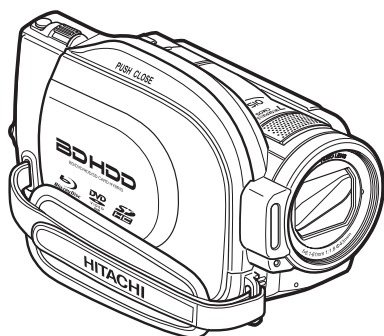


# Instruction Manual (English)

## DZ-BD10HA

**HITACHI**  
Inspire the Next



### Introduction

### HDD/BD/DVD/Cards Battery Pack

### Let's Get Started Recording — Viewing

### Various Recording Techniques

### Dubbing on BD/DVD/ Card

### Editing

### Viewing on the Other Devices

### Connecting to your PC

### Additional Information

### QUICK GUIDE



AVCHD



HDMI™

Thank you for purchasing this Hitachi Camcorder.  
Please read this Instruction Manual to understand its proper use.  
After reading the Instruction Manual, store it safely.

# Important Information

## For Your Safety

*The power switch turns the camcorder on and off, leaving the date/time feature unaffected. If the camcorder is to be left unattended for a long period of time, turn it off.*

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**

**WARNING: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.**



**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, BE SURE TO USE THE SPECIFIED AC ADAPTER/CHARGER (DZ-ACS2).**

The camcorder and AC adapter/charger have the following caution marks.



### CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

## Identifications of caution marks



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully to avoid any problems.

## Precautions

**WARNING:** Many television programs and films are copyrighted. In certain circumstances, copy-right law may apply to private in-home videotaping of copyrighted materials.

The liquid crystal display (LCD) panel is made by highly precise technology. More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This does not indicate a fault as the LCD panel stretches the limits of current technology.

**CLASS 1  
LASER PRODUCT**

### CAUTION

This product contains a laser diode of higher class than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

Avoid using and storing the battery pack in places subject to direct sunlight, high temperatures, or near a flame source.

**Warning:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

**Caution to the user:** Changes or modifications not expressly approved by the manufacturer void the user's authority to operate the equipment.

Microsoft®, Windows®, Windows® XP and Windows Vista® are registered trademarks of Microsoft Corporation.

Intel® and Pentium® Processor are registered trademarks of Intel Corporation.

Intel® Core™ is a trademark of Intel Corporation.

Macintosh is a trademark of Apple, Inc.

IBM® and PC/AT® are registered trademarks of International Business Machines Corporation.

Manufactured under license from Dolby Laboratories.

“Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

SDHC logo is a trademark.

SD logo is a trademark.

Blu-ray Disc and Blu-ray Disc logo are trademarks.

“AVCHD” and the “AVCHD” logo are trademarks of Matsushita Electric Industrial Co., Ltd. and Sony Corporation.

Other company names and product names listed are trademarks or brand names belonging to each individual company.

# IMPORTANT SAFETY INSTRUCTIONS

*In addition to the careful attention devoted to quality standards in the manufacture of your camcorder, safety is a major factor in the design of every instrument. But, safety is your responsibility too. This page lists important information that will help to assure your enjoyment and proper use of the camcorder and accessory equipment.*

- 1** Read these instructions.
- 2** Store these instructions for convenient accessibility.
- 3** Heed all warnings.
- 4** Observe all instructions.
- 5** Do not use the camcorder near water.
- 6** Clean the camcorder using only a dry cloth.
- 7** Do not block any ventilation openings. The camcorder should be placed in accordance with the manufacturer's instructions.
- 8** Do not place the camcorder near heat sources such as radiators, heat-registering areas, stoves, or other heat-generating apparatus (including amplifiers).
- 9** Protect the power cable and cord from being walked on or pinched, particularly at the plugs, power outlets, and at connection points to the camcorder.
- 10** Only use the attachments and accessories specified by the manufacturer.
- 11** Use the camcorder only with a cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the camcorder. When using a cart to move the camcorder, use caution to avoid injury from tip-over.
- 12** Unplug the camcorder during lightning storms or when unused for long periods of time.
- 13** Refer all servicing to qualified servicing personnel. Servicing will be required when the camcorder is damaged in any way, such as if the power cable, cord, or plug is damaged, liquid is spilled or foreign objects fall into the camcorder, the camcorder is exposed to rain or moisture, does not operate normally, or is dropped.
- 14** Do not drip or splash liquids onto the camcorder or place the camcorder near objects filled with liquid such as vases.
- 15** Use the equipment (AC adapter/charger) near a power outlet with easy accessibility.





## Table of Contents

Important Information .....	2	Information display during recording .....	31
For Your Safety .....	2	Efficient use of the battery pack .....	33
Precautions .....	2		
IMPORTANT SAFETY		<b>Viewing</b>	<b>34</b>
INSTRUCTIONS .....	4	Playing Recorded Movies/Stills .....	34
		Choosing and playing back multiple	
<b>Introduction</b>	<b>7</b>	scenes .....	35
This camcorder makes all of the following		Jumping to the designated scene .....	36
possible! .....	7	Adjusting speaker volume during movie	
Choosing a disc to suit your purpose .....	8	playback .....	37
How to Read this Instruction Manual .....	10	Information display during playback .....	37
Before Using the Product		Simple functions you can use during	
- Be sure to read this information - .....	11	playback or playback pause .....	38
Checking Provided Accessories .....	13	Playing still pictures on a card automatically	
Names of Parts .....	14	(Slide Show) .....	39
How to Open and Use the LCD Monitor .....	17	Capturing a still picture from a movie	
How to change the LCD brightness .....	17	(PHOTO Capture) .....	40
		Playing back scenes repeatedly	
<b>Let's Get Started</b>	<b>18</b>	(Repeat Play) .....	40
Preparing .....	18		
Setting up the battery pack .....	18	<b>Various Recording Techniques</b>	<b>41</b>
Turning on the power .....	19	How to Operate the Menu .....	41
Setting the date and time .....	20	Menu (While Recording) .....	42
Changing the display language .....	20	About the LCD setup and initial setup .....	42
Functions and Characteristics of		About the demonstration function .....	43
HDD/BD/DVD/Card .....	21	Magnified Recording	
About HDD/BD/DVD .....	21	(Optical Zoom and Digital Zoom) .....	44
About cards .....	22	Recording at Close Range	
Cautions for discs and cards .....	22	(Macro Recording) .....	44
Inserting a BD or DVD .....	23	Using the Separately-Sold Lenses to Increase	
When loading a new		the Wide-Angle or Telephoto Effect .....	45
BD-RE/BD-R/DVD-RW .....	24	Adjusting the Focus Manually	
Battery Pack .....	25	(Manual Focus) .....	45
CHARGE lamp status and charging time .....	25	Adjusting the Brightness of the Image	
Continuous recording time		(Exposure) .....	46
with a fully charged battery .....	25	Compensating for Backlight (Backlight	
Connecting the camcorder to a wall outlet .....	25	Compensation) .....	47
Detaching the DC power cord/battery pack		Selecting a Recording Mode to Match the	
from the camcorder .....	26	Conditions (Program AE) .....	47
Efficient use of the battery .....	26	Adjusting the Color (White Balance) .....	48
		Setting the white balance manually (Set) .....	49
<b>Recording</b>	<b>27</b>	Using the Optical Image Stabilizer (OIS) .....	50
Recording Movies to the HDD .....	27	Using the Face Detection .....	50
Recording Movies to a BD/DVD .....	27	Displaying Recording Guidelines	
Recording Movies/Stills to a Card .....	29	(Auxiliary Line) .....	51
When recording movies .....	29	Reducing Wind Noise During Recording .....	51
When recording stills .....	29	Restoring all the Recording Settings to Default	
		(Full Auto) .....	52
		Using the Flash .....	52

Turning Off the Recording Indicator Beneath the Lens .....	53	Unfinalizing a Disc .....	78
Changing the Movie Quality .....	54	<b>Connecting to your PC</b> .....	<b>79</b>
Recording Stills Optimum for Widescreen TV (Wide Mode) .....	54	Software installation.....	80
Using the Self-Timer .....	55	Before importing scenes from	
<b>Dubbing on BD/DVD/Card</b> .....	<b>56</b>	BD-R/DVD-RW/DVD-R to your PC .....	81
Dubbing .....	58	Connecting the camcorder to your PC .....	81
Displaying only Dubbed or Not Dubbed Scenes (Category).....	60	Removing a medium while the camcorder is being connected to the PC.....	82
Clearing the dub marks on Thumbnails (MARK OFF).....	60	Using a built-in disc drive of your PC to read a disc recorded on the camcorder....	82
<b>Editing</b> .....	<b>61</b>	Before terminating PC connection (removing USB cable) and changing the power switch setting .....	82
Menu Items for the Disc Navigation .....	61	Using ImageMixer 3 AVCHD Edition for HITACHI .....	83
Menu flows for the disc navigation.....	62	Uninstalling the software .....	86
Choosing Scenes by Date .....	63	Precautions When Connecting to a PC .....	87
Switching to the display arranged by date (Date) .....	63	<b>Additional Information</b> .....	<b>88</b>
Playlist .....	63	Optional Accessories .....	88
What is "Playlist"? .....	63	Error Messages .....	89
Creating a new Playlist (Create Playlist).....	63	Troubleshooting.....	97
Displaying a desired Playlist (Playlist) .....	64	Cautions on Use of this Product	
Adding scenes to a Playlist (Edit) .....	64	- Be sure to read this information - .....	105
Deleting scenes from Playlist (Edit).....	65	System Reset.....	109
Arranging the order of scenes in the Playlist (Edit) .....	65	End User License Agreements for Operating System Software.....	110
Deleting a Playlist (Delete) .....	66	Major Specifications .....	111
Deleting Scenes (Edit - Delete) .....	66	Movie .....	112
Dividing a Movie (Edit - Divide) .....	67	Stills .....	113
Combining Multiple Scenes (Edit - Combine).....	67	Glossary .....	114
Adding Special Effects (Edit - Fade).....	68	Index .....	116
Go To .....	69	Be sure to read the following before opening the package of CD-ROM.....	118
Locking Scenes on a Card (Lock) .....	69	To Order in the United States .....	119
Displaying Information Using the Menu Screen (Detail) .....	70		
Formatting the HDD/BD/DVD/CARD (Format).....	71		
Protecting the BD/DVD .....	72		
Checking the Remaining Recording Capacity... ..	72		
<b>Viewing on the Other Devices</b> .....	<b>73</b>		
Connecting to Your TV for Viewing.....	73		
Connecting to a TV .....	73		
Adjusting the camcorder's output settings according to your TV .....	74		
Viewing on your TV .....	75		
Viewing on Other Players/Recorders .....	76		
Before Playing Back a BD/DVD on Another BD/DVD Recorder/Player (Finalizing).....	76		
Finalizing a Disc .....	77		

## Introduction

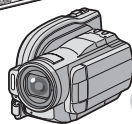
**This camcorder makes all of the following possible!**

### Record movies and stills with this one device!

Stills



Movies

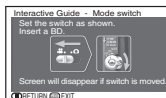
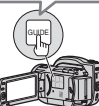


You can easily figure out "what" can be recorded "to which medium".

Various media

- HDD
- BD
- DVD
- SDHC card
- SD card

Press to solve your questions.



After recording

### View on large screen by hooking up the camcorder to a TV!

HDMI



Component Cable



AV Cable



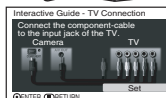
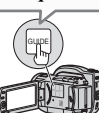
You can easily figure out which cable should be used.

View on the TV



View on the LCD monitor

Press to solve your questions.

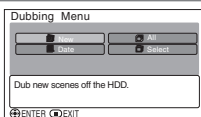


After Watching

### Store the recordings! Create a gift disc! Select a disc easily!

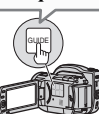


Disc selection is simple!



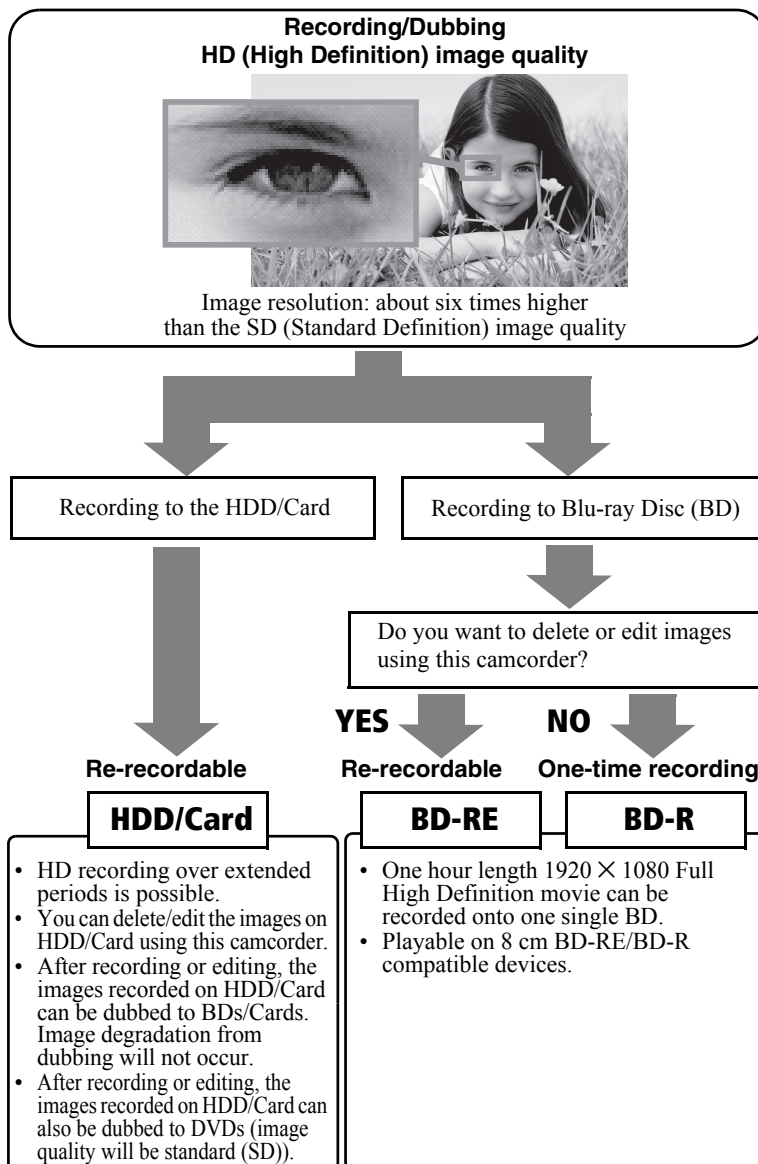
- BD-RE/BD-R
- DVD-RAM/ DVD-RW/ DVD-R

Press to solve your questions.

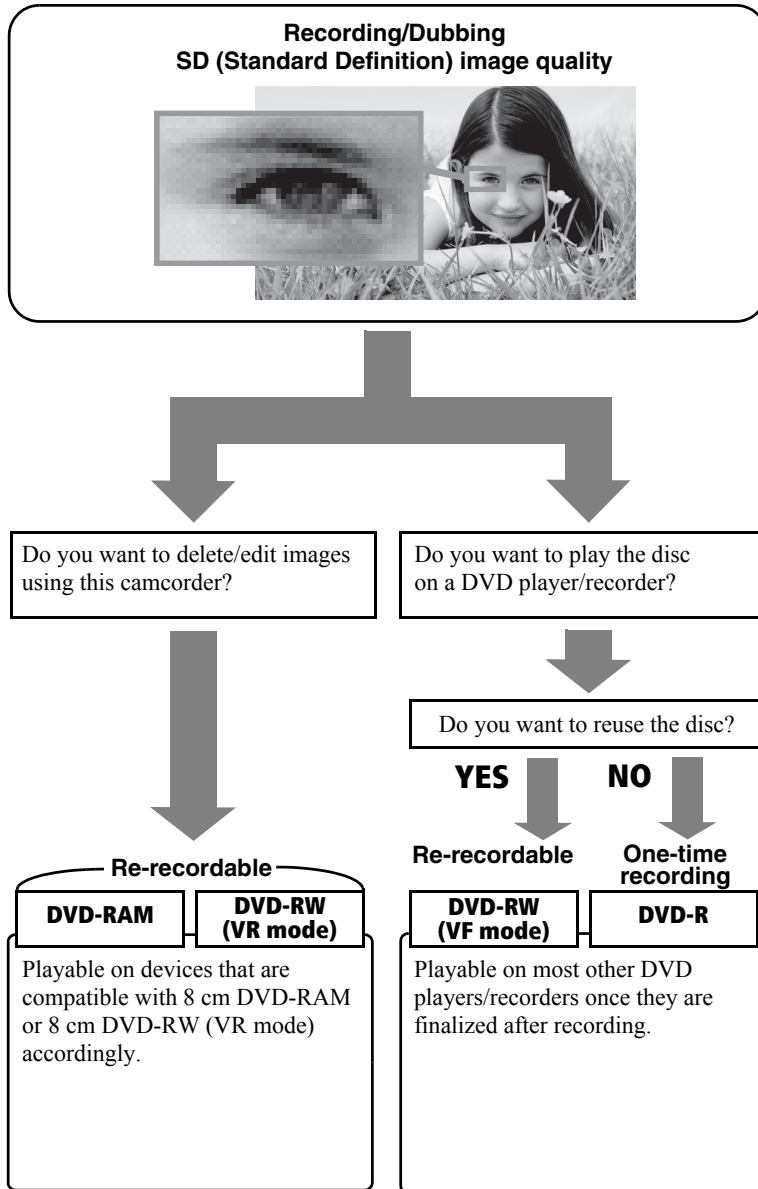


Introduction

## ■ Choosing a disc to suit your purpose



\* For details, refer to the standards stated in “Recording format” (p.111).



\* For details, refer to the standards stated in “Recording format” (p.111).

## How to Read this Instruction Manual

### About media descriptions

The camcorder functions available vary depending on the media (HDD/BD/DVD/Card) used. Refer to the icon headings shown below to determine whether the function explained complies with the media in use.



Collective term	Icon	Media
HDD		Built-in hard disk drive (HDD)
BD		BD-RE (Rewritable Blu-ray Disc)
		BD-R (Non-rewritable Blu-ray Disc)
DVD		DVD-RAM
		DVD-RW (VR mode)
		DVD-RW (VF (Video) mode)
		DVD-R
Card		SDHC memory card SD memory card Mini SDHC/SD memory card (a specific adapter required) Micro SDHC/SD memory card (a specific adapter required) *The term "Card" as used in this manual refers to SD and SDHC memory cards.

### Card capacity required for recording

	Movies	Stills
SDHC memory card	4 GB - 32 GB	4 GB - 32 GB
SD memory card	1 GB - 2 GB	32 MB - 2GB

\*A Class 4 SD card is recommended for movie recordings.

\*A 4 GB SD card without the SDHC logo (not conform to the SDA 2.00 specifications) is not supported.

## Before Using the Product - Be sure to read this information -

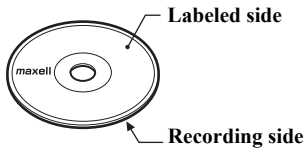
### Conduct test recording.

- Before recording important shots, always conduct test recording to confirm that images are normally recorded.

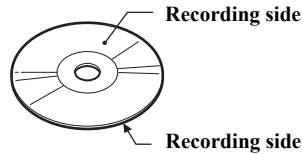
### Recording surface

- Single-sided disc: unlabeled side.
- Double-sided disc: both sides.

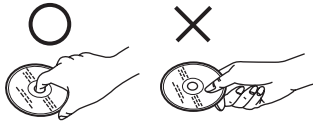
#### Single-sided disc



#### Double-sided disc



### How to hold a disc



### For correct recording

- Do not touch the recording surface of a disc.
- Check that a disc recording surface is not dirty or scratched.
- If the recording surface is dirty, wipe it clean using a dry soft cloth.

### Caution on disc loading

- Never touch the pickup.

### Caution on vibrations and impacts

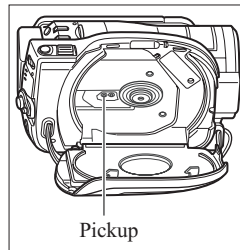
- While the ACCESS indicator (p.14) is lit, do not subject the camcorder to strong vibrations or impacts. Caution should be particularly observed while the indicator remains lit for a while after the end of recording.

### About BD/DVD

- We recommend using Hitachi Maxell brand discs. The compatibility of the discs with this camcorder is confirmed.
- If there is concern that the camcorder may be subjected to large vibrations or impact during transport, remove the BD/DVD and protect the camcorder using soft protective materials.



Use a soft cloth and gently wipe the disc surface from the inner to the outer region.



**Using BD/DVD with other equipment**

- We cannot guarantee that playback is possible on all types of recorders/players.
- When a BD-R/DVD-RW/DVD-R recorded with this camcorder is used on another device, always finalize the disc (p.77) using the camcorder in advance.

**Hitachi will not compensate for recorded images.**

- The scene will be lost, if the AC adapter/charger or battery pack is detached from the camcorder during recording or editing. Be sure to turn the power switch to "OFF" first and detach the AC adapter/charger or battery pack.
- Hitachi cannot compensate for any damages caused when recording is not made normally or recorded contents cannot be played back because of a defect in the camcorder, disc or card. Also, Hitachi cannot be responsible for your recorded video and audio.
- In the event that your camcorder is sent for repair, whether repair is successful or not, recorded content may be lost. Hitachi cannot be held responsible for any lost data.

**Copyright**

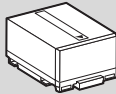
- Be aware that recording is restricted for some demonstrations, performances and exhibitions.



## Checking Provided Accessories

Make sure the following accessories are included in the package.

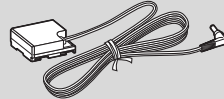
**Battery pack (DZ-BP14S)**  
Portable power supply for your new Hitachi Camcorder. Be sure to fully charge the battery before use.



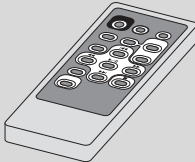
**AC adapter/charger (DZ-ACS2)**  
Use to power the camcorder from an AC power outlet, and to charge the battery.



**DC power cord**  
To power the camcorder from an AC outlet, use this cord to connect the AC adapter/charger to the camcorder.



**Remote control (DZ-RM4W)**  
Use to control the camcorder from a distance.



**Lithium battery (CR2032)**  
To power the remote control.

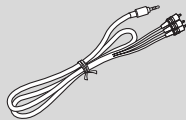


**WARNING**  
Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.

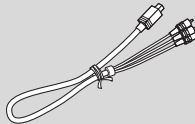
**Power cable**  
Connects the AC adapter/charger to the AC outlet.



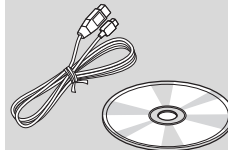
**AV cable**  
Use this cable to view images from the camcorder on a TV. Or output the images and sound to another video recording device.



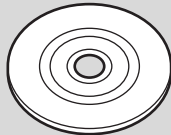
**Component cable**  
Use this cable when a component terminal is equipped on your TV. Use the AV cable for audio output.



**Software CD-ROM and USB cable**  
Install the software on the CD-ROM onto your PC, then connect the camcorder to the PC using the USB cable.



**8 cm BD-RE single sided disc**  
Use to record the movies on.

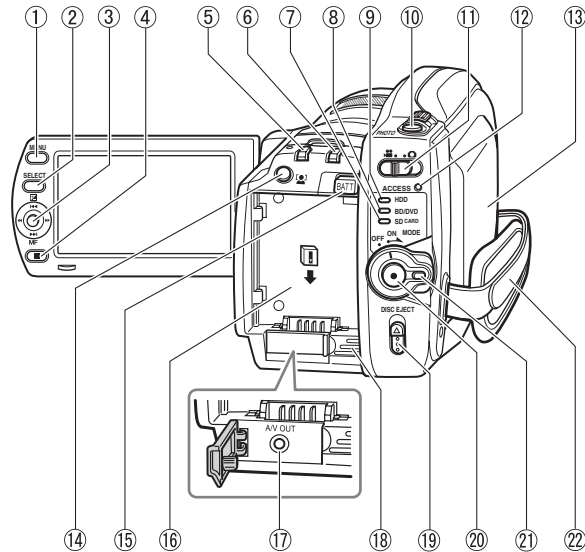


### About HDMI cable

An HDMI cable is not supplied with the camcorder. To connect the camcorder to your TV though the HDMI terminal, purchase an HDMI Mini-to-Standard cable that is sold separately.

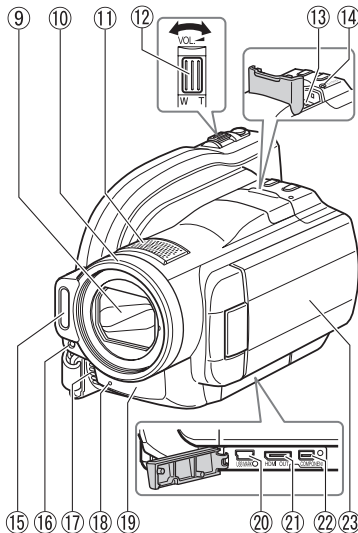
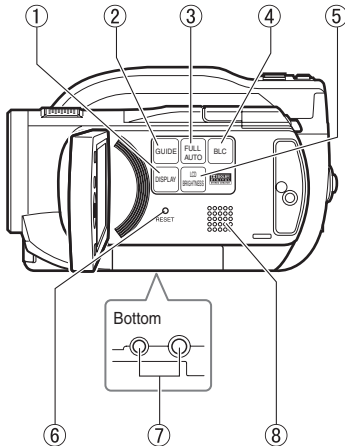
## Names of Parts

### Power switch side



- |                                     |  |
|-------------------------------------|--|
| ① MENU button (p.20)                | ⑭ Face Detection button (p.50)   |
| ② SELECT button (p.35)              | ⑮ BATT (battery eject) switch (p.26)   |
| ③ Joystick (p.34, 38)               | ⑯ Battery platform (p.18)  |
| ④ ■ (stop/cancel) button (p.41)     | ⑰ A/V OUT terminal (p.74)  |
| ⑤ ▶ (Disc Navigation) button (p.34) | ⑱ Cooling fan inlet  |
| ⑥ DUBBING button (p.58)             | A ventilation fan operates to reduce heat buildup during the camcorder use. Do not obstruct the cooling fan inlet. |
| ⑦ SD CARD indicator (p.29)          | ⑲ DISC EJECT switch (p.27)   |
| ⑧ BD/DVD indicator (p.28)           | ⑳ Record button (p.27, 28, 29)   |
| ⑨ HDD indicator (p.27)              | ㉑ Power switch/Lock button (p.19)  |
| ⑩ PHOTO button (p.29)               | ㉒ Hand strap (p.16)  |
| ⑪ Movie/Stills switch (p.27)        |  |
| ⑫ ACCESS indicator (p.11, 23, 30)   |  |
| ⑬ Disc compartment (p.27)           |  |

## LCD monitor side (when the LCD monitor is opened 90°), bottom, and lens side



① **DISPLAY button** (p.31, 37)

② **GUIDE button** (p.7)

This button can help you choose a disc, connect the camcorder to your TV, and so on. The sections in the Instruction Manual for which this button can be used are indicated by a pop-up icon like the one below.

**Use the GUIDE button for help!**

③ **FULL AUTO button** (p.52)

④ **BLC button** (p.47)

⑤ **LCD BRIGHTNESS button** (p.17)

⑥ **RESET button** (p.109)

⑦ **Tripod receptacle**

⑧ **Speaker**

⑨ **Automatic lens cover**

The lens cover automatically opens when the power is turned on, revealing the optical 10x zoom lens.

⑩ **Lens hood**

⑪ **Stereo microphone**

Do not block the microphone with your hand during recording.

⑫ **Zoom lever/volume** (p.37, 44)

⑬ **Card slot** (p.29)

⑭ **CARD ACCESS indicator** (p.30)

⑮ **Flash** (p.52)

⑯ **Light receiving sensor**

Used to control flash amount. Do not block the light receiving sensor with your hand when recording still pictures.

⑰ **Cooling fan outlet**

A ventilation fan operates to reduce heat buildup during the camcorder use. Do not obstruct the cooling fan outlet.

⑱ **Recording indicator** (p.53)

⑲ **Remote control receiver** (p.16)/

**Infrared sensor** (p.49)

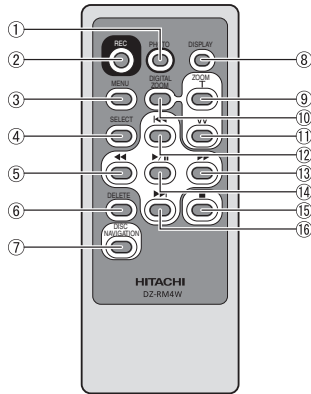
⑳ **USB terminal** (p.81)

㉑ **HDMI OUT terminal** (p.73)

㉒ **COMPONENT OUT terminal** (p.74)

㉓ **LCD monitor (color wide-screen)** (p.17)

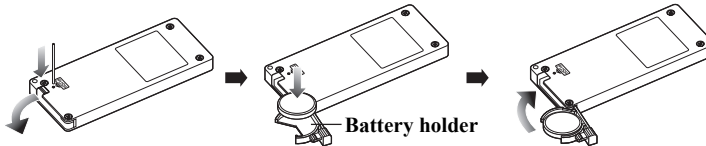
## Remote control



- ① PHOTO button (p.29)
- ② REC button (p.27, 28, 29)
- ③ MENU button (p.20)
- ④ SELECT button (p.35)
- ⑤ ◀◀ (reverse search) button (p.34, 38)
- ⑥ DELETE button (p.66)
- ⑦ DISC NAVIGATION button (p.34)  
\* Provides the same functionality with ▶.
- ⑧ DISPLAY button (p.31, 37)
- ⑨ ZOOM T button (p.44)
- ⑩ DIGITAL ZOOM button (p.44)
- ⑪ ZOOM W button (p.44)
- ⑫ ◀◀ (reverse skip) button (p.34, 38)
- ⑬ ▶▶ (forward search) button (p.34, 38)
- ⑭ Confirmation button (p.34, 38)
- ⑮ ■ (stop/cancel) button (p.41)
- ⑯ ▶▶ (forward skip) button (p.34, 38)

## Inserting the supplied lithium battery into the remote control

- ① While inserting a thin tipped instrument (paperclip, etc.) into the hole marked PUSH, swing the battery holder arm out.
- ② Insert the lithium battery with the positive (+) terminal facing down.
- ③ Slide the cover to close it.



### Warning

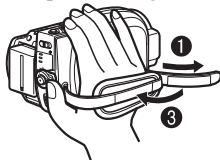
BATTERY MAY EXPLODE IF NOT HANDLED PROPERLY. DO NOT RECHARGE, DISASSEMBLE, OR DISPOSE OF IN FIRE.

### Note

Replace the battery with a Hitachi Maxell, Sony, Panasonic, Sanyo, Toshiba CR2032, or Duracell DL2032. Use of another battery may present a risk of fire or explosion.

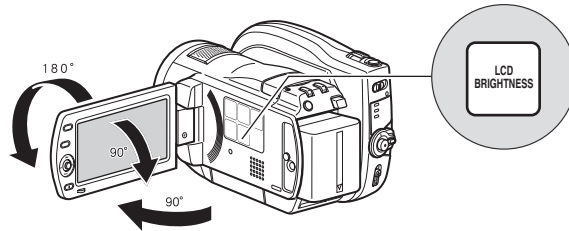
## Adjusting the hand strap

Fasten the hand strap according to the procedure in the diagram.



- ① Release the Velcro strap.
- ② Loosen strap and insert your right hand from bottom.
- ③ Tighten the Velcro strap.

## How to Open and Use the LCD Monitor



You can use the LCD monitor as follows.

### ■ How to change the LCD brightness

You can adjust the brightness of the LCD monitor when it is too dark or too bright to see the image on display.

The brightness changes every time you select **LCD BRIGHTNESS**. There are three settings available.

At time of purchase of this camcorder, the brightness is set to the brightest.

The “LCD Brightness” setting is retained in memory even when the power is turned off. However, if the camcorder is turned on while being powered from an AC power outlet, the “LCD Brightness” setting will be reset to the brightest.

### About the LCD monitor display when recording yourself (the lens and LCD monitor are facing you)

- The LCD monitor displays a mirror image of the subject.
- The remaining battery charge indicator will only appear when battery power is almost gone. The battery charge indicator flashes red in this case.
- A warning message will not be displayed (p.89). You can confirm the warning message by rotating the LCD monitor 180° back to its normal orientation.

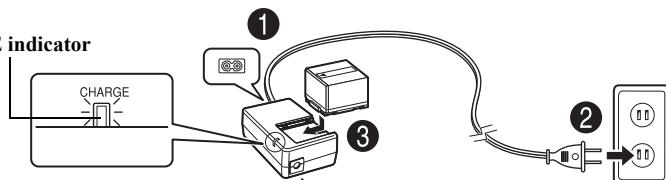
## Let's Get Started

### Preparing

#### ■ Setting up the battery pack

- 1 Connect the power cable to the AC adapter/charger.
- 2 Plug in the power cable to a wall outlet.
- 3 Attach the battery pack to the AC adapter/charger.
- 4 Attach the battery pack to the camcorder.

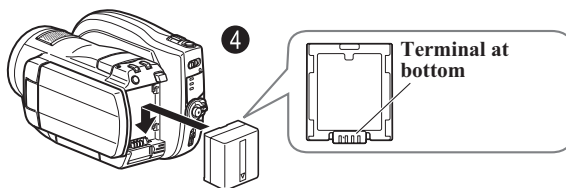
CHARGE indicator



If the CHARGE indicator does not light, check that the connections (1, 2, 3) are firmly connected.

#### Note

Charging will not occur if the DC power cord is connected.



#### ● Charge status of the battery pack

The CHARGE indicator of the AC adapter/charger allows you to check on the charge status of the battery pack.

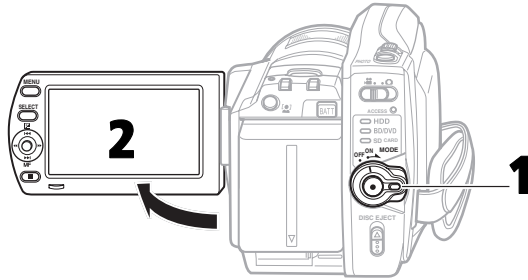
Charge Status	CHARGE indicator
During charge	lit
Charge complete	Unlit

\* For details on charging time, see p.25.

#### Notes

- Charge battery pack in temperatures above +50 degrees F (10 degrees C) and below +86 degrees F (30 degrees C).
- Use only the AC adapter/charger which accompanied your camcorder or direct replacement as listed in this manual.

## ■ Turning on the power

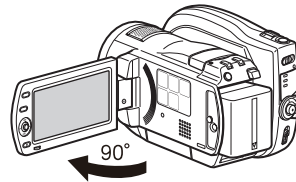


**1 Turn on the power.**

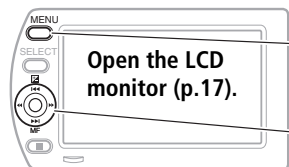


Press and hold the lock button, and turn the power switch to "ON".

**2 Open the LCD monitor.**

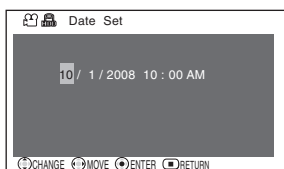


## ■ Setting the date and time



- ① Press **MENU**.
- ② Select "Date Setup", then "Date Set" using the joystick. (For instructions on how to use the joystick, see p.34.)

The confirmation button (press firmly)

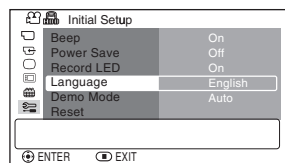


- ③ Set the month, date, year, hour, minute, and AM/PM using the joystick, and then press the confirmation button.
- ④ The set time and date appear in the LCD monitor.

## ■ Changing the display language

You can change the language used on screens and menus as follows.

- ① Press **MENU**, then select "Initial Setup" using the joystick.



- ② Select "Language" using the joystick.

- ③ Choose the desired language using the joystick, then press the confirmation button.



## Functions and Characteristics of HDD/BD/DVD/Card

The following table lists the storage media (discs and cards) and available functions that can be used with this camcorder.

Function  ●: Functions available —: Not available	Media								
	Built-in HDD	BD		DVD				Card (Movies)	Card (Stills)
		-RE	-R	-RAM	-RW (VR mode)	-RW (VF mode)	-R		
Recording HD (High Definition) quality movies (p.27, 29)	●	●	●	—	—	—	—	●	—
Recording SD quality movies (p.27)	—	—	—	●	●	●	●	—	—
Recording stills (p.29)	—	—	—	—	—	—	—	—	●
Deleting recordings (p.66)	●	●	—	●	●	—	—	●	●
Editing recordings (p.61)	●	●	—	●	●	—	—	●	—
Playing on other BD/DVD players/recorders (p.76)	—	●*1	●*1 *2	●*1	●*1 *2	●*2	●*2	—	—
Initializing and reusing (p.71)	●	●	—	●	●	●	—	●	●
Making additional recordings after a disc is finalized (p.78)	●*3	●*4	—	●*3	●	●*4	—	●*3	●*3
Copying recordings onto a PC (p.83)*5	●	●	●*6	●	●*6	●*6	●*6	●	●
Making HD (High Definition) quality discs using a PC*5	—	●	●	—	—	—	—	—	—
Making SD quality discs using a PC*5	—	—	—	●*7	●*7	●*8	●*8	—	—

\*1 Playback is possible using a device which complies with the medium type.

\*2 Must be finalized. Not playable on some devices.

\*3 As finalizing is unnecessary (cannot be performed), additional recordings are possible at any time.

\*4 To make additional recordings, the finalized disc must be unfinalized.






\*5 The provided software is used.

\*6 Finalize the disc to edit on a PC.

\*7 A DVD-VR disc can be created.

\*8 A DVD video disc can be created.

## About HDD/BD/DVD

Usable discs and their logos		Function
HDD		Allows extensive high-definition movie recordings. Allows editing and deleting scenes.
BD-RE Ver. 2.1 7.5GB 2x (8 cm)		A rewritable disc on which high-definition movies can be repeatedly recorded. You can delete/edit the recorded movies.
BD-R Ver. 1.1 7.5GB 2x (8 cm)		A non-rewritable disc on which a high-definition movie can be recorded once. The recorded movie cannot be deleted or edited.
DVD-RAM Ver. 2.1 (8 cm)		Allows editing and deleting scenes.
DVD-RW 2x Ver. 1.1 (8 cm)		Allows editing and deleting scenes using the camcorder in VR mode. Does not allow editing or deleting scenes using the camcorder in VF mode, but provides higher compatibility with other DVD players.
DVD-R for General Ver. 2.0 (8 cm)		Provides compatibility with most DVD players. Does not allow editing and deleting scenes.

BD-R Ver. 1.2 7.5GB 2x (8 cm) disc which is not an LTH type can be used.

\* The versions in the above chart refer to physical standard versions of discs.

**Notes**

- Hitachi Maxell single sided discs (HG type in the case of DVDs) have been confirmed to be compatible with this camcorder and are recommended. Take care not to dirty (including fingerprints) or scratch the surface of the discs when handling. When using a double-sided disc, take great care with handling it. Using non-Hitachi Maxell discs may not allow the camcorder to deliver optimum performance.
- DVD housed in a square cartridge/caddy case or a round DVD holder cannot be used as is. The DVD must be removed from its case/holder before it can be used.

**Note on BD-R/DVD-R**

This camcorder writes control data to a disc in order to automatically make recording adjustments when first recording after:

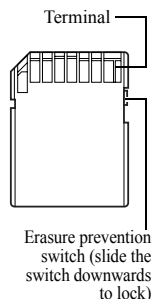
- a disc is inserted, and
  - the power is turned on while the disc is in the camcorder.
- If there is not enough space on the control area of a disc, recording may not be possible even if the data space for recording movies is not full. To prevent this, avoid performing operations described above more than 49 times per disc.

**Unusable Discs**

Dual layer BD and DVD discs, BD-R LTH type discs (Dye type), +RW and +R.

**■ About cards****● Card Handling**

- Do not use cards other than those specified.
- Be sure to perform trial recording.
- Do not touch the card terminal or allow it to touch metal.
- Do not paste anything other than the designated label in the label area.
- Do not subject cards to impact, bending, or dropping.
- Do not disassemble or modify a card.
- Do not use or store cards in the following places:
  - Where the temperature is high, such as in a vehicle in the sun or near a heater
  - Where humidity is high, or in a dusty place
- When the erasure prevention switch is locked, recording, deletion, and editing are not allowed. Only playback is possible.

**Notes**

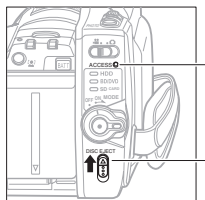
- SDHC/SD memory cards can be used on this camcorder.
- When using an exclusive adapter, a mini SDHC/SD memory card and micro SDHC/SD memory card can be used in the same way as an SD memory card. No multimedia card can be used.

**■ Cautions for discs and cards**

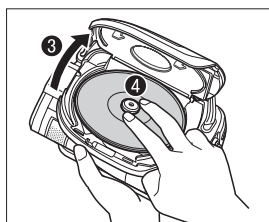
To prevent data loss or damage:

- Do not remove the battery pack and card while reading or writing data.
- Do not use the camcorder in a place subject to static electricity or electrical noise.

## ■ Inserting a BD or DVD



- 1 Attach the charged battery pack to the camcorder or connect the camcorder to a wall outlet.
- 2 Turn the power switch to "OFF". Then, slide up the DISC EJECT switch until the ACCESS indicator lights, then release.



- 3 After several seconds, the lid pops open. Open it fully with your hand.
- 4 Place the recording surface of the BD/DVD face down, then push down on the center of the BD/DVD until it clicks into place.
  - For single-sided discs, the side opposite the label is the recording surface.
  - To record on the other side for double-sided discs, remove the disc (p.24), flip it over, and reload it.

### 5 Close the lid.

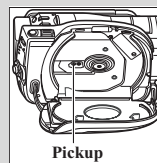
The ACCESS indicator flashes. During this process, do not remove the power source, shake, or subject the camcorder to impacts.

### 6 When a new BD-RE, BD-R, or DVD-RW is inserted, see p.24.

### 7 To record movies, see "Recording Movies to a BD/DVD" (p.27). To play back the recorded BD/DVD, see "Playing Recorded Movies/Stills" (p.34).

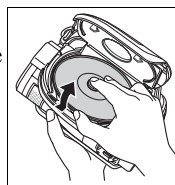
#### Notes

- The disc mechanism will be very hot immediately after use. Do not touch the metallic areas.
- Do not peer into the pickup. Doing so may cause damage to your eyesight.
- To prevent malfunction, never do any of the following:
  - touch the pickup
  - insert a disc that is not compatible with the camcorder (p.21)
  - close the lid before setting the disc securely into place
- The power automatically turns off if the lid is left open for approx. three minutes while the power switch is set to "OFF".
- The lid will not open if the camcorder is not connected to a power source.



## Removing the disc

Pressing slightly on the center hub with a finger, grip the edge of the disc by your thumb and lift the disc out as shown.



## ■ When loading a new BD-RE/BD-R/DVD-RW

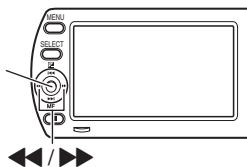
When the disc is loaded, the format confirmation screen will appear in the LCD monitor. Format the disc according to the procedure below.

### ① Open the LCD monitor.

#### Note

Be careful that the power is not accidentally cut off during formatting. Otherwise, the disc will become unusable.

The confirmation button



### ② When the format confirmation screen appears, select "YES" by pressing ◀◀, then press the confirmation button.

**When using a BD-RE/BD-R**

Formatting will start. Skip step ③.

**When using a DVD-RW**

Proceed to step ③.

### ③ (When using a DVD-RW)

The recording format selection screen appears.

Select "VR Mode" or "VF Mode" by pressing ◀◀▶▶, then press the confirmation button.

#### VR Mode

After recording, you can perform various editing functions such as choosing and deleting scenes. You can play back the disc in a device which supports 8 cm DVD-RW (VR Mode) after finalizing the disc.

#### VF Mode (Video mode)

Although editing cannot be done on the camcorder, you can play back the disc on other DVD devices after finalizing the disc.

## Battery Pack

### ■ CHARGE lamp status and charging time

Lights	Charging	Approx. charging time (at approx. 77°F (25°C))	
Goes out	Charge Complete	DZ-BP14S (supplied)	approx. 2 hours 45 minutes
		DZ-BP14SW (sold separately)	
		DZ-BP21SW (sold separately)	approx. 3 hours 55 minutes
Blinks	See “Troubleshooting” (p.97).		

### ■ Continuous recording time with a fully charged battery

Use the following table to estimate continuous recording times (minutes) using a fully charged battery pack.

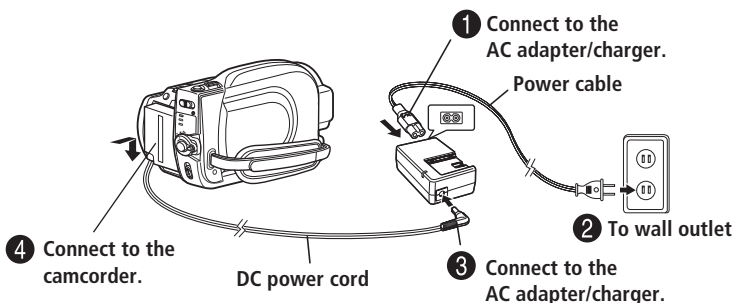
Battery type		Continuous recording (Max brightness setting)			Normal use* (Max brightness setting)		
	Recording media	HDD	BD/DVD	Card	HDD	BD/DVD	Card
DZ-BP14S (supplied) DZ-BP14SW (sold separately)		80	70	80	40	35	40
DZ-BP21SW (sold separately)		120	105	120	60	50	60

\* Recordable time when zoom, focus, and switch changes are operated.

#### Notes

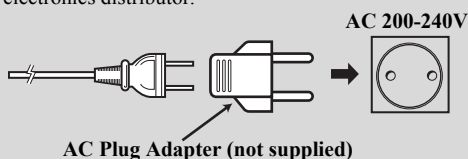
- In low temperature environments, recording time will be shortened.
- The times indicated in the table are estimates, and will change depending on actual recording conditions.

### ■ Connecting the camcorder to a wall outlet

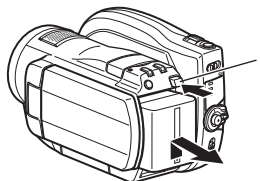


**Notes**

- The battery pack will not be charged while the DC power cord is connected to the AC adapter/charger even if the battery pack is attached to the AC adapter/charger.
- The AC adapter/charger can be used around the world. An AC plug adapter is required in some foreign countries. If you need one, purchase it from your local electronics distributor.



## ■ Detaching the DC power cord/battery pack from the camcorder



- ① Always turn the power off before disconnecting the power supply.
- ② While pressing and holding **BATT**, slide the DC connector or battery pack upward, then remove it.
  - Be careful not to drop the battery pack while detaching it.

## ■ Efficient use of the battery

- The battery will slightly discharge even if it is detached from the camcorder.
- If the battery is left attached to the camcorder, it will consume a slight amount of power. Therefore, it is recommended that you charge the battery a day before using the camcorder.

### When you intend not to use the camcorder for an extended period of time

It is recommended that you fully charge the battery every six months, attach it to the camcorder, turn it on and fully deplete the battery charge, then remove the battery and store it in a cool place again.

### Battery life

The battery life varies greatly depending on the ambient environment and how often the camcorder is used. If the usable time of the camcorder with a fully charged battery is noticeably short, the battery should be replaced. Purchase a new one.

### Power Save function

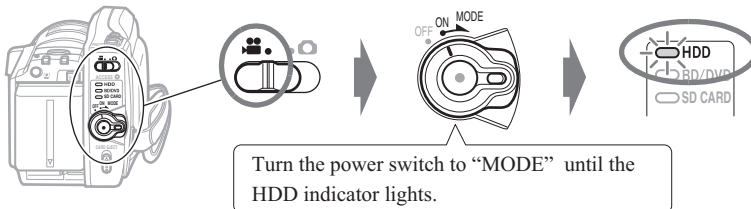
To save power, do not leave the camcorder in recording pause mode for too long. Even during recording pause, battery power is consumed at about the same level as during recording.

By turning the power save function On, the camcorder will automatically turn off if left idle for approximately five minutes in recording pause mode. For power save function, see "About the LCD setup and initial setup" (p.42).

## Recording

### Recording Movies to the HDD

- 1 Turn the power switch to "ON".



- 2 Press the record button.

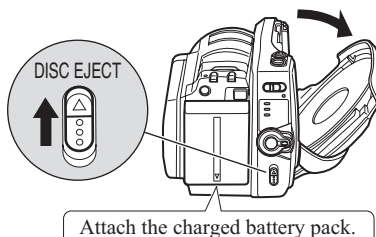
Recording begins.

To pause recording, press the record button again.



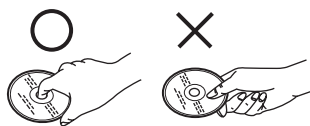
### Recording Movies to a BD/DVD

- 1 Insert a BD/DVD.

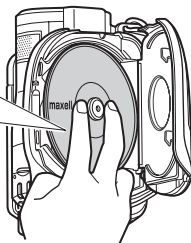


#### When handling a disc:

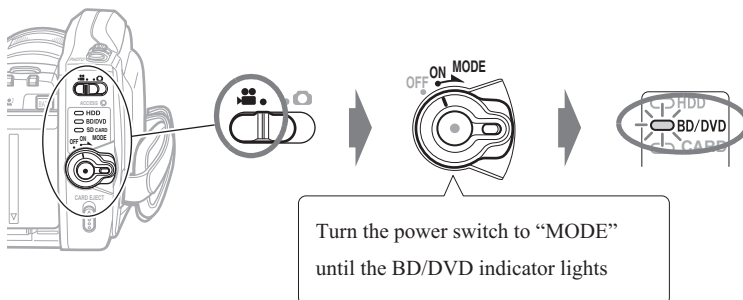
Do not touch the recording surface of a disc (p.11).



Place the recording surface of the BD/DVD face down.  
For single-sided discs, the side opposite the label is the recording surface.



## 2 Turn the power switch to "ON".



### Hint

If the format confirmation screen appears after loading a new BD-RE/BD-R/DVD-RW, format the disc as guided through the LCD screens (p.24). Formatting is not necessary when recording on a DVD-RAM/DVD-R.

## 3 Press the record button.

Recording begins.

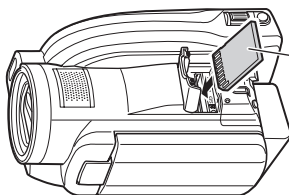
To pause recording, press the record button again.





# Recording Movies/Stills to a Card

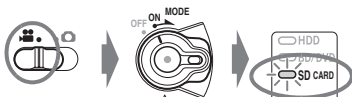
## 1 Insert a card.



Make sure to insert the card in proper orientation.

## 2 Turn the power switch to "ON".

### ■ When recording movies

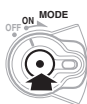


Turn the power switch to "MODE" until the SD CARD indicator lights.

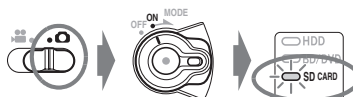


### Press the record button.

Recording begins.  
To pause recording, press the record button again.



### ■ When recording stills



### Press PHOTO.

Press PHOTO halfway so that a subject in the center of the screen is focused. Fully press PHOTO to record.

- Single press of the PHOTO button of the remote control enables focusing and recording at the same time.



### Hints

- You can play back the last recorded scene right away by pressing the confirmation button. If you wish to delete the last recorded scene, press **MENU** and select “Edit” ▶ “Delete Scene”, and then press the confirmation button. (For recording on a HDD, BD-RE/DVD-RAM/DVD-RW (VR mode) disc or a card only)
- For details on screen displays during recording, see p.31.
- You can change the movie recording quality (p.54).
- You can play back still pictures in wide mode (p.54).
- If you cannot record a scene, the camcorder does not operate, or it takes too long for recording to start, see “Troubleshooting” (p.97).
- If the automatic lens cover has stopped opening halfway, turn the power switch to “OFF”, then turn it to “ON” again.
- If you want to compose a shot in which the subject is not centered, first press **PHOTO** halfway with the subject centered in the monitor. Next, with the button pressed halfway, compose your shot and fully press **PHOTO**.
- If the camcorder has difficulty focusing, adjust the focus manually (p.45).
- You can check HDD, BD/DVD, Card capacity and number of remaining recordable pictures (p.112).

### Notes

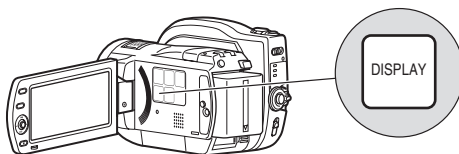
- Do not detach the AC adapter/charger or battery pack from the camcorder during recording. The recorded scene will be lost.
- The (CARD) ACCESS indicator remains flashing for a while even after you finish recording. While the (CARD) ACCESS indicator is flashing or when a message appears on the display reporting that the recording is currently being saved:
  - Do not turn off the power.
  - Do not detach the AC adapter/charger or battery pack from the camcorder.
  - Do not shake the camcorder.
 Doing so may cause an error in the recorded data and you may not be able to play back the recorded scenes (p.14, 15, 107).
- The minimum recording time for movies is about three seconds (even if you press the record button before three recording seconds have elapsed).
- You cannot record movies or still images on a protected BD/DVD disc or a locked card (p.22, 69).
- The recorded image may be blurred if camera shake occurs. Hold the camcorder with both hands and tuck your elbows to your chest or sides for best recording results.
- When recording with digital zoom, use a tripod for best results.
- The recorded image may differ slightly from the image in the LCD monitor.

## ■ Information display during recording

### Switching the display mode

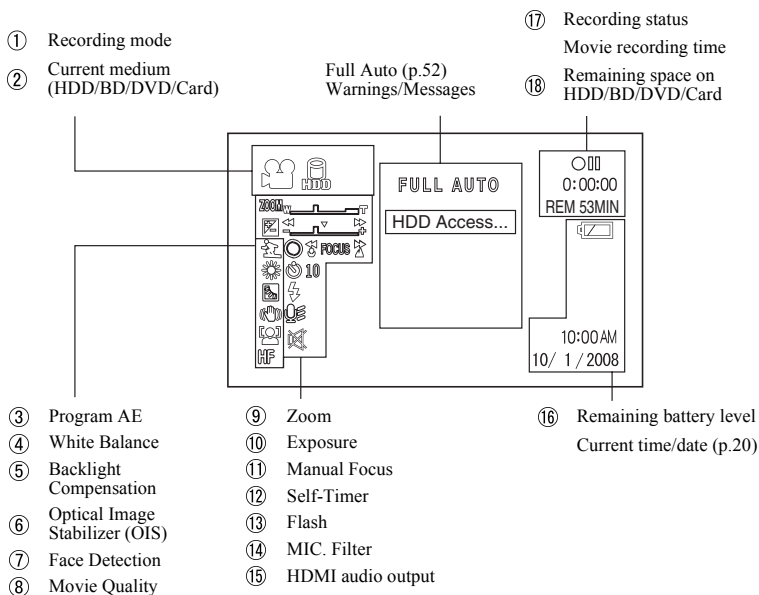
Various information will appear in the LCD monitor during recording. You can choose simple display or detailed (all information) display by pressing **DISPLAY** repeatedly.

If you leave the camcorder idle for approx. one minute, the information display will disappear. To make the display reappear, press ■.





### On-Screen Information

See the next page for details.
















\* The above display is for explanation and different from the actual display.



### ① Recording mode (p.27, 29)

-  : Movie
-  : Stills (Card only)

### ② Current medium and its status (p.21) (HDD/BD/DVD/Card)

-  : HDD
-  : BD-RE
-  : Finalized BD-RE
-  : BD-R
-  : Finalized BD-R
-  : DVD-RAM
-  : DVD-RW (VR mode)
-  : DVD-RW (VF mode)
-  : Finalized DVD-RW (VR mode)
-  : Finalized DVD-RW (VF mode)
-  : DVD-R
-  : Finalized DVD-R

\* The “” icon over the BD/DVD icon indicates that the disc is protected.

-  : Card
-  : Locked card

For a disc recorded on a device other than this camcorder and playable but not recordable on this camcorder, the icon is displayed in orange.

No medium icon\*1



### ③ Program AE (p.47)

No icon: Auto


-  : Portrait
-  : Sand & Snow
-  : Spotlight
-  : Low Light

### ④ White Balance (p.48)


No icon: Auto

-  : Set
-  : Indoor 1
-  : Outdoors
-  : Indoor 2

### ⑤ Backlight Compensation (p.47)



-  : On (No icon: OFF)

### ⑥ Optical Image Stabilizer (OIS) (p.50)

-  : On (No icon: OFF)

### ⑦ Face Detection (p.50) (when using HDD/BD/Card)

No icon: Off

-  : On
-  : Unavailable  
Appears when recording with digital zoom.

### ⑧ HD movie recording quality (p.54) (when using HDD/BD/Card)

- HX** : High quality      **HS** : Extended recording

**HF** : Standard quality

SD movie recording quality (p.54)  
(when using DVD)

- SX** : High quality      **SF** : Standard quality

### ⑨ Zoom (p.44)

 Current zoom position

Digital zoom Off

 Digital range  
Maximum optical zoom

Digital zoom: 40x  
(When recording Movies)



Digital zoom: 240x  
(When recording Movies)

### ⑩ Exposure (p.46)

No gauge: Auto

-  : Manual


### ⑪ Manual Focus (p.45)

No gauge: Auto

-  : Manual


## ⑫ Self-Timer (p.55) (when using Card)

No icon: Off

 : On  
(Ten-second countdown)

## ⑬ Flash (p.52) (when using Card)

No icon: Auto

 : Flash On       : Flash Off

## ⑭ MIC. Filter (when recording Movies) (p.51)


No icon: Off

 : On

## ⑮ HDMI audio output (p.73)

In case of the HDMI connection, audio signals are output only while playback.

No icon: Audio signals are output.


 : No audio signals are output.

## ⑯ Remaining battery level (p.25)

 Full →  Almost empty

## ⑰ Recording status

 **REC** : Recording

 : Recording pause (lit green)  
/Focus is locked (lit purple when using Card (recording stills))

No icon\*2

## ⑱ Remaining space on HDD/BD/DVD/Card\*3

**REM XX HOUR XX MIN**\*4

: Remaining recordable time during movie recording

**REM XX**\*5

: Number of remaining recordable still images during stills recording

- \*1 No icon appears when:
- no disc or card is inserted.
  - an unusable disc or card is inserted.
- \*2 No icon appears when:
- no disc or card is inserted.
  - a disc not formatted is loaded.
  - a protected disc or locked card is loaded.
  - the HDD, disc, or card has no remaining space.

\*3 No remaining time or number will be displayed when a protected disc or locked card, or a finalized BD-RE/BD-R/DVD-RW (VF mode)/DVD-R disc is inserted.

\*4 Recording times are estimates and will change depending on recording conditions.

\*5 The number of recordable stills is approximate. Depending on the recording conditions, the number may not decrease.

## ■ Efficient use of the battery pack

Be sure to turn Quick Start On (p.42). Quick Start is set to "On" by default.

### ① Closing the LCD monitor while powered on during recording pause

The media indicator (HDD/BD/DVD/SD CARD) flashes and the camcorder enters sleep mode.

### ② Opening the LCD monitor

Recording pause is restored quickly in about one second and the media indicator lights.

- The camcorder does not enter sleep mode when:
  - The camcorder is recording a scene.
  - There is no disc or card in the camcorder.
  - The HDD, disc or card does not have sufficient remaining free space.
  - An unusable disc or card is inserted.
- The recording settings are reset to default when recording pause is restored.
- Regardless of the power save setting (p.42), the camcorder power will be automatically turned off if standby in sleep mode continues for approx. 30 minutes. In this case, turn the power switch to "OFF" first, and then back to "ON".
- The lens cover automatically closes when the camcorder enters sleep mode.

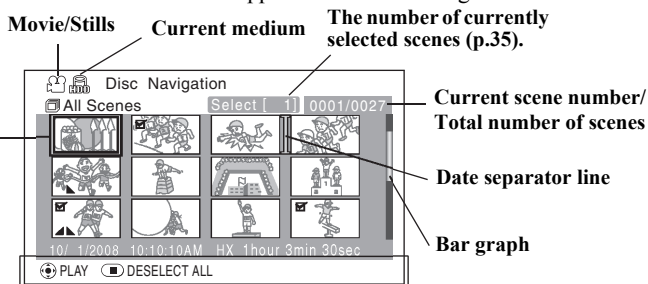
## Viewing

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

### Playing Recorded Movies/Stills

#### 1 Press .

The scenes thumbnails appear on the disc navigation screen.




Operation guide  
Currently selected scene






#### 2 Choose a scene by pressing (up/down, previous page/following page) and (left/right).

- Holding down the button will increase the scene selection speed. Use the “Current scene number/Total number of scenes” display and the bar graph as reference.

#### 3 Press the confirmation button.

The chosen scene is played back.

Playback is paused at the final frame of the last scene, and  (playback pause icon at the final frame) appears. When this condition continues for longer than five minutes, the display will automatically return to the disc navigation screen.

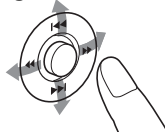
- To promptly return to the disc navigation screen, press  or .
- To return to recording pause mode, press  or  again.
- If you press the confirmation button while  is displayed, playback starts from the first scene.

#### Hint

To select an item or scene (movie or still), move the joystick up, down, left, or right. To confirm a selection, press the confirmation button (press down on the center of the joystick).

Select by pressing  
up/down, left/right

Confirm by pressing  
down on the center



HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## ■ Choosing and playing back multiple scenes

After step ① of “Playing Recorded Movies/Stills” (p.34), perform procedures according to your purpose from the table below. When you have finished choosing scenes, press the confirmation button to begin playing them back.

- You can choose up to 999 scenes.
- The color of the frame(s) may change depending on your operations as follows:
  - **Yellow**: indicates your current position (cursor frame)
  - **Red**: indicates scenes already chosen
  - **Blue**: indicates the range of consecutive scenes being selected
  - **2-color frame**: includes the meaning of both colors

Select multiple scenes individually	<ol style="list-style-type: none"> <li>① Select a scene by pressing ◀◀▶▶/◀◀▶▶▶▶, then press <b>SELECT</b>.</li> <li>② Repeat this step to choose the next scene.</li> </ol>
Using the current scene as your starting point, select multiple previous or succeeding consecutive scenes	<ol style="list-style-type: none"> <li>① Press and hold <b>SELECT</b> until the cursor frame becomes blue.</li> <li>② Choose a final scene by pressing ◀◀▶▶/◀◀▶▶▶▶, then press the confirmation button to confirm the setting.</li> </ol>
Select all scenes from the first scene to the current scene. (Menu option: Start->Current)	<ol style="list-style-type: none"> <li>① Press <b>MENU</b>, select “Scene” by pressing ▶▶, then select “Select” by pressing ◀◀▶▶.</li> <li>② Press ▶▶ or the confirmation button.</li> <li>③ After choosing the desired option by pressing ◀◀▶▶▶▶, press the confirmation button to confirm the setting.</li> </ol>
Select all scenes from the current scene to the final scene. (Menu option: Current-> End)	
Select all scenes on the media. (Menu option: All)	
Cancel operations while selecting the range (while a blue frame is displayed)	Press ■.
Cancel selected scenes individually	Move the cursor frame (yellow) to a selected scene (red) you want to cancel and press <b>SELECT</b> .
Cancel all scenes selected	Press ■.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## ■ Jumping to the designated scene

- 1 Press **MENU** after step ③ of "Playing Recorded Movies/Stills" (p.34)—while a scene is played back.

The menu appears.

- 2 Select "Go To" by pressing **◀◀/▶▶**, then press **▶▶**.

- 3 Select "Top", "End", or "Specify" by pressing **◀◀/▶▶**, then press the confirmation button to confirm.

Top: Goes to the beginning, then pauses playback.

End: Goes to the end, then pauses playback.

Specify: Goes to the specified point, then pauses playback. See followings on how to specify a point.

- 4 Press the confirmation button.

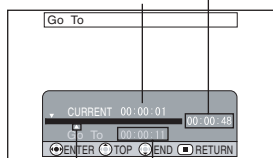
### ● Specifying the point to jump to

Select "Specify" in step ③, then press the confirmation button.

The specify screen will appear.

Total recording time of all selected scenes  
Position of currently played back image

1



Cursor

Cursor position

Press and hold **◀◀/▶▶**:

To move the cursor in ten minutes increments for HDD (one minute for BD/DVD/Card, ten stills for Card)

### 3 Press the confirmation button.

The camcorder will go to the specified point and enter playback pause mode.

- To start playback, press the confirmation button again.

Select the desired point by time by pressing **◀◀/▶▶/◀◀/▶▶**.

**◀◀**: To select the beginning

**▶▶**: To select the end

2

**◀◀/▶▶** once:

To move the cursor one minute back or forward for HDD (ten seconds for BD/DVD/Card, one still for card)

### Hints

- To cancel the "Go To" procedure midway, press **■** before going to the specified point.
- With a card, the number of stills will appear at the "Top", "Current", "End", and "Go To" indicators.

### Note

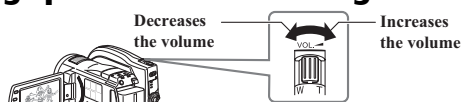
The cursor position is a rough estimate. The cursor may not move at even intervals.



**Notes**

- If the image file is very large (high resolution, etc), it will take more time to display.
- The disc navigation screen automatically appears if:
  - the BD/DVD/Card is protected.
  - a finalized BD-RE/BD-R/DVD-RW (VF mode)/DVD-R is loaded.
  - an unsupported card or a disc recorded on a device other than this model is loaded.

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

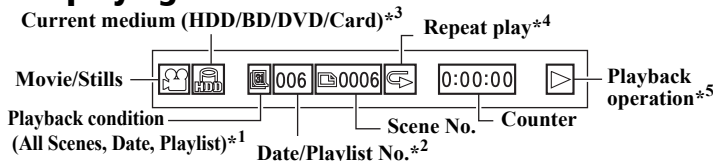
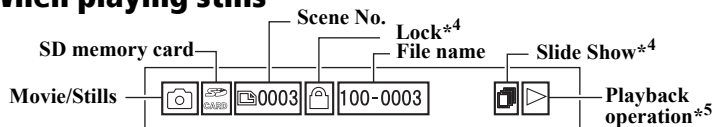
**■ Adjusting speaker volume during movie playback**

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

**■ Information display during playback**

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

The display mode switched in the following way each time you press **DISPLAY**.

**When playing movies****When playing stills**

\*1 Playlist, Date, or All Scenes

\*2 Not displayed while playing All Scenes.

\*3 See "Current medium and its status (HDD/BD/DVD/Card)" on p.32.

\*4 Appears when set (see p.39, 40, 69).

\*5 There are following playback operations:

: Standard playback

: Playback pause

: Forward search playback

: Reverse search playback

: Forward skip playback

: Reverse skip playback

: Forward frame advance

: Reverse frame back

: Forward slow playback

: Reverse slow playback

For instructions on how to operate, see the following pages. "T" appears after the first still or the first frame of the first

movie is played when playing reverse. "B" appears after the last still or the last frame of the last movie is played when playing forward.

## ■ Simple functions you can use during playback or playback pause

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

### Movies (during playback)

Functions	Press
Pause	The confirmation button
Fast-forward/Reverse	▶▶ (Forward)/◀◀ (Reverse) and hold
Skip forward/backward	▶▶▶ (Forward)/◀◀◀ (Reverse)

- If you press ◀◀◀ within a few seconds from the beginning of a scene, playback starts from the beginning of the previous scene.
- If you press ▶▶▶ while the last scene is playing back, playback is paused at the final frame of the last scene.

Continuous skipping	▶▶▶ (Forward)/◀◀◀ (Reverse) and hold
---------------------	--------------------------------------

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

### Movies (during playback pause)

The following functions will operate during playback pause in the same way as during playback. However, if the button is released, playback will return to playback pause.

- Fast-forward/Reverse
- Skipping
- Continuous skipping

The following functions only operate during playback pause.

Functions	Press
Frame by frame playback (forward/reverse)	▶▶ (Forward)/◀◀ (Reverse)

- No sound will be heard.
- Frames are advanced in intervals of approx. 0.03 seconds and reversed in intervals of approx. 0.5 seconds.

Slow playback (Forward/Reverse)	▶▶▶ (Forward)/◀◀◀ (Reverse) and hold
---------------------------------	--------------------------------------

- No sound will be heard.
- Slow playback advances in intervals of approx. 0.03 seconds and reverses in intervals of approx. 0.5 seconds.

Continuous skipping	▶▶▶▶ (Forward)/◀◀◀◀ (Reverse) and hold
---------------------	--

Skips forward/backward continuously to the start of each scene. Release the button at the scene you wish to watch.

#### Notes

- In slow playback, images with fast-moving subjects may appear blurred.

**CARD****Still pictures  
(during card playback)**

Reminder: For still images, a “scene” is one still image, a photograph.

Functions	Press
Playing previous or later scenes (stills)	▶▶▶▶ (Forward)/ ◀◀◀◀ (Reverse)

Each time you press ▶▶▶▶ or ◀◀◀◀, the next or previous still is shown. If you continue pressing, stills are played back successively until you release the button, or the last/first scene is reached.

- For automatic playback for still pictures, use the slide show function.

**CARD****■ Playing still pictures  
on a card  
automatically  
(Slide Show)**

When you play back when the slide show is On, still pictures are played one after the other.

If the playback range of scenes has been specified, the slide show plays back this specified range of scenes.

- 1 Press **MENU** on the disc navigation screen (p.34).
- 2 Select “Playback Setting” by pressing ◀◀▶▶, then press ▶▶.
- 3 Select “Slide Show” and press ▶▶ to select “On”.
- 4 Press **MENU** to return to the Disc Navigation Screen and select a still picture (scene).

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## ■ Capturing a still picture from a movie (PHOTO Capture)

You can capture and record an image displayed during movie playback as a photo (approx. 2,070,000 pixels (HDD/BD/Card)/approx. 310,000 pixels (DVD)), on a card.

- ① Press **PHOTO** or **MENU** at the frame you want to capture during movie playback or playback pause.
  - If you press **PHOTO**, go to step ④.
  - If you press **MENU**, proceed to the next step.
- ② Select "Edit" by pressing **◀◀/▶▶**, then press **▶▶**.
- ③ Select "PHOTO Capture" by pressing **◀◀/▶▶**, then press the confirmation button.
- ④ Press **◀◀** to select "YES", then press the confirmation button to confirm.
  - To cancel capturing, either press the confirmation button while "NO" is selected or press **■**.
  - You can select a photo quality. In step ③, select "PHOTO Capture Setup" ▶ "Field" or "Frame" (The default setting is "Field". It is reset to the default when the camcorder is turned off.)  
Field: Suitable for images with fast-moving subjects.  
Frame: Suitable for images with slow moving subjects. The captured photo will be in high image quality, but image can easily be blurred.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## ■ Playing back scenes repeatedly (Repeat Play)

If a range of scenes (or just one scene) is specified (p.35), playback of the specified scenes will be repeated.

- ① Press **MENU** on the disc navigation screen (p.34).
- ② Select "Others" by pressing **◀◀/▶▶**, then press **▶▶**.
- ③ Select "Repeat Play" by pressing **◀◀/▶▶**, then press **▶▶**.
- ④ Select "On" by pressing **◀◀/▶▶**, then press the confirmation button to confirm the setting.
- ⑤ Press **MENU** to return to the disc navigation screen.
- ⑥ Press the confirmation button to begin playback.
  - To quit playback, press **■**. ("Repeat Play" remains "On".)
  - Repeat playback will not function when you play the last scene when the camcorder is in recording pause mode.

### Hints

"Repeat Play/Slide show" will be set to "Off" if:

- you repeat the steps and select "Off" instead of "On" in step ④
- turn off the power
- remove the BD/DVD/Card

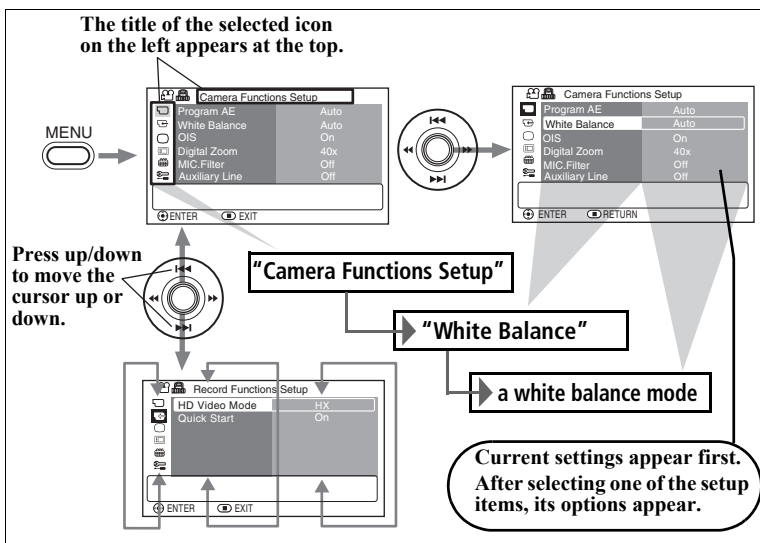
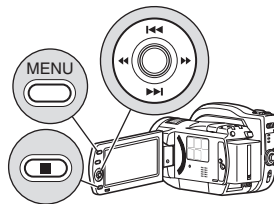
## Various Recording Techniques

### How to Operate the Menu

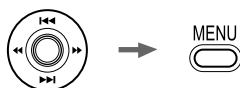
**1** Press MENU.

**Example:**

**2** Select "Camera Functions Setup" ▶  
"White Balance" ▶ a white balance mode



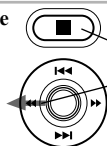
**3** Press the confirmation button to confirm, then MENU to end.



\* To quit without changing the setting, press **MENU** before pressing the confirmation button.




To cancel/exit and return to the previous stage

To go back left in the menu



These operations work almost the same way.

## Menu (While Recording)

Menu items (1st level)	Menu items (2nd level)	Movies/Stills Switch		Default Setting	See
					
Camera Functions Setup	Program AE	<input type="radio"/>	<input type="radio"/>	Auto	p.47
	White Balance	<input type="radio"/>	<input type="radio"/>	Auto	p.48
	OIS	<input type="radio"/>	<input type="radio"/>	On	p.50
	Digital Zoom	<input type="radio"/>		40x	p.44
	MIC. Filter	<input type="radio"/>		Off	p.51
	Flash		<input type="radio"/>	Auto	p.52
	Auxiliary Line	<input type="radio"/>	<input type="radio"/>	Off	p.51
Record Functions Setup	HD Video Mode (when the HDD/BD/Card is used)	<input type="radio"/>		HX	p.54
	SD Video Mode (when a DVD is used)	<input type="radio"/>		SF	p.54
	WIDE mode (16:9)		<input type="radio"/>	Normal (4:3)	p.54
	Self Timer		<input type="radio"/>	Off	p.55
	Quick Start	<input type="radio"/>	<input type="radio"/>	On	p.33
Output Functions Setup	Component Output	<input type="radio"/>	<input type="radio"/>	1080i	p.74
LCD Setup	LCD Adjust	<input type="radio"/>	<input type="radio"/>		p.42
Date Setup	Date Set	<input type="radio"/>	<input type="radio"/>	1/1/2008 12:00 AM	p.20
	Date Mode	<input type="radio"/>	<input type="radio"/>	M/D/Y	p.43
Initial Setup	Beep	<input type="radio"/>	<input type="radio"/>	On	p.42
	Power Save	<input type="radio"/>	<input type="radio"/>	Off	p.42
	Record LED	<input type="radio"/>	<input type="radio"/>	On	p.53
	Language	<input type="radio"/>	<input type="radio"/>	English	p.20
	Demo Mode	<input type="radio"/>	<input type="radio"/>	Auto	p.43
	Reset	<input type="radio"/>	<input type="radio"/>	—	p.42

### ■ About the LCD setup and initial setup

	Menu items	Explanation of functions	
LCD Setup	LCD Adjust	Color Level	Adjusts the color level of the LCD monitor
	Beep	Select “Off” to turn off the beeps that sound when any button is pressed.	
Initial Setup	Power Save	When set to “On”, the camcorder power will automatically turn off if it is left idle for approx. five minutes during recording pause mode. When set to “Off”, the camcorder does not turn off automatically except while in sleep mode.	
	Record LED	p.53	
	Language	You can select the display language.	
	Demo Mode	p.43	
	Reset	Returns all menu settings to default.	

## Setting the date and time

See “Setting the date and time” (p.20) for setting procedures.

### Note

The camcorder is equipped with a built-in rechargeable battery to retain the date and time in memory. If the built-in battery is depleted, the date and time will need to be reset. Periodically (once every six months) recharge the internal battery by connecting the camcorder to a wall outlet or attaching a charged battery pack to the camcorder while leaving the camcorder turned off for 24 hours.

## Changing the date format

You can change the date format to “D/M/Y” or “Y/M/D”.  
(Selecting “D/M/Y” will change the clock to 24 hour style.)

- ① Press **MENU**.
- ② Select “Date Setup” ▶ “Date Mode” ▶ one of the date formats
- ③ Press the confirmation button, then press **MENU** to exit the setup.

### ■ About the demonstration function

At time of purchase of this camcorder, this function is set to “Auto”.  
A demonstration starts automatically when you turn the camcorder on using the AC adapter/charger as a power source and leave it idle for more than approx. ten minutes without inserting a medium (BD/DVD/Card).  
To cancel the demonstration, press any one of the camcorder buttons.

### Changing the demo mode setting or watching the demonstration now

- ① Press **MENU**.
- ② Select “Initial Setup” ▶ “Demo Mode” ▶ one of the following settings:  
**Auto:** See above.  
**Off:** Turns off the demonstration function.  
**Start:** The demonstration will start right away. If you cancel the demonstration, the prior setting will be restored (“AUTO” or “OFF”).
- ③ Press the confirmation button.

### Notes

- If a battery pack is connected to the camcorder as a power source, the demonstration will not begin even if “Demo Mode” is set to “Auto”.
- The demonstration function does not work when the camcorder is connected to a PC.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Magnified Recording (Optical Zoom and Digital Zoom)

Optical zooming up to ten times is the maximum telephoto magnification. When using a card (recording stills), only optical zoom works.

**W: Wide-angle**  
(Recording over a wide range)

**T: Telephoto**  
(Magnifies recording)



You can select either 40× or 240× as the maximum zoom value.

### Hint

You can also use the remote control for changing the maximum digital value. Each press of DIGITAL ZOOM switches the “Digital Zoom” setting as follows; “Off” → “40×” → “240×”



### Notes

- When operating the zoom lever, the focus may blur for a moment.
- When digital zoom is added, the image quality will become coarser.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Recording at Close Range (Macro Recording)

When you record a small subject at close range, you can bring the lens surface as close as approx. 13/16” (2 cm) to the subject. This will allow you to enlarge the subject to cover the entire screen.

## Recording at close range

1

Point the camcorder at the subject and push the zoom lever toward the W side until the wide-angle is maximized.

- Recording up close may require more lighting.

### Note

The focus may become blurred depending on the distance to the subject.

## Setting the digital zoom

1

During recording pause, press **MENU**.

2

Select “Camera Functions Setup” ▶ “Digital Zoom” ▶ a digital zoom option

- You can select one from: “Off (disable digital zoom)”, “40×” and “240×”

3

Press the confirmation button to confirm, then press **MENU** to end the menu.

- The setting is retained in memory even when the power is turned off.



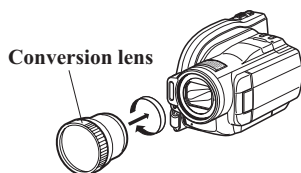
HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Using the Separately-Sold Lenses to Increase the Wide-Angle or Telephoto Effect

Use the tele-conversion lens (DZ-TL43 (sold separately)) to increase the telephoto effect, and the wide-conversion lens DZ-WL43 (sold separately) to increase the wide-angle effect.

Make sure that the filter diameter is 43mm and the screw pitch 0.75mm.

## Attaching the separately sold lenses



### Notes

- If you attach the DZ-TL43 conversion lens, the focusing range at the T (telephoto) side will be from approx. 9.84 feet (3 m) to infinity.
- When the white balance doesn't function, adjust the white balance manually (p.49).

- When you zoom while the conversion lens is attached, the four corners of the screen may become a little dark or scratchy at the W (Wide) side. (The four corners may not be evenly dark.)
- When you are recording still pictures with the wide-conversion lens attached, the four corners of the screen will become dark at the W (Wide) side. If this happens, make it less wide.
- When changing lenses, be careful not to drop the camcorder.
- Attaching a conversion lens will prevent you from using the flash. Turn the "Flash" setting to "Off" (p.52).

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

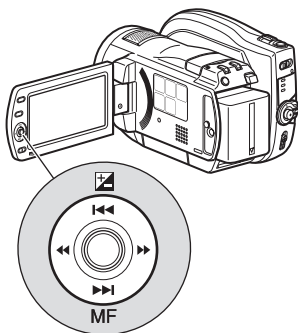
## Adjusting the Focus Manually (Manual Focus)

If it is difficult to adjust the focus automatically, you can adjust it manually (Manual Focus). (See also the hints on p.46.)

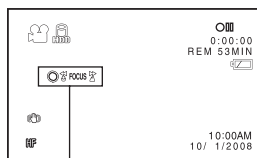
## Focusing range

- T (telephoto) side:  
Approx. 3.2 feet (1 m) from the lens surface to infinity.
- W (wide-angle) side:  
Approx. 13/16" (2 cm) from the lens surface to infinity.

## How to focus manually



**During recording pause or recording, press ►► (MF).**  
The Focus icon appears in the LCD monitor.



### Manual focus icon

- Focusing switches between Manual Focus and Auto Focus each time ►► is pressed. The icon is displayed only during manual focusing.

**Adjust the focus by pressing ◀◀/▶▶.**

- When the power is turned off, the camcorder returns to auto focus.

### Hints

- To manually adjust the focus, always push the zoom lever toward the T (telephoto) side to magnify the subject. This prevents blurred images when you switch to wide-angle zooming.
- If you wish to adjust exposure while focusing manually, press ◀◀. The exposure bar lights in orange. To return to manual focusing, press ►►.
- Auto Focus may not perform well on subjects if: subjects are not in the center of the frame, both near and far subjects are within the auto focus bracket at the same time, subjects are moving rapidly, subjects are dark or low in contrast, etc.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Adjusting the Brightness of the Image (Exposure)

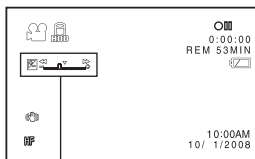
Normally, the exposure is automatically adjusted. However, depending on the recording conditions, the exposure can be adjusted manually.

## Adjusting the exposure manually

During recording pause or recording, press **⏮** (☐).

The exposure bar appears in the LCD monitor.

1



#### Exposure Bar

- Each time you press **⏮**, exposure adjustment switches between manual adjustment and automatic adjustment. The exposure bar appears only during manual adjustment.

Adjust the exposure by pressing **⏮/⏭**.

2

- When the power is turned off, exposure adjustment returns to automatic adjustment.

#### Hint

If you wish to adjust focus manually while adjusting exposure, press **⏭**. The manual focus icon lights in orange.

To return to exposure adjustment, press **⏮**.

**HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD**

### Compensating for Backlight (Backlight Compensation)

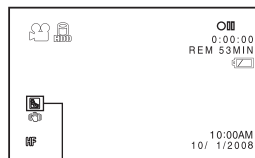
When the subject is lit from the rear, this function will compensate for lighting so that the subject is not too dark.

### Compensating for backlight

During recording pause or recording, press **BLC**.

The backlight compensation icon appears in the LCD monitor.

1



#### Backlight compensation icon

- Each time you press **BLC**, the backlight setting turns On or Off. The backlight compensation icon appears only when this function is On.
- When the power is turned off, the backlight compensation setting returns to Off.

**HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD**

### Selecting a Recording Mode to Match the Conditions (Program AE)

You can also select a recording mode that better suits the situation for even clearer images.

### Recording mode

Auto (No icon appears.)



Portrait

Makes the subject stand out from a blurred background.



Spotlight

Prevents overexposure of the subject in strong light, such as at a wedding or on stage.



#### Sand&Snow

Prevents underexposure of the subject in very bright conditions, such as at the beach or on a ski slope.



#### Low Light

Allows you to record in dark places with limited light.

## Selecting a recording mode

**1**

During recording pause, press **MENU**.

**2**

Select "Camera Functions Setup" ► "Program AE" ► a recording mode

**3**

Press the confirmation button to confirm, then **MENU** to end.

The selected recording mode (other than Auto) appears in the LCD monitor (p.31).

- The recording mode is retained in memory even when the power is turned off.

#### Note

When recording in dark places, after-images may appear if the subject is moving or if camera shake occurs. Use a tripod for best results.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Adjusting the Color (White Balance)

Light is required when recording subjects. While the naked eye perceives colors as they are, images recorded by a camera may appear redder or bluer than they actually are. To record white colored subjects as white images, adjust the white balance.

The camcorder normally adjusts the color automatically (during Auto). Change the white balance setting according to the recording conditions.

## White balance mode

Auto (No icon appears.)



#### Set

You can manually adjust white balance to match the light source or situation.



#### Outdoors

To record in fine weather.



#### Indoor 1

To record under incandescent light, halogen light or soft fluorescent light.



#### Indoor 2

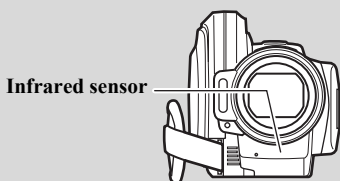
To record under bright fluorescent light

## Selecting a white balance mode

- 1** During recording pause, press **MENU**.
- 2** Select "Camera Functions Setup" ► "White Balance" ► a white balance mode
- 3** Press the confirmation button to confirm, then **MENU** to end. The selected white balance mode (other than Auto) will appear in the LCD monitor (p.31).
  - The white balance mode is retained in memory even when the power is turned off.

### Note

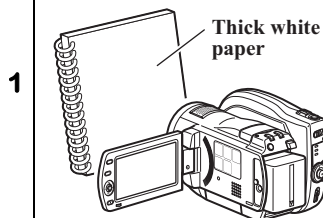
Do not block the infrared sensor with your hand or other things to obtain a good cast for your recording.



## ■ Setting the white balance manually (Set)



Prepare a white object such a thick sheet of white paper that is not translucent.

Point the camcorder at the white object so that it fills the screen.



- 1**
- 2** During recording pause, press **MENU**.
- 3** Select "Camera Functions Setup" ► "White Balance" ► "Set"
- 4** Press the confirmation button. "☑" flashes in the LCD monitor.
- 5** Press the confirmation button again, and continue holding the button down until "☑" stops flashing and lights steadily. The white balance setting is complete.
- 6** Press **■** to end, or to redo, repeat step 5.
  - The white balance setting selected in "Set" is retained in memory until the setting is changed again.
  - In order to accurately adjust the color, readjust the settings in "Set" each time the recording conditions change. If the power is turned off while white balance is in "Set" mode, "☑" flashes in the LCD monitor the next time the power is turned on to remind you.

### Notes


- It may be difficult to perform this setting in dark places. Also if the zoom bar is positioned in the digital range (p.32), you may not be able to set the white balance. If white balance settings cannot be accomplished, “” will continue to flash.
- If the “Set” settings are not completed within a few moments, the camcorder returns to recording pause mode and “” flashes in the LCD monitor. Redo the settings from step 1.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Using the Optical Image Stabilizer (OIS)

OIS corrects camera movement automatically.

### Turning OIS Off/On

- 1 During recording pause, press **MENU**.
- 2 Select “Camera Functions Setup” ▶ “OIS” ▶ “On”/“Off”
- 3 Press the confirmation button to confirm, then **MENU** to end. When the function is turned On, “” appears in the LCD monitor (p.31).
  - OIS is retained in memory even when the power is turned off.
  - If “Off” is selected, be sure to return the setting to “On” afterwards, if you do not normally use a tripod, etc.

### Notes

- When OIS is active, there will be a slight divergence between the actual camera and the on-screen movements.
- Even if OIS is turned On, the camera movement may not be corrected if the movement is too excessive. We recommend you stabilize the camcorder using both hands and support your arms against your body when recording.
- OIS may not function correctly when a tele-conversion lens or wide-conversion lens is used.
- We recommend turning OIS Off when you position the camcorder on a table or use a tripod when recording.


HDD BD-RE BD-R CARD



## Using the Face Detection

Face Detection automatically recognizes up to five faces and shows them in green frames.





### Turning Face Detection On/Off

Press .

When the function is turned On, “” appears in the LCD monitor (p.31).

- Face Detection is retained in memory even when the power is turned off.
- Recording with digital zoom disables Face Detection even if it is set to “On”. When recording with digital zoom (p.44), “” appears in the LCD monitor. When you return the zoom to the optical range, “” appears in the LCD monitor and Face Detection becomes active. (You can set Face Detection to “ON”/“OFF” while the zoom bar is positioned in the digital range.)

1

- Face Detection is automatically turned Off when:
  - Program AE is set to “Portrait”, “Spotlight”, “Sand & Snow” or “Low Light”. (When the Program AE setting is not “Auto”, pressing  will automatically set Program AE to “Auto”.)
  - BLC (Backlight Compensation),  (Exposure) or  (MF: Manual Focus) is pressed. (During a recording session with one of these functions, pressing  will automatically turn it Off.)

### Notes

- Face Detection is not available for recording on a DVD disc.
- Depending on the subjects, Face Detection may falsely recognize non-facial feature regions as a face.
- Some filming/photographing environments may not allow Face Detection to work properly. In this case, turn Face Detection Off.

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

## Displaying Recording Guidelines (Auxiliary Line)

You can display recording guidelines to help compose your shots.

### Turning recording guidelines On/Off

- 1 During recording pause, press **MENU**.
- 2 Select “Camera Functions Setup” ► “Auxiliary Line” ► “On”/“Off”
- 3 Press the confirmation button to confirm, then **MENU** to end. When “On” is selected, vertical and horizontal guidelines appear in the LCD monitor.

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

## Reducing Wind Noise During Recording

When recording sound from the built-in microphone, you can reduce wind noise in the recording when the MIC. filter is On. Lower frequencies noise is eliminated and the target sound becomes clearer.

### Turning the MIC. filter On/Off

- 1 During recording pause, press **MENU**.

**2** Select "Camera Functions Setup" ► "MIC. Filter" ► "On"/"Off"

**Press the confirmation button to confirm, then MENU to end.**  
When the function is turned On, "🔊" appears in the LCD monitor (p.31).

- 3**
- The MIC. filter setting is retained in memory even when the power is turned off.
  - If you set this function to "On", it is recommended to set the function to "Off" after recording before turning off the power unless you always intend to use this function.

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

## Restoring all the Recording Settings to Default (Full Auto)

You can reset the following manually adjusted recording settings to their defaults with the press of a single button.

Function	Default	See
Focus	Auto	p.45
Exposure	Auto	p.46
BLC (Backlight)	Off	p.47
Program AE (recording mode)	Auto	p.47
White Balance	Auto	p.48
OIS (Optical Image Stabilizer)	On	p.50
MIC. Filter	Off	p.51
Face Detection	On	p.50

## Setting the recording settings to full auto

- 1** During recording pause or recording, press **FULL AUTO**.  
"FULL AUTO" appears in the LCD monitor for a while and the settings are reset to their default settings.

CARD

## Using the Flash

As shutter speed will slow down when still photos are recorded in dim lighting, camera shake may easily occur. We recommend you use a flash in this case.

Normally, the flash fires automatically depending on the recording conditions (during Auto). You can also set the flash to On (always fires) or Off (does not fire).

## Flash mode

### Auto

The flash fires only when necessary. When the flash is needed, "🔆" appears in the LCD monitor when you press **PHOTO** halfway, and then the flash fires when you press **PHOTO** all the way.

### On

"🔆" is displayed in the LCD monitor all the time. The flash fires when you fully press **PHOTO**.

### Off


"🔆" is displayed in the LCD monitor and the flash will not fire.



## Selecting a flash mode

- 1 During recording pause, press **MENU**.
- 2 Select "Camera Functions Setup" ► "Flash" ► a flash mode
- 3 Press the confirmation button to confirm, then **MENU** to end.
  - The flash setting is retained in memory even when the power is turned off.

### Hints

- There may be cases when the recorded pictures are out-of-focus in dark places even if the flash is used.
- "  " flashes in the LCD monitor while the flash is recharging and the flash will not fire.
- If the subject is too close, image smearing may occur.

### Notes

- When a conversion lens is attached, adjust the "Flash" setting to "Off".
- Although the flash range differs according to the subject, as a reference, its range is about 3.2–8.2 feet (1–2.5 m) in dark places.
- Although the amount of light emitted will automatically be adjusted at time of emission, the flash may not be sufficiently adjusted if the distance to the subject is too distant or too near.
- When recording consecutive shots using the flash, the flash may not fire or the amount of light emitted may not be sufficiently adjusted.
- Do not emit the flash close up in front of a person's eyes.

- Do not fire the flash at the driver/ rider of a moving vehicle or bicycle, etc.
- Do not use the flash in locations where flammable or combustible gas is present. Doing so may cause the gas to ignite or explode.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Turning Off the Recording Indicator Beneath the Lens

You can turn the indicator off when recording through reflective objects such as glass or a fish tank, etc., so its reflection is not recorded.

## Turning Off/On the recording indicator

- 1 During recording pause, press **MENU**.
- 2 Select "Initial Setup" ► "Record LED" ► "On"/"Off"
- 3 Press the confirmation button to confirm, then **MENU** to end.
  - The recording indicator setting is not displayed in the on-screen information.
  - Even if the recording indicator is set to "Off", it will still light while the self-timer is counting down (p.55).

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Changing the Movie Quality

You can change the movie recording quality to make high quality recordings or lower the quality to record over longer periods of time.

## Switching Movie Quality

**1** During recording pause, press **MENU**.

**2** Select **"Record Functions Setup" ▶ "HD Video Mode" (When BD)/"SD Video Mode" (When DVD)**  
▶ a movie quality option

**3** Press the confirmation button to confirm, then **MENU** to end.

The selected movie quality will be displayed in the LCD monitor (p.31).

- The movie quality setting is retained in memory even if the power is turned off.
- When a DVD is replaced with a BD, the movie quality will be changed to the most recent BD setting (and vice versa).

CARD

## Recording Stills Optimum for Widescreen TV (Wide Mode)

When you plan to view stills on a widescreen TV (aspect ratio 16:9), you can select **"Wide (16:9)"** to change the screen ratio for recordings. (**"Normal (4:3)"** sets the screen ration to 4:3.)

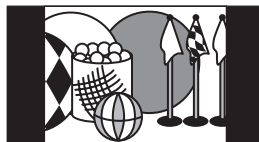
## Setting the Wide Mode

**1** During still picture recording pause, press **MENU**.

**2** Select **"Record Functions Setup" ▶ "16:9" ▶ "Wide (16:9)"** or **"Normal (4:3)"**.

Press the confirmation button to confirm, then **MENU** to end.

- The Wide Mode setting is retained in memory even when the power is turned off. If you plan to view stills on a standard TV (aspect ratio 4:3), select **"Normal (4:3)"** for recordings. If you record stills in the **"Wide (16:9)"** mode and view them on a standard TV, image appearing on the TV screen will be vertically distorted.
- When a still picture is recorded in the **"Normal (4:3)"** mode, the LCD monitor displays it horizontally centered on the screen between two vertical black bars.



### Hints

- Select **"Wide (16:9)"**, if you plan to view the recorded stills on a widescreen TV. Otherwise, select **"Normal (4:3)"** for recordings.

## Using the Self-Timer

You can use the self-timer to record still photos.

**1** During still picture recording pause, press **MENU**.

**2** Select "Record Functions Setup" ► "Self Timer" ► "On"

**3** Press the confirmation button to confirm, then **MENU** to exit the menu.  
The self-timer is set and "⌚10" appears in the LCD monitor (p.31).

**4** Press **PHOTO** halfway to adjust the focus, then press it all the way down.  
A countdown starts. In the LCD monitor, the countdown is shown as follows: "⌚10", "⌚9", .... The photo will be recorded about 10 seconds later.  
During countdown, the recording indicator on the lens side also flashes.

- To cancel the countdown and return to "⌚10", press **PHOTO** or **■**.
- The Self-Timer is set to "Off" when the camcorder is turned off or switched to movie recording mode.

## Dubbing on BD/DVD/Card

### HDD CARD

This camcorder allows you to choose from four options.

### Dubbing options

“New”.....Scenes which have not yet been dubbed are dubbed in order from the first scene.

“Date”.....Dubs all scenes recorded on the same date beginning with the first scene.

“All”..... Dubs all scenes recorded beginning with the first scene.

“Select”... You can select your favorite scenes for dubbing.

### Discs and picture quality for dubbing

	Original data				
	HDD (High Definition)			Card (High Definition)	
Recording media	BD	SD Card	DVD	BD	DVD
Image quality	High Definition	High Definition	SD quality (720 × 480)	High Definition	SD quality (720 × 480)
Mode	—	—	SX/SF	—	SX/SF

### Time required for dubbing

Required time estimates for dubbing scenes approx. 60 minutes long are as follows:

Media type HD/SD Video Mode	Data on HDD			Data on Card	
	BD* <sup>1</sup>	DVD* <sup>1</sup>	Card* <sup>2</sup> (Class 6)	BD	DVD
HX	Approx. 25 minutes	—	Approx. 35 minutes	Approx. 40 minutes	—
HF	Approx. 20 minutes	—	Approx. 25 minutes	Approx. 30 minutes	—
HS	Approx. 15 minutes	—	Approx. 20 minutes	Approx. 20 minutes	—
SX/SF	—	Approx. 70 minutes	—	—	Approx. 100 minutes

\*<sup>1</sup> Finalizing time is not included.

\*<sup>2</sup> The required dubbing time varies depending on the characteristics of the SD card in use (e.g., manufacturer, speed class rating, capacity).

### Before you begin

- Prepare a recordable disc or card (p.21, 22).
- Be sure to use the AC adapter/charger to power the camcorder during dubbing.
- During a single dubbing, dubbing to different media (BD/DVD discs and cards) is not possible. To dub to multiple discs or cards, prepare either multiple BD discs, multiple DVD discs or cards of the same type.

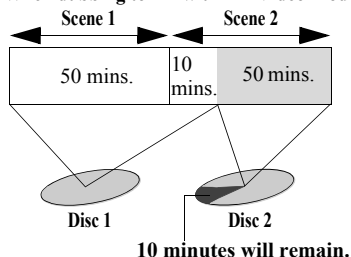
## When the dubbing is not completed on one disc or card

If the data cannot be stored into a single BD/DVD/Card, you can dub in one of the two following ways.

### • With auto divide

The scene capacity is automatically calculated and dubbed as much as possible into a single disc or card. This means that the disc may end with only part of the scene dubbed.

#### When dubbing to BD with HX Video Mode

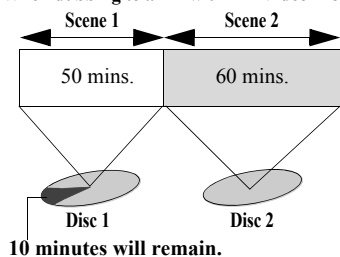


After dubbing to one disc, follow the screen message to continue dubbing the remaining scenes or time on the next disc. The screen message to continue dubbing on the next disc will reappear, until dubbing is complete.


### • No auto divide

The maximum number of scenes for one disc or card will be dubbed.

#### When dubbing to a BD with HX Video Mode



## Hints for dubbing

- In “No auto divide” mode, dubbing will not be possible if the length of a scene or scenes to be dubbed exceeds the storage capacity for a single BD/DVD/Card. Switch the mode to “With auto divide”, or divide the scene (p.67) before dubbing.
- Dub marks “” appear for the thumbnails of the scenes which have already been dubbed.
- Dub marks do not appear for the thumbnails when scenes are dubbed from a locked card onto a BD/DVD disc.
- Set the “Category” to “Un Dubbed” if you wish to select only the scenes on the HDD/Card that has not been dubbed yet.
- You must finalize a BD-R/DVD-RW (VF mode)/DVD-R dubbed on this camcorder before playing it back on a BD/DVD recorder/player. This camcorder lets you finalize the disc after dubbing.
- You will be notified by sound when the camcorder has completed the dubbing process.

## About the playlist (p.63) for dubbing

- To dub the scenes in a different order, create a playlist in which the scenes are registered in the desired order of dubbing (p.63), and then execute dubbing.
- If you combine scenes with different recording dates on a playlist and dub the playlist to a BD-R/DVD-RW (VF mode)/DVD-R, the scenes will be dubbed separately for each date without being combined.
- If a combined scene is subsequently divided, the scenes may not be dubbed separately for each date.

## About edited scenes such as divided (p.67), combined (p.67), and faded (p.68)

- If you use “Edit” to divide a scene and dub both of the divided scenes to a BD-R/DVD/Card, the scene will be dubbed as one scene without being divided.
- If you dub scenes combined by “Edit” to a BD-R/DVD-RW (VF mode)/DVD-R, two (or more) scenes immediately before the added one will also be dubbed. The recording dates will be modified based on that of the first scene - by adding the scene’s and its preceding scenes’ lengths to the recording date of the first scene.
- The fade effect on edited scenes on the HDD/Card will not be reflected in the scenes if they are dubbed on a BD-R/DVD-RW (VF mode)/DVD-R.

## Notes on dubbing

- Do not detach the AC adapter/charger from the camcorder during dubbing. The recorded scenes will be lost.
- The time shown during dubbing is approximate.
- We recommend first confirming that the dubbed disc or card can be played back normally before deleting scenes on the HDD/Card dubbed.

## Dubbing

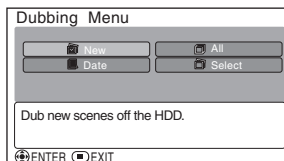
**1** Connect the AC adapter/charger to the camcorder (p.25).

- Dubbing is not possible if a battery pack is used as a power source.

**2** Turn the power switch to “MODE” until its indicator lights.

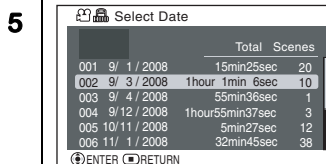
- HDD: Dubbing scenes recorded on a HDD.
- SD CARD: Dubbing scenes recorded on a SD card.

**3** Press DUBBING.



**4** Select Dubbing Menu, then press the confirmation button.

(When you select “Date” in step 4)  
Select “Date”, then press the confirmation button.



**6**

Select a recording medium and press the confirmation button.

When "DVD" is selected, image quality is converted to SD quality before dubbing.

**7**

Choose a disc or card for dubbing and insert it into the camcorder.

- If a DVD is loaded, specify the Video Mode ("SX" or "SF").
- If more than one disc is needed, go to step 8.
- If one disc is sufficient, then go to step 9.
- If one card is sufficient, then go to step 10.

**8**

Select "With auto divide" or "No auto divide", then press the confirmation button.

**9**

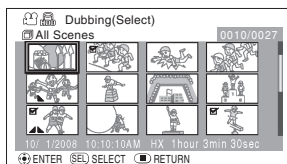
(For BD or DVD only)

When prompted for finalization, select "Yes" to finalize the disc or "No" to leave the disc unfinalized.

**10**

(When you select "Date" in step 4)

Select a scene for dubbing by pressing **SELECT**, then press the confirmation button.

**11**

Select "Execute", then press the confirmation button.

Dubbing starts.

**12**

When another disc or card is needed to continue dubbing, a message screen requesting another blank disc or card appears.

Replace the disc or card with a new one.

**13**

After the dubbing is complete, the confirmation screen whether or not you delete the dubbed scenes appears.

- If you wish to erase the dubbed scenes, select "Yes".
- If you wish to leave them on the HDD or card, select "No".

**14**

Remove the disc or card.

- Or press **■** to end.

#### Hints

- You can also display the Dubbing Menu from the Disc Navigation screen. Press **▶**, press **MENU**, select "Scene" **▶** "Dubbing" **▶** "Dubbing Menu", and then press the confirmation button.
- If you wish to quit dubbing while dubbing, press **■**. The confirmation message appears. Select "Yes" and press the confirmation button to quit dubbing.

## Displaying only Dubbed or Not Dubbed Scenes (Category)


You can display all scenes recorded on the HDD/Card according to their dubbed status.

### Category Settings


#### “All”

All scenes will be displayed in chronological order of recording regardless of whether they have been dubbed or not.




#### “Dubbed”

Only scenes with the “” dub mark will be displayed in chronological order of recording.


#### “Un Dubbed”





Only scenes without the “” dub mark will be displayed in chronological order of recording.

### To set “Category”

- 1 Press , then press MENU.
- 2 Select “Others”  “Category”  a Category option
- 3 Press the confirmation button.
  - The Category setting will return to “All” if you exit the disc navigation screen.

## Clearing the dub marks on Thumbnails (MARK OFF)

You can use “New” dubbing again by clearing the dub mark “”.

- 1 Press .
- 2 Choose a scene for which you want to clear the dub mark, then press SELECT, then press MENU.
  - You can also choose multiple scenes.
- 3 Select “Scene”  “Dubbing”  “Mark Off”, then press the confirmation button.
  - The confirmation screen appears.
- 4 Select “YES”, then press the confirmation button.
- 5 Press  to end.



## Editing

### Menu Items for the Disc Navigation

After pressing **MENU** on the disc navigation screen, you can use following functions.

Function	HDD	BD		DVD					Card (Movies)	Card (Stills)	Contents	Page
		-RE	-R	-RAM	-RW (VR mode)	-RW (VF mode)	-R					
Editing	●	●		●	●			●*1	●*2		You can delete unnecessary scenes, combine scenes, or divide one scene.	p.66
Scene lock									●		You can lock any scene so that it will not be deleted by mistake.	p.69
Information display	●	●	●	●	●	●	●	●	●		You can display information on one scene or multiple scenes, such as image quality, recording time, etc.	p.70
Creating a playlist	●	●		●	●				●		You can create an original movie by changing the playback order of scenes.	p.63
Initialization	●	●		●	●	●			●	●	You can delete all data recorded on the HDD/BD/DVD/Card.	p.71
Protection		●		●	●						You can protect a disc to prevent deletion or editing by mistake.	p.72
Unprotection		●		●	●						You can cancel the protection.	p.72
Remaining display (Capacity)	●	●	●	●	●	●	●	●	●	●	The remaining recordable movie time or number of recordable stills is displayed.	p.72
Finalization		●	●		●*3	●	●				You can use this camcorder to finalize any BD-RE/BD-R/ DVD-RW/DVD-R disc recorded on it so that the disc can be viewed on another compatible BD/DVD player or device.	p.77
Unfinalization		●				●					You can unfinalize a BD-RE/ DVD-RW (VF mode) that was finalized on this camcorder so that additional videos can be recorded on the disc.	p.78
Repeat play	●	●	●	●	●	●	●	●			You can play back scenes repeatedly.	p.40
Slide show									●		You can play back stills in succession.	p.39

\*1 You cannot combine scenes or divide a movie.

\*2 Deletion only.

\*3 Additional recording can be made on a finalized DVD-RW (VR mode).

To operate the menu, use **◀◀/▶▶/◀▶/▶▶**. See “How to Operate the Menu” (p.41).

<b>HDD Setting/ Disc Setting (BD/DVD)/ SD Card Setting</b>	<b>Finalize Disc</b> (p.77) (BD-RE/DVD-RW only)	
	<b>Unfinalize Disc</b> (p.78) (BD-RE only)	
	<b>Format HDD/Disc/SD Card</b> (p.71)	
	<b>Protect (BD/DVD only)</b> (p.72)	
	<b>Unprotect (BD/DVD only)</b> (p.72)	
	<b>Capacity</b> (p.72)	
	<b>Update Control Info.</b> (p.101)	
	<b>Full Format</b> (p.109) (HDD only)	
<b>Others</b>	<b>Repeat Play</b> (p.40)	<b>On</b> <b>Off</b>
	<b>Category</b> (p.60) (HDD/Card only)	<b>All</b>
		<b>Dubbed</b>
		<b>Un Dubbed</b>

\*3 This menu item appears only while playlist is displayed.


<b>Disc Setting</b>	<b>Finalize Disc</b> (p.77)	
	<b>Unfinalize Disc</b> (p.78) (DVD-RW only)	
	<b>Format Disc</b> (p.71) (DVD-RW only)	
	<b>Capacity</b> (p.72)	
<b>Others</b>	<b>Repeat Play</b> (p.40)	<b>On</b>
		<b>Off</b>


<b>Date Select</b>	<b>All Scenes</b>	
	<b>Date (p.63)</b>	
<b>SD Card Setting</b>	<b>Format SD Card (p.71)</b>	
	<b>Capacity (p.72)</b>	
<b>Playback Setting</b>	<b>Slide Show (p.39)</b>	<b>On</b>
		<b>Off</b>

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Choosing Scenes by Date


### ■ Switching to the display arranged by date (Date)

**1** Press , then press **MENU**.

**2** Select **"Date/Playlist Select"** (or **"Date Select"** in case of BD-R/DVD-RW (VF mode)/DVD-R/Card (Stills)) , then press the confirmation button.  
The "Date Select" screen appears.

**3** Select the date you want to watch, then press the confirmation button.  
The disc navigation screen of the selected date will appear.

#### Hints

- Pressing  on the "Date Select" screen will restore the disc navigation screen.
- If you recorded movies in different Video Mode settings on the same day, or load a disc recorded on another device into the camcorder, the displayed scenes may not necessarily be a collection of recordings made on the same date.

HDD BD-RE RAM RW(VR) CARD

## Playlist

### ■ What is "Playlist"?

A Playlist is a compilation of scenes from various movies. You can create a Playlist on this camcorder by gathering your favorite scenes. Since a Playlist is not created by copying data, very little HDD/BD/DVD/Card space is required to make one. Note, likewise, that deleting scenes from a Playlist will not increase the remaining HDD/BD/DVD/Card capacity for recording. Up to 99 playlists can be created, and up to 999 scenes can be included in each playlist.

### ■ Creating a new Playlist (Create Playlist)

**1** Press .


**2** Select the scenes to be included in the playlist, then press **MENU**.  
• You can also select multiple scenes at the same time (p.35).

**3** Select **"Scene"**  **"Edit"**  **"Create Playlist"**, then press the confirmation button.

**4** To proceed, select **"Yes"**, then press the confirmation button.  
When creation is complete, the created playlist will appear on the Disc Navigation Playlist screen.

Editing

**Hints**

- The scenes that make up a playlist are not actually copied, but are linked from their original data. Deleting a scene from a playlist will not delete the original data (scenes) from the HDD or disc. Likewise, editing scenes on a playlist will not affect the original data (scenes).
- If a scene has the fade setting, or a dub mark “”, that information will also be added to the playlist.
- You can add other scenes or remove unnecessary scenes to/from the created playlist (see p.64–p.65).

**Notes**

- If free space available on the HDD/BD/DVD/Card is insufficient, creation of a new playlist may not be possible.
- Choose movies recorded in the same HD Video Mode setting to include them in a playlist. Otherwise, a playlist cannot be created.

## ■ Displaying a desired Playlist (Playlist)


After selecting the desired playlist, the disc navigation screen will appear.

**1** Press , then press MENU.

**2** Select “Date/Playlist Select”  “Playlist”, then press the confirmation button.  
The “Select Playlist” screen appears.

**3** Select the playlist you want to display, then press the confirmation button.

**Hint**

To return the disc navigation screen to let it show all recorded scenes, select “Date/Playlist Select”  “All Scenes”.


## ● Editing a playlist

The procedures for editing playlists are the same as for scenes. Refer to the following pages for scene dubbing/editing to apply the same procedures to dub/edit a playlist.


Dubbing .....	p.56
Dividing a scene.....	p.67
Deleting scene.....	p.66
Combining scenes.....	p.67
Arranging order of scenes p.65	(only on playlist)
Adding fade.....	p.68

## ■ Adding scenes to a Playlist (Edit)

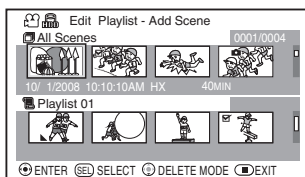
**1** Press , then press MENU.

**2** Select “Date/Playlist Select”  “Playlist”, then press the confirmation button.  
The “Select Playlist” screen appears.

**3** Select the playlist you want to edit, then press the confirmation button.  
The targeted playlist screen appears.

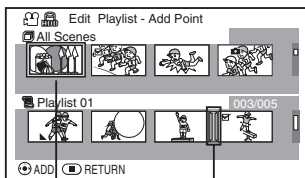
**4** Press MENU, then select “Playlist”  “Edit”, then press the confirmation button.  
The scenes that can be added are displayed in the upper row, and the playlist to be edited appears in the lower row.

**5** Choose a scene you wish to add by pressing ◀▶, then press the confirmation button.



- You can also choose multiple scenes (p.35).

**6** Choose the desired insertion position by pressing ◀▶.



Scene to be added

Insertion position

**7** Press the confirmation button.  
• Repeat steps 5 and 6 to add other scenes.

**8** Press ■.  
The confirmation screen whether to end appears.

#### Hint

Pressing ■ in the middle of adding scenes will display the exit confirmation screen. Select “Yes” to exit. Select “No” to restore the “Edit Playlist” screen.

#### Note

You cannot add movies recorded in different HD Video Mode settings.

## ■ Deleting scenes from Playlist (Edit)

**1** Press ▶, then press MENU.

**2** Perform steps 2–4 in “Adding scenes to a Playlist (Edit)” (p.64).

**3** Press ▶▶ to move the cursor to the lower row, then choose a scene you wish to delete by pressing ◀▶.  
• You can also choose multiple scenes (p.35).

**4** Press the confirmation button.  
• Repeat step 3 to delete other scenes.

**5** Press ■.  
The confirmation screen whether to end appears.

## ■ Arranging the order of scenes in the Playlist (Edit)

**1** Press ▶, then press MENU.

**2** Select “Date/Playlist Select” ▶ “Playlist”, then press the confirmation button.  
The “Select Playlist” screen appears.

**3** Select the playlist you want to edit, then press the confirmation button.  
The targeted playlist screen appears.

- 4** Select the scene you want to move, then press **MENU**.

You can also select multiple scenes (p.35).

- 5** Select **"Scene" ▶ "Edit" ▶ "Move"**, then press the confirmation button.

- 6** Select the position where you wish to move the scene, then press the confirmation button.  
The confirmation screen appears.

- 7** Select **"Yes"**, then press the confirmation button.  
The scenes of the playlist are rearranged and the screen returns to the playlist screen.  
• Select **"No"** to quit the move.

## ■ Deleting a Playlist (Delete)

Even if you delete a playlist, the original scenes stored will not be deleted.

- 1** Press **▶**, then press **MENU**.

- 2** Select **"Date/Playlist Select" ▶ "Playlist"**, then press the confirmation button.  
The **"Select Playlist"** screen appears.

- 3** Select the playlist you want to delete, then press the confirmation button.  
The targeted playlist screen appears.

- Press **MENU**, then select **"Playlist" ▶ "Delete"**, then press the confirmation button.

- 4** After deletion, the disc navigation screen will be restored.  
• To quit deletion, press **■** instead of the confirmation button.

### Hint

If any playlist is deleted, the number of playlists will automatically be revised. (For example, if the No.2 playlist is deleted, the No.3 playlist will become the No.2 playlist, etc.)

HDD BD-RE RAM RW(VR) CARD

## Deleting Scenes (Edit - Delete)

You can delete unnecessary scenes.

- 1** Press **▶**.

- 2** Select the scene you want to delete, then press **MENU**.  
• You can also choose multiple scenes.

- 3** • For a card (Stills)  
Select **"Scene" ▶ "Delete"**, then press the confirmation button.  
• For others  
Select **"Scene" ▶ "Edit" ▶ "Delete"**, then press the confirmation button.  
The confirmation screen appears.

- 4** Select **"Yes"**, then press the confirmation button.  
The selected scene will be deleted.

### Hints

- You can also delete a scene by pressing **DELETE** on the remote control after placing the cursor on the scene you want to delete on the disc navigation screen.
- To delete an unwanted part of a scene on HDD/BD-RE/DVD-RAM/DVD-RW (VR mode) disc, divide the scene first, then delete the unnecessary part.

### Notes

- After deleting scenes, the remaining free space of the HDD/BD/DVD/Card may not show any increase in the HDD/disc or card remaining space indicator.
- The locked scenes (Stills) on a card cannot be deleted (p.69).

HDD BD-RE RAM RW (VR)

## Dividing a Movie (Edit - Divide)

You can divide a scene into two parts. To delete an unnecessary portion of a scene, first divide the scene at the point where you want to end or start saving, and then delete the unnecessary portion.

1 Press **▶**.

2 Select the scene you want to divide, then press **MENU**.

3 Select "Scene" ▶ "Edit" ▶ "Divide", then press the confirmation button.  
The selected scene is played.

4 When you reach the desired point of division, press **SELECT**.  
The confirmation screen appears.

Select "Yes", then press the confirmation button.

5

The selected scene will be divided, then the display will return to the disc navigation screen.

- Select "No" to quit division. The playback pause screen will appear. Press **■** to quit.

### Hints

- Search and frame advance (p.38) are useful when designating division points.
- If a fade has been added to the original scene, the "IN" effect will be added to the first half of the scene, and the "OUT" effect, to the latter half (p.68).
- Combining scenes that were divided will restore the original scene.

### Notes

- Frame by frame and slow forward/reverse playback while dividing scenes will forward or reverse a movie in increments of 0.5 seconds.
- A movie scene of 0.5 seconds or less cannot be divided.
- If free space available on the HDD/BD/DVD is insufficient, division will not be possible.

HDD BD-RE RAM RW (VR)

## Combining Multiple Scenes (Edit - Combine)

If you have recorded numerous short scenes, combining them can be convenient.

Be sure to select consecutive multiple scenes. When using the HDD, combining scenes is possible only if "Category: All" is specified (p.60). Stills cannot be combined.

**1** Press .

**2** Select the scenes you want to combine, then press **MENU**.

- Choose more than one scene (p.35).

**3** Select **"Scene"** ▶ **"Edit"** ▶ **"Combine"**, then press the confirmation button.

The confirmation screen appears.

**4** Select **"Yes"**, then press the confirmation button.

The display returns to the disc navigation screen.

#### Hint

With fade effects, the "IN" effect of the first scene in the selected range and the "OUT" effect of the last scene will be attached to the combined scene.

#### Notes

- Scenes in different recording dates cannot be combined. Create a Playlist first (p.63), then combine such scenes on the Playlist.
- You cannot add movies recorded in different HD Video Mode settings.
- If you combine scenes, both with and without dub marks, the dub mark will not appear on the combined scene.

HDD BD-RE (RAM RW (VR) CARD

## Adding Special Effects (Edit - Fade)

You can add fading to the beginning and/or end of a scene.

There are three types of special effects:

#### White

- Fades in from a white screen.
- Fades out to a white screen.

#### Wipe

- **In:** From a black screen, the image opens from a horizontal split at the center.
- **Out:** The image closes with two black wipes meeting at the horizontal center.

#### B/W

- Fades in from a black and white screen to a full color screen.
- Fades out from a full color screen to a black and white screen.

**1** Press .

**2** Select the scene you want to apply a special effect to, then press **MENU**.

- You can also choose multiple scenes (p.35).

**3** Select **"Scene"** ▶ **"Edit"** ▶ **"Fade"**, then press the confirmation button.

The "Fade" screen appears.



4

Select the special effects for "IN" or "OUT", ► "Enter", then press the confirmation button.

- Use ◀◀/▶▶ to move the cursor to "IN", "OUT", "Enter", or "Cancel".
- Use ◀◀/▶▶ to select the effect to be added, then press the confirmation button to set the effect.
- After the confirmation, a message appears and the disc navigation screen will be restored.
- To cancel setting, select "Cancel".
- Repeat steps 2–5 to add effects to other scenes.

5

Select "Yes", then press the confirmation button.

The "▲" or "▼" icon will appear in the scenes for which fade in or fade out has been set.



### Notes

- If a BD/DVD disc with a special effect created on this camcorder is played on another BD/DVD reorder/player, or the scene is captured on a PC, the special effect will not be reflected.
- When dubbing on a BD-R/DVD-RW (VF mode)/DVD-R disc (p.56), the special effect will not be reflected.

HDD BD-RE BD-R RAM RW (VR) RW (VF) R CARD

## Go To

You can move the cursor to the scene recorded first or last using this function.

1 Press ►, then MENU.

2 Select "Scene" ► "Go To" ► "Top" or "End", then press the confirmation button.

The cursor jumps to the top or last scene in the disc navigation screen.

CARD

## Locking Scenes on a Card (Lock)

You can lock selected stills recorded on a card so that they will not be deleted or edited by mistake.

1 Set the Movie/Stills switch to "📷" and turn on the camcorder power (p.29).

2 Press ►.

3 Select the still you want to lock, then press MENU.

- You can also choose multiple scenes (p.35).

4 Select "Scene" ► "Lock" ► "Set", then press the confirmation button.

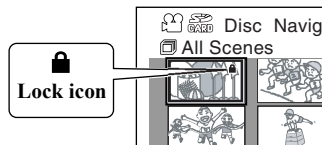
The confirmation screen appears.

Editing

5

Select "Yes", then press the confirmation button.

The icon "🔒" appears on the locked stills on the disc navigation screen.



### ● To unlock the scene

Perform steps 1–3 in "Locking Scenes on a Card (Lock)", then select "Scene" ▶ "Lock" ▶ "Set", then press the confirmation button.

The lock icon "🔒" will disappear and locking will be released.

#### Note

If you format the card, the locked scenes will also be deleted.

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Displaying Information Using the Menu Screen (Detail)

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

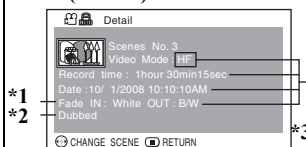
1 Press **▶**.

2 Select the scene you want to know about, then press **MENU**.

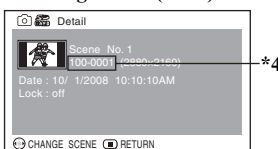
Select "Scene" ▶ "Detail", then press the confirmation button.

The detailed information of the scene appears.

### When using HDD/BD/DVD/ Card (Movies)



### When using a card (Stills)



- \*1 Not displayed with BD-R/ DVD-RW (VF mode)/DVD-R discs.
- \*2 "Dubbed" appears only when you selected a scene from the HDD/Card (Movies), with a dub mark ☒ on its thumbnail.
- \*3 Not displayed with BD/DVD/ Card recorded on another device.
- \*4 Will not appear if the loaded card does not comply with DCF (Design rule for Camera File system).
- Pressing **▶▶**/**◀◀** will display information of other scenes.

Press **■** to quit.

4 The disc navigation screen will be restored.

### Hints

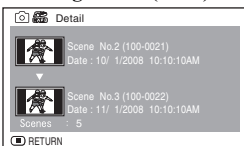
- When information on a scene is in view, you can press ►/◄ to display the information on the next/previous scene.
- If multiple scenes have been selected, the total recording time of the selected scenes (total number in case of stills) will appear.

#### When using the HDD/BD/DVD/Card (Movies)



\*1

#### When using a card (Stills)



\*1 When using a BD/DVD disc or a card recorded on another device, the screen displays “(-):” and time.

HDD BD-RE RAM RW (VR) RW (VF) CARD

## Formatting the HDD/BD/DVD/CARD (Format)

Formatting the HDD, or a BD/DVD or card deletes all recorded contents.

### Note

- Formatting will delete all the recorded contents on the HDD, disc, or card.
- All movies and still pictures will be deleted from the card.

**1** Insert the medium you want to format (except for the HDD).

**2** Press ►, then press MENU.

**3** Select “HDD Setting” or “Disc Setting” or “SD Card Setting” ►  
For “HDD Setting”, select “Format HDD” then press the confirmation button. Likewise, for “Disc Setting”, select “Format Disc”, or for “SD Card Setting” select “Format SD Card” then press the confirmation button.  
The confirmation screen appears.

Select “Yes”, then press the confirmation button.

- Formatting will start.
- When using a DVD-RW disc, a screen for prompting you to select the VF mode or VR mode will appear. See p.24.

**4** \* If you choose “VR mode” when formatting a DVD-RW (VR mode), finalization will not be canceled. All contents on the disc will be erased after being formatted and the disc will be a finalized DVD-RW (VR mode) and recordable.



If you choose “VF mode” above, finalization will be canceled.

Editing

BD-RE RAM RW(VR)

## Protecting the BD/DVD

Although previously recorded movies will not be erased by recording new movies, a protect setting will ensure against accidental erasure and formatting. If the protect setting is activated, however, you will not be able to make new recordings until the protect setting is canceled.





- 1 Insert a disc you want to protect
- 2 Press , then press MENU.
- 3 Select "Disc Setting"  "Protect Disc", then press the confirmation button.  
The confirmation screen appears.
- 4 Select "Yes", then press the confirmation button.
  - To cancel the protect setting, repeat the same steps to select "Unprotect Disc" in step 3.

### Hint

To protect a card, lock its erasure prevention switch (p.22).

HDD BD-RE BD-R RAM RW(VR) RW(VF) R CARD

## Checking the Remaining Recording Capacity

- 1 Insert the medium you want to check (except for the HDD).
- 2 Press , then press MENU.
- 3 Select "HDD Setting", "Disc Setting", or "SD Card Setting"  "Capacity", then press the confirmation button.  
The information of the chosen medium appears on the screen.
- 4 After checking the information, press , or press  twice.

### Hint

If you repeat recording/deleting images on a card for a long time, you may not be able to record scenes on it due to data fragmentation. In this case, dub or save your recordings on a disc or on your computer first and format the card.

# Connecting to Your TV for Viewing

## ■ Connecting to a TV

The connection method differs depending on the type of video input terminal that your TV is equipped with. Connection methods in order of best image quality are as follows:

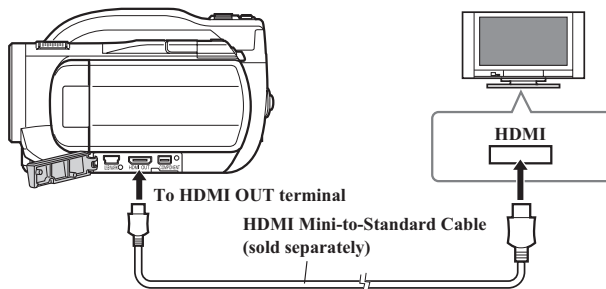
**HDMI terminal → Component Terminal → Video terminal**

### Notes

- Before connecting, always turn down the volume of your TV set, to prevent feedback noise (howling) from your TV speakers.
- Insert the connector cables straight into the terminals. Inserting them at an angle may cause the terminals to break.

## Connecting the camcorder to your TV's HDMI terminal

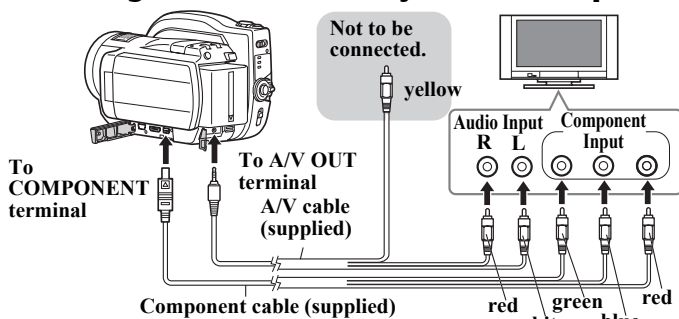
The HDMI connection provides the highest quality digital image and sound signals to your TV through a single cable, without degradation.



### Notes

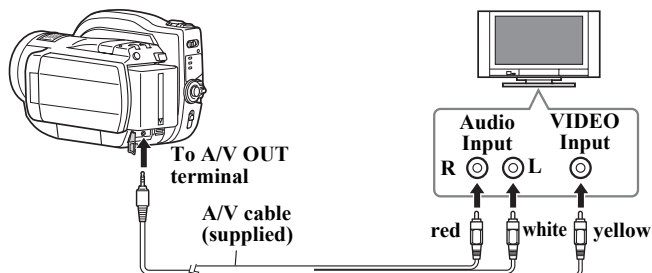
- 1080i signals are output from the camcorder's HDMI OUT terminal. When the camcorder is connected to a TV which is not compliant with 1080i signals, the message "Playback error has occurred. Change the connection terminal." appears in the camcorder's LCD display. If the camcorder is recording or playing when this message is displayed, the operation stops. In this case, reconnect the cable through another method such as by using the component terminal. (See also "Troubleshooting" (p.97).)
- If the camcorder is connected to the TV through the HDMI terminal, audio will not be output from the camcorder other than during playback.

## Connecting the camcorder to your TV's component input



\* Do not connect anything to the camcorder's HDMI OUT terminal.

## Connecting the camcorder to your TV or video terminals



\* Do not connect anything to the camcorder's HDMI OUT terminal and COMPONENT output terminal.

## ■ Adjusting the camcorder's output settings according to your TV

### When connected to the component input

Select an appropriate option for "Component Output" in the camcorder menu, according to the type of Component terminal on your TV set.

- ① Turn on the camcorder, open the LCD monitor, and press **MENU**.
- ② Select "Output Functions Setup" by pressing **◀◀/▶▶**, then press **▶▶**.
- ③ Select "Component Output" by pressing **◀◀/▶▶**, then press **▶▶**.
- ④ Select either "1080i" or "480i" by pressing **◀◀/▶▶**, then press the confirmation button to confirm the setting.

#### Note

If you connect a standard (aspect ratio 4:3) TV which is not widescreen television, the image appearing on the TV screen will be vertically distorted.

## ■ Viewing on your TV

- ① Turn on the TV and switch the TV input to the terminal where the camcorder is connected.
- ② Turn on the camcorder.

The image shown in the camcorder's LCD monitor appears on the TV screen, allowing you to view playback, recording, and editing on the large screen of your TV.

- If the camcorder is connected to a TV through the HDMI OUT terminal and another image terminal at the same time, the image is output only through the HDMI OUT terminal.
- If the camcorder's COMPONENT terminal and A/V OUT terminal are connected to a TV at the same time, the image will be output from the COMPONENT terminal only.

### Hints

- Volume can be adjusted on your TV.
- When operating the camcorder while viewing your TV screen, using the supplied remote control is convenient. However, if you are using other Hitachi-brand A/V devices, they may be operated by the camcorder's remote control.

### Notes

- If you have a wide-screen TV (screen ratio 16:9), and the TV is set to wide mode, the disc navigation screen may not fit within the TV screen. In this case, change your TV's wide mode setting. (Refer to your TV's operation manual.)
- Do not leave the camcorder's menu screen and disc navigation screen displayed on your TV screen for too long. Doing so may cause damage (ghosting) on your TV screen.

# Viewing on Other Players/Recorders

## Before Playing Back a BD/DVD on Another BD/DVD Recorder/Player (Finalizing)

### Before finalizing a disc

You can:

- Record or edit scenes using the camcorder.

You cannot:

- Play back the disc on a device (BD/DVD recorder/player) other than the camcorder.

### After finalizing a disc

You can:

- Play back the disc on a device (BD/DVD recorder/player) other than the camcorder.
- Import scenes to your PC.
- Unfinalize the BD-RE/DVD-RW (VF mode) disc and use it for recording scenes.

You cannot:

- Record or edit scenes using the camcorder.

### Playing Back a DVD-RAM/DVD-RW (VR Mode) Disc on a DVD Player/Recorder

A DVD-RAM/DVD-RW (VR mode) disc can be played back on a DVD recorder/player that supports 8 cm DVD-RAM/DVD-RW (VR mode) without finalizing it.

### About DVD-RW (VR Mode) Discs

- A DVD-RW (VR mode) disc can be played back on a DVD recorder/player that supports DVD-RW (VR mode) without finalizing it.
- Before importing scenes to your PC from DVD-RW (VR mode), you need to finalize the disc using the disc navigation screen on the camcorder.
- You can use a finalized DVD-RW (VR mode) disc for recording scenes.
- Once finalized, you cannot unfinalize the disc. Formatting the disc will not unfinalize it.

### Notes on Finalization

- Do not insert a BD-R/DVD-RW (VF mode)/DVD-R disc which was recorded or dubbed, but not finalized, on this camcorder into another recording device such as a DVD recorder and a DVD drive of a PC. The recorded data may be damaged.



- Although discs recorded (and finalized) on this camcorder can be played back on recording/playing devices which comply with specific discs or recording modes, playback of all discs under all conditions is not guaranteed. If playback is not possible, use this camcorder to play back your disc.
- Playback may stop for a moment temporarily between scenes while playing on a DVD recorder/player or on a PC.
- If you record or finalize a BD-RE/BD-R/DVD-RW (VF mode)/DVD-R disc which was recorded or dubbed, but not finalized, on this camcorder using another BD/DVD camcorder, the recorded data may be damaged.
- If you insert a DVD-RW (VF mode)/DVD-R disc recorded on another Hitachi camcorder into this camcorder, the disc navigation screen will appear automatically. You cannot record or finalize such discs using this camcorder.
- Do not insert a BD-R/DVD-RW/DVD-R recorded, but not finalized, on a recorder manufactured by a company other than Hitachi into this camcorder. Doing so may make the disc unusable.

#### Notes

- When playing back a disc on another device, the disc navigation display differs from the one on this camcorder.
- Do not insert a BD/DVD that was recorded on this camcorder into a device that does not conform to 8 cm BD/DVD. Doing so may make the disc unusable.

BD-RE BD-R RW(VR) RW(VF) R

## Finalizing a Disc

You must finalize a disc recorded/dubbed on this camcorder before playing it back on a player/recorder or on a PC.


Note that no further recording/dubbing is possible for a finalized BD-R/DVD-R.

Likewise, no further recording/dubbing is possible for a finalized BD-RE/DVD-RW (VF mode), though, you can unfinalize it to enable further recording/dubbing (p.78).

**1** Connect the AC adapter/charger to power the camcorder (p.25).

- You cannot finalize if a battery pack is used as a power source.

**2** Set the power switch to "BD/DVD".

**3** Press , and then press MENU.

**4** Select "Disc Setting" ► "Finalize Disc", then press the confirmation button.

A confirmation screen for finalization appears.

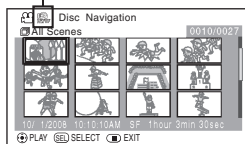
Select **"YES"**, then press the **confirmation button**.

The message showing that the disc is being finalized will appear, and then the disc will be finalized. When finalization is complete, the disc navigation screen will appear.

- **"F"** appears on the disc navigation screen for a finalized disc.

**5**

#### Finalized BD/DVD



- A disc menu with thumbnails appears when a finalized BD-RE/BD-R/DVD-RW (VF mode)/DVD-R disc is inserted on a BD/DVD player.

**BD-RE (RW/VF)**

## Unfinalizing a Disc

You can unfinalize a BD-RE/DVD-RW (VF mode) finalized on this camcorder so that additional recording can be done on it.

- 1** Press **[F]**, and then press **MENU**.

- 2** **"Disc Setting" ▶ "Unfinalize Disc"**, then press the **confirmation button**.

- 3** Select **"YES"**, then press the **confirmation button**.

#### Hint

A finalized DVD-RW (VR mode) can be recorded as is, without being unfinalized.

#### Notes

- If the disc in the camcorder has already been finalized, **"Finalize Disc"** does not appear in the menu.
- The time required to finalize that appears on the **"Finalize Disc"** screen is only for reference.
- In case of a DVD-R, it takes longer to finalize it if recording length is short.
- For a DVD-RW which has previously been finalized, the next finalization may be quicker.

## Connecting to your PC

### About the software included

The USB cable and CD-ROM software supplied with the camcorder will allow you to use the movies and stills recorded on this camcorder on your PC.

### ImageMixer 3 AVCHD Edition for HITACHI

You can transfer the images recorded on this camcorder to your PC, play back the images, and create libraries for the images.

Moreover, you can record these images to a BD/Card in High Definition image quality, or create a DVD-Video (DVD-RW/DVD-R) or DVD-VR (DVD-RAM/DVD-RW) which can be played back on other devices.

#### Notes

- BD-R/DVD-RW/DVD-R recorded on this camcorder must be finalized on this camcorder before using them in your PC.
- Discs such as AACs, CPRM, or CSS which are copyright protected are not compatible with the software supplied with this camcorder.
- Although discs created using the software supplied with the camcorder can be played back on devices which are compatible with those discs, playback on all devices is not guaranteed.

The supplied software is compatible for Japanese, English, German, French, Spanish, Italian, Chinese (simplified characters) users.

### PC requirements


OS	Microsoft® Windows® XP Home/Professional Edition SP2 or greater Microsoft® Windows Vista® 32-bit Edition
PC	IBM® PC/AT® computer, one of the above OS pre-installed
CPU	Intel® Pentium® 4 2.4 GHz Processor or greater Intel® Core™ 2 Duo 2.13 GHz or greater is recommended.)
Memory	• 512 MB or greater (Minimum 1 GB is recommended for Windows® XP, 2 GB for Windows Vista®.)
HDD	• 300 MB of free space (necessary to install the application). • At time of DVD creation, approx. 3 times the free space of the disc to be created is required. • At time of BD creation, approx. 2 times the free space of the disc to be created is required.
USB	USB 1.1 or 2.0 free port is necessary. (May not operate if the camcorder is connected through a USB hub.)
Others	• Display screen of 1024×768 pixel, 16 bit (High color) or greater. • Graphics accelerator compliant with Direct X® 9.0c or later version. (Graphics accelerator compliant with PCI Express ×16 is recommended.) • Sound card compliant with Direct Sound.

#### Notes

- The supplied software is not compatible with Mac OS.
- Even when the recommended system environment is satisfied, there are instances when High Definition quality images may not play back smoothly.
- Even if your PC satisfies the system requirements, operation malfunctions and limitations in use may occur depending on the combinations of other software and devices you are using.
- Operation will not be guaranteed if you use a self-made computer.

## ■ Software installation

- 1 Turn on the power to your PC.**  
Login to your PC as a user with administrative privileges.  
If you are using your PC for other applications, quit all software you are using.

- 2 Insert the supplied CD-ROM into your PC's CD-ROM drive.**  
The software installer automatically starts up, and the "Choose Setup Language" screen automatically appears.  
If the "Choose Setup Language" screen does not appear, open the drive in which the CD-ROM is contained using Windows' My Computer or Explorer, and double click "".

- 3 Select the installation language.**  
Select the installation language, then click "Next".

- 4 Installation screen appears.**  
Click "Next".

- 5 Confirm the software license agreement.**  
Read the software license agreement carefully. If you agree with the terms, select "I accept the terms of the license agreement.", then click "Next".

- 6 Select the installation destination.**  
If there is no change to the installation destination, click "Next".  
If you wish to change the installation destination, click "Change" and specify the installation destination, then click "Next".

- 7 Select your country's video system.**

- 8 Perform installation.**  
Preparations for installation are now complete. Click "Install" to begin the installation process.

- 9 After installation is complete, the following message screen will appear.**  
Click "Finish" to restart your PC.  
Software installation is now complete.

### Note

After completing software installation, Direct X<sup>®</sup> installation may commence depending on your PC. In this event, follow the screen indications to install it.

## ■ Before importing scenes from BD-R/DVD-RW/DVD-R to your PC

You need to finalize the disc using the disc navigation screen on the camcorder (p.77). Finalizing is not required for importing scenes from HDD/BD-RE/DVD-RAM/SD card.

## ■ Connecting the camcorder to your PC

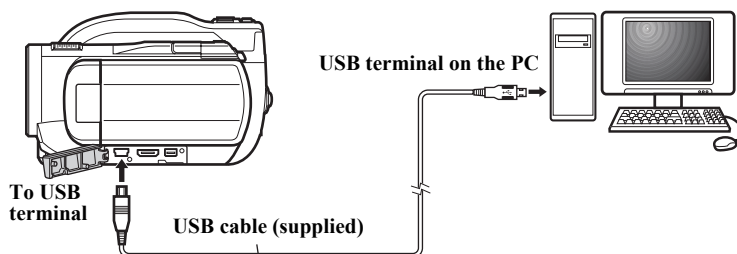
### ① Turn on the camcorder power.

When connecting the camcorder to a PC, connect the camcorder to a wall outlet instead of using the battery pack.

### ② Choose the medium for connection to the PC ("HDD", "BD/DVD", "SD CARD").

The media selected on your camcorder before connecting to a PC can be accessed when the connection is established.

### ③ Connect the camcorder to the PC using the supplied USB cable.



After the physical connection, the camcorder's LCD monitor goes out and the camcorder-PC connection begins.

The camcorder is automatically recognized from the PC. After recognition, there are occasions when you will be required to restart the PC. In this case, restart the PC according to the indicated instructions.

### Notes

- Be sure to turn on the camcorder power when connecting it to a PC.
- You cannot access to more than one media (HDD/BD/DVD/SD Card) at the same time.
- You cannot change the medium or the mode (movies/stills) while the camcorder is connected to a PC. Disconnect the USB cable from the PC (p.82) first to change the medium or the mode (movies/stills).
- During PC connection, none of the camcorder buttons operates.
- When the HDD or BD/DVD is being accessed, the ACCESS indicator flashes in red.
- Note that the CARD ACCESS indicator does not flash even when the SD memory card in the camcorder is being accessed.

## Camcorder indications on the PC

If the camcorder is set to BD/DVD mode and connected to a PC, it is recognized as a disc drive.

If the camcorder is set to HDD or SD CARD and connected to a PC, it is recognized as a removable disc.

### Note

Do not directly handle the files on the HDD/BD/DVD/Card in the camcorder using Windows Explorer. Doing so may cause your valuable image data to be lost and damage to the medium and, thus, the medium becomes unusable. Please use the supplied software.

## Removing a medium while the camcorder is being connected to the PC

### Removing (replacing) BD/DVD

Select the camcorder's drive icon using Windows Explorer or My Computer.

→ Click the right button on your mouse.

→ Select "Eject".

### Removing SD memory card

Confirm that the SD memory card is not being accessed by the PC's software. Then remove the SD memory card from the camcorder.

## Using a built-in disc drive of your PC to read a disc recorded on the camcorder

If your PC's disc drive is compatible with the disc you are using, you can use the disc as is.

### Notes

- If you wish to write images onto a new disc using your PC, do not format the disc using the camcorder.
- Some upright or slot load PC disc drives are not compatible with 8 cm discs.
- Adapters to convert 8 cm into 12 cm diameter CDs (for 8 cm CDs) are not compatible for use with 8 cm BDs and 8 cm DVDs.
- Image Mixer 3 AVCHD Edition for HITACHI does not guarantee to support all types of disc drive.

## Before terminating PC connection (removing USB cable) and changing the power switch setting

Detach the USB cable from the PC.

Quit the application and click the "Safely Remove Hardware" icon in the Windows task tray at the bottom right corner.

1



Click

2

Select "USB mass-storage device - Drive(E:)" and click "STOP".

The drive name (E:, etc.) will differ according to your PC.



3

Confirm the device again and click "OK".

Detach the USB cable.

\* If an error occurs during the Safely Remove Hardware procedure, first shut down Windows, then detach the USB cable.

## Using ImageMixer 3 AVCHD Edition for HITACHI

To launch ImageMixer 3 AVCHD Edition for HITACHI, double click the ImageMixer 3 AVCHD Edition for HITACHI shortcut which was created on your desktop at time of software installation.

\* If there is no shortcut for ImageMixer 3 AVCHD Edition for HITACHI on the desktop, click the **Start** button and select **Program** or **All programs** / **PIXELA** / **ImageMixer 3 AVCHD Edition for HITACHI** / **ImageMixer 3 AVCHD Edition for HITACHI**.

A detailed instruction manual for ImageMixer 3 AVCHD Edition for HITACHI is provided as an electronic manual which you can access on your PC. Please refer to this manual for details by selecting **ImageMixer 3 Help** from the **Help** menu located at the top of the ImageMixer 3 AVCHD Edition for HITACHI window.

## Copying images recorded on the camcorder to your PC and playing them back

ImageMixer 3 AVCHD Edition for HITACHI allows you to transfer movies and stills recorded on the camcorder to your PC and to play them back.

**Turn on the camcorder power and connect the camcorder to your PC.**

Set the camcorder to the medium you wish to use with the PC. Then connect the camcorder to your PC's USB terminal using the supplied USB cable (p.81).

1

To read the BD-R/DVD-RW/ DVD-R recorded on the camcorder into your PC, it is necessary to finalize the medium using the camcorder (p.77).

Be sure to finalize it before connecting the camcorder to the PC.

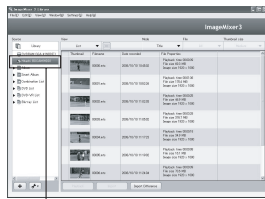
2

**Launch ImageMixer 3 AVCHD Edition for HITACHI.**

3

**Select Hitachi BDCAM (HDD)\*.**

When you click **Hitachi BDCAM (HDD)** on the left pane window, the recorded images are displayed as thumbnails.



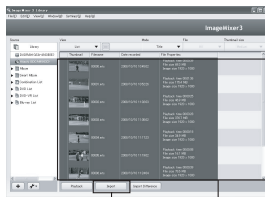
Click

\* "Hitachi BDCAM" appears during BD/DVD mode, and the card name or "Removable Disc" appears during Card mode.

#### Import images to the PC.

Select the thumbnail for the image you wish to store, then click **Import**. The PC starts importing the image(s).

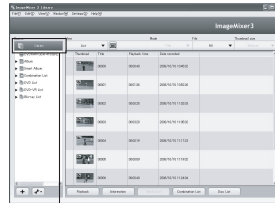
4



Click Select the image(s) you wish to store.

Check the images imported to the PC. Click **Library** to display the thumbnails of the imported images.

5

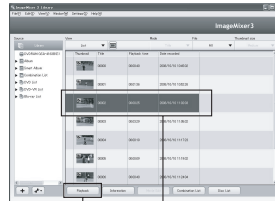


Click

#### Play back the imported images.

Click on the image you wish to play, then click **Playback** at the bottom of the window. The image will be played back on a separate screen.

6



Click Choose an image to play back.

#### Hints

- Click the **Import Difference** button to import all the images that have not been saved on your PC.
- To select multiple files, click on the thumbnails while holding down the "Shift" key to select consecutive files. Or to select nonconsecutive files, hold down the "Ctrl" key and click another thumbnail.
- The images are stored in the IMxLibrary folder in My Documents. To change the image storage location, select **Settings / Preferences**, then change the **Library destination settings** from the ImageMixer 3 AVCHD Edition for HITACHI menu.

## Creating a disc/card with the images recorded by the camcorder

You can use ImageMixer 3 AVCHD Edition for HITACHI to create a disc or card from the images stored on the PC.

#### 1 Launch ImageMixer 3 AVCHD Edition for HITACHI.



2

**Insert a disc into the disc drive or a card slot.**

Insert a disc/card on which images are to be written.

Note that the quality of images will differ as indicated in the table below according to the type of the disc chosen.

Media type	Image quality type	List created
<b>BD-RE/BD-R</b>	High Definition image quality	Blu-ray creation list
<b>DVD-RAM/ DVD-RW</b>	Standard image quality (DVD-VR)	DVD-VR creation list
<b>DVD-RW/ DVD-R</b>	Standard image quality (DVD-Video)	DVD creation list

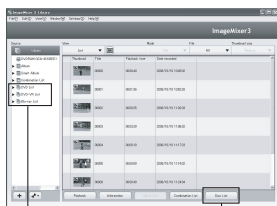
Table 1: Disc type and its contents

3

### Create a creation list

Click **Library**, then click **Disc List** at the bottom right corner of the window.

Using Table 1 as a reference, select a creation list suited to the medium you inserted into the disc drive or the card slot in step 2.



Created list

Click

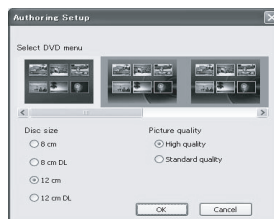
### Hint

To make a creation list from an album or smart album, while the album or smart album is displayed, click **Disc List** at bottom right corner of the window and select a list suited to the medium you are creating.

4

### Set up the disc you are creating.

Double click on the created list to display a list setup screen. Set the image quality and menu (only for DVD-Video) here.

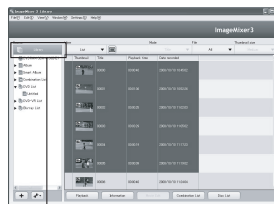


e.g. DVD-Video's list setup screen

5

### Add images to the creation list.

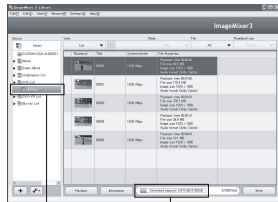
Click **Library** to display an image list. Then drag and drop the images you wish to store on the medium into the creation list. Repeat this task to add more images to the list.



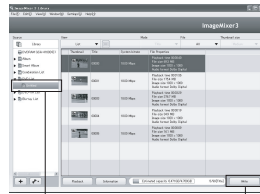
Click

Connecting to your PC

Clicking the creation list will display the estimate of the required media capacity at the bottom of the window. Add images to the creation list while making sure that the total data size does not exceed the maximum media capacity. If the total data size exceeds the media capacity and you do not wish to divide the data or write them to more than one media, delete scenes from the list.



Click Estimated disc capacity



Click

Click



Click

Confirm the settings and click **Create** to start writing to the media.

### Hint

To select multiple files, click on the thumbnails while holding down the “Shift” key to select consecutive files, or the “Ctrl” key to select non-consecutive files.

### Note

Image quality will be converted when you added standard quality images to a Blu-ray creation list, or High Definition quality images to a DVD/DVD-VR creation list. Image quality may be degraded, and it requires more time to create a disc.

- 6 **Write to the media.**  
Display the list created in steps 3–5. Click **Write** at the bottom of the window to display the write setup screen.

### Notes

- Setting “Disc Erase” in the write setup screen will delete all data on your disc. Confirm the contents of your disc sufficiently before conducting this procedure.

## ■ Uninstalling the software

From **Start**, click **Control Panel / Add or Remove Programs**. From the displayed application list, select **ImageMixer 3 AVCHD Edition for HITACHI**, then click the **Change/Remove** button. When the confirmation dialog box appears, click **Yes**.

Uninstallation starts. Follow the instruction on the screen and uninstall the software.

### Notes

- After uninstalling the software, restart your PC.
- Administrative privileges are required to conduct uninstallation.

## Precautions When Connecting to a PC

**When connecting the camcorder to a PC, use the AC adapter/charger as a power source.**

- If this occurs while writing to disc, the disc will no longer be usable.

**While accessing the camcorder from a PC, do not plug or unplug the cables.**

- If you plug or unplug the USB cable (supplied) or the power source (power cable and DC power cord) while the ACCESS indicator is flashing, your valuable recorded data may be lost. If this occurs while writing to disc, the disc will no longer be usable.

**Make sure the camcorder does not overheat. (Operations conducted with the camcorder and PC connected should be limited to a rough standard of approx. 30 minutes within environmental conditions at approx. 86°F (30°C).)**

- In particular, if an error occurs while writing to BD-R or DVD-R, the disc will no longer be usable. Make sure to prevent the camcorder from overheating.

**When connecting the camcorder to your PC, detach all cables or camera accessories other than the USB cable and AC adapter/charger.**

**Camcorder connection to your PC is not possible when the camcorder power is “OFF”.**

**The supplied software does not import camcorder’s editing features such as the fade settings but only the original data.**

**Although reading data from the camcorder or writing data to the camcorder may be possible using software other than the supplied software, operation is not guaranteed.**

**Although we have confirmed that discs created using the supplied software can be played back on devices compliant with those respective disc types, playback on all devices is not guaranteed.**

## **Additional Information**

### **Optional Accessories**

#### **CAMERA ACCESSORIES**

Wide conversion lens (DZ-WL43) (p.45)

Tele-conversion lens (DZ-TL43) (p.45)

- When using camera accessories, be sure to read the instruction manuals for each accessory.

#### **POWER SUPPLY**

Battery (DZ-BP14SW)

Battery (DZ-BP21SW)

- Refer to the catalog for details.
- The models and specifications of the optional accessories shown on this page are subject to change, and their production may be discontinued.

## Error Messages

If an error message appears while operating the camcorder, refer to the following table for details and remedies.

Message	Cause & Troubleshooting	Reference page
(1) Disc is not formatted. Format the disc now? (2) Disc Format. Select record format. (Displayed only when DVD-RW is used.)	These messages appear when a new BD-RE/BD-R/DVD-RW is inserted.	24
(1) Found partially damaged video. Recover video data? (2) Found damaged video. Recover video data? (3) Recovering... It may take a long time. Continue recovery?	<p>The system cannot normally complete writing of a file if the power is turned off for some reason during recording or editing. Selecting “YES” will automatically repair the video file. If you quit recovery by pressing ■, the same message will appear when the camcorder is turned on next time. (Do not remove the disc while the camcorder is recognizing it. Removing the disc will deactivate the file repair function.)</p> <ul style="list-style-type: none"> <li>• Be sure to use the AC adapter/charger to power the camcorder when repairing data. Repair is not possible using a battery. If a battery is attached, turn the power switch off, connect the AC adapter/charger, and then turn the power back on and follow the on-screen instructions.</li> <li>• Repair will normally take several minutes, but it may take up to one hour.</li> <li>• Data may not be repaired.</li> <li>• The repaired data may differ from the original recorded content due to deleted defects.</li> <li>• 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.</li> <li>• See *1 on p.95</li> </ul>	—
All scenes are already dubbed. Please use other Dub Mode.	This message will appear if you attempt a “New” dubbing when there are no un-dubbed scenes on the HDD. Turn off the dubbed marks on scene(s) you want to dub, or choose another dubbing method.	56, 60
Cannot combine scene.	Only consecutive scenes can be combined.	67

Message	Cause & Troubleshooting	Reference page
Cannot combine scenes with different recording dates. Create Playlist first and then combine scenes.	Scenes with different recording dates cannot be combined. Create a Playlist first, and then combine such scenes on the playlist.	63, 67
Cannot combine. Select multiple scenes.	Select a range of at least 2 consecutive scenes to be combined.	67
Cannot delete scene. Delete other scenes first and then retry.	Part of a divided scene is selected for deletion.	67
Cannot divide. Too short to divide.	This message will appear when the scene is extremely short due to repeated divisions.	67
Cannot divide. Unselect multiple scenes.	Division was attempted when multiple scenes were selected.	67
Cannot execute. Change display category to All.	This message will appear if you attempt to combine or move scenes when "Category" in "Others" in the menu is set to "Dubbed" or "Un Dubbed".	60
Cannot read disc. Check dirt/crack/both-sides contrary/inserted correctly.	Error occurred while the disc was being recognized. Make sure that there is no scratch or dirt on disc, that the surface/back of disc is not reversed, and that the disc is firmly pushed against the turntable. See *3 and *4 on p.96.	23, 107
Cannot record video. Set Movie/Stills switch to "Movie".	This message will appear when the record button is pressed with the movie/stills switch set to "📷".	27
Cannot take still image. Set Movie/Stills switch to "Still".	<ul style="list-style-type: none"> <li>This message will appear when <b>PHOTO</b> is pressed with the movie/stills switch set to "📷".</li> <li>You cannot record stills on HDD/BD/DVD. Use a SD card to record stills using this camcorder.</li> </ul>	29
Check disc.	A disc unusable on this camcorder may have been inserted or the disc may be damaged. Make sure that the type of disc is correct, and that the disc is not write-protected.	21, 72
Check HDD.	The HDD may be damaged.	72
Check SD Card.	Check the card inserted in the camcorder. The card must be either locked or incompatible with the camcorder.	22
Control Information Error.	Scenes may have been edited on another device, etc. Update the control information.	101
	<ul style="list-style-type: none"> <li>Use another disc.</li> <li>See *3 and *4 on p.96.</li> </ul>	—

Message	Cause & Troubleshooting	Reference page
Disc almost full.	The remaining free space of the disc is less than one minute for video. Delete unwanted scenes, or use another disc.	66
Disc error has occurred.	<ul style="list-style-type: none"> <li>Format the disc before using the camcorder. Formatting the disc will delete all data recorded on it.</li> <li>The disc may be dirty. Remove the disc and wipe off fingerprints, dust, etc.</li> <li>See *3 and *4 on p.96.</li> </ul>	71
Disc error has occurred. Stop dubbing. Turn off power, then turn on again.	<ul style="list-style-type: none"> <li>Disc error occurred during finalizing, and finalizing failed. Replace the disc.</li> <li>See *3 on p.96.</li> </ul>	77
Disc error has occurred. Format the disc now?	<ul style="list-style-type: none"> <li>Was the disc formatted on a PC, or formatting interrupted? Choose “YES” to format the disc. Formatting the disc will erase all data on it.</li> <li>See *3 on p.95.</li> </ul>	71
Disc error has occurred. Keep Disc inside & restart.	Disc error could have occurred during editing of scenes. Turn off the camcorder with the disc inserted, and then turn it on again. The camcorder will attempt to restore scenes.	—
Disc error has occurred. Unfinalizing is not complete.	This message will appear when a disc error occurs during the unfinalization process. Replace the disc.	78
Disc must be finalized before it can be played on another device.	<ul style="list-style-type: none"> <li>This message will appear if you remove a BD-R/DVD-RW (VF mode)/DVD-R disc that has not been finalized.</li> <li>See *5 on p.96.</li> </ul>	77
Drive overheat. Please retry later.	In this case, proper writing/reading HDD/disc may not be possible. Turn off the power, then wait for a while.	—
Error occurred. Please replace disc or format disc.	<ul style="list-style-type: none"> <li>Error occurred while recovering the DVD.</li> <li>Format the DVD. Formatting the DVD will delete all data recorded on it. If this error message persists, use another DVD. Note that DVD-R cannot be formatted.</li> <li>Use another disc.</li> <li>See *2 on p.95.</li> </ul>	71
Failed to recover video data. Corrupted scenes have been deleted and disc is usable again.	Error occurred while recovering BD. Although the recovery was unsuccessful, you can continue using BD.	—



Message	Cause & Troubleshooting	Reference page
Finalize may not be complete. Finalize again now?	This message will appear when power is supplied again and the disc is reinserted after power was shut off during finalization due to a power failure, etc. Choose “YES” to make sure finalizing is complete.	77
Further recording on this disc will be impossible. Finalize? (Approx. one min.) (No menu image if it can be played on another device.)	This message will appear when the BD-R disc does not have enough space for DZ-BD7HA/DZ-BD70A to add a disc menu and finalize it. You can play back the disc on a player/recorder, but the disc menu will not be displayed.	77
HDD almost full.	The remaining free space of the HDD is less than one minute for video. Delete unwanted scenes.	66, 113
HDD/Disc/SD Card has no image.	This message will appear when an attempt is made to dub, playback, or editing when no scene has been recorded.	—
HDD/Disc/SD Card has no Playlist.	The Playlist menu was selected, but no playlists are stored.	64
HDD error has occurred.	Format the HDD before using the camcorder. Formatting the HDD will delete all data recorded on it.	71
HDD error has occurred. Format the HDD now?	HDD error has occurred. Format the HDD now? Did you interrupt the formatting of the HDD? Choose “YES”, and then format the HDD. Formatting the HDD will delete all data recorded on it.	71
HDD error has occurred. Restart.	HDD error could have occurred during editing of scenes. Turn off the camcorder with the HDD inside, and then turn it on again. The camcorder will attempt to restore scenes.	—
HDD/Disc/SD Card includes protected scenes. Delete scenes?	The HDD/Disc/Card may be software protected from a device other than this camcorder. To release, use the device that executed the software-protect.	—
HDD/Disc/SD Card is full. Cannot add control information.	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.	66–67



Message	Cause & Troubleshooting	Reference page
Insufficient free space available on HDD/Disc/SD Card. Delete unnecessary scenes.	Insufficient free space available on HDD/Disc. Delete unnecessary scenes. This message will appear when you attempt to create/edit a playlist or divide a movie while the HDD/Disc has insufficient free space. Delete unnecessary scenes from the HDD/Disc. Insufficient free space available on SD Card. Delete unnecessary scenes. This message will appear when you attempt to create or edit a playlist while the SD Card has insufficient free space. Delete unnecessary scenes from the SD Card.	66
Low temperature. Cannot use BD. Turn off power, then turn on again.	This message appears when the camcorder's built-in BD drive is below the operating temperature range. However, it may be possible to record on a DVD even when this message appears.	—
No more scenes. Playlist was deleted.	All scenes were deleted from the playlist. If all registered scenes of a playlist are deselected, the playlist will be deleted.	—
Playlist over limit. Cannot create Playlist.	The maximum number of playlists is already reached. No more playlists can be created or copied.	63
Please insert disc.	This message may appear when the camcorder or disc is moved from a cold place to a warm place. Condensation has occurred on the lens or the HDD/DVD drive. Do not remove the disc; leave the camcorder turned off in a dry place for 1–2 hours.	106
	Insert a disc.	23
	The disc is not inserted correctly. Push the disc against the turntable at the center until a click is heard. See *3 and *4 on p.96.	23
	Is the disc inserted upside down? Insert the disc with the recording side facing inward to the camcorder body.	23
Same scenes on Playlist will be deleted. Delete scenes?	This message appears when deleting a scene or scenes by displaying all scenes or switching to the display arranged by date, if any playlist contains the scenes. (The message will not appear if the scenes are deleted from playlists.) Deleting scenes will also delete the corresponding scenes in the playlists.	66
Scene No.xxx is too large to fit on one disc. Select "Auto divide: On".	This message will appear when the data size of the scene to be dubbed is larger than the free space on one disc. Divide the scene before dubbing, or select "Auto divide: On".	57, 67

Message	Cause & Troubleshooting	Reference page
Scenes over limit. Cannot add scenes.	The number of scenes entered in a playlist has reached the limit that can be entered. Delete unnecessary scenes in the playlist.	63, 65
Scenes over limit. Cannot divide scene.	The number of entered scenes has reached the limit that can be entered. Delete unnecessary scenes in the playlist.	65
SD Card almost full.	Remaining space is only enough to record less than 10 stills. Delete unnecessary stills and try the card, or use another card.	66, 113
SD Card error has occurred.	<ul style="list-style-type: none"> <li>Format the card before using the camcorder. Formatting the card will delete all data recorded on it.</li> <li>The card terminals may be dirty. Wipe off dirt, and try the card again, or use another card.</li> </ul>	22, 71
SD Card error has occurred. Dubbing is not complete.	This message will appear when dubbing has failed.	—
SD Card error has occurred. Format the SD Card now?	The card may have been formatted on a PC, or formatting may have been interrupted. Choose “YES” to format the card. Formatting the card deletes all recorded contents.	71
SD Card error has occurred. Keep SD Card inside & restart.	Card error could have occurred during editing of scenes. Turn off the camcorder with the card inserted, and then turn it on again. The camcorder will attempt to restore scenes.	—
SD card full.	No more recording on this card can be done. Delete unnecessary scenes or use another card.	66
SD Card is not formatted. Format the SD Card now?	Was the card formatted on PC? Choose “YES” to format the card.	71
Stop processing.	■ was pressed to stop processing of multiple scenes.	—
System error has occurred.	The camcorder may need servicing or a repair. Contact your dealer.	119
The disc has been finalized. Unfinalized disc.	You have attempted to edit scenes stored on a finalized BD-RE disc. Unfinalized the disc first.	78
The temperature of HDD is outside the operating temperature range. Turn off power, then turn on again.	This message will appear if the temperature of the HDD is outside the operating temperature range. Recording on a disc may be possible even if this message is displayed.	112

Message	Cause & Troubleshooting	Reference page
There was no scene which can be deleted.	This message will appear if you try to delete multiple scenes when all the selected scenes have been locked. Release the lock on scenes before deleting.	66, 69
This disc cannot be used. Please replace disc.	A disc that cannot be used on this camcorder has been loaded. Check the type of disc.	21
This disc is recorded by the PAL system. Please replace disc.	This camcorder can use only discs recorded in the NTSC system. A disc recorded in the PAL system cannot be used.	—
Unformat HDD/Disc/SD Card.	<ul style="list-style-type: none"> <li>The HDD/Disc/Card may not be formatted or it may be damaged. Use another disc.</li> <li>See *2 on p. 95.</li> </ul>	—
Use AC adapter/charger.	No dubbing, HDD deletion, or disc finalization is possible with a battery pack.	25, 56, 77, 109
Use AC adapter/charger. Turn off power.	Scenes cannot be repaired when the camcorder is powered by a battery pack. If the AC adapter/charger is unavailable in handy place, remove the disc and use another disc. Repair the disc later.	25
Video data being analyzed...	The battery pack or AC adapter/charger may have been detached while the power is turned on. Be sure to turn the power off before detaching the battery pack or AC adapter/charger.	—
Write protected. Check SD Card.	A card with the erase prevention switch locked is inserted. Unlock the switch.	22
Write protected. Check Disc.	The disc is write-protected. Use the disc navigation menu to release the protection.	72

\*1

- This message may also appear if the disc is dirty. If this message appears when a recorded disc is recognized immediately after it is inserted, do not repair the disc; remove it and then use a dry soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. In this case, do not repair the disc; turn the camcorder off, wait until it dries out, and then turn it on again.
- If the repair message appears when you turn the camcorder on from off with a disc loaded after recording on it, choose repair.
- If the repair message appears when recording and playback are normally possible with another disc – and no condensation has occurred, and the disc is not dirty – choose repair.

\*2

- This message may also appear if the disc is dirty. In this case, do not format the disc. Remove it and then use a dry soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. In this case, do not format the disc; turn the camcorder off, wait until it dries out, and then turn it on again.
- Formatting will delete all data on the disc.



\*3

- This message may also appear when the disc is dirty. Remove the disc and then use a dry soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. Wait until the camcorder dries out, and then turn it on again.

\*4

- This message will appear when a single-sided disc is inserted the wrong way (upside down). Reinsert the disc correctly. (Insert the disc with the label printed surface facing toward the outside.)

\*5

- Do not insert a DVD-RW (VF mode)/DVD-R disc that has not been finalized into any DVD recorder. The disc may become unusable.



## Troubleshooting

*If you have any trouble with your camcorder, first use this troubleshooting guide to try to solve the problem. If the problem persists, consult your dealer. Do not attempt to make any physical repairs yourself.*


### Power supplies

Symptom	Cause and Correction	Reference page
Battery cannot be charged.	Is the DC power cord connected to the AC adapter/charger? Unplug it.	18
	Is the battery abnormally hot? Remove the battery, leave it for a while to cool down, then charge it. Is the ambient temperature too low or too high? Charge the battery at 50 – 86°F (10 – 30°C).	—
	Has the battery been unused for a long time? Remove the battery, and then reattach it. If the battery does not charge after trying all of the above, it may be dead. Purchase a new battery.	26
Battery weakens fast.	Are you using the camcorder where the temperature is low? A fully charged battery (DZ-BP14S/DZ-BP14SW/DZ-BP21SW) may be discharged sooner than usual at low temperatures. Keep extra batteries on hand.	25
	Battery may be dead. The performance of the battery will deteriorate if it is used for an extended period of time or frequently. Purchase a new battery.	26
The CHARGE indicator on AC adapter/charger is blinking.	Is the ambient temperature too low or too high? Charge the battery at 50 – 86°F (10 – 30°C). If the battery is completely drained (for example, if it has not been used for over a year), it may take longer to begin charging. Continue charging: after awhile, the battery may recover enough voltage to begin charging normally and the CHARGE indicator will light.	25
Power turns off immediately after being turned on.	Is the battery charged? Charge it.	18
When power is turned on, the LCD screen will turn on and off.		
Power goes off unexpectedly.	Is Power Save set to “On”?	42



Symptom	Cause and Correction	Reference page
Power cannot be turned off.	Detach the battery pack or disconnect the AC adapter/charger, then press <b>RESET</b> . And then, turn on the power again.	25, 109
Even if the camcorder is off, opening the cover will cause the ACCESS indicator to flash.	The camcorder will automatically turn on to recognize a disc. Closing the cover will automatically turn the camcorder off again.	23

### During recording

Symptom	Cause and Correction	Reference page
Pressing the record button will not start recording.	<ul style="list-style-type: none"> <li>Check to see whether the proper type of BD/DVD/Card is loaded.</li> <li>Set the power switch to “HDD” or “BD/DVD”.</li> <li>If the disc is protected, cancel protection.</li> <li>No recording can be done on a finalized disc.</li> <li>Check the remaining free space on the HDD/disc or card.</li> </ul>	21, 27, 72, 77
Recording starts but stops immediately.	<ul style="list-style-type: none"> <li>Is the disc scratched or dirty? Clean the disc. If there is still no improvement, replace the disc.</li> <li>Be sure to use a SD card or Class 4 or greater.</li> </ul>	108
No photo can be recorded.	<ul style="list-style-type: none"> <li>Check to see whether the proper type of card is loaded.</li> <li>Set the Movie/Stills switch to “”.</li> <li>If the card is locked, unlock it.</li> <li>Check the remaining free space on the card.</li> </ul>	22, 29, 72
The LCD screen is hard to see.	Has the brightness of the LCD screen been adjusted? Stop recording and adjust the brightness.	42
The subjects have color fringing.	This is not a malfunction. Color fringing can be seen on a high-contrast or fine-textured subjects.	—
A subject appears distorted.	This is not a malfunction. Due to the nature of the image sensor (CMOS sensor), subjects may appear slightly distorted.	—
Horizontal lines appear on the screen.	This is not a malfunction. These symptoms may appear under fluorescent lighting, mercury lamps, sodium-vapor lamps, among others.	—
A bright dot appears on the screen.	This is not a malfunction. A bright dot or bright dots can be seen on a dark subject on rare occasions.	—




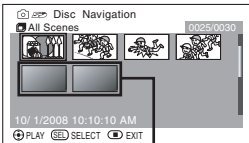
Symptom	Cause and Correction	Reference page
The subjects are recorded too dark.	An out-of-frame light source (sun, window, lights, etc.) is strong, and the subjects are lit from the rear. Use the Backlight Compensation function and be creative with angles.	47
The brightness of the subjects changes.	The brightness of the subjects as the light source changes and camcorder automatically adjusts exposure.	—
The edges of bright and dark subjects are blurred and discolored.	This is not a malfunction. The subjects may be too high in contrast. Be creative to find a good angle and reduce the contrast among subjects.	—
The moving subject looks blurred in pause during playback.	The image will be less blurred when there is a better light source during recording.	—
The sound volume changes during recording.	This is not a malfunction. The camcorder automatically adjusts the volume level for recording sound. Recording volume level cannot be adjusted manually.	—
The LCD screen appears unevenly.	Did you press the LCD monitor or the area around it? If the LCD monitor is pressed, some distortion will occur. Release your hand and leave the LCD monitor for a while. The LCD screen will recover.	—
Focus is not correct.	Is it difficult to use auto focus with your subject? Focus manually.	45
	Does the manual focus icon appear? The camcorder is set to manual focus. Focus the subject manually, or release manual focus.	45
	If the above causes do not apply, turn off the power and turn it on again.	—
An error message for repair appears.	Follow the on-screen instructions to repair. You must connect the AC adapter/charger to the camcorder to make repairs. Depending on the situation, it could take from a few minutes to several hours for repair. If you wish to start recording immediately, replace the disc, and do the repair later. The removed disc can be repaired after you connect the AC adapter/charger to the camcorder.	25



## During playback

Symptom	Cause and Correction	Reference page
Recognition of the disc does not complete.	Is the disc dirty? Use a dry soft cloth to clean it.	108
Pressing the playback button will not start playback.	Was the image recorded by another device? Playback may not be possible on this camcorder.	—
	Has a scene been edited on another device? If a scene recorded on this camcorder is edited on another device, playback may not be possible on this camcorder.	—
No playback picture appears on the TV screen.	Is the TV input selector set correctly? Check whether the correct input was selected on the TV to match the connected jacks. If the camcorder is connected to a VCR, set its input selector to "external input (LINE)".	75
	Is the camcorder connected to the TV correctly? When connected through the HDMI terminal, video will not display for a TV which is not 1080i compliant. Please change the terminal.	73
The disc menu does not appear when playing back a finalized BD-RE disc on a player.	Use the camcorder and unfinalize it first, and then finalize it again.	77, 78
Recorded pictures appear vertically long.	If you connect the camcorder to a standard (aspect ratio 4:3) TV which is not widescreen television, the image on the TV screen will appear vertically long.	74
Playback picture is momentarily interrupted.	Is the disc scratched or dirty? Clean the disc.	108
No sound.	If you are viewing images on a TV, is the TV volume control set correctly? Adjust the TV volume.	75



Symptom	Cause and Correction	Reference page
Not displayed normally in the disc navigation screen.	<p>BD, DVD-RAM, DVD-RW(VR mode), SD Card recorded on this camcorder and edited on another device may not be displayed normally in the disc navigation screen. In this event, use "Update control info."</p> <p>If too much time is required to display the HDD disc navigation screen, try the following.</p> <ol style="list-style-type: none"> <li>1 Press , then press <b>MENU</b>.</li> <li>2 Select "Disc setting" or "HDD setting" or "Card setting" by pressing /1/2, then press the confirmation button.</li> </ol> <p>The "Update control info." confirmation screen appears.</p> <ol style="list-style-type: none"> <li>3 Select "YES" by pressing , then press the confirmation button.</li> </ol> <p>Update of control information will begin. While "Updating..." is being displayed, a black screen may appear (and time may be required).</p> <p>(There are some BD/DVD/Card which cannot be used even by following the above procedures.)</p>	—
The disc navigation screen does not show more than 3,999 stills from the inserted card.	If the inserted card contains more than 3,999 still pictures, only 3,999 stills can be shown in the disc navigation screen. However, it is possible to play back more than 3,999 pictures.	—
Photos on a card cannot be played back.	<p>This camcorder can play back image data recorded onto memory card using other digital cameras conforming to DCF standards. However, depending on the recording condition of the image data taken by other digital cameras, blue thumbnails (see * of the illustration below) appear, and playback of these images may not be possible.</p> <p>Fig. 1</p> 	—
It takes some time to play back photos.	Stills with a large number of pixels will take more time to appear.	—


### When the camcorder is connected to a PC

Symptom	Cause and Correction	Reference page
No medium icon appears on the PC.	The camcorder is not turned on. Check the power supply.	19
	Turn the PC off and disconnect the USB cable. Then turn the PC back on and reconnect the cable.	—
An error occurs while playing back movies recorded on the camcorder using the PC.	Playing back High Definition (HD) movies requires high data processing power. Quit other applications and play back again.	79
The software does not run correctly on the PC.	Turn the PC and camcorder off, and try again.	—
An error occurs during writing to a disc.	The temperature of the camcorder is too high due to continuous operation. Disconnect the camcorder from the PC, remove the disc from the camcorder, and then turn it off. After a few moments, connect them again and write to a brand-new disc.	82
Transfer of images stops.	Is the disc scratched or dirty? Clean the disc.	108
An error appears when starting ImageMixer 3 AVCHD Edition for HITACHI.	Make sure that your PC display adapter (video card) conforms to Direct X® 9.0c.	79
The <b>DISC EJECT</b> switch does not work when the camcorder is connected to a PC.	While the camcorder is connected to the PC, use Explorer to right-click the camcorder drive icon and select "Eject".	82
When the time stamp of a file on a disc is viewed on a PC, it is different from the actual recording time.	The file system of this camcorder is operated on Greenwich Mean Time (GMT), and time lag information has not been set. The time stamp of files viewed on Explorer looks different from the actual recording time. The actual recording time will appear for the date/time indication on the playback screen.	—
It takes a long time to save a video edited.	If you are editing a video file whose contents are different from those of the project settings, it may take some time, since the entire video file must be re-encoded. Reconfirm the project settings.	—
Unable to import scenes from BD-R/DVD-RW/DVD-R.	Before importing scenes from the disc, disconnect the camcorder from the PC and finalize it. Once finalized, you cannot add a scene (except DVD-RW (VR mode)).	77

## Miscellaneous

Symptom	Cause and Correction	Reference page
The camcorder does not work.	Is a fully charged battery attached? Is the camcorder powered from an AC outlet? Connect a power source.	18, 25
Power does not come on, or no operation occurs by pressing any button.	Press <b>RESET</b> , then turn on the power again.	109
	Has the camcorder been subjected to impact? The camcorder could be damaged. Consult your dealer.	—
The date and time are incorrect.	Has the camcorder been left unused for a long period of time? The internal backup memory battery may be discharged. Connect the AC adapter/charger to recharge it.	43
No scene can be deleted.	Is the cursor placed on the scene to be deleted? If the selected scene is framed in red, it can be deleted, even if you use yellow cursor to select the scene. Check the colors of the cursor and bar graph on the thumbnail screen.	66
Disc cannot be removed. (Cover will not open.)	Connect a charged battery or the AC adapter/charger to the camcorder, and then turn the power switch to "OFF", then press down the <b>DISC EJECT</b> switch.	18, 25
Unable to playback the recorded BD-RE/BD-R/DVD-RW (VF mode)/DVD-R disc on a BD/DVD player/recorder.	Use the camcorder and finalize the BD-RE/BD-R/DVD-RW (VF mode)/DVD-R disc.	77
The remote control does not operate.	Do you operate the remote control toward the remote control receiver of the camcorder?	16
	If the camcorder's remote control receiver is exposed to strong light such as direct sunshine or fluorescent light, the remote control does not work. Adjust the position or angle of the camcorder.	—
	Is the lithium battery inserted in the remote control? Check that the polarization of the lithium battery is correctly set. The lithium battery may be empty. Replace the battery to a new one.	16
	Is the camcorder powered on? If not, turn on the camcorder.	19



Symptom	Cause and Correction	Reference page
Disc cover cannot be closed.	Is the disc correctly inserted? Remove the disc and then reinsert it.	23
	Connect a fully charged battery or AC adapter/charger, and then turn the camcorder on and try again.	18, 25
Operating noise is heard.	This is not a fault. A quiet operating sound is heard as the disc rotates during recording or playback, etc.	—
Some vibrations are felt or slight sound is heard from mechanism.	These vibrations or sound are caused by HDD/disc drive. This does not indicate a fault.	—
<ul style="list-style-type: none"> <li>No operation can be performed because the ACCESS indicator on this camcorder remains lit or flashing.</li> <li>After a disc or card is inserted, it takes some time until recording is possible.</li> </ul>	In the following cases, it will take more time than usual until operation is possible: <ul style="list-style-type: none"> <li>Immediately after a disc is inserted.</li> <li>When a long time has elapsed since the camcorder was turned off last.</li> <li>When the temperature is greatly different from the status of previous recording.</li> <li>When a scratched or dirty disc is inserted.</li> <li>When the camcorder is subjected to strong vibrations.</li> <li>When the battery or DC power cord was disconnected before turning the power switch off.</li> </ul>	—
No image appears on the LCD screen.	<ul style="list-style-type: none"> <li>Is the camcorder connected to a PC with a USB cable? Disconnect the USB cable.</li> <li>In playback mode, did the last scene viewed end in a wipe to black edit? Press .</li> </ul>	68, 81

## **Cautions on Use of this Product - Be sure to read this information -**

### **● Cautions on the HDD**

#### **Save the data recorded on HDD.**

- To back up the data recorded on HDD, save it on a BD/DVD.  
It is also recommended that you use this camcorder to dub the data. You can also use a PC to save the data on a BD/DVD.
- It is recommended that you periodically save your recordings.

#### **Do not place this camcorder near a magnet or magnetic field.**

- If you so, recording, playback or dubbing may not be possible.

#### **Do not subject the camcorder to impacts.**

- This camcorder cannot be used while sky diving, riding on a roller coaster, bungee jumping, or other situations where weightless or large impacts may ensue.

### **● Cautions on use**

#### **This camcorder is not intended for professional-use.**

- The camcorder is designed and produced for home-use recording and playback. Do not use the camcorder for professional applications.

#### **The LCD is a very delicate display device.**

- Do not hold the LCD monitor when lifting the camcorder.  
The LCD monitor could detach and the camcorder may fall.
- Do not press its surface with force, hit it or prick it with a sharp object.
- If you push the LCD surface, unevenness in display may occur.
- Do not place the camcorder with the open LCD monitor down.
- Close the LCD monitor when not using the camcorder.

#### **Liquid crystal display (LCD)**

- The LCD monitor is a product of highly precise technology. Among the total number of pixels (approx. 210,000 pixels for LCD monitor), 0.01% or less pixels may be missing (black dots) or may remain lit as colored dots (red, blue, green). This shows the limitations of the current technology, and does not indicate a fault that will interfere with recording.

#### **Do not subject the camcorder to impact.**

- This camcorder is a precision machine. Take great care that you do not strike it against a hard object or let it fall.



**Do not point directly at the sun.**

- If direct sunlight strikes the lens, the camcorder could malfunction or a fire could occur.
- Do not leave the camcorder with the LCD monitor exposed to direct sunlight: This could cause malfunctions.

**No sand or dust!**

- Fine sand or dust entering the camcorder or AC adapter/charger could cause malfunctions or defects.

**Heat on surface of product**

- As the disc mechanism will be very hot immediately after use, do not touch the metallic parts.
- The surfaces of the camcorder, AC adapter/charger and battery will be slightly warm, but this does not indicate a fault.

**Be careful of ambient temperature.**

- If the temperature of this camcorder is too high or too low, normal recording/playback may not be possible.
- Take care that the temperature of this camcorder, when connected to PC does not rise excessively.
- If you need to use the camcorder for recording/dubbing to BD/DVD in a place where the temperature is high, avoid overheating by using the camcorder intermittently.

**Be careful of moisture condensation.**

- When you move the camcorder between places where the difference in temperatures is great—such as entering a lodge from a ski slope or going out of a cooled room or vehicle—condensation (vapor in air warmed or cooled to water droplets) could occur on the lens and/or inside the camcorder. If condensation occurs, do not open the disc compartment lid or card slot cover if possible. If condensation occurs on the lens, wipe it off with a soft, dry cloth. Even if the external surface of camcorder has dried, condensation may remain inside. Therefore, turn the camcorder off and leave it in a dry place for at least 1–2 hours before using it again.

**Do not use the camcorder near strong radio waves or magnetism.**

- If the camcorder is used near strong radio waves or magnetism, such as a radio wave tower or electric appliances, recording or playback may stop, or noise could enter the video and audio that are being recorded. During playback of normally recorded video and audio, noise may also be present in picture and sound.  
At worst the camcorder could malfunction.

**Do not expose the camcorder to insecticide.**

- Insecticide entering the camcorder could dirty the pickup, and in such a case, the camcorder might not operate normally.

**Do not use a generally available 8 cm CD lens cleaner.**

- Cleaning the DVD lens is not necessary when using this camcorder in the usual way.
- Using 8 cm CD lens cleaner could cause this camcorder to be faulty.
- If you have to clean the lens, use a Hitachi Maxell cleaner that is exclusively for 8 cm DVD discs.

## ● Cautions on Storage

**Do not leave the camcorder in a place where the temperature is very high for a long period of time.**

- The temperature on beach sand or inside a closed vehicle or trunk can become very high in a hot season. If you leave the camcorder in such a place, it could malfunction or the case could be damaged.
- Leaving the battery attached or storing it at high temperature could shorten its life. Detach the battery from the camcorder and store it in a cool place.

**Do not store the camcorder in a place where the humidity is high or in a dusty place.**

- Dust entering the camcorder could cause malfunctions. If the humidity is high, the lens could be moldy, and the camcorder could become inoperable. It is recommended that you put the camcorder with desiccant in a box when storing it in a closet, etc.

**Do not store the camcorder in a place subject to strong magnetism or intense vibrations.**

- This could cause malfunctions.

## ● Cleaning

**Be sure to set the power switch to “OFF” before cleaning the camcorder.**

**Cleaning the LCD monitor**

- Use dry, soft cloth to wipe dirt off. When cleaning the LCD monitor, be careful not to use force, scratch it, or subject it to impact.

**Cleaning the surface of the camcorder**

- Use soft cloth to gently wipe dirt off the surface of the camcorder.

**Do not use benzene or thinner to clean the surface of the camcorder.**

- The coating of the case could peel off or the case could deteriorate. Wipe off dirt on the case with a dry soft cloth which has been completely wrung out. When using a chemical cleaning cloth, follow instructions for use.

## ● Handling HDD/Discs/Card

**Using HDD/discs**

- Do not do the following when the ACCESS indicator is lit:
  - Shake or subject the camcorder to impacts, or open/close the LCD monitor.
  - Remove the battery or AC adapter.
  - Remove the recording media.

As the ACCESS indicator will remain lit for a while after concluding recording, please continue to observe the above precautions while the indicator is lit.

- While using BD/DVD, if the power is cut accidentally while the ACCESS indicator is lit or flashing, connect the AC adapter and then turn on the power again. When using a BD/DVD, turn the power back on while the BD/DVD is loaded in the camcorder. The BD/DVD will be restored. (p.89)

- Use a disc which is not dirty, scratched, or warped. (BD/DVD)
- A Hitachi Maxell disc is recommended. (BD/DVD)
- Do not use the camcorder in a place where the humidity is high or the temperature is very low.
- If there is concern that the camcorder may be subjected to large vibrations or impact during transport, remove the BD/DVD/Card and protect the camcorder using soft protective materials.
- When the camcorder is subjected to an impact while a BD/DVD disc is loaded, a mark may form on the disc surface due to the impact protection function for the disc and pickup. This mark can be wiped off using a dry soft cloth.
- Be careful when removing the disc since the metal of removal slot of camcorder, and disc itself, may be hot.
- For card handling, see p.22.

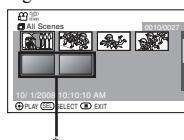
### Storing discs

- If the camcorder is not used for long periods of time, remove the disc from the camcorder.
- When storing disc, replace it in the plastic case in which it was purchased.
- Be careful that no condensation occurs on disc.
- Do not place disc in following places:
  - **Direct sunlight for a long time**
  - **Where humidity is high or in dusty place**
  - **Where there is heat from a heater, etc.**

If the above countermeasures are not taken, the following symptoms may occur:

- Block noise in playback image, momentary stop of playback image
- Sound interrupted during playback, or abnormal sound
- Blue thumbnail display\* (Fig. 1)
- Disc cannot correctly be recognized
- Disc cannot be initialized
- Recording/Playback is not possible

Fig. 1








Block noise

### ● Disc Cleaning

- Use a dry soft cloth to lightly wipe off any dirt adhering to the disc as shown in the figure. Do not wipe the disc with force: Doing so could cause scratches. Never use solvent (thinner, water, antistat or detergent) for cleaning.



### Note when transferring this camcorder or discarding discs and cards

- The “Format” function on this camcorder will only change the file control information. It will not completely delete the data in the built-in hard disk and your personal data could leak out. To prevent the data from leaking out, execute complete deletion of the HDD following the procedures below.
  - 1 While the camcorder is in HDD recording pause mode, press , then press **MENU**.
  - 2 Press  to select “HDD Setting”, then press .
  - 3 Press  to select “Full Format”, then press the confirmation button.
  - 4 Press  to select “YES”, and then press the confirmation button to confirm the setting and begin HDD full format.
- When transferring or discarding a disc, it is recommended that you physically destroy it or use deletion exclusive software (generally available) to completely delete the data on it. It is user’s responsibility to control the data on disc and memory card.
- Hitachi will not accept any responsibility for leaking of personal data.

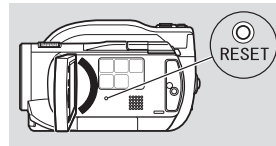
## System Reset

If the camcorder does not operate normally, perform “System Reset”. The camcorder may recover to normal. “System Reset” will reset all settings to the factory defaults. The date and time will also be reset. Set the date and time again before using the camcorder.

- 1 Set the power switch to “OFF” to turn the camcorder off.  
Detach the battery or AC adapter/charger.
- 2 Use a fine tipped pen to hold down **RESET** for several seconds.  
All settings will be reset.

### Note

Do not press **RESET** with undue force.



## End User License Agreements for Operating System Software

### OPERATING SYSTEM LICENSE INFORMATION

This HITACHI CAMCORDER incorporates certain open source operating system software distributed under the GNU GENERAL PUBLIC LICENSE Version 2 and GNU LESSER GENERAL PUBLIC LICENSE Version 2.1 as defined by the Free Software Foundation, Inc.

The operating system software incorporated in this HITACHI CAMCORDER is shown in the table below and the applicable license(s) are detailed on the following pages of this instruction manual.

Software Module	Applicable Software License
Linux Kernel busybox libgcc lzo U-Boot	GNU GENERAL PUBLIC LICENSE Version 2
glibc	GNU LESSER GENERAL PUBLIC LICENSE Version 2.1

If you want to know more about the Software Module, please E-mail us at:  
tvsoftwaresupport@hhea.hitachi.com

The accompanying CD-ROM contains the license agreement for DZ-BD10HA. Please review the license agreement to ensure that you remain in compliance with the agreement. The license agreement "license.pdf" is stored in the "License" folder on the CD-ROM. You will need Adobe Acrobat Reader to view the file. You may download Adobe's Acrobat Reader from the Adobe web site (<http://www.adobe.com/>) for free.

## Major Specifications

Image sensor		1/2.7-inch CMOS sensor
		Total number of pixels approx. 7,000,000 Number of effective pixels Movie: approx. 4,670,000 Still: approx. 6,220,000
Lens		F1.8–3.0 $f = 1/4'' - 2-7/16''$ (6.1– 61 mm) Filter diameter: 1-11/16'' (43 mm) Thread pitch: 0.75 mm
Zoom		Movie: 10x–240x with digital zoom added Stills: Optical 10x
Required minimum illumination		In Auto: 5 lx (Electro-mechanical shutter 1/30)
LCD monitor		2.7-inch color TFT (approx. 211,000 pixels)
Image stabilizer		Optical type
Capacity of built-in HDD		Approx. 30 GB
Movie recording pixels		HX: 1920 × 1080 HF/HS: 1440 × 1080 SX/SF: 720 × 480
Recordable discs		8 cm BD-RE 7.5 GB 2x (Ver. 2.1) 8 cm BD-R 7.5 GB 2x (Ver. 1.1) 8 cm DVD-RAM (conforming to DVD-RAM Ver. 2.1) 8 cm DVD-RW (conforming to DVD-RW Ver. 1.1, 2x speed [2x/1x]) 8 cm DVD-R (conforming to DVD-R for General Ver. 2.0)
Recordable card		SDHC memory card, SD memory card
Recording format	Movie	HDD/Card: AVCHD standard BD-RE: BD-RE Ver 3.0 standard BD-R: BD-R Ver 2.0 standard DVD-RAM/DVD-RW (VR mode): Conforming to DVD video recording (DVD-VR) format DVD-RW (VF mode)/DVD-R: Conforming to DVD video format * Audio: Dolby Digital
	Still	JPEG standard Wide mode: Normal (4:3) 2880 × 2160 pixels Wide mode: Wide (16:9) 2880 × 1620 pixels When capturing stills: HDD/BD/Card: 1920 × 1080 pixels DVD: 640 × 360 pixels

Jacks	HDMI mini OUT terminal × 1, Component output × 1, Video/audio output × 1, USB terminal (connected to PC USB port) × 1
Power consumption	When recording in HX mode with LCD monitor off Approx. 7.0 W (during HDD use)
Dimensions (W × H × D) (including supplied battery pack, excluding hand strap)	Approx. 3-1/8" × 3-7/16" × 5-1/2" (79 × 87 × 140 mm)
Operating temperature (humidity)	32 – 104°F (0 – 40°C) (less than 80%) 32 – 86°F (0 – 30°C) when connected to PC
Allowable operating altitude	9,842 feet (3,000 m) or less
Weight	Approx. 1.10 lb (500 g) (without battery pack nor disc/card)
Total weight when recording	Approx. 1.27 lb (575 g) (When using the battery pack DZ-BP14S and disc)

## ■ Movie

### Storage capacity of HDD/BD/DVD/Card (8GB)

Recording quality	Movie recordable time		
	HDD	BD	Card
HX (High quality)*1	Approx. 4 hours 20 minutes	Approx. 1 hour	Approx. 1 hour 5 minutes
HF (Standard quality)*2	Approx. 5 hours 45 minutes	Approx. 1 hour 20 minutes	Approx. 1 hour 25 minutes
HS (Max.)*3	Approx. 8 hours 40 minutes	Approx. 2 hours	Approx. 2 hours 10 minutes

#### Note

If recording is performed in HX mode within high temperature environments, the image quality may be degraded to an HF equivalent.

#### • Recordable time on DVD

Movie recordable time on one DVD (on single side) (when recording only movies)

Recording quality	Movie recordable time
SX (High quality)*4	Approx. 20 minutes
SF (Standard quality)*5	Approx. 30 minutes

\*1: Variable bit rate approx. 15 Mbps (of which, audio 256 kbps)

\*2: Variable bit rate approx. 11 Mbps (of which, audio 256 kbps)

\*3: Variable bit rate approx. 7.5 Mbps (of which, audio 256 kbps)

\*4: Variable bit rate approx. 9 Mbps (of which, audio 256 kbps)

\*5: Variable bit rate approx. 6 Mbps (of which, audio 256 kbps)

• **Maximum number of scenes that can be recorded/dubbed on HDD/one disc/ card**

Recording media	Maximum number of scenes
HDD <sup>*1</sup>	3999 <sup>*3</sup>
BD-RE <sup>*2</sup> /DVD-RAM <sup>*2</sup> /DVD-RW <sup>*2</sup>	999 <sup>*3</sup>
BD-R <sup>*2</sup>	750
DVD-R <sup>*2</sup>	930
Card	3999

\*1: Recording only

\*2: Per disc (one side)

\*3: Combining scenes will not increase the remaining number of recordable scenes.  
If there are combined scenes, the maximum number of scenes in the table may not be the same as the actual maximum number of scenes that can be recorded/dubbed.

• **Maximum number of dates that can be recorded/dubbed on HDD/one disc/ card**

Recording media	Maximum number of dates
HDD <sup>*1</sup>	999
BD-RE <sup>*2</sup>	900
BD-R <sup>*2</sup>	750
DVD-RAM <sup>*2</sup> /DVD-RW <sup>*2</sup> /DVD-R <sup>*2</sup>	99
Card	999

\*1: Recording only

\*2: Per disc (one side)

## ■ Stills

• **Recordable number of stills per card**

Wide Mode Setup	SD 512MB	SD 1GB	SD 2GB	SDHC 4GB
Normal (4:3)	Approx. 130 stills	Approx. 260 stills	Approx. 520 stills	Approx. 1,000 stills
Wide (16:9)	Approx. 180 stills	Approx. 360 stills	Approx. 720 stills	Approx. 1,400 stills

• **File size**

Wide Mode Setup	File size
Normal (4:3)	Approx. 3.6MB
Wide (16:9)	Approx. 2.7MB

**Note**

Still cannot be recorded on HDD/BD/DVD.



## Glossary

### 1080i(1125i)/480i(525i)

These are types of video signals. 1080i is a High Definition image signal and 480i is a former image signal which is not High Definition. Depending on the equipment, 1080i may be referred to as 1125i, and 480i may be referred to as 525i.

### AVCHD

Advanced Video Codec High Definition is a high-definition recording format that uses the latest compression scheme (MPEG-4 AVC/H.264).

### Component jacks (Component video input jacks)

Connect the camcorder to a TV. You can easily transmit a component video signal and control signals (aspect ratio, scan line, etc.) via the supplied component video cable.

### DCF (Design rule for Camera File system)

A JEITA specification (number CP-3461) which defines a file format and file system for digital cameras. You can use image files on any cameras that support DCF.

### Finalize

The process of enabling you to play back BD-R/DVD-RW (VF mode)/DVD-R recorded on this camcorder using other BD/DVD recorders/players.

### Formatting

The process of preparing a disc for use by creating an empty file system. This is also known as initializing a disc.

### HDMI output terminal

Connects the camcorder to a TV. The HDMI output terminal provides better picture quality on the connected TV than the component jacks.

### HD movie image quality/ HD image quality

Refers to High Definition image quality. HD is an abbreviation for High Definition.

### NTSC

NTSC is in use in the United States, Japan, Taiwan, South Korea, the Philippines, Central and South America, and some other countries.

### PAL

PAL is one of the standard color television systems. PAL is in use in Europe, China, and some other countries.

### SD memory card

A memory card standard for recording images. This camcorder allows for recording still images to SD memory card.

### SDHC memory card

SDHC (Secure Digital High Capacity, SD 2.0) is an extension of the SD standard. It allows higher capacities in excess of 2 GB (FAT32 file system format supports partition sizes greater than 4 GB) and offers better performance.

### SD movie image quality/ SD image quality

Refers to an image quality standard that is not High Definition. SD is an abbreviation for Standard Definition.

**VF (Video) mode**

One of two modes for using a DVD-RW disc.

You need to finalize a DVD-RW disc in VF mode before playing it back on another device. After finalizing, you cannot make additional recordings on the DVD-RW disc, regardless of its free space. The advantage of VF mode is that it is highly compatible with other DVD players.

**VR mode**

One of two modes for using a DVD-RW disc.

The advantage of VR mode is that you can edit (split, delete, and combine) movies using the camcorder, and, by deleting unnecessary scenes, you can free up space for more recording.



## Index

### A

AC adapter/charger .....	18, 25
ACCESS indicator .....	23, 107
Auxiliary Line .....	51
AVCHD .....	114

### B

Backlight compensation .....	47
Battery pack	
charging .....	18
life .....	26
BD	
available functions .....	21
cleaning .....	108
handling .....	107
protect .....	72
recorder .....	12
storing .....	108
BD-R/BD-RE	
finalize .....	77
format .....	71
insert/remove .....	23, 24, 27
note .....	22
Beep .....	42
B/W (fade) .....	68

### C

Card	
available functions .....	21
format .....	71
handling .....	22
insert/remove .....	29
CARD ACCESS indicator .....	15, 30
Category .....	60
Combine .....	67
Component output .....	74
Component terminal .....	74
Connecting PC .....	81
Connecting TV .....	73

### D

Date select .....	63
Date setup .....	20
DCF .....	114
Defaults .....	52
Delete (playlist) .....	65, 66
Delete (scene) .....	66
Demo mode .....	43
Detail .....	70
Digital zoom .....	44
Disc navigation .....	34, 61
exit .....	34
Divide .....	67

### Dubbing

Dub mark .....	57, 60
from HDD to disc .....	56
mark off .....	60

### DVD

available functions .....	21
cleaning .....	108
handling .....	107
protect .....	72
recorder .....	12
storing .....	108

### DVD-R

finalize .....	77
insert/remove .....	23, 24, 27
note .....	22

### DVD-RAM

format .....	71
insert/remove .....	23, 24, 27

### DVD-RW

finalize .....	77
format .....	71
insert/remove .....	23, 24, 27
unfinalize .....	78

### E

Edit (playlist) .....	64, 65
Edit (scene) .....	66, 67
Error message .....	89
Exposure control .....	46

### F

Face Detection .....	50
Fade .....	68
Finalize .....	76
Flash .....	52
Format .....	71
Frame advance/Frame back .....	38
Full format .....	109

### G

Go to (on Disc Navigation) .....	69
GUIDE button .....	7, 15

### H

Hand strap .....	16
HDD	
available functions .....	21
format .....	71
HDD complete deletion .....	109
HDMI terminal .....	73



<b>I</b>	
Information Display during playback .....	37
Information display during recording .....	31
Information display mode .....	31, 37
Initial Setup .....	42
<b>J</b>	
Jump .....	36
<b>L</b>	
Language .....	20
LCD adjust .....	42
LCD monitor	
handling .....	105
How to open .....	17
setting .....	42
Lock .....	69
<b>M</b>	
Manual focus .....	45
Menu .....	41, 42, 61
MIC. Filter .....	51
<b>O</b>	
OIS .....	50
Output Functions Setup .....	74
<b>P</b>	
PHOTO capture .....	40
Play	
playlist .....	64
Repeat Play .....	40
Slide Show .....	39
Playlist .....	63
Power Save .....	42
Program AE .....	47
Protect .....	72
<b>Q</b>	
Quick Start .....	33
<b>R</b>	
Recording LED .....	53
Remote control	
Inserting a battery .....	16
Repeat play .....	40
Reset .....	42

<b>S</b>	
Scene	
Detail .....	70
SDHC memory card .....	22
SD memory card .....	22
Searching for image .....	38
Self timer .....	55
Skip (scene) .....	38
Slide show .....	39
Slow playback .....	38
System reset .....	109
<b>T</b>	
Tele-conversion lens .....	45
Transferring data to your PC .....	83
Tripod .....	48
<b>U</b>	
Unfinalize .....	78
Update control info. ....	101
USB cable .....	81
<b>V</b>	
Volume .....	37
<b>W</b>	
White balance .....	48
White fade .....	68
Wide Mode .....	54
Wide conversion lens .....	45
Wipe fade .....	68
<b>Z</b>	
Zoom .....	44



## Be sure to read the following before opening the package of CD-ROM

This Agreement will take effect at the moment you open the package of the storage device (CD-ROM) provided with this product, if you agree to the terms herein.

If you do not accept the terms of this Agreement, immediately return the unopened package of storage medium and enclosed materials (printed matter, external package, and all others) to your dealer, or return only the package of storage medium to your dealer.

Consult your dealer for any refund on the unused product. However, if only the package of storage medium is returned, no refund is possible.

This License Agreement certifies that you were granted license in the past.

### License Agreement

#### ■ Grant of License

- Hitachi, Ltd. nonexclusively grants you the right to install this program in one computer and use it, but this right cannot be transferred to a third party.
- You can duplicate one copy of this program in a form readable on computer, but only for the purpose of backup, and under the condition that the display concerning the copyright remains in the original status.

#### ■ Prohibition

- This program may not be used on network. If you wish to use it for multiple computers on network, you must obtain the right of use for each computer from Pixela Corporation.
- You may not let any third party use this program by granting reuse, transfer, lease, lending, etc.
- You may not modify, alter, decompile or disassemble all, or any part, of this program or its accessories. And you may not allow any third party do so.

#### ■ Termination of Agreement

If you duplicate this program and its accessories without permission, or fail to comply with the above granting conditions, this agreement will automatically be terminated. In addition, Pixela Corporation may take legal action. When the agreement is terminated, you will be obliged to discard this program, its accessories and all duplicates, or return them to Pixela Corporation.

#### ■ Guarantee and Immunity

This program and its accessories shall not, explicitly or implicitly, conform to the merchantability or compatibility for your specific purpose of use. Pixela Corporation does not guarantee that the functions of this program will meet your needs or this program will be free from interruption or error during its operation.

Under no circumstances will Pixela Corporation accept any responsibility for any direct or indirect losses or damages you may incur from using this program or activities relating to its use, or for any conflict occurring between you and a third party originating from, or relevant to, use of this program.

## To Order in the United States

BY PHONE

**Service Hotline: 1-800-HITACHI  
(1-800-448-2244)**

---

### **DECLARATION OF CONFORMITY**

with FCC Rules for Electromagnetic Compatibility

Products: CAMCORDER  
Models: DZ-BD10HA  
Trade Name: HITACHI

This device complies with part 15 of FCC Rules.  
Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party: HITACHI AMERICA, LTD.  
Home Electronics Division  
900 Hitachi Way  
Chula Vista, CA 91914-3556 U.S.A  
Tel: 619-591-5200

Additional Information



### Warranty Limitations

The Limited Warranty provided by Hitachi does not cover:

- A. Cabinet (exterior finish items), Battery packs, Accessories, Lens Cleanings, Head Cleanings, DVD Disc Damage, Video Tape Damage, or Software Modifications.
- B. Any defect, malfunction, or failure caused by or resulting from improper service, maintenance, repair, use of DVD Cleaning Disks, use of Video Cleaning Cassettes, software, or from abuse, neglect, accident or any other cause beyond the control of Hitachi.
- C. Unpacking, set-up or installation, adjustment of customer operated controls, user instruction.
- D. Any product with Serial Numbers altered or removed.
- E. New products purchased or service performed outside of the continental United States or its possessions.
- F. Product used for a commercial or industrial purpose.

NO PERSON, AGENT, DISTRIBUTOR, DEALER, SERVICE FACILITY, OR COMPANY IS AUTHORIZED TO CHANGE, MODIFY, OR AMEND THE TERMS OF THIS LIMITED WARRANTY IN ANY MANNER OR FASHION WHATSOEVER, EXCEPT AND TO THE EXTENT PROVIDED IN THIS LIMITED WARRANTY. HITACHI MAKES NO EXPRESS WARRANTY REGARDING THIS HITACHI PRODUCT. FURTHER, ALL IMPLIED WARRANTIES RELATING TO ANY PORTION OF THIS PRODUCT, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO 90 DAYS FOR LABOR AND ONE YEAR FOR PARTS. THE DURATION OF THE APPLICABLE EXPRESS WARRANTY CONTAINED ABOVE. HITACHI SHALL NOT BE LIABLE TO THE PURCHASER OR TO ANY OTHER PERSON FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSS OF PROFIT OF PRODUCT RESULTING FROM ANY DEFECT IN OR MALFUNCTION OR FAILURE OF THIS HITACHI PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

### Important Notice:

Retain your sales receipt for warranty purposes. Please complete the section below for your records as it may be needed in the event of loss.

Attach your sales receipt to this card.

### *DVD, VCR, Camcorder Products, AC Adapter Charger Limited Warranty Registration*

(for your records)

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Dealer Name \_\_\_\_\_

Dealer Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

# HITACHI

# HITACHI

Hitachi America, Ltd.  
Home Electronics Division

## LIMITED WARRANTY

Hitachi America, Ltd., Home Electronics Division  
("Hitachi,") warrants this component in duration as  
stated below:

- **DVD Products**
- **VCR Products**
- **CAMCORDER Products**
- **AC ADAPTER CHARGER**

- 90 DAYS LABOR (Carry-in)
- 1 YEAR PARTS (Except Battery)

For information concerning repairs, operation,  
technical assistance or for referral to the location of  
your nearest Authorized Service Facility or Parts  
Distributor, call: 1-800-HITACHI (1-800-448-2244)

### Conditions of Hitachi Limited Warranty

These Hitachi Products are warranted to be free  
of defects in parts and workmanship at the time  
of purchase by the original owner. If this product  
is found to be defective, Hitachi will repair or  
replace defective parts at no charge to the  
original owner. Parts used for replacement are  
warranted for the remainder of the Original Limited  
Warranty period. For 90 days from the date of  
original purchase, Hitachi will provide labor for the  
repair or replacement of defective parts without  
charge, subject to the following conditions:

1. Owner must provide verification of the date of  
purchase when requesting Limited Warranty  
Service. (Dated Sales Receipt Required)
2. All repairs must be performed by a Hitachi  
Authorized Service Facility.
3. This warranty is valid only in the U.S.A.

HITACHI AMERICA, LTD.  
HOME ELECTRONICS DIVISION  
900 Hitachi Way  
Chula Vista, CA 91914-3556  
Tel: 1-800-HITACHI

REGISTER YOUR HITACHI PRODUCT  
ON-LINE AT [HITACHI.COM/TV](http://HITACHI.COM/TV)