

HR10

HD Camcorder
Instruction Manual

Caméscope HD
Manuel d'instruction

Videocámara HD
Manual de Instrucciones

English

Français

Español

Please read also the **Digital Video Software** instruction manual (on PDF file). Refer to the installation guide for further details.

Veillez lire aussi le manuel d'instruction **Digital Video Software** (sur fichier PDF). Pour d'autres détails, référez-vous au guide d'installation.

Lea también el manual de instrucciones **Digital Video Software** (en archivo PDF). Para mayores detalles, refiérase a la guía de instalación.



Important Usage Instructions

WARNING!



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

WARNING!



TO REDUCE THE RISK OF ELECTRIC SHOCK AND TO REDUCE ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

COPYRIGHT WARNING:

Unauthorized recording of copyrighted materials may infringe on the rights of copyright owners and be contrary to copyright laws.

HD Camcorder, HR10 A systems

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

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

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

The cable with the ferrite core provided with the digital video camcorder must be used with this equipment in order to comply with Class B limits in Subpart B of Part 15 of the FCC rules.

Do not make any changes or modifications to the equipment unless otherwise specified in the manual.

If such changes or modifications should be made, you could be required to stop operation of the equipment.

Canon U.S.A. Inc.

One Canon Plaza, Lake Success, NY 11042, U.S.A.

Tel No. (516)328-5600

CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Important Warning



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

CAUTION:

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



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

IMPORTANT SAFETY INSTRUCTIONS

In these safety instructions the word “product” refers to the Canon HD Camcorder HR10 A and all its accessories.

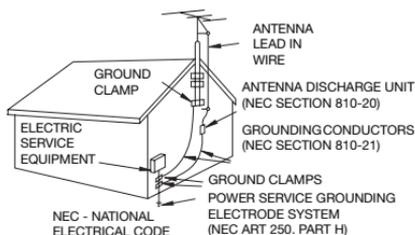
- 1** Read Instructions — All the safety and operating instructions should be read before the product is operated.
- 2** Retain Instructions — The safety and operating instructions should be retained for future reference.
- 3** Heed Warnings — All warnings on the product and in the operating instructions should be adhered to.
- 4** Follow Instructions — All operating and maintenance instructions should be followed.
- 5** Cleaning — Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. The product should be cleaned only as recommended in this manual.
- 6** Accessories — Do not use accessories not recommended in this manual as they may be hazardous.
- 7** Avoid magnetic or electric fields — Do not use the camera close to TV transmitters, portable communication devices or other sources of electric or magnetic radiation. They may cause picture interference, or permanently damage the camera.
- 8** Water and Moisture — Hazard of electric shock — Do not use this product near water or in rainy/moist situations.
- 9** Placing or Moving — Do not place on an unstable cart, stand, tripod, bracket or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product.

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



- 10** Power Sources — The CA-570 Compact Power Adapter should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. Regarding other power sources such as battery power, refer to instructions in this manual.
- 11** Polarization — The CA-570 Compact Power Adapter is equipped with a polarized 2-prong plug (a plug having one blade wider than the other). The 2-prong polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- 12** Power Cord Protection — Power cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to plugs and the point from which the cords exit the product.
- 13** Outdoor Antenna Grounding — If an outside antenna is connected to the product, be sure the antenna is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI / NFPA No. 70—1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See figure 1.

Fig. 1 EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



- 14** **Lightning** — For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, disconnect it from the wall outlet and disconnect the antenna. This will prevent damage to the product due to lightning and power-line surges.
- 15** **Overloading** — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
- 16** **Objects and Liquid Entry** — Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Be careful not to spill liquid of any kind onto the product.
- 17** **Servicing** — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- 18** **Damage Requiring Service** — Disconnect this product from the wall outlet and all power sources including battery, and refer servicing to qualified service personnel under the following conditions:
- When the power-supply cord or plug is damaged.
 - If any liquid has been spilled onto, or objects have fallen into, the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally even if you follow the operating instructions. Adjust only those controls that are covered by the operation instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - If the product has been dropped or the cabinet has been damaged.
 - When the product exhibits a distinct change in performance. This indicates a need for service.
- 19** **Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts that are specified by Canon or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
- 20** **Safety Check** — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating order.

When replacement of the power supply is required, please return it to the responsible nearest Canon Service Center and please replace it with the same type number CA-570.

The Adapter can be used with a power supply between 100 and 240 V AC. For areas where 120 V AC power is not used, you will need a special plug adapter. Contact your nearest Canon Service Center for further information.

This Class B digital apparatus complies with Canadian ICES-003.

Enjoying High-Definition Video with your DVD Camcorder

Recording HD video with your DVD camcorder may seem a bit complicated at first. Actually, you need to make just two simple choices and you can start recording right away. The first choice is what disc type – or physical media – to use. The second choice is what image quality – and disc specification – to use. Let us walk you through it.

1 Decide what type of DVD disc is best for you

There are many types of DVD discs but this camcorder uses only the following three types of 8 cm mini DVD discs: DVD-R, DVD-R DL and DVD-RW. Read the differences between them and select the disc that best fits your needs.

DVD-R

Best for Compatibility

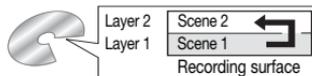
DVD-Rs can be recorded only once – you cannot edit or delete the recordings. On the other hand, these discs are comparatively cheaper.

DVD-R DL

Best for Recording Time

Dual-layered discs allow writing up to 80% more data (approx. 2.6 GB) on a single recording side. However, you cannot edit or delete the recordings.

Dual-layered discs have two recording layers. The camcorder will record on Layer 1 and then continue to Layer 2. During the playback of a recording spanning both layers, you may notice a brief stop (about 1 second) at the point where the camcorder switches to the second layer. In SD quality the switch to Layer 2 will break the recording into 2 separate scenes.



DVD-RW

Best for Reusability

Recordings made on a DVD-RW disc can be edited or deleted. Also, the disc can be initialized. Initializing a DVD-RW disc clears all the recordings and restores the free space on the disc to its initial value so you can use the same disc again.

2 Decide what image quality you want to use

Your camcorder offers two levels of image quality: high-definition (HD) video and standard-definition (SD) video. Apart from a significant difference in quality, this selection will also affect on what DVD players you can play back your finalized* disc (the disc's compatibility). Read carefully and select the image quality that best fits your needs.

Please note that the disc's quality can only be changed when initializing the disc. Therefore, with DVD-R and DVD-R DL discs **you can select the disc's quality only once and it cannot be changed later on**. With DVD-RW discs, you can initialize the disc and change the quality but doing so will **delete all the recordings on the disc**.

HD Quality

High definition allows you to record video of unparalleled high quality on regular mini DVD discs using AVCHD compression. HD video is composed of 1,080 horizontal lines – that is more than twice the number of horizontal lines and approximately 4 times the number of pixels in standard-definition TV broadcasts – resulting in eye-catching colors and richly detailed video recordings.



Discs recorded in HD quality can be played back only with AVCHD-compatible DVD players. Do not insert a disc recorded in HD quality into a DVD player that is not compatible with AVCHD specifications as you may not be able to eject the disc.



"Full HD 1080" refers to Canon camcorders compliant with high-definition (HD) video composed of 1,080 vertical pixels (scanning lines).

SD Quality

Standard definition allows you to record video in DVD-VIDEO mode using MPEG-2 compression. This is the same standard used in regular movie DVD discs ensuring that, after finalizing* it, you can play back the disc you recorded on most DVD players. When you use DVD discs that cannot be reused (DVD-R or DVD-R DL), the disc can be recorded only in VIDEO mode.

DVD-RW discs, on the other hand, can be recorded using either one of two specifications: VIDEO mode or VR mode. Refer to *Disc specifications on DVD-RWs* (□ 7).

* Disc finalization is the processing of the free space (the unrecorded area) on the disc in order to make it playable on external DVD devices (□ 68). To finalize a DVD-R DL disc, the camcorder has to process both layers. Therefore, and depending on the amount of free space on the disc, this process may be lengthy.

Disc specifications on DVD-RWs

VIDEO mode: Once finalized, discs recorded in VIDEO mode can be played back in most common DVD players, offering the best compatibility. However, recordings cannot be edited (deleted, rearranged, etc.).

VR mode: You can easily edit the recordings. However, discs recorded in VR mode can be played back only with DVD players compatible with DVD-RWs in VR mode.

Recommended discs

The camcorder's performance was tested** with single-layered discs using the supplied discs and Hitachi-Maxell HG series DVD discs; and with dual-layered discs using Canon DVD-R DL54 discs and Verbatim DVD-R DL discs. For further details, contact directly the manufacturer's customer support center. Note that attempting to record or play with this camcorder DVD discs that were recorded, initialized or finalized with other digital devices can result in damage to the camcorder or in the permanent loss of the recordings.

Playback on external devices

Make sure to finalize discs (□ 68) before you play them back on external DVD devices. The disc's type and quality will affect its compatibility with external devices. For a summary, you can refer to the sidebar on page 70. However, to be sure, always refer to the instruction manual of the external device and make sure it is compatible before inserting the disc.

For the highest compatibility with external DVD devices we recommend using SD quality in VIDEO mode.

** As of April 2007 the camcorder's performance has been tested using DVD discs made by Hitachi-Maxell, Panasonic and TDK as well. The use of other discs may result in incorrect recording/playback or in not being able to remove the disc.

Available features depend on the DVD disc used

Disc Type	DVD-R, DVD-R DL		DVD-RW		
	HD	SD	HD	SD	
		VIDEO mode		VIDEO mode	VR mode
Editing scenes with this camcorder (deleting scenes, dividing scenes, etc.) (□□ 65)	–	● ¹	–	●	●
Deleting a scene immediately after recording it (□□ 40)	–	●	●	●	●
Initializing the disc in order to use it again for recording (□□ 67)	–	●	●	●	●
Giving a title to the disc (□□ 68)	●	●	●	●	●
Finalizing the disc in order to play it with an external DVD device (□□ 68) ²	●	●	●	●	●
Adding recordings to a disc already finalized (□□ 71)	–	● ³	● ³	●	●
Editing scenes on a computer ⁴ (□□ 97)	●	●	●	●	●

¹ Only scenes in the playlist can be divided.

² Playback cannot be guaranteed with all external DVD devices.

³ You will need to unfinalize the disc first.

⁴ With the supplied software you can make copies of your disc, play back and edit your video, and more. For further details, refer to the **Core Application Disc Installation Guide and User Manual**.



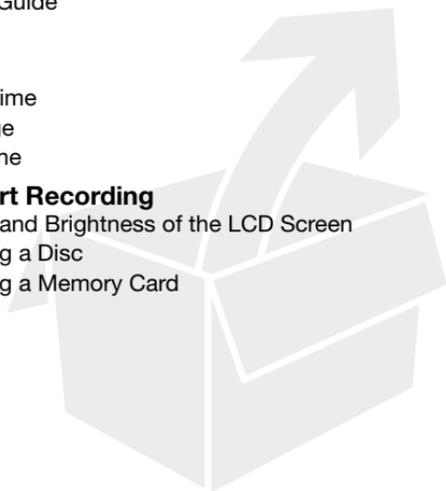
Table of contents

■ Introduction

- 5 Enjoying High-Definition Video with your DVD Camcorder
- 14 About this Manual
- 15 Getting to Know the Camcorder**
- 15 Supplied Accessories
- 17 Components Guide
- 20 Screen Displays

■ Preparations

- 23 Getting Started**
- 23 Charging the Battery Pack
- 24 Preparing the Accessories and the Wireless Controller
- 26 Basic Operation of the Camcorder**
- 26 Power Switch
- 26 Operating Modes
- 27 Joystick and Joystick Guide
- 27 Using the Menus
- 29 First Time Settings**
- 29 Setting the Date and Time
- 29 Changing the Language
- 30 Changing the Time Zone
- 31 Getting Ready to Start Recording**
- 31 Adjusting the Position and Brightness of the LCD Screen
- 32 Inserting and Removing a Disc
- 34 Inserting and Removing a Memory Card



■ Video

35 Basic Recording

- 35 Shooting Video
- 37 Selecting the Recording Mode
- 37 Selecting the Aspect Ratio of your Recordings (16:9 Widescreen or 4:3)
- 38 Zooming
- 39 Quick Start Function
- 40 Reviewing and Deleting the Last Scene Just Recorded

41 Basic Playback

- 41 Playing Back the Video
- 43 Deleting Scenes
- 44 On-Screen Displays (Data Code)

45 Menu Options Lists

- 45 FUNC. Menu
- 47 Setup Menus
 - 47 Camera Setup (Digital Zoom, Image Stabilizer, etc.)
 - 50 Disc Operations (Initialization, Finalization etc.)
 - 51 Still Image Operations (Card Initialization, etc.)
 - 51 Display Setup (LCD Brightness, Language, etc.)
 - 52 System Setup (Volume, Beep, etc.)
 - 54 Date/Time Setup

55 Additional Functions

- 55 Cinema Mode and Special Scene Recording Programs
- 57 **P** Flexible Recording: Changing the Aperture and Shutter Speed
- 58 Mini Video Light
- 59 Self Timer
- 59 Manual Focus Adjustment
- 60 Manual Exposure Adjustment
- 61 White Balance
- 62 Image Effects
- 63 Digital Effects

65 Managing Scenes and the Disc

- 65 Creating a Playlist
- 65 Moving Scenes in the Playlist
- 66 Dividing Scenes
- 66 Protecting the Disc
- 67 Initializing the Disc

■ Video (cont.)

68 Disc Playback on an External Device

- 68 Changing the Disc Title
- 68 Finalizing the Disc
- 70 Disc Playback on External Devices
- 71 Unfinalizing the Disc - Additional Recordings on a Finalized Disc

■ Photos

72 Basic Recording

- 72 Taking Photos
- 73 Selecting Photo Size and Quality
- 74 Erasing the Last Photo Just Recorded

75 Basic Playback

- 75 Viewing Photos
- 76 Magnifying Photos during Playback
- 77 Erasing Photos

78 Additional Functions

- 78 Flash
- 79 Continuous Shooting and Exposure Bracketing (Drive Mode)
- 80 Automatic Focus Priority
- 81 Light Metering Mode
- 81 Histogram and Other Screen Displays
- 82 Capturing a Still Image while Recording Movies
- 83 Capturing a Still Image from the Playback Scene
- 83 Protecting Photos
- 84 Initializing the Memory Card

85 Printing Photos

- 85 Printing Photos - Direct Print
- 86 Selecting the Print Settings
- 89 Trimming Settings
- 90 Print Orders



■ External Connections

92 Connecting to a TV or VCR

- 93 Connection Diagrams
- 94 Playback on a TV Screen
- 95 Copying your Recordings to an External Video Recorder

97 Connecting to a Computer

- 97 PC Connection Diagrams
- 97 Corel Application Disc - Movie Playback/Editing and Various Disc Operations
- 97 Transferring Photos - Direct Transfer
- 100 Transfer Orders

■ Additional Information

101 Trouble?

- 101 Troubleshooting
- 106 List of Messages

110 Do's and Don'ts

- 110 Handling Precautions
- 113 Maintenance/Others
- 114 Using the Camcorder Abroad

116 General Information

- 116 System Diagram
- 117 Optional Accessories
- 120 Product Codes
- 121 Specifications
- 124 Index

About this Manual

Thank you for purchasing the Canon HR10. Please read this manual carefully before you use the camcorder and retain it for future reference. Should your camcorder fail to operate correctly, refer to the *Troubleshooting* table (101).

Conventions Used in this Manual

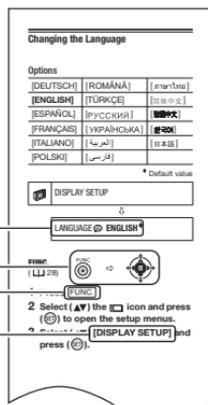
- **!** IMPORTANT: Precautions related to the camcorder's operation.
- **i** NOTES: Additional topics that complement the basic operating procedures.
- **⊗** POINTS TO CHECK: Restrictions that apply if the function described is not available in all operating modes (the operating mode to which the camcorder should be set, the type of disc required, etc.).
- **□**: Reference page number.
- The following terms are used in this manual:
 - “Screen” refers to the LCD and the viewfinder screen.
 - “Scene” refers to one movie unit from the point you press the START/STOP button to start recording until you press again to pause the recording.
 - The terms “photo” and “still image” are used interchangeably with the same meaning.
- The photos included in this manual are simulated pictures taken with a still camera.

Menu item shown at its default position

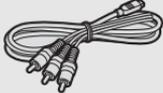
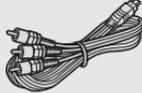
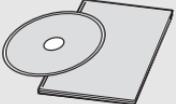
Buttons and switches to be operated

Names of buttons and switches other than the joystick are indicated within a “button” frame. For example **FUNC.**

Brackets [] and capital letters are used to refer to menu options as they are displayed on screen. In menu option lists and option tables the default value is shown in boldface. For example **[ON]**, [OFF].



Supplied Accessories

	<p>CA-570 Compact Power Adapter (incl. power cord)</p>		<p>BP-214 Battery Pack</p>
<p>WL-D86 Wireless Controller</p>		<p>Lithium Button Battery CR2025 for Wireless Controller</p>	
	<p>CTC-100/S Component Cable Red • Green • Blue plugs</p>		<p>STV-100 Stereo Video Cable Yellow • Red • White plugs</p>
<p>IFC-300PCU USB Cable</p>		<p>Blank DVD-R Disc (8 cm Mini DVD)</p>	
	<p>Software CD-ROM* DIGITAL VIDEO Solution Disk</p>		<p>Software CD-ROM and User Manual Corel Application Disc</p>

* Includes the electronic version of the *Digital Video Software* instruction manual on PDF file.

Online product registration for U.S.A. Customers only.

Register your product online at www.registercanon.com

✓ **Protect your product**

We will keep the model number and date of purchase of your new Canon product on file to help you refer to this information in the event of an insurance claim such as loss or theft.

✓ Receive information on new products and promotions

Upon your request, we will send you information on Canon new products and promotions.

The serial number of this product can be found at the battery attachment unit of the camcorder. Write down the number and other information here and retain this book as a permanent record of your purchase to aid identification in case of theft.

Date of Purchase:

Model Name: HR10 A

Purchased From:

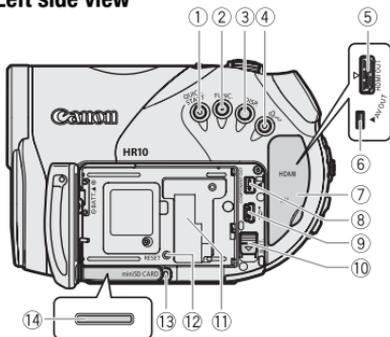
Serial No.:

Dealer Address:

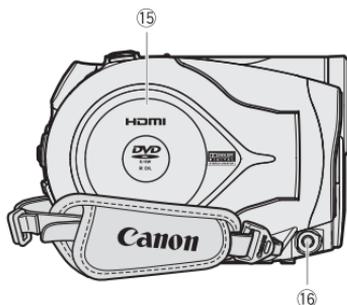
Dealer Phone No.:

Components Guide

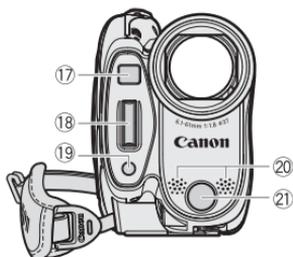
Left side view



Right side view



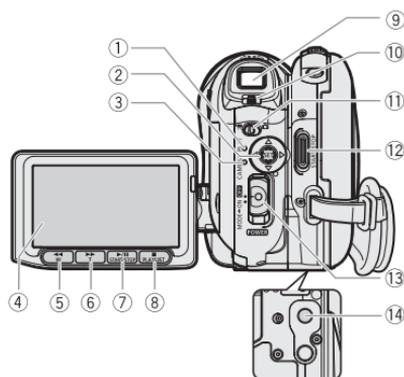
Front view



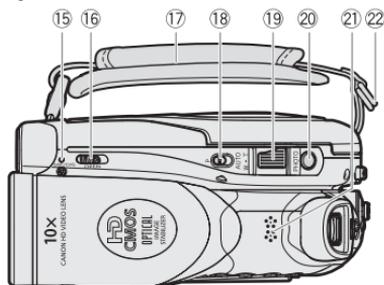
- ① QUICK START button and standby lamp (□ 39)
- ② FUNC. button (□ 27, 45)
- ③ DISP. button (□ 44, 81)
- ④ (print/share) button (□ 86, 97)
- ⑤ HDMI OUT terminal (□ 93, 95)
- ⑥ AV OUT terminal (□ 92)
- ⑦ Terminal cover
- ⑧ COMPONENT OUT terminal (□ 93)
- ⑨ USB terminal (□ 97)
- ⑩ BATT. (battery release) switch (□ 23)
- ⑪ Serial number
- ⑫ RESET button (□ 101)
- ⑬ CARD access indicator (□ 72)
- ⑭ Memory card slot (open the cover to access) (□ 34)
- ⑮ Disc compartment cover (□ 32)
- ⑯ DC IN terminal (□ 23)
- ⑰ Instant AF sensor (□ 48)
- ⑱ Flash (□ 78)
- ⑲ Mini video light (□ 58)
- ⑳ Stereo microphone
- ㉑ Remote sensor (□ 25)

Names of buttons and switches other than the joystick are indicated within a “button” frame (for example FUNC.).

Back view



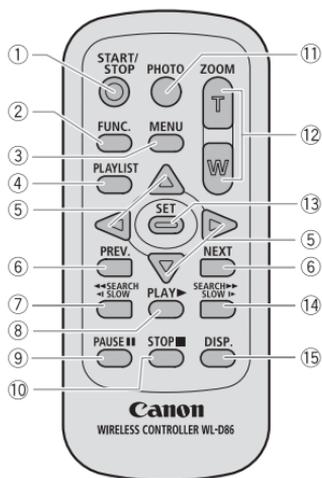
Top view



- ① PLAY mode indicator (green) (□ 26)
- ② Joystick (□ 27)
- ③ CAMERA mode indicator (red) (□ 26)
- ④ LCD screen (□ 31)
- ⑤ ◀◀ (fast reverse) button (□ 41) / Zoom out **W** (wide-angle) button (□ 38)
- ⑥ ▶▶ (fast forward) button (□ 41) / Zoom in **T** (telephoto) button (□ 38)
- ⑦ ▶/|| (play/pause) button (□ 41) / START/STOP button (□ 35)
- ⑧ ■ (stop) button (□ 41) / PLAYLIST button (□ 65)
- ⑨ Viewfinder (□ 36)
- ⑩ Dioptic adjustment lever (□ 36)
- ⑪ **M**/**S** (movies/still images) switch (□ 26)
- ⑫ START/STOP button (□ 35)
- ⑬ Power switch (□ 26)
- ⑭ Tripod socket (□ 25)
- ⑮ DISC access indicator (□ 35) / CHG (charge) indicator (□ 23)
- ⑯ OPEN (disc cover) switch (□ 32)
- ⑰ Grip belt (□ 24)
- ⑱ Mode switch (□ 36)
- ⑲ Zoom lever (□ 38)
- ⑳ PHOTO button (□ 72)
- ㉑ Speaker (□ 41)
- ㉒ Strap mount

Names of buttons and switches other than the joystick are indicated within a "button" frame (for example **FUNC.**).

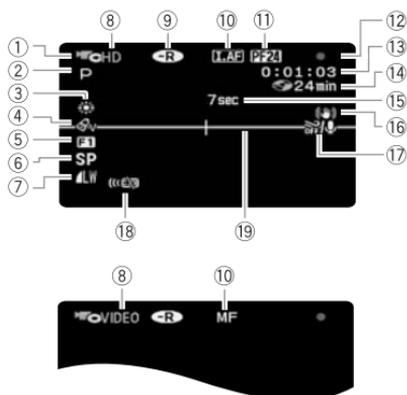
Wireless Controller WL-D86



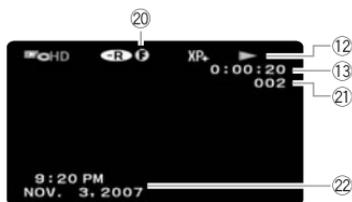
- ① START/STOP button (☐ 35)
- ② FUNC. button (☐ 27)
- ③ MENU button (☐ 28)
- ④ PLAYLIST button (☐ 65)
- ⑤ Navigation buttons (▲/▼/◀/▶)
- ⑥ PREV./NEXT buttons:
Scene skip (☐ 42)/
Index screen page up/down (☐ 41)
- ⑦ Reverse ◀◀ SEARCH button (☐ 42) /
Reverse ◀ SLOW button (☐ 42)
- ⑧ PLAY ▶ button (☐ 41)
- ⑨ PAUSE || button (☐ 41)
- ⑩ STOP ■ button (☐ 41)
- ⑪ PHOTO button (☐ 72)
- ⑫ Zoom buttons (☐ 38)
- ⑬ SET button
- ⑭ Forward SEARCH ▶▶ button (☐ 42) /
Forward SLOW ▶▶ button (☐ 42)
- ⑮ DISP. (on-screen display) button
(☐ 44, 81)

Screen Displays

CAMERA Recording Movies

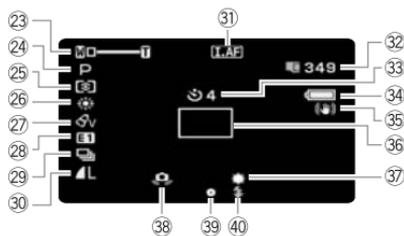


PLAY Playing Movies (During Playback)



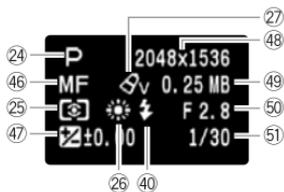
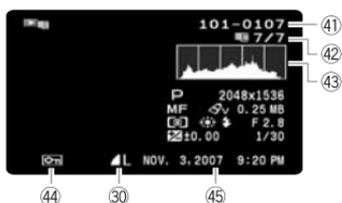
- ① Operating mode ( 26)
- ② Recording program ( 55, 57)
- ③ White balance ( 61)
- ④ Image effect ( 62)
- ⑤ Digital effects ( 63)
- ⑥ Recording mode ( 37)
- ⑦ Still image quality/size (simultaneous recording) ( 82)
- ⑧ Disc quality and specification ( 6)
 HD mode (High definition)
 VIDEO mode (Standard definition)
 VR mode (Standard definition, DVD-RW only)
- ⑨ Disc type  DVD-R,  DVD-R DL,  DVD-RW ( 5)
- ⑩  Instant AF ( 48),
 MF Manual focus ( 59)
- ⑪ 24F progressive frame rate
- ⑫ Disc operation
- ⑬ Time code/Playback time (hours : minutes : seconds)
- ⑭ Remaining recording time on the disc
- ⑮ Recording reminder
- ⑯ Image stabilizer ( 49)
- ⑰ Wind screen off ( 50)
- ⑱ Remote sensor off ( 52)
- ⑲ Level marker ( 52)
- ⑳ Finalized disc mark ( 68)
- ㉑ Scene number
- ㉒ Data code ( 44)

CAMERA · Recording Still Images



- 23 Zoom (□ 38), Exposure  (□ 60)
- 24 Recording program (□ 55, 57)
- 25 Light metering mode (□ 81)
- 26 White balance (□ 61)
- 27 Image effect (□ 62)
- 28 Digital effects (□ 63)
- 29 Drive mode (□ 79)
- 30 Still image quality/size (□ 73)
- 31  Instant AF (□ 48), MF Manual focus (□ 59)
- 32 Number of still images available on the memory card
- 33 Self timer (□ 59)
- 34 Remaining battery charge estimate
- 35 Image stabilizer (□ 49)
- 36 AF frame (□ 80)
- 37 Mini video light (□ 58)
- 38 Camcorder shake warning (□ 47)
- 39 Focus/exposure automatically set and locked (□ 72)

PLAY · Viewing Still Images



- 40 Flash (□ 78)
- 41 Image number (□ 53)
- 42 Current image / Total number of images
- 43 Histogram (□ 81)
- 44 Image protection mark (□ 83)
- 45 Date and time of recording
- 46 Manual focus (□ 59)
- 47 Manual exposure (□ 60)
- 48 Image size (□ 73)
- 49 File size
- 50 Aperture value (□ 57)
- 51 Shutter speed (□ 57)

⑪ 24F progressive frame rate

When recording in high definition, select the 24F progressive frame rate to give your recordings a cinematic look (□ 49). You can combine this frame rate with the [CINE MODE] recording program (□ 55) to enhance the effect.

⑫ Disc operation

- Record, ● ||| Record pause,
- ▶ Playback, ||| Playback pause,
- ▶▶ Fast playback,
- ◀◀ Fast reverse playback,
- ▶ Slow playback,
- ◀ Slow reverse playback

⑭ Remaining recording time

When there is no more disc space available, “END” will be displayed and the recording will stop.

⑮ Recording reminder

The camcorder counts from 1 to 10 seconds when you start recording. This is helpful to avoid scenes that are too short.

⑳ Number of still images available on the card

- 🔴 flashing in red: No card
- 🟢 in green: 6 or more images
- 🟡 in yellow: 1 to 5 images
- 🔴 in red: No more images can be recorded

- When viewing the still images, the display will always be in green.
- Depending on the recording conditions, the number of available still images displayed may not decrease even after a recording has been made, or may decrease by 2 still images at once.

Card access display

▶ is displayed next to the number of images available while the camcorder is writing on the memory card.

㉓ Remaining battery charge estimate



- When 🔴 is displayed in red, replace the battery pack with a fully charged one.
- When you attach an empty battery pack, the power may turn off without displaying 🔴.
- Depending on the conditions under which the camcorder and the battery pack are used, the actual battery charge may not be indicated accurately.

㉔ Image number

The image number indicates the name and location of the file on the memory card. For example, the file name of image 101-0107 is “IMG_0107.JPG”, stored under the folder “DCIM\101CANON”.



Preparations

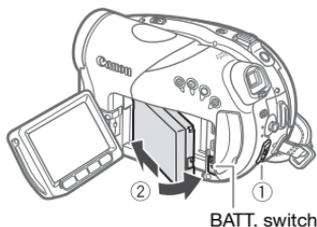
This chapter describes basic operations, such as navigating the menus, and first time settings to help you learn more about your camcorder.

Getting Started

Charging the Battery Pack

The camcorder can be powered with a battery pack or directly using the compact power adapter. Charge the battery pack before use.

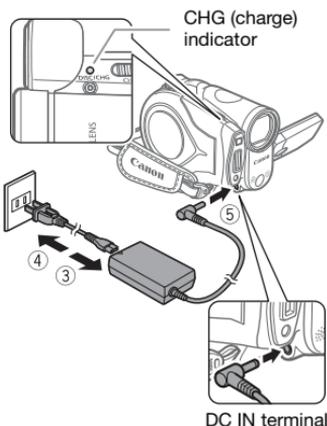
For approximate charging times and recording/playback times with a full battery pack, refer to the tables on page 117.



1 Turn off the camcorder.

2 Attach the battery pack to the camcorder.

- Open the LCD panel.
- Slide in the connector end of the battery pack in the direction of the arrow and press it gently until it clicks.



3 Connect the power cord to the compact power adapter.

4 Plug the power cord into a power outlet.

5 Connect the compact power adapter to the camcorder's DC IN terminal.

- The CHG (charge) indicator starts flashing. The indicator will stay on when the charging is completed.
- You can also use the compact power adapter without attaching a battery pack.
- When the compact power adapter is connected, the power of the battery pack will not be consumed.

ONCE THE BATTERY PACK IS FULLY CHARGED

- 1 **Disconnect the compact power adapter from the camcorder.**
- 2 **Unplug the power cord from the power outlet and the compact power adapter.**

TO REMOVE THE BATTERY PACK

Slide **[BATT.]** down to release the battery pack, and pull out the battery pack holding it from the ridge on its bottom part.

! IMPORTANT

- Turn off the camcorder before connecting or disconnecting the compact power adapter. After you move the **[POWER]** switch to **[OFF]**, important file allocation data is updated on the disc. Be sure to wait until the LCD display is completely off.
- You may hear some noise from the compact power adapter during use. This is not a malfunction.
- We recommend charging the battery pack in temperatures between 10 °C and 30 °C (50 °F and 86 °F). Outside the temperature range of 0 °C to 40 °C (32 °F to 104 °F), the charging will not start.
- Do not connect to the camcorder's DC IN terminal or to the compact power adapter any electrical equipment that is not expressly recommended for use with this camcorder.
- To prevent equipment breakdowns and excessive heating, do not connect the supplied compact power adapter to voltage converters for overseas travels or special power sources such as those

on aircraft and ships, DC-AC inverters, etc.

i NOTES

- The CHG (charge) indicator also serves as a rough estimate of the charge status.
Continuously on: Battery pack fully charged.
Flashes approx. twice per second: Battery pack over 50% charged.
Flashes approx. once per second: Battery pack less than 50% charged.
- We recommend that you prepare battery packs to last 2 to 3 times longer than you think you might need.
- **U.S.A. and Canada only:** The lithium ion/polymer battery that powers this product is recyclable. Please call 1-800-8-BATTERY for information on how to recycle this battery.



Preparing the Accessories and the Wireless Controller



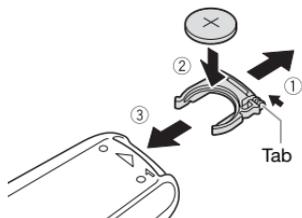
1 Fasten the grip belt.

Adjust the grip belt so that you can reach the zoom lever with your index

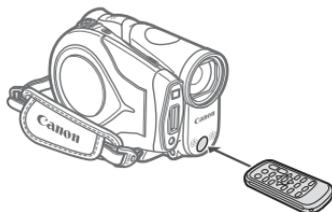
finger, and the **START/STOP** button with your thumb.

Using the Wireless Controller

First, insert the supplied lithium button battery CR2025 into the wireless controller.



- 1 Press the tab in the direction of the arrow and pull out the battery holder.**
- 2 Place the lithium button battery with the + side facing up.**
- 3 Insert the battery holder.**



Point the wireless controller at the camcorder's remote sensor when you press the buttons.

i NOTES

- The wireless controller may not work properly when the remote sensor is

situated under strong light sources or direct sunlight.

- If the wireless controller does not work, check that [WL.REMOTE] is not set to [OFF OFF] (52). Otherwise, replace the battery.

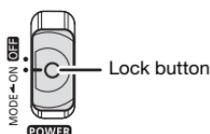
When you mount the camcorder on a tripod

Do not leave the viewfinder exposed to direct sunlight as it may melt (due to concentration of the light by the lens). Do not use tripods with fastening screws longer than 5.5 mm (0.2 in.). Doing so may damage the camcorder.



Basic Operation of the Camcorder

Power Switch



In addition to turning the camcorder on and off, the **POWER** switch also toggles the camcorder's operating mode.

To turn on the camcorder: Hold the lock button pressed down and move the **POWER** switch down to ON.

To change the operating mode: From the ON position, slide the **POWER** switch down momentarily toward MODE and release it. This action will toggle the operating mode between recording (CAMERA - red

indicator) and playback (PLAY - green indicator).

Operating Modes

The camcorder's operating mode is determined by the **POWER** switch and the position of the **MOVIE / CAMERA** switch. In this manual,  indicates that a function is available in the operating mode shown and  indicates that the function is not available. When no operating mode icons are given, the function is available in all operating modes.

Operating Mode	Operating Mode Indicator	MOVIE / CAMERA Switch	Icon Display	Operation	
	CAMERA  (Red)	 (Movies)		Recording movies on the disc	35
			 (Still images)		Recording still images on the memory card
	PLAY  (Green)	 (Movies)		Playing movies from the disc	41
			 (Still images)		Viewing still images from the memory card



Joystick and Joystick Guide

Push the joystick up, down, left or right (\blacktriangle , \blacktriangledown , \blacktriangleleft , \blacktriangleright) to select an item or change settings.



Press the joystick itself (SET) to save the settings or confirm an action. On menu screens, this is indicated by the icon SET .

The functions assigned to the joystick change according to the operation mode and the camcorder's settings. Press (SET) to display/hide the joystick guide. In the illustrations of this manual, positions other than those relevant to the function explained are marked with a striped pattern.

Depending on the operation mode, these positions may be empty or show a different icon than the one on the illustration.



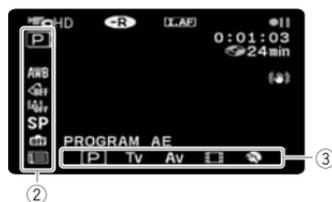
When the guide contains multiple "pages", [NEXT] and the page number icon (\checkmark) will appear at the bottom position. Push the joystick (\blacktriangledown) toward [NEXT] to display the next "page" of the guide.

Using the Menus

Many of the camcorder's functions can be adjusted from the menus that open after pressing the FUNC. button (FUNC.).

For details about the available menu options and settings, refer to the *Menu Options Lists* (📖 45).

Selecting a FUNC. Menu Option



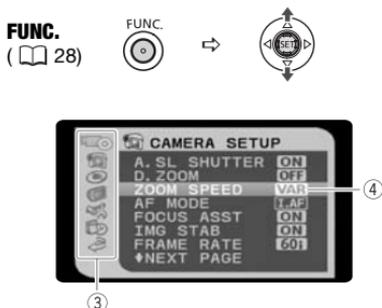
- 1 Press FUNC. .
- 2 Select (\blacktriangle , \blacktriangledown) the icon of the function you want change from the left side column.
Menu items not available will appear grayed out.
- 3 Select (\blacktriangleleft , \blacktriangleright) the desired setting from the available options at the bottom bar.
 - The selected option will be highlighted in light blue. Menu items not available will appear grayed out.
 - With some settings, you will need to make further selections (\blacktriangle , \blacktriangledown , \blacktriangleleft , \blacktriangleright) and/or press (SET). Follow the additional operation guides

that will appear on the screen (such as the **SET** icon, small arrows, etc.).

4 Press **FUNC. to save the settings and close the menu.**

You can press **FUNC.** to close the menu at any time.

Selecting an Option from the Setup Menus



1 Press **FUNC.**

2 Select (▲▼**) the  icon and press (**SET**) to open the setup menus.**

- You can also hold **FUNC.** pressed down for more than 1 second or press **MENU** on the wireless controller to open directly the setup menu screen.
- In **PLAY** mode, push the joystick (**◀▶**) to select the  icon (only necessary with DVD-RW discs recorded in HD quality, or SD quality (VR mode)).

3 Select (▲▼**) the desired menu from the left side column and press (**SET**).**

The title of the selected menu appears on top of the screen and under it the list of settings.

4 Select (▲▼**) the setting you want to change and press (**SET**).**

- The orange selection bar indicates the menu setting currently selected. Items not available appear in black.
- Push the joystick (**◀**) to return to the menu selection screen (step 3).

5 Select (▲▼**) the desired option and press (**SET**) to save the setting.**

6 Press **FUNC.**

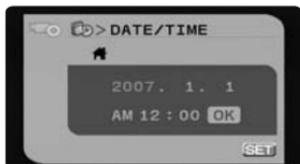
You can press **FUNC.** to close the menu at any time.



First Time Settings

Setting the Date and Time

You will need to set the date and time of the camcorder before you can start using it. The [DATE/TIME] screen will appear automatically when the camcorder's clock is not set.



When the [DATE/TIME] screen appears, the year will be displayed in orange and indicated with up/down arrows.

- 1 Change (▲▼) the year and move (▶) to the month.
- 2 Change the rest of the fields (month, day, hour and minutes) in the same way.
- 3 Move (▶) the cursor to the [OK] button and press (SET) to start the clock and close the menu.

! IMPORTANT

- When you do not use the camcorder for about 3 months, the built-in rechargeable lithium battery may discharge completely and the date and time setting may be lost. In such case, recharge the built-in lithium battery (□ 113) and set the time zone, date and time again.

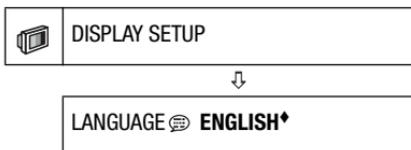
- The date appears in a year-month-day format only in the first setup screen. In subsequent screen displays the date and time will appear as month-day-year (for example, [JAN. 1, 2007 12:00 AM]). You can change the date format (□ 54).
- You can also change the date and time later on (not during the initial setup). To open the [DATE/TIME] screen, press [FUNC.] and select ⇨ [DATE/TIME SETUP] ⇨ [DATE/TIME].

Changing the Language

Options

[DEUTSCH]	[ROMÂNĂ]	[ภาษาไทย]
[ENGLISH]♦	[TÜRKÇE]	[简体中文]
[ESPAÑOL]	[РУССКИЙ]	[繁體中文]
[FRANÇAIS]	[УКРАЇНСЬКА]	[한국어]
[ITALIANO]	[العربية]	[日本語]
[POLSKI]	[فارسی]	

♦ Default value



FUNC.

(□ 28)

FUNC.



- 1 Press [FUNC.] .
- 2 Select (▲▼) the and press (SET) to open the setup menus.
- 3 Select (▲▼) [DISPLAY SETUP] and press (SET).

4 Select (▲▼) [LANGUAGE] and press (SET).

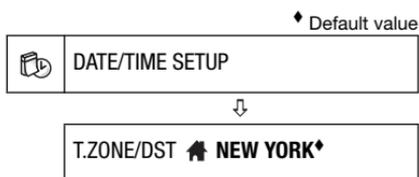
5 Select (▼▲, ◀▶) the desired option and press (SET).

6 Press [FUNC.] to close the menu.

i NOTES

- If you changed the language by mistake, follow the  mark next to the menu item to change the setting.
- The displays [SET] and [FUNC.] that appear in some menu screens refer to the name of buttons on the camcorder and will not change, regardless of the language selected.

Changing the Time Zone



FUNC.
(28)



1 Press [FUNC.].

2 Select (▲▼) the  icon and press (SET) to open the setup menus.

3 Select (▲▼) [DATE/TIME SETUP] and press (SET).

4 Select (▲▼) [T.ZONE/DST] and press (SET).

The default setting is New York.

TO SET THE HOME TIME ZONE

5 Make sure that the  time zone is selected.

6 Select (◀▶) the area that corresponds to your local time zone and press (SET).

To adjust for daylight saving time, select the area name marked with a .

7 Press [FUNC.] to close the menu.

WHEN YOU TRAVEL

Select the time zone to match the local time at your destination.

5 Move the orange selection frame (▼) to the  time zone.

6 Select (◀▶) the area that corresponds to the local time at your destination and press (SET).

- Refer to the changing date and time displayed on the screen.
- To adjust for daylight saving time, select the area name marked with a .

7 Press [FUNC.] to close the menu.



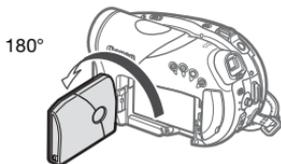
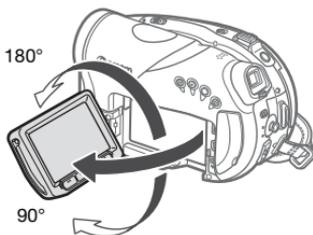
Getting Ready to Start Recording

Adjusting the Position and Brightness of the LCD Screen

Rotating the LCD Panel

Open the LCD panel 90 degrees.

- You can rotate the panel 90 degrees downward.
- You can rotate the panel 180 degrees toward the lens (allowing the subject to monitor the LCD screen while you use the viewfinder). Rotating the panel 180 degrees is also useful if you wish to include yourself when recording with the self timer. This is the only case where you can use the viewfinder and the LCD screen simultaneously.



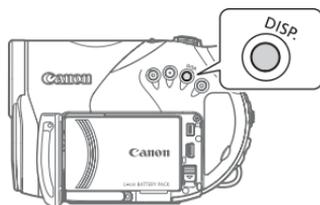
Subject can monitor the LCD screen

i NOTES

About the LCD and viewfinder screen: The screens are produced using extremely high-precision manufacturing techniques, with more than 99.99% of the pixels operating to specification. Less than 0.01% of the pixels may occasionally misfire or appear as black, red, blue or green dots. This has no effect on the recorded image and does not constitute a malfunction.

LCD Backlight

You can set the brightness of the LCD screen to normal or bright.



Hold **DISP.** pressed down for more than 2 seconds.

Repeat this action to toggle between the normal and bright settings.

i NOTES

- This setting does not affect the brightness of the recording or the viewfinder screen.
- Using the bright setting will shorten the effective usage time of the battery pack.

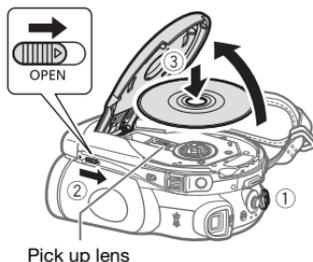
Inserting and Removing a Disc

Use only 8 cm (3 in.) mini DVD discs marked with the DVD-R  logo (including DVD-R DL) or the DVD-RW  logo. Refer also to *Recommended discs* (□ 7).

Before inserting the disc be sure to check that the recording surface is clean. If necessary, use a soft lens-cleaning cloth to remove any fingerprints, dirt buildup or smudges from the disc surface.

Inserting the Disc

POINTS TO CHECK



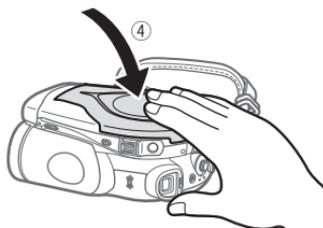
1 Move the **POWER** switch to **ON** to set the camcorder in **CAMERA** mode.

2 Slide **OPEN** fully in the direction of the arrow and gently open the disc cover completely until it stops.

Retract the grip belt under the camcorder so it will not get in the way of the disc cover.

3 Insert the disc and press its center firmly until it clicks in place.

- Insert the disc with the recording side facing down (single sided discs – label side facing out).
- Be careful not to touch the recording surface of the disc or the pick up lens.



4 Close the disc cover.

Do not force the cover closed if the disc is not correctly inserted and firmly set in place.

NOTES

- The process of recognizing a disc may take a moment. The  display will move while the disc is being read. Wait until the camcorder finishes recognizing the disc before you start recording.
- Do not insert into the camcorder discs that were recorded or initialized using another device.

WHEN YOU INSERT A NEW DISC

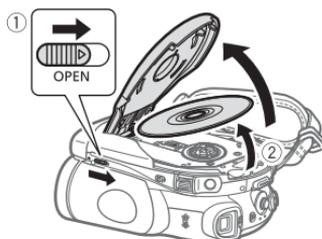
You need to initialize new discs before you can start recording. The disc initialization screen will appear when a new disc is first inserted if the  switch is set to  (Movies).



You cannot initialize the disc if the remaining battery charge appears as . Power the camcorder using the compact power adapter.

- ① Select (◀▶) the quality to be used for recording the disc. For a comparison between HD and SD quality, refer to *Decide what image quality you want to use* (□ 6).
 - Only if you inserted a DVD-RW disc and selected [SD], continue to step ② to select the disc specification. In all other cases, skip directly to step ③.
- ② Select (◀▶) the disc specification and press (SET). For a comparison between the [VIDEO] and [VR] specifications, refer to *Disc specifications on DVD-RWs* (□ 7).
- ③ In the confirmation screen, select (◀▶) [YES] and press (SET) to start the disc initialization.
 - The disc initialization will take approximately one minute. Avoid moving the camcorder while the operation is in progress.
 - You can start recording movies once the record pause  indicator appears.

Removing the Disc



- 1 Slide **OPEN** fully in the direction of the arrow and gently open the disc cover completely until it stops.

- Do not subject the camcorder to strong impacts while the DISC access indicator is on or flashing.
- Retract the grip belt under the camcorder so it will not get in the way of the disc cover.
- It may take a moment after sliding **OPEN** for the disc cover to open.

- 2 Grab the edge of the disc and gently pull it out.

Be careful not to touch the recording surface of the disc or the pick up lens.

- 3 Close the disc cover.

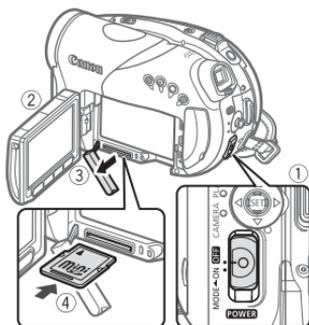
IMPORTANT

When you slide **OPEN** after making a recording, important file allocation data is updated on the disc before the disc cover opens. While the DISC access indicator is on or flashing do not subject the camcorder to shocks such as forcefully laying it on a table.



Inserting and Removing a Memory Card

Only miniSD cards can be used with this camcorder.



- 1 Turn off the camcorder.
- 2 Open the LCD panel.
- 3 Pull out the memory card slot cover.
- 4 Insert the memory card straight with the miniSD label facing up, all the way into the memory card slot until it clicks.
- 5 Close the cover.
Do not force the cover closed if the memory card is not correctly inserted.

TO REMOVE THE MEMORY CARD

First push the memory card once to release it, and then pull the card out.

! IMPORTANT

- Make sure to initialize all memory cards before using them with this camcorder (□ 84).
- Memory cards have front and back sides that are not interchangeable. Inserting a memory card facing the wrong direction can cause a malfunction of the camcorder.

i NOTES

Compatibility with all miniSD cards cannot be guaranteed.



Video

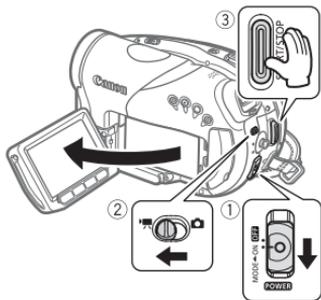
This chapter covers functions related to shooting movies, including recording, playback, menu options, and disc operations.

Basic Recording

Shooting Video

Before You Begin Recording

Make a test recording first to check if the camcorder operates correctly. Since recordings made on a DVD-R or DVD-R DL disc cannot be deleted, we recommend you use a DVD-RW disc to make the test recordings.



- 1 Move the **POWER** switch to **ON** to set the camcorder in **CAMERA** mode.

The red **CAMERA** indicator will turn on.

- 2 Move the **MOVIE/VIDEO** switch to **MOVIE** (**Movies**).

- 3 Press **START/STOP** to begin recording.

- The recording starts; press **START/STOP** again to pause the recording.
- You can also press **START/STOP** on the LCD panel.

WHEN YOU HAVE FINISHED RECORDING

- 1 Make sure that the **DISC** access indicator is off.
- 2 Turn off the camcorder.
- 3 Close the LCD panel.
- 4 Remove the disc.

IMPORTANT

- **When recording movies, try to get a calm, stable picture.**
Excessive camcorder movement while shooting and extensive use of fast zooms and panning can result in jittery scenes. In extreme cases, the playback of such scenes may result in visually induced motion sickness. If you experience such a reaction, immediately stop the playback and take a rest break as necessary.
- Avoid the following actions while the **DISC** access indicator is on or flashing. Failing to do so may result in permanent data loss.

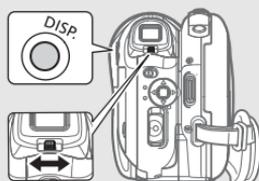
- Do not subject the camcorder to vibrations or strong impacts.
- Do not open the disc cover and do not remove the disc.
- Do not disconnect the power source or turn off the camcorder.
- Do not change the operating mode.

i NOTES

- **About the Power Save mode:** To save power when the camcorder is powered by a battery pack, the camcorder will automatically shut off if left without any operations for 5 minutes (□ 52). To restore the power, slide the **POWER** switch toward **MODE** and release it, or move the **POWER** switch to **OFF** and back to **ON** again.
- When recording in very loud places (such as fireworks shows or concerts), sound may become distorted or it may not be recorded at the actual levels. This is not a malfunction.

Using the Viewfinder

When recording in bright places it may be difficult to use the LCD screen. In such case, change the brightness of the LCD screen (□ 31) or use the viewfinder instead. To use the viewfinder, keep the LCD panel closed*.



Adjust the viewfinder as necessary with the dioptic adjustment lever. Hold **[DISP.]** pressed down for more than 2 seconds to change the brightness of the viewfinder.

* The LCD screen and the viewfinder can be used simultaneously only when the LCD panel is turned 180 degrees to face the subject (□ 31).

About the Mode Switch and Recording Programs

Set the mode switch to **AUTO** to let the camcorder adjust all the settings for you, allowing you to just point the camcorder and start shooting.



AUTO

Set the mode switch to **P** to select one of the recording programs. The Special Scene recording programs (□ 55) offer a convenient way to select the optimal settings to match special recording conditions. Conversely, with flexible recording programs (□ 57) you can set the shutter speed or the aperture you want, or enjoy the flexibility to change other settings.



P



Selecting the Recording Mode

The camcorder offers 4 recording modes in high definition and 3 recording modes in standard definition. Changing the recording mode will change the recording time available on the disc. Select XP+ or XP mode for better movie quality; select LP mode for longer recording times.

The following table gives approximate recording times with a brand new DVD disc (on a single recording side).

Recording Mode		Disc Type	
		DVD-R, DVD-RW	DVD-R DL
High Definition	XP+	15 min.	27 min.
	XP	20 min.	36 min.
	SP	25 min.	45 min.
	LP	33 min.	60 min.
Standard Definition	XP	20 min.	36 min.
	SP	30 min.	54 min.
	LP	60 min.	108 min.



♦ Default value in high definition



FUNC.
(27)



- 1 Press **FUNC.**.
- 2 Select (**▲▼**) the recording mode icon.
- 3 Select (**◀▶**) the desired recording mode.
- 4 Press **FUNC.** again to save the setting and close the menu.

NOTES

- Recording in LP mode gives you a longer recording time; however, depending on the condition of the disc (long usage, imperfections, etc.) the picture and sound recorded in LP mode may be distorted. We recommend using XP+ or XP mode for important recordings.
- The camcorder uses a variable bit rate (VBR) when encoding the video data so the actual recording times will vary depending on the content of the scenes.

Selecting the Aspect Ratio of your Recordings (16:9 Widescreen or 4:3)

When recording in high definition, the scenes recorded will have an aspect ratio of 16:9 (Widescreen). In standard definition, you can select the aspect ratio of your recordings to match that of your TV.

POINTS TO CHECK

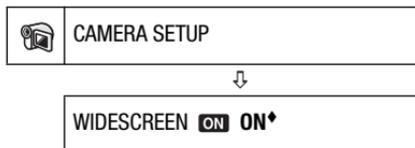


Disc quality: SD (VIDEO or VR mode)

FUNC.
(28)



◆ Default value



- 1 Press **FUNC.**.
- 2 Select (▲▼) the icon and press (SET) to open the setup menus.
- 3 Select (▲▼) [CAMERA SETUP] and press (SET).
- 4 Select (▲▼) [WIDESCREEN] and press (SET).
- 5 Select (▲▼) a setting option and press (SET).

The default is Widescreen (16:9) recordings. Set it to [OFF OFF] to record scenes with an aspect ratio of 4:3.

- 6 Press **FUNC.** to close the menu.

i NOTES

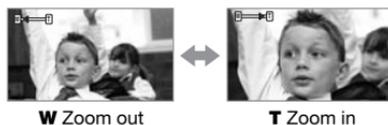
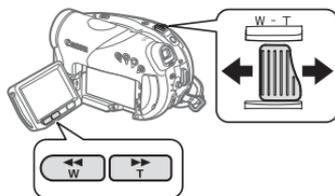
- **Playing back a Widescreen recording:** TV sets compatible with the Video ID-1 system will automatically switch to wide (16:9) mode. Otherwise, change the aspect ratio of the TV manually.
- To play back on a TV with normal aspect ratio (4:3) change the [TV TYPE] setting accordingly (53).

Zooming

✔ POINTS TO CHECK

CAMERA | **PLAY** (26)

CAMERA : In addition to the optical zoom, the digital zoom is also available (47).



10x Optical Zoom

Move the zoom lever toward W to zoom out (wide angle). Move it toward T to zoom in (telephoto).

You can also change the zoom speed (48). You can select one of three fixed zoom speeds or a variable speed that depends on how you operate the zoom lever: Press gently for a slow zoom; press harder for faster zooms.

i NOTES

- Keep at least 1 m (3.3 ft.) away from the subject. At full wide angle, you can focus on a subject as close as 1 cm (0.39 in.).



- You can also use the **T** and **W** buttons on the wireless controller or the LCD panel. The zoom speed will be the same as with the camcorder or fixed at [SPEED 3] (when [VAR VARIABLE] is selected).
- When set to [VAR VARIABLE], the zoom speed will be faster in record pause mode.

Quick Start Function

When you press **QUICK START** the camcorder enters the  standby mode. In standby mode the camcorder consumes only about half the power used when recording, saving energy when you are using a battery pack. Additionally, when you press **QUICK START** again the camcorder is ready to start recording within approx. 1 second, ensuring you do not miss important shooting opportunities.

POINTS TO CHECK



1 Press **QUICK START** firmly.

The standby lamp flashes at first while the camcorder is preparing and

then stays on when it enters the standby mode.

2 When you wish to resume recording, press **QUICK START** again.

Within approx. 1 second, the camcorder is ready in record pause mode.

NOTES

- When you wake up the camcorder from standby mode, the following settings will be changed automatically:
 - Manual focus returns to automatic focus (AF).
 - Manual exposure adjustment returns to automatic exposure.
 - Zoom position returns to full wide angle **W**.
- The camcorder will shut off if left in standby mode for 10 minutes, regardless of the [POWER SAVE] setting (□ 52). You can select the length of time until shut-off with the [STANDBY OFF] setting (□ 53).

To restore the power if the camcorder shut off, slide the **POWER** switch toward **MODE** and release it, or move the **POWER** switch to **OFF** and back to **ON** again.
- If you perform any of the following actions while in standby mode (while the standby lamp is on), the camcorder will return to record pause mode.
 - Open the disc compartment cover.
 - Change the position of the  /  switch.
 - Slide the **POWER** switch toward **MODE**.

Reviewing and Deleting the Last Scene Just Recorded

Even in **CAMERA** mode you can play back the last scene just recorded in order to check it. If you are using a DVD-RW disc, you can also delete the scene while reviewing it.



- 1** If the joystick guide does not appear on screen, press **(SET)** to display it.
- 2** Push the joystick (**◀**) toward **(◀)**.
 - If **(◀)** does not appear on the joystick guide, repeatedly push the joystick (**▼**) toward **[NEXT]** to display it.
 - The camcorder plays back the last scene (but without sound) and returns to record pause mode.

Deleting a Scene Right After Recording It

POINTS TO CHECK



Disc type: **◀-RW** DVD-RW

Immediately after recording a scene:

- 1** Review the scene as described in the previous section.
- 2** While reviewing the scene, select **(◀▶)** **(⌫)** and press **(SET)**.
- 3** Select **(◀▶)** **[YES]** and press **(SET)**.

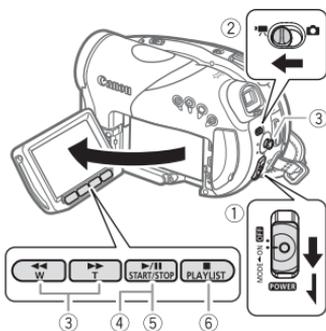
NOTES

- Avoid any other operations on the camcorder while the scene is being deleted.
- You will not be able to delete the last scene if after the scene was recorded you changed the operating mode, turned off the camcorder or removed the disc.



Basic Playback

Playing Back the Video



- 1 Move the **POWER** switch to **ON**, then slide it down toward **MODE** and release it to set the camcorder in **PLAY** mode.

The green **PLAY** indicator will turn on.

- 2 Move the **MOVIE/PLAY** switch to **MOVIE** (**Movies**).
The scene index screen appears with the selection frame on the first scene.
- 3 Move (**▲▼**, **◀▶**) the selection frame to the scene you want to play back.
- 4 Press **▶/||** to begin the playback.

The playback will start from the scene selected and continue until the end of the last scene recorded.

DURING PLAYBACK

- 5 Press **▶/||** again to pause the playback.
- 6 Press **■** to stop the playback and return to the scene index screen.

i NOTES

- Depending on the recording conditions, you may notice brief stops in video or sound playback between scenes.
- Be sure to finalize discs to play them back on external DVD devices (□ 68).

TO ADJUST THE VOLUME



During the playback of a scene:

- 1 If the joystick guide does not appear on screen, press **(SET)** to display it.
- 2 Push the joystick (**▲▼**) toward **||** or **||** to adjust the volume.

Special Playback Modes

To enter most special playback modes you need to operate the buttons on the wireless controller (□ 19). There is no sound during the special playback modes.

Special playback mode	Initial mode	On the camcorder press...	On the wireless controller press...
Fast playback	Normal playback	◀◀ or ▶▶ Press again to increase the playback speed 5x → 15x the normal speed	SEARCH ▶▶ or ◀◀ SEARCH
Slow playback*	Playback pause	◀◀ or ▶▶ Press again to increase the playback speed 1/8 → 1/4 the normal speed	SLOW ▶▶ or ◀◀ SLOW
Skip to the beginning of: the next scene the current scene the previous scene	Normal playback	Push the joystick: (▶) (◀) (◀) twice	NEXT PREV. PREV. twice
Return to normal playback	Special playback	▶	PLAY ▶

During some special playback modes, you may notice some anomalies (blocky video artifacts, banding, etc.) in the playback picture.

* Slow playback is not available with discs recorded in VIDEO mode.



Deleting Scenes

If you are using a DVD-RW disc, you can delete those scenes that you are not interested in keeping.

Deleting a Single Scene

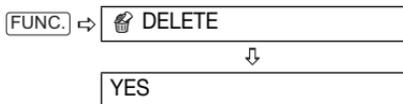
POINTS TO CHECK



Disc type: DVD-RW
Disc quality: HD or SD (VR mode only)

From the original index screen, select (, ,) the scene to delete. To delete a scene only in the playlist, press first, and then select the scene.

FUNC.
(27)



Deleting All Scenes

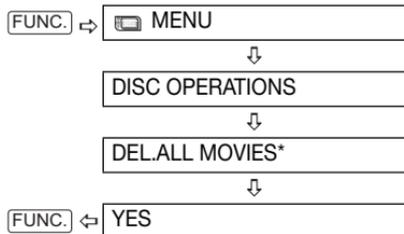
POINTS TO CHECK



Disc type: DVD-RW
Disc quality: HD or SD (VR mode only)

To delete all the scenes from the original index screen, perform the following procedure. This will delete also the whole playlist. If you want to delete only the playlist (without affecting the original recordings), press first and then continue as follows.

FUNC.
(28)



* When you are deleting the playlist, this menu option will be replaced by .

! IMPORTANT

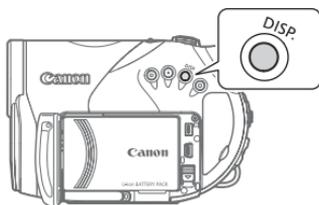
Be careful when deleting original recordings. Once deleted, an original scene cannot be recovered.

i NOTES

- Scenes cannot be deleted when the disc is protected (□ 66).
- You may not be able to delete scenes shorter than 5 seconds. To delete such scenes you must initialize the disc (□ 67), in the process deleting all the recordings on the disc.
- Do not change the position of the **POWER** switch or the **⏏/📷** switch while the scene is being deleted (while the DISC access indicator is on or flashing).

On-Screen Displays (Data Code)

The camcorder keeps a data code containing the date and time and other camera data (shutter speed, aperture, etc.) registered at the time of recording. You can select the data to be displayed.

Turning the On-Screen Displays On/Off

Repeatedly press **[DISP.]** to turn the on-screen displays on/off in the following sequence:

CAMERA

- All displays on
- All displays off¹

PLAY

- All displays on
- Data code² only
- All displays off

¹ However, the markers and the icons ● and ●|| will still appear on the screen.

² Data code: Time, date and camera data at the time of recording. The contents to be displayed can be selected with the [DATA CODE] setting (□ 51).



Menu Options Lists

Menu items not available appear grayed out in the FUNC. menu or in black in the setup menus. For details about how to select an item, refer to *Using the Menus* (□ 27).

FUNC. Menu

Recording programs (□ 55, 57)



Mode switch: P

- [] PROGRAM AE,
- [] SHUTTER-PRIO.AE,
- [] APERTURE-PRIO.AE,
- [] CINE MODE)*

Special Scene recording programs:

- [] PORTRAIT], [] SPORTS],
- [] NIGHT], [] SNOW], [] BEACH],
- [] SUNSET], [] SPOTLIGHT],
- [] FIREWORKS]

* mode only.

Light metering mode (□ 81)



Mode switch: P

- [] EVALUATIVE],
- [] CENT.WEIGHT.AVERAGE],
- [] SPOT]

White balance (□ 61)



Mode switch: P

- [] AUTO], [] DAYLIGHT],
- [] SHADE], [] CLOUDY],
- [] TUNGSTEN], [] FLUORESCENT],
- [] FLUORESCENT H], [] SET]

Image effect (□ 62)



Mode switch: P

- [] IMAGE EFFECT OFF],
- [] VIVID], [] NEUTRAL],
- [] LOW SHARPENING],
- [] SOFT SKIN DETAIL],
- [] CUSTOM]

Digital effects (□ 63)



Mode switch: P

- [] D.EFFECT OFF], [] FADE-T],
- [] WIPE], [] BLK&WHT],
- [] SEPIA], [] ART]



Mode switch: P

- [] D.EFFECT OFF], [] BLK&WHT],
- [] SEPIA]

Drive mode (📖 79)



Mode switch: **P**

- [**SINGLE**], [CONT.SHOOT.],
- [HISPEED CONT.SHOOT.],
- [AEB]

Recording mode



Disc quality: HD

- [**HIGH QUALITY 12 Mbps**],
- [**HIGH QUALITY 9 Mbps**],
- [**STANDARD PLAY 7 Mbps**],
- [**LONG PLAY 5 Mbps**]

Disc quality: SD (VIDEO or VR mode)

- [**HIGH QUALITY**],
- [**STANDARD PLAY**],
- [**LONG PLAY**]

Still image simultaneous recording (📖 82)



Size

When recording scenes with a 16:9 aspect ratio (HD quality, or SD quality with [WIDESCREEN] set to [**ON** ON]):

- [**STILL I.REC OFF**],
- [**LW** 1920x1080], [**SW** 848x480]

When recording scenes with a 4:3 aspect ratio (SD quality with [WIDESCREEN] set to [**OFF** OFF]):

- [**STILL I.REC OFF**],
- [**M** 1440x1080], [**S** 640x480]

Quality

- [**SUPER FINE**], [**FINE**],
- [**NORMAL**]

Still image size/quality (📖 73)



Size:

- [**LW** 1920x1080], [**L** 2048x1536],
- [**M** 1440x1080], [**S** 640x480]

Quality:

- [**SUPER FINE**], [**FINE**],
- [**NORMAL**]

ADD TO PLAYLIST (📖 65)



Disc type: **(-RW)**

Disc quality: HD or SD (VR mode only)
[ALL SCENES], [ONE SCENE],
[CANCEL]

Add scenes to the playlist. This option is available only from the original index screen.

MOVE (📖 65)



Disc type: **(-RW)**

Disc quality: HD or SD (VR mode only)
Move a scene in the playlist. This option is available only from the playlist index screen.

DIVIDE (📖 66)



Disc type: **(-RW)**

Disc quality: HD
scenes in the playlist only.
Disc quality: SD (VR mode only)
original or playlist scenes.

Divide a scene.



DELETE (43)



Disc type: **(RW)**

Disc quality: HD or SD (VR mode only)

Delete a scene.

SLIDESHOW (76)



[CANCEL], [START]

PROTECT (83)



Press **(SET)** to enter the image selection screen. From that screen, you can continue to select the still images you want to protect.

PRINT ORDER (90)



Press **(SET)** to enter the image selection screen. From that screen, you can continue to select the still images for which you want to set print orders.

TRANSFER ORDER (100)



Press **(SET)** to enter the image selection screen. From that screen, you can continue to select the still images you want to mark with a transfer order.

Setup Menus

CAMERA SETUP

A.SL SHUTTER



Mode switch: **AUTO** or **P** (only in the [P PROGRAM AE] recording program)

[ON ON], [OFF OFF]

The camcorder automatically uses slow shutter speeds to obtain brighter recordings in places with insufficient lighting.

Operation Mode	Shutter Speed Used
	As low as 1/30
with [PF24] 24F PROGR.]	As low as 1/12 frame rate.
	As low as 1/15

- In mode, set the flash mode to (flash off).
- If a trailing afterimage appears, set the slow shutter to [OFF OFF].
- If (camcorder shake warning) appears, we recommend stabilizing the camcorder, for example, by mounting it on a tripod.

D.ZOOM



[OFF OFF], [40% 40X], [200% 200X]

Determines the operation of the digital zoom.

- When activated, the camcorder will switch automatically to the digital zoom when you zoom in beyond the optical zoom range.
- With the digital zoom the image is digitally processed, so the image resolution will deteriorate the more you zoom in.
- About the color of the zoom indicator:

Optical Zoom	Digital Zoom	
White	Light blue	Dark blue
Up to 10x	10x - 40x	40x - 200x

- The digital zoom cannot be used with the NIGHT recording program.

ZOOM SPEED



[**VAR VARIABLE**], [**SPEED 3**],
[**SPEED 2**], [**SPEED 1**]

- When set to [**VAR VARIABLE**] the zoom speed depends on how you operate the zoom lever: Press lightly for a slow zoom; press harder for faster zooms.
- The fastest zoom speed can be achieved with [**VAR VARIABLE**]. Among the fixed zoom speeds, [**SPEED 3**] is the fastest and [**SPEED 1**] the slowest.

AF MODE



[**LAF INSTANT AF**], [**AF NORMAL AF**]

Select how fast the autofocus will operate.

- With [**LAF INSTANT AF**] the autofocus adjusts quickly to a new subject. This is convenient for example when changing the focus from a near subject to a far subject in the background, or when recording fast-moving subjects.
- When the optional Wide-converter or Tele-converter is attached to the camcorder, it may partially obstruct the Instant AF sensor. Set the AF mode to [**AF NORMAL AF**].

FOCUS ASSIST



Mode switch: **P**

[**ON ON**], [**OFF OFF**]

You can use the focus assist function to make sure you focus correctly.

- The focus assist function magnifies the image that appears at the center of the screen in order to help you when you are using the manual focus.
- Using the focus assist function will not affect the recordings. The focus assist function will be cancelled when you start recording.



IMG STAB



Mode switch: **P**

[**ON** ON (📷)], [**OFF** OFF]

The image stabilizer compensates for camcorder shake even at full telephoto.

- The image stabilizer is designed to compensate for a normal degree of camcorder shake.
- The image stabilizer cannot be turned off when the mode switch is set to **AUTO**.
- We recommend setting the image stabilizer to [**OFF** OFF] when using a tripod.

FRAME RATE



Mode switch: **P**

Disc quality: HD only

[**60i** 60i **NORMAL**],

[**PF24** 24F **PROGR.**]

Selects the frame rate to be used when recording in HD quality.

[**PF24** 24F **PROGR.**]: 24 frames per second, progressive. Using this frame rate will give your recordings a cinematic look. When combined with the [**CINE** CINE MODE] recording program (📖 55), the cinematic look will be enhanced.

This frame rate is different from the 24F mode featured in Canon HDV camcorders.

AF AST LAMP

(📖 78)



[**A** **AUTO**], [**OFF** OFF]

FOCUS PRI.

(📖 80)



Mode switch: **P**

[**AiAF** **ON:AiAF**], [**ON:CENTER**],

[**OFF** OFF]

REVIEW



[**OFF** OFF], [**2sec** 2 sec], [**4sec** 4 sec],
[**6sec** 6 sec], [**8sec** 8 sec], [**10sec** 10 sec]

Selects the time to display a still image after it has been recorded on the memory card.

- This menu item will not be available when the drive mode (📖 79) is set to [**CONT.SHOOT.**], [**HISPEED** CONT.SHOOT.] or [**AEB**].
- If you press [**DISP.**] while reviewing a still image it will continue to be displayed indefinitely. Press [**PHOTO**] halfway to return to the normal display.

WIDESCREEN

(📖 37)



Disc quality: SD only

[**ON** ON], [**OFF** OFF]

SELF TIMER

(📖 59)



[**ON** ON (🕒)], [**OFF** OFF]

WIND SCREEN

Mode switch: **P**

[**A** **AUTO**], [**OFF** OFF]

The camcorder automatically reduces the background sound of wind when recording outdoors.

- The wind screen cannot be turned off when the mode switch is set to **AUTO**.
- Some low-frequency sounds will be suppressed along with the sound of wind. When recording in surroundings unaffected by wind or if you want to record low-frequency sounds, we recommend setting the wind screen to [**OFF** OFF].

DISC OPERATIONS

DISC INFO

Displays a screen where you can verify the details regarding the disc.

- The disc information includes the disc title, the disc type (DVD-R, DVD-R DL or DVD-RW), the disc quality/specification (HD, VIDEO or VR mode), and icons that indicate if the disc is finalized () and/or protected ().

DISC INITIALIZE

67



Disc type:

[HD], [SD], [CANCEL]

After selecting [SD]:
[VIDEO], [VR], [CANCEL]

FINALIZE

68



[NO], [YES]

UNFINALIZE

71



Disc type: , finalized

Disc quality: HD or SD (VIDEO mode only)

[NO], [YES]

DEL.ALL MOVIES

43



Disc type:

Disc quality: HD or SD (VR mode only)

[NO], [YES]

This option is available only in the original index screen.

DEL.PLAYLIST

43



Disc type:

Disc quality: HD or SD (VR mode only)

[NO], [YES]

This option is available only in the playlist index screen.



DISC PROTECT (66)



Disc type: **(RW)**
Disc quality: HD or SD (VR mode only)
[NO], [YES]

DISC TITLE (68)



STILL IMG OPER.

ERASE ALL ORD (91)



[NO], [YES]

ERASE ALL ORD (100)



[NO], [YES]

ERASE ALL IMAGES (77)



[NO], [YES]

CARD INITIALIZE (84)



[INITIALIZE], [COMPL.INIT.], [CANCEL]

DISPLAY SETUP

BRIGHTNESS



Adjusts the brightness of the LCD screen.

- Adjust (**◀▶**) the brightness to your preference.
- Changing the brightness of the LCD screen does not affect the brightness of your recordings, that of the playback image on a TV or that of the viewfinder.

TV SCREEN



[**ON ON**], [**OFF OFF**]

When set to [**ON ON**], the camcorder's on-screen displays will appear also on the screen of a TV or monitor connected using the STV-100 Stereo Video Cable.

DATA CODE (44)



[DATE], [TIME], [DATE & TIME],
[CAMERA DATA]

Displays the date and/or time when the scene was recorded.

[CAMERA DATA]: Displays the aperture (f-stop) and shutter speed used when recording the image.

MARKERS

[**OFF OFF**], [W LEVEL(WHT)],
[G LEVEL(GRY)], [W GRID(WHT)],
[G GRID(GRY)]

You can display a grid or a horizontal line at the center of the screen. The markers are available in white or gray. Use the markers as a reference to make sure your subject is framed correctly (vertically and/or horizontally).

- Using the markers will not affect the recordings on the disc or memory card.

LANGUAGE

(29)



[DEUTSCH], [**ENGLISH**], [ESPAÑOL],
[FRANÇAIS], [ITALIANO], [POLSKI],
[ROMÂNĂ], [TÜRKÇE], [РУССКИЙ],
[УКРАЇНСЬКА], [العربية], [فارسی],
[ภาษาไทย], [简体中文], [繁體中文], [한국어],
[日本語]

DEMO MODE

[**ON ON**], [**OFF OFF**]

The demonstration mode displays the camcorder's main features. It starts automatically when the camcorder is powered with the compact power adapter if you leave it turned on without loading a disc for more than 5 minutes.

- To cancel the demo mode once it started, press any button, turn off the camcorder or load a disc.

SYSTEM SETUP**WL.REMOTE**

[**ON ON**], [**OFF OFF**]

Allows the camcorder to be operated with the wireless controller.

VOLUME

Adjust (◀▶) the volume of the playback. You can also adjust the volume referring to the joystick guide (41).

BEEP

[**HIGH VOLUME**],
[**LOW VOLUME**], [**OFF OFF**]

A beep will accompany some operations like turning on the camcorder, the self-timer countdown, etc.

POWER SAVE

[**ON ON**], [**OFF OFF**]

In order to save power when the camcorder is powered by a battery pack, it will automatically shut off if left without any operation for 5 minutes.

- Approximately 30 seconds before the camcorder shuts off, the message "⚠ AUTO POWER OFF" will appear.



- In standby mode, the camcorder will shut off after the time selected for the [STANDBY OFF] setting.

STANDBY OFF (□ 39)



[10min 10 min], [20min 20 min],
[30min 30 min]

Select the length of time after which the camcorder will end the standby mode and shut off automatically.

IMG QUALITY



Disc quality: HD only

[LW SUPER FINE], [LW FINE],
[LW NORMAL]

Select the quality of a still image captured from a scene recorded in HD quality.

FILE NOS.



* [PLAY] : only with discs recorded in HD quality.

[RESET], [CONTINUOUS]

Select the image numbering method to be used on a new memory card.

Images are automatically assigned consecutive image numbers from 0101 to 9900, and stored in folders containing up to 100 images. Folders are numbered from 101 to 998.

[RESET]: Image numbers will restart from 101-0101 every time you insert a new memory card.

[CONTINUOUS]: Image numbers will continue from the number following that of the last image recorded with the camcorder.

- If the memory card you insert already contains an image with a larger number, a new image will be assigned a number one higher than that of the last image on the memory card.
- We recommend using the [CONTINUOUS] setting.

TV TYPE



[4:3 NORMAL TV], [16:9 WIDE TV]

In order to display the picture in full and in the correct aspect ratio, select the setting according to the type of television to which you will connect the camcorder.

[4:3 NORMAL TV]: TV sets with 4:3 aspect ratio.

[16:9 WIDE TV]: TV sets with 16:9 aspect ratio.

- The setting cannot be selected while the camcorder is connected to an HDTV using an HDMI cable.
- When the TV type is set to [4:3 NORMAL TV], if you play back a recording made in Widescreen (16:9) the picture displayed on the LCD screen will be smaller than the full display area.
- When the TV type is set to [4:3 NORMAL TV], still images cannot be captured from the playback scene (□ 83).

COMP.OUT

[480i] 480i], [1080i] 1080i/480i]

You can select the video specifications to use when connecting the camcorder to a high-definition TV using the component video connection.

[480i] 480i]: To use the 480i specification (standard definition).

[1080i] 1080i/480i]: To use the full 1080i high definition specification when possible, or switch automatically to 480i specification when 1080i is not supported by the TV.

- This setting will be unavailable while the camcorder is connected to an external device using an HDMI cable.

HDMI STATUS

You can verify the specification of the video output signal from the HDMI OUT terminal.

FIRMWARE

You can verify the current version of the camcorder's firmware. This menu option is usually grayed out.

DATE/TIME SETUP**T.ZONE/DST**

(30)

DATE/TIME

(29)

DATE FORMAT

[Y.M.D (2007.1.1 AM 12:00)],

[M.D,Y (JAN. 1, 2007 12:00 AM)],

[D.M.Y (1.JAN.2007 12:00 AM)]

Changes the date format for on-screen displays and for date printing.



Additional Functions

Cinema Mode and Special Scene Recording Programs

Cinema Mode

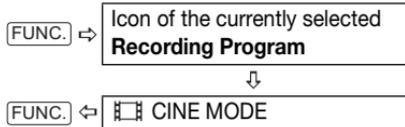
With the [CINE MODE] recording program, the camcorder adjusts various image settings to give a cinematic look to your recordings. When recording in HD quality, the effect will be further enhanced if you set [FRAME RATE] to [PF24 24F PROGR.] (49).

POINTS TO CHECK



Mode switch: **P**

FUNC.
(27)



Special Scene Recording Programs

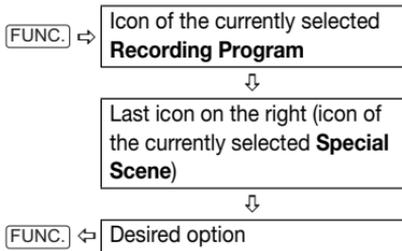
Recording in a very bright ski resort or capturing the full colors of a sunset or a fireworks display becomes as easy as selecting a Special Scene recording program. For details about the available options, refer to the sidebar on page 56.

POINTS TO CHECK



Mode switch: **P**

FUNC.
(27)



[] **PORTRAIT**

The camcorder uses a large aperture, achieving a focus on the subject while blurring other distracting details.



[] **BEACH**

Use this mode to record on a sunny beach. It prevents the subject from being underexposed.



[] **SPORTS**

Use this mode to record sports scenes such as tennis or golf.



[] **SUNSET**

Use this mode to record sunsets in vibrant colors.



[] **NIGHT**

Use this mode to record in dimly lit places.



[] **SPOTLIGHT**

Use this mode to record spotlight scenes.



[] **SNOW**

Use this mode to record in bright ski resorts. It prevents the subject from being underexposed.



[] **FIREWORKS**

Use this mode to record fireworks.



NOTES

- Do not move the mode switch to **AUTO** during the actual recording of a scene; the brightness of the picture may change abruptly.
- [] **PORTRAIT** / [] **SPORTS** / [] **BEACH** / [] **SNOW**
 - The picture may not appear smooth during playback.
- [] **PORTRAIT**
 - The blur effect of the background increases the more you zoom in (**T**).

- [] **NIGHT**
 - Moving subjects may leave a trailing afterimage.
 - Picture quality may not be as good as in other modes.
 - White points may appear on the screen.
 - Autofocus may not work as well as in other modes. In such case, adjust the focus manually.
- [] **SNOW** / [] **BEACH**
 - The subject may become overexposed on cloudy days or in shaded places. Check the image on the screen.



- [🎆 FIREWORKS]
 - To avoid camcorder shake, we recommend using a tripod. Make sure to use a tripod especially in [CAMERA] mode, as the shutter speed slows down.

P Flexible Recording: Changing the Aperture and Shutter Speed

Use the automatic exposure (AE) program or give priority to the exposure value or the shutter speed.

Use a high shutter speed to record fast moving subjects or a slow shutter speed to add motion blur, emphasizing the feel of movement.

Use low aperture values (larger lens opening) to softly blur the background in a portrait or high aperture values (smaller lens opening) to get a wider depth of field, giving a sharp focus all throughout a landscape.

✔ POINTS TO CHECK



Mode switch: P

Options

◆ Default value

[P PROGRAM AE]◆

The camcorder automatically adjusts the aperture and shutter speed to obtain the optimal exposure for the subject.

[TV SHUTTER-PRIO.AE]

Set the shutter speed value. The camcorder automatically sets the appropriate aperture value.

[AV APERTURE-PRIO.AE]

Set the aperture value. The camcorder automatically sets the appropriate shutter speed.

FUNC.
(27)



FUNC. ⇨

Icon of the currently selected **Recording Program**



FUNC. ⇨

Desired option

TO SET THE SHUTTER SPEED OR APERTURE VALUE

When you select [TV SHUTTER-PRIO.AE] or [AV APERTURE-PRIO.AE], a numeric value will appear next to the recording program icon.

- 1 If the joystick guide appears on the screen, press (SET) to hide it.
- 2 Adjust (▲▼) the shutter speed or aperture value to the desired value.

Shutter speed guidelines

Note that on screen only the denominator is displayed – [ 250] indicates a shutter speed of 1/250 second, etc.

1/2*, 1/4*, 1/8, 1/15, 1/30
To record in dimly lit places.
1/60
To record under most ordinary conditions.
1/100
To record indoor sports scenes.
1/250, 1/500, 1/1000**
To record from within a moving car or train or to shoot fast-moving subjects such as roller coasters.
1/2000**
To record outdoor sports scenes on sunny days.

In  mode, when the frame rate is set to [ 24F PROGR.], the shutter speeds available will be the following: 1/6, 1/12, 1/24, 1/48, 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000.

Available Aperture Values

[1.8]**, [2.0]**, [2.4]**, [2.8], [3.4], [4.0], [4.8], [5.6], [6.7], [8.0]

*  mode only.

**  mode only.

NOTES

- When setting a numeric value (aperture or shutter speed), the number display will flash if the aperture or shutter speed is not appropriate for the recording

conditions. In such case, select a different value.

- Do not move the mode switch to **AUTO** during the actual recording of a scene; the brightness of the picture may change abruptly.
- [ SHUTTER-PRIO.AE]
 - If you use a slow shutter speed in dark places, you can obtain a brighter image, but the image quality may be lower, and the autofocus may not work well.
 - The image may flicker when recording with high shutter speeds.
 - Recording movies under fluorescent lights:** If the screen starts to flicker, select [ SHUTTER-PRIO.AE] and set the shutter speed to 1/100.
- [ APERTURE-PRIO.AE]
 - The actual range of values available for selection will vary depending on the initial zoom position.

Mini Video Light

You can turn on the mini video light (assist lamp) at any time, regardless of the recording program.



- If the joystick guide does not appear on screen, press () to display it.
- Push the joystick () toward .



- If does not appear on the joystick guide, repeatedly push the joystick (▼) toward [NEXT] to display it.
- appears on the screen.
- Push the joystick (▶) toward again to turn the mini video light off.

NOTES

We recommend not using the mini video light while the optional Wide-converter is attached; its shadow can appear on the screen.

Self Timer

POINTS TO CHECK



FUNC.
(28)



FUNC. → MENU

CAMERA SETUP

SELF TIMER

FUNC. ⇐ ON

appears.

CAMERA :

In record pause mode, press
[START/STOP].

The camcorder starts recording after a 10-second countdown*. The countdown appears on the screen.

CAMERA :

Press [PHOTO], **first halfway to activate the autofocus and then fully.**

The camcorder will record the still image after a 10-second countdown*. The countdown appears on the screen.

* 2 seconds when using the wireless controller.

NOTES

Once the countdown has begun, you can press [START/STOP] (when recording movies), press [PHOTO] fully (when recording still images) or turn off the camcorder to cancel the self timer.

Manual Focus Adjustment

Autofocus may not work well on the following subjects. In such case, focus manually.

- Reflective surfaces
- Subjects with low contrast or without vertical lines
- Fast moving subjects
- Through wet windows
- Night scenes

POINTS TO CHECK



Adjust the zoom before you start the procedure.

Mode switch: **P**

- 1 If the joystick guide does not appear on screen, press (SET) to display it.**
- 2 Push the joystick (▲) toward [FOCUS].**
 - If [FOCUS] does not appear on the joystick guide, repeatedly push the joystick (▼) toward [NEXT] to display it.
 - "MF" appears.
- 3 Push the joystick (◀▶) once to verify if the image is focused.**
The center of the screen will be magnified to help you focus more easily. You can also turn off the focus assist function (□ 48).
- 4 Keep the joystick pressed down (◀▶) to adjust the focus as necessary.**
Pushing the joystick (▲) toward [FOCUS] again will return the camcorder to autofocus.

Infinity Focus

Use this function when you wish to focus on faraway subjects such as mountains or fireworks.

POINTS TO CHECK



Adjust the zoom before you start the procedure.

Mode switch: **P**

- 1 If the joystick guide does not appear on screen, press (SET) to display it.**
- 2 Keep the joystick pushed (▲) toward [FOCUS] for more than 2 seconds.**
 - ∞ appears.
 - Pushing the joystick (▲) toward [FOCUS] again will return the camcorder to autofocus.
 - If you operate the zoom or the joystick (◀▶), ∞ changes to "MF" and the camcorder returns to manual focusing mode.

Manual Exposure Adjustment

At times, backlit subjects may appear too dark (underexposed) or subjects under very strong lights may appear too bright or glaring (overexposed). To correct this, you can manually adjust the exposure.

POINTS TO CHECK



Mode switch: **P** (except for the [FIREWORKS] recording program).



1 If the joystick guide does not appear on screen, press (SET) to display it.

2 Push the joystick (▲) toward [EXP].

- If [EXP] does not appear on the joystick guide, repeatedly push the joystick (▼) toward [NEXT] to display it.
- The exposure adjustment indicator and the neutral value "±0" appear on the screen.
- If you operate the zoom during exposure lock, the brightness of the image may change.

3 Adjust (◀▶) the brightness of the image as required.

Pushing the joystick (▲) toward [EXP] again will cancel the exposure lock and return the camcorder to automatic exposure.

White Balance

The white balance function helps you to accurately reproduce colors under different lighting conditions so that white objects will always look truly white in your recordings.

POINTS TO CHECK



Mode switch: **P** (except for the Special Scene recording programs)

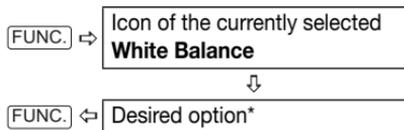
Options

◆ Default value

[AUTO]◆
Settings are automatically set by the camcorder. Use this setting for outdoor scenes.
[DAYLIGHT]
For recording outdoors on a bright day.
[SHADE]
For recording in shaded places.
[CLOUDY]
For recording on a cloudy day.
[TUNGSTEN]
For recording under tungsten and tungsten type (3-wavelength) fluorescent lighting.
[FLUORESCENT]
For recording under warm white, cool white or warm white type (3-wavelength) fluorescent lighting.
[FLUORESCENT H]
For recording under daylight or daylight type (3-wavelength) fluorescent lighting.
[SET]
Use the custom white balance setting to make white subjects appear white under colored lighting.

FUNC.
(27)





* When you select [SET], do not press [FUNC.] and continue instead with the following procedure.

TO SET THE CUSTOM WHITE BALANCE

- 1 Point the camcorder at a white object, zoom in until it fills the whole screen and press ().**
When the adjustment is completed, stops flashing and stays on. The camcorder retains the custom setting even if you turn off the camcorder.
- 2 Press [FUNC.] to save the setting and close the menu.**

NOTES

- When you have set the custom white balance:**
 - Set the custom white balance in a sufficiently illuminated place.
 - Turn off the digital zoom (47).
 - Reset the white balance when the lighting conditions change.
 - Depending on the light source, may keep flashing. The result will still be better than with [AUTO].
- Custom white balance may provide better results in the following cases:
 - Changing lighting conditions
 - Close-ups
 - Subjects in a single color (sky, sea or forest)
 - Under mercury lamps and certain types of fluorescent lights

- Depending on the type of fluorescent light, optimal color balance may not be obtained with [FLUORESCENT] or [FLUORESCENT H]. If the color looks unnatural, adjust it using [AUTO] or [SET].

Image Effects

You can use the image effects to change the color saturation and contrast to record images with special color effects.

POINTS TO CHECK



Mode switch: **P** (except for the Special Scene recording programs)

Options

♦ Default value

[OFF IMAGE EFFECT OFF]♦
Records with no image enhancing effects.
[VIVID]
Emphasizes the contrast and color saturation.
[NEUTRAL]
Tones down the contrast and color saturation.
[LOW SHARPENING]
Records subjects with softened outlines.



[SOFT SKIN DETAIL]	
Softens the details in the skin tone area for a more complimentary appearance. To obtain the best effect, use this setting when recording a person in close-up. Note that areas similar to the skin color may lack in detail.	
[CUSTOM]	
Allows you to adjust the brightness, contrast, sharpness, and color depth of the image.	
[COL.DEPTH]:	(-) Shallower colors, (+) Richer color tonality
[BRIGHTN.]:	(-) Darker picture, (+) Brighter picture
[CONTRAST]:	(-) Flatter picture, (+) More defined light and shade
[SHARPNESS]:	(-) Vaguer outlines, (+) Sharper outlines

FUNC.
(27)



[FUNC.] → Icon of the currently selected **Image Effect**



[FUNC.] ⇐ Desired option*

* When you select [CUSTOM], do not press [FUNC.] and continue instead with the following procedure.

TO SET THE CUSTOM IMAGE EFFECT

- 1 Press () and select () the custom setting options.
- 2 Adjust () each setting as desired and then press ().
- 3 Press [FUNC.] to save the setting and close the menu.

Digital Effects

POINTS TO CHECK

[CAMERA] [CAMERA] | [PLAY] [PLAY] (26)

Mode switch: **P**

[CAMERA] : [] BLK&WHT],
[] SEPIA] only.

Options

◆ Default value

[] D.EFFECT OFF ◆
Select this setting when you do not intend to use the digital effects.
[] FADE-T (fade trigger), [] WIPE]
Select one of the faders to begin or end a scene with a fade from or to a black screen.
[] BLK&WHT]
Records images in black and white.
[] SEPIA]
Records images in sepia tones for an "old" look.
[] ART]
Select this effect to add "flavor" to your recordings.

NOTES

- When you apply a fader, not only the picture but also the sound will fade in or out. When you apply an effect, the sound will be recorded normally.
- The camcorder retains the last setting used even if you turn off the digital

effects or change the recording program.

Setting

FUNC.
(27)



FUNC. → Icon of the currently selected
Digital Effect

FUNC.** ↔ Desired fader/effect*

* You can preview the effect on the screen.

** The icon of the selected effect appears.

Applying



1 If the joystick guide does not appear on screen, press (**SET**) to display it.

2 Push the joystick (**▲**) toward .

- If does not appear on the joystick guide, repeatedly push the joystick (**▼**) toward [NEXT] to display it.
- The icon of the selected effect turns green.
- Push the joystick (**▲**) toward again to deactivate the fader/effect.

TO FADE IN

Push the joystick (**▲**) toward in record pause mode (**●||**), then press **START/STOP** to start recording with a fade in.

TO FADE OUT

Push the joystick (**▲**) toward while recording (**●**), then press **START/STOP** to fade out and pause the recording.

TO ACTIVATE AN EFFECT

CAMERA : Push the joystick (**▲**) toward while recording or in record pause mode.

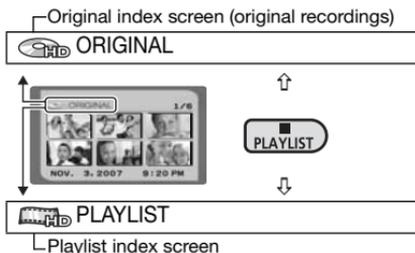
CAMERA : Push the joystick (**▲**) toward and then press **PHOTO** to record the still image.



Managing Scenes and the Disc

Creating a Playlist

Create a playlist to easily edit your movies. Include in your playlist only the scenes you prefer or change the order in which they will be played back, without affecting your original recordings. After you add scenes to the playlist, press **[PLAYLIST]** to switch between the original scenes and the playlist.



Adding Scenes to the Playlist

You can choose to add to the playlist all the original scenes at once or only the selected scene.

POINTS TO CHECK

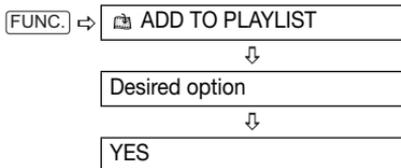


Disc type: DVD-RW

Disc quality: HD or SD (VR mode only)

From the original index screen, select (,) the scene to add to the

playlist. To add all scenes, there is no need to select any particular scene.



When the operation is completed “ADDED TO PLAYLIST” will be displayed. To delete scenes from the playlist, refer to *Deleting Scenes* (□ 43).

NOTES

We recommend powering the camcorder using the compact power adapter while editing the disc (playlist-related operations, changing the disc's title, protecting the disc, etc.).

Moving Scenes in the Playlist

POINTS TO CHECK



Disc type: DVD-RW

Disc quality: HD or SD (VR mode only)

From the original index screen, press **[PLAYLIST]**. From the playlist index

screen, select (**▲▼**, **◀▶**) the scene to move.



FUNC. → **MOVE**

Move (**▲▼**, **◀▶**) the orange marker to the new position of the scene and press (**SET**).

YES

Dividing Scenes

You can divide scenes in order to leave only the best parts and later cut out the rest. Remember that when you divide scenes in the playlist, you do not affect your original recordings.

i NOTES

- Original scenes recorded in HD quality cannot be divided.
- Very short scenes (shorter than 1 second) cannot be divided.

✓ POINTS TO CHECK



Disc type: **RW** DVD-RW

Disc quality: HD* or SD (VR mode only)

* Scenes in the playlist only.

From the original index screen, select (**▲▼**, **◀▶**) the scene to divide. To divide a scene only in the playlist, press **PLAYLIST** first, and then select the scene.



FUNC. → **DIVIDE**

Playback of the scene begins.

DIVIDE

Press (**SET**) at the point where you want to divide the scene.*

YES

* You can use the following icons and the special playback modes ([42]) to bring the scene to a precise point.

◀◀/▶▶: Skip to the beginning/end of the current scene.

◀||/||▶: Frame jump forward/backward. The frame jump for SD-quality scenes will be shorter than that for HD-quality scenes.

Protecting the Disc

You can protect the whole disc to prevent the accidental erasure of important recordings. Follow the same procedure to remove the protection of a protected disc. Initializing the disc ([67]) will permanently erase all scenes, even if the disc is protected.

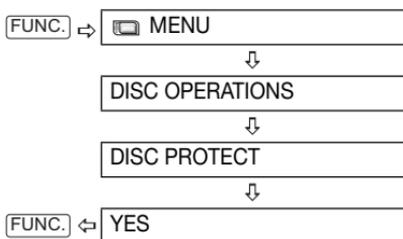


POINTS TO CHECK



Disc type: DVD-RW

Disc quality: HD or SD (VR mode only)



Initializing the Disc

You need to initialize all new discs when you first insert them to the camcorder (□ 32). When you are using a DVD-RW disc, you may need to initialize it if you get the message “UNABLE TO RECOGNIZE THE RECORDING MODE OF THE DISC”. You can also initialize a DVD-RW disc when you want to completely erase the disc to reuse it, or in order to change the video quality (HD/SD) or the disc specification (VIDEO/VR mode).

POINTS TO CHECK

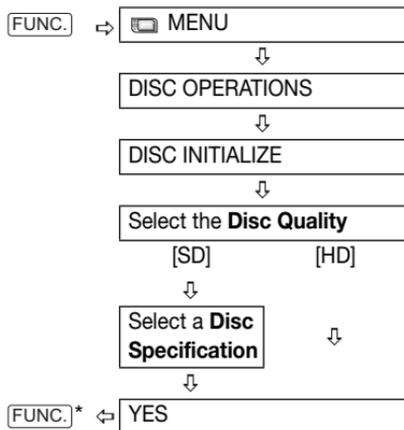


Disc type: DVD-RW

Disc quality: [HD] or [SD]

Disc specifications (only after selecting [SD] quality): [VIDEO] or [VR]

For a detailed explanation, refer to *Decide what image quality you want to use* (□ 6).



* Close the menu only after the screen display returns to the [DISC OPERATIONS] menu.

IMPORTANT

Initializing the disc will permanently erase all recordings, even if the disc is protected. The lost original recordings cannot be recovered.

NOTES

You cannot initialize the disc if the remaining battery charge appears as . Power the camcorder using the compact power adapter.

Disc Playback on an External Device

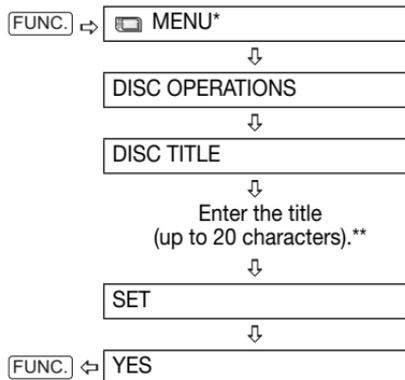
Changing the Disc Title

Before you finalize your disc*, you can give it a title. The disc title will be displayed on the index screen when playing the finalized disc in most DVD players. You can check the disc's title with the [DISC INFO] menu option (□ 50).

* You can change the title of DVD-RW discs recorded in VR mode also after having finalized them.



FUNC.
(□ 28)



* Only when using a DVD-RW recorded in HD quality, or in SD quality (VR mode).

Otherwise, pressing [FUNC.] will open the menu directly on the setup menu screen.
** Select one character at a time and press (SET) to add it to the title. Select [BACKSPACE] and press (SET) to delete the character to the left of the cursor's position.

Finalizing the Disc

To play the disc you recorded on a DVD player, a computer's DVD drive or other digital device, **you need to finalize it first**. You do not need to finalize the disc to play back your recordings with the camcorder connected to the TV.

! IMPORTANT

- Be sure to finalize the disc in normal room temperatures. If the procedure was not completed correctly due to high temperature, let the camcorder cool off before resuming operation.
- Place the camcorder on a table or other stable surface before starting the procedure. Subjecting the camcorder even to slight impacts (for example to place it on a table or to disconnect a cable) after the finalization process started may result in permanent data loss.
- Discs recorded in HD quality can be played back only with AVCHD-compatible DVD players (□ 70).
- Do not disconnect the compact power adapter while the operation is in progress. Doing so can interrupt the process and result in permanent data loss.



- Depending on the type of disc and the disc specification, after finalizing the disc you may not be able to initialize the disc, edit your recordings or add new recordings to the disc.
- Do not finalize with this camcorder discs that were not recorded using it.

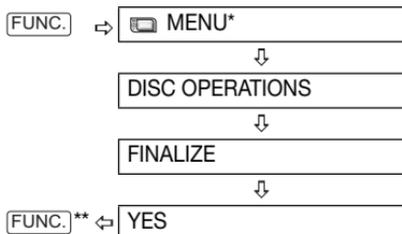
Finalizing the Disc

The time required to finalize the disc depends on the scenes recorded and the remaining free space on the disc.

POINTS TO CHECK



Power the camcorder using the compact power adapter.



* Only when using a DVD-RW recorded in HD quality, or in SD quality (VR mode). Otherwise, pressing [FUNC.] will open the menu directly on the setup menu screen.

** During the disc finalization a progress bar is displayed. Close the menu only after the screen display returns to the [DISC OPERATIONS] menu.

Restrictions after Disc Finalization

	Additional Recordings	Editing Recordings	Initializing the Disc	Unfinalizing the Disc
DVD-R/DVD-R DL	—	—	—	—
DVD-RW HD quality	●*	●*	●	●
DVD-RW SD quality (VIDEO mode)	●*	—	●	●
DVD-RW SD quality (VR mode)	●	●	●	—

* You will need to unfinalize the disc first.

Disc Playback on External Devices

After finalizing the disc you can play it on DVD devices compatible with the type of disc you used and the disc quality and specifications you selected. For a summary, you can refer to the sidebar on page 70. However, to be sure, always refer to the instruction manual of the external device and make sure it is compatible before inserting the disc.

ON A DVD PLAYER

- 1 Turn on the TV and DVD player.
- 2 Insert a finalized disc in the DVD player.
- 3 Select the scene you want to play from the index screen.

ON A COMPUTER'S DVD DRIVE

- 1 Insert a finalized disc in the DVD drive.
- 2 Run the DVD playback software.
Refer also to the instruction manual and help modules of your DVD playback software.

IMPORTANT

Discs recorded in HD quality can be played back only with AVCHD-compatible DVD players. Do not insert a disc recorded in HD quality into a DVD player that is not compatible with AVCHD specifications as you may not be able to eject the disc.

Compatibility of External Devices

The type of disc used and the disc quality and specifications selected when recording it will determine the external DVD devices you can use to play back the disc.

Disc Type/Specification	Compatible DVD Players
Discs recorded in HD quality (any disc type)	DVD players compatible with AVCHD specifications
Discs recorded in SD quality, VIDEO mode (any disc type)	Most common DVD players
DVD-RW discs recorded in SD quality, VR mode	DVD players that can read DVD-RW discs and are compatible with VR mode
DVD-R DL discs	DVD players that can read dual-layered discs

Note that correct playback cannot be guaranteed for all DVD devices, even if they comply with the compatibility requirements listed above.



i NOTES

In order to play the disc on a computer you need to have DVD playback software installed and running. Also, in order to play back a DVD-R DL you must have a DVD drive capable of reading dual-layered DVD discs.

Unfinalizing the Disc - Additional Recordings on a Finalized Disc

Unfinalize a disc to allow recording additional movies on the disc even after it was finalized.

! IMPORTANT

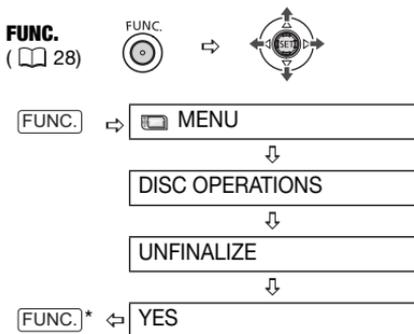
- **Be sure to unfinalize the disc in normal room temperatures. If the procedure was not completed correctly due to high temperature, let the camcorder cool off before resuming operation.**
- **Place the camcorder on a table or other stable surface before starting the procedure. Subjecting the camcorder even to slight impacts (for example to place it on a table or to disconnect a cable) after the unfinalization process started may result in permanent data loss.**
- Only discs that were finalized using this camcorder can be unfinalized with it.

Discs that Can be Unfinalized	
DVD-R/DVD-R DL	—
DVD-RW HD quality	●
DVD-RW SD quality (VIDEO mode)	●
DVD-RW SD quality (VR mode)	— You can record additional scenes even without unfinalizing the disc

✓ POINTS TO CHECK



Disc type: **(-RW)** DVD-RW, finalized
Disc quality: HD or SD (VIDEO mode only)



* During the disc unfinalization a progress bar is displayed. Close the menu only after the screen display returns to the [DISC OPERATIONS] menu.

i NOTES

We recommend powering the camcorder using the compact power adapter.



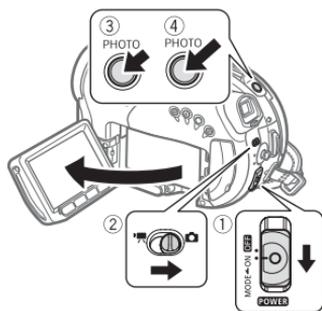
Photos

Refer to this chapter for details on shooting photos – from capturing and playing back images to printing them.

Basic Recording

Taking Photos

Before using a memory card for the first time, be sure to initialize it with this camcorder (☞ 84).



1 Move the **POWER** switch to **ON** to set the camcorder in **CAMERA** mode.

The red **CAMERA** indicator will turn on.

2 Move the **MODE/PHOTO** switch to **PHOTO** (Still images).

3 Press **PHOTO** halfway.

- Once the focus is automatically adjusted, **AF** will turn green and one or more AF frames will appear.
- When you press **PHOTO** on the wireless controller, the still image is recorded immediately.

4 Press **PHOTO** fully.

The **CARD** access indicator will flash as the still image is being recorded.

IMPORTANT

Avoid the following actions while the card access display (▶) appears on screen, and when the **CARD** access indicator is on or flashing. Failing to do so may result in permanent data loss.

- Do not subject the camcorder to vibrations or strong impacts.
- Do not open the memory card slot cover and do not remove the memory card.
- Do not disconnect the power source or turn off the camcorder.
- Do not change the position of the **MODE/PHOTO** switch or the operating mode.

NOTES

- If the subject is not suitable for autofocus, **AF** turns yellow. Adjust the focus manually (☞ 59).
- When the subject is too bright, “OVEREXP.” starts flashing. In such case, use the optional FS-H37U ND filter.



◆ Default value

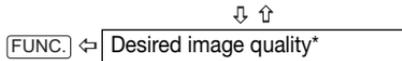
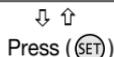
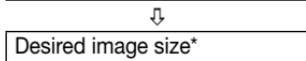
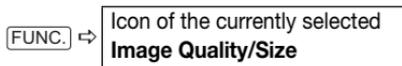
Selecting Photo Size and Quality

Still images are recorded on the memory card using JPEG compression. As a general rule select a larger image size for higher quality. Select the [LW 1920x1080] size for photos with an aspect ratio of 16:9.



Options

Image size options and the approximate number of still images that can be recorded on memory cards of various sizes are given in the table below.



* The number displayed on the right corner indicates the approximate number of images that can be recorded with the current quality/size setting.

Approximate number of still images on a memory card

Memory Card	32 MB			128 MB			512 MB		
Image Quality* →	[S]	[M]	[L]	[S]	[M]	[L]	[S]	[M]	[L]
Image Size ↓									
LW 1920x1080	20	30	60	90	135	265	350	525	1,040
L 2048x1536	10	20	40	60	85	180	235	350	700
M 1440x1080	25	40	80	120	180	350	470	700	1,370
SW 848x480**	105	150	305	450	635	1,275	1,775	2,515	5,030
S 640x480	140	205	375	600	865	1,560	2,320	3,355	6,040

* [S] : [SUPER FINE], [M] : [FINE], [L] : [NORMAL]

** This size is only available for recording simultaneously on the disc and memory card.

NOTES

- Depending on the number of images on the memory card (Windows: 1,800 images or more; Macintosh: 1,000 images or more), you may not be able to transfer images to a computer. Try using a card reader.
- Connection to a PictBridge-compatible printer will not work when the memory card contains 1,800 images or more. For best performance, we recommend keeping the number of images on the memory card under 100.
- When printing still images, use the following guidelines as a reference for selecting the print size.

Image Size	Recommended Use
L 2048x1536	To print photos up to A4 size.
M 1440x1080	To print photos up to L size (9 x 13 cm, 3.5 x 5 in.) or postcard size (10 x 14.8 cm, 4 x 6 in.).
S 640x480	To send images as e-mail attachments or to post on the Web.

Erasing the Last Photo Just Recorded

You can erase the still image recorded last while reviewing it within the time set for the [REVIEW] option (or immediately after recording it, if [REVIEW] is set to [OFF OFF]).

POINTS TO CHECK



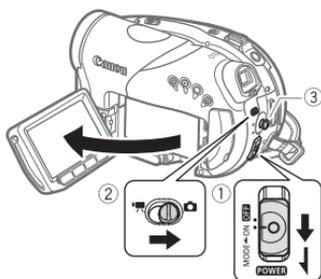
While reviewing the image immediately after recording:

- 1 Push the joystick (▼) toward .**
- 2 Select (◀▶) [ERASE] and press (SET).**



Basic Playback

Viewing Photos



- 1 Move the **POWER** switch to **ON**, then slide it down toward **MODE** and release it to set the camcorder in **PLAY** mode.

The green **PLAY** indicator will turn on.

- 2 Move the **VIDEO/PHOTO** switch to **PHOTO** (Still images).
- 3 Use the joystick (**◀▶**) to move between images.

Image Jump Function

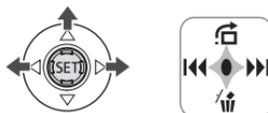
You can locate a specific image without having to browse all of them one by one.

TO RUN THROUGH THE STILL IMAGES

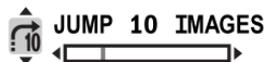


Push the joystick (**◀▶**) and hold it pressed down to run quickly through the still images.

TO SKIP 10 OR 100 STILL IMAGES



- 1 If the joystick guide does not appear on screen, press (**SET**) to display it.
- 2 Push the joystick (**▲**) toward **◻**.



- 3 Select (**▲▼**) [**↔**₁₀ **JUMP 10 IMAGES**] or [**↔**₁₀₀ **JUMP 100 IMAGES**].
- 4 Jump (**◀▶**) the number of images selected and press (**SET**). You can press (**SET**) again to hide the joystick guide.

! IMPORTANT

- Avoid the following actions while the card access display (▶ ) appears on screen, and when the CARD access indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not subject the camcorder to vibrations or strong impacts.
 - Do not open the memory card slot cover and do not remove the memory card.
 - Do not disconnect the power source or turn off the camcorder.
 - Do not change the position of the /▶ switch or the operating mode.
- The following may not be displayed correctly.
 - Images not recorded with this camcorder.
 - Images edited on or uploaded from a computer.
 - Images whose file names have been changed.

Slideshow



FUNC.
( 27)



1 Press **FUNC.**

2 Select (▲▼) [ SLIDESHOW] and press (SET).

3 Select (◀▶) [START] and press (SET).

- Images are played back one after another.
- Press **FUNC.** to stop the slideshow.

Index Screen

1 Move the zoom lever toward **W**.

The still images index screen appears.

2 Select (▲▼, ◀▶) an image.

- Move the green selection frame to the image you want to view.
- If you have a lot of still images, you may find it easier to browse entire index pages instead. Move the zoom lever toward **W** to extend the green selection frame to the whole page, and move (◀▶) between index pages. Move the zoom lever toward **T** to return to moving between single images.

3 Press (SET).

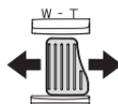
The index screen closes and the selected image is displayed.

Magnifying Photos during Playback

During playback, still images can be magnified up to 5 times.



( 26)



1 Move the zoom lever toward **T**.

- The image is magnified by 2 times and a frame appears indicating the position of the magnified area.



- To further enlarge the image, move the zoom lever toward **T**. To reduce the magnification to less than 2 times, move the zoom lever toward **W**.
- will appear for images that cannot be enlarged.

2 Move (, , ,) the frame to the part of the image you want to see enlarged.

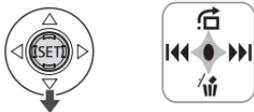
To cancel the magnification, move the zoom lever toward **W** until the frame disappears.

Erasing Photos

You can erase still images recorded on the memory card.

Erasing a Single Image

POINTS TO CHECK



- 1 If the joystick guide does not appear on screen, press () to display it.
- 2 Push the joystick () toward .
- 3 Select () [ERASE] and press ()

Erasing All Images

The following procedure will erase all the non-protected still images from the memory card (all images except those with the mark).

POINTS TO CHECK



FUNC.

(28)

FUNC.



FUNC. MENU



STILL IMG OPER.



ERASE ALL IMAGES



FUNC. YES

IMPORTANT

Be careful when erasing images. Erased images cannot be recovered.

NOTES

Protected images on the memory card cannot be erased.

Additional Functions

Flash

You can use the built-in flash to record still images in dark places. The flash features the red-eye reduction function.

POINTS TO CHECK

  |   (26)

Options

◆ Default value

 (auto) ◆
The flash fires automatically according to the brightness of the subject.
 (red-eye reduction, auto)
The flash fires automatically according to the brightness of the subject. The assist lamp lights up to reduce the red-eye effect.
 (flash on)
The flash always fires.
 (flash off)
The flash does not fire.



1 If the joystick guide does not appear on screen, press () to display it.

2 Push the joystick () toward  .

- If  does not appear on the joystick guide, repeatedly push the joystick () toward [NEXT] to display it.
- Repeatedly push the joystick () toward  to cycle between the flash modes.
- The display  disappears after 4 seconds.

3 Press (), first halfway to activate the autofocus and then fully to record the still image.

NOTES

- The practical range of the flash is approx. 1 to 2 m (3.3 to 6.6 ft.). The range depends on the recording conditions.
- The range of the flash decreases in continuous shooting mode.
- For red-eye reduction to be effective, the subject needs to look at the assist lamp. The degree of reduction depends on the distance and on each individual.
- The flash will not fire in the following cases:
 - When you manually adjust the exposure in  (auto) or  (red-eye reduction) mode.
 - During auto exposure bracketing.
 - In the ( FIREWORKS] recording program.
- The flash mode cannot be selected when the exposure is locked.
- We recommend not using the flash while the optional Wide-converter is attached; its shadow can appear on the screen.
- **About the AF-Assist Lamp:** While you press () halfway, if the subject is too



dark the assist lamp may light up briefly in order to enable the camcorder to focus more accurately (AF-assist lamp). You can also set [AF AST LAMP] to [OFF OFF] so the assist lamp does not light up (□ 49).

- The camcorder may not be able to focus even if the AF-assist lamp is on.
- The brightness of the AF-assist lamp could be an inconvenience. Consider turning it off in public places such as restaurants.

Continuous Shooting and Exposure Bracketing (Drive Mode)

Take a series of pictures of a moving subject or record the same picture in 3 levels of exposure in order to choose later the picture you like the best.

POINTS TO CHECK



Mode switch: **P** (except for the [FIREWORKS] recording program).

Options

◆ Default value

[<input type="checkbox"/> SINGLE]◆
Records a single still image.
[CONT.SHOOT.] (Continuous Shooting), [HISPEED CONT.SHOOT.] (High-Speed Continuous Shooting)
Captures a series of still images as long as you hold [PHOTO] pressed down. For the number of frames per second, refer to the sidebar on page 79.
[AEB] (Auto Exposure Bracketing)
The camcorder records a still image in three different exposures (dark, normal, light in 1/2 EV steps), allowing you to choose the shot you like the best.

FUNC.
(□ 27)

FUNC.



FUNC. →

Icon of the currently selected
Drive Mode



FUNC. ←

Desired option

Maximum number of continuous shots

Number of frames (shots) per second	
Normal speed	3 frames
High speed	5 frames
Using the flash	2.1 frames

Maximum number of continuous shots

60 images

These figures are approximate and vary with the recording conditions and subjects. The actual number of frames per second will be lower when (camcorder shake warning) is displayed on the screen.

CONTINUOUS SHOOTING/ HIGH-SPEED CONTINUOUS SHOOTING

1 Press **[PHOTO]** halfway to activate the autofocus.

2 Press **[PHOTO]** fully and hold it pressed down.

A series of still images will be recorded as long as you hold the button pressed.

AUTO EXPOSURE BRACKETING

Press **[PHOTO]**, first halfway to activate the autofocus and then fully to record the still images.

Three still images in different exposures will be recorded on the memory card.

Automatic Focus Priority

When the focus priority is activated, the camcorder records a still image only after the focus has been adjusted automatically.

POINTS TO CHECK

CAMERA **CAMERA** | **PLAY** **PLAY** (26)

Mode switch at **AUTO**: The focus priority cannot be turned off.

Mode switch at **P**: You can turn off the focus priority and you can also select the AF (autofocus) frame to be used.

Options

◆ Default value

[AF AF ON:AIAF] ◆
(Mode switch: **P***, **AUTO**)

Depending on the shooting conditions, one or more AF frames out of the nine frames available are automatically selected and the focus is fixed on them.

[[] ON:CENTER]
(Mode switch: **P***)

In this mode, a single focusing frame appears in the center of the screen and the focus is automatically fixed on it. This is convenient for making sure the focus is exactly where you want it.

[OFF OFF]

Select this option if you wish to record a still image as soon as you press **[PHOTO]**.

* Except for the **[FIREWORKS]** recording program.

FUNC.
(28)

FUNC.



FUNC. → MENU



CAMERA SETUP



FOCUS PRI.



FUNC. ← Desired option

NOTES

In the **[FIREWORKS]** recording program the focus priority is automatically set to **[OFF OFF]**.



Light Metering Mode

The camcorder measures the light reflected from the subject in order to calculate the optimal exposure settings. Depending on the subject, you may want to change the way the light is measured and evaluated.

POINTS TO CHECK



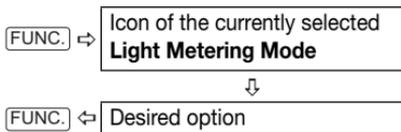
Mode switch: **P**

Options

Default value

<input checked="" type="checkbox"/> EVALUATIVE [♦]
Appropriate for standard shooting conditions, including backlit scenes. The camcorder divides the picture into several areas and the light is measured in all of them to achieve the optimal exposure for the subject.
<input type="checkbox"/> CENT.WEIGHT.AVERAGE
Averages the light metered from the entire screen, giving more weight to the subject in the center.
<input type="checkbox"/> SPOT
Meters only the area within the spot AE point frame. Use this setting to adjust the exposure to match the subject in the center of the screen.

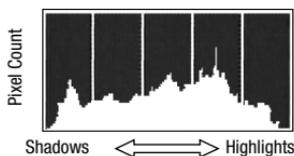
FUNC.
(27)



Histogram and Other Screen Displays

When viewing still images you can display the histogram and the icons of all the functions used at the time of recording. Use the histogram as a reference to verify the correct exposure of the still image.

The area to the right of the histogram represents highlights and the left side represents shadows. A still image whose histogram skews to the right is relatively bright; while one whose histogram peaks to the left, is relatively dark.



NOTES

The histogram will appear also after recording a still image, while reviewing it within the time set for the [REVIEW] option (or immediately after recording it, if [REVIEW] is set to [OFF OFF]). You can choose to turn off the histogram by pressing [DISP].

TO SELECT THE ON-SCREEN DISPLAYS

Repeatedly press **[DISP.]** to turn the on-screen displays on and off in the following sequence.

CAMERA 

- All displays on
- All displays off¹

PLAY 

- All displays on
- Regular displays only (removes the histogram and information icons)
- All displays off

¹ However, the markers and the  icon and AF frames when the autofocus is locked will still appear on the screen.

Capturing a Still Image while Recording Movies

You can record still images on the memory card even while the camcorder is set to **CAMERA**  mode. You can also capture simultaneously, as a still image on the memory card, the same picture you are recording as a scene on the disc.

POINTS TO CHECK

CAMERA  | **PLAY**  ( 26)

Select the size and quality of the still image in record pause mode.

◆ Default value

OFF  **STILL I.REC OFF**◆

FUNC.
( 27)



FUNC. ⇨

Icon of the currently selected
**Still Image Simultaneous
Recording** option



Desired image size*



Press (**SET**)



FUNC. ⇐

Desired image quality*

* The number displayed on the right corner indicates the approximate number of images that can be recorded with the current quality/size setting.

Press **[PHOTO]** to capture the still image on the memory card.

The still image is recorded on the memory card while the screen continues to show the video recording.

NOTES

- The still image cannot be recorded simultaneously on the memory card while the digital zoom or a digital effect is activated.
- To record still images we recommend using the **CAMERA**  mode, which offers the best quality for still images.



Capturing a Still Image from the Playback Scene

You can capture frames from a scene recorded in HD quality as still images on the memory card. The size of the captured still image will be [LW 1920x1080] and it cannot be changed, but you can select the image quality.



* The number displayed at the bottom indicates the approximate number of images that can be recorded with the current quality setting.

TO CAPTURE THE STILL IMAGE

- 1 Start playback of the desired scene.
- 2 Pause the playback at the point you want to capture.
- 3 Press **PHOTO** fully.

NOTES

- The data code of the still image will reflect the date and time of recording of the original scene.
- The still image cannot be captured on the memory card if [TV TYPE] is set to [4:3 NORMAL TV]. Set it to [16:9 WIDE TV] instead (25).
- A still image captured from a scene with lots of fast movement may be blurred.

Protecting Photos

You can protect still images recorded on the memory card from accidental erasure.



Press (SET)

[PROTECT]: The image selection screen appears.

FROM THE IMAGE SELECTION SCREEN

- 1 Select (◀▶) the still image you want to protect.
- 2 Press (SET) to protect the still image.
 appears on the bottom bar and the image cannot be erased. Press (SET) again to cancel the image protection.
- 3 Repeat steps 1-2 to protect additional images or press **FUNC.** twice to close the menu.

! IMPORTANT

Initializing the memory card (📖 84) will permanently erase all recorded still images, even the protected ones.

Initializing the Memory Card

Initialize memory cards when you use them with this camcorder for the first time, or to erase all the still images on them.

Options

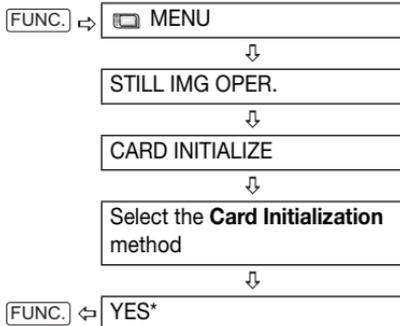
[INITIALIZE]
Clears the file allocation table but does not physically erase the stored data.
[COMPL.INIT.]
Erases all data completely.



FUNC.

(📖 28)

FUNC.



* Press (SET) to cancel the complete initialization while it is in progress. All the image files will be erased and the memory card can be used without any problem.



! IMPORTANT

Initializing the memory card will erase all still images, even the protected ones. The original still images cannot be recovered.

You can also use the following functions...

The following functions and features of the camcorder can be used either for shooting video or for taking photos. The way to set and use them was already explained in detail, so we refer you to the relevant page in the “Video” section.

- Quick Start (□ 39)
- Zoom (□ 38)
- Special Scene recording programs (□ 55)
- Flexible recording programs (□ 57)
- Mini video light (□ 58)
- Self timer (□ 59)
- Manual focus (□ 59)
- Manual exposure adjustment (□ 60)
- White balance (□ 61)
- Image effects (□ 62)
- Digital effects (□ 63)

Printing Photos

Printing Photos - Direct Print

The camcorder can be connected to any PictBridge-compatible printer. You can mark in advance the still images you want to print and set the desired number of copies as a print order (□ 90).

PictBridge

Canon printers: SELPHY printers of the CP, DS and ES series and PIXMA printers marked with the PictBridge logo.

Connecting the Camcorder to the Printer



- 1 Insert the memory card containing the still images you want to print.**
- 2 Turn on the printer.**
- 3 Connect the camcorder to the printer using the supplied USB cable.**
 - Refer to *PC Connection Diagrams* (□ 97).
 -  appears and changes to .
 - The  (print/share) button lights up and the current print settings will be displayed for approx. 6 seconds.

! IMPORTANT

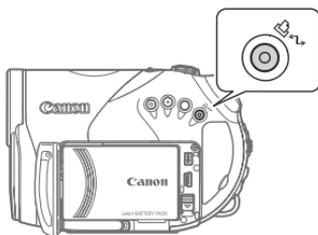
- If  continues to flash (for more than 1 minute) or if  does not appear, the camcorder is not correctly connected to the printer. In such case, disconnect the USB cable and turn off the camcorder and the printer. After a short while, turn them on again, set the camcorder to  mode and restore the connection.
- During the following operations, even if you connect a printer to the camcorder it will not be recognized.
 - Erasing all still images
 - Erasing all transfer orders
 - Erasing all print orders

i NOTES

-  will appear for images that cannot be printed.
- We recommend powering the camcorder using the compact power adapter.
- Refer also to the printer's instruction manual.

Printing with the (Print/Share) Button

You can print a still image without changing the settings simply by pressing .



1 Select () the still image you wish to print.

2 Press .

- Printing starts. The  button flashes and stays on when the printing is completed.
- To continue printing, select () another still image.

Selecting the Print Settings

You can select the number of copies and other settings for printing. The setting options vary depending on your printer model.



Options

[PAPER]
<p>[PAPER SIZE] Available paper sizes vary depending on the printer model.</p> <p>[PAPER TYPE] Select [PHOTO], [FAST PHOTO], [PLAIN] or [DEFAULT].</p> <p>[PAGE LAYOUT] Select [DEFAULT] or one of the following available page layouts. [BORDERED]: Prints the whole image area almost exactly as the recorded still image. [BORDERLESS]: Enlarges the center portion of the still image to fit the width/height ratio of the selected paper size. The top, bottom and sides of the still image may be slightly trimmed out. [2-UP], [4-UP], [8-UP], [9-UP], [16-UP]: Refer to the sidebar on page 87.</p>

[☺] (Date print)
Select [ON], [OFF] or [DEFAULT].
[✉] (Print Effect)
The print effect can be used with printers compatible with the Image Optimize function to achieve higher quality prints. Select [ON], [OFF] or [DEFAULT]. Canon PIXMA/SELPHY DS printers: You can also select [VIVID], [NR] and [VIVID+NR].
[] (Number of Copies)
Select 1-99 copies.

NOTES

Print setting options and [DEFAULT] settings vary depending on the printer model. For details, refer to the printer's instruction manual.

Printing Multiple Images on the Same Sheet [2-UP], [4-UP], etc.

When using Canon printers you can print the same still image multiple times on the same sheet of paper. Use the following table as a guideline for the recommended number of copies depending on the [PAPER SIZE] setting.

[PAPER SIZE]→	[CREDITCARD]	[9 x 13 cm]	[10 x 14.8 cm]	[A4]
Canon Printer ↓				
PIXMA SELPHY DS	-	-	2, 4, 9 or 16 ¹	4
SELPHY CP	2, 4 or 8 ²	2 or 4	2 or 4	-
SELPHY ES	2, 4 or 8 ³	2 or 4	2 or 4	-

¹ You can also use the special sticker sheets.

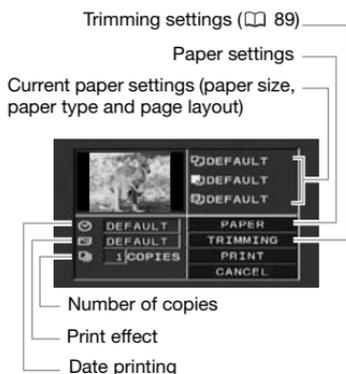
² When you use the wide-sized photo paper with the [DEFAULT] setting, you can also use [2-UP] or [4-UP].

³ With the [8-UP] setting, you can also use the special sticker sheets.

Printing after Changing the Print Settings



- 1 If the joystick guide does not appear on screen, press (SET) to display it.
- 2 Push the joystick (▼) toward . The print settings menu appears.



- 3 In the print settings menu, select (▲▼, ◀▶) the setting you want to change and press (SET).
- 4 Select (▲▼) the desired setting option and press (SET).
- 5 Select (▲▼, ◀▶) [PRINT] and press (SET).
 - Printing starts. The print settings menu disappears when the printing is completed.
 - To continue printing, select (◀▶) another still image.

TO CANCEL THE PRINTING

- 1 Press (SET) while printing.
- 2 Select [OK] and press (SET).

PRINTING ERRORS

If an error occurs while printing, an error message appears (108).

- Canon's PictBridge-compatible printers: Resolve the error. When printing does not resume automatically, select [CONTINUE] and press (SET). If [CONTINUE] cannot be selected, select [STOP], press (SET) and retry printing. Refer also to the printer's instruction manual for details.
- If the error still persists and printing does not restart, disconnect the USB cable and turn off the camcorder and the printer. After a short while, turn them on again, set the camcorder to mode and restore the connection.

WHEN YOU HAVE FINISHED PRINTING

Disconnect the cable from the camcorder and printer and turn off the camcorder.

! IMPORTANT

- The following still images may not be printed correctly with a PictBridge-compatible printer.
 - Images created or changed on a computer and transferred to the memory card.
 - Images recorded with the camcorder but edited on a computer.
 - Images whose file names were changed.
 - Images not recorded with this camcorder.



- Observe the following precautions during printing:
 - Do not turn off the camcorder or the printer.
 - Do not change the position of the **⏻** / **📷** switch.
 - Do not disconnect the USB cable.
 - Do not open the memory card slot cover and do not remove the memory card.
- If the message "BUSY" does not disappear, disconnect the USB cable and restore the connection after a short while.

Trimming Settings

Set the paper size and page layout before changing the trimming settings.

- 1 In the print settings menu (📖 86), select (▲▼, ◀▶) [TRIMMING] and press (SET).**

The trimming frame appears.



- 2 Change the size of the trimming frame.**

- Move the zoom lever toward **T** to shrink the frame, and toward **W** to enlarge it. Press (SET) to change the orientation of the frame (portrait/landscape).
- To cancel the trimming settings, move the zoom lever toward **W**

until the trimming frame disappears.



- 3 Move (▲▼, ◀▶) the trimming frame.**

- 4 Press (FUNC.) to return to the print menu.**

From the print settings menu, select [PRINT] and press (SET) to print the area selected with the trimming frame.

i NOTES

- The trimming frame will initially appear in white. After applying the trimming settings, it will change to green.
- The trimming settings apply only to one image.
- The trimming settings are canceled in the following cases:
 - When you turn off the camcorder.
 - When you disconnect the USB cable.
 - When you expand the trimming frame beyond its maximum size.
 - When you change the [PAPER SIZE] setting.
- You may not be able to set the trimming settings for a still image not recorded with this camcorder.

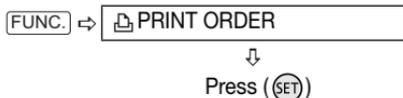
Print Orders

You can mark in advance the still images you want to print and set the desired number of copies as a print order. Later, you can easily print out the print orders by connecting the camcorder to a PictBridge-compatible printer (□ 85). You can set print orders for up to 998 still images.

Selecting Still Images for Printing (Print Order)

POINTS TO CHECK

Set the print orders before connecting the USB cable to the camcorder.



 **0**: The image selection screen appears.

FROM THE IMAGE SELECTION SCREEN

- 1 Select () the still image you want to mark with a print order.
- 2 Press () to set the print order. The number of copies appears in orange in the box next to the print order symbol .

- 3 Set () the number of copies desired and press (). To cancel the print order, set () the number of copies to 0.
- 4 Repeat steps 1-3 to mark additional images with print orders or press **[FUNC.]** twice to close the menu.

Printing the Still Images Marked with Print Orders



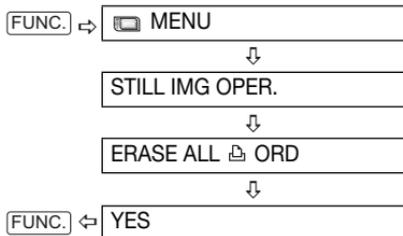
- 1 Connect the camcorder to the printer using the supplied USB cable. Refer to *PC Connection Diagrams* (□ 97).
- 2 Press **[FUNC.]**, select () the  icon and press () to open the setup menus.
- 3 Select () [  **PRINT**] and press ().
 - The print settings menu appears.
 - The error message “SET  **PRINT ORDER**” appears if you connect a printer with direct print function and select [  **PRINT**] without having set any print orders beforehand.
- 4 Select (, ) [**PRINT**] and press (). Printing starts. The print settings menu disappears when the printing is completed.



i NOTES

- Depending on the connected printer, you can change some print settings before step 4 (📖 86).
 - **Cancel Printing/Printing Errors** (📖 88).
 - **Restarting Printing:** Open the print settings menu as explained in steps 2-3 above. In the print settings menu, select [RESUME]* and press (SET). The remaining images will be printed. Printing cannot be restarted when the print order settings have been changed or if you deleted a still image with print order settings.
- * In case the print order was interrupted after the first still image, this menu option will appear as [PRINT] instead.

Erasing All Print Orders





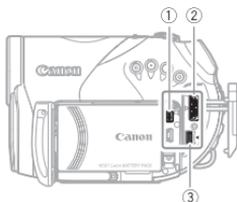
4



External Connections

This chapter explains step-by-step how to connect your camcorder to an external device such as a TV, VCR, or computer.

Connecting to a TV or VCR



Open the terminal cover to access the HDMI OUT and AV OUT terminals and/or the LCD panel to access the COMPONENT OUT terminal.

COMPONENT OUT



① COMPONENT OUT Terminal

The component video terminal is for video only. When you use connection type **1** do not forget the audio connections using the AV OUT terminal.

HDMI OUT



② HDMI OUT Terminal

The HDMI OUT terminal offers a high-quality digital connection that combines audio and video in a single convenient cable.

Use only HDMI cables marked with the **HDMI** logo.

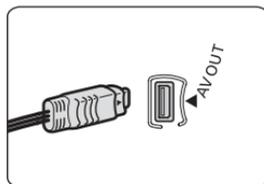
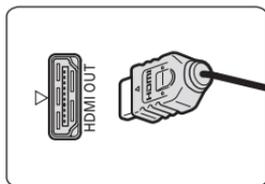
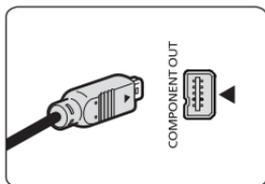
AV OUT



③ AV OUT Terminal

Sound from the built-in speaker will be muted while the STV-100 Stereo Video Cable is connected to the camcorder.

When connecting a cable to the camcorder, make sure to align the triangle marks on the cable's connector and on the camcorder's terminal (▶◀ or ▷◀).

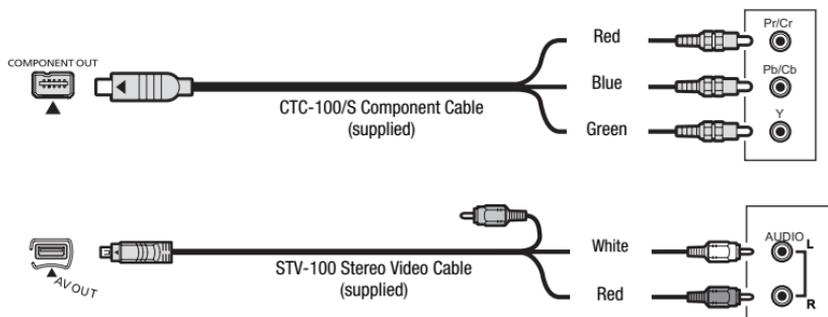


Connection Diagrams

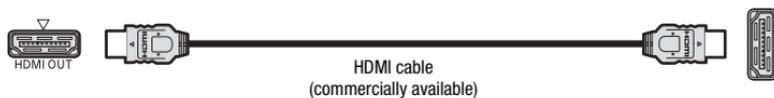
High Definition TV Sets (HDTV)

Terminal on the Camcorder	Connecting Cable	Terminal on the Connected Device
---------------------------	------------------	----------------------------------

1 Output connection (signal flow →) to an HDTV with component video input terminals.



2 Output connection (signal flow →) to an HDTV with an HDMI terminal.



Standard Definition TV Sets

Terminal on the Camcorder	Connecting Cable	Terminal on the Connected Device
3 Output connection (signal flow →) to a TV or VCR with AV terminals.		



Playback on a TV Screen

This section explains how to play back the disc with this camcorder by connecting it to a TV. To play back the disc with another DVD device refer to *Disc Playback on an External Device* (□ 68).

The quality of the playback picture will vary depending on the connected TV and the type of connection used.

POINTS TO CHECK



Change the following settings as necessary before making the connections.

- [TV TYPE] to match the output video to the aspect ratio of the connected TV (□ 53).
- [COMP.OUT] to select the output video specifications when using connection type **1** (□ 54).

Connecting

Connect the camcorder to the TV following one of the connection diagrams shown in the previous section *Connection Diagrams* (□ 93).

Playback

1 Turn on the camcorder and the connected TV or VCR.

On a TV: Select as the video input the same terminal to which you connected the camcorder.

On a VCR: Set the input selector to the external video input (usually labeled LINE IN).

2 Start the playback of the movies (□ 41) or still images (□ 75).

NOTES

- Sound from the built-in speaker will be muted while the STV-100 Stereo Video Cable is connected to the camcorder.
- We recommend powering the camcorder using the compact power adapter.



- Refer also to the instruction manual of the connected TV.
- You can play back discs recorded in HD quality not only on HDTVs but also on standard TVs. When you connect the camcorder to a TV using the STV-100 Stereo Video Cable, the video output will be converted to standard definition automatically, without having to change the [COMP.OUT] setting.
- If you connect to a TV using the HDMI connection –connection type **2**– or the component video connection –connection type **1**– you can enjoy the full resolution of high-definition TV.

Copying your Recordings to an External Video Recorder

You can copy your recordings by connecting the camcorder to a VCR or a digital video device. Video output will be in standard definition, regardless of the quality of the original scenes.



Connecting

Connect the camcorder to the VCR using connection type **3**, as shown in the previous section *Connection Diagrams* (□ 93).

About the HDMI terminal

The HDMI (High-Definition Multimedia Interface) connection –connection type **2**– is a convenient all-digital connection using a single cable for both video and audio. When you connect the camcorder to an HDTV equipped with an HDMI terminal, you can enjoy video and audio playback at the highest quality.

- The HDMI OUT terminal on the camcorder is for output only. Do not connect it to an HDMI output terminal on an external device, as this may damage the camcorder.
- The HDMI connection will recognize automatically the highest resolution supported by the connected HDTV, and output the optimal video signal to ensure the best viewing experience. You can confirm the current specification of the video output by checking the [HDMI STATUS] menu option (□ 54).
- Correct operation cannot be guaranteed when connecting the camcorder to DVI monitors.
- Some HDTVs have their HDCP digital content protection configured so as not to allow the playback of personal content (video recorded for personal uses). If you cannot play back the video recorded with this camcorder on your HDTV using the HDMI connection, try connecting the camcorder using the component video connection –connection type **1**– instead.
- There will be no video output from the AV OUT terminal or the COMPONENT OUT terminal while the camcorder is connected to an external device using an HDMI cable. In such case, only audio will be output from the AV OUT terminal.

Recording

- 1 Connected device: Load a blank cassette or disc and set the device to record pause mode.**
- 2 This camcorder: Locate the scene you wish to copy and pause playback shortly before the scene.**
- 3 This camcorder: Resume the movie playback.**
- 4 Connected device: Begin recording when the scene you wish to copy appears. Stop recording when copying is complete.**
- 5 This camcorder: Stop playback.**

NOTES

- We recommend powering the camcorder using the compact power adapter.
- By default, the on-screen displays will be embedded in the output video signal, but you can change the displays by repeatedly pressing **DISP.** ( 44).

Connecting to a Computer

PC Connection Diagrams



USB Terminal

Open the LCD panel to access.

Terminal on the
Camcorder

Connecting Cable

Terminal on the
Connected Device

1 Output connection (signal flow →) to a computer or PictBridge-compatible printer with a USB port.



Corel Application Disc - Movie Playback/Editing and Various Disc Operations

The supplied CD-ROM **Corel Application Disc** includes software that will allow you to play back movies (SD or HD quality), transfer movies to a computer and easily edit them, make copies of your disc or create (author) new personalized discs, and more. For further details, refer to the **Corel**

Application Disc Installation Guide and User Manual.

Transferring Photos - Direct Transfer

With the supplied USB cable and software (on the **DIGITAL VIDEO Solution Disc** CD-ROM) you can transfer still images to a computer simply by pressing .

Preparations

The first time you connect the camcorder to the computer, you need to install the software and set the auto-launch setting. From the second time on, just connect the camcorder to the computer using the USB cable to transfer images.

1 Install the supplied Digital Video Software.

Refer to the installation guide (separate leaflet included with the CD-ROM).

2 Set the camcorder to mode.

3 Connect the camcorder to the computer using the USB cable.

Refer to *PC Connection Diagrams* (□ 97).

4 Set the auto-launch setting.

- See *Starting CameraWindow* (Windows) or *Auto-downloading* (Macintosh) in the *Digital Video Software* instruction manual (electronic version on PDF file).
- The direct transfer menu appears on the camcorder screen and the  button lights up.

IMPORTANT

- When the CARD access indicator is on or flashing do not perform the following actions. Doing so may result in permanent data loss.
 - Do not subject the camcorder to vibrations or strong impacts.
 - Do not open the memory card slot cover and do not remove the memory card.
 - Do not disconnect the USB cable.

- Do not turn off the camcorder or the computer.
- Do not change the position of the  switch or the operating mode.
- Operation may not work correctly depending on the software and the specifications/settings of your computer.
- If you wish to use the image files on your computer, make copies of them first. Use the copied files, retaining the originals.
- During the following operations, even if you connect the camcorder to the computer it will not be recognized.
 - Erasing all still images from the card
 - Erasing all transfer orders
 - Erasing all print orders

NOTES

- We recommend powering the camcorder using the compact power adapter.
- Refer also to the computer's instruction manual.
- Users of Windows Vista, Windows XP and Mac OS X:
Your camcorder is equipped with the standard Picture Transfer Protocol (PTP) allowing you to transfer still images (JPEG only) simply by connecting the camcorder to a computer using the USB cable without having to install the supplied software.



Transferring Images

[ ALL IMAGES]
Transfers all still images.
[ NEW IMAGES]
Transfers only those images that have not yet been transferred to the computer.
[ TRANSFER ORDERS]
Transfers still images marked with transfer orders ( 100).
[ SELECT & TRANSFER]
Allows you to select the still image.
[ WALLPAPER]
Allows you to select the still image and set it as your computer's desktop background.

 (print/share) button



AUTOMATIC TRANSFER OPTIONS

When you select [ ALL IMAGES], [ NEW IMAGES] or [ TRANSFER ORDERS], all the relevant still images will be transferred to the computer in one batch and their thumbnails will be displayed on the computer.

Select () a transfer option and press .

- The  button will flash while the images are being transferred.
- The camcorder returns to the transfer menu once the transfer is complete.
- To cancel the transfer, select () [CANCEL] and press () or press [FUNC].

MANUAL TRANSFER OPTIONS

When you select [ SELECT & TRANSFER] or [ WALLPAPER]:

1 Select () a transfer option and press .

2 Select () the image you want to transfer and press .

- [ SELECT & TRANSFER]: The selected image is transferred and displayed on the computer. To continue transferring, select () another image.
- [ WALLPAPER]: The selected image is transferred to the computer and displayed as the desktop's background.
- The  button will flash while the images are being transferred.
- Press [FUNC.] to return to the transfer menu.



i NOTES

- You can press (**SET**) to transfer the images, instead of (**TRANSFER**). With the automatic transfer options a confirmation message appears. Select [OK] and press (**SET**).
- When the camcorder is connected to the computer and the image selection screen is displayed, press (**FUNC.**) to return to the transfer menu.

Transfer Orders

You can mark in advance the still images you want to transfer to the computer as transfer orders. You can set transfer orders for up to 998 still images.

Selecting Still Images to Transfer (Transfer Order)

Do not connect the USB cable to the camcorder while setting the transfer orders.



(**FUNC.**) ⇒ (**TRANSFER**) TRANSFER ORDER

↓
Press (**SET**)

(**TRANSFER**) [] : The image selection screen appears.

FROM THE IMAGE SELECTION SCREEN

- Select (**LEFT**) the still image you want to mark with a transfer order.
- Press (**SET**) to set the transfer order.
A checkmark ✓ appears in the box next to the transfer order symbol (**TRANSFER**). Press (**SET**) again to cancel the transfer order.
- Repeat steps 1-2 to mark additional images with transfer orders or press (**FUNC.**) twice to close the menu.

Erasing All Transfer Orders



(**FUNC.**) ⇒ (**MENU**) MENU



STILL IMG OPER.



ERASE ALL (**TRANSFER**) ORD



(**FUNC.**) ⇐ YES



Additional Information

This chapter contains troubleshooting advice, screen messages, handling and maintenance tips, and other information.

Troubleshooting

If you have a problem with your camcorder, refer to this checklist. Consult your dealer or a Canon Service Center if the problem persists.

Power Source

Problem	Solution	
<ul style="list-style-type: none"> • Camcorder will not turn on. • The camcorder switches off by itself. • The disc compartment cover will not open. • LCD/viewfinder switches on and off. 	Battery pack is exhausted. Replace or charge the battery pack.	23
	Attach the battery pack correctly.	
The charge indicator flashes rapidly (approx. twice per second)	Charging has stopped because the compact power adapter or the battery pack is faulty. Consult a Canon Service Center.	–
<ul style="list-style-type: none"> • Battery pack will not charge. • The charge indicator flashes very slowly (about once every 2 seconds). 	Charge the battery pack in temperatures between 0 °C and 40 °C (32 °F and 104 °F).	–
	Battery packs become hot with use and may not charge. When the battery pack is outside the charging temperature range, the CHG (charge) indicator will flash irregularly. The charging will start once the battery pack temperature is below 40 °C (104 °F).	–
	The battery pack is damaged. Use a different battery pack.	–

Recording/Playback

Problem	Solution	
Buttons will not work.	Turn on the camcorder.	–
	Load a disc.	32
Abnormal characters appear on the screen. The camcorder does not operate properly.	Disconnect the power source and reconnect it after a short time. If the problem still persists, disconnect the power source and press the RESET button with a pointed item. Pressing the RESET button resets all settings.	–
⊘ appears on the screen.	Load a disc and close the disc compartment cover.	32
⊘ lights up in red.	Battery pack is exhausted. Replace or charge the battery pack.	23
The wireless controller will not work.	Set [WL.REMOTE] to [ON].	52
	Replace the battery of the wireless controller.	25

Problem	Solution	
Video noise appears on screen.	When using the camcorder close to devices that emit strong electromagnetic fields (plasma TVs, cellular phones, etc.), keep a distance between the camcorder and these devices.	–
Video noise appears on the TV screen.	When using the camcorder in a room where a TV is located, keep a distance between the compact power adapter and the power or antenna cables of the TV.	–
Even without a disc loaded, when closing the disc compartment cover a motor sound can be heard.	The camcorder is checking if a disc is loaded or not. This is not a malfunction.	–
Cannot open the disc cover to remove the disc.	Turn off the camcorder, disconnect the compact power adapter and remove the battery pack. Restore the power supply and try again.	–
	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	
The disc cannot be recognized.	The disc is dirty. Clean the disc with a soft lens-cleaning cloth. If the problem persists replace the disc.	111
	The disc is not correctly loaded. Check the disc.	32
	Verify that the camcorder supports the type of DVD disc you inserted.	5
The camcorder vibrates.	Depending on the condition of the disc, the camcorder might vibrate occasionally. This is not a malfunction.	–
<ul style="list-style-type: none"> The disc's rotation can be faintly heard. Occasionally the operation sound can be heard. 	The disc is activated from time to time. This is not a malfunction.	–
<ul style="list-style-type: none"> After using the camcorder for a long time, it becomes hot.  lights up in red. 	This is not a malfunction. Turn the camcorder off and let it cool for a while before resuming operation.	–

Recording

Problem	Solution	
 flashes red on the screen.	The camcorder has malfunctioned. Consult a Canon Service Center.	–
Horizontal bands appear on the screen.	This is a phenomenon typical of CMOS image sensors when recording under some types of fluorescent, mercury or sodium lamps. To reduce the symptoms set the mode switch to AUTO . This is not a malfunction.	–
When a subject flits across in front of the lens, the image appears slightly bent.	This is a phenomenon typical of CMOS image sensors. When a subject crosses very quickly in front of the camcorder, the image may seem slightly warped. This is not a malfunction.	–
Image will not appear on the screen.	Set the camcorder to  mode.	35



Problem	Solution	
Pressing START/STOP will not start recording.	Set the camcorder to CAMERA mode.	35
	Load a recommended disc.	7
	The disc is full ("END" appears on the screen). Delete some recordings (DVD-RW in HD quality, or SD quality (VR mode)) to free some space or replace the disc.	43
	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	–
	Remove the disc protection.	66
	Unfinalize the disc (DVD-RW in HD quality, or SD quality (VIDEO mode)).	71
Even after stopping recording, the DISC access indicator does not go off.	The scene is being recorded on the disc. This is not a malfunction.	35
The point where START/STOP was pressed does not match the beginning/end of the recording.	There is a slight interval between pressing START/STOP and the actual start of recording on the disc. This is not a malfunction.	–
The recording suddenly stops shortly after starting recording.	The disc is dirty. Clean the disc with a soft lens-cleaning cloth. If the problem persists replace the disc.	111
	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	–
Camcorder will not focus.	Autofocus does not work on the subject. Focus manually.	59
	Adjust the viewfinder with the dioptic adjustment lever.	36
	Lens is dirty. Clean the lens with a soft lens-cleaning cloth. Never use tissue paper to clean the lens.	113
Sound is distorted.	When recording near loud sounds (such as fireworks or concerts), sound may become distorted. This is not a malfunction.	–
Viewfinder picture is blurred.	Adjust the viewfinder with the dioptic adjustment lever.	36

Playback/Editing

Problem	Solution	
Pressing the playback button does not start playback.	Load a disc.	32
	Set the camcorder to PLAY mode.	41
	Do not insert into the camcorder discs that were initialized, recorded or edited using another DVD device.	–
	If using a single-sided disc, check that the disc is inserted with the label side facing up.	32
	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	–
<ul style="list-style-type: none"> During playback there is video noise and the sound is distorted. The disc cannot be read. 	The disc is dirty. Clean the disc with a soft lens-cleaning cloth.	111
	Do not insert into the camcorder discs that were initialized, recorded or edited using another DVD device.	–

Problem	Solution	
Cannot add scenes to the playlist.	You cannot add more than 999 scenes to the playlist.	–
	Remove the disc protection.	66
	Unfinalize the disc (DVD-RW in HD quality).	71
Cannot divide the scene.	You cannot edit or delete scenes on a disc that was recorded or protected using another DVD device.	–
	You cannot divide the scene if there are already 999 scenes on the disc.	–
	You cannot divide the scene if it is too short (1 second or less).	–
	Unfinalize the disc (DVD-RW in HD quality).	71
The point where the scene was divided does not match the point where  was pressed.	Scenes can only be divided at 0.5-second intervals. The point where the scene is divided may not match exactly the point where  was pressed. This is not a malfunction.	–
Cannot edit the disc title.	You cannot add a title to a DVD-R/DVD-R DL disc after it was finalized.	68
	Unfinalize the disc first (DVD-RW in HD quality, or SD quality (VIDEO mode)).	71
	You may not be able to edit the title if you entered it with another digital device.	–
	Remove the disc protection.	66
Cannot edit or delete scenes.	Remove the disc protection.	66
	You cannot edit or delete scenes on a disc that was protected using another digital device.	–
	Scenes cannot be deleted in a DVD-R/DVD-R DL disc or a DVD-RW disc recorded in SD quality (VIDEO mode).	–
	Unfinalize the disc (DVD-RW in HD quality).	71
Cannot finalize the disc.	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	–
No sound from the built-in speaker.	Open the LCD panel.	–
	Speaker volume is turned off. Adjust the volume with the joystick guide in  mode.	41

Playback on a Connected TV or Disc Playback on External DVD Devices

External DVD devices refers to DVD players, DVD recorders, computer DVD drives, game consoles and other digital devices.

Problem	Solution	
There is a brief stop between scenes.	Depending on the DVD player, there might be a very short stop between scenes during playback.	–
Disc is running, but image will not appear on the TV screen.	The video input on the TV is not set to the video terminal to which you connected the camcorder. Select the correct video input.	92
	You attempted to play back or dub an incompatible disc. Stop playback/dubbing.	–



Problem	Solution	
There is no sound from the TV.	When connecting the camcorder to an HDTV using the CTC-100/S Component Cable, make sure to connect also the audio connections using the white and red plugs of the STV-100 Stereo Video Cable.	93
The camcorder is connected using the HDMI cable, but there is no picture or sound from the HDTV.	Disconnect the HDMI cable and then restore the connection or turn the camcorder off and then on again.	-
The disc cannot be recognized by the device. Or, even though the disc is read, cannot play back the disc or the picture is distorted.	The disc is dirty. Clean the disc with a soft lens-cleaning cloth.	111
	Finalize the disc.	68
	DVD-RW discs recorded in SD quality (VR mode) can only be played back with VR mode-compatible DVD players. Refer to the instruction manual of your DVD device.	-
	Discs recorded in HD quality can only be played back with AVCHD-compatible DVD players. Refer to the instruction manual of your DVD device.	-
Cannot edit my recordings or add recordings to the disc with the DVD device.	It may not be possible to edit or add recordings with an external DVD recorder on a disc recorded with this camcorder.	-
When writing on a disc in this camcorder recordings transferred from a computer, an error message appears.	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	-

Memory Card Operation

Problem	Solution	
Memory card cannot be inserted.	Memory card was not facing the correct direction. Turn the memory card over and insert it.	34
Cannot record on the memory card.	Memory card is full. Erase still images to free some space or replace the memory card.	77
	Memory card was not initialized. Initialize the memory card.	84
	The folder and file numbers have reached their maximum value. Set [FILE NOS.] to [RESET] and insert a new memory card.	53
	Still images cannot be captured from the playback scene when [TV TYPE] is set to [NORMAL TV].	53
Memory card cannot be played back.	Insert a memory card.	34
	Set the camcorder to PLAY mode.	75
Image cannot be erased.	Image is protected. Cancel the protection.	83
appears in red.	A memory card error occurred. Turn off the camcorder. Remove and reinsert the memory card and set the camcorder back to CAMERA mode. If still appears in red, initialize the memory card.	84

Printing

Problem	Solution	
The printer is not operating even though the camcorder and printer are correctly connected.	Disconnect the USB cable and turn off the camcorder and the printer. After a short while, turn them on again, set the camcorder to  mode and restore the connection.	–

Others

Problem	Solution	
A rattling can be heard from the camcorder.	The internal lens fixture can move when the camcorder is turned off. This is not a malfunction.	–

List of Messages

Message	Explanation	
CHANGE THE BATTERY PACK	Battery pack is exhausted. Replace or charge the battery pack.	23
CANNOT ENTER THE  STANDBY MODE NOW	The camcorder cannot enter the standby mode while the disc is being recognized after first inserting it or if the remaining battery charge is too low.	39
UNABLE TO RECOGNIZE THE RECORDING MODE OF THE DISC	You inserted a type of disc not supported by this camcorder.	5
	The disc may not be recognized by this camcorder if it was initialized or recorded using a different device.	–
	You inserted a disc recorded in a different television system (PAL or SECAM).	–
<ul style="list-style-type: none"> • TEMPERATURE TOO HIGH CANNOT RECORD • TEMPERATURE TOO HIGH CANNOT REMOVE DISC 	The camcorder has exceeded its operational temperature. Disconnect the compact power adapter and remove the battery pack. Let the camcorder cool down before resuming use.	–
	<ul style="list-style-type: none"> • CANNOT RECORD • CANNOT RECORD CHECK THE DISC 	There is a problem with the disc. Replace the disc.
This message can also appear if condensation has formed. Wait until the camcorder dries completely before resuming use.		114
The disc's recording surface may be dirty or scratched.		–
REACHED THE MAXIMUM NUMBER OF SCENES	The maximum number of scenes has been reached. Delete some recordings (DVD-RW in HD quality, or SD quality (VR mode)) to free some space or replace the disc.	43
CANNOT PLAY DISC	The disc is dirty or you attempted to play back a type of disc not supported by this camcorder.	5
	This message can also appear if condensation has formed. Wait until the camcorder dries completely before resuming use.	114



Message	Explanation	
TEMPERATURE TOO HIGH CANNOT PLAY BACK	The camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	-
CANNOT DIVIDE THE SCENE	You may not be able to divide very short scenes.	-
	Scenes cannot be divided when the disc already contains 999 scenes.	-
	You may not be able to further divide scenes shorter than 5 seconds that were created by dividing a previous scene.	-
PLEASE USE ONLY THE RECOMMENDED DISCS	The dual-layered disc you inserted cannot be used with this camcorder.	7
DISC IS FINALIZED CANNOT RECORD	You cannot record additional scenes on a finalized DVD-R/DVD-R DL disc.	-
	You cannot record additional scenes or unfinalize a DVD-RW disc (HD quality, or SD quality (VIDEO mode)) that was finalized using another digital device.	-
UNFINALIZE THE DISC	You cannot record additional scenes on a finalized DVD-RW disc (HD quality, or SD quality (VIDEO mode)). Unfinalize the disc first.	71
DISC IS PROTECTED	The disc is protected. Replace the disc or remove the disc protection.	66
CANNOT READ THE DISC CHECK THE DISC	Disc could not be read. Try cleaning it or replace the disc.	111
	This message can also appear if condensation has formed. Wait until the camcorder dries completely before resuming use.	114
	This message can also appear if the camcorder has exceeded its operational temperature. Turn off the camcorder and let it cool down before resuming use.	-
	The disc may not be loaded correctly. Try removing the disc and reinserting it.	32
<ul style="list-style-type: none"> • ACCESS ERROR • DISC ACCESS FAILURE CHECK THE DISC	There was an error when reading the disc or attempting to write onto it. Try cleaning the disc or replace it.	111
	This message can also appear if condensation has formed. Wait until the camcorder dries completely before resuming use.	114
	The disc may not be loaded correctly. Try removing the disc and reinserting it.	32
DISC COVER IS OPEN	Close the disc cover.	-
DISC MUST BE FINALIZED TO PLAY BACK IN COMPATIBLE PLAYERS	Be sure to finalize the disc and check the compatibility of the device before playing back the disc on external DVD devices.	68
NO DISC	No disc is loaded. Insert a disc.	32
	This message can also appear if condensation has formed. Wait until the camcorder dries completely before resuming use.	114
LOADING THE DISC	The disc is being read. Wait before you start recording.	-
AVOID MOVING THE CAMCORDER	Try not to move the camcorder while the image is being recorded.	-
UNABLE TO RECOVER DATA	Could not recover a corrupted file.	-
	This message can also appear if condensation has formed. If you suspect condensation is the reason, do not initialize the disc and wait until the camcorder dries completely before resuming use.	114

Message	Explanation	
DISC FULL	The disc is full (“  END” appears on the screen). Delete some recordings (DVD-RW in HD quality, or SD quality (VR mode)) to free some space or replace the disc.	43
TASK IN PROGRESS DO NOT DISCONNECT THE POWER SOURCE	The camcorder is updating the disc. Do not disconnect the compact power adapter or remove the battery pack.	–
NO CARD	There is no memory card in the camcorder.	34
NO IMAGES	No images are recorded on the memory card.	–
CARD ERROR	A memory card error occurred. The camcorder cannot record or display the image. If after the message disappears  appears in red, perform the following: Turn off the camcorder; remove and reinsert the memory card and set the camcorder back to CAMERA  mode. If  turns back to green you can resume recording/playback. Otherwise, initialize the memory card. (Doing so will erase all the still images on the memory card.)	84
CARD FULL	Memory card is full. Erase some images to free some space or replace the memory card.	77
THE CAMCORDER IS SET TO STILL IMAGE MODE	You pressed [START/STOP] while recording still images (CAMERA  mode).	–
NAMING ERROR	The folder and file numbers have reached their maximum value. Set the [FILE NOS.] option to [RESET] and erase all the images on the memory card or initialize it.	–
 TRANSFER ORDER ERROR	You attempted to set more than 998 transfer orders. Reduce the number of still images marked with transfer orders.	100
TOO MANY STILL IMAGES DISCONNECT USB CABLE	Disconnect the USB cable and decrease the number of still images on the memory card to fewer than 1,800. If a dialog appeared on the computer screen, close it and then reconnect the USB cable.	–

Direct Print Related Messages

About Canon PIXMA/SELPHY DS Printers: If the printer’s error indicator flashes or an error message appears on the printer’s operation panel, refer to the printer’s instruction manual.

Message	Explanation
PAPER ERROR	There is a problem with the paper. The paper is not correctly loaded or the paper size is wrong. Alternatively, if the paper output tray is closed, open it to print.
NO PAPER	Paper is not correctly inserted or there is no paper.
PAPER JAM	The paper jammed during printing. Select [STOP] to cancel printing. After removing the paper, set some paper again and retry printing.



Message	Explanation
INK ERROR	There is a problem with the ink. Replace the ink cartridge.
NO INK	The ink cartridge is not inserted or is out of ink.
LOW INK LEVEL	The ink cartridge needs to be replaced soon. Select [CONTINUE] to restart printing.
INK ABSORBER FULL	Select [CONTINUE] to resume printing. Consult a Canon Service Center (refer to the list included with the printer) to replace the ink absorber.
<ul style="list-style-type: none"> • FILE ERROR • CANNOT PRINT! 	You attempted to print an image that was recorded with another camcorder, has a different compression, or was edited on a computer.
COULD NOT PRINT X IMAGES	You attempted to use the print order settings to print X images that were recorded with another camcorder, with a different compression or were edited on a computer.
SET PRINT ORDER	No still image on the memory card has been marked with a print order.
PRINT ORDER ERROR	You attempted to set more than 998 still images in the print order.
CANNOT TRIM	You attempted to trim an image that was recorded with another camcorder.
READJUST TRIMMING	You changed the [PAPER] settings after applying the trimming settings.
PRINTER ERROR	Cancel printing. Turn off the printer and turn it back on. Check the printer status. If the error still persists, refer to the printer's instruction manual and contact the appropriate customer support center or service center.
PRINT ERROR	Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable. Check the printer status. When you are printing using the button, check the print settings.
HARDWARE ERROR	Cancel printing. Turn off the printer and turn it back on. Check the printer status. If the printer is equipped with a battery, it might be exhausted. In such case, turn off the printer, replace the battery and turn it back on.
COMMUNICATION ERROR	The printer is experiencing a data transfer error. Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable. When you are printing using the button, check the print settings. Or, you attempted to print from a memory card that contains a large number of images. Reduce the number of images.
CHECK PRINT SETTINGS	Current print settings cannot be used for printing with the button.
INCOMPATIBLE PAPER SIZE	The paper settings of the camcorder conflict with the printer's settings.
PRINTER IN USE	The printer is in use. Check the printer status.
PAPER LEVER ERROR	Paper lever error occurred. Adjust the paper selection lever to the proper position.
PRINTER COVER OPEN	Close the printer cover securely.
NO PRINTHEAD	No print head is installed in the printer or the print head is defective.

Handling Precautions

Camcorder

- Do not touch the pick up lens.
- Do not subject the camcorder to vibrations or strong impacts while the DISC access indicator is on or flashing. The data may not be correctly recorded on the disc, and the recording may be permanently lost.
- Do not carry the camcorder by the LCD panel or the disc cover. Be careful when closing the LCD panel.
- Do not leave the camcorder in places subject to high temperatures (like the inside of a car under direct sunlight), or high humidity.
- Do not use the camcorder near strong electromagnetic fields such as above TVs, near plasma TVs or mobile phones.
- Do not point the lens or viewfinder at strong light sources. Do not leave the camcorder pointed at a bright subject.
- Do not use or store the camcorder in dusty or sandy places. The camcorder is not waterproof – avoid also water, mud or salt. If any of the above should get into the camcorder it may damage the camcorder and/or the lens. Be sure to close the disc compartment cover after use.
- Be careful of heat generated by lighting equipment.
- Do not disassemble the camcorder. If the camcorder does not function

properly, consult qualified service personnel.

- Handle the camcorder with care. Do not subject the camcorder to shocks or vibration as this may cause damage.

Battery Pack

DANGER!

Treat the battery pack with care.

- Keep it away from fire (or it might explode).
 - Do not expose the battery pack to temperature higher than 60 °C (140 °F). Do not leave it near a heater or inside a car in hot weather.
 - Do not try to disassemble or modify it.
 - Do not drop it or subject it to shocks.
 - Do not get it wet.
- Charged battery packs continue to discharge naturally. Therefore, charge them on the day of use, or the day before, to ensure a full charge.
 - Contact of the battery pack terminals with metallic objects may cause a short circuit and damage the battery pack.
 - Dirty terminals may cause a poor contact between the battery pack and the camcorder. Wipe the terminals with a soft cloth.
 - Since storing a charged battery pack for a long time (about 1 year) can shorten its lifecycle or affect performance, we recommend to



discharge the battery pack fully and to store it in a dry place at temperatures no higher than 30 °C (86 °F). If you do not use the battery pack for long periods, charge and discharge it fully at least once a year. If you have more than one battery pack, perform these precautions at the same time for all battery packs.

- Although the battery pack's operating temperature range is from 0 °C to 40 °C (32 °F to 104 °F), the optimal range is from 10 °C to 30 °C (50 °F to 86 °F). At cold temperatures, performance will temporarily decline. Warm it in your pocket before use.
- Replace the battery pack if the usable time after full charge diminishes substantially at normal temperatures.

Mini DVD Disc

The recording surface of DVD discs is extremely delicate. If handled or stored in an incorrect manner, the camcorder may stop recognizing or may not be able to play back the disc. Be sure to observe the following precautions when storing/handling your discs.

- **Always remove the disc from the camcorder after you finish recording.**
Do not store the camcorder with a disc left inside.
- Do not bend, scratch or wet the disc and do not subject it to strong shocks.
- Do not attach any labels or stickers on the disc surfaces. The disc may not rotate in a stable manner and this may cause malfunctions.
- Keep the disc clean of dust, dirt or smudges. Even very small smudges or particles of dust can lead to problems when recording or playing back the disc. Carefully inspect the recording surface of the disc before inserting it in the camcorder. If the disc gets dirty use a dry, soft lens-cleaning cloth to remove any fingerprints, dirt buildup or smudges from the disc surface. Clean the disc in a radial motion from its center outwards.
- Never use a chemically treated cloth or flammable solvents such as paint thinner to clean the disc.
- To protect the disc, return it to its case for storage.
- When writing on the label side of the disc, avoid hard tip pens. Use waterproof soft-tipped felt pens instead.
- Moving a disc rapidly between hot and cold temperatures may cause condensation to form on its surfaces. If condensation forms on the disc, put it aside until the water droplets have evaporated completely.
- Never expose the disc to direct sunlight and do not store it in places subject to high temperatures or high humidity.
- Always finalize a disc before inserting it into an external DVD device. Failing to do so can result in the loss of the recorded data.

Memory Card

- We recommend saving backups of memory card images on your computer. Image data may be corrupted or lost due to memory card defects or exposure to static electricity. Canon Inc. makes no warranties for corrupted or lost data.
- Do not turn off the camcorder, disconnect the power source or remove the memory card while the CARD access indicator is flashing.
- Do not use memory cards in places subject to strong magnetic fields.
- Do not leave memory cards in places subject to high humidity and high temperature.
- Do not disassemble, bend, drop, or subject memory cards to shocks and do not expose them to water.
- Do not touch or expose the terminals to dust or dirt.
- Check the direction before inserting the memory card. Forcing a memory card into the slot if it is not correctly oriented may damage the memory card or the camcorder.
- Do not attach any labels or stickers on the memory card.
- When you erase image files or initialize the memory card, only the file allocation table is altered and the data itself is not actually deleted. Take the necessary precautions when you dispose of the memory card, for example by physically damaging it to prevent the leakage of private data.

Lithium Button Battery

WARNING!

- The battery used in this device may present a fire or chemical burn hazard if mishandled. Do not recharge, disassemble, heat above 100 °C (212 °F) or incinerate the battery.
 - Replace the battery with a CR2025 made by Panasonic, Hitachi Maxell, Sony, Sanyo, or with Duracell2025. Use of other batteries may present a risk of fire or explosion.
 - Dispose of the used battery according to applicable recycling regulations.
-
- Do not pick up the battery using tweezers or other metal tools as this will cause a short circuit.
 - Wipe the battery with a clean dry cloth to ensure proper contact.
 - Keep the battery out of the reach of children. If swallowed, seek medical assistance immediately. The battery case may break and the battery fluids may cause internal damage.
 - Do not disassemble, heat or immerse the battery in water to avoid the risk of explosion.
 - **For California, USA only:** The lithium battery included contains Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate for details.



Built-in Rechargeable Lithium Battery

The camcorder has a built-in rechargeable lithium battery to keep the date/time and other settings. The built-in lithium battery is recharged while you use the camcorder; however, it will become totally discharged if you do not use the camcorder for about 3 months.

To recharge the built-in lithium battery:

Connect the compact power adapter to the camcorder and leave it connected for 24 hours with the **POWER** switch set to **OFF**.

Maintenance/Others

Storage

If you do not intend to use the camcorder for a long time, store it in a place free of dust, in low humidity, and at temperatures not higher than 30 °C (86 °F).

Cleaning

Camcorder Body

- Use a soft, dry cloth to clean the camcorder body. Never use chemically treated cloths or volatile solvents such as paint thinner.

Pick Up Lens

- Remove any dust or dirt particles using a non-aerosol type blower brush. Never touch the pick up lens directly to clean it.

Lens, Viewfinder and Instant AF Sensor

- If the lens surface is dirty, the autofocus may not work properly.
- Remove any dust or dirt particles using a non-aerosol type blower brush.
- Use a clean, soft lens-cleaning cloth to gently wipe the lens or viewfinder. Never use tissue paper.

LCD Screen

- Clean the LCD screen using a clean, soft lens-cleaning cloth.

- Condensation may form on the surface of the screen when the temperature changes suddenly. Wipe it with a soft dry cloth.

Condensation

Moving the camcorder rapidly between hot and cold temperatures may cause condensation (water droplets) to form on its internal surfaces. Stop using the camcorder if condensation is detected. Continued use may damage the camcorder.

Condensation may form in the following cases:

- When the camcorder is moved from an air-conditioned room to a warm, humid place
- When the camcorder is moved from a cold place to a warm room
- When the camcorder is left in a humid room
- When a cold room is heated rapidly

TO AVOID CONDENSATION

- Do not expose the camcorder to sudden or extreme changes in temperature.
- Unload the disc, place the camcorder in an airtight plastic bag and let it adjust to temperature changes slowly before removing it from the bag.

WHEN CONDENSATION IS DETECTED

- The camcorder automatically shuts off. If a disc is loaded, remove the disc immediately and leave the disc cover open. Leaving the disc in the camcorder may damage it.
- A disc cannot be loaded when condensation is detected.

RESUMING USE

The precise time required for water droplets to evaporate will vary depending on the location and weather conditions. As a general rule, wait for 2 hours before resuming use of the camcorder.

Using the Camcorder Abroad

Power Sources

You can use the compact power adapter to operate the camcorder and to charge battery packs in any country with power supply between 100 and 240 V AC, 50/60 Hz. Consult a Canon Service Center for information on plug adapters for overseas use.

Playback on a TV Screen

You can only play back your recordings on TVs compatible with the NTSC system. The NTSC system is used in the following countries/areas:

American Samoa, Antigua, Aruba, Bahamas, Barbados, Bermuda, Bolivia, Canada, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Greenland,



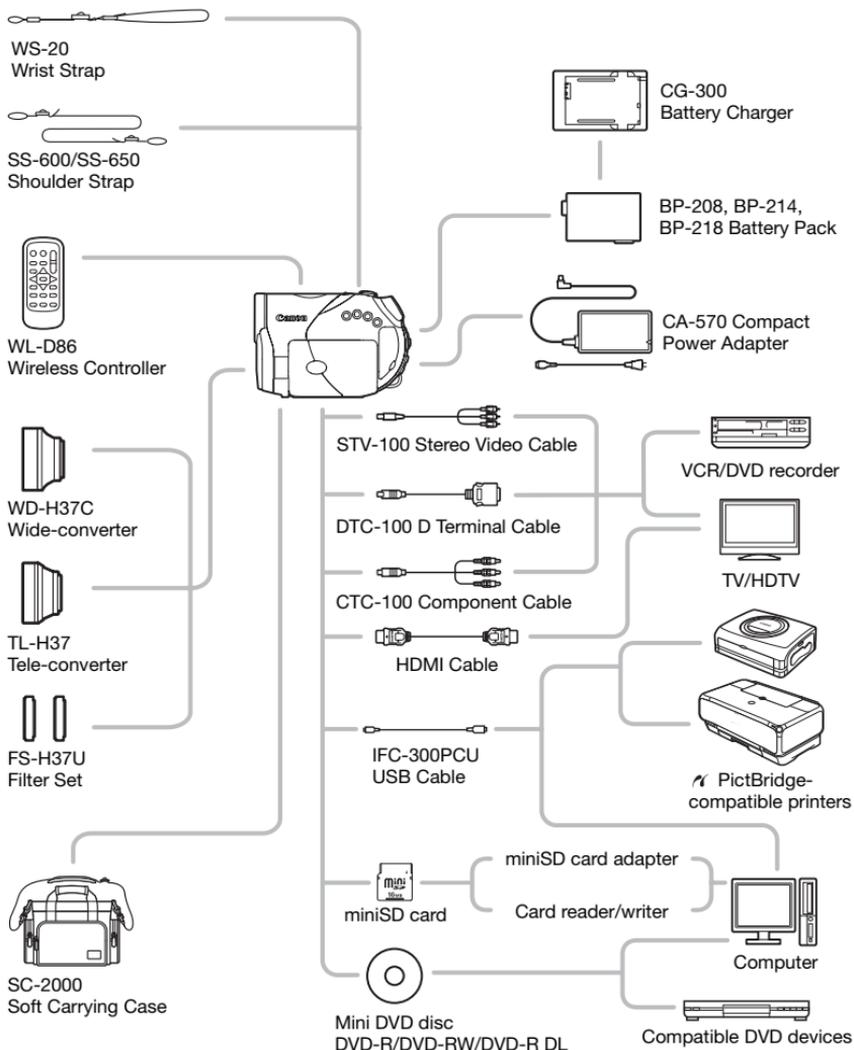
Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Korea, Mexico, Micronesia, Myanmar, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Surinam, Taiwan, Trinidad and Tobago, USA, Venezuela, Virgin Islands.

Trademark Acknowledgements

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System Diagram (Availability differs from area to area)



Optional Accessories

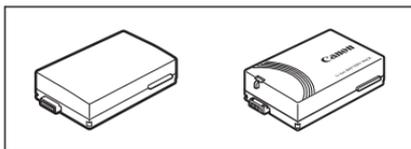
Call or visit your local retailer/dealer for genuine Canon video accessories. You can also obtain genuine accessories for your Canon camcorder by calling: 1-800-828-4040, Canon U.S.A. Information Center.

Use of genuine Canon accessories is recommended.

This product is designed to achieve excellent performance when used with genuine Canon accessories. Canon shall not be liable for any damage to this product and/or accidents such as fire, etc., caused by the malfunction of non-genuine Canon accessories (e.g., a leakage and/or explosion of a battery pack). Please note that this warranty does not apply to repairs arising out of the malfunction of non-genuine Canon accessories, although you may request such repairs on a chargeable basis.

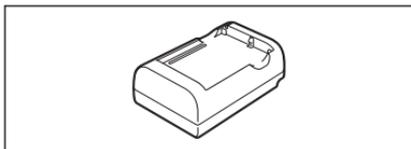
Battery Packs

When you need extra battery packs, select one of the following models: BP-208, BP-214 or BP-218.



CG-300 Battery Charger

Use the battery charger to charge the battery packs. It plugs directly into a power outlet without a cable.



Charging Times

The charging times given in the following table are approximate and vary according to charging conditions and initial charge of the battery pack.

Battery Pack →	BP-208	BP-214	BP-218
Charging Conditions ↓			
Using the camcorder	170 min.	255 min.	315 min.
Using the CG-300 Battery Charger	105 min.	160 min.	205 min.

Recording and Playback Times

The recording and playback times given in the following tables are approximate and vary according to recording mode and charging, recording or playback conditions. The effective usage time of the battery pack may decrease when recording in cold surroundings, when using the brighter screen settings, etc.

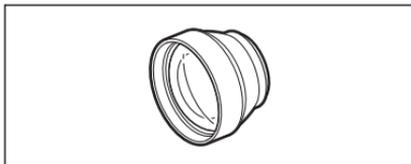
Battery Pack		BP-208		BP-214		BP-218	
Screen Used		Viewfinder	LCD	Viewfinder	LCD	Viewfinder	LCD
High Definition							
Maximum Recording Time	XP+	55 min.	55 min.	100 min.	95 min.	130 min.	125 min.
	XP	60 min.	60 min.	105 min.	105 min.	140 min.	135 min.
	SP	65 min.	60 min.	110 min.	105 min.	140 min.	140 min.
	LP	65 min.	65 min.	115 min.	110 min.	145 min.	140 min.
Typical Recording Time*	XP+	30 min.	30 min.	55 min.	50 min.	70 min.	65 min.
	XP	30 min.	30 min.	60 min.	55 min.	75 min.	75 min.
	SP	35 min.	30 min.	60 min.	60 min.	75 min.	75 min.
	LP	35 min.	35 min.	60 min.	60 min.	75 min.	75 min.
Playback Time	XP+	75 min.		135 min.		170 min.	
	XP	80 min.		150 min.		180 min.	
	SP	90 min.		150 min.		195 min.	
	LP	90 min.		160 min.		205 min.	
Standard Definition							
Maximum Recording Time	XP	65 min.	65 min.	115 min.	110 min.	150 min.	140 min.
	SP	70 min.	70 min.	125 min.	125 min.	160 min.	155 min.
	LP	75 min.	70 min.	135 min.	130 min.	170 min.	165 min.
Typical Recording Time*	XP	35 min.	35 min.	65 min.	60 min.	85 min.	75 min.
	SP	40 min.	40 min.	70 min.	65 min.	90 min.	85 min.
	LP	40 min.	40 min.	75 min.	70 min.	95 min.	90 min.
Playback Time	XP	80 min.		150 min.		180 min.	
	SP	90 min.		160 min.		205 min.	
	LP	95 min.		170 min.		220 min.	

* Approximate times for recording with repeated operations such as start/stop, zooming, and power on/off.

TL-H37 Tele-converter

This Tele-converter lens increases the focal length of the camcorder lens by a factor of 1.5.

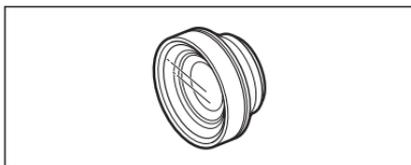
- The image stabilizer is not as effective when the Tele-converter is attached.
- The minimum focusing distance with the TL-H37 is 2.3 m (7.5 ft.); 2.3 cm (0.91 in.) at maximum wide angle.
- When the Tele-converter is attached, a shadow may appear in the picture when you record with flash or assist lamp.



WD-H37C Wide-converter

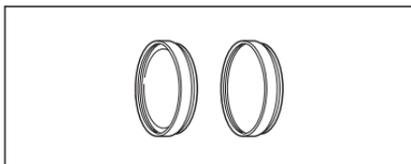
This lens decreases focal length by a factor of 0.7, giving you a wide perspective for indoor shots or panoramic views.

- When the Wide-converter is attached, a shadow may appear in the picture when you record with flash or assist lamp.



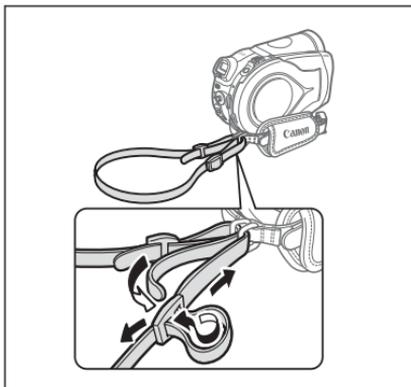
FS-H37U Filter Set

Neutral density and MC protector filters help you to control difficult lighting conditions.



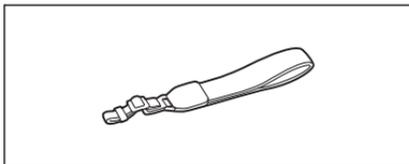
Shoulder Strap

You can attach a shoulder strap for more security and portability. Pass the ends through the strap mount and adjust the length of the strap.



WS-20 Wrist Strap

Use this for extra additional protection for active shooting.



SC-2000 Soft Carrying Case

A handy camcorder bag with padded compartments and plenty of space for accessories.



This mark identifies genuine Canon video accessories. When you use Canon video equipment, we recommend Canon-brand accessories or products bearing the same mark.



Product Codes

Provided Accessories

CA-570 Compact Power Adapter	8468A002AA
BP-214 Battery Pack	2068B002AA
WL-D86 Wireless Controller	D83-0722-000
STV-100 Stereo Video Cable	D82-0890-000
IFC-300PCU USB Cable	D82-0710-001

Optional Accessories

BP-208 Battery Pack	0802B002AA
BP-218 Battery Pack	2289B002AA
CG-300 Battery Charger	0784B002AA
TL-H37 Tele-converter	8835A001AA
WD-H37C Wide-converter	1305B001AA
FS-H37U Filter Set	8837A001AA
WS-20 Wrist Strap	3118A002AA (D81-0190-202)
SC-2000 Soft Carrying Case	9389A001AA



Specifications

HR10

System

Disc Recording System	<p>HD AVCHD (all disc types) Video compression: MPEG-4 AVC/H.264 Audio compression: Dolby Digital 2ch</p> <p>SD DVD-VIDEO (all disc types) DVD-VR (only with DVD-RW discs) Video Compression: MPEG-2 Audio Compression: Dolby Digital 2ch</p>
Television System	<p>HD 1080/60i¹</p> <p>SD EIA standard (525 lines, 60 fields) NTSC color signal</p>
Compatible Media	8 cm (3 in.) mini DVD discs marked with the DVD-R, DVD-R DL or DVD-RW logo 
Maximum Recording Time	1.4 GB single sided 8 cm mini DVD disc: HD XP+: 15 min., XP: 20 min., SP: 25 min., LP: 33 min. SD XP: 20 min., SP: 30 min., LP: 60 min. 2.6 GB single sided dual-layered 8 cm mini DVD disc: HD XP+: 27 min., XP: 36 min., SP: 45 min., LP: 60 min. SD XP: 36 min., SP: 54 min., LP: 108 min. (All times given are approximate figures)
Image Sensor	1/2.7-inch CMOS, approx. 2,960,000 pixels Effective pixels: Movies (16:9): approx. 2,070,000 Movies (4:3): approx. 1,550,000 Still images (LW): approx. 2,070,000 Still images (L, M, S): approx. 2,760,000
LCD Screen	2.7 in., wide, TFT color, approx. 211,000 pixels
Viewfinder	0.27 in., wide, TFT color, approx. 123,000 pixels
Microphone	Stereo electret condenser microphone
Lens	f=6.1-61 mm, F/1.8-3.0, 10x power zoom 35 mm equivalent: Movies (16:9): 43.6-436 mm Movies (4:3): 53.0-530 mm Still images (LW): 43.6-436 mm Still images (L, M, S): 40.0-400 mm
Lens Configuration	11 elements in 9 groups (2 aspheric elements)
Filter Diameter	37 mm

AF System	Autofocus (TTL + external distance sensor when set to [INSTANT AF]); Manual focus available
Minimum Focusing Distance	1 m (3.3 ft.); 1 cm (0.39 in.) on maximum wide angle
White Balance	Auto white balance, custom white balance and preset white balance settings: DAYLIGHT, SHADE, CLOUDY, TUNGSTEN, FLUORESCENT, FLUORESCENT H
Minimum Illumination	0.2 lx ([NIGHT] recording program, Shutter speed at 1/2) 3 lx (AUTO mode, Auto slow shutter [ON], Shutter speed at 1/30)
Recommended Illumination	More than 100 lx
Image Stabilization	Optical-Shift Image Stabilizer

1 Recordings made with the [24F Progr.] frame rate are converted and recorded on the disc as 60i.

Memory Card

Recording Media	miniSD card ²
Size of Still Images	1920 x 1080, 2048 x 1536, 1440 x 1080, 640 x 480 pixels Simultaneous recording: Movies (16:9) 1920 x 1080, 848 x 480 pixels Movies (4:3) 1440 x 1080, 640 x 480 pixels
File Format	Design rule for Camera File system (DCF), Exif 2.2 compliant ³ , DPOF compliant
Image Compression Method	JPEG (compression: Super Fine, Fine, Normal)

² This camcorder has been tested with miniSD cards up to 2 GB. Performance cannot be guaranteed for all miniSD cards.

³ This camcorder supports Exif 2.2 (also called "Exif Print"). Exif Print is a standard for enhancing the communication between camcorders and printers. By connecting to an Exif Print-compliant printer, the camcorder's image data at the time of shooting is used and optimized, yielding extremely high quality prints.

Input/Output Terminals

AV OUT Terminal	10-pin multiconnector; Output only Video: 1 Vp-p / 75 ohms unbalanced Audio: -10 dBV (47 kohm load) / 3 kohm or less
USB Terminal	mini-B
COMPONENT OUT Terminal (Proprietary mini-D terminal)	Luminance (Y): 1 Vp-p / 75 ohms Chrominance (P _B /P _R (C _B /C _R)): ±350 mVp-p 1080i (D3) / 480i (D1) compatible
HDMI OUT Terminal	HDMI type A connector (19 pins); Output only



Power/Others

Power supply (rated)	7.4 V DC (battery pack), 8.4 V DC (compact power adapter)
Power consumption (SP mode, AF on)	5.6 W (viewfinder, normal brightness), 5.7 W (LCD screen, normal brightness)
Operating temperature	0 – 40 °C (32 – 104 °F)
Dimensions (W x H x D)	65 x 93 x 133 mm (2.6 x 3.7 x 5.2 in.) excluding the grip belt
Weight (camcorder body only)	530 g (1.3 lb.)

CA-570 Compact Power Adapter

Power supply	100 – 240 V AC, 50/60 Hz
Rated output / consumption	8.4 V DC, 1.5 A / 29 VA (100 V) – 39 VA (240 V)
Operating temperature	0 – 40 °C (32 – 104 °F)
Dimensions	52 x 29 x 90 mm (2.1 x 1.1 x 3.5 in.)
Weight	135 g (4.8 oz.)

BP-214 Battery Pack

Battery type	Rechargeable Lithium Ion Battery
Rated voltage	7.4 V DC
Operating temperature	0 – 40 °C (32 – 104 °F)
Battery capacity	1,500 mAh
Dimensions	39 x 14 x 63 mm (1.5 x 0.55 x 2.5 in.)
Weight	65 g (2.3 oz.)

Weight and dimensions are approximate. Errors and omissions excepted. Subject to change without notice.

Index

24F progressive frame rate 49

A

Abroad, using the camcorder 114
 AEB - Auto exposure bracketing 79
 AF-assist lamp 78
 Aperture (f number) 57
 Aspect ratio
 of a connected TV (TV type) 53
 of movies (Widescreen) 37
 AUTO (recording program) 36
 Auto slow shutter 47
 Autofocus (AF)
 AF frame
 (9-point AiAF/Center point) 80
 Instant AF/Normal AF 48
 Av (recording program) 57
 AV OUT terminal 92
 AVCHD specifications 6

B

Battery pack
 Charging 23
 Remaining charge indicator 22
 Beach (recording program) 56
 Beep 52
 Built-in backup battery 113

C

Cine Mode (recording program) 55
 Compact power adapter 23
 COMPONENT OUT terminal 93
 Component video 93
 Condensation 114
 Connections
 to a computer 97
 to a High Definition TV (HDTV) 93
 to a TV/VCR 92
 Continuous shooting 79

D

Data code 44
 Date and time 29
 Date format 54
 Daylight saving time 30
 Time zone 30
 Digital effects 63
 Direct print 85
 Direct transfer 97
 Disc quality 6
 Disc title 68
 Disc types
 (DVD-R, DVD-R DL, DVD-RW) 5
 Drive mode 79

E

Error messages 106
 Exposure 60

F

File numbers 53
 Finalizing the disc 68
 Fireworks (recording program) 56
 Flash 78
 Focus
 Assist functions 48, 59
 Automatic 48
 Focus priority 80
 Manual 59
 Frame rate 49
 FUNC. menu 27, 45

G

Grip belt 24

H

HDMI OUT terminal 93, 95

I

Image effects 62
 Image jump 75
 Image stabilizer 49



Index screen		
Movies	41	
Still images	76	
Initialization		
Disc	67	
Memory card	84	
J		
Joystick	27	
Joystick guide	27	
L		
Language	29	
LCD screen	31	
Light metering mode	81	
LP mode	37	
M		
Magnifying a still image	76	
Maintenance	113	
Manual exposure adjustment	60	
Markers	52	
Memory card	34, 112	
Mini video light	58	
miniSD card	34	
Mode switch	36	
N		
Night (recording program)	56	
O		
Onscreen display selection	44	
Original recordings	65	
P		
P (recording program)	57	
Playback		
Movies	41	
Still images	75	
Playlist	65	
Portrait (recording program)	56	
Power save	52	
Print order	90	
Print/share button	86, 99	
Printing still images	85	
Protecting		
Disc	66	
Still images	83	
Q		
Quick Start function	39	
R		
Recommended discs	7	
Recording		
Movies	35	
Still images	72	
Recording data	44	
Recording mode	46	
Recording programs	55, 57	
Recording reminder	22	
Remote sensor	25	
RESET	101	
Reviewing		
Movies (Record review)	40	
Still images (Review)	49	
S		
Scene editing	65	
Screen icons	20	
Self timer	59	
Serial number	17	
Setup menus	28, 47	
Shutter speed	57	
Simultaneous recording		
(disc/memory card)	82	
Slideshow	76	
Snow (recording program)	56	
SP mode	37	
Special Scene (recording programs)	55	
Sports (recording program)	56	
Spotlight (recording program)	56	
Still image quality	73	
Still image size	73	
Sunset (recording program)	56	

T

Telephoto	38
Transfer order	100
Transferring to a computer	
Movies	97
Still images	97
Tripod	25
Troubleshooting	101
Tv (recording program)	57

U

USB terminal	97
------------------------	----

V

VIDEO mode (disc specification)	7
Viewfinder	36
Volume	41
VR mode (disc specification)	7

W

White balance	61
Wide angle	38
Widescreen 16:9	37
Wind screen	50
Wireless controller	25

X

XP, XP+ mode	37
------------------------	----

Z

Zoom	38
Digital zoom	47
Zoom speed	48

U.S.A.

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY FOR THE UNITED STATES

The warranty set forward below is given by Canon U.S.A., Inc. with respect to equipment purchased in the United States. The limited warranty is only effective upon presentation of your Bill of Sale or other proof of purchase.

Canon consumer digital video equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:

Parts: Defective parts will be exchanged for new parts or comparable rebuilt parts for a period of ONE YEAR from the date of original purchase, except for a defective Video Head, which will be exchanged for a period of three months from the date of purchase.

Labor: For a period of ONE YEAR from the date of original purchase, labor will be provided free of charge by our factory service centers or designated service facilities located in the United States.

When returning equipment under this warranty, you must pre-pay the shipping charges, and you must enclose the Bill of Sale or other proof of purchase with a complete explanation of the problem. During your ONE-YEAR warranty period, repairs will be made and the equipment return-shipped to you free of charge. After your warranty period is over, you will be given an estimate of the cost of repair and an opportunity to approve or disapprove of the repair expense before it is incurred. If you approve, repairs will be made and the equipment return-shipped to you. (shipping charges apply). If you disapprove, we will return-ship the equipment at no charge to you.

Non-Canon brand peripheral equipment and software which may be distributed with Canon camcorders are sold "AS IS" without warranty of any kind by CUSA, including any implied warranty regarding merchantability or fitness for a particular purpose. The sole warranty with respect to such non-Canon brand items is given by the manufacturer or producer thereof. CUSA shall have no responsibility under this limited warranty for use of Canon camcorders in conjunction with incompatible peripheral equipment and incompatible software.

In order to obtain warranty service, contact the authorized Canon retail dealer from whom you purchased the camcorder or call the CANON INFORMATION CENTER AT 1-800-828-4040. You will be directed to the nearest service facility for your product.

This Limited Warranty covers all defects encountered in normal use of the equipment and does not apply in the following cases:

- A) Loss or damage to the equipment due to abuse, mishandling, accident, improper maintenance, or failure to follow operating instructions;
- B) If the equipment is defective as a result of leaking batteries, sand, dirt or water damage;
- C) If defects or damages are caused by the use of unauthorized parts or by service other than our authorized agent;
- D) If the equipment is used for commercial or industrial use.

This Limited Warranty does not cover cabinet (exterior finish), DVD discs, nor does it apply to equipment purchased outside the United States. This warranty does not cover units sold to rental firms, military operations, hotels, schools, hospitals or for other commercial, industrial, or institutional applications. These uses are covered only by such specific warranty as Canon may issue with such sales.

This Limited Warranty does not apply to accessories or consumables for the camcorder, which are sold "AS IS", without warranty of any kind by CUSA.

Please retain this warranty card and your Bill of Sale as a permanent record of your purchase. This card is most important in order to be sure you are contacted right away should there be a safety inspection, modification or product recall under applicable laws or regulations.

NO IMPLIED WARRANTY, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE APPLIES TO THIS EQUIPMENT AFTER THE APPLICABLE PERIOD OF EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS EQUIPMENT SHALL BIND THE UNDERSIGNED. (SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU). CUSA SHALL NOT BE LIABLE FOR LOSS OF REVENUES OR PROFITS, EXPENSE FOR SUBSTITUTE EQUIPMENT OR SERVICE, STORAGE CHARGES, LOSS OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THE CAMCORDER, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF CUSA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOR SHALL RECOVERY OF ANY KIND AGAINST CUSA BE GREATER THAN THE PURCHASE PRICE OF THE CAMCORDER SOLD BY CUSA AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE, MISUSE OR INABILITY TO USE THE CAMCORDER NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF CUSA. (SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU). THIS WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS EQUIPMENT OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
CANON U.S.A., INC.

CANADA

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY

The limited warranty set forth below is given by Canon Canada Inc. ("Canon Canada") with respect to Canon digital video equipment purchased in Canada. This limited warranty is only effective upon presentation of a bill of sale or other proof of purchase for this Canon digital video equipment to a Canon Service Facility when repairs are required.

Canon consumer digital video equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:

Parts: Defective parts will be exchanged for new parts or, at Canon Canada's option, comparable rebuilt parts for a period of one year from the date of original purchase, except Video Heads which will be exchanged for a period of 3 months from the date of purchase.

Labour: For a period of one year from the date of original purchase, labour will be provided free of charge by our Canon Service Facilities in Canada. This limited warranty covers all defects except where:

(a) The loss or damage to the product results from:

- i) accident, natural disaster, mishandling, abuse, neglect, unauthorized product modification or failure to follow instructions contained in the instruction manual;
- ii) the use of accessories, attachments, products, supplies, parts or devices with this Canon product that do not conform to Canon specifications or that cause abnormally frequent service problems;
- iii) repairs or services performed by any party other than a Canon Service Facility;
- iv) defective batteries or any exposure to water, sand or dirt;
- v) shipping (claim must be presented to the shipper);

(b) Any serial number on the video equipment is altered or removed.

(c) The digital video equipment is used for commercial, professional or industrial purposes.

This limited warranty does not cover the cabinet (exterior finish) of the digital video equipment, DVD discs, nor does it apply to digital video equipment purchased outside Canada.

TO OBTAIN WARRANTY SERVICE

Ship your Canon digital video equipment in its original carton, box or equivalent, properly packed, fully insured with shipping charges prepaid, together with a copy of your bill of sale or other proof of purchase and a description of the problem to any of the Canon Service Facilities in Canada.

LIMITATIONS

Except as otherwise required by applicable legislation, this warranty is in lieu of all other warranties, conditions, guarantees or representations, express or implied, statutory or otherwise, relative to this Canon product, including implied warranties or conditions of merchantability or fitness for a particular purpose.

Canon Canada assumes no liability for special, consequential or incidental damages or loss that may arise, whether on account of negligence or otherwise, from the use, misuse or inability to use this Canon product (including loss of profit, revenue, discs or enjoyment) or from failure to conform to any express or implied warranties, conditions, guarantees or representations. Any recovery under this limited warranty shall not exceed the purchase price of the product. Canon Canada does not assume or authorize any other person to assume for Canon Canada any other liability with respect to this Canon product.

This warranty does not extend to any person other than the original purchaser of this Canon product or the person for whom it was purchased as a gift and states your exclusive remedy.

NOTICE TO CONSUMER

If you plan to take important videos or if the product has not been used for some time, please check all functions with the instruction book before using it.



DIM-810

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❖ If you have any questions, call the Canon U.S.A. Information Center toll-free at 1-800-828-4040 (U.S.A. only).

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❖ Si vous avez des questions, veuillez téléphoner sans frais au Canada 1-800-828-4040 (CANADA seulement).

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