Arranging Order of Scenes (Move)

You can move scenes within a play list to arrange the order as you want.

1 Select the scene to be moved, and then press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the   button to choose "Scene", "Edit", "Move", and then press the  button.



The "Select Insert Point" screen will appear, and the "I" mark will appear.

3 Move the "I" mark to the position where you wish to move the scene, and then press the  button.

The screen for verifying movement of scene will appear.

4 If you are sure that you wish to move the scene, choose "YES", and then press the  button.

The message for movement will appear, and then the thumbnail display screen will be restored.

**Note:** To move consecutive multiple scenes together, select scenes referring to selecting Consecutive Scenes Together" or "Selecting Random Scenes" on page 28.

**Note:** Choosing "NO" on the screen for verifying movement in step 4 will cancel movement.

**Note:** Pressing the  button the screen for verification will restore the thumbnail display screen.

## Playing Back by skipping Scenes (Skip)

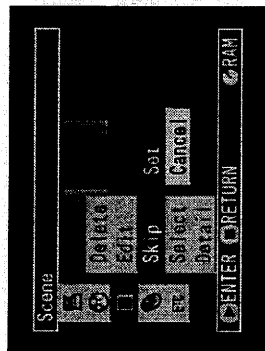
You can specify "Skip" for scenes you do not want to play back: The selected scenes will be skipped.

- 1 Use the button to select a scene to be skipped, and then press the MENU button.

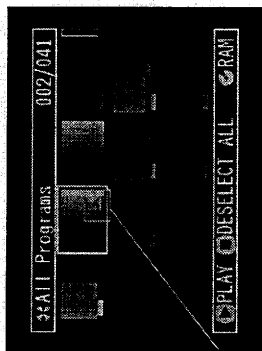
The Disc Navigation menu screen will appear.

- 2 Use the button to choose "Scene", "Skip", "Set", and then press the button.

The message showing that skip is being set will appear, and the thumbnail display screen will be restored.



A skip mark will be attached to the scene for which skip ping has been set.



Skip mark

### •Releasing Skip

Select the scene set to be skipped, and choose "Cancel" in step 2: The skip mark will disappear and skipping of the scene will be released.

**Note:** If you wish to release skipping for multiple scenes, select them referring to "Selecting Consecutive Scenes Together" or "Selecting Random Scenes" on page 28.

## Selecting Scenes using Menu Screen

Using the Disc Navigation menu screen, you can simultaneously select consecutive scenes: This function is useful when there are numerous scenes.

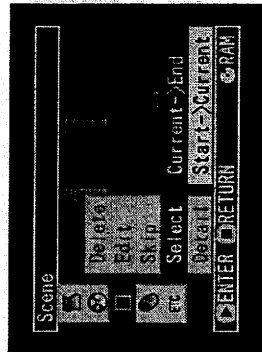
- 1 Use the button to select the first scene to be selected.

- 2 Press the MENU button.

The Disc Navigation menu screen will appear.

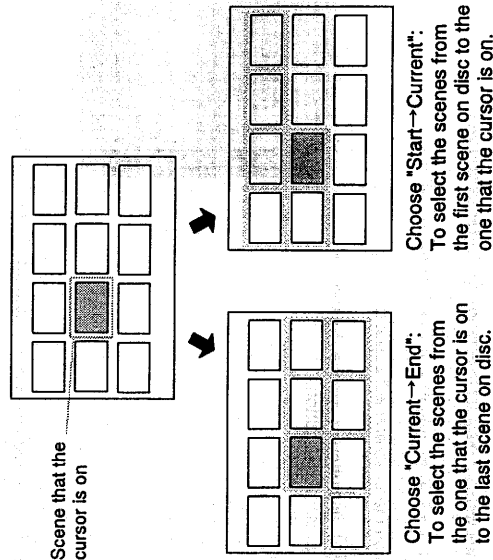
- 3 Use the button to choose "Select" on, the "Scene" menu screen, and then press the button.

- 4 Use the button to choose "Current→End", and then press the button.



The scenes from the one specified to the last scene on disc will be selected.

**Note:** If you select "Start→Current" in step 4, the scenes from the first scene on disc to the one specified will be selected.



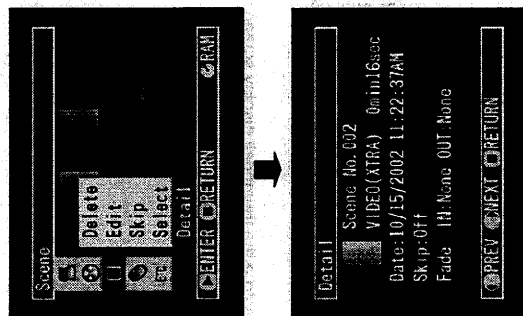
## Displaying Information using Menu Screen

You can display various information for a scene: the recording mode, recording date/time and length, special effects and movie quality mode.

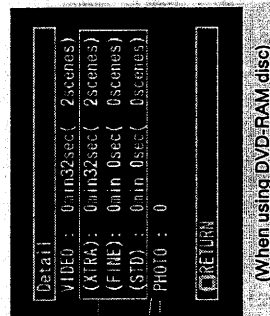
- 1 Use the button to select the scene whose information you wish to know, and then press the MENU button. The Disc Navigation menu screen will appear.
- 2 Use the button to choose "Scene", "Detail", and then press the button.

The detailed information on the scene will appear.  
Pressing the button will restore the thumbnail display screen.

**Note:** Tilting the button to right will display information on the following scene; tilting the button to left will display information on the preceding scene.



If you have selected multiple scenes, the information shown below will appear.  
Pressing the button will restore the thumbnail display screen.



- \* With DVD-R disc, the quality mode (FINE, STD or LPCM) selected first will appear.
- \*\* (---): Number of scenes whose quality mode is unknown: This will appear when the disc has a scene recorded on a device other than this DVD recorder, only if the disc has a scene whose model is unknown.
- Also, this will not appear when a DVD-R disc is used.
- \*\*\*This will not appear with DVD-R disc, since no still image can be recorded on it.

**Note:** If multiple scenes have been selected, the total recording time of the selected scenes will appear.

## Disc Management

### Verifying Remaining Free Space on Disc (Capacity)

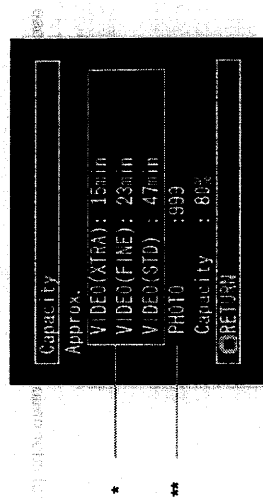
You can find out how long you will be able to record on one side of disc.

- 1 Press the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the button to choose "Capacity" on the "Disc" menu screen, and then press the button.

The screen for checking "Capacity" will appear.



(When using DVD-RAM disc)

- \* With DVD-R disc: The quality mode first used for recording with disc will appear.

- \*\* With DVD-R disc: This will not be displayed.

- 3 Press the button.

The Disc Navigation screen will be restored.

**Note:** With a write-protected or finalized disc, the remaining space will always be displayed as "0".  
**Note:** The displayed remaining free space is only for the side being currently recorded.

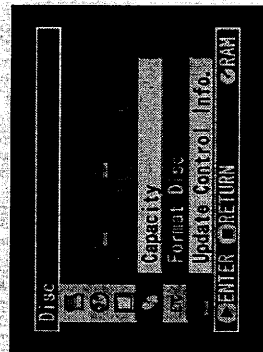
## Initializing DVD-RAM Disc

If you want to erase all data on a recorded disc and reuse it, you can initialize it rather than deleting the data. Initialization is useful in this case since it takes less time than deleting all data.

- 1 Press the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the   button to choose "Format Disc" on the "Disc" menu screen and then press the  button.



The screen for verifying "Format Disc" will appear.

- 3 If you are sure that you wish to format the disc, use the   button to choose "YES", and then press the  button.

When initializing one side of the disc is complete, the DVD recorder will return to the recording pause status.

**Note:** When initializing the other side of disc, turn it over and start again from step 1.

**Note:** Choosing "NO" in step 3 will cancel initialization.

**Note:** Initializing a disc will delete all the recorded contents on disc. Be careful not to delete data by mistake.

**Note:** Be sure to use the AC adapter when initializing disc so that the DVD recorder is not turned off midway. If initialization is interrupted by power off, the disc will not be initialized correctly, or it may be damaged.

**Note:** It may not be possible to initialize a disc with many scratches or dirt. Such a disc cannot be used.

**Note:** If you use a brand-new DVD-R disc, message "Disc is not formatted" will appear. Initialize the disc, following the subsequent messages.

**Note:** Pressing the  button on the screen for verification will restore the thumbnail display screen.

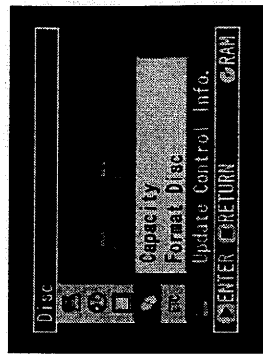
## Updating Control Information

Disc Navigation in this DVD recorder manages information on scenes, such as skip, fade and thumbnails, in a specified manner. If you use another device to edit the video data recorded on this DVD recorder, and then use the data again with Disc recorder, the control information must be updated: It will be auto Disc Navigation in this video camera/recorder, the control information must be updated: It will be automatically updated each time the pages on the thumbnail display screen are turned. This is useful when you have edited many scenes using another device, since the control information can be updated all at once using Disc Navigation.

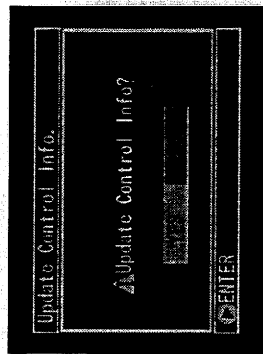
- 1 Press the MENU button.

The Disc Navigation menu screen will appear.

- 2 Use the   button to choose "Update Control Info." on the "Disc" menu screen, and then press the  button.



The screen for verifying "Update Control Info." will appear.



- 3 If you are sure that you wish to update the control information, use the   button to choose "YES", and then press the  button.

The message for proceeding will appear, and then the Disc Navigation menu screen will be restored. A black screen may appear while the message for updating is displayed.

If you choose "NO" on the screen for verifying updating of control information, updating will be canceled.

**Note:** Be sure to use the AC adapter when updating the control information so that the DVD recorder is not turned off midway.

If updating of control information is interrupted by power off, the control information will not be updated correctly.

**Note:** Even if the control information on disc is updated, the disc may no longer be usable on this DVD recorder.

**Note:** It may take time to update the control information if the disc has many recorded scenes.

**Note:** Pressing the  button on the screen for verification will restore the thumbnail display screen.

## Finalizing Disc

If you wish to play back the contents recorded on this DVD recorder using a DVD player, etc. that is compatible with 8 cm DVD-R disc, finalize the disc following the procedure below:

1 Press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the    button to choose "Finalize Disc" on the "Disc" menu screen, and then press the  button.

The disc will be finalized.

3 If you are sure that you wish to finalize the disc, use the    button to choose "YES" and then Press the  button.

When finalizing the other side of disc, turn the disc over, and repeat the above procedure from step 2.

**Note:** You can play back a finalized DVD-R disc on a compatible DVD player by specifying "DVD Video" (the program will be registered on the DVD menu as a title).

**Note:** No recording or editing can be done on any disc that has been finalized.

**Note:** If the disc in the DVD recorder has already been finalized, you cannot choose "Finalize Disc".

**Note:** Be sure to use the AC adapter when finalizing disc so that the DVD recorder is not turned off midway. Finalization cannot be executed using a battery pack. If finalization is interrupted by power off, the disc will not be finalized correctly, or it may be damaged.

**Note:** The time required to finalize disc that appears on the "Finalize Disc" screen is only for reference.

**Note:** The shorter the recording time on disc, the longer it will take to finalize it.

**Note:** Pressing the  button on the screen for verification will restore the thumbnail display screen.

## Playing Back Scenes Repeatedly (Repeat Play)

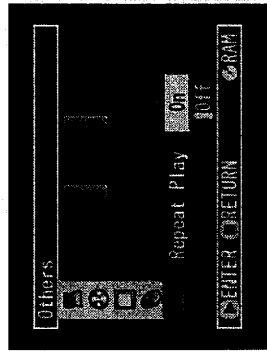
1 Press the MENU button.

The Disc Navigation menu screen will appear.

2 Use the    button to choose "Repeat Play" on the "Others" menu screen, and then press the  button.

The options will appear on the right of "Repeat Play":

The  mark will be attached to the currently selected option.



3 Use the    button to choose "On", and then press the  button:

Repeat Play has now been set.

Choosing "Off" will cancel Repeat Play.

**When Repeat Play is set:**

If one scene has been selected: When playback of the last scene is finished, playback of all scenes will repeat from: the first scene.

If the range for playback has been specified: Playback of the scenes in that range will repeat.

**Note:** Press the  button to terminate playback. However, the Repeat Play setting will not be cancelled.

**Note:** The Repeat Play setting is cancelled whenever the DVD recorder is turned off or DISC EJECT button is pressed.

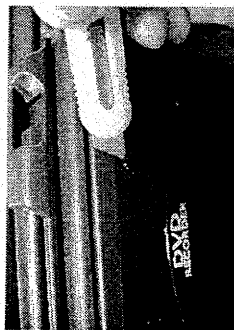
## Emergency Eject

### WARNING

In usual use, please use the original eject switch on the top of the body.

In only the emergency case, that the original eject switch doesn't work, or the DC power is shut down before turning off the power switch, please take out a disc with this method **In the DC power off.**

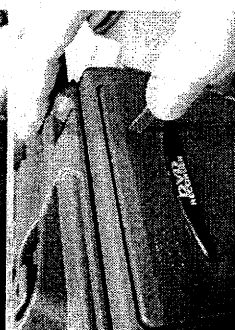
1. Remove the rivet on the disc cover carefully using a edge of a blade of a cutter or tip of the nail. Keep the rivet not to lose.



2. Insert a stick of standard accessory into the hole which has been closed by the rivet.



3. Push down the stick to the front (to the right in the picture) slowly.



4. Then the disc cover will be opened.

After taking out the disc, Please remember to close the hole with the rivet.



## Trouble Messages

A message may appear while you are operating the DVD recorder, if a message appears, refer to the following table and take appropriate corrective action.

| Message                                                              | Cause & Troubleshooting                                                                                                                                                                                                     | Reference page |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| (1) Error has occurred. Please restart.                              | Error has occurred. Try to restart the DVD recorder using the following methods:                                                                                                                                            |                |
| (2) Error has occurred. Please reinsert a disc.                      | (1) Turn power off, remove the battery pack or DC cable and reattach it, and then turn power on again.                                                                                                                      |                |
| (3) Error has occurred. Error code No. xxxx. Please read the manual. | (2) Turn power off, and reinsert the disc. Then turn power on again.                                                                                                                                                        |                |
| (4) ERROR xxxx                                                       | (3) Take note of the number (xxxx), and then consult your dealer. Condensation might have occurred. Use the DVD recorder only after it has dried.                                                                           |                |
|                                                                      | (4) Try to repair using methods (1) and (2) above. If the message still appears, take note of the number (xxxx) and consult your dealer.                                                                                    |                |
| Control Information Error.                                           | Mismatch may occur between the recorded image and scene information. Update the control information.                                                                                                                        | 60             |
|                                                                      | Disc may be dirty. Remove the disc and wipe off fingerprints, dust, etc. before reusing it, or use another disc.                                                                                                            |                |
| Disc error.                                                          | Disc may be dirty. Remove the disc and wipe off fingerprints, dust, etc. before reusing it, or use another disc.                                                                                                            |                |
|                                                                      | Mismatch in recording information may be caused by editing done on some device other than this DVD recorder. Initialize the disc or use another disc.                                                                       | 59             |
| No more scenes. Play List was deleted.                               | All scenes are deleted from the play list.                                                                                                                                                                                  | 46             |
| Write protected. Check disc cartridge.                               | Release write-protect of the cartridge. If the message still appears, the disc may be software protected from a device other than this DVD recorder. To release this case, use a device that has executed software-protect. |                |
| Cannot combine. Select multiple scenes.                              | Select a range of at least 2 scenes to be combined, and then combine them.                                                                                                                                                  | 51             |
| Scenes over limit. Cannot divide scenes.                             | The number of entered scenes has reached the limit that can be entered. Delete several scenes.                                                                                                                              | 47, 46         |
| Scene over limit. Cannot add scenes.                                 | The number of scenes entered in play list has reached the limit that can be entered. Delete several scenes.                                                                                                                 | 47, 46         |

| Message                                                 | Cause & Troubleshooting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reference page |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Cannot delete scenes.                                   | This may occur when scene that was edited for division, etc. is to be deleted. Combine the divided scenes, and then delete them.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 51             |
| Scene without control info. Update control information. | The thumbnail at the start of program or play list may not appear when disc edited on device other than this DVD recorder is used, or, when editing, such as combining, is performed on this DVD recorder. Choose "YES" on screen for verification. If thumbnail information is insufficient, Disc Navigation will automatically create thumbnails after it starts.                                                                                                                                                                                                                                                                                                                                                                                                                |                |
| Disc is full. Cannot add control info.                  | The number of entered scenes has reached the limit that can be entered, so the control information for generating thumbnails cannot be added. Combine several scenes or delete them.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 47, 46         |
| Disc is not formatted. Format the disc now?             | Has the disc been initialized on a PC? Choose "YES" and initialize the disc when using it on this DVD recorder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 59             |
| Disc error has occurred. Format the disc now?           | Has the disc been initialized on PC? Has initializing the disc on PC been interrupted? Choose "YES" and initialize the disc when using it on this DVD recorder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 59             |
| Disc error has occurred. Formatting is not complete.    | The disc may be dirty. Remove the disc and wipe off fingerprints, dust, etc. before reusing it, or use another disc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |
| Disc error has occurred. Keep disc inside & restart.    | Disc error could have occurred during editing of scenes. Turn off the DVD recorder with the disc being used in it, connect DC cable, and then power the DVD recorder again. Repair of scenes will be tried. If this message appears during recording, turn off the DVD recorder with the disc loaded, and then turn it on again. After that, operate the DVD recorder following the instructions on screen. If the battery is being used to power the DVD recorder, the message "Use DC cable." will appear. If an DC cable is not handy, press the stop (■) button, and then remove the disc. If the disc is inserted when the DC cable is later used to power the DVD recorder, the data may be repaired. Delete unnecessary scenes before using this disc, or use another disc. |                |
| Disc full. Cannot execute.                              | Delete unnecessary scenes before using this disc, or use another disc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 47             |
| Drive overheated. Please retry later.                   | The temperature inside the DVD recorder is too high, and reading or writing of the data on disc may not be performed normally. Turn the DVD recorder off and wait for a while. The temperature will be effectively decreased if the DVD recorder is placed in a well-ventilated spot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |
| Stop processing                                         | The ■ button was pressed to stop processing of multiple scenes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 36             |

| Message                                                                                                                                                                | Cause & Troubleshooting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Reference page |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| (1) Data error in a part of image file. Repair disc now?<br>(2) Found error in image file. Repair disc now?<br>(3) Data error in all image files. Repair all data now? | It is possible that the system cannot normally complete writing of file when power is turned off for some reason during recording or editing (deleting, dividing or combining scenes, or creating play list). Selecting "YES" will automatically repair the video file, but even if "NO" is selected, the same message will appear when the DVD recorder is turned on next time. (Do not remove the disc while the DVD recorder is recognizing it. Ignoring this will deactivate the file repair function.)<br>Follow the instructions on screen, taking note of the following cautions:<br>•Data may not be repaired, depending on the timing when power was turned off.<br>•Data may not be repaired normally if data recorded on another recorder is mixed in.<br>•The repaired data may be different from the original recorded content because of partial deletion of defective portion.<br>•Since the date/time for repair is added to the repaired data (only the corrected portion for partial repair), the original date/time information will be lost.<br>•Since all movies are repaired, the order of recorded contents will be lost.<br>(In case of message (2) (3) only)<br>Scene cannot be repaired when the DVD recorder is powered by a battery.<br>If the DC cable is unavailable in handy place, remove the disc, use the opposite side, or use another disc. To repair the removed disc, insert the disc into the DVD recorder afterwards, and connect the DC cable. |                |
| Use DC cable.                                                                                                                                                          | Abnormality has occurred with the DVD-RAM disc to be repaired. Initialize the disc before using it, or use the other side of the same disc or another disc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 59             |
| Error occurred. Please replace disc or format disc.                                                                                                                    | Abnormality has occurred with the DVD-R disc to be repaired. Use the other side of the same disc or another disc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -              |
| Error occurred. Please replace disc.                                                                                                                                   | The MENU button was pressed with no scene recorded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -              |
| Disc has no data.                                                                                                                                                      | Switching of play list was selected with no play list stored.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 38             |
| Disc includes protected scenes. Delete scenes.                                                                                                                         | The disc may be software protected from a device other than this DVD recorder. To release this case, use a device that has executed software-protect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -              |
| Play Lists over limit.                                                                                                                                                 | An attempt was made to create new play list or copy play list, even though limit specified for play lists in the video recording standard had already been stored.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 36             |
| Cannot execute. Unselect multiple scenes.                                                                                                                              | Division or change in thumbnail was executed when multiple scenes were selected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 29             |

| Message                                                                                                                                                                                               | Cause & Troubleshooting                                                                                                                  | Reference page |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Cannot move scene in program mode.                                                                                                                                                                    | Move was executed when a program was selected.                                                                                           | 31             |
| (1) Disc is not formatted. If it formats, it becomes possible to use for DVD recorder.<br>(2) However, when you record from PC connection terminal, please do not format.<br>(3) Format the disc now? | DVD-R disc that was not initialized for DVD recorder use was inserted.                                                                   | -              |
| In DVD-R Disc, Video mode of the disc recorded once cannot be changed.                                                                                                                                | With DVD-R disc, the movie quality mode once used for recording cannot be changed.                                                       | 16             |
| Finalize may not be complete. Finalize again now?                                                                                                                                                     | Instantaneous shutoff occurred during finalizing, after which power was supplied and disc was inserted.                                  | 61             |
| Disc error has occurred. Finalizing is not complete.                                                                                                                                                  | Disc error occurred during finalizing, and finalizing failed. Replace the disc.                                                          | 61             |
| Scenes over limit. Can not move scenes.                                                                                                                                                               | An attempt was made to move a scene, even though number of storable scenes was exceeded.                                                 | 25, 54         |
| Top scene cannot be divided.                                                                                                                                                                          | Division is not possible at the start of scene.                                                                                          | 51             |
| End scene cannot be divided.                                                                                                                                                                          | Division is not possible at the end of scene.                                                                                            | 51             |
| Cannot combine scene.                                                                                                                                                                                 | Unless consecutive scenes are selected, they cannot be combined.                                                                         | 51             |
| Same scenes on Play List will be deleted. Delete scenes?                                                                                                                                              | This will appear when scenes are to be deleted.                                                                                          | 47             |
| This disc is recorded by the PAL system. Please replace disc.                                                                                                                                         | This DVD recorder can use only discs recorded on the NTSC system. A disc recorded on the PAL system cannot be used on this DVD recorder. | -              |
| This disc cannot be used. Please replace disc.                                                                                                                                                        | A disc that cannot be used on this DVD recorder has been loaded. Check the type of disc.                                                 | -              |

## Trouble shooting

Check to see the following before asking for a repair. If the suggested solution still cannot restore the DVD recorder to normal, do not attempt to repair it yourself, but consult your dealer.

### Power supplies

| Symptom                                                       | Cause and Correction                                                                                                                                               | Reference page |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Power turns off immediately after being turned on.            | Is battery charged?<br>Charge it.                                                                                                                                  | -              |
| When power is turned on, the LCD screen will turn on and off. | Remove the battery or DC cable. In this case, the disc cannot be removed. To remove the disc, reattach the battery or DC cable and turn the DVD recorder on again. | -              |
| Power cannot be turned off.                                   | Is DVD recorder connected to PC using PC connection cable?<br>Unplug the PC connection cable.                                                                      | -              |
| No image appears on the LCD screen.                           | Does DVD recorder stop at the end of the scene to which wipe-out was set and played back.<br>Press the DISC NAVIGATION button.                                     | 26, 48         |

### During recording

| Symptom                                           | Cause and Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reference page |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Pressing the REC button will not start recording. | Is input image copy-guarded?<br>Copy-guarded image cannot be recorded on this DVD recorder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -              |
| Recording starts but stops immediately.           | Is disc scratched or does dirt or fingerprint adhere to it?<br>Clean the disc. If there is still no improvement, replace the disc.<br>Is some other AV device directly connected to the video/audio input jack of this DVD recorder?<br>If the AV device is connected via several other devices, such as AV selector, the video signal may not be transmitted correctly. In such a case, reduce the number of devices through which the video signal is transmitted, or connect AV device directly.<br>Are you attempting to record image from video game or PC?<br>From some video games or PC, image cannot be recorded on this DVD recorder. | -              |
| LCD screen is hard to see.                        | Has brightness of LCD screen been adjusted?<br>Stop recording and adjust the brightness.<br>Is the DVD recorder being used outdoors?<br>Adjust its angle so that LCD screen is not exposed to direct sunlight.                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5              |

| Message          | Cause & Troubleshooting                                                                                                                                                                                                                                                                                                                                                                                             | Reference page |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| COPY PROTECTED   | The video signal input to this DVD recorder may be copy-guarded. Some prerecorded video materials, such as movies, are guarded against copying.<br>Copy-guarded materials cannot be recorded on this DVD recorder. Disc that cannot be used on this DVD recorder has been inserted or disc is damaged.<br>Check whether the type of disc is correct or not, or whether the disc is write protected or not.          | -              |
| CHECK DISC       | The disc is not initialized or it is damaged.<br>If this message appears, be sure to initialize the disc on this DVD recorder before using it.<br>Reinitializing even a disc used on this DVD recorder may be necessary (initializing will erase all recorded contents on disc). If this message appears, try to initialize the disc. If the same message still appears, the disc may be damaged: Use another disc. | 59             |
| END OF DISC      | The disc is full.<br>You cannot record on this disc anymore. Prepare another disc or delete unnecessary movie scenes from this disc.                                                                                                                                                                                                                                                                                | 47             |
| DISC ALMOST FULL | The disc will soon be full, and recording will be impossible.<br>Replace the disc.                                                                                                                                                                                                                                                                                                                                  | -              |
| DISC ACCESS      | The recorded scene is being stored on disc.<br>Wait until the message disappears, and you can start to use the DVD recorder.<br>This DVD recorder is verifying whether the correct disc has been inserted.<br>Wait until the message disappears, and you can start to use the DVD recorder.<br>This message will be displayed for a little longer when the date changes.                                            | -              |
| NO DISC          | The disc has not been inserted.<br>Insert it.<br>This message may appear when the DVD recorder or disc is moved from a cold place to a warm place.<br>Condensation has occurred on the camera/recorder lens or DVD-RAM drive. Do not remove the disc; leave the DVD recorder turned off in a place as dry as possible for 1-2 hours.                                                                                | 20             |

## During playback

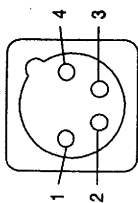
| Symptom                                               | Cause and Correction                                                                                                                                                                                                                                                                                                                                                                                             | Reference page |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Pressing the REC button will not start recording.     | Is disc dirty?<br>Use soft, dry cloth to clean it.                                                                                                                                                                                                                                                                                                                                                               | -              |
| Pressing the playback button will not start playback. | Has the image been recorded by devices other than this DVD recorder?<br>Playback of image recorded on devices other than this DVD recorder may be impossible on this DVD recorder.<br>Has scene been edited by applications other than Disc Navigation?<br>If the scene recorded on this DVD recorder is edited with applications other than Disc Navigation, playback may not be possible on this DVD recorder. | 60             |
| No playback picture appears on Monitor screen.        | Is Monitor input selector set correctly?<br>Some Monitor s have multiple video input jacks. Check whether the correct input was selected on Monitor to match the connected jacks. If the DVD recorder is connected to VTR, set VIDEO INPUT SELECT SLIDE SWITCH to VBS or Y/C.<br>Is the DVD recorder connected to TV correctly?<br>Check the connections.                                                        | -              |
| Play back picture is momentarily interrupted.         | Is disc scratched or does dirt or fingerprint adhere to it?<br>Clean the disc.                                                                                                                                                                                                                                                                                                                                   | -              |

## Miscellaneous

| Symptom                                                            | Cause and Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Reference page |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Power does not come on, or no operation occurs by pressing button. | Detach the battery or DC cable, and use a fine tipped pen to hold down the reset button for several seconds.<br>Then reattach the battery or DC cable, and operate the DVD recorder. Resetting the DVD recorder will return the date/time and all setting items on the menu screen to defaults: Reset the date/time and each menu setting item as needed.<br>Has the DVD recorder been subjected to impact?<br>The DVD recorder could be damaged. Consult your dealer.<br>Has the DVD recorder been left unused for a long period of time?<br>The internal backup memory may be discharged.<br>Charge it. | 5              |
| The date and time are incorrect.                                   | Has disc rotation stopped?<br>Disc cannot be removed unless rotation has stopped. Wait before trying to remove it again.<br>Did you detach the battery or DC cable before setting the power switch to "POWER OFF".<br>Connect the battery pack or DC cable, set the power switch to "POWER ON" and then "POWER OFF", and remove the disc after the disc unlocking sound is heard.<br>In only the emergency case, that the original eject switch doesn't work, or the DC power is shut down before turning off the power switch, please take out a disc with this method in the DC power off.              | 11             |
| Disc cannot be removed.                                            | Is disc correctly inserted?<br>Was disc inserted until it locked?<br>Was disc inserted from wrong direction?<br>Remove the disc and then reinsert it.<br>This sound is heard because the disc is cyclically operated and does not indicate a fault.                                                                                                                                                                                                                                                                                                                                                       | -              |
| Disc cover cannot be closed.                                       | Is the cursor pointing to the scene to be deleted? If you select a scene with yellow cursor when a scene already selected (framed in red) exists, the scene framed in red will be deleted. Carefully check the colors of cursor and bar graph on the thumbnail display screen.                                                                                                                                                                                                                                                                                                                            | 26, 47         |
| Operating sounds is heard cyclically.                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |
| Scene cannot be deleted.                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |

# Service information

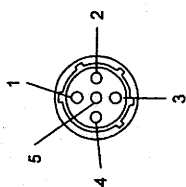
DC IN (4 Pin XLR male:HA16RA-4P)



| Pin | Signal     |
|-----|------------|
| 1   | GND        |
| 2   | NC         |
| 3   | NC         |
| 4   | +12V input |

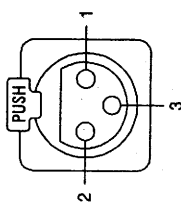
DC 12V OUT (5 Pin female:HR10A-7R-5SB(01))

Connector:HR10A-7P-5P



| Pin | Signal     |
|-----|------------|
| 1   | DC 12V OUT |
| 2   | GND        |
| 3   | NC         |
| 4   | NC         |
| 5   | NC         |

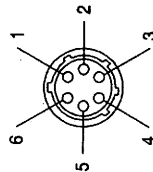
AUDIO IN (3 Pin XLR female:HA16PRQ-3SE(05))



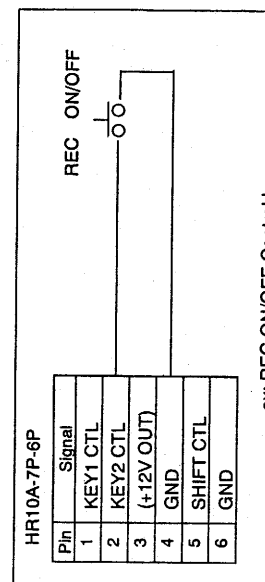
| Pin | Signal    |
|-----|-----------|
| 1   | MIC GND   |
| 2   | MIC(H) IN |
| 3   | MIC(O) IN |

REMOTE (6 Pin female:HR10A-7R-6SB(01))

Connector:HR10A-7P-6P



| Pin | Signal     |
|-----|------------|
| 1   | KEY1 CTL   |
| 2   | KEY2 CTL   |
| 3   | (+12V OUT) |
| 4   | GND        |
| 5   | SHIFT CTL  |
| 6   | GND        |



ex: REC ON/OFF Control box

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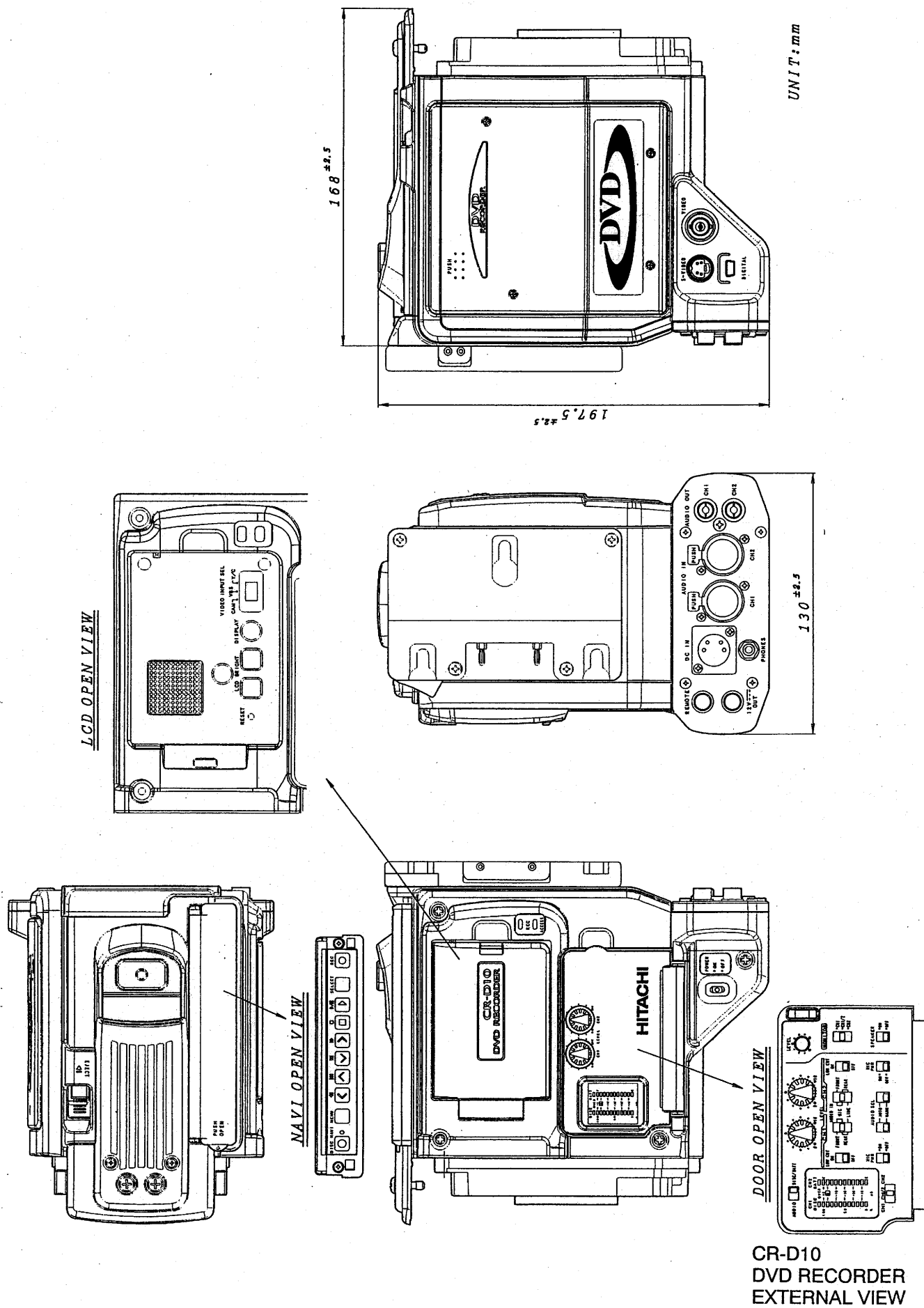
WASHINGTON, D. C. 20250

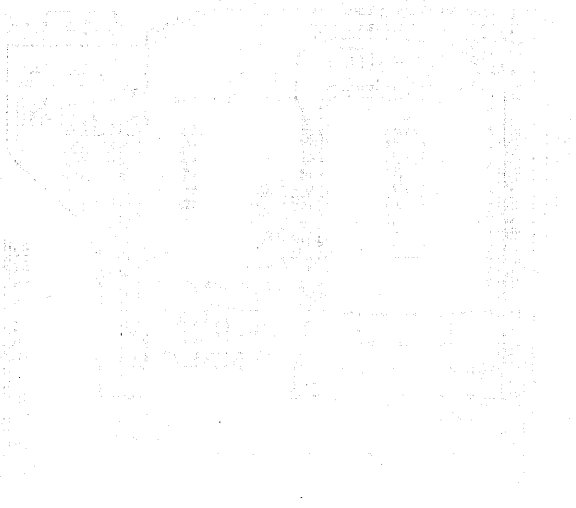
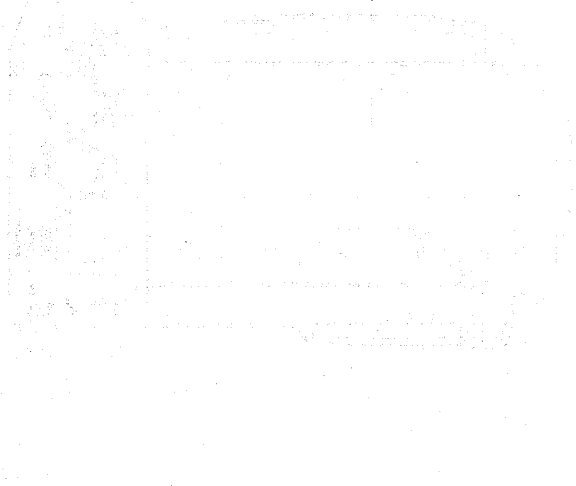
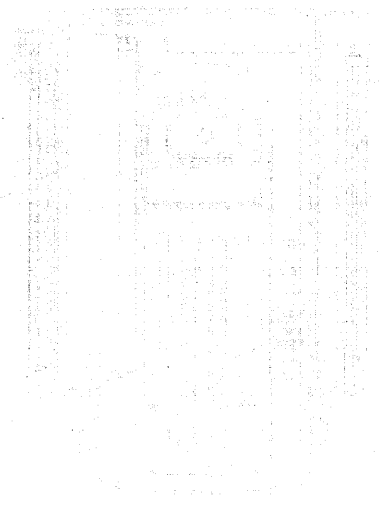
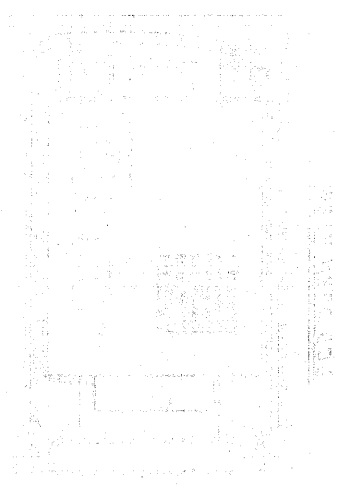
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000-00  
000-00  
000-00

### 3. Disassembly

#### 3-1 FPC Removal

##### Caution

Avoid grasping the lock lever with your fingers or hooking the lever (especially with your fingernail). The part is small and thin and could be damaged.

Please ensure that the FPC is properly inserted into the connector insertion slot. Failing to insert the FPC properly could cause FPC breakage and conduction faults.

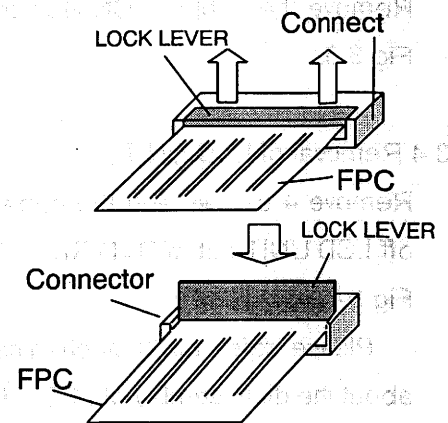


Fig 3-1

##### 1. Bottom Contact Type Connector

Lift up the lock lever and pull out the FPC after the lock is released in shown as Fig 3-1. In case of FPC Insertion, insert the FPC with the conductive surface facing down.

##### 2. Vertical Mounting Type Connector

Press the lock lever upward and pull out the FPC after the lock is released in shown as Fig 3-2. In case of FPC Insertion, insert the FPC vertically with the conductive side of the FPC facing away from the lock lever.

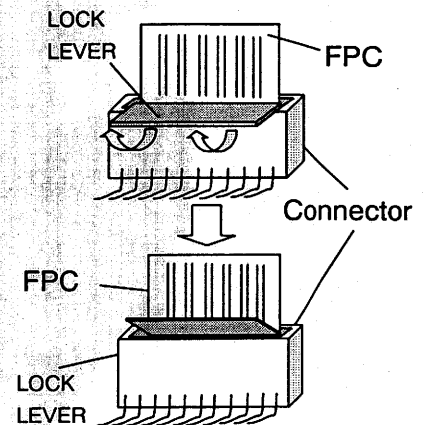


Fig 3-2

#### 3-2 Removal of FRONT CASE ASSY

Remove 3 screws and the green cable, the cables of J15, J39 in shown as Fig 3-4 and take off FRONT CASE ASSY in shown as Fig 3-3.



Fig 3-3

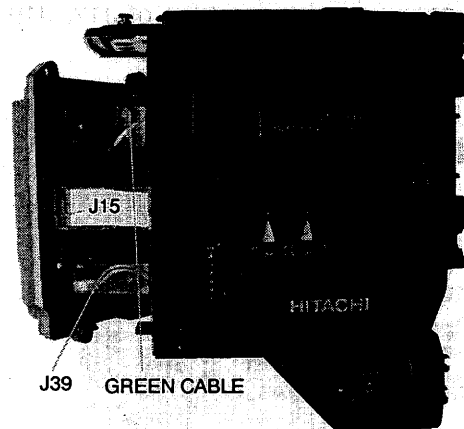


Fig 3-4

### 3-3 Removal of CN6101

Remove the cable of CN6101 from BATT PCB in shown as Fig 3-5.

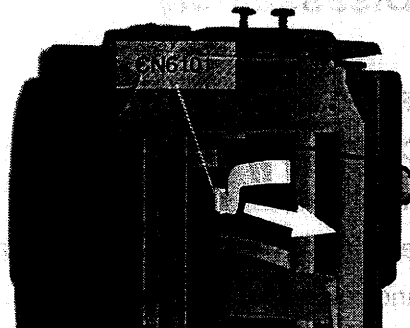


Fig 3-5

### 3-4 Removal of LCD UNIT

Remove 4 screws and the cables of J17, J23, J25 and take off LCD UNIT out of DVD Recorder in shown as Fig 3-6 and Fig 3-7.

Please refer to "8.Mechanical parts list & exploded view" about the disassembly of LCD UNIT.

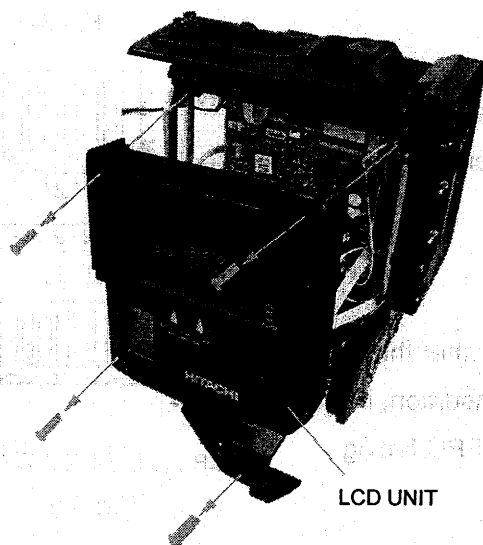


Fig 3-6

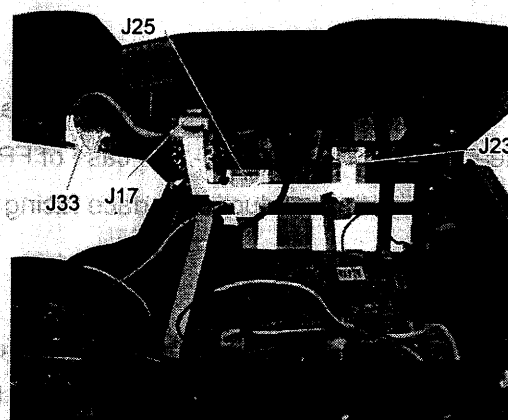


Fig 3-7

### 3-5 Removal of CPU/PWR PCB

Remove 3 screws and the cables of J12, J19, J30, J38, J41, J43 in shown as Fig 3-8 and take off CPU/PWR PCB.

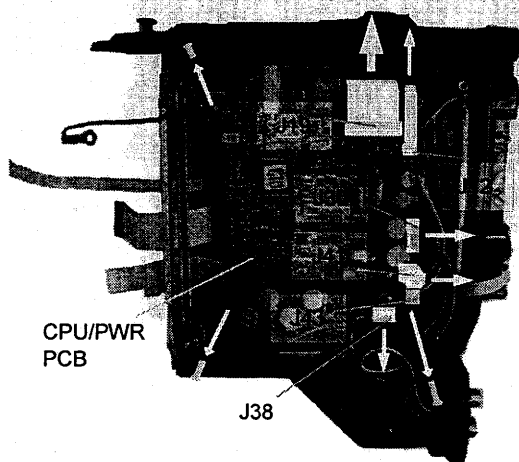


Fig 3-8

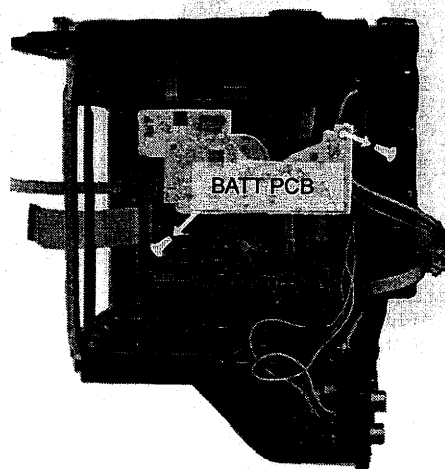


Fig 3-9

### 3-6 Removal of BATT PCB

Remove 2 screws and take off BATT PCB in shown as Fig 3-9.

### 3-7 Removal of I/F PCB

Remove 3 screws and the cables of J11, J13, J26, J21, J28, J36, J56 in shown as Fig 3-10, and take off I/F PCB.

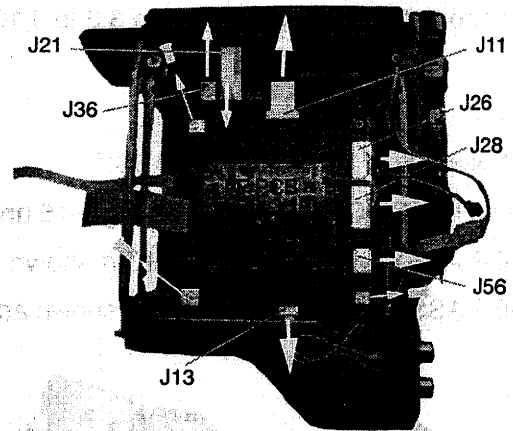


Fig 3-10

### 3-8 Removal of SHIELD PLATE

Remove 2 screws and take off SHIELD PLATE in shown as Fig 3-11.

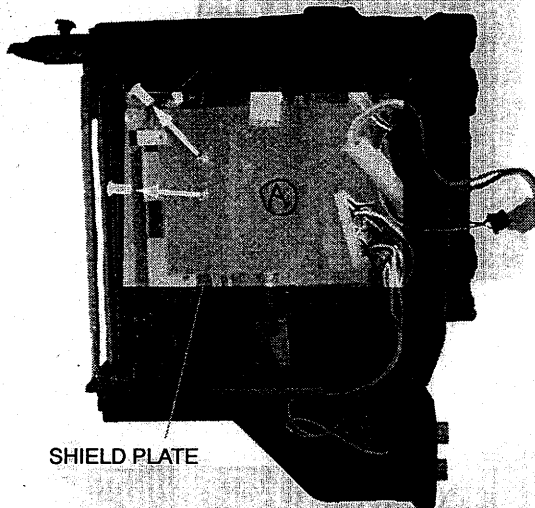


Fig 3-11

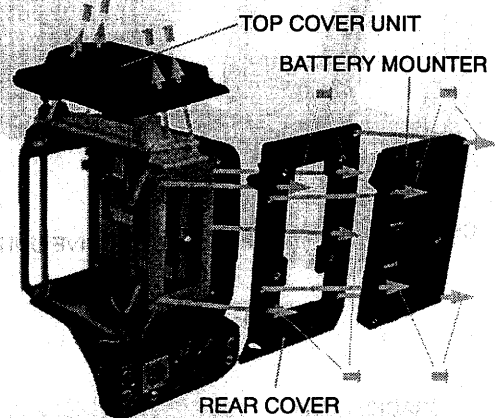


Fig 3-12

### 3-9 Removal of TOP COVER UNIT, REAR COVER, BATTERY MOUNTER

Remove 12 screws and take off TOP COVER UNIT, REAR COVER, BATTERY MOUNTER in shown as Fig 3-12.

Please refer to "8.Mechanical parts list & exploded view" about the disassembly of TOP COVER UNIT.

### 3-10 Removal of DVD DRIVE UNIT

Remove 5 screws and take DVD DRIVE UNIT out of CHASSI UNIT in shown as Fig 3-13 and Fig 3-14.

Please refer to "8.Mechanical parts list & exploded view" about the disassembly of DVD DRIVE UNIT and CHASSI UNIT.

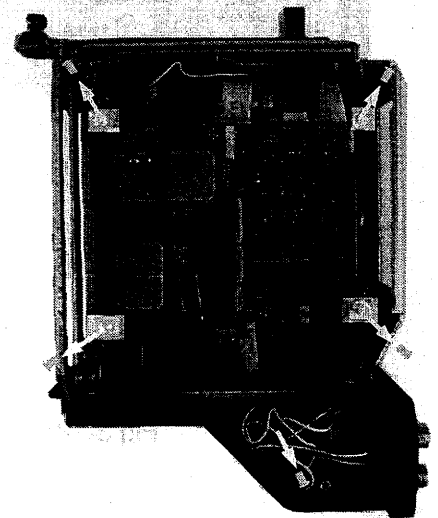


Fig 3-13

### 3-11 Assembly

Please do in the reverse order from 3.2 to 3.10 when you assemble the DVD Recorder.

#### Caution

#### The Assembly of DISC COVER ASSY

Push up LINK B CAS in shown as Fig 3-15 and insert two protuberances of HING ASSY between DISC COVER ASSY to BRACKET LINK in shown as Fig 3-16. And tight 4 screws after closing both DISC COVER ASSY and HINGY ASSY in shown as Fig 3-17

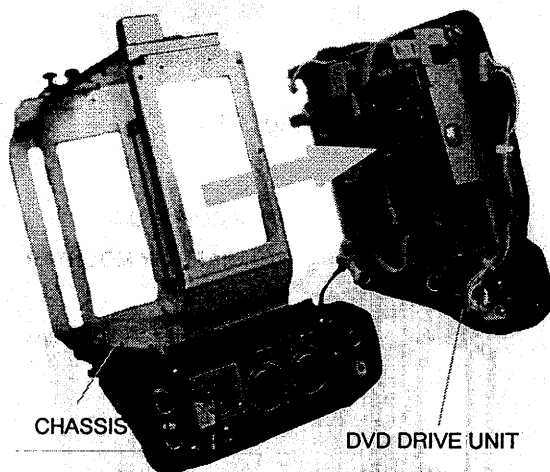


Fig 3-14



Fig 3-15

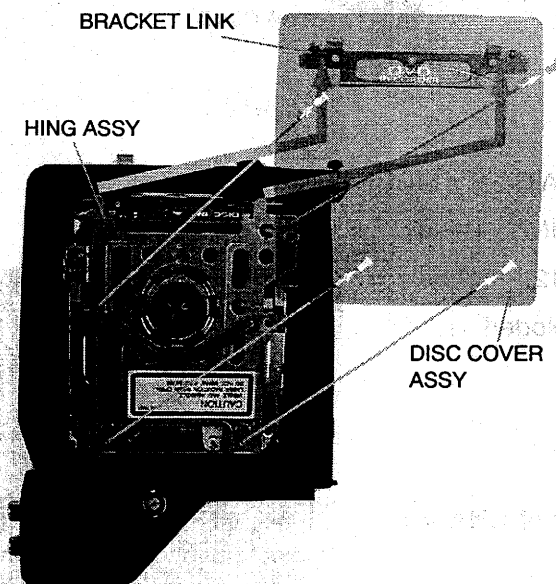


Fig 3-16

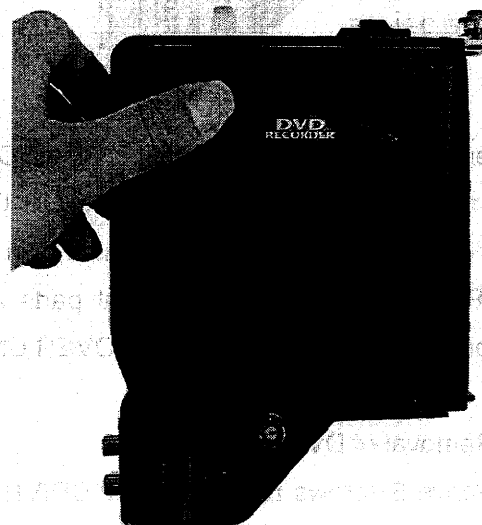


Fig 3-17

