JVC

EN

GUIDEBOOK

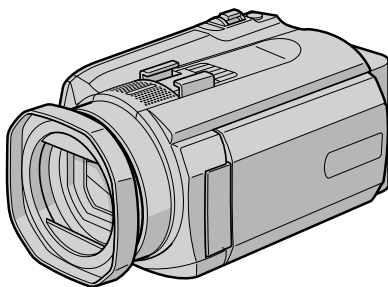## HD HARD DISK CAMCORDER

GZ-HD5 AA/AG/AH
GZ-HD6 AA/AG/AH

Dear Customers
Thank you for purchasing this hard disk camera. Before use, please read the safety information and precautions contained on pages 4 and 5 to ensure safe use of this product.

HDD   microSDHC™   **i**

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Record in High-Definition!

Select the mode which suits your purpose.
- **FHD**   To record in full high-definition
- **SP**   To record in higher quality video
- **LP**   To record a longer time
- **1440 CBR**   If you want to copy and edit the video as high-definition images by i.LINK output

■ **To change the settings**
See page 66.

Full high-definition	1080
FHD	
1920	

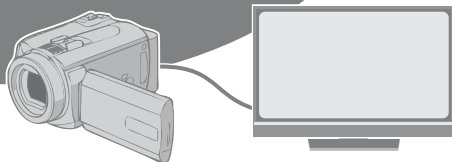| High-definition	1080
SP LP 1440	
1440	
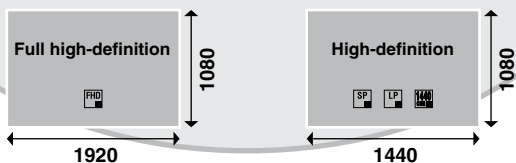
View in High-Definition!

Enjoy viewing images in high-definition image quality by simply connecting the camera to a high-definition television using an optional HDMI cable.

■ **If the television is not equipped with an HDMI connector**
Use the component cable (included) and the AV cable (included) to connect to the television.

■ **To view on conventional or wide screen televisions**
Use the AV cable (included). Images can be viewed with standard picture quality.

ENGLISH

## Back Up High-Definition Images on DVD Discs!

Video can easily be backed up on a DVD disc by connecting to a separate DVD burner (CU-VD40).

● This DVD disc can then be played in the camera or a PC, but not in a DVD player.
● If a CU-VD40 is used, the DVD burner can be connected directly to a television so the disc can be played without using the camera.
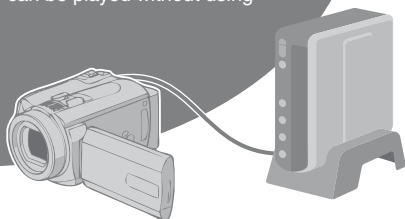
Edit High-Definition Images on a PC!

Perform advanced editing on high-definition images by loading to a PC.

3
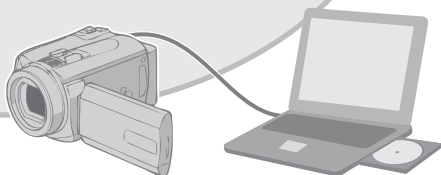
Safety Precautions

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

CAUTIONS:

● If you notice smoke or a peculiar smell coming from the camcorder or AC Adapter, shut it down and unplug it immediately. Continue using the camcorder or AC Adapter under these conditions could lead to fire or electric shock. Contact your JVC dealer. Do not attempt to repair the malfunction yourself.
● To prevent shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified personnel.
● When you are not using the AC adapter for a long period of time, it is recommended that you disconnect the power cord from AC outlet.
● In certain areas, use the conversion plug depending on the type of your AC wall outlet..

NOTES:

● The rating plate and safety caution are on the bottom and/or the back of the main unit.
● The serial number plate is on the battery pack mount.
● The rating information and safety caution of the AC adapter are on its upper and lower sides.

WARNING:

The battery pack, the camera with battery installed, and the remote control with battery installed should not be exposed to excessive heat such as direct sunlight, fire or the like.

CAUTION:

The mains plug shall remain readily operable.

Caution on Replaceable lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated.
Do not recharge, disassemble, heat above 100°C or incinerate.
Replace battery with Panasonic (Matsushita Electric), Sanyo, Sony or Maxell CR2025.
Danger of explosion or Risk of fire if the battery is incorrectly replaced.
● Dispose of used battery promptly.
● Keep away from children.
● Do not disassemble and do not dispose of in fire.

When the equipment is installed in a cabinet or on a shelf, make sure that it has sufficient space on all sides to allow for ventilation (10 cm or more on both sides, on top and at the rear).
Do not block the ventilation holes.
(If the ventilation holes are blocked by a newspaper, or cloth etc. the heat may not be able to get out.)
No naked flame sources, such as lighted candles, should be placed on the apparatus.
When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.
The apparatus shall not be exposed to dripping or splashing.
Do not use this equipment in a bathroom or places with water.
Also do not place any containers filled with water or liquids (such as cosmetics or medicines, flower vases, potted plants, cups etc.) on top of this unit. (If water or liquid is allowed to enter this equipment, fire or electric shock may be caused.)

Do not point the lens directly into the sun. This can cause eye injuries, as well as lead to the malfunctioning of internal circuitry. There is also a risk of fire or electric shock.

CAUTION!
The following notes concern possible physical damage to the camera and to the user.
Carrying or holding the camera by the LCD monitor can result in dropping the unit, or in a malfunction.
Do not use a tripod on unsteady or unlevel surfaces. It could tip over, causing serious damage to the camera.

CAUTION!
Connecting cables (Audio/Video, S-Video, etc.) to the camera and leaving it on top of the TV is not recommended, as tripping on the cables will cause the camera to fall, resulting in damage.

CAUTION:
To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adapter until it is no longer wobbly, and then plug the larger end of the power cord into an AC outlet.
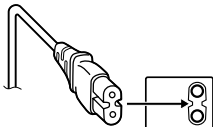
If this symbol is shown, it is only valid in the European Union.

Remember that this camera is intended for private consumer use only.
Any commercial use without proper permission is prohibited. (Even if you record an event such as a show, performance or exhibition for personal enjoyment, it is strongly recommended that you obtain permission beforehand.)

Trademarks
● i.LINK is a trademark of Sony Corporation.
● x.v.Colour™ is a trademark of Sony Corporation.
● HDMI is a trademark of HDMI Licensing, LLC.
● Windows® is either registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
● Macintosh is a registered trademark of Apple Inc.
● Other product and company names included in this instruction manual are trademarks and/or registered trademarks of their respective holders.

5

JVC Software Licence Agreement

JVC SOFTWARE LICENCE AGREEMENT

IMPORTANT
TO CUSTOMERS: PLEASE MAKE SURE TO
READ THIS CAREFULLY BEFORE INSTALLING
OR USING THE SOFTWARE PROGRAM
NAMED "DIGITAL PHOTO NAVIGATOR"
("Program") ON YOUR PC.
The right to use the Program is granted by Victor
Company of Japan, Limited ("JVC") to You only
on the condition that You agree to the following.
Should You not agree to the terms hereof, You
may not install or use the Program. HOWEVER,
INSTALLING OR USING THE PROGRAM
INDICATES YOUR ACCEPTANCE OF THESE
TERMS AND CONDITIONS.

1 COPYRIGHT; OWNERSHIP
You acknowledge that all copyrights and other
intellectual property rights in the Program are
owned by JVC and its licensor, and remain
vested in JVC and such licensor. The Program is
protected under the copyright law of Japan and
other countries, and related Conventions.

2 GRANT OF LICENCE
(1) Subject to the conditions of this Agreement,
    JVC grants to You a non-exclusive right to
    use the Program. You may install and use the
    Program on a HDD or other storage devices
    incorporated in Your PC.
(2) You may make one (1) copy of the Program
    solely for your personal backup or archival
    purposes.

3 RESTRICTION ON THE PROGRAM
(1) You may not reverse engineer, decompile,
    disassemble, revise or modify the Program,
    except to the extent that expressly permitted
    by applicable law.
(2) You may not copy or use the Program, in
    whole or in part, other than as expressly
    specified in this Agreement.
(3) You have no right to grant a licence to use the
    Program, and may not distribute, rent, lease
    or transfer the Program to any third party or
    otherwise let them use the Program.

4 LIMITED WARRANTY
JVC warrants that any media in which the
Program is embodied are free from any defects
in materials and workmanship for a period of
thirty (30) days from the date of Your purchasing
any our products accompanying the Program.
JVC's entire liability and your exclusive remedy
in connection with the Program shall be
replacement of such defective media. EXCEPT
FOR THE EXPRESS WARRANTIES STATED
HEREIN AND TO THE EXTENT PERMITTED BY
APPLICABLE LAW, JVC AND ITS LICENSORS
DISCLAIM ANY OTHER WARRANTIES, EITHER
EXPRESS OR IMPLIED, INCLUDING BUT
NOT LIMITED TO IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE IN REGARD TO
THE PROGRAM AND THE ACCOMPANYING
PRINTED MATERIALS. SHOULD THERE BE
ANY PROBLEM ARISING FROM OR CAUSED
BY THE PROGRAM, YOU SHOULD SETTLE
ALL SUCH PROBLEM AT YOUR OWN COST
AND EXPENSE.

5 LIMITED LIABILITY
TO THE EXTENT PERMITTED BY APPLICABLE
LAW, IN NO EVENT SHALL JVC AND ITS
LICENSORS BE LIABLE FOR ANY INDIRECT,
SPECIAL, INCIDENTAL OR CONSEQUENTIAL
DAMAGES WHATSOEVER, REGARDLESS
OF THE FORM OF ACTION WHETHER IN
CONTRACT, TORT OR OTHERWISE ARISING
OUT OF OR IN CONNECTION WITH THE USE
OF OR INABILITY TO USE THE PROGRAM,
EVEN IF JVC HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES. YOU
WILL INDEMNIFY AND HOLD HARMLESS
JVC FROM ANY LOSS, LIABILITY OR
COST ARISING OUT OF OR IN ANY WAY
CONNECTED TO CLAIMS FROM ANY THIRD
PARTY RELATING TO THE USE OF THE
PROGRAM.

6 TERM

This Agreement will become effective on the date when You install and use the Program on Your machine, and continue to be in effect until the termination under the following provision. Should You breach any provision of this Agreement, JVC may terminate this Agreement without giving any notice to You. In this event, JVC may claim against You for any damages caused by Your breach. Should this Agreement be terminated, You must immediately destroy the Program stored in Your machine (including the erasing from any memory in Your PC), and no longer own such Program.

7 EXPORT CONTROL

You agree that You will not ship, transfer or export the Program or underlying information and technology to any countries to which Japan and other relevant countries have initiated an embargo on such goods.

8 U.S. GOVERNMENT USER

If You are an agency of the United States of America (the "Government"), You acknowledge JVC's representation that the Program is a "Commercial Item" as defined in Federal Acquisition Regulation (FAR) part 2.101 (g) consisting unpublished "Commercial Computer Software" as those items are used at FAR part 12.212 and is only licenced to You with the same use rights JVC grants all commercial end users pursuant to the terms of this Agreement.

9 GENERAL

(1) No modification, change, addition, deletion or other alternation of or to this Agreement will be valid unless reduced to writing and signed by an authorized representative of JVC.
(2) If any part of this Agreement is held invalid by or in conflict with any law having jurisdiction over this Agreement, the remaining provisions will remain in full force and effect.
(3) This Agreement shall be governed by and interpreted under the laws of Japan. The Tokyo District Court has jurisdiction over all disputes which may arise with respect to the execution, interpretation and performance of this Agreement.

Victor Company of Japan, Limited

NOTE

If You acquired the Program in Germany, the provisions of Sections 4 (Limited Warranty) and 5 (Limited Liability) provided above will be replaced with those of the German version of this Agreement.

CAUTION:

● Operate this equipment according to the operating procedures described in this manual.
● Use only the provided CD-ROM. Never use any other CD-ROM to run this software.
● Do not attempt to modify this software.
● Changes or modifications not approved by JVC could void user's authority to operate the equipment.

How to handle a CD-ROM

● Take care not to soil or scratch the mirror surface (opposite to the printed surface). Do not write anything or put a sticker on either the front or back surface. If the CD-ROM gets dirty, gently wipe it with a soft cloth outward from the centre hole.
● Do not use conventional disc cleaners or cleaning spray.
● Do not bend the CD-ROM or touch its mirror surface.
● Do not store your CD-ROM in a dusty, hot or humid environment. Keep it away from direct sunlight.

You can find the latest information (in English) on the provided software program at our world wide web server at http://www.jvc-victor.co.jp/english/global-e.html

Contents

PC OPERATION

FURTHER INFORMATION

Read This First!

Make a backup of important recorded data
It is recommended to copy your important recorded data to a DVD or other recording media for storage. (☞ p. 46) JVC will not be responsible for any lost data.

Make a trial recording
Before the actual recording of important data, make a trial recording and play back the recorded data to check that the video and sound have been recorded correctly.

Reset the camera if it does not operate correctly
This camera uses a microcomputer. Factors such as background noise and interference can prevent it from operating correctly. If the camera does not operate correctly, reset the camera. (☞ p. 76)

Precautions on handling batteries
● Be sure to use the JVC BN-VF815U/VF823U battery packs.
● If the camera is subjected to electrostatic discharge, turn the power off before using it again.

If a malfunction occurs, stop using the camera immediately and consult your local JVC dealer
● If a problem occurs when using the microSD card, take the card together with the camera for repair. If one of them is not included, the cause of the malfunction cannot be diagnosed, and the camera cannot be repaired.
● Recorded data may be erased while the camera is being repaired or inspected. Back up all data before requesting repairs or inspections.
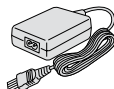
Because cameras may be used for demonstration in a shop, the demonstration mode is set to on by default
To deactivate the demonstration mode, set [DEMO MODE] to [OFF]. (☞ p. 69)

Do not cover the fan (☞ p. 12 ⑤, ㉝)
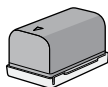If the camera becomes too hot inside it may cause a malfunction.

Accessories

AC Adapter
AP-V14E

Power Cord
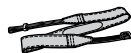
Battery Pack
BN-VF815U

Component Cable
(☞ p. 35)

Audio/Video Cable
(☞ p. 36, 50)

USB Cable
(☞ p. 46, 55, 62)

GZ-HD6
Lens Hood
Already attached to the
camera. (☞ below)

Shoulder Strap
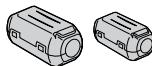(☞ p. 11)

CD-ROM
(☞ p. 53, 61)

Remote Control
RM-V750U (☞ p. 11)

Lithium Battery
CR2025
Pre-installed in the
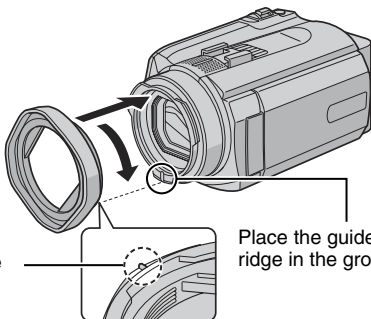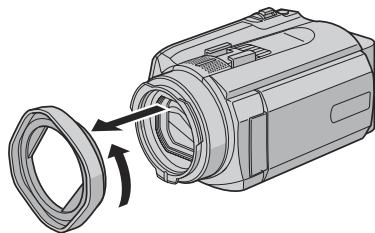remote control unit.

Core Filter
(☞ p. 11)

NOTE

Make sure to use the provided cables for connections. Do not use any other cables.

GZ-HD6 **Attaching/Detaching the Lens Hood**
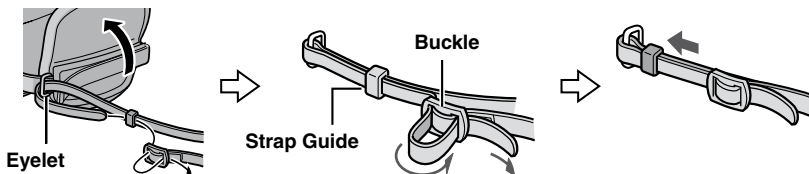

Guide ridge

Place the guide
ridge in the groove.

Attaching the Shoulder Strap

Peel off the pad and thread the end of the strap through the eyelet.

Thread the strap through the buckle, adjust its length, and use the strap guide to fix it in place.
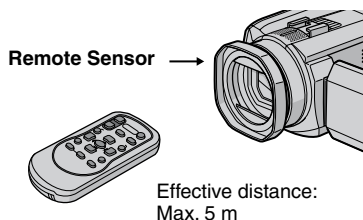
Position the buckle near the eyelet and reattach the pad.

Buckle

Strap Guide

Eyelet

Preparing the Remote Control

A battery is included inside the remote control at the time of purchase.
Remove the insulation sheet before use.

Beam Effective Area
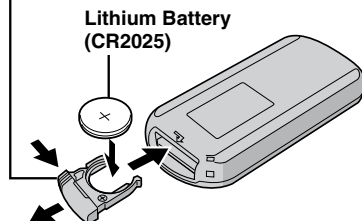
Remote Sensor →

Effective distance:
Max. 5 m

NOTE
The transmitted beam may not be effective or may cause incorrect operation when the remote sensor is directly exposed to sunlight or powerful lighting.

To Reinsert the Battery

Pull out the battery holder by pressing the lock tab.

Lock Tab

Lithium Battery (CR2025)

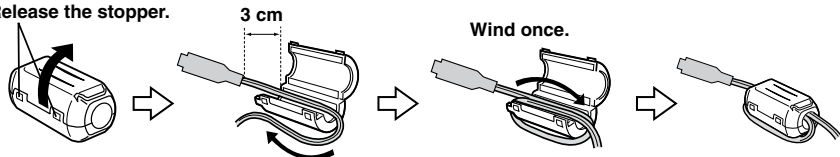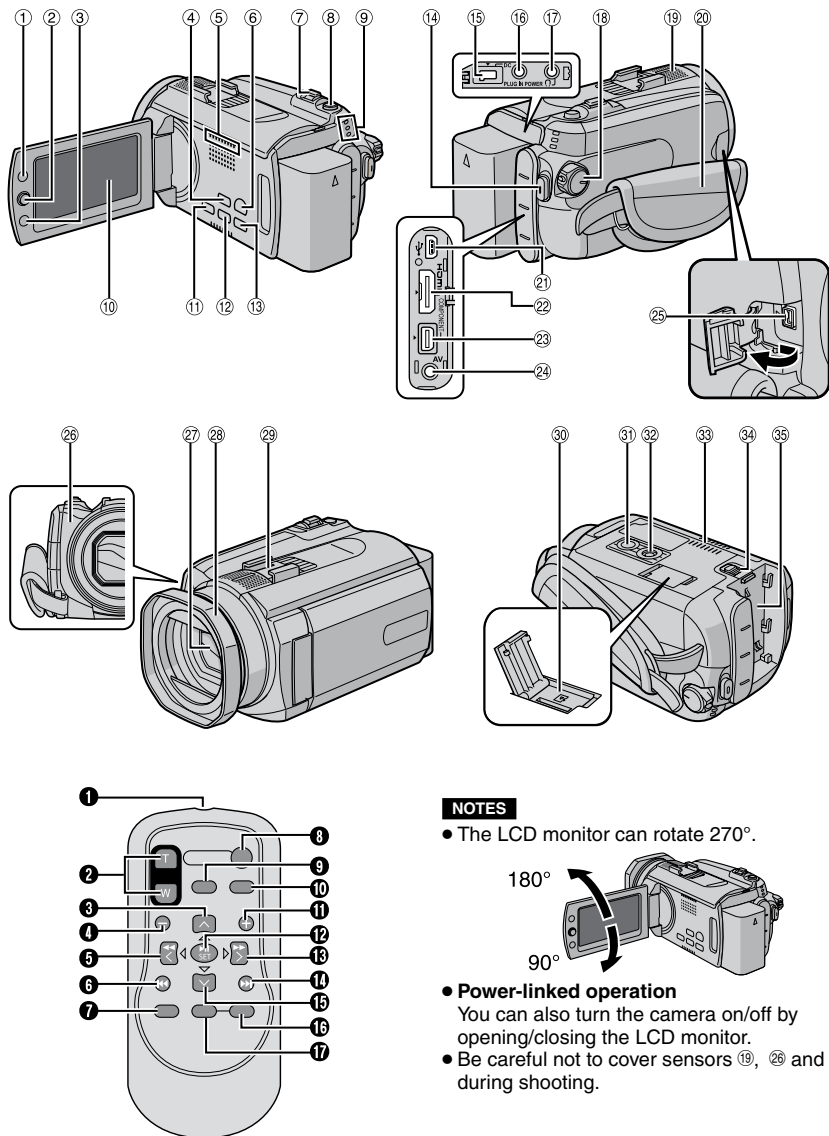## Attaching the Core Filter to the USB Cable and DC cord

Attach the core filter (Large) to the USB cable. Also, attach the core filter (Small) to the DC cord.
The core filter reduces interference. Connect the end of the cable with the core filter to the camera.
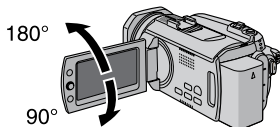
Release the stopper.   **3 cm**   **Wind once.**

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Index

Camera

① Index Button [INDEX] (☞ p. 31)/
Remaining Space Button/
Data Battery Button [⬚/⬛] (☞ p. 23)
② Set Lever
Move to ∧ :
Reverse Skip (☞ p. 29)/Up/ Backlight
Compensation Button [BACK LIGHT]
(☞ p. 25)
Move to ∨ :
Forward Skip (☞ p. 29)/Down/ Manual
Focus Button [FOCUS] (☞ p. 25)
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Reverse Search (☞ p. 29)/Left/
Nightscope [NIGHT] (☞ p. 25)
Move to ⟩ :
Forward Search (☞ p. 29)/Right/Program
AE [PROGRAM AE] (☞ p. 24)
Press down:
Play/Pause (☞ p. 29)
③ Function Button [FUNCTION] (☞ p. 26)
④ Auto/Manual Mode Button [AUTO]
(☞ p. 24)/Information Button [INFO]
(☞ p. 39)
⑤ Fan outlet
⑥ Playback/Recording Mode Switching
Button [PLAY/REC] (☞ p. 20)
⑦ Zoom Lever [W ▦,T ◯] (☞ p. 22)
Speaker Volume Control [–VOL+] (☞ p. 29)
⑧ Still Image Shooting Button [SNAPSHOT]
(☞ p. 21)
⑨ Access/Charge Lamp [ACCESS/CHARGE]
(☞ p. 16) (Blinks when you access files
or charge the battery. Do not turn off the
power or remove the battery pack/AC
adapter while accessing files.)
Video/Still Image Mode Lamp [🎥, 📷]
(☞ p. 20, 21)
⑩ LCD Monitor
⑪ Direct Backup Button [DIRECT BACK UP]
(☞ p. 56)/Event Button [EVENT] (☞ p. 22)
⑫ Focus Assist Button [FOCUS ASSIST]
(☞ p. 25)
⑬ Menu Button [MENU] (☞ p. 17, 66)
⑭ Video Recording Start/Stop Button [REC]
(☞ p. 20)
⑮ DC Input Connector [DC] (☞ p. 16)
⑯ Microphone Input Connector [MIC]
⑰ GZ-HD6 Headphone Connector
⑱ Power/Mode Switch [OFF (CHARGE), ON,
MODE] (☞ pg. 16)
⑲ Stereo Microphone

⑳ Grip Strap (☞ p. 18)
㉑ USB (Universal Serial Bus) Connector [🖉]
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㉒ HDMI Connector [HDMI] (☞ p. 35)
㉓ Component Connector [COMPONENT]
(☞ p. 35)
㉔ Audio/Video Connector [AV] (☞ p. 36, 50)
㉕ i.LINK Connector [i] (☞ p. 49)
㉖ Remote Sensor (☞ p. 11)
㉗ Lens Cover/Lens
㉘ GZ-HD6 Lens Hood (☞ p. 10)
㉙ Shoe
㉚ microSD Card Slot (☞ p. 19)
㉛ Stud Hole (☞ p. 18)
㉜ Tripod Mounting Socket (☞ p. 18)
㉝ Fan inlet
㉞ Battery Release Button [BATT.] (☞ p. 16)
㉟ Battery Pack Mount (☞ p. 16)

Remote Control

❶ Infrared Beam Transmitting Window
❷ ZOOM (T/W) Buttons
(Zoom in/out during playback.)
❸ Up Button
Rotate Button (counterclockwise) (☞ p. 30)
❹ Skip Backward Button
❺ Left Button
❻ Back Button
❼ PLAYLIST Button (☞ p. 43)
❽ START/STOP Button
❾ SNAPSHOT Button (☞ p. 21)
❿ INFO Button (☞ p. 39)
⓫ Skip Forward Button
⓬ PLAY/PAUSE Button
⓭ Right Button
⓮ Next Button
⓯ Down Button
Rotate Button (clockwise) (☞ p. 30)
⓰ INDEX Button
⓱ DATE Button

NOTE

You can move the zooming area with the up/
down/left/right button during zoom in playback
mode.

13

Indications on LCD Monitor

During both Video and Still Image Recording
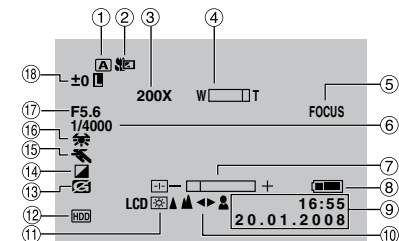
① Selected Recording Mode Indicator
   (☞ p. 24)
② Tele Macro Mode Indicator (☞ p. 28)
③ Approximate Zoom Ratio (☞ p. 22)
④ Zoom Indicator (☞ p. 22)
⑤ Focus Assist Indicator (☞ p. 25)
⑥ Shutter Speed (☞ p. 27)
⑦ Brightness/Sharpness Control Indicator
   (☞ p. 28, 69)
⑧ Battery Indicator (☞ p. 23)
⑨ Date/Time (☞ p. 17)
⑩ Manual Focus Adjustment Indicator
   (☞ p. 25)
⑪ Monitor Backlight (☞ p. 69)
⑫ Selected Recording Medium Indicator
   (☞ p. 67, 68)
⑬ Drop Detection Indicator (Appears when
   [DROP DETECTION] is set to [OFF].)
   (☞ p. 69)
⑭ Effect Mode Indicator (☞ p. 28)
⑮ Program AE Mode Indicator (☞ p. 24)/
   🌙 : Nightscope Indicator (☞ p. 25)
⑯ White Balance Indicator (☞ p. 27)
⑰ Aperture Value (F-number) (☞ p. 27)
⑱ ±0 : Exposure Adjustment Indicator
      (☞ p. 27)
   ▓ : Backlight Compensation Indicator
      (☞ p. 25)
   ▣ : Spot Exposure Control Indicator
      (☞ p. 26)
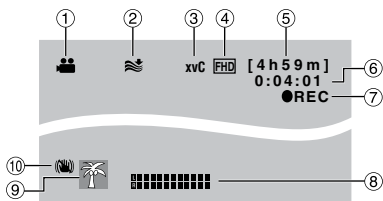   ▯ : Iris Lock Indicator (☞ p. 26)

During Video Recording Only

① Mode Indicator (☞ p. 20)
② Wind Cut Indicator (☞ p. 67)
③ x.v.Colour™ (☞ p. 67)
④ Picture Quality (☞ p. 66)
⑤ Remaining Time (☞ p. 20, 81)
⑥ Counter (☞ p. 67)
⑦ ●REC : (Appears during recording.)
   (☞ p. 20)
   ●❙❙ : (Appears during record-standby
   mode.)
⑧ External Microphone Input Level Indicator
   (☞ p. 67)
⑨ Event Indicator (☞ p. 22)
⑩ Optical Image Stabiliser (OIS) Indicator
   (Appears when [OIS] is set to [OFF].)
   (☞ p. 67)

During Still Image Recording Only
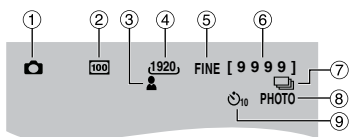
① Mode Indicator (☞ p. 21)
② ISO Sensitivity
   (GAIN): When set to [AUTO], there is no
   indication. (☞ p. 67)
③ Focus Indicator (☞ p. 21)
④ Image Size (☞ p. 67)
⑤ Picture Quality (☞ p. 67)
⑥ Remaining Number of Shots (☞ p. 81)
⑦ ▣ : Continuous Shooting Mode Indicator
   (☞ p. 68)
   ▨ : Bracket Shooting Mode Indicator
   (☞ p. 68)
⑧ Shooting Indicator (☞ p. 21)
⑨ Self-Timer Recording Indicator (☞ p. 68)

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During Video Playback

① ② ③ ④ ⑤ ⑥

1080p xvC FHD X-60 ▶▶
1:55:01 — ⑦

⑪

⑧

■)) ⑨

16:55 ⑩
20.01.2008
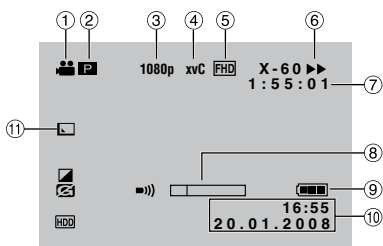
① Mode Indicator (☞ p. 29)
② 🄿 : Playlist Playback Indicator (Appears when playing back a playlist.) (☞ p. 44)
③ Output with 1080p (☞ p. 70)
④ x.v.Colour™ (☞ p. 67)
⑤ Picture Quality (☞ p. 66)
⑥ Playback Mode (☞ p. 29)

 ▶ : Playback
 ❚❚ : Pause
 ▶▶ : Forward Search
 ◀◀ : Reverse Search
 ❚❚▶ : Forward Slow-Motion
 ◀❚❚ : Reverse Slow-Motion
 (The number on the left shows speed.)

⑦ Counter (☞ p. 67)
⑧ Volume Level Indicator
⑨ Battery Indicator
⑩ Date/Time (☞ p. 68)
⑪ Wipe/Fader Effect Indicator (☞ p. 34)

During Still Image Playback

① ② ③

1080p 101-0098
▶ — ④

⑤

16:55 ⑥
20.01.2008
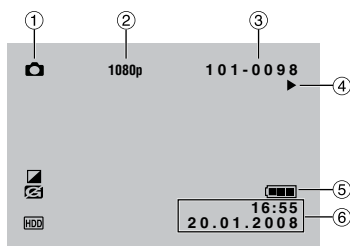
① Mode Indicator (☞ p. 30)
② Output with 1080p (☞ p. 70)
③ Folder/File Number
④ Slide Show Playback Indicator (☞ p. 30)
⑤ Battery Indicator
⑥ Date/Time (☞ p. 68)

Operation guide display
The operation guide is displayed at the bottom of the screen during menu display etc.

◈SELECT ◈SET   MENU: QUIT

15

Necessary Settings before Use

Be sure to configure the following 3 settings before use.

Charging the Battery Pack

1 Set the power/mode switch to OFF.

OFF
(CHARGE)

2 Attach the battery pack.

BATT.

3 Connect the AC adapter.

DC Connector

AC Adapter → To AC Outlet
(110V to 240V)
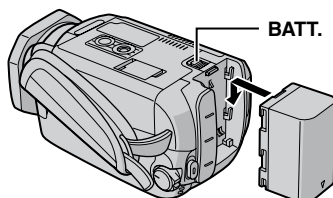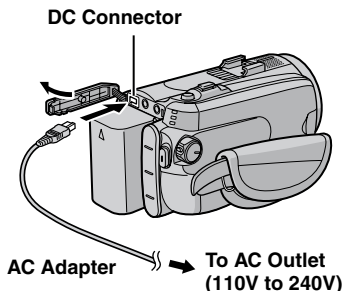
● The access/charge lamp blinks to indicate charging has started.
● When the lamp goes out, charging is finished.

Required charging/recording time (approx.)

Battery pack	Charging time	Recording time
BN-VF815U (Provided)	2 hr. 40 min.	GZ-HD5 1 hr. 25 min. GZ-HD6 1 hr. 20 min.
BN-VF823U	3 hr. 50 min.	GZ-HD5 2 hr. 05 min. GZ-HD6 2 hr. 00 min.

■ **To detach the battery pack**
Slide and hold **BATT**. (step **2**), then remove the battery pack.

■ **To check the remaining battery power**
See page 23.

NOTES
● You can also use the camera with just the AC adapter.
● Please do not pull or bend the AC adapter plug and cable. This may damage the AC adapter.

Language Setting

The language on the display can be changed.

1 Set the power/mode switch to ON.

2 Select the menu mode.
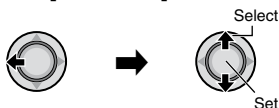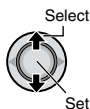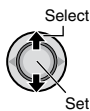
MENU

3 Select [GENERAL].

Select

Set

VIDEO
SCENE COUNTER
EXTERNAL MIC LEVEL
QUALITY
ZOOM
OIS
SELECT SET MENU QUIT

4 Select [LANGUAGE].

Select

Set

GENERAL
DISPLAY
DISPLAY ON TV
LANGUAGE
CLOCK ADJUST
DATE DISPLAY STYLE
SELECT SET MENU QUIT

5 Select the desired language.

Select

Set

LANGUAGE
汉语
ENGLISH
FRANÇAIS
DEUTSCH
SELECT SET MENU QUIT

■ **To return to the previous screen**
Move the set lever to ‹.

■ **To exit the screen**
Press the **MENU** button.

Date/Time Setting

After performing steps 1-3 (☞ left column)

4 Select [CLOCK ADJUST].

Select

Set

5 Set the date and time.

Select

Set

CLOCK ADJUST
DATE TIME
31 01 2007 11 07
SELECT SET MENU QUIT
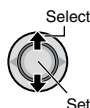
Repeat this step to input the month, day, year, hour and minute.

■ **To return to the previous screen**
Move the set lever to ‹.

■ **To exit the screen**
Press the **MENU** button.

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Other Settings

Grip Adjustment

Open the pad and make grip adjustments.
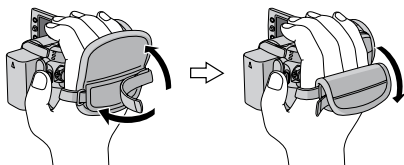
Tripod Mounting

Align the camera stud hole with the tripod stud, and the mounting socket with the screw, and then rotate the camera clockwise to mount it to the tripod.

Bottom of the Camera
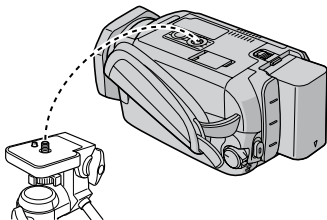
NOTE

Do not use a tripod on unsteady or unlevel surfaces. It could tip over, causing serious damage to the camera.

When Using a microSD Card

If you want to record to a microSD card, the following 3 operations need to be performed.
● Operations are certified on the following microSD cards.
  - Panasonic
  - TOSHIBA
  - SanDisk
  - ATP
  Video recording:
  Class 6 compatible SDHC card (4 GB)
  Still image recording:
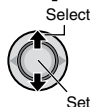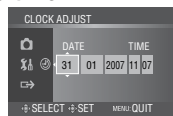 microSD card (128 MB to 2 GB) or SDHC card (4 GB)
● If other media are used, they may fail to record data correctly, or they may lose data that had already been recorded.
● MultiMediaCards are not supported.
● Files are recorded on a microSD card in SP mode, regardless of the picture quality setting. You cannot dub these files on HDV devices in high-definition picture quality.
● Cards used to record video on this camera cannot be played back on other devices.

❶ **Insert a microSD card**

Preparation:
Set the power/mode switch to **OFF**.

1 Open the microSD card cover.

2 Firmly insert the card with its clipped edge first.

Bottom of the Camera
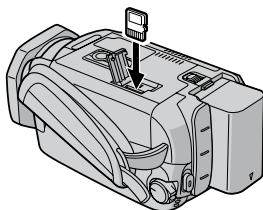
3 Close the microSD card cover.

■ **To remove a microSD card**
Push the microSD card once.
After the card comes out a little, pull it out.

NOTES
● Insert and remove the microSD card only while the power is turned off. Otherwise, data on the card may be corrupted.
● Do not touch the terminal on the reverse side of the label.

❷ **Change the recording medium**

The camera is programmed to record on the built-in hard disk when it is shipped from the factory. You can change the recording medium to microSD card.

Set [REC MEDIA FOR VIDEO] and [REC MEDIA FOR IMAGE] to [SD]. (☞ p. 67, 68)

NOTE
Video picture quality will automatically be set to [SP].

❸ **Format a microSD card when using it for the first time**

This will also ensure stable speeds and operation when accessing the microSD card.

Select [EXECUTE] in [FORMAT SD CARD] to format the card. (☞ p. 71)

Recording Files

Video Recording

Preparation: Set the power/mode switch to **ON**.

1 **Slide the power/mode switch to MODE to select (video) mode.**

MODE The switch returns to the original position when it is released.

The lamp on the camera lights up.

2 **Press the PLAY/REC button to select the recording mode.**

SELECT
PLAY/REC

 A

The lens cover opens automatically.

3 **Press the REC button to start recording.**

SP [4 h 5 9 m]

●REC

Approximate remaining time for recording

■ **To stop recording**
   Press the **REC** button again.
■ **To change the picture quality**
   Change the settings in [QUALITY].
   (☞ p. 66)
■ **To register a file to an event**
   See page 22.

NOTES

● If the camera is not operated for 5 minutes while the power is on, it turns itself off automatically to conserve power. To turn the camera on again when using the battery pack, set the power/mode switch to **OFF**, then to **ON**. When using the AC adapter, perform any operation such as zooming.
● Video files are given the names MOV001.TOD to MOV009.TOD, MOV00A.TOD to MOV00F.TOD, and MOV010.TOD in order of recording.
● A new file will be created for every 4 GB or approx. 19 minutes of continuous shooting.
● This camera records video in MPEG2 format compliant with SD-VIDEO format.
● Do not move or shake the camera suddenly during recording. If you do so, the driving sound (hum) of the hard disk may be recorded.

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Still Image Recording

Preparation: Set the power/mode switch to **ON**.

1 **Slide the power/mode switch to MODE to select ◘ (still image) mode.**

MODE The switch returns to the original position when it is released.
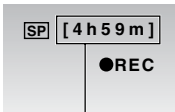
The ◘ lamp on the camera lights up.

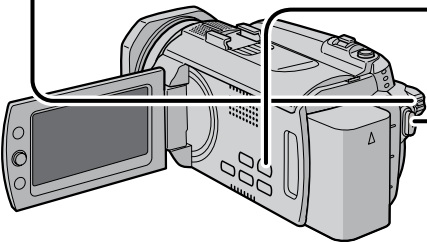**2** **Press the PLAY/REC button to select the recording mode.**

SELECT
PLAY/REC

◘ Ⓐ   ⒈9
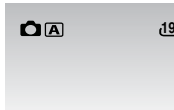
The lens cover opens automatically.

3 **Press and hold the SNAPSHOT button halfway.**

1920 FINE [

The ♠ indicator becomes green when the captured image is focused.

■ **To change the picture quality**
Change the settings in [QUALITY].
(☞ p. 67)

■ **To record still images continuously**
Set [CONTINUOUS SHOOTING] to [ON].
(☞ p. 68)

■ **To change the image size**
Change the settings in [IMAGE SIZE].
(☞ p. 67)

4 **Press the SNAPSHOT button to start recording.**

20ₗ FINE [9 9 9 9]
PHOTO

NOTES

● If the camera is not operated for 5 minutes while the power is on, it turns itself off automatically to conserve power. To turn the camera on again when using the battery pack, set the power/mode switch to **OFF**, then to **ON**. When using the AC adapter, perform any operation such as zooming.

● The sides of still images recorded in 16:9 size may be cut off when printed. Check whether 16:9 size prints can be printed at your local print store.

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Recording Files (Continued)

Zooming

Preparation:
- Select 🎥 or 📷 mode.
- Select the recording mode.

Zoom out   **Zoom in**
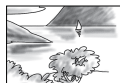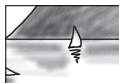
W: Wide angle   T: Telephoto

Maximum zoom ratio is 10X (factory-preset).

■ **To change the maximum zoom ratio (for 🎥 mode only)**
  Change the settings in [ZOOM]. (☞ p. 67)

NOTE

Macro shooting is possible as close as approx. 5 cm to the subject when the zoom lever is set all the way to **W**.

Registering Files to Events – 🎥 mode only

If you select an event to register the file to before starting recording, the file will be registered to the selected event, thus making the file easy to find at playback.

Preparation:
- Select 🎥 mode.
- Select the recording mode.

1

DIRECT
BACKUP

EVENT

2 Select [ON/SELECT].

Select

Set

CHANGE EVENT REG.
ON/SELECT
OFF
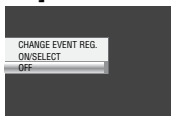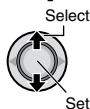
3 Select the event that you want to register the file to.

To cancel the event registration, select [NON SECTION].

Select

Set

VACATION   1/3

NON SECTION   NEXT PAGE
SELECT SET   EVENT QUIT

The selected event is displayed on the screen.

■ **To exit the screen**
  Press the **EVENT** button.

■ **To search by event for a file to play back**
  See page 31.

NOTE

Once you select a certain event to register a file, the setting will remain even if you turn the power off.

Checking the Remaining Space on the Recording Media – 🎥 mode only

Preparation:
● Select 🎥 mode.
● Select the recording mode.

```
⊟/◰━━
INDEX
```

```
MAX RECORDING TIME
          HDD
FU  5h00m
SP  7h00m
LP  12h00m
     5h00m    ■ FREE
              □ USED
```

The maximum recording time is displayed for each picture quality mode.

■ To return to the normal screen

Press the ⊟/◰ button again.

Checking the Remaining Battery Power

Preparation:
● Set the power/mode switch to **OFF**.
● Attach the battery pack.

```
⊟/◰━━
INDEX
```

```
BATTERY CONDITION
100%
        MAX TIME
50%      60 min
0%
```
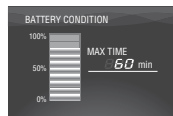
Battery information is displayed for approx. 3 seconds if the button is pressed and released quickly, and for approx. 15 seconds if the button is pressed and held for several seconds.

NOTE

The recordable time display should only be used as a guide. It is displayed in 10 minute units.

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Manual Recording

Manual recording mode enables you to set the focus and screen brightness etc. manually.

To Change to Manual Recording Mode

Preparation:
● Select 🎥 or 📷 mode.
● Select the recording mode.

AUTO
INFO

🎥 **M**

■ **To return to the auto recording mode**
Press the **AUTO/INFO** button so that the Ⓐ indicator appears.

Program AE

You can record videos or still images with optimum brightness by adjusting the exposure and shutter speed to suit your surroundings or the subject.

In the manual recording mode;

1

PROGRAM AE

2 Select the desired setting.
For details on each setting, see below.

Select

Set

OFF
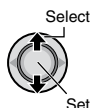
■ **To cancel the program AE**
Select [OFF] in step **2**.

■ **Items for program AE setting**
● 🎭 **PORTRAIT:**
The subject in the foreground is accentuated by blurring the background.
● 🏃 **SPORTS:**
Records fast moving subjects clearly.
● ❄ **SNOW:**
Compensates for subjects that may appear too dark when shooting in extremely bright surroundings, such as in snow.
● 🔦 **SPOTLIGHT:**
Select this when a spotlight makes a subject appear too bright.
● 🌙 **TWILIGHT:**
Makes evening scenes look more natural.

Manual Focus

In the manual recording mode;

1

FOCUS

2 Adjust the focus.

◣ ◆ ▲ 4 :
AN.2

■ **To cancel the manual focus setting**
Move the set lever to ∨ (FOCUS) so that the ◣/▲ indicator disappears.

Focus Assist

The image becomes black and white. The outline of focused object is displayed in blue. Use this for adjusting the focus more precisely.

1

FOCUS ASSIST

FOCUS

2 Adjust the focus, then press down the set lever to fix the focus.

➡

■ **To cancel the focus assist mode**
Press the **FOCUS ASSIST** button again.

NOTE

If you use focus assist in dark places, the rough area of the image appears in colour, and the outline colour becomes difficult to see.

Nightscope

Nightscope enables recording with more sensitivity in dim locations, by adjusting the shutter speed automatically.

In the manual recording mode;

NIGHT

■ **To cancel Nightscope**
Move the set lever to ❮ (NIGHT) so that the 👀 indicator disappears.

NOTE

It is recommended to use the tripod (☞ p. 18) because the shutter speed becomes slow.

Backlight Compensation

Backlight compensation brightens the subject by increasing the exposure.

In the manual recording mode;

🔆.

🔆 Ⓜ

■ **To cancel backlight compensation**
Move the set lever to ∧ (🔆) twice so that the 🔆 indicator disappears.

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Manual Recording (Continued)

Spot Exposure Control

Use this function when backlight compensation does not work well, or to adjust the brightness in the desired spot.

In the manual recording mode;

1 Move twice.

2 Select the desired spot metering area frame.

Select

Set
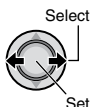
■ **To lock the exposure**
After you finish configuring the setting, press and hold the set lever for more than 2 seconds. The 🔒 indicator appears.

■ **To cancel spot exposure control**
Move the set lever to ⋀ (🔲) once so that the 🔲 indicator disappears.

Manual Setting in Function Menu

You can use manual recording functions easily by selecting items in the function menus.

The following illustrations of display screens are examples of when [EFFECT] is set to [SEPIA].
In the manual recording mode;

1

FUNCTION

2 Select the desired menu.
For details on each menu, see below.

Select

Set

ADJUST BRIGHTNESS
SHUTTER SPEED
APERTURE PRIORITY
WB
EFFECT
TELE MACRO
ZEBRA
CUSTOM SETTING

3 Select the desired setting.

Select

Set

EFFECT
OFF
SEPIA
MONOTONE
CLASSIC FILM
STROBE

4

FUNCTION

EFFECT
OFF
SEPIA
MONOTONE
CLASSIC FILM
STROBE
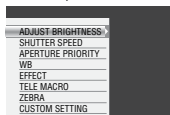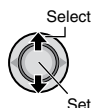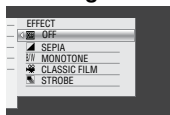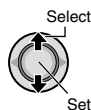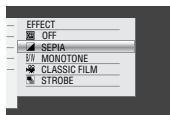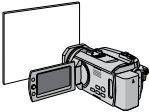
The menu disappears and the indicator for the set function appears.

■ **To return to the previous screen**
Move the set lever to ⟨.

■ **To exit the screen**
Press the **FUNCTION** button.

Menus	Settings: [ ] = Factory-preset
ADJUST BRIGHTNESS Adjusts the brightness.	**For 🎥 mode** **[AUTO]**: The brightness is adjusted automatically. **–6 to +6**: Corrects the brightness within this range in increments of 1. Move the set lever to ∧ / ∨ to set the value. **For 📷 mode** **[±0]**: The brightness is not adjusted. **–2.0 to +2.0 (EV)**: Corrects the brightness within this range in increments of 1/3EV. Move the set lever to ∧ / ∨ to set the value. ■ **To lock the exposure** When the menu disappears after you finish configuring the setting, press and hold the set lever for more than 2 seconds. The 🔒 indicator appears.
SHUTTER SPEED A fast shutter speed can freeze the motion of a fast-moving subject, and a slow shutter speed can blur the subject to give the impression of motion.	**[AUTO]**: The shutter speed is adjusted automatically. **1/2 to 1/4000:** The smaller the value, the faster the shutter speed. Move the set lever to ∧ / ∨ to set the value. **NOTE** It is recommended to use a tripod (☞ p. 18) when recording with a slow shutter speed.
APERTURE PRIORITY You can add a blurring effect to the background by setting the aperture value (F-number).	**[AUTO]**: The aperture value is adjusted automatically. **F1.8 to F8:** The lower the F-number (larger aperture value), the more blurred the background will become. The higher the F-number (smaller aperture value), the clearer the focus will be for both near and far objects. Move the set lever to ∧ / ∨ to set the value. **NOTE** If the image is too bright, set to a larger F-number. If the image is too dark, set to a smaller F-number.
WB Adjusts the white balance to achieve the optimum colours for the amount of light in your surroundings during recording.	🅰 **[AUTO]**: White balance is adjusted automatically. 🔲 **MWB**: Adjusts the white balance manually depending on the light source. 1) Hold a sheet of plain white paper in front of the subject so that the white paper fills the screen. 2) Press and hold the set lever until the 🔲 indicator starts blinking then stops blinking. ☀ **FINE**: When shooting outdoors on a sunny day. ☁ **CLOUD**: When shooting outdoors on a cloudy day. 💡 **HALOGEN**: When a video light or similar type of lighting is used.

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Manual Recording (Continued)

Menus	Settings: [ ] = Factory-preset
EFFECT Enables you to record videos or still images with special effects.	▦ **[OFF]**: No effect is used. ◨ **SEPIA**: The image has a brownish tint like old photos. B/W **MONOTONE**: The image becomes black and white like old movies. 🎬 **CLASSIC FILM***: This effect skips frames to give images of an old movie atmosphere. ▤ **STROBE***: The image looks like a series of consecutive snapshots.
TELE MACRO Enables you to shoot a subject as large as possible at a distance of approx. 40 cm.	▦ **[OFF]**: Disables the function. ▣ **ON**: Activates the function.
ZEBRA* The sections of the photographic subject that are reflected as white due to light are displayed in a striped pattern. Use this as a guide for adjusting the brightness.	**[OFF]**: Deactivate this function. **70%**: Sections that are close to being reflected as white (bright) are displayed in a striped pattern. **100%**: Sections that are completely reflected as white (too bright) are displayed in a striped pattern.
CUSTOM SETTING*	Press down the set lever then select sub menus.
SHARPNESS Adjusts the enhancement level of the outline of the recorded image.	Adjust the sharpness moving the set lever to ‹ / › , then press down. **NOTE** Enhancing the sharpness causes the recorded image to appear grainy.
COLOR BAR The colour bar will be displayed. The colour characteristics of the camera can be confirmed by recording this display.	**[OFF]**: Deactivate this function. **ON**: Activate this function.

* Not available in ◘ mode.

Playing Back Files

Video Playback

1 Select 🎥 (video) mode.

MODE

The switch returns to the original position when it is released.

The 🎥 lamp on the camera lights up.

2 Select the playback mode.

SELECT
PLAY/REC

VIDEO

The index screen appears.
(The lens cover closes automatically.)

⊕·SELECT ⊕·SET   INDEX·SORT

3 Select the desired file.

Select

Set

- ■ **To return to the index screen**
  Press the **INDEX** button.
- ■ **To watch on TV**
  See page 35.
- ■ **To turn the date display on/off**
  Change the settings in [DATE/TIME].
  (☞ p. 68)

- ■ **To check the file information**
  Press the **AUTO/INFO** button when
  playback is paused. (☞ p. 39)
- ■ **To make one frame of video being**
  played back into a still image
  Press the **SNAPSHOT** button when
  playback is paused.

Operations during Playback

Return to the first
scene of the file

Play/Pause

Reverse search/
Frame-by-frame
playback (during
pause)

Forward search/
Frame-by-frame
playback (during
pause)

Go to the first scene
of the next file
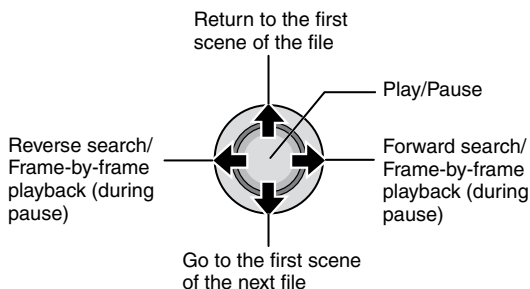
During forward/reverse search, moving the set lever to ‹ / ›
alters the search speed (maximum 60x).

Speaker volume/
GZ-HD6 Headphone volume

− : Turn down the
volume

−VOL+

W   T

+ : Turn up the
volume

29
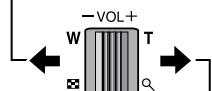
Playing Back Files (Continued)

Still Image Playback

1 Select ◘ (still image) mode.

MODE

The switch returns to the original position when it is released.

The ◘ lamp on the camera lights up.

2 Select the playback mode.

SELECT
PLAY/REC

IMAGE
◘   8/8

⊕ SELECT ⊕ SET   INDEX SORT

The index screen appears.
(The lens cover closes automatically.)

3 Select the desired file.
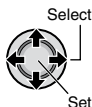
Select

Set

■ **To return to the index screen**
Press the **INDEX** button.
■ **To watch on TV**
See page 35.
■ **To turn the date display on/off**
Change the settings in [DATE/TIME]. (☞ p. 68)
■ **To check the file information**
Press the **AUTO/INFO** button. (☞ p. 39)

Operations during Playback

Rotate 90 degrees
(counterclockwise)

Start/end the slide show

Display the previous file

Display the next file

Rotate 90 degrees
(clockwise)
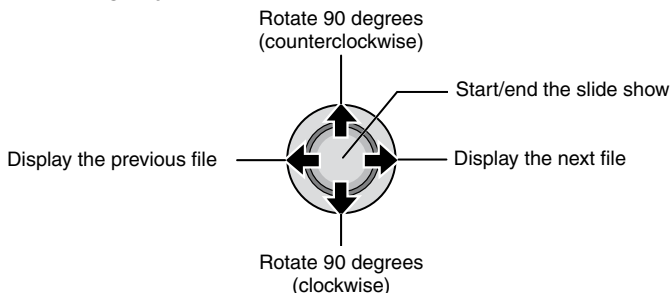
During the slide show, moving the set lever to ∧ / ∨ changes the playback order.

File Search Function

You can switch the index screen to the date index screen or event screen for the convenient file search.

Date Index Screen

You can search the desired file by the recording date.

Preparation:
● Select 🎥 or 📷 mode.
● Select the playback mode.

1

INDEX

2 Select the recording date.

Select

Set

SEARCH DATE
31 01 2007
25 01 2007
22 01 2007
22 12 2006
19 12 2006
SELECT SET INDEX SORT

3 Select the file you want to play back.

Select

Set

07 01 2007   1/3
SELECT SET INDEX SORT
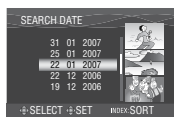
■ **To return to the index screen**
Press the **INDEX** button.

Event Screen – 🎥 mode only

You can search the desired file by the event that you registered the file to when recording. (☞ p. 22) After searching by the event, you can search by the recording date to narrow down the search.

Preparation:
● Select 🎥 mode.
● Select the playback mode.

1 Press twice.

INDEX

2 Select the event.
To move to the next page, select [NEXT PAGE].

Select

Set

VACATION   1/3

NEXT PAGE
SELECT SET INDEX SORT
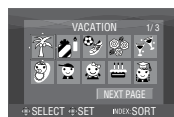
3 Select the recording date.
To display all the files, select [ALL SCENES].
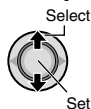
Select

Set

SEARCH EVENT
ALL SCENES
25 01 2007
22 01 2007
SELECT SET INDEX SORT

4 Select the file you want to play back.

Select

Set

VACATION   1/3
SELECT SET INDEX SORT

■ **To return to the index screen**
Press the **INDEX** button.

■ **To change the event registration of a file**
See page 40.

31

Playing Back Files (Continued)

To Play Back TPD Files – 🎥 mode only

TPD files (demonstration files, etc.) are stored in the EXTMOV folder.
If you copy videos recorded on this camera to a PC, edit them on the PC, and then recopy them to this camera, store them in the EXTMOV folder. (☞ p. 64)
Follow the procedure below to play back the TPD files in the EXTMOV folder.

Preparation:
● Select 🎥 mode.
● Select the playback mode.

1

FUNCTION

2 Select [PLAYBACK TPD FILE].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE

3 Select the file you want to play back.

Select

Set

VIDEO [TPD]   8/8
🎥
◈SELECT ◈SET   FUNC. QUIT
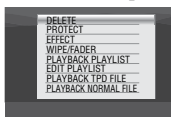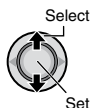
■ **To exit the screen**
Press the **FUNCTION** button.

■ **To return to the normal file playback mode**
Select [PLAYBACK NORMAL FILE] in step **2**.

NOTE

During TPD file playback, you cannot use some of the functions.

Playback with Special Effects

Playback effects

Add effects that, for example, alter the colour tones of images.

Preparation:
● Select 🎥 or 📷 mode.
● Select the playback mode.
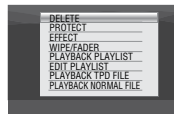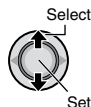
1

FUNCTION

2 Select [EFFECT].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE

3 Select a desired effect.
For details on each effect, see below.

Select

Set

EFFECT
OFF
SEPIA
MONOTONE
CLASSIC FILM
STROBE
◈SELECT ◈SET   FUNC. QUIT
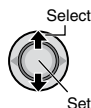
4 Start playback.

■ **To exit the screen**
Press the **FUNCTION** button.

■ **To turn off the effect**
Select [OFF] in step **3**.

■ **Items for EFFECT setting**

- ◢ **SEPIA:**
  The image is given a brownish tint like an old photo.

- B/W **MONOTONE:**
  The image becomes black and white like an old movie.

- 🎥 **CLASSIC FILM*:**
  The image is given an old movie atmosphere by the effect of skipping frames.

- 🖾 **STROBE*:**
  The image looks like a series of consecutive snapshots.

* Not available in ◻ mode.

Playing Back Files (Continued)

Wipe or fader effects – 🎥 mode only

Add effects at the beginning and end of videos. These effects cannot be set for still images.

Preparation:
● Select 🎥 mode.
● Select the playback mode.

1

FUNCTION

2 Select [WIPE/FADER].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE
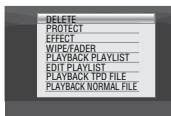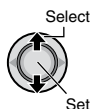
3 Select a desired effect.
For details on each effect, see the right column.
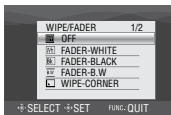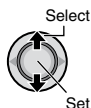
Select

Set

WIPE/FADER   1/2
🔲 OFF
Wh FADER-WHITE
Bk FADER-BLACK
B.W FADER-B.W
🔲 WIPE-CORNER
⊕SELECT ⊕SET FUNC:QUIT

4 Start playback.

■ **To exit the screen**
Press the **FUNCTION** button.

■ **To turn off the effect**
Select [OFF] in step **3**.

■ **Items for WIPE/FADER setting**

● Wh **FADER-WHITE:**
Fades in or out with a white screen.

● Bk **FADER-BLACK:**
Fades in or out with a black screen.

● B.W **FADER-B.W:**
Fades in to a colour screen from a black and white screen, or fades out in the opposite way.

● ⬜ **WIPE-CORNER:**
Wipes in on a black screen from the upper right to the lower left corner, or wipes out in the opposite way.

● ⬜ **WIPE-WINDOW:**
Starts in the centre of a black screen and wipes in toward the corners, or wipes out in the opposite way.

● ◀ **WIPE-SLIDE:**
Wipes in from right to left, or wipes out in the opposite way.

● ↔ **WIPE-DOOR:**
Wipes in as the two halves of a black screen which open to the left and right revealing the scene, or wipes out in the opposite way.

● ↑ **WIPE-SCROLL:**
Wipes in from the bottom to the top of a black screen, or wipes out in the opposite way.

● ↕ **WIPE-SHUTTER:**
Wipes in from the centre of a black screen toward the top and bottom, or wipes out in the opposite way.

NOTE

No effect will be applied on files with a play time shorter than 7 seconds.

Watching Images on TV

This camera is designed to be used with high-definition or PAL-type colour television signals. It cannot be used with a television of a different standard.

Connection with TV

You can output videos from the HDMI connector, COMPONENT connector, or AV connector. Select the connector that best suits your television.

Preparation: Turn off all units.

■ **To connect using the HDMI connector**

DC Connector   HDMI Connector

AC Adapter

To AC Outlet

HDMI Cable
(optional)
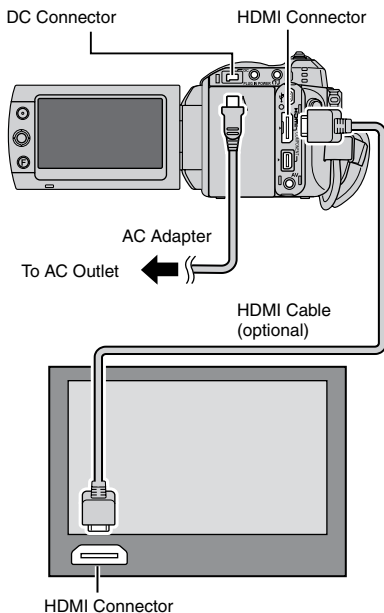
HDMI Connector

NOTE

Change the settings in [HDMI OUTPUT], [HDMI COLOR SETTING] or [HDMI ENHANCE SETTING] according to the connection. (☞ p. 70)

■ **To connect using the COMPONENT connector**

To AC Outlet   AC Adapter

DC Connector

COMPONENT Connector

AV Connector

Component Cable

AV Cable

COMPONENT Input Connector

Audio L/R Input Connector

Video Connector is not in use.
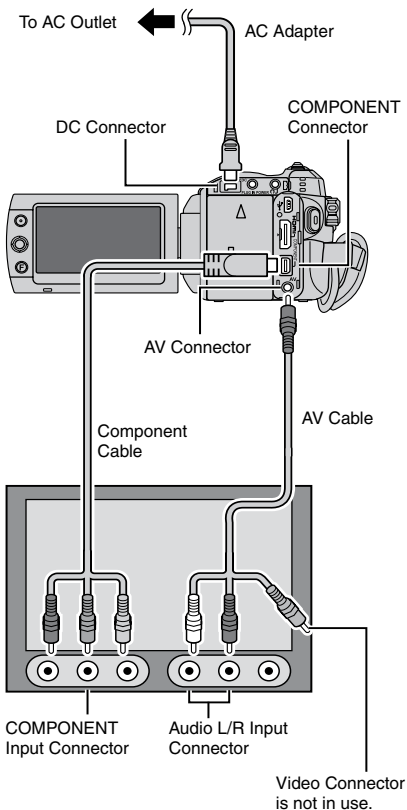
NOTE

Change the settings in [COMPONENT OUTPUT] according to the connection. (☞ p. 70)

35

Watching Images on TV (Continued)

■ **To connect using the AV connector**

To AC Outlet ← AC Adapter

DC Connector

AV Connector

AV Cable

AV Input Connector
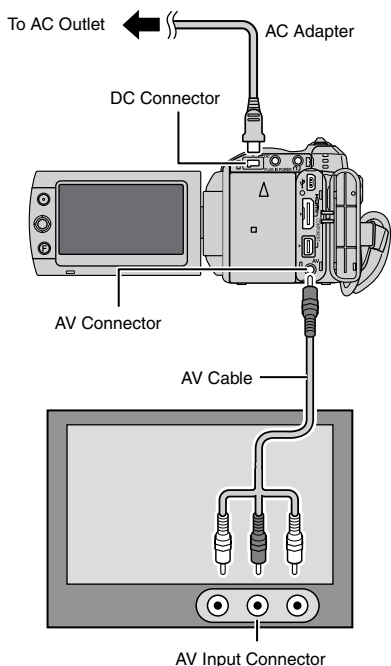
NOTE

Change the settings in [VIDEO OUTPUT] to suit the screen size of your television. (☞ p. 70)

Playback Operation

After the connection with TV is completed

1 Turn on the camera and the TV.

2 Set the TV to its VIDEO mode.

3 (Only when connecting the camera to the VCR/DVD recorder)
Turn on the VCR/DVD recorder, and set the VCR/DVD recorder to its AUX input mode.

4 Start playback on the camera.
(☞ p. 29, 30)

■ **To display camera's on-screen display on TV**
Set [DISPLAY ON TV] to [ON]. (☞ p. 69)

NOTE

When the video was recorded with x.v.Colour™ set to [ON], change the x.v.Colour™ setting on TV. For details, refer to the TV's instruction manual.

Managing Files

CAUTION

Do not remove the recording medium or perform any other operation (such as turning off the power) while accessing files. Also, be sure to use the provided AC adapter, as the data on the recording medium may be corrupted if the battery becomes exhausted during operation. If the data on the recording medium becomes corrupted, format the recording medium to use the medium again. (☞ p. 71)

Deleting/Protecting Files

● Protected files cannot be deleted. To delete them, release the protection first.
● Once files are deleted, they cannot be restored. Check files before deleting.

Preparation:
● Select 🎥 or 📷 mode.
● Select the playback mode.

The following illustrations of display screens are examples of when performing [DELETE].

Deleting/Protecting the Currently Displayed File

1

FUNCTION

2 Select [DELETE] or [PROTECT].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE

3 Select [CURRENT].

Select

Set

DELETE

CURRENT
FILE SELECT
DELETE ALL
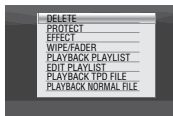
⊹SELECT ⊹SET   FUNC: QUIT
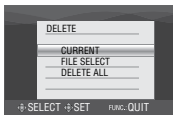
You can select the previous or next file by moving the set lever to 〈 / 〉.

4 Select [EXECUTE].

Select

Set

DELETE?
REMAINING FILES: 0008
EXECUTE
CANCEL
⊹SELECT ⊹SET

■ **To exit the screen**
Press the **FUNCTION** button.

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Managing Files (Continued)

Deleting/Protecting Files

After performing steps 1-2 (☞ p. 37)

3 Select [FILE SELECT].

Select

Set

DELETE
CURRENT
FILE SELECT
DELETE ALL
⊕SELECT ⊕SET   FUNC. QUIT

4 Select the desired file.

Select

Set

VIDEO DELETE   8/8
⊕SELECT ⊕SET   FUNC. QUIT
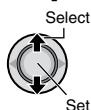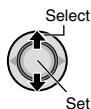
- ● The 🗑 (deletion) or 🔒 (protection) mark appears on the file. To select other files, repeat this step.
- ● If you slide the zoom lever towards **T**, the preview screen is displayed. Sliding the zoom lever towards **W** returns to the index screen.

5

FUNCTION

VIDEO DELETE   8/8
⊕SELECT ⊕SET   FUNC. QUIT

6 Select [EXECUTE AND QUIT] (when performing [DELETE]), or [QUIT] (when performing [PROTECT]).

Select

Set

DELETE?
EXECUTE AND QUIT
QUIT
CANCEL
⊕SELECT ⊕SET
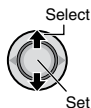
■ **To exit the screen**
Press the **FUNCTION** button.

Deleting/Protecting All Files

After performing steps 1-2 (☞ p. 37)

3 Select [DELETE ALL] or [PROTECT ALL].

Select

Set

DELETE
CURRENT
FILE SELECT
DELETE ALL
⊕SELECT ⊕SET   FUNC. QUIT

4 Select [EXECUTE].

Select

Set

DELETE ALL?
EXCEPT PROTECTED FILE
EXECUTE
CANCEL
⊕SELECT ⊕SET
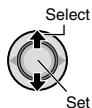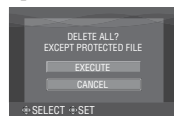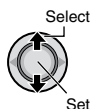
■ **To exit the screen**
Press the **FUNCTION** button.

■ **To release protection**
Select the protected file in step **4** ("Deleting/Protecting Files" ☞ left column).

■ **To release protection of all files**
1) In step **3**, select [CANCEL ALL].
2) Select [EXECUTE].

Viewing File Information

Preparation:
- For 🎥 mode: Pause the playback. Otherwise, select the file on the index screen.
- For 📷 mode: Play back the still image. Otherwise, select the file on the index screen.

AUTO
INFO

```
FILE      : MOV005.TOD
FOLDER    : PRG001
DATE/TIME : 01.01.2008 10:56
PB TIME   : 00:30:02
QUALITY   : FHD
PROTECT   : OFF
```
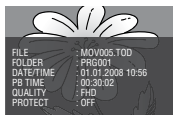
- **FILE:**
  File name
- **FOLDER:**
  Folder name
- **DATE/TIME:**
  Date and time of the recording
- **PB TIME (for video files):**
  Playback time (length of the file)
- **SIZE (for still images):**
  Image size (☞ p. 67)
- **QUALITY:**
  Image quality (☞ p. 66, 67)
- **PROTECT:**
  File protection status (☞ p. 37)

■ **To turn off the file information display**
  Press the **AUTO/INFO** button again.

Histogram – 📷 mode only

A histogram is a graph indicating the image's brightness.
By checking the image and its histogram, you can see the exposure level pattern and the overall tone reproduction.

Preparation:
Play back the still image.

Press twice.

AUTO
INFO

```
📷                    100-0307

1/250 s
F3.5
ISO100          D          B
```
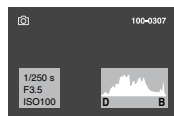
- A larger number of pixels in the centre position indicates correct exposure and well-balanced brightness.

Number of pixels | **D** Brightness level **B**
(Dim) (Bright)
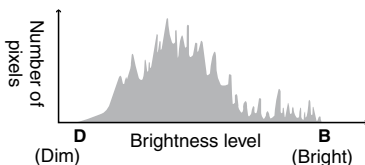
- The shutter speed, F-number and ISO sensitivity (GAIN) when recorded are also displayed.

■ **To turn off the file information display**
  Press the **AUTO/INFO** button a few times.

NOTE

The shutter speed displayed during shooting in auto mode is an approximation. It may not match the one displayed with the histogram.

Managing Files (Continued)

Changing the Event Registration of Video Files after Recording – 📹 mode only

Preparation:
● Select 📹 mode.
● Select the playback mode.

1

DIRECT
BACKUP

EVENT

2 Select a new event to register the file to.
● To move to the next page, select [NEXT PAGE].
● To cancel the event registration, select [NON SECTION].

Select

Set

VACATION   1/3

NON SECTION | NEXT PAGE
SELECT REGISTER EVENT QUIT
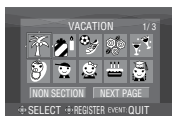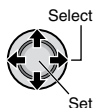
3 Select the file you want to register.
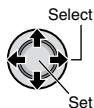
Select

Set

VIDEO   88

SELECT SET FUNC. QUIT

● To select other files, repeat this step.
● If you slide the zoom lever towards **T**, the preview screen is displayed. Sliding the zoom lever towards **W** returns to the index screen.

4

DIRECT
BACKUP

EVENT

5 Select [SAVE AND QUIT].

Select

Set

EVENT RE-REGISTRATION ENDS
DO YOU WANT TO SAVE?
SAVE AND QUIT
DELETE AND QUIT
CANCEL
SELECT SET
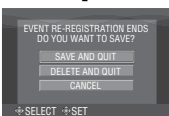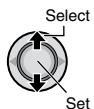
■ **To cancel the event registration**
  Select [DELETE AND QUIT].

To Extract a Still Image File from a Video File – 📹 mode only

You can extract the desired scene from a recorded video file, and store it as a still image file.

Preparation:
● Select 📹 mode.
● Select the playback mode.

1 Select the desired video file.

Select

Set

VIDEO   88

SELECT SET INDEX SORT

Playback starts. Search the desired scene.

2

SNAP
SHOT

NOTES

● Extracted still images are stored at a resolution of 1920 x 1080. The image can be elongated in the horizontal or vertical directions depending on the picture quality of the source video file.
● Images cannot be extracted when the video file is in search or slow-motion playback. Extract images when the video is in normal playback, or when it is paused.
● The continuous shooting function (☞ p. 68) cannot be used to extract images.

DPOF Print Setting – ◘ mode only

The number of prints to make of a still image recorded on a microSD card can be set. This feature is useful when taking the microSD card to a photo lab for printing.

Preparation:
● Select ◘ mode.
● Select the playback mode.
● Set [REC MEDIA FOR IMAGE] to [SD]. (☞ p. 68)

Setting Files Individually

1

FUNCTION

2 Select [DPOF].

Select

Set

DELETE
PROTECT
COPY
MOVE
EFFECT
DPOF

3 Select [SELECT IMAGES].

Select

Set

DPOF

SELECT IMAGES
ALL 1
CHECK SETTINGS
RESET

⊕SELECT ⊕SET FUNC.QUIT

4 Select the desired file.

Select

Set

DPOF TOTAL: 0

⊕SELECT ⊕SET FUNC.QUIT
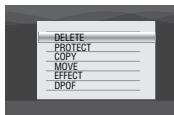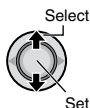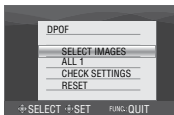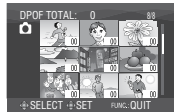
If you slide and hold the zoom lever towards **T**, the preview screen of the still image is displayed.

5 Select the number of prints (max. 15 prints).

Select

Set
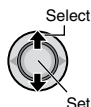
To set print information for other images, repeat steps **4** and **5**. (You can set up to 999 files.)

6

FUNCTION

■ **To exit the screen**
Press the **FUNCTION** button.

■ **To cancel the selection**
Set the number of prints to "00" in step **5**.

■ **To confirm DPOF settings**
In step **3**, select [CHECK SETTINGS].
● If necessary, change the number of prints for the desired file by following steps **4** and **5**.

■ **To reset DPOF settings**
1) In step **3**, select [RESET].
2) Select [EXECUTE].

41

Managing Files (Continued)

> **Setting All Files Together (One Print for Each)**

1

FUNCTION

2 Select [DPOF].

Select

Set

DELETE
PROTECT
COPY
MOVE
EFFECT
DPOF

3 Select [ALL1].

Select

Set

DPOF

SELECT IMAGES
ALL 1
CHECK SETTINGS
RESET

SELECT SET FUNC. QUIT

4 Select [EXECUTE].

Select

Set

ALL1

EXECUTE
CANCEL

SELECT SET
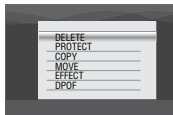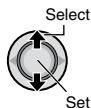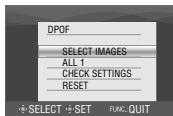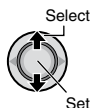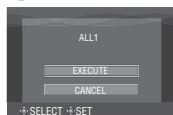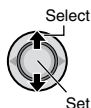
■ **To exit the screen**
Press the **FUNCTION** button.

■ **To reset DPOF settings**
1) In step **3**, select [RESET].
2) Select [EXECUTE].

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Playlists – 🎥 mode only

It is a list that enables you to organise recorded videos in order of preference.

Preparation:
● Select 🎥 mode.
● Select the playback mode.

Creating Playlists

1

FUNCTION

2 Select [EDIT PLAYLIST].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE

3 Select [NEW LIST].

Select

Set

EDIT PLAYLIST

NEW LIST
EDIT
RENAME
DELETE
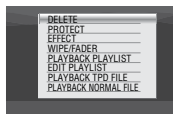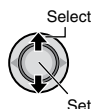
⊕SELECT ⊕SET FUNC.QUIT
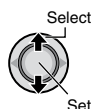
4 Select an item and display files.

Select

Set

NEW LIST

IMPORT FROM EVENT
IMPORT FROM DATE
ALL SCENES

⊕SELECT ⊕SET FUNC.QUIT
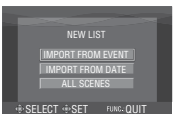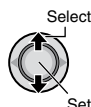
● **[IMPORT FROM EVENT]:**
Search for an event and display the corresponding files listed by recording date.
Select the event.
● **[IMPORT FROM DATE]:**
Display all the files in the medium listed by recording date.
● **[ALL SCENES]:**
Display all files individually.

5 Select the file to add to playlist.

Select

Set

EDIT

TOTAL
00h00m

⊕SELECT ⊕REGISTER
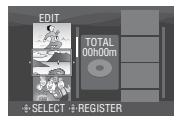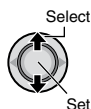
● Files recorded in 1440 CBR video picture quality are displayed with a 1440 CBR icon.
● When you select [IMPORT FROM EVENT]/[IMPORT FROM DATE], you can preview scenes. Select the file and press the **INDEX** button. When the index screen of individual scenes appears, select the file.
To return to previous screen, press the **INDEX** button.

6 Select the insertion point.

Select

Set

EDIT

TOTAL
00h00m
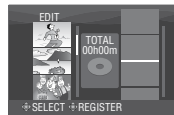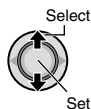
⊕SELECT ⊕REGISTER

● To add other files, repeat steps **5** and **6**.
● To delete a registered scene, select the registered file.

7

FUNCTION

EDIT

TOTAL
30h15m

⊕SELECT ⊕REGISTER

8 Select [SAVE AND QUIT].

Select

Set

QUIT PLAYLIST
SAVE EDITED CONTENTS?

SAVE AND QUIT
DELETE AND QUIT
CANCEL
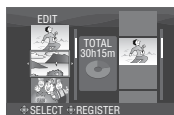
⊕SELECT ⊕SET

■ **To exit the screen**
Press the **FUNCTION** button.

Playlists – 🎥 mode only (Continued)

- A maximum of 99 playlists can be created.
- Each playlist can consist of a maximum of 99 scenes.
- If you delete the original files, the corresponding files are also deleted from the playlist.

Playing Back Playlists

1

FUNCTION

2 Select [PLAYBACK PLAYLIST].

Select

Set

DELETE
PROTECT
EFFECT
WIPE/FADER
PLAYBACK PLAYLIST
EDIT PLAYLIST
PLAYBACK TPD FILE
PLAYBACK NORMAL FILE
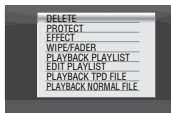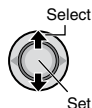
3 Select the playlist that you want to play back.

Select

Set

PLAYBACK PLAYLIST

01 07. 01. 2007 16:45
02 07. 01. 2007 21:25
03 07. 01. 2007 21:55

SELECT SET FUNC. QUIT
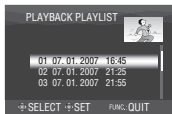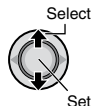
■ **To exit the screen**
  Press the **FUNCTION** button.

■ **To stop playback**
  Press down the set lever.

■ **To return to the normal file playback mode**
  Select [PLAYBACK NORMAL FILE] in step **2**.

■ **To play back from the desired scene**
  1) In step **2**, press the **INDEX** button. (The index screen for playlist appears.)
  2) Select the desired scene.

Other Operations of Playlists

You can perform additional editing and delete files in a created playlist.

Preparation:
Perform steps **1**-**2**. (☞ p. 43)

Adding/Deleting Files in Playlist

3 Select [EDIT].

4 Select the playlist you want to edit.
To add or delete files, follow the steps **5** to **8** in "Creating Playlists". (☞ p. 43)

Changing Playlist Names

The default name of a playlist is its creation date and time.

3 Select [RENAME].

4 Select the desired playlist.

5 Select the desired letter.
● Repeat this process to complete the name.
● You can change the character types (capital letters, small letters or marks) by selecting [A/a/@].
● To correct a letter, select [←] or [→] and press down the set lever to move the cursor to the letter, then select [CLE] and press down the set lever.

6 Select [↵].

Deleting Playlist

Original files are not deleted even if you delete the playlist.

3 Select [DELETE].

4 Select a playlist you want to delete.
To delete all playlists at once, select [DELETE ALL].

5 Press down the set lever.

6 Select [EXECUTE].

Copying Files

Types of Copying and Connectable Device
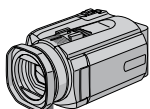
The Camera
You can copy still images between the HDD and microSD card with this camera alone. (☞ p. 51)

DVD Burner (CU-VD40)
You can copy video/still image files recorded on this camera onto DVD discs. (☞ right column)

VCR/DVD Recorder
You can dub video files recorded on this camera onto DVD discs. (☞ p. 49)

PC
You can copy video/still image files on this camera onto your PC. For details, refer to PC OPERATION section. (☞ p. 52 to 65)

Using a DVD Burner to Copy Files from the Camera

The files in the camera can be backed up to a DVD disc using a DVD burner.
● Supported media:
  DVD-R, DVD-RW, DVD-R DL (More than one disc may be required depending on the size of the file to be copied. In this case, use new (unused) discs.)
● This disc cannot be played in a normal DVD player. Use one of the following methods to view the disc.
  - Playback the disc using the camera. ("To play back the created disc using the camera" ☞ p. 47, 49)
  - Playback the disc using a DVD burner.*
  - Playback on a PC.*
  * The disc must first be finalised on the camera.

Connection with a DVD Burner

Preparation:
Set the power/mode switch to **OFF**.

To AC Outlet ← AC Adapter

DC Connector

USB Connector

USB Cable

USB Connector
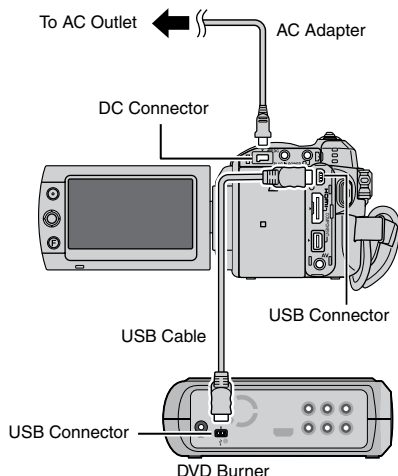
DVD Burner

NOTES
● Turn the DVD burner on first, then turn the camera on.
● Use the USB cable that came with the DVD burner.

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Backup All Files

Preparation:
● Connect the camera to the DVD burner.
● Select 🎥 or 📷 mode.

The following illustrations of display screens are examples of when backing up video files.

1 Select [NORMAL BACK-UP].

Select

Set

```
VIDEO
  🔐 FINALIZE
  🔄 NORMAL BACK-UP
  📀 SELECT BACK-UP
  ▶ PLAYBACK
  ⊹SELECT   ⊹ SET
```
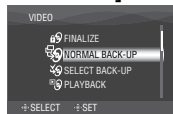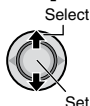
2 Select the desired menu.

● **[UNSAVED SCENES/FILES NOT BACKED-UP]:**
Files that have never been copied to a DVD disc are automatically selected and copied.

● **[ALL]:**
All files in the recording medium are copied.

Select

Set

```
NORMAL BACK-UP
  🔲 UNSAVED SCENES
  🔲 ALL
  ⊹SELECT ⊹SET   MENU TOP
```
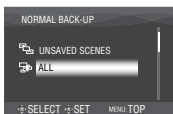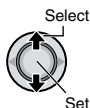
3 Select the desired menu.

● **[CONTINUE TO COPY]:**
Files are added to the free space of a disc. Displayed only when a recordable disc is inserted.

● **[FORMAT]:**
After the disc is formatted (all recorded data on the disc is deleted), the files are copied on the disc.

Select

Set

```
VIDEOS ARE RECORDED
  CONTINUE TO COPY
  FORMAT
  CANCEL
  ⊹SELECT ⊹SET   MENU TOP
```

4 Select [EXECUTE] or [EXECUTE AND FINALIZE].

By selecting [EXECUTE AND FINALIZE], the disc is finalised after the files are copied.

Select

Set

```
              DVD      5
              DVD(DL)  3
  EXECUTE
  EXECUTE AND FINALIZE
  CANCEL
  ⊹SELECT ⊹SET   MENU TOP
```
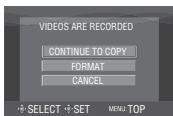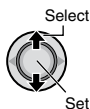
● The files are copied on the disc. When [COMPLETED] appears, press down the set lever to complete the operation.
● When [COMPLETED. CHANGE DISC] appears, change the disc. Remaining files are copied on the second disc.
● To cancel the copying, select [STOP].

■ **To return to the top screen**
Press the **MENU** button, then select [YES].

■ **To finalise the disc after copy is finished**
1) Connect the camera to the DVD burner.
2) Turn the camera's power on.
3) Select [FINALIZE].
4) Select [EXECUTE].
5) When [COMPLETED] appears, select [OK].

■ **To play back the created disc using the camera**
1) Connect the camera to the DVD burner.
2) Turn the DVD burner on first, then turn the camera on.
3) Select [PLAYBACK].
4) Select the desired folder.
5) Select the desired file.
To return to the previous screen, press the **INDEX** button.

Copying Files (Continued)

Select Files for Backup

Preparation:
- Connect the camera to the DVD burner.
- Select 🎥 or 📷 mode.

The following illustrations of display screens are examples of when backing up video files.

1 Select [SELECT BACK-UP].

Select

Set

```
VIDEO
  🎥 FINALIZE
  🎥 NORMAL BACK-UP
  🎥 SELECT BACK-UP
  🎥 PLAYBACK
⊹ SELECT  ⊹ SET
```
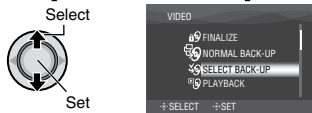
2 Select the desired menu.

Select

Set

```
SELECT BACK-UP
  📆 CREATE BY DATE
  🎞 SELECT FROM SCENES
  📷 CREATE BY EVENT
  📋 CREATE BY PLAYLIST
⊹ SELECT  ⊹ SET  MENU TOP
```
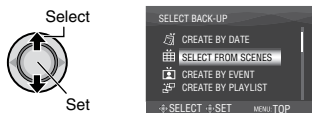
- **[SELECT FROM SCENES/SELECT FROM IMAGES]:**
  Register backup files individually.
  1) Select the desired file. To select other files, repeat this process.
  2) Press the **INDEX** button then go to step **4**.

- **[CREATE BY EVENT*]:**
  Files are sorted according to event. Relevant files are displayed in a list. Select the event.

- **[CREATE BY PLAYLIST*]:**
  Select the desired playlist from the list of playlists. The selected playlists are displayed in a list.
  1) Select the desired list. To select other lists, repeat this process.
  2) Move the set lever to 〉 twice.

- **[CREATE BY DATE]:**
  Files are sorted according to the date on which they were recorded. Relevant files are displayed in a list. Select the recording date.

- * Not available in 📷 mode.

To preview scenes, press the **INDEX** button. (The index screen of individual scenes appears.) Select the file.
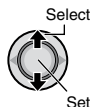To return to previous screen, press the **INDEX** button.

3 Select [ALL].

```
CREATE BY EVENT
  ALL
       01.01.2007 12:04
       01.01.2007 12:15
       01.02.2007 12:04
       01.02.2007 12:15
⊹ SELECT  ⊹ SET  INDEX SORT
```

4 Select the desired menu.

- **[CONTINUE TO COPY]:**
  Files are added to the free space of the disc. Displayed only when a recordable disc is inserted.

- **[FORMAT]:**
  After the disc is formatted (all recorded data on the disc is deleted), the files are copied to the disc.
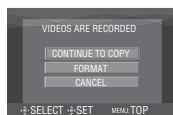
Select

Set

```
VIDEOS ARE RECORDED
  CONTINUE TO COPY
       FORMAT
       CANCEL
⊹ SELECT  ⊹ SET  MENU TOP
```

5 Select [EXECUTE] or [EXECUTE AND FINALIZE].

By selecting [EXECUTE AND FINALIZE], the disc is finalised after the files are copied.

Select

Set

```
                    DVD     5
                    DVD(DL)  3
       EXECUTE
  EXECUTE AND FINALIZE
       SELECT
       CANCEL
⊹ SELECT  ⊹ SET  MENU TOP
```
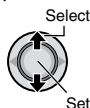
- The disc begins to be created. When [COMPLETED] appears, press down the set lever to complete the operation.
- When [COMPLETED. CHANGE DISC] appears, change the disc. The second disc begins to be created.
- To cancel the disc creation, select [STOP].

■ **To return to the top screen**
Press the **MENU** button, then select [YES].

■ **To finalise the disc after copy is finished**
1) Connect the camera to the DVD burner.
(☞ p. 46)
2) Turn on the camera.
3) Select [FINALIZE].
4) Select [EXECUTE].
5) When [COMPLETED] appears, select [OK].

■ **To play back the created disc using the camera**
1) Connect the camera to the DVD burner.
(☞ p. 46)
2) Turn the DVD burner on first, then turn the camera on.
3) Select [PLAYBACK].
4) Select the desired folder.
5) Select the desired file. To return to previous screen, press the **INDEX** button.

NOTE

In case of [CREATE BY PLAYLIST], date/time on the file information display shows the date of copying the file, not of the actual recording.

Using a VCR/DVD Recorder to Dub Files from the Camera

You can connect the camera to a VCR or DVD recorder, and dub the camera's files directly onto those devices.

Connection with a VCR/DVD Recorder

You can connect using either the i.LINK connector or AV connector.

Preparation: Turn off all units.

■ **To connect using the i.LINK connector (digital dubbing)**
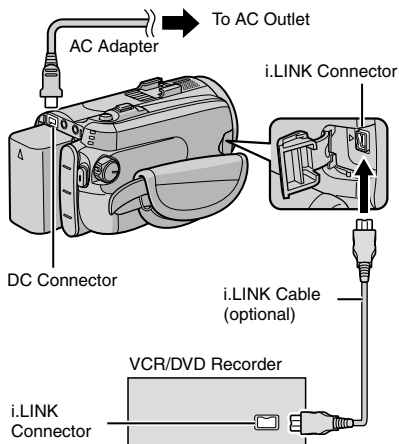
NOTES

● Be sure to use the optional JVC VC-VDV206U or VC-VDV204U i.LINK cable depending on the connector type (4 or 6 pins) of the VCR/DVD recorder.
● To dub videos in high-definition quality:
- Connect a device that supports high-definition quality videos.
- Use the i.LINK connector.
- Set [i.LINK OUTPUT (DUB)] to [1440 CBR]. (☞ p. 70)
- Make a playlist consisted of 1440 CBR video only, and dub the playlist. (☞ p. 50)
● To dub videos in standard quality:
- Use the i.LINK connector.
- Set [i.LINK OUTPUT (DUB)] to [DV]. (☞ p. 70)

Copying Files (Continued)

■ **To connect using the AV connectors (analog dubbing)**

To AC Outlet

AC Adapter

DC Connector

AV Connector

AV Cable
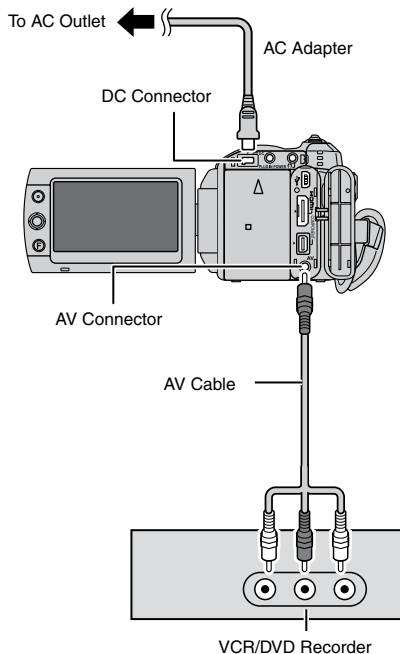
VCR/DVD Recorder

Dubbing Operation

1 Set the VCR/DVD recorder to its AUX input mode.

Check that the images from the camera are input correctly to the VCR/DVD recorder.

2 Start playback on the camera.
- **To play back videos**
- **To play back playlists**
  1) Press the **FUNCTION** button.
  2) Select [DUBBING PLAYBACK].
  3) Move the set lever to 〉. *¹
  4) Select [START PLAYBACK]. (A black screen is displayed for 5 seconds at the first and the last scene. *²)
  *¹ When dubbing using the i.LINK connection and with [i.LINK OUTPUT (DUB)] set to [1440 CBR], a confirmation screen is displayed after operation. Select [OK] and proceed to step 4).
  *² When dubbing using the i.LINK connection and with [i.LINK OUTPUT (DUB)] set to [1440 CBR], the image to be dubbed is not displayed on the camera's screen. Check the images on a TV connected to the VCR/DVD recorder.

3 At the point you want to start dubbing, start recording on the VCR/DVD recorder.

Refer to the VCR/DVD recorder's instruction manual.

■ **To stop dubbing**
Stop recording on the VCR/DVD recorder, then press the **REC** button again.

NOTES
- The date displays effects and wipe/fader effects cannot be dubbed using the i.LINK connection.
- When playing back images dubbed using the i.LINK on a VCR/DVD recorder, the images may stop momentarily at junctions between scenes.

Copying/Moving Still Image Files

You can copy or move still image files between the HDD and microSD card.

Preparation:
● Select ◘ mode.
● Select the playback mode.
● Make sure that microSD card is inserted in the microSD slot.
● Make sure that enough free space is left in the copy/move destination medium.

1

FUNCTION

2 **Select [COPY] or [MOVE].**
● **[COPY]:**
Files are copied to the destination medium while leaving original files in the source medium.
● **[MOVE]:**
Files are moved to the destination medium while deleting original files (except read-only files) in the source medium.

Select

Set

```
DELETE
PROTECT
COPY
MOVE
EFFECT
DPOF
```
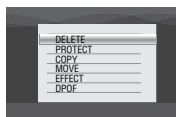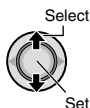
3 **Set the direction of copy/move.**
(HDD → SD or SD → HDD)

```
IMAGE COPY
MEDIA        ◄ HDD SD ►
FILE UNIT          ALL
NUMBER OF FILE     0059
        EXECUTE
        CANCEL
⊕SELECT ⊕SET  FUNC. QUIT
```
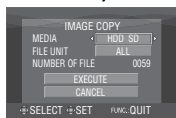
4

5 **Set the file unit ([ALL] or [FILE]) to copy/move.**

● **[FILE]:**
Select this to transfer the selected files.
1) Select the desired file.
● The ✔ mark appears on the file. To select other files, repeat this step.
2) Press the **FUNCTION** button.

● **[ALL]:**
Select this to transfer all files in the recording medium.

6 **Select [EXECUTE].**

Select

Set
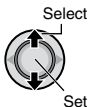
File transfer starts. When [COPYING COMPLETED/MOVING COMPLETED] appears, press down the set lever.

■ **To exit the screen**
Press the **FUNCTION** button, then select [EXECUTE].

■ **To stop the file transfer**
1) Press down the set lever.
2) Select [EXECUTE].

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File Backup on a Windows® PC

Install the software that came with the camera to your PC.
You can back up your files on your PC with a simple one-touch operation, edit your files on your PC, and also create discs.

Even if you do not install the software, you can still back up your files on your PC.
(☞ p. 57)

System Requirements

OS: Either one of the following OS should be pre-installed (32-bit):
● Windows® XP Home Edition (SP2)
● Windows® XP Professional (SP2)
● Windows Vista® Home Basic
● Windows Vista® Home Premium

CPU:
● Intel® Pentium® 4, at least 3.2 GHz
  (Intel® Core™ Duo 1.66 GHz or more recommended)
● Intel® Pentium® M, at least 1.8 GHz

RAM:
● [XP] At least 512 MB
  (1 GB or more recommended)
● [Vista] At least 1 GB
  (2 GB or more recommended)

Free hard disk space:
● At least 750 MB for installation
● For creating Blu-ray disc, at least 30 GB
  (60 GB or more recommended)

Connector:
USB 2.0 connector

Sound card:
Direct Sound compatible sound card

Display:
● Must be capable of displaying at least
  1024 x 768 (XGA) in high colour 16 bit or higher
  (1280 x 1024 (SXGA) or higher is recommended)
● Intel/nVidia/ATI MPEG-2 HD DxVA compatible card

Miscellaneous:
● Internet Explorer 5.5 or later
● DirectX 9.0 or later

Supported media:
BD-RE, BD-R, DVD-R/-RW, DVD+R/+RW, CD-R/RW

For the compatible drives:
http://jp.cyberlink.com/english/products/powerproducer/4/comp_dvd_drive.jsp

For the compatible BD drives:
http://jp.cyberlink.com/english/products/powerproducer/4/comp_nextgen_drives.jsp

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NOTE

Even if your system meets the recommended requirements above, you may still experience dropped frames while playing back high definition video, or you may find that editing takes a long time. In order to use these functions more smoothly, it is recommended that you use a higher performance PC (CPU: Intel® Core™ 2 Duo, memory: 2 GB or more).

Software Installation

The following software is included in the CD-ROM that came with your camera.

CyberLink BD Solution

Comprehensive application software that consists of the following 3 kinds of software.

● **PowerCinema NE for Everio**
The main authoring software. You can perform various operations such as file backup, playback, and editing from the top menu of this software.
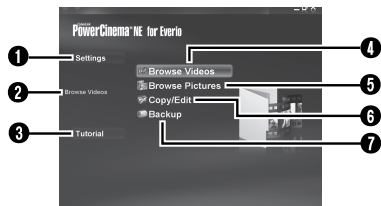
❶ You can perform detailed settings for each item.
❷ Select a function on the right, and an explanation is displayed.
❸ The operating procedure for each function is displayed.
❹ Plays back video files on the PC. (☞ p. 58)
❺ Plays back still image files on the PC. (☞ p. 58)
❻ Creates discs/Edits files. (☞ p. 59)
❼ Backs up camera files onto the PC. (☞ p. 56)

● **PowerProducer 4 NE**
Allows you to create discs. Automatically starts from an operation in PowerCinema NE for Everio.

● **PowerDirector 6 NE**
Allows you to edit files on your PC. Automatically starts from an operation in PowerCinema NE for Everio.

NOTE

If the recorded video will be edited with the software in the supplied CD-ROM, set x.v.Colour™ to [OFF] before recording.

Digital Photo Navigator 1.5

Allows you to change the format of still image files backed up on your PC.

You can find the latest information on the provided software program at CyberLink's world wide web server at http://www2.cli. co.jp/products/ne/

Preparation:
Quit any other software you are using. (Check that there are no other application icons on the status bar.)

1 Load the provided CD-ROM into the PC.
After a moment, the [SETUP] screen appears. If the [SETUP] screen does not appear, double-click the CD-ROM icon in [My Computer].

2 Click [Easy Installation].
If you want to specify the type of software to install or the installation destination folder etc., select [Custom Installation]. Follow the instructions on the screen to install the software.

3 Click [Yes].

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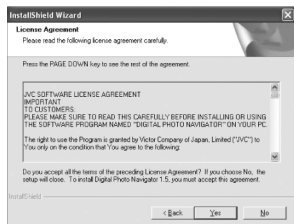
File Backup on a Windows® PC (Continued)

4 Select the desired language and click [OK].

5 Click [Yes].

The software installation starts.
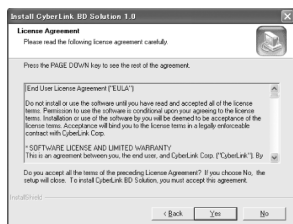
6 Click [Finish].

■ **When installation is completed**

The installed software is displayed in [All Programs] – [CyberLink BD Solution].
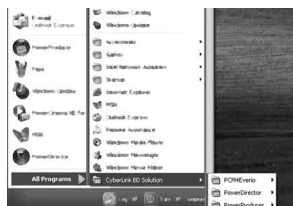
The backup destination folder [MyWorks] for files is created on the hard disk drive that has the most free space.
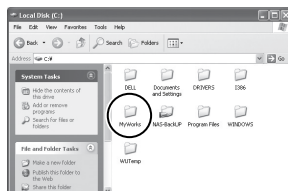
Connecting the Camera to the PC

Preparation:
Set the camera's power/mode switch to **OFF**.

To AC Outlet ← AC Adapter

DC Connector

USB Cable   USB Connector

USB Connector

NOTES

● Never disconnect the USB cable while the access/charge lamp on the camera lights or blinks.
● Do not turn off the camera when the USB cable is connected, to prevent malfunctions of the PC.
● Connect the camera directly to the PC, not through a hub.
● Do not use an extension USB cable.
● When you copy files from the computer to the recording medium on the camera, do not include any other files than those recorded with the camera.
● Do not delete, move, or rename the files and folders in the camera from the PC.

■ **When you have finished operation**
Always follow the procedures below when disconnecting the camera, or turning off the camera/PC power.
Failing to do so may cause damage to the camera and PC.
1) Confirm that the access/charge lamp on the camera does not light or blink. (If the access/charge lamp lights or blinks, wait until it is turned off before proceeding.)
2) Double-click the [Safely Remove Hardware] or [Unplug or Eject Hardware] icon in the status bar.
3) Select [USB Mass Storage Device] or [USB Disk], and then click [Stop].
4) Click [OK].
5) Disconnect the USB cable.
6) Turn off the camera and PC.

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File Backup on a Windows® PC (Continued)

File Backup on the PC

This method uses the software on the CD-ROM to back up files onto your PC.
Video files that have never been backed up onto the PC are automatically selected and backed up.

Preparation:
● Install the software from the provided CD-ROM.
● Connect the camera to the PC.

1 **Set the camera's power/mode switch to ON.**

2 **On the camera, press the DIRECT BACK UP button.**
A dialog box is displayed on the PC screen. However, you do not need to use the dialog box. File copy starts automatically.

EVERIO_HDD (G:)
Select Backup Device
Settings
EVERIO_HDD (G:)
Backup Files from Everio to PC
50/90
60%
Cancel
1 of 2

When the progress bar disappears, the process is complete.

NOTE

When backup is performed, folders for each medium (HDD or microSD) are created in the [MyWorks] folder (☞ p. 54), and the files are backed up inside those folders. (If backup is performed from more than one camera HDD, individual HDD folders are created.)

File Backup from the specified media

Preparation:
● Install the software.
● Connect the camera to the PC.

1 **Set the camera's power/mode switch to ON.**

2 **On the camera, select [BACK UP].**

PLAYBACK ON PC
BACK UP
SELECT SET   MENU: QUIT
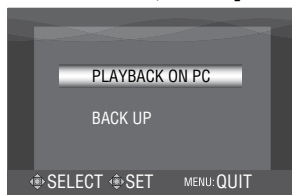
3 **On the PC, Click [EVERIO_HDD] or [EVERIO_SD].**

Select Device for Backup
Settings
EVERIO_HDD (H:)
EVERIO_HDD (H:)
EVERIO_SD (I:)
1 of 2

When the progress bar disappears, the process is complete.

File Backup on the PC without Using Software

Preparation:
Connect the camera to the PC with the USB cable. (☞ p. 55)

1 **On the PC, create a folder to back up files into.**

2 **Set the camera's power/mode switch to ON.**

3 **On the camera, select [PLAYBACK ON PC].**

PLAYBACK ON PC

BACK UP

⬦SELECT ⬦SET   MENU:QUIT
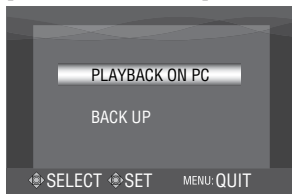
4 **On the PC, Double-click [EVERIO_ HDD] or [EVERIO_SD].**
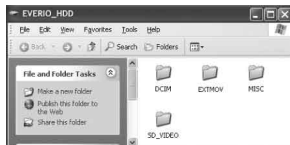
5 **Select the folder that you want to back up, and drag & drop it into the folder you created in step 1.**

● **SD_VIDEO:**
Folder that contains video files. If you want to back up files individually, open this folder, and drag & drop files such as [PRG001] one by one.

● **DCIM:**
Folder that contains still image files. If you want to back up files individually, open this folder, and drag & drop files such as [PIC_0001.JPG] one by one.

NOTE

For further details on the use of folders, see page 64.

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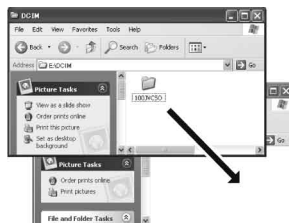
Other Windows® PC Operations

Playing Back Files on the PC

Preparation:
● Install the software.
● Connect the camera to the PC.

1 Set the camera's power/mode switch to ON.

2 On the camera, select [PLAYBACK ON PC].

A dialog box is displayed on the PC screen. However, you do not need to use the dialog box. PowerCinema starts automatically.

```
PLAYBACK ON PC

BACK UP

◈SELECT  ◈SET    MENU:QUIT
```
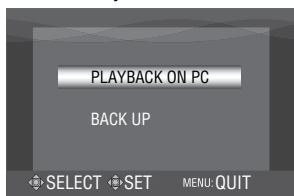
3 Click [Browse Videos] (for video playback) or [Browse Pictures] (for still image playback).

PowerCinema™ NE for Everio

Settings
Browse Videos
Browse Pictures
Copy/Edit
Backup
Tutorial

4 Click the media that contains desired files.

Select Device to Browse   EVERIO_HDD (H:)
Return
        EVERIO_HDD (H:)
        EVERIO_SD (I:)
        Backup Folder
        Local Disk (C:)
                                    1 of 4

5 Click the desired file.

MOV008.TOD   Sort by - Date
PRG021 10/16/2007 6:28 PM 15.27 MB   Filter by - All
Sort by
Filter by
View by
        MOV008 10/1   MOV009 10/2   MOV00A 1/9/:

        MOV00B 1/9/:   MOV00C 1/9/:   MOV00D 1/9/:

        MOV00E 1/9/:   MOV00F 1/9/:   MOV010 1/9/:
                                    1 of 78

If you click Sort by/Filter by/View by, searching options are displayed.
● **Sort by:**
The order of files is rearranged according to item that you selected.
● **Filter by:**
Files are filtered according to the item that you selected.
● **View by:**
You can change the number of thumbnails on a screen.

For more information on detailed operations of the software, refer to their Read me (☞ p. 60) or CyberLink web site. (☞ p. 53)

Creating Discs/Editing Files

Preparation:
● Install the software.
● Connect the camera to the PC.

1 Set the camera's power/mode switch to ON.

2 On the camera, select [PLAYBACK ON PC].

A dialog box is displayed on the PC screen. However, you do not need to use the dialog box. PowerCinema starts automatically.

PLAYBACK ON PC

BACK UP

◈SELECT ◈SET MENU: QUIT

3 Click [Copy/Edit].

PowerCinema NE for Everio

Settings

Browse Videos
Browse Pictures
Copy/Edit
Backup

Tutorial

4 Click the media that contains desired files.

Select Device to Copy/Edit from

Settings

EVERIO_HDD (F:)

EVERIO_SD (G:)

Backup Folder
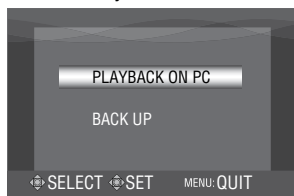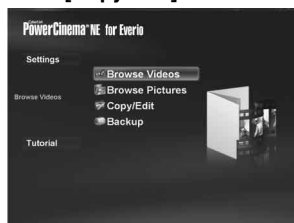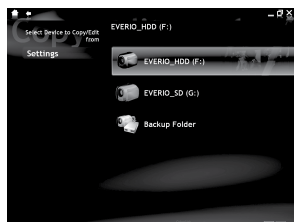
5 Click the check box of the desired file.

The ✔ mark appears in the check box. To select other files, repeat this step.

Copy/Edit

Sort by
Filter by
Select All
Add Picture
Copy/Advanced fur
Settings

MOV001.TOD   3/11/2007
MOV002.TOD   3/11/2007
MOV003.TOD   3/11/2007
MOV004.TOD   3/11/2007
MOV005.TOD   3/11/2007

4 items selected
Size: 418.05 MB

6 Click [Copy/Advanced function].

Copy/Edit

Sort by
Filter by
Select All
Add Picture
Copy/Advanced fur
Settings

MOV001.TOD   3/11/2007
MOV002.TOD   3/11/2007
MOV003.TOD   3/11/2007
MOV004.TOD   3/11/2007
MOV005.TOD   3/11/2007

4 items selected
Size: 418.05 MB

7 Click [Create Disc] for creating discs, or [Advanced Editing] for editing.

Copy/Edit

Copy Files
Advanced Editing
Create Disc
Delete
Settings

MOV050   2007/01/28
MOV062   2007/01/28
MOV068   2007/01/28

3 items selected
Size: 317.44 MB

PowerProducer (for creating discs) or PowerDirector (for editing) starts. For more information on detailed operations of the software, refer to their Read me (☞ p. 60) or CyberLink web site. (☞ p. 53)

Other Windows® PC Operations (Continued)

NOTES
- You can use following discs:
  - BD-RE, BD-R
  - DVD-R/DVD+R (Unused discs)
  - DVD-RW/DVD+RW (They need to be formatted before recording. Formatting deletes all content recorded on the disc.)
  - CD-R/RW
- DVD-RAM discs cannot be used.
- You may not be able to play back the created disc depending on the performance of a device. Also the image may stop momentarily at junctions between scenes.
- The PC must be equipped with a compatible drive and player software to play back the created disc.

Getting More Use of the Software

For more information on operations of the software, see the Tutorials for each software program or the User's Guides.

PowerCinema NE for Everio

1 Double-click [PowerCinema NE for Everio] icon on the desktop.

2 Click [Tutorial].

PowerProducer 4 NE

1 Select [CyberLink BD Solution] – [PowerProducer] from [All Programs].

2 Click [User's Guide] or [Readme].

PowerDirector 6 NE

1 Select [CyberLink BD Solution] – [PowerDirector] from [All Programs].

2 Click [User's Guide] or [Readme].

Digital Photo Navigator 1.5

The User's Guide is included on the CD-ROM in PDF format.

1 Load the provided CD-ROM into the PC.

2 Right-click the CD-ROM icon in [My Computer], then click [Open].

3 Double-click the [DOCS] folder.

4 Open the "Start.pdf" file and click the button of the desired language.

NOTES
- You need to connect to the Internet to see the Tutorial.
- Adobe® Acrobat® Reader™ or Adobe® Reader® must be installed to read PDF files. Adobe® Reader® can be loaded from Adobe's web site: http://www.adobe.com/

File Backup on a Macintosh

If the software on the provided CD-ROM is installed, the backed up file can be viewed in QuickTime Player or edited in iMovie HD or Final Cut Pro. (Several functions will not be accessible.)

You can find the latest information on the provided software program at our world wide web server at http://www2.cli.co.jp/products/ne/

System Requirements

Hardware:
- Macintosh 1.25 GHz or faster Power PC G4/G5 or Intel® processor
  (Intel® Core™ Duo 1.66 GHz or more recommended.)
- USB 2.0 connector is required.

OS:
Mac OS X (10.4.4 to 10.4.11, 10.5.1)

RAM:
At least 512 MB
(1 GB or more recommended)

Software Installation

Preparation:
Quit any other software you are using.

1 Load the provided CD-ROM into the PC.

2 Double-click the CD-ROM icon.

3 Double-click the QuickTime Component for Everio icon.

4 Click [Continue].
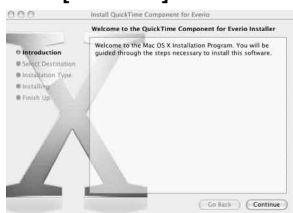
5 Click [Agree] and click [Continue].
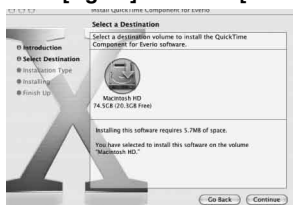
6 Click [Install].
The software installation starts.
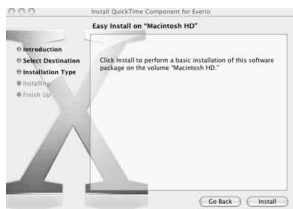
7 Click [Close].
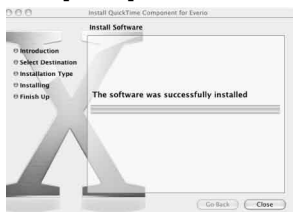
File Backup on a Macintosh (Continued)

Connecting the Camera to the Macintosh

Preparation:
Set the camera's power/mode switch to **OFF**.

To AC Outlet

AC Adapter

DC Connector

USB Cable

USB Connector

USB Connector

NOTES

● Never disconnect the USB cable while the access/charge lamp on the camera lights or blinks.
● Do not turn off the camera when the USB cable is connected, to prevent malfunctions of the computer.
● Connect the camera directly to the computer, not through a hub.
● Do not use an extension USB cable.
● When you copy files from the computer to the recording medium on the camera, do not include any other files than those recorded with the camera.
● Do not delete, move, or rename the files and folders in the camera from the computer.

■ **When you have finished operation**
Always follow the procedures below when disconnecting the camera, or turning off the camera/computer power.
Failing to do so may cause damage to the camera and computer.
1) Drag & drop the recording medium icon on the desktop into the [Trash] icon. If the confirmation message appears, click [OK].
2) Confirm that the access/charge lamp on the camera does not light or blink. If the access/charge lamp lights or blinks, wait until it is turned off before proceeding.
3) Disconnect the USB cable.
4) Turn off the camera and computer.

File Backup on the Macintosh

Preparation:
Connect the camera to the computer with the USB cable. (☞ p. 64)

1 **On the computer, create a folder to back up files into.**

Summer_Memories

2 **Set the camera's power/mode switch to ON.**

3 **On the camera, select [PLAYBACK ON PC].**

PLAYBACK ON PC

BACK UP

◈SELECT ◈SET   MENU: QUIT
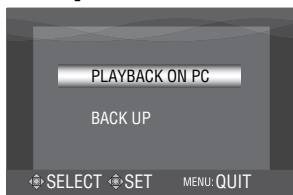
4 **On the computer, double-click [EVERIO_HDD] or [EVERIO_SD].**

Macintosh HD

EVERIO_HDD

5 **Select the folder that you want to back up, and drag & drop it into the folder you created in step 1.**

● **SD_VIDEO:**
Folder that contains video files. If you want to back up files individually, open this folder, and drag & drop files such as [PRG001] one by one.

● **DCIM:**
Folder that contains still image files. If you want to back up files individually, open this folder, and drag & drop files such as [PIC_0001.JPG] one by one.

DCIM
100JVCCR

NOTE

For further details on the use of folders, see page 64.

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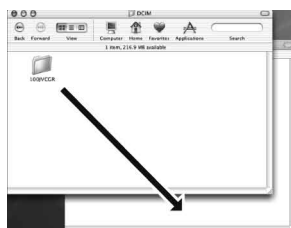
Folder Structure and Extensions

Recording medium   **X = number**

```
─ [DCIM] ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ Contains the still image folders.
    ─ [XXXJVCSO]
        ─ [PIC_XXXX.JPG] ┈┈┈┈ Still image file
        ─ [PIC_XXXX.JPG]
                ⋮
    ─ [XXXJVCSO]
    ─ [XXXJVCSO]
        ⋮
─ [SD_VIDEO] ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ Contains the video file folders.
    ─ [MGR_INFO] ┈┈┈┈┈┈┈┈┈ Management information* for the media as a
                              whole
    ─ [PRGXXX]
        ─ [PRGXXX.PGI] ┈┈┈┈┈ Management information*
        ─ [MOVXXX.TOD] ┈┈┈┈ Video file
        ─ [MOVXXX.MOI] ┈┈┈┈ Management information* for the video file
                ⋮
    ─ [PRGXXX]
    ─ [PRGXXX]
─ [EXTMOV] ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ After backing up to a PC, the video files which
                              were edited on a PC and then recopied to the
    ─ [MOV_XXXX.TPD]          camera are saved. Video files with defective
    ─ [MOV_XXXX.TPD]          management information are also saved.
    ─ [MOV_XXXX.TPD]
        ⋮
─ [MISC] ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ Contains folders with DPOF setting data.
─ [PRIVATE] ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ Contains management information files of event
                              information and/or DVD creation for the files taken
                              with the camera.
```

* Information such as the date and time of recording, recorded with the video file.

Extensions
Video files : ".TOD" Still image files : ".jpg"
The file extension may not appear depending on the [FOLDER] option setting of Windows®.

Customer Support Information

Contact us for information on the provided software

Use of this software is authorized according to the terms of the software licence.

JVC

When contacting the nearest JVC office or agency in your country (refer to the JVC Worldwide Service Network at http://www.jvc-victor.co.jp/english/worldmap/index-e.html) about this software, please have the following information ready.

- Product Name
- Model
- Problem
- Error Message

- PC
  Manufacturer
  Model (Desktop/Laptop)
  CPU
  OS
  Memory (MB)
  Available Hard Disk Space (GB)

Please note that it may take some time to respond to your questions, depending on their subject matter.

JVC cannot answer questions regarding basic operation of your PC, or questions regarding specifications or performance of the OS, other applications or drivers.

CyberLink
Telephone/fax support

Location	Language	Office hours (Mon. to Fri.)	Phone #	Fax #
Germany	English / German / French / Spanish / Italian	9:00 to 17:00	+49-700-462-92375	+49-241-70525-25
Taiwan	Mandarin	9:00 to 18:00	+886-2-8667-1298 ext. 333	+886-2-8667-1300
Japan	Japanese	10:00 to 17:00	+81-3-3516-9555	–

Paid voice support

Location	Language	Lines are open (Mon. to Fri.)	URL
U.S.A.	English	13:00 to 22:00 CST	http://www.cyberlink.com/english/cs/support/new_site/voice_support.jsp

Support web/e-mail

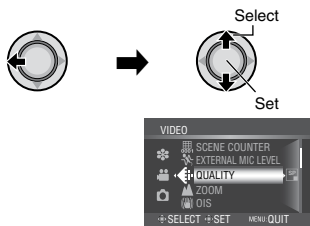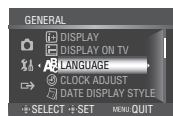| Language	URL/e-mail address
English	http://www.cyberlink.com/english/cs/support/new_site/support_index.html
German / French / Spanish / Italian	goCyberlink@aixtema.de
Japanese	http://jp.cyberlink.com/support/

Changing the Menu Settings

1 Select the menu mode.

MENU

2 Select the desired first menu item.

- **🎥 : VIDEO**
- **📷 : IMAGE**
- **🔧 : GENERAL**
- **➡ : OUTPUT SETTING**
- **❀ : MEDIA**

Select

Set

VIDEO
SCENE COUNTER
EXTERNAL MIC LEVEL
QUALITY
ZOOM
OIS
◆SELECT ◆SET   MENU: QUIT

3 Select the desired second menu item.

For details on each menu, see below.
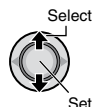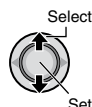
Select

Set

GENERAL
DISPLAY
DISPLAY ON TV
LANGUAGE
CLOCK ADJUST
DATE DISPLAY STYLE
◆SELECT ◆SET   MENU: QUIT

4 Select the desired setting.

Select

Set

DEMO MODE
ON ON
OFF OFF
◆SELECT ◆SET   MENU: QUIT

■ **To return to the previous screen**
Move the set lever to 〈.

■ **To exit the screen**
Press the **MENU** button.

Menus	Settings: [ ] = Factory-preset
🎥 VIDEO **€ QUALITY** Sets the picture quality for videos.	**[FHD]**: Record in 1920 x 1080i (full high-definition), VBR (Variable Bit Rate). **SP**: Record in 1440 x 1080i (high-definition), VBR (Variable Bit Rate). Select this to record in the higher picture quality. **LP**: Record in 1440 x 1080i (high-definition), VBR (Variable Bit Rate). Select this in order to record for a long time. **1440 CBR**: Record in 1440 x 1080i (high-definition), CBR (Constant Bit Rate). Select this to copy a recorded video in high-definition using the i.LINK connector. **NOTE** If you switch the quality settings between FHD/SP/LP and 1440 CBR, a new file management folder is created in the HDD or microSD card. (SP and LP files are stored in same folders.) If you change the settings frequently, you may not be able to record due to a limited quantity of folders. In this case, perform the operation on page 77.

Menus	Settings: [ ] = Factory-preset
🔺 ZOOM Sets the maximum zoom ratio.	**[10X]** / **40X** / **200X** **NOTE** Optical zoom is used up to 10X. Digital zoom is used from more than 10X up to the selected zoom ratio.
(🔘) OIS Compensates for hand shake.	**OFF**: Disables the function. **[ON]**: Activates the function. **NOTES** ● Complete stabilisation may not be possible if hand shake is excessive, or depending on the shooting conditions. ● Switch off this mode when recording with the camera on a tripod.
🔆 GAIN UP Makes the subject appear bright automatically when you record in dark places. However, the overall colour tones appear grayish.	**OFF**: Disables the function. **[AGC]**: Electrically brightens the scene in dark place. **AUTO**: Automatically brightens the scene when it is dark. (Becomes brighter than AGC)
≋ WIND CUT Reduces noise caused by wind.	**[OFF]**: Disables the function. **ON**: Activates the function.
🎬 REC MEDIA FOR VIDEO Sets the recording medium for videos.	**[HDD]** / **SD** **NOTE** When set to [SD], video picture quality will be automatically set to [SP].
▦ SCENE COUNTER Displays the scene counter.	**OFF**: Disables the function. **[ON]**: Activates the function.
🎙 EXTERNAL MIC LEVEL Displays the input level when the external microphone (optional) is connected.	**OFF**: Disables the function. **[ON]**: Activates the function.
xvc x.v.Color Records video in the colour range suitable for viewing in an x.v.Colour™ compliant TV.	**[OFF]**: Disables the function. **ON**: Activates the function. **NOTE** It is recommend to set x.v.Colour™ to [OFF] before the recording if the recorded video will be edited with a software.
✦ QUALITY Sets the picture quality for still images.	**[FINE]** / **STANDARD**
▦ IMAGE SIZE Selects the picture size for still images.	**[1920 x 1080]** / **1440 x 1080** / **1024 x 768** / **640 x 480**
ISO GAIN Sets the ISO setting to increase the sensitivity in dark conditions.	**[AUTO]** / **100** / **200** / **400**

VIDEO

IMAGE

67

Changing the Menu Settings (Continued)

Menus	Settings: [ ] = Factory-preset
IMAGE	
📷 **CONTINUOUS SHOOTING** Records still images continuously while the **SNAPSHOT** button is pressed.	**[OFF]**: Disables the function. **ON**: Activates the function. **BRACKETING**: Activates the bracket shooting function. In addition to an image with the exposure set by the camera, two other images are recorded with exposure values shifted to the +0.3 EV and –0.3 EV sides. You can select the image that has a suitable exposure after shooting. **NOTES** ● The interval between recording still images is approx. 0.5 seconds. ● Continuous shooting may not work well depending on the recording medium. ● The continuous shooting speed will drop if this function is used repeatedly.
⏱ **SELF-TIMER** Starts recording when the set time elapses after the **SNAPSHOT** button is pressed.	**[OFF]** / **2SEC** / **10SEC** **NOTES** ● You can confirm the countdown on the camera screen. ● You can also use this to prevent vibration by the hand.
🗃 **REC MEDIA FOR IMAGE** Sets the recording medium for still images.	**[HDD]** / **SD**
GENERAL	
🗚 **LANGUAGE** Sets the display language. (☞ p. 17)	GZ-HD5AA/AG GZ-HD6AA/AG : [**ENGLISH**] GZ-HD5AH GZ-HD6AH : [汉语] You have a choice of 21 languages.
🕐 **CLOCK ADJUST** Sets the time. (☞ p. 17)	**DATE** / **TIME**
🗓 **DATE DISPLAY STYLE** Sets the date and time display format.	**DATE STYLE:** **month.day.year** / **year.month.day** / **[day.month.year]** **TIME:** **[24h]** / **12h**

🕑 **DATE/TIME**
Displays the current time on the LCD monitor.
	[AUTO]: The date/time appears for approx. 5 seconds in the following cases.
	  ● When the power/mode switch is set from **OFF** to **ON**
	  ● When playback starts
	ON: The date/time is always displayed.
	OFF: The date/time does not appear.

✨ **PRESET** Returns all the camera settings to their default values.	**EXECUTE**: Performs this function. **[CANCEL]**: Returns to the menu screen without executing reset.

Menus	Settings: [ ] = Factory-preset
▭ **BRIGHT** Sets the brightness of the LCD monitor.	Adjust the brightness of the display by moving the set lever to ‹ / ›, then press down.
▨ **MONITOR BACKLIGHT** Enables you to adjust the brightness of backlight on the monitor.	**BRIGHTER** / **STANDARD** / **[AUTO]** NOTE When you select [AUTO], the brightness will automatically be set to [BRIGHTER] when you use the camera outdoors and to [STANDARD] when you use the camera indoors.
⊙ **DROP DETECTION** Prevents damage to the HDD by turning off the power automatically when it is detected that the camera dropped.	**OFF**: Disables the function. **[ON]**: Activates the function. To turn the camera on when the drop detection worked, set the power/mode switch to **OFF**, and to **ON** again. CAUTION Setting this function to off increases the risks of damaging the built-in hard disk if the camera is accidentally dropped.
⊚ **FOCUS ASSIST** When this function is used, the outline of the focused object is displayed in the selected colour.	**[BLUE]** / **RED** / **GREEN**
⬦ **REMOTE** Turns reception of the operation signal from the remote control on/off.	**OFF**: The camera does not receive the signal from the remote control. **[ON]**: Enables operation with the remote control.
▤ **DEMO MODE** Introduces special features of the camera when there is no operation for about 3 minutes during recording mode.	**OFF**: Disables the function. **[ON]**: Activates the function. NOTES ● The demonstration only works when the AC adapter is connected, not with the battery. ● If a microSD card is in the camera, demonstration will not take place even if this mode is set to [ON].
▣)) **OPERATION SOUND** Turns the operation sound on/off.	**OFF**: Turns off the operation sound. **[MELODY]**: The melody sounds when operations are performed.
▦ **DISPLAY** Displays the on-screen display.	**OFF**: Turns off the on-screen display. **[ON]**: Turns on the on-screen display.
▤ **DISPLAY ON TV** Displays camera's on-screen display on a TV screen.	**[OFF]**: Does not display on TV. **ON**: Displays on TV. NOTE When connected to a TV using the i.LINK connector, the camera's on-screen display is not displayed on the TV, even if this setting is [ON].

GENERAL

Changing the Menu Settings (Continued)

Menus	Settings: [ ] = Factory-preset
⇄ **VIDEO OUTPUT** Set the aspect (16:9/4:3) to the screen of the connected television when outputting videos from the AV connector.	**[16:9] / 4:3**
⇄ **COMPONENT OUTPUT** Sets the definition of the video output from the COMPONENT connector.	**[576i]**: Outputs at 576i. **1080i**: Outputs at 1080i.
⇄ **HDMI OUTPUT** Sets the definition of the video output from the HDMI connector.	**[AUTO1]**: The definition that best suits the connected device is automatically selected: 576i, 576p, 1080i or 1080p*. **AUTO2**: The definition that best suits the connected device is automatically selected: 576i, 576p or 1080i. **576p**: Outputs at 576p. Select when the video is not projected correctly. * Playback mode only
⚒ **HDMI COLOR SETTING** Sets the video format of the video output from the HDMI connector.	**[AUTO]**: Select this under normal circumstances. **RGB**: Select this when the video is not projected correctly.
⚏ **HDMI ENHANCE SETTING** Automatically adjusts the image quality (depth of colour, dark colour suppression, etc.) of video output when connecting to the TV's DVI connector.	**[OFF]**: Image quality is not automatically adjusted. **ON**: Image quality is automatically adjusted.
⇗ **i.LINK OUTPUT (DUB)** Sets the video output according to the device connected or picture quality of the copied files when using the i.LINK connector to copy files.	**DV**: Outputs FHD/SP/LP/1440 CBR videos. Select this when copying with a device that supports DV input. **[1440 CBR]**: Outputs 1440 CBR videos only. Select this when copying video that was recorded with [1440 CBR] set in [QUALITY].

The left column is grouped under: ⇨ OUTPUT SETTING

Menus	Settings: [ ] = Factory-preset
🗄 **CLEAN-UP HDD** Writing speed to HDD tends to become slow after long periods of repeated use. Execute cleanup periodically to regain the writing speed.	Connect the AC adapter. **EXECUTE**: Performs this function. Select [OK] when completed. **[CANCEL]**: Cancels this function. **NOTE** Depending on the condition of the HDD, it may take several minutes for the cleanup process to be completed.
🗄 **FORMAT HDD** Ensures stable speeds and operation when accessing the hard disk drive.	**EXECUTE**: Performs this function. Select [OK] when completed. **[CANCEL]**: Cancels this function. **NOTES** ● Be aware that all files and data including protected files will be erased by the formatting process. ● Do not format the hard disk of the camera by your PC.
🗄 **FORMAT SD CARD** You have to format newly purchased microSD cards with this camera before using them. This will also ensure stable speeds and operation when accessing the microSD card.	**EXECUTE**: Performs this function. Select [OK] when completed. **[CANCEL]**: Cancels this function. **NOTES** ● Be aware that all files and data including protected files will be erased by the formatting process. ● Do not format the microSD card in the camera by your PC.
🗄 **DELETE DATA ON HDD** When you dispose of the camera, perform this to make it difficult to recover data on the HDD.	Connect the AC adapter. **EXECUTE**: Performs this function. Select [OK] when completed. **[CANCEL]**: Cancels this function. **NOTE** In addition to this operation, it is recommended that you use a commercially available date erasing software to eliminate the risk of data recovery.
🎥 **VIDEO NO. RESET** 📷 **IMAGE NO. RESET** By resetting the file number (name), a new folder is made. The new files will be stored in the new folder. It is convenient to separate the new files from previously recorded files.	**EXECUTE**: Performs this function. Select [OK] when completed. **[CANCEL]**: Cancels this function.

(The leftmost column is labeled ❀ **MEDIA**)

Troubleshooting

The camera is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly.

The following phenomena are not malfunctions.
- The camera heats up when it is used for a long time.
- The battery heats up during charging.
- When playing back a video file, the image stops momentarily or the sound is interrupted at junctions between scenes.

- To solve the problem, first follow the instructions below.
- If the problem is not solved, reset the camera. (☞ p. 76)
- If the problem persists, please consult your nearest JVC dealer.

	Trouble	Action
Card	**Cannot insert the microSD card.**	● Check that the microSD card is facing the right direction.
Power	**No power is supplied.**	● Connect the AC adapter correctly. ● Recharge the battery.
	After the low temperature message is displayed, the power turns off when the camera warms up.	● When the camera has warmed up after being cold, the camera may switch itself off to check it is operating correctly.
	There is a sound when turning on/off the power.	● When you turn on/off the power, the lens cover opens/closes automatically and this causes a sound. This is not a malfunction.
Recording	**Recording cannot be performed.**	● Set the power/mode switch to **ON**. ● Press the **PLAY/REC** button to select the recording mode.
	Recording stops by itself.	● If the camera temperature increases, REC flashes in the LCD monitor. If the temperature continues to increase, operation stops automatically to protect the HDD. ● Move to a place where the camera is not affected by excessive sound or vibration. ● Recording stops automatically after 12 hours of continuous recording.
	The focus is not adjusted automatically.	● Clean any dirt or water droplets from the lens. ● Set focus to the automatic mode. ● If you are recording in a dark place or a subject that has no contrast between dark and light, adjust the focus manually.
	The recorded subject is too dark.	● Use backlight compensation or Nightscope. ● Set the brightness to the [+] side. ● For videos, set [GAIN UP] in the video menu to [AGC] or [AUTO]. ● For still images, set [GAIN] in the image menu to [AUTO] or [400].

	Trouble	Action
Recording	The recorded subject is too bright.	● Set the backlight compensation to [OFF] if it is being used. ● Set the brightness to the [–] side.
	Cannot use spot exposure control.	● Keep the zoom ratio below 10X.
	The colour of the recorded subject looks strange.	● If there are numerous light sources etc. behind the subject, set the white balance to [MWB].
	Bright vertical lines appear on recorded images.	● This type of phenomenon may occur when shooting a subject illuminated by bright light. This is not a malfunction.
	Digital zoom does not work.	● Change [ZOOM] in the video menu to [40x] or [200x].
	White balance setting cannot be activated.	● This cannot be used if [SEPIA] or [MONOTONE] are selected as effects. ● Do not use [TWILIGHT] from program AE.
	The continuous shooting speed is slow.	● The continuous shooting speed will drop after continuous shots. ● Continuous shooting speed may drop depending on the recording media or under certain recording conditions.
	The date/time does not appear.	● Set [DATE/TIME] in the general menu to [ON].
	A function cannot be activated.	● Check the indication that represents that function. ● If the indication is flashing or off, you have selected two functions that cannot be used together. Choose which of the functions to use.
	Video movement appears jerky/like it is frame dropping.	● Deactivate Nightscope, [SHUTTER SPEED] and/or [EFFECT].
Displays	The indication display flashes or goes out.	● You have selected two functions that cannot be used together. Choose which of the functions to use.
	The LCD monitor appears blank.	● Operate the camera. (When using the AC adapter, if the camera is not operated for a certain length of time it will enter sleep mode, the video/still image mode lamp lights, and the LCD backlight turns off.)
	The remaining battery display is not correct.	● Fully charge the battery, run it down, and then recharge it again. ● If the camera is used for long periods of time in high or low temperatures, or if the battery is repeatedly charged, the amount of remaining battery may not be displayed correctly.

Troubleshooting (Continued)

	Trouble	Action
Displays	**The LCD monitor display is uneven.**	● If the LCD monitor or surrounding parts have been pressed, remove your hand and leave the camera for a short while. (Applying pressure causes image unevenness.)
	Images on the LCD monitor appear dark or whitish.	● Adjust the brightness and angle of the LCD monitor. ● The LCD monitor appears dark when used in cold places. This is not a malfunction. ● The LCD monitor may be reaching the end of its service life. Consult your nearest JVC dealer or the JVC customer service.
	The LCD monitor is difficult to see.	● The LCD monitor may be difficult to see if used in bright areas such as under direct sunlight.
Playback	**The same scene appears stopped for a long time.**	● Replace the microSD card. (If there are scratches etc. on the microSD card, the camera will have difficulty reading the data, and this phenomenon may occur. The camera will try to play back as much as possible, but if this condition continues, the camera will not be able to play back the video and it will automatically stop.) ● Perform cleanup or formatting.
	Video movement appears jerky.	
	Sound or video are interrupted.	● Sometimes playback is interrupted at the connecting section between two scenes.
	Noise can be heard.	● Do not move the camera suddenly during recording. (If the camera is moved suddenly during recording, the driving sound (hum) of the hard disk may have been recorded.)
	Images look unnatural on the TV (long and thin etc.)	● Change [VIDEO OUTPUT] in the output setting menu to match your TV.
	A part of the TV screen appears to be shaking.	● Change [HDMI OUTPUT] in the output setting menu to [AUTO].
	Cannot find a recorded video.	● Select [PLAYBACK TPD FILE] in the function menu, then search the video file on the index screen. (Video files that have damaged management information or video files that were written back from a computer can be played.)
	The colour of images looks strange.	● When recording the white balance was not correctly adjusted. ● When the video was recorded with x.v.Colour™ set to [ON], change the setting as desired on TV.

	Trouble	Action
Playback	**Some functions cannot be used when playing back a backup DVD through a DVD burner connected to the camera.**	● The following functions cannot be used for a backup DVD. **[When playing back video]** - Special playback (forward slow motion, reverse slow motion, frame-by-frame forward, frame-by-frame back) - Saving still images from video playback - Search index by date - Playback effects - Playback zoom (remote control function) **[When playing back still image]** - Rotate 90 degrees - **INFO** button (file information, histogram) - Playback effects - Playback zoom (remote control function)
	When playing back video, mosaic-type noise may occur on the playback screen.	● Mosaic-type noise may occur when recording under the following conditions. - When there is a complicated pattern in the background - If the camera is moved around a lot, or moved quickly - When recording a subject that moves quickly (especially when recording in [LP] mode)
Dubbing	**High-definition dubbing cannot be performed to a HDV device.**	● Check all of the following. - Record with [QUALITY] in the video menu set to [1440 CBR]. - Create a playlist, then dub the playlist. (Dubbing cannot be done for each video file.) - When dubbing, set [i.LINK OUTPUT (DUB)] in the output setting menu to [1440 CBR].
	When connected with an i.LINK cable, the camera does not operate if controls are attempted from the PC etc.	● Operate the camera. (The camera cannot be operated from the PC.)
	When dubbing a playlist, some videos cannot be played back.	● When dubbing high-definition videos to a connected HDV device, do not include [FHD] or [SP] quality videos in the playlist. (When the playlist is being played back, these videos will not be played.) ● Set [i.LINK OUTPUT (DUB)] in the output setting menu to [DV], and dub to a DV camera or DVD recorder using standard quality dubbing. ● Connect using a audio/video cable, and dub to an analog device using standard quality dubbing.
	When dubbing, the connected video device does not start recording automatically.	● Operate the video device manually to start and stop recording.

Troubleshooting (Continued)

Trouble	Action
Other problems	
The camera operates slowly when switching between video mode and still image mode, or when switching the power on or off.	● Copy all files from the media onto your computer, and erase the files from the media. (If there are many still images (more than 1,000 files) on the media, it takes time for the camera to process the files.)
The camera gets hot.	● This is not a malfunction.
The lamp does not flash during battery charging.	● Check the remaining battery charge. (When the battery is fully charged, the lamp does not flash.) ● When recharging in either a hot or cold environment, ensure that battery is being charged within the permitted temperature range. (If the battery is being recharged outside the permitted temperature range, recharging may stop to protect the battery.)
The remote control doesn't work.	● Replace the batteries. ● Set [REMOTE] in the general menu to [ON]. ● The remote control may not operate outdoors or in places exposed to strong light.

■ **The following phenomena are not malfunctions.**
  ● LCD monitor momentarily becomes red or black when sunlight is recorded.
  ● Black spots, or red, green, or blue spots appear on the LCD monitor.
    (The LCD monitor contains 99.99% effective pixels, but 0.01% or fewer pixels may be ineffective.)

■ **Maintaining HDD Performance**
  Periodically perform [CLEAN-UP HDD].

■ **If a malfunction occurs in the HDD**
  ① Perform [CLEAN-UP HDD].
  ② If this does not solve the malfunction, perform [FORMAT HDD]. (All data is deleted.)
  ③ If this does not solve the problem, perform the disc check function from a PC after formatting.
  ④ If this does not solve the problem, contact the JVC customer service for repairs.

■ **To reset the camera**
  ① Set the power/mode switch to **OFF** and remove the power supply (battery pack or AC adapter) from the camera, then reattach it.
  ② Execute [PRESET] in the general menu. (☞ p. 68)

Warning Indications

Indication	Meaning/Action
HARD DISK DRIVE IS FULL	● Erase files. Move onto media such as a computer.
MEMORY CARD IS FULL	● Erase files. Move onto media such as a computer. Replace with a new microSD card.
COMMUNICATING ERROR	● Detach the battery pack once and re-attach it firmly.
INCOMPATIBLE FORMAT	● Remove and re-insert the microSD card.
UNSUPPORTED FILE!	● Use a supported file format.
NO SUPPORTED FILES	● Record some still images.
NUMBER OF FOLDERS OVERFLOW	● Perform the following operations in order. ① Backup files onto a PC etc. ② Select [FORMAT HDD] in the media menu. (For microSD cards, select [FORMAT SD CARD].) ③ Select [EXECUTE]. ④ While holding down the event button, press the set lever.
POWER NOT ON OR USB DEVICE NOT COMPATIBLE	● Check that the power of the connected USB device is on.
RECORDING FAILURE	**[microSD card]** ● Check whether the microSD card has been checked for operability. **[HDD]** ● Perform cleanup. ● Do not allow the camera to be subject to impact/vibrations.
RECORDING CANCELLED	● Select [OK] and stop recording. ● Use the camera in areas where it will not be subject to impact/vibrations.
THIS FILE IS PROTECTED	● Switch off the [PROTECT] function in the function menu.
NUMBER OF PRINTS ERROR	● Set between 1~999 images.
EVENT LIST EMPTY	● Set the event.
NO PLAYLIST	● Create a playlist.
NO REGISTERED SCENES IN PLAYLIST **SOME OF SCENES MAY NOT BE PLAYED BACK**	
PROCESSING CANCELLED DUE TO LACK OF SPACE FOR OPERATION	● Reduce the number of videos that can be registered to a playlist to less than 99 files.

Warning Indications (Continued)

Indication	Meaning/Action
MEMORY CARD ERROR!	● Remove and re-insert the microSD card. (Multimedia cards cannot be used.) ● Remove any dirt from the microSD card terminals. ● Insert the microSD card before switching the power on.
HDD ERROR!	● Perform cleanup or formatting.
RECORDING MAY NOT BE CORRECT ON THE MEMORY CARD	● Check the operating procedure, and perform once again.
MEMORY CARD CANNOT BE PLAYED BACK CORRECTLY	
MAY NOT RECORD HARD DISK DRIVE CORRECTLY	
CANNOT PLAYBACK HARD DISK DRIVE CORRECTLY	
THIS CARD IS NOT FORMATTED	● Perform formatting.
SET DATE/TIME!	● Set the date and time. (If the display does not disappear after completing the settings, the clock battery is exhausted. Consult your nearest JVC dealer.)
VIDEO MANAGEMENT FILE IS BROKEN TO RECORD/PLAYBACK VIDEO, RECOVERY IS REQUIRED RECOVER?	● Select [OK] to restore.
CANNOT USE IN VIDEO MODE	● Set the video media in the video menu to [HDD]. ● Replace the microSD card. (Cards that have been recorded on using anything other than JVC high-definition hard disk movies cannot be used.)

Cleaning

Before cleaning, turn off the camera and remove the battery pack and AC adapter.

■ **To clean the exterior**
Wipe gently with a soft cloth. If the camera is particularly dirty, dip the cloth into diluted mild soap and wring it out well. After wiping with the wet cloth, wipe again with a dry cloth.

■ **To clean the LCD monitor**
Wipe gently with a soft cloth. Be careful not to damage the monitor.

■ **To clean the lens**
Wipe gently with lens cleaning paper.

NOTES
● Avoid using strong cleaning agents such as benzine or alcohol.
● Mould may form if the lens is left dirty.
● When using a cleaner or chemically treated cloth, refer to the cautions for each product.

Specifications

Camera

■ For general
Power supply
DC 11 V (Using AC adapter)
DC 7.2 V (Using battery pack)
Power consumption
GZ-HD5 Approx. 6.9 W
GZ-HD6 Approx. 7.1 W
Dimensions (W x H x D)
GZ-HD5 78 mm x 73 mm x 130 mm
GZ-HD6 79 mm x 73 mm x 138 mm
Weight
GZ-HD5 Approx. 480 g (incl. strap)
Approx. 565 g (incl. battery and strap)
GZ-HD6 Approx. 505 g (incl. strap)
Approx. 590 g (incl. battery and strap)

Operating temperature
0°C to 40°C
Operating humidity
35% to 80%
Storage temperature
–20°C to 50°C
Pickup
1/5" (570,000 pixels) progressive CCD
Lens
F 1.8 to 1.9,
f = 3.3 mm to 33.0 mm,
10:1 power zoom lens
Filter diameter
ø43.0 mm
LCD monitor
2.8" diagonally measured,
LCD panel/TFT active matrix system
Speaker
Monaural

■ For video/audio
Format
SD-VIDEO
Recording/Playback format
Video: MPEG-2 TS
Audio: MPEG-1 Layer 2
Signal format
1080/50i
Recording mode (video)
FHD: VBR, average of 26.6 Mbps
SP: VBR, average of 19 Mbps
LP: VBR, average of 11.1 Mbps
1440 CBR: CBR, 27 Mbps
Recording mode (audio)
48 kHz, 384 kbps

■ For still image
Format
JPEG
Image size
4 modes: 1920 x 1080
            1440 x 1080
            1024 x 768
            640 x 480

Picture quality
2 modes: FINE / STANDARD

■ For connectors
HDMI
HDMI™ (V.1.3 with x.v.Colour™)
Component output
Y, Pb, Pr component output
Y: 1.0 V (p-p), 75 Ω
Pb/Pr: 0.7 V (p-p), 75 Ω
i.LINK output
4-pin (i.LINK/IEEE1394 compliant)
AV output
Video output: 1.0 V (p-p), 75 Ω
Audio output: 300 mV (rms), 1 kΩ
USB
Mini USB type A and type B,
USB 2.0 compliant
Microphone
ø3.5 mm stereo mini jack
GZ-HD6 **Headphone**
ø3.5 mm stereo mini jack

AC Adapter

Power requirement
AC 110 V to 240 V∼, 50 Hz/60 Hz
Output
DC 11 V ⎓ , 1 A

Remote Control

Power supply
DC 3 V
Battery life
Approx. 1 year
(depending on the frequency of use)
Operating distance
Within 5 m
Operating temperature
0°C to 40°C

Dimensions (W x H x D)
42 mm x 14.5 mm x 91 mm
Weight
Approx. 30 g
(incl. battery)

Design and specifications subject to change
without notice.

Approximate recording time (minutes) (for video)

Recording medium / Quality	HDD		microSD Card
	GZ-HD5 60 GB	GZ-HD6 120 GB	4 GB
FHD	300	600	–
SP	420	840	25
LP	720	1440	–
1440 CBR	300	600	–

Approximate number of storable images (for still image)

	Recording medium / Image size/Quality	HDD		microSD Card			
		GZ-HD5 60 GB	GZ-HD6 120 GB	512 MB	1 GB	2 GB	4 GB
16:9	1920 x 1080 / FINE	9999	9999	535	1065	2115	4220
	1920 x 1080 / STANDARD	9999	9999	840	1670	3225	6445
	1440 x 1080 / FINE	9999	9999	705	1405	2785	5565
	1440 x 1080 / STANDARD	9999	9999	1110	2205	4380	8750
4:3	1024 x 768 / FINE	9999	9999	1415	2810	5575	9999
	1024 x 768 / STANDARD	9999	9999	2225	4115	8765	9999
	640 x 480 / FINE	9999	9999	3465	6870	9999	9999
	640 x 480 / STANDARD	9999	9999	6235	9999	9999	9999

Cautions

Battery Packs

The supplied battery pack is a lithium-ion battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

Terminals
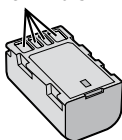
- **To avoid hazards**
... **do not** burn.
... **do not** short-circuit the terminals. Keep it away from metallic objects when not in use. When transporting, make sure the provided battery cap is attached to the battery. If the battery cap is misplaced, carry the battery in a plastic bag.
... **do not** modify or disassemble.
... **do not** expose the battery to temperatures exceeding 60°C, as this may cause the battery to overheat, explode or catch fire.
... use only specified chargers.
- **To prevent damage and prolong service life**
... do not subject to unnecessary shock.
... charge within the temperature range of 10°C to 35°C. This is a chemical reaction type battery — cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
... fully charge and then fully discharge the battery every 6 months when storing the battery pack over a long period time.
... remove from charger or powered unit when not in use, as some machines use current even when switched off.

Recording Medium

- **Be sure to follow the guidelines below to prevent corruption or damage to your recorded data.**
  - Do not bend or drop the recording medium, or subject it to strong pressure, jolts or vibrations.
  - Do not splash the recording medium with water.
  - Do not use, replace, or store the recording medium in locations that are exposed to strong static electricity or electrical noise.
  - Do not turn off the camera power or remove the battery or AC adapter during shooting, playback, or when otherwise accessing the recording medium.
  - Do not bring the recording medium near objects that have a strong magnetic field or that emit strong electromagnetic waves.
  - Do not store the recording medium in locations with high temperature or high humidity.
  - Do not touch the metal parts.
- When formatting or erasing data using the camera, only the file administration information is changed. The data is not completely erased from the hard disk. If you want to completely erase all of the data, we recommend either using commercially available software that is specially designed for that purpose, or by physically destroying the camera with a hammer etc.

Hard disk

- Do not use the unit where it is subject to vibrations or loud sounds.
- If you move the unit suddenly, the drop detection function may operate and the power may be turned off.

LCD Monitor

- **To prevent damage to the LCD monitor, DO NOT**
... push it strongly or apply any shocks.
... place the camera with LCD monitor on the bottom.
- **To prolong service life**
... avoid rubbing it with coarse cloth.

Main Unit

- **For safety, DO NOT**
... open the camera's chassis.
... disassemble or modify the unit.
... allow inflammables, water or metal objects to enter the unit.
... remove the battery pack or disconnect the power supply while the power is on.
... leave the battery pack attached when the camera is not in use.
... place naked flame sources, such as lighted candles, on the apparatus.
... expose the apparatus to dripping or splashing.
... leave dust or metal objects adhered to the power plug or an AC wall outlet.
... insert any objects in the camera.

- **Avoid using the unit**
... in places subject to excessive humidity or dust.
... in places subject to soot or steam such as near a cooking stove.
... in places subject to excessive shock or vibration.
... near a television set.
... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
... in places subject to extremely high (over 40°C) or extremely low (under 0°C) temperatures.
... in places where the air pressure is low (more than 3000 m above the sea level).

- **DO NOT leave the unit**
... in places of over 50°C.
... in places where humidity is extremely low (below 35%) or extremely high (above 80%).
... in direct sunlight.
... in a closed car in summer.
... near a heater.
... in high places such as on a TV. Leaving the unit in high places while a cable is connected may result in a malfunction if the cable is caught and the unit falls onto the floor.

- **To protect the unit, DO NOT**
... allow it to become wet.
... drop the unit or strike it against hard objects.
... subject it to shock or excessive vibration during transportation.
... keep the lens directed at extremely bright objects for long periods.
... expose the lens to direct sunlight.
... swing it excessively when using the hand strap.
... swing the soft camera case excessively when the camera is inside it.
... place the camera in dusty or sandy areas, such as on a beach.

- **To prevent the unit from dropping,**
  - Attach the shoulder strap securely and fasten the grip belt securely.
  - When using the camera with a tripod, attach the camera to the tripod securely.
  If the camera drops, you may be injured and the camera may be damaged.
  When a child uses the unit, there must be parental guidance.

Terms

JVC

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