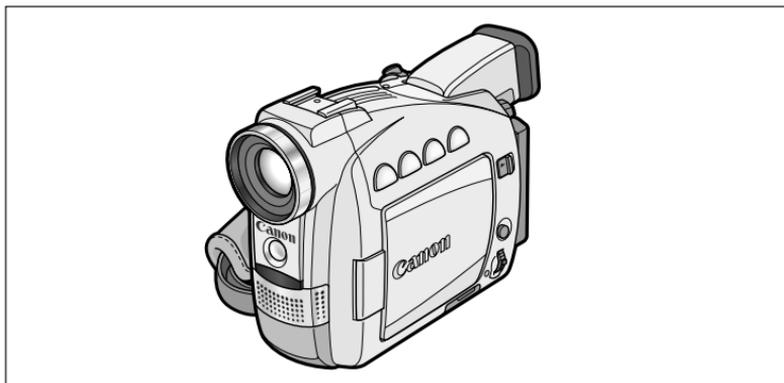# Canon

Digital Video Camcorder
Instruction Manual

MV650i / MV630i / MV600i / MV600

Mini **DV** Digital Video Cassette   **BUBBLE JET DIRECT**

This instruction manual covers the MV650i, MV630i, MV600i and MV600. Please note that illustrations and explanation in this manual are based on the MV650i.

Introduction

Mastering the Basics

Using the Full Range of Features

Editing

MV650i **MV630i**
Using a Memory Card

Additional Information

PAL

Important Usage Instructions

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Reference Guide

The following manuals are supplied with the camcorder:

❍ **Digital Video Camcorder MV650i/MV630i/MV600i/MV600 Instruction Manual**
This manual explains the camcorder operations from basic video recording to the use of the full range of features.

❍ **Windows XP Users Only**
DV NETWORK SOLUTION DISK Software Instruction Manual
This manual explains how to download/upload images from/to the memory card using a DV (IEEE1394) cable. You can also perform videoconference and file transfer over the Internet using the provided software. Available functions depend upon the camcorder model and networking environment.

❍ **MV650i MV630i**
DIGITAL VIDEO SOLUTION DISK Software Instruction Manual
This manual explains how to download images from the memory card to a computer using the supplied USB cable. You can add sample images for Card Mix and My Camera settings from the supplied DIGITAL VIDEO SOLUTION DISK.

Introduction

Trademark Acknowledgements
• Canon is a registered trademark of Canon Inc.
• Mini$\mathbf{DV}$ is a trademark.
• $\mathbf{S}$ logo is a trademark.
• Macintosh is a trademark of Apple Computer Inc., registered in the United States and other countries.
• Windows® is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
• Other names and products not mentioned above may be registered trademarks or trademarks of their respective companies.

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Preparations

Basic Recording

Basic Playback

Using the Full Range of Features

General

Recording

Manual Adjustments

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Conventions Used in This Manual

Operating Modes

Operating Mode	Position of the POWER Switch	Position of the TAPE/CARD Switch
CAMERA	CAMERA	TAPE
PLAY (VCR)	PLAY (VCR)	TAPE
CARD CAMERA	CAMERA	CARD
CARD PLAY (VCR)	PLAY (VCR)	CARD

Shaded area : MV650i and MV630i only.

Available functions depend upon the operating mode. It is indicated as follows:

CAMERA : Function can be used in this mode.

CAMERA : Function cannot be used in this mode.

Other Symbols and References

❍ 📖 : Reference page number.
❍ 🔲 : Functions to be operated on the body of the camcorder.
❍ 📶 : Functions to be operated on the wireless controller.
❍ 🔖 : Additional topics that complement the basic operating procedures.
❍ ❗ : Precautions related to the camcorder operation.
❍ Capital letters are used to refer to buttons on the camcorder or the wireless controller.
❍ [ ] are used to refer to menu items displayed on the screen.
❍ "Screen" refers to the LCD and the viewfinder.

Thank You for Choosing a Canon

The Canon MV650i/MV630i/MV600i/MV600 provides a full range of options and functions. We recommend reading this manual thoroughly before you use the camcorder. It will help you to become more familiar with your camcorder, and learn how to operate it properly.

We suggest that you master the basic operations of the camcorder first, before moving on to its full range of features.

Checking Supplied Accessories

MV650i **MV630i** WL-D79 Wireless Controller, **MV600i** **MV600** WL-D80 Wireless Controller	Two AA Batteries	Lens Cap and Lens Cap Cord	SS-800 Shoulder Strap
Lithium Button Battery CR1616	**MV650i** BP-512 Battery Pack, **MV630i** **MV600i** **MV600** BP-508 Battery Pack	CA-570 Compact Power Adapter (incl. power cord)	**MV650i** WA-30.5 Wide Attachment
STV-250N Stereo Video Cable	PC-A10 SCART Adapter (Europe, Asia)	**MV650i** **MV630i** IFC-300PCU USB Cable	**MV650i** **MV630i** SDC-8M SD Memory Card (containing sample images)
MV650i **MV630i** Hard Case for SD Memory Card	DV NETWORK SOLUTION DISK **MV650i** **MV630i** DIGITAL VIDEO SOLUTION DISK		
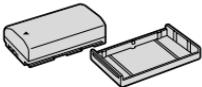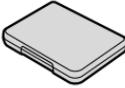
E

Introduction

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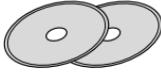
Introducing the MV650i/MV630i/MV600i/MV600

E

Introduction

22× Optical and 440× Digital Zoom (MV650i)

20× Optical and 400× Digital Zoom (MV630i)

18× Optical and 360× Digital Zoom (MV600i/MV600)

Image Stabilizer
Stabilises your recordings even in long telephoto shots (in CAMERA mode).

Night Mode
Allows recording even in dark places. The Night mode adjusts automatically to the optimum shutter speed.

Super Night Mode and Low Light Plus Mode (MV650i)
With the MV650i's Super Night mode (in CAMERA mode) and Low Light Plus mode (in CARD CAMERA mode), you can keep on shooting without turning the lights on. The assist lamp (White LED) lights up to illuminate the subject.

Still Images
Just press the photo button to capture still images like photographs.

My Camera Settings
You can personalise your camcorder by customizing the start-up image and camcorder sounds.

Analog Line-in Recording/ AV Insert Editing (MV650i/MV630i/MV600i), Audio Dubbing

Advanced Accessory Shoe (MV650i)
Simply slide Canon's DM-50 Directional Stereo Microphone or VL-3 Video Light into the accessory shoe; the camcorder will automatically provide power and connections.

Digital Effects
Show your creativity by using the special effects and faders. The multi-image screen captures moving subjects in 4, 9 or 16 sequences of still images.

Memory Card (MV650i/MV630i)
You can record images on a SD Memory Card or MultiMediaCard. Images recorded in Stitch Assist mode can be merged into one panoramic scene with the supplied software.

Direct Print (MV650i/MV630i)
You can print still images by connecting to a Canon Bubble Jet Printer with Direct Print function.

USB Terminal (MV650i/MV630i)
Allows transfer of memory card data to a computer with built-in USB port. You can organise and edit images on your computer using the supplied software.

IEEE1394 DV Terminal
The DV terminal allows high-quality transfer with virtually no deterioration in quality of images. You can edit images by connecting the camcorder to a PC with IEEE1394 terminal. Windows XP Users can use the supplied software to perform videoconference and file transfer over the Internet.

Components Guide

MV650i/MV630i/MV600i/MV600

REC SEARCH **+** button (p. 33) /
▶▶ (fast forward) button (p. 35) /
CARD **+** button* (p. 110)

REC (record) SEARCH **–** button (p. 33) /
⊟ Record review button (p. 33) /
◀◀ (rewind) button (p. 35) /
CARD **–** button* (p. 110)

FOCUS button (p. 74) /
▶/❙❙ (play/pause) button (p. 35)

AE SHIFT button (p. 76) /
■ (stop) button (p. 35) /
⊞ (index screen) button* (p. 111)

LCD panel OPEN button (p. 30)

BATT. (battery release)
button (p. 14)

LCD screen
(p. 30)

Serial number

Battery attachment unit
(p. 14)

MENU button (p. 43)

DC IN terminal (p. 13)

Backup battery cover
(p. 17)

Selector dial (p. 38, 43)

Card access indicator* (p. 103) /
CHARGE indicator (p. 14)

Memory card slot* (p. 99)

⟳ (self-timer) button
(p. 69) /
DATA CODE button
(p. 82)

DIGITAL EFFECTS
button (p. 60)

Digital effects ON/OFF button
(p. 60)

Card MIX button*
(p. 123) /
SLIDE SHOW button*
(p. 111)/
⊡ (stitch assist) button*
(p. 106)

Program selector (p. 56)

Ⓟ Program AE

☐ Easy recording

* **MV650i** and **MV630i** only.

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Diopter adjustment
lever (p. 18)

Viewfinder protect
cover (p. 141)

PHOTO button (p. 54, 103)

MV650i Advanced accessory
shoe (p. 72)
MV630i **MV600i** **MV600**
Accessory shoe (p. 149)

Zoom lever
(p. 28)

Built-in speaker
(p. 37)

Viewfinder (p. 18)

TAPE/CARD switch*
(p. 6)

TAPE

CARD

Strap mount (p. 19)

Start/stop button
(p. 26)

Grip belt (p. 18)

POWER switch (p. 6)

Strap mount (p. 19)

CAMERA

OFF

PLAY(VCR)

POWER

CAMERA

OFF

PLAY

Cassette compartment
cover (p. 20)

Cassette compartment
(p. 20)

* **MV650i** and **MV630i** only.

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Terminal cover

MV650i Assist lamp (White LED) (p. 58)

Remote sensor (p. 22)

Stereo microphone (p. 70)

Terminal cover

S-video IN/OUT terminal *² (p. 40)

DV IN/OUT terminal *² (p. 86)

MIC terminal (p. 70)

AV IN/OUT terminal *² (p. 39) / ⌒ (phones) terminal (p. 37)

USB terminal *¹ (p. 128)

Bottom view

OPEN/EJECT switch (p. 20)

Tripod socket (p. 34)

*¹ **MV650i** and **MV630i** only.

*² **MV600** Output only.

Wireless Controller
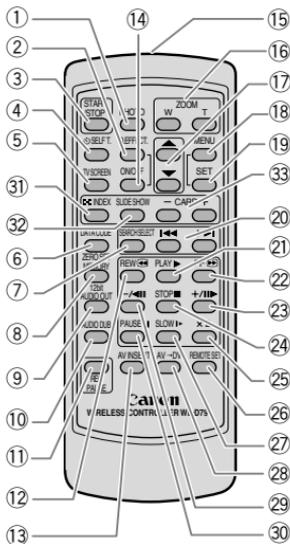
MV650i **MV630i** WL-D79   **MV600i** **MV600** WL-D80
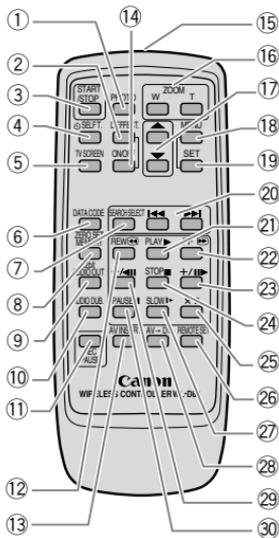
① PHOTO button (p. 54, 103)
② D. EFFECTS (Digital effects) button (p. 60)
③ START/STOP button (p. 26)
④ ⟳ SELF T. button (p. 69)
⑤ TV SCREEN button (p. 133)
⑥ DATA CODE button (p. 82)
⑦ SEARCH SELECT button (p. 84)
⑧ ZERO SET MEMORY button (p. 85)
⑨ 12bit AUDIO OUT button (p. 97)
⑩ AUDIO DUB. button (p. 96)
⑪ REC PAUSE button *² (p. 88)
⑫ REW◄◄ button (p. 35)
⑬ AV INSERT button *² (p. 94)
⑭ Digital effects ON/OFF button (p. 60)
⑮ Transmitter
⑯ Zoom buttons (p. 28)
⑰ Controller buttons (p. 43)

⑱ MENU button (p. 43)
⑲ SET button (p. 43)
⑳ Search buttons (p. 84)
㉑ PLAY ► button (p. 35)
㉒ FF ►► button (p. 35)
㉓ +/II►button (p. 36)
㉔ STOP■button (p. 35)
㉕ ×2 button (p. 36)
㉖ REMOTE SET button (p. 48)
㉗ SLOW I►button (p. 36)
㉘ AV→DV button *² (p. 92)
㉙ −/◄II button (p. 36)
㉚ PAUSE II button (p. 36)
㉛ ⊠ INDEX button *¹ (p. 111)
㉜ SLIDE SHOW button *¹ (p. 111)
㉝ CARD −/+ buttons *¹ (p. 110)

*¹ **MV650i** and **MV630i** only.
*² Not available with the **MV600**.

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Using a Household Power Source

You can operate the camcorder from a household power source using the supplied power adapter. The power adapter converts current from a power outlet (100-240 V AC, 50/60 Hz) to the DC current used by the camcorder.

1. Turn the POWER switch to OFF.

2. Connect the power cord to the power adapter.

3. Plug the power cord into a power outlet.

4. Connect the power adapter to the camcorder's DC IN terminal.
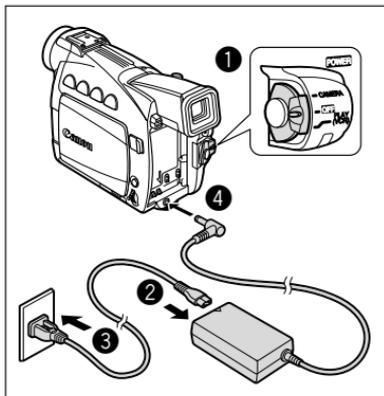
5. After use, disconnect the power adapter from the camcorder. Unplug the power cord from the power outlet and disconnect it from the adapter.

❍ Turn off the camcorder before connecting or disconnecting the power adapter.
❍ If the adapter is used close to a TV, it may cause picture interference. Move the adapter away from the TV or the antenna cable.
❍ Do not connect any products that are not expressly recommended to the camcorder's DC IN terminal or to the power adapter.
❍ You may hear some noise from the power adapter during use. This is not a malfunction.

Attaching and Charging the Battery Pack

Charge the battery pack with the supplied power adapter before you use the camcorder for the first time and subsequently when the message "CHANGE THE BATTERY PACK" appears.

1. Turn the POWER switch to OFF.

2. Move the viewfinder upward.

3. Attach the battery pack to the camcorder.

• Remove the terminal cover of the battery pack.

• Align the end of the battery pack with the line on the camcorder, press lightly and slide it in the direction of the arrow until it clicks.

click
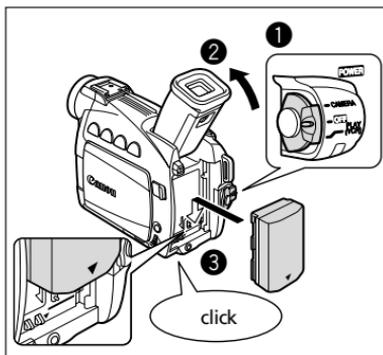
4. Connect the power cord to the adapter.

5. Plug the power cord into a power outlet.

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

7. When charging is complete, disconnect the power adapter from the camcorder. Unplug the power cord from the power outlet and disconnect it from the adapter.
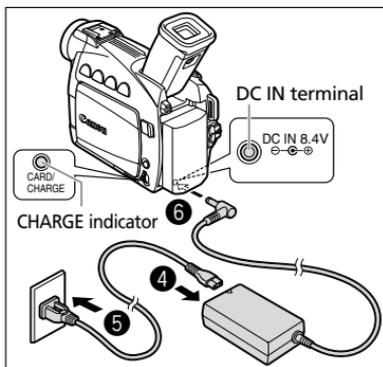
8. Remove the battery pack after use.

Press the BATT. button to remove the battery.

DC IN terminal

DC IN 8.4V

CARD/ CHARGE

CHARGE indicator

❍ The battery pack may be defective when the CHARGE indicator flashes rapidly.
❍ The CHARGE indicator informs you about the charge status.

    0-50%:   Flashes once every second
    More than 50%: Flashes twice every second
    100%:   Glows steadily

❍ Do not disconnect and reconnect the power cord while charging a battery pack. The battery pack may not be charged correctly even if the CHARGE indicator glows steady. The battery pack may also not be charged correctly when a power outage occurs during charging. Remove the battery pack and attach it back to the camcorder.

Charging, Recording and Playback Time

Below times are approximate and vary according to the charging, recording or playback conditions.

Charging Time

Battery Pack	Charging Time
BP-508 (MV630i/MV600i/MV600)	110 min.
BP-512 (MV650i/optional)	120 min.
BP-511 (Optional)	120 min.
BP-522 (Optional)	210 min.
BP-535 (Optional)	310 min.

• Charge the battery pack in temperatures between 5° C and 40° C.
• A lithium ion battery pack can be charged at any charge state. Unlike conventional battery packs, you do not need to completely use or discharge it before charging.

Recording Time

Battery Pack	Maximum Recording Time		Typical Recording Time*	
	Using the Viewfinder	Using the LCD	Using the Viewfinder	Using the LCD
BP-508 (MV630i/MV600i/MV600)	100 min.	75 min.	55 min.	40 min.
BP-512 (MV650i/Optional)	180 min.	140 min.	95 min.	75 min.
BP-511 (Optional)	180 min.	140 min.	95 min.	75 min.
BP-522 (Optional)	370 min.	295 min.	195 min.	155 min.
BP-535 (Optional)	590 min.	470 min.	315 min.	250 min.

* Approximate times for recording with repeated operations such as start/stop, zooming, power on/off. Actual time may be shorter.
• We recommend that you prepare battery packs 2 to 3 times longer than you think you might need.
• To conserve battery charge, turn off the camcorder instead of leaving it in record pause mode.

Playback Time

Battery Pack	Playback Time
	Using the LCD
BP-508 (MV630i/MV600i/MV600)	70 min.
BP-512 (MV650i/optional)	125 min.
BP-511 (Optional)	125 min.
BP-522 (Optional)	250 min.
BP-535 (Optional)	400 min.

Mastering the Basics

How much power is left?

The battery symbols indicate the charge status of the battery pack.
When the battery pack is empty, "CHANGE THE BATTERY PACK" appears for 4 seconds and 🔲 starts flashing.

The battery charge indicators are not constant – they vary according to the condition under which battery pack and camcorder are used.

Battery Pack Handling Precautions

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. 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 or knock it.

• 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.

❍ Attach the terminal cover whenever a battery pack is not in use. Contact to 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. 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 1 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, the optimal range is from 10° C to 30° C. 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.

Installing the Backup Battery

The backup battery allows the camcorder to retain date, time and other camcorder settings while the power source is disconnected. Power the camcorder from a household power source or with a battery pack when replacing the backup battery.

1. Open the backup battery cover.
2. Insert the lithium battery with the + side facing outward.
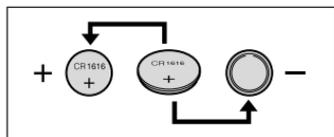
3. Close the cover.
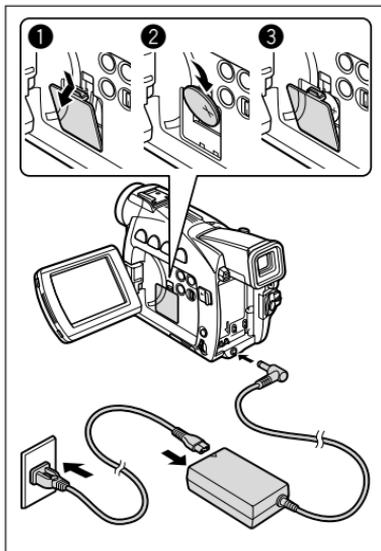
WARNING!
- The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100° C or incinerate the battery.
- Replace the battery with a CR1616 made by Panasonic, Hitachi Maxell, Sony, Toshiba, Varta or Renata. Use of other batteries may present a risk of fire or explosion.
- The used battery should be returned to the supplier for safe disposal.

❍ 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 reach of children. If it is swallowed, seek medical assistance immediately. The battery case may break and the battery fluids may damage stomach and intestines.
❍ Do not disassemble, heat or immerse the battery in water, to avoid the risk of explosion.

The backup battery has a life span of about a year. ⇔ flashes to inform you that it needs to be replaced.

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Preparing the Camcorder

Adjusting the Viewfinder (Diopter Adjustment)

1. Turn on the camcorder and keep the LCD panel closed to adjust the viewfinder.

2. Adjust the diopter adjustment lever.
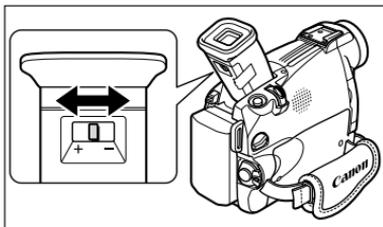
Do not leave the viewfinder exposed to direct sunlight as it may melt (due to concentration of light by the lens). Adjust the angle of the viewfinder to prevent sunlight from entering.

Attaching the Lens Cap

1. Attach the cord to the lens cap.

2. Pass the grip belt through the loop on the cord.

Press the buttons on the lens cap when attaching/removing it. Hook the lens cap on the grip belt while you are recording, and place it over the lens when you have finished.
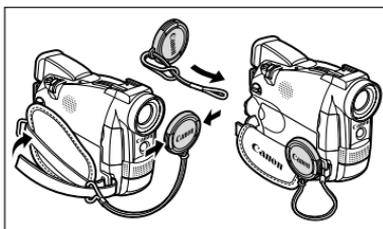
Fastening the Grip Belt

Hold the camcorder with your right hand and adjust the belt with your left.

Adjust the grip belt so that you can reach the zoom lever and photo button with your index finger, and the start/stop button with your thumb.
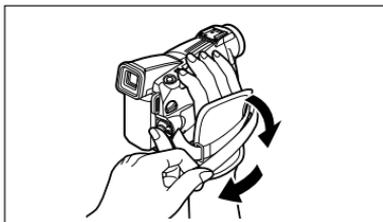
Attaching the Shoulder Strap

For extra security and portability, attach the shoulder strap before using the camcorder.

Pass the ends through the strap mount and adjust the length of the strap.
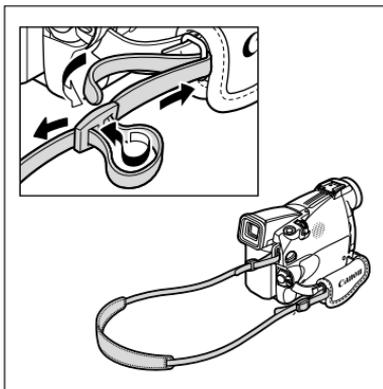
MV650i Mounting the Wide Attachment

The WA-30.5 Wide Attachment gives you a wide perspective for indoor shots or panoramic views (0.6×). The wide attachment is for use at maximum wide-angle.

Screw the wide attachment fully into the lens filter thread.

❍ If you zoom to telephoto, the picture will not be in focus.
❍ Do not look directly at the sun or other strong light sources through the wide attachment. It could damage your eyesight.
❍ When recording in wide angle with the wide attachment, the outer periphery of the image may become curved.
❍ Filters cannot be used with the wide attachment.
❍ If dust accumulates on the wide attachment or on the camcorder lens, clean both lenses gently with a blower brush.
❍ The wide attachment may obstruct the remote sensor (the range of the wireless controller narrows), or may cause a shadow to appear on the picture when recording with a video light or the assist lamp (White LED).
❍ Do not touch the lens to avoid smudges and fingerprints.
❍ Do not store the wide attachment in a humid place as it may mold.

Mastering
the Basics

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Loading a Cassette

E

Use only video cassettes marked with the ᴹⁱⁿⁱ $\mathbf{DV}$ logo.

Loading and Unloading

1. Slide and hold the OPEN/EJECT switch and open the cassette compartment cover.

The cassette compartment opens automatically.

2. Load/unload the cassette.

- Load the cassette with the window facing the grip belt and the REC/SAVE tab facing upward.
- Unload the cassette by pulling it straight out.

3. Press the [PUSH] mark on the cassette compartment until it clicks.

Wait for the cassette compartment to retract automatically.

4. Close the cassette compartment cover.

Tape protection tab

click
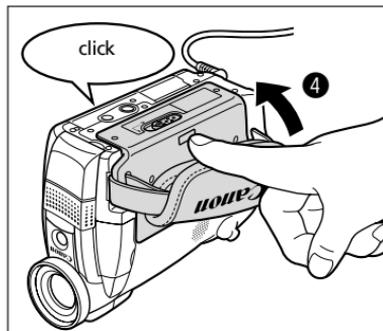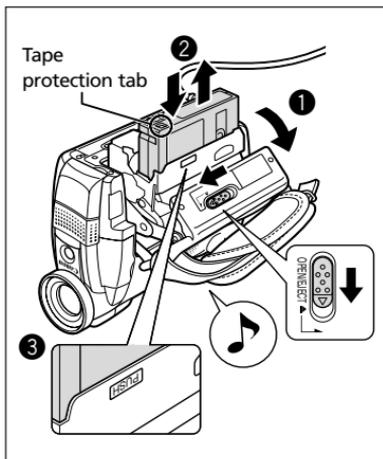
❍ Do not interfere with the cassette compartment while it is opening or closing automatically or attempt to close the cover until the cassette compartment has fully retracted.

❍ Be careful not to get your fingers caught in the cassette compartment cover.

❍ If the camcorder is connected to a power source, cassettes can be loaded/unloaded even if the POWER switch is set to OFF.

❍ ▣ flashes if no cassette is inserted when turning on the power (in CAMERA and PLAY (VCR) mode).

❍ With some types of tapes, the remaining tape display may not be accurate.

Mastering the Basics

Protecting Tapes from Accidental Erasure

To protect your recordings from accidental
erasure, slide the tab on the cassette to the
left. (This switch position is usually labelled
SAVE or ERASE OFF.)
If you load a protected cassette in CAMERA
mode, the message "THE TAPE IS SET FOR
ERASURE PREVENTION" appears for approx. 4

seconds and ⌧ starts flashing. If you wish to record on that cassette, slide the tab
back to the right.
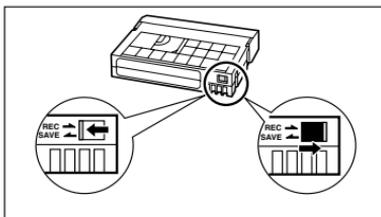
Cassette Handling Precautions

❍ Rewind tapes after use. If the tape becomes slack and damaged, it may cause
picture and sound distortion.
❍ Return cassettes in the case and store them upright.
❍ Do not leave the cassette in the camcorder after use.
❍ Do not use cassettes with spliced tapes or nonstandard cassettes as they may
damage the camcorder.
❍ Do not insert anything into the small holes of the cassette, or cover them with
cellophane tape.
❍ Handle cassettes with care. Do not drop or subject them to severe impact as this
may damage the cassettes.
❍ Rewind tapes from time to time if they are stored for a long time.
❍ With cassettes equipped with a memory function, metal plated terminals may
become dirty with use and the cassette's memory function may not work properly.
Clean the terminals with a cotton swab after about 10 times of loading/unloading.

Mastering
the Basics

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Using the Wireless Controller

You can operate the camcorder with the supplied wireless controller from a distance of up to 5 m. Point it at the camcorder's remote sensor when you press the buttons.

Following functions cannot be operated without the wireless controller:
• Some special playback modes (□ 36)
• Photo/date search (□ 84)
• Zero set memory (□ 85)
• **MV650i MV630i MV600i** Analog line-in (□ 88)
• **MV650i MV630i MV600i** DV dubbing (□ 89)
• **MV650i MV630i MV600i** AV Insert (□ 93)
• Audio dubbing (□ 95)
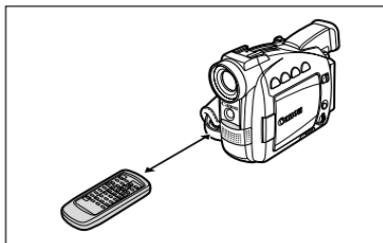
❍ The wireless controller may not work properly in bright places, such as outdoors under direct sunlight, or when used too close to the camcorder.
❍ The operable range of the wireless controller may shorten when the camcorder's remote sensor is exposed to strong light.
❍ When the batteries run out, replace both at the same time.

Inserting Batteries

The wireless controller operates with two AA batteries.

MV650i MV630i
WL-D79

❶ ❷ ❸

MV600i MV600
WL-D80

❶ ❷ ❸
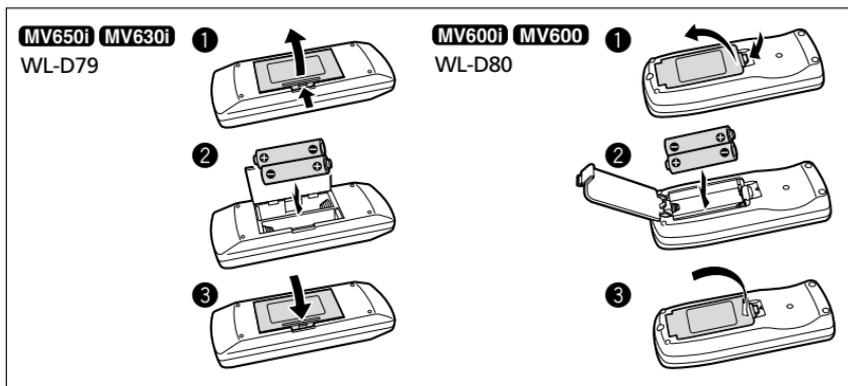
1. Open the battery cover.

2. Insert the batteries following the + and – markings.

3. Close the battery cover.

Setting the Time Zone, Date and Time 🎥🎞️

Set the time zone, date and time when you first start using your camcorder. Install the backup battery before you begin (📖 17).

Setting the Time Zone/Daylight Saving Time

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

SYSTEM	▶	T. ZONE / DST・・・PARIS

1. Press the MENU button to open the menu.
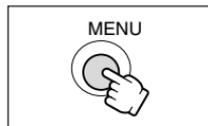
MENU

2. Turn the selector dial to select [SYSTEM] and press the selector dial.

3. Turn the selector dial to select [T.ZONE/DST] and press the selector dial.

PUSH

- The time zone setting appears.
- The default setting is Paris. Select your time zone and daylight saving time (DST) setting if necessary.

4. Turn the selector dial to select the setting option that represents your time zone.

To adjust for daylight saving time, select the time zone with the ☀ next to the area.

5. Press the MENU button to close the menu.

MENU
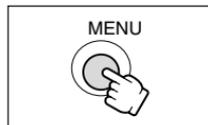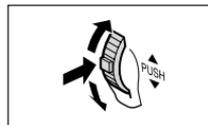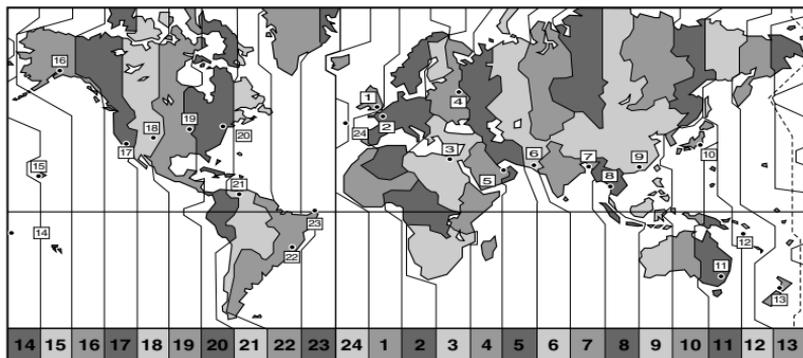
No.	Time zone	No.	Time zone
1	LONDON	13	WELLGTN (Wellington)
2	PARIS	14	SAMOA
3	CAIRO	15	HONOLU. (Honolulu)
4	MOSCOW	16	ANCHOR. (Anchorage)
5	DUBAI	17	L.A. (Los Angeles)
6	KARACHI	18	DENVER
7	DACCA	19	CHICAGO
8	BANGKOK	20	N.Y. (New York)
9	H. KONG (Hong Kong)	21	CARACAS
10	TOKYO	22	RIO (Rio de Janeiro)
11	SYDNEY	23	FERNAN. (Fernando de Noronha)
12	SOLOMON	24	AZORES

❍ Once you have set time zone, date and time, you do not need to reset the clock each time you travel to another time zone. Just set the time zone to the one of your destination, and the camcorder automatically adjusts the clock.

❍ Days per month and leap years will be automatically adjusted.

Setting the Date and Time

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU (□ 43)

SYSTEM	▶	D/TIME SET··· 1.JAN.2003 12:00 PM

1. Press the MENU button to open the menu.
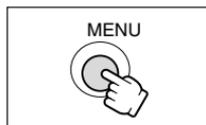
MENU

2. Turn the selector dial to select [SYSTEM] and press the selector dial.

3. Turn the selector dial to select [D/TIME SET] and press the selector dial.

The year display starts to flash.

4. Turn the selector dial to select the year, and press the selector dial.
- The next part of the display starts flashing.
- Set the month, day, hours and minutes in the same way.

5. Press the MENU button to close the menu and to start the clock.
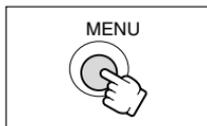
Time zone, date and time appear for 4 seconds each time you turn the power on.

❍ To change a part of the date or time, press the selector dial at step 4, and move to the part you wish to change.
❍ The date can be set to any year between 2003 and 2030.

Displaying Date and Time during Recording

You can display time zone, date and time in the lower left corner of the screen (the time zone disappears after 4 seconds). The 4-second display will no longer appear when you turn the power on. The date and time display will not be superimposed on your recordings.

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU (43) | DISPLAY SET UP | ▶ D/T DISPLAY··OFF |
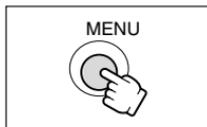
1. Press the MENU button to open the menu.

2. Turn the selector dial to select [DISPLAY SET UP] and press the selector dial.

3. Turn the selector dial to select [D/T DISPLAY] and press the selector dial.

4. Turn the selector dial to select [ON].

5. Press the MENU button to close the menu.
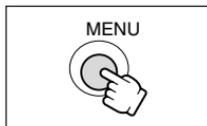
Recording Movies on a Tape

You can use the LCD screen or the viewfinder when recording.

Before You Begin Recording
Make a test recording first to check if the camcorder operates correctly. Before you make important recordings, clean the video heads (📖 141).

Preparations
Connect a power source. Load a cassette.

Recording

1. Remove the lens cap.

2. Set the camcorder to CAMERA mode.
If you have not set the time zone, date and time, "SET THE TIME ZONE, DATE AND TIME" appears. See *Setting the Time Zone, Date and Time* (📖 23).

MV650i/MV630i
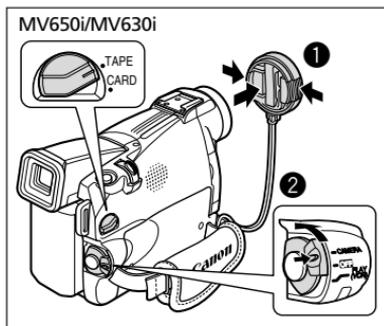
3. Open the LCD panel (📖 30).
To use the viewfinder, keep the LCD panel closed or rotate it so that the screen faces in the same direction of the lens (📖 31).

4. Press the start/stop button to begin recording.
Wait until the tape counter came to a complete stop before you begin recording.

5. Press the start/stop button again to pause recording.
Restart recording by pressing the start/stop button.

Mastering the Basics
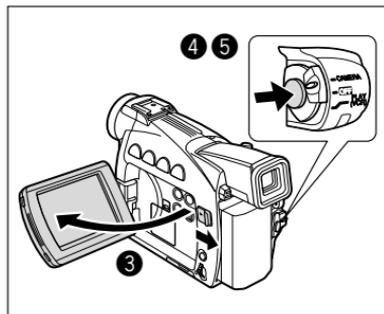
When You Have Finished Recording

1. Turn the POWER switch to OFF.

2. Close the LCD panel.

3. Replace the lens cap.

4. Unload the cassette.

5. Disconnect the power source.

When recording outdoors or through a window, do not leave LCD screen, viewfinder or lens exposed to direct sunlight as it may cause damage.

❍ Turn the power off if you do not intend to use the camcorder for a longer time.

❍ The camcorder will shut off after 5 minutes when left in record pause mode to protect tape and video heads. To continue recording, turn the POWER switch to OFF and then back to CAMERA.

❍ For when to use the ☐ (Easy Recording) or ℙ (program AE) mode, see *Using the Recording Programs* (◻ 56).

❍ When you do not remove the cassette, you can record the next scene without producing any noise or blank sections between the recordings even if you turn the camcorder off.

❍ About the built-in microphone: When recording near loud sounds (such as fireworks, drums or concerts), sound may become distorted or may be recorded not in the actual sound level.

❍ For extra recording time, see *Changing the Recording Mode* (◻ 53).

**Mastering
the Basics**

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Zooming

The camcorder's zoom lens allows you to choose the best picture angle for your recordings.

The camcorder automatically switches between optical zooming and digital zooming. Image resolution is slightly lower with the digital zoom.
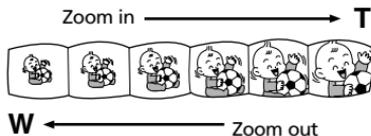
Zoom in ───────────→ **T**

W ←─────── Zoom out

Optical Zoom

MV650i	MV630i	MV600i MV600
22× optical zoom	20× optical zoom	18× optical zoom

Mastering the Basics

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

• Press the zoom lever slightly for a slow zoom. Press harder for a faster zoom.

• You can also use the T and W buttons on the wireless controller. However, you cannot control the zoom speed.
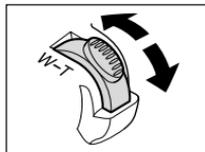
Digital Zoom

MV650i	MV630i	MV600i MV600
88×/440× digital zoom	80×/400× digital zoom	72×/360× digital zoom

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU
(□ 43)

CAMERA SET UP	▶	D.ZOOM・・・・・・88×

1. Press the MENU button to open the menu.

MENU

2. Turn the selector dial to select [CAMERA SET UP] and press the selector dial.

3. Select [D.ZOOM] and press the selector dial.

4. Select a setting option.

PUSH
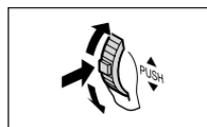
5. Press the MENU button to close the menu.

MENU
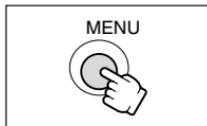
❍ Keep at least 1m to the subject. At wide-angle, you can focus on a subject as close as 1cm.
❍ Digital zoom cannot be used in the Night mode and Super Night (MV650i) mode.
❍ Digital zoom cannot be used when the multi-image screen is selected.
❍ A zoom indicator appears for 4 seconds. It extends in light blue when the digital zoom is set to 88×/80×/72×, and extends further in dark blue when set to 440×/400×/360×.
❍ **MV650i** **MV630i** Because the image stabilizer cannot be used in CARD CAMERA mode, we recommend mounting the camcorder on a tripod at large magnifications.

Mastering
the Basics

Using the LCD Screen

1. Push the OPEN button at the LCD panel and open the LCD panel.

The LCD screen switches on and the viewfinder switches off.

2. Rotate the LCD panel and choose the angle of the screen.

You can rotate the LCD panel so that the screen faces in the same direction as the lens

(📖 31), or push it flat against the camcorder with the screen facing outward.

3. Close the LCD panel after use.

• Close the LCD panel firmly until it clicks.
• The LCD screen switches off and the viewfinder switches on.
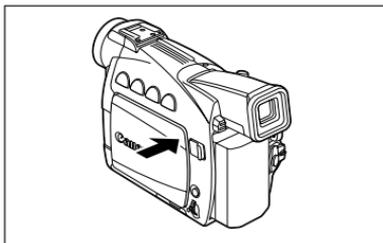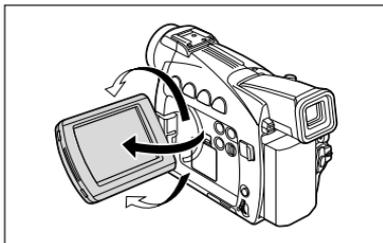
❍ Make sure to open the LCD panel at 90 degrees before rotating it.
❍ Rotate the LCD panel in the vertical position before closing the LCD panel.
❍ When recording outdoors or through a window, do not leave the LCD screen, viewfinder or lens exposed to direct sunlight as it may cause damage.
❍ Do not hold the camcorder by the LCD panel or the viewfinder.

❍ About the LCD Screen: The LCD screen is produced with 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 or green dots. This has no effect on the recorded image and does not constitute a malfunction.
❍ Bright light or reflected light may cause a vertical light bar to appear on the screen. This is not a malfunction.
❍ Bright light may make it difficult to use the LCD screen. In such case, use the viewfinder instead.

Adjusting the Brightness of the LCD Screen

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU ($\square$ 43)   DISPLAY SET UP   ▶ BRIGHTNESS · · −⊏┴┴┴┐+

1. Press the MENU button to open the menu.
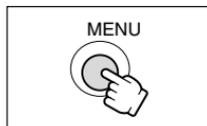
MENU

2. Turn the selector dial to select [DISPLAY SET UP] and press the selector dial.

3. Turn the selector dial to select [BRIGHTNESS] and press the selector dial.
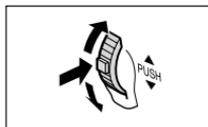
4. Turn the selector dial and adjust the level.

Turn the selector dial up to make the screen brighter and down to make it darker.

5. Press the MENU button to close the menu.

MENU
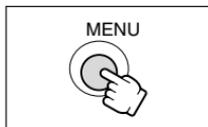
Changing the brightness of the LCD screen does not affect that of the viewfinder or the recordings.

Allowing the Subject to Monitor the LCD Screen

You can rotate the LCD panel so that the screen faces in the same direction as the lens. The viewfinder switches on allowing you to use the viewfinder while the subject can monitor the screen.
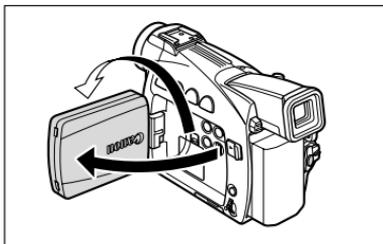
When you rotate the screen so that the screen faces in the same direction as the lens, the image appears mirror reversed (LCD MIRROR ON). However, you can choose to display the image as it is being recorded (LCD MIRROR OFF).

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(□ 43)

| DISPLAY SET UP | ▶ | LCD MIRROR··ON |

1. Press the MENU button to open the menu.

2. Turn the selector dial to select [DISPLAY SET UP] and press the selector dial.

3. Turn the selector dial to select [LCD MIRROR] and press the selector dial.

4. Turn the selector dial to select [OFF].

5. Press the MENU button to close the menu.

When [LCD MIRROR] is set to [ON], most screen displays appear mirror reversed.

Mastering the Basics

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Searching and Reviewing when Recording

REC (record) SEARCH – button/   REC SEARCH + button
⊆ Record review button
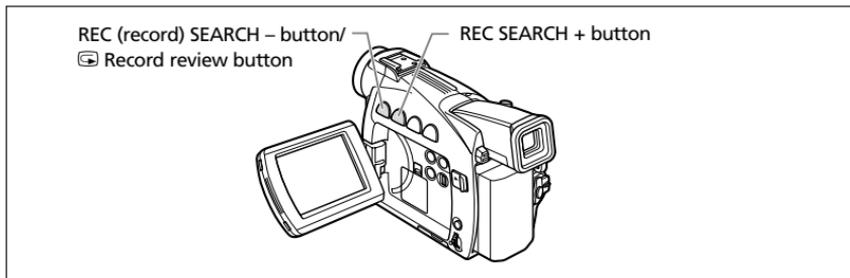
Record Review

| **CAMERA** | PLAY (VCR) | | CARD CAMERA | CARD PLAY (VCR) |

In record pause mode, this function allows you to review the last few seconds of your recording to check if it has been recorded properly.

Press and release the ⊆ (record review) button.
The camcorder rewinds the tape, plays back the last few seconds, and returns to record pause mode.
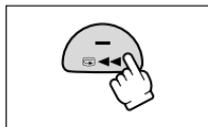
Record Search

| **CAMERA** | PLAY (VCR) | | CARD CAMERA | CARD PLAY (VCR) |

In record pause mode, this function allows you to play back the tape (forward or reverse) to locate the point where you wish to begin recording.

Press and hold the REC SEARCH + button (forward) or – button (reverse).
• Release the button at the point you wish to begin recording.
• The camcorder returns to record pause mode.
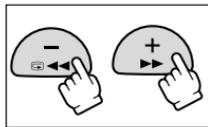
❍ Noise may appear on the screen when you play back the tape in reverse.
❍ There will be no sound during Record Review and Record Search.

Tips for Making Better Videos

Holding the Camcorder

For maximum stability, grip the camcorder in your right hand and keep your right elbow pressed against your body. If necessary, support the camcorder with your left hand. Be careful that your fingers do not touch the microphone or lens.

High-angle Recording   Low-angle Recording

For More Stability

Lean against a wall   Put the camcorder on a table

Lie on your elbow   Use a tripod

Lighting

When recording outdoors, we recommend recording with the sun at your back.

❍ When using 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 as it may damage the camcorder.

Playing Back a Tape

When you use the LCD screen for playback, the camcorder plays back the sound via built-in speaker. The built-in speaker is monaural. Use headphones for stereo sound or when using the viewfinder for playback.

Preparations

Connect a power source. Load a cassette.

Playback

1. Set the camcorder to PLAY (VCR) mode.

MV650i/MV630i

TAPE
CARD

❶
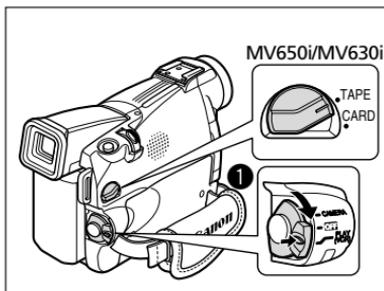
2. Open the LCD panel.

You can also close the LCD panel with the screen facing outward.

3. Press the ◄◄ button to rewind the tape.

To fast forward the tape, press the ►► button. To stop playback, press the ■ button.

4. Press the ►/❙❙ button to begin playback.

5. Press the ■ button to stop playback.

❸ ❹ ❺

❷
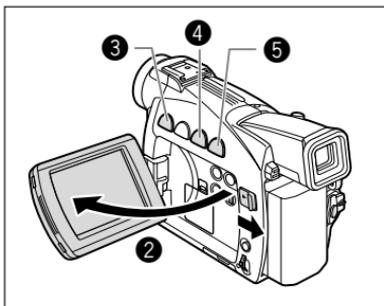
❍ If the playback picture is distorted, clean the video heads using a Canon Head Cleaning Cassette or a commercially available digital video head-cleaning cassette.

❍ To use the viewfinder, close the LCD panel. The built-in speaker does not sound. Use headphones when using the viewfinder (◻ 37).

❍ For displaying the date and time during playback, see *Displaying the Data Code* (◻ 82).

Special Playback Modes

Special playback modes (except of playback pause and fast/rewind playback) can only be operated with the wireless controller.

◄◄ (rewind) button
►► (fast forward) button

■ (stop) button
►/❙❙ (play/pause) button
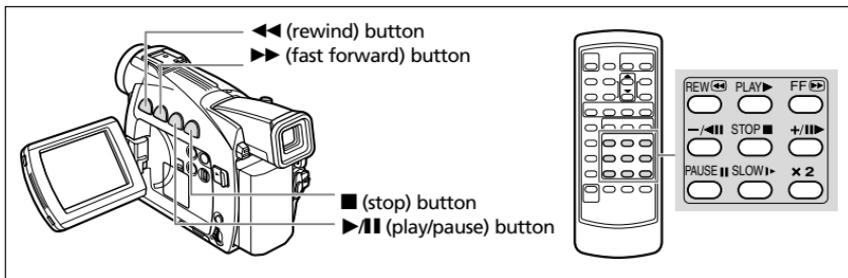
►/❙❙ (Playback Pause)

To pause playback, press the ►/❙❙ button. Press the ►/❙❙ button to resume playback. The camcorder goes into stop mode after 5 minutes in playback pause mode.

►► (Fast Forward Playback) / ◄◄ (Rewind Playback)

Plays back the tape at 11.5 times normal speed (forward or reverse). Press and hold the button during normal playback or fast forward.

+/❙❙► (Frame Advance) / −/◄❙❙ (Frame Reverse)

Plays back frame-by-frame. Press the button repeatedly during playback pause. Press and hold it to play back continuous frame advance/frame reverse.

SLOW ❙► (Slow Forward)/(Slow Reverse)

Plays back at about 1/3 normal speed. For slow forward playback, press the SLOW ❙► button. For slow reverse playback, press the −/◄❙❙ button followed by the SLOW ❙► button. Press the ► (play) button to return to normal playback.

−/◄❙❙ (Reverse Playback)

Plays back in reverse at normal speed. Press the button during normal playback. Press the ► (play) button return to normal playback. The camcorder goes into stop mode after 5 minutes in reverse playback pause.

× 2 (Forward× 2 Playback)/(Reverse 2× Playback)

Plays back at 2 times normal speed. Press the button during normal or reverse playback. Press the ► (play) button return to normal playback.

❍ There is no sound during special playback.
❍ The picture may become distorted during some special playback modes.

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Playing Back with the Built-in Speaker/Headphones

Built-in speaker
Ω (phones) terminal
MENU button
Selector dial
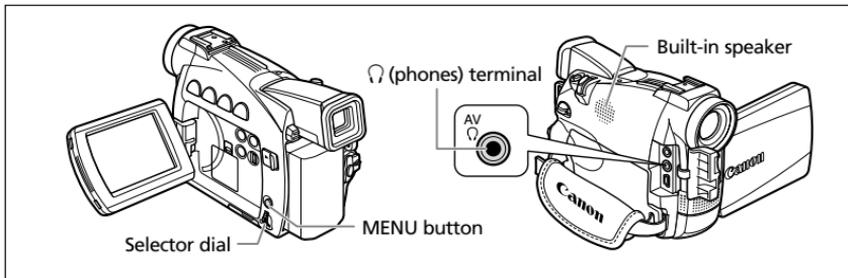
When using the built-in speaker, make sure that "Ω" is not displayed on the screen. When using the headphones, make sure that "Ω" is displayed. Change the setting as necessary following the procedure below.

Switching the AV/Headphones Terminal

Mastering the Basics

| CAMERA | PLAY (VCR) | | CARD CAMERA | CARD PLAY (VCR) |

MENU
(□ 43)

| VCR SET UP | ▷ | AV / PHONES • • • AV |
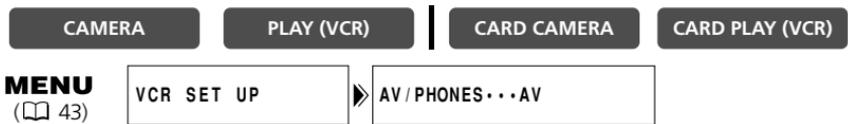
1. Press the MENU button to open the menu.
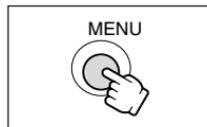
MENU

2. Turn the selector dial to select [VCR SET UP] and press the selector dial.

3. Turn the selector dial to select [AV/PHONES] and press the selector dial.

PUSH

4. Turn the selector dial to select [AV] or [PHONES Ω].

5. Press the MENU button to close the menu.

MENU
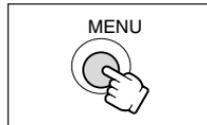
❍ The built-in speaker does not sound when "Ω" is displayed.
❍ Do not connect headphones unless "Ω" is displayed as it produces noise.
❍ The built-in speaker is monaural. Use headphones for stereo sound.
❍ The built-in speaker turns off when the camcorder is set to a mode other than the PLAY (VCR) mode or when you use the headphones.

Adjusting the Volume

*Headphone volume only.

Turn the selector dial up to increase the volume, and down to lower the volume.

• A volume bar appears for 4 seconds.

• You can turn off the volume completely by turning the selector dial down until OFF appears. Turn the selector dial up to increase the volume again.
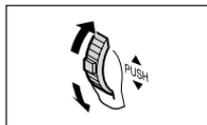
❍ Sound may become distorted when the volume is turned up too high.
❍ The headphone volume can be adjusted in all operating modes.
❍ The camcorder retains the setting even if you turn it off (separately for headphones and built-in speaker).

Mastering the Basics

Playing Back on a TV Screen

You can connect the camcorder to a TV or VCR to play back your recordings on a TV screen.

❍ Make sure that "⌒" is not displayed on the screen. If "⌒" is displayed on the screen, change the setting (37).

❍ When you use the TV as a monitor during recording, keep the TV volume turned down as long as the camcorder's audio terminals are connected. An unpleasant high-pitched squeal, called feedback, may be produced if sound from the TV speakers is picked up by the microphone.

For high picture quality, we recommend using a TV with an S (S1) terminal.

TVs with SCART Terminal

Refer also to the TV or VCR instruction manual.

Signal flow

STV-250N Stereo Video Cable
(supplied)

PC-A10 SCART
Adapter (supplied)
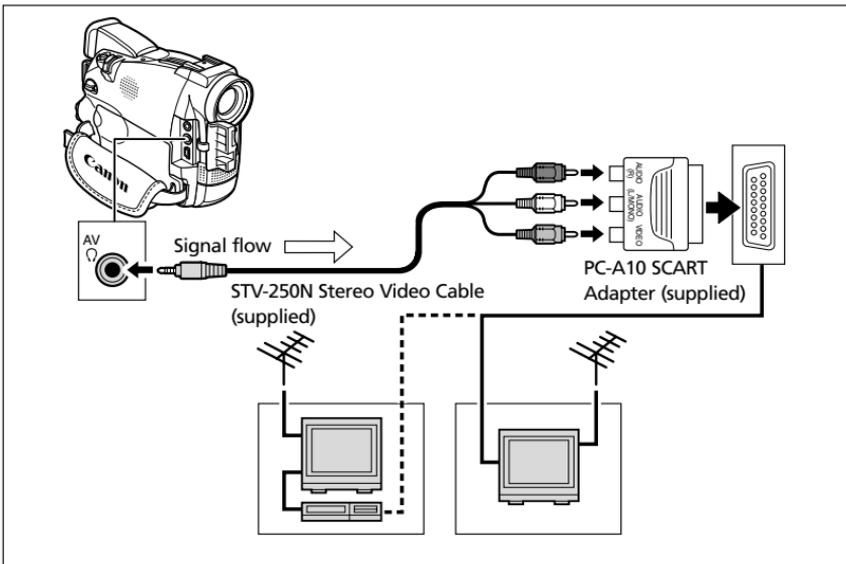
1. **Turn off all devices before starting the connections.**
2. **Connect the PC-A10 SCART adapter to the TV or VCR's SCART terminal.**
3. **Connect the STV-250N Video Cable to the camcorder's AV terminal and the audio/video terminals on the SCART adapter.**

   Connect the white plug to the white AUDIO terminal L (left), the red plug to the red AUDIO terminal R (right) and the yellow plug to the yellow VIDEO terminal.

4. If connecting to a TV, set the input selector to VIDEO. If connecting to a VCR, set the input selector to LINE.

The SCART Adapter PC-A10 is for output only. For analog line-in recording or analog-digital conversion, please use a SCART adapter with input capability (commercially available).

TVs with S (S1)-Video Input Terminal

Refer also to the TV or VCR instruction manual.

INPUT

S(S1)-VIDEO

Signal flow

S-150 S-video Cable (optional)

VIDEO

AUDIO
L

AV

Signal flow

R

STV-250N Stereo Video Cable (supplied)
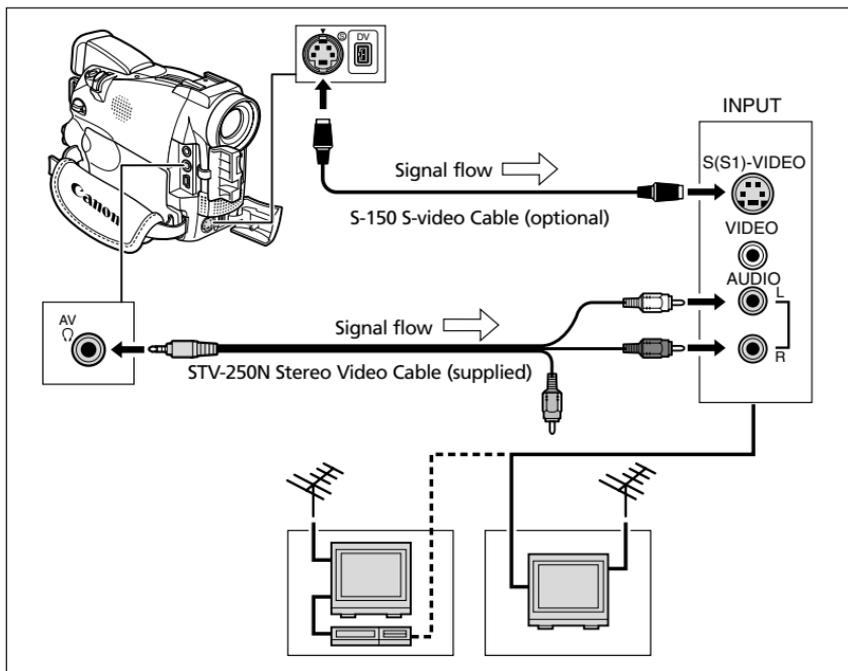
1. Turn off all devices before starting the connections.

2. Connect the S-150 S-video Cable (optional) to the S-video terminals.

3. Connect the STV-250N Stereo Video Cable to the camcorder's AV terminal and the audio terminals of the TV/VCR.

Connect the white plug to the white AUDIO terminal L (left), and the red plug to the red AUDIO terminal R (right). Do not connect the yellow plug.

4. If connecting to a TV, set the input selector to VIDEO. If connecting to a VCR, set the input selector to LINE.

TVs with Audio/Video Terminals

Refer also to the TV or VCR instruction manual.

Signal flow

STV-250N Stereo Video Cable (supplied)

VIDEO
AUDIO
L
R

AV
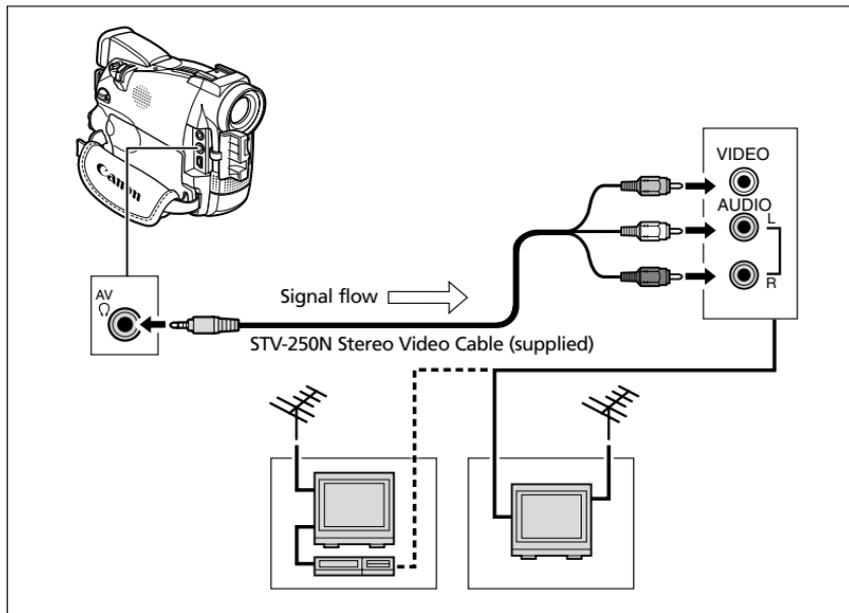
1. **Turn off all devices before starting the connections.**
2. **Connect the STV-250N Stereo Video Cable to the camcorder's AV terminal and the audio/video terminals on the TV/VCR.**

   Connect the white plug to the white audio terminal L (left), the red plug to the red audio terminal R (right) and the yellow plug to the yellow video terminal VIDEO.
3. **If connecting to a TV, set the input selector to VIDEO. If connecting to a VCR, set the input selector to LINE.**

Selecting the Audio Output Channel

You can select the output channels when playing back a tape with audio recorded on two channels.

MENU
($\square$ 43)   AUDIO SET UP   ▶ OUTPUT CH···L/R

**1. Press the MENU button to open the menu.**

MENU
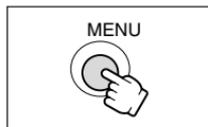
2. Turn the selector dial to select [AUDIO SET UP] and press the selector dial.

3. Turn the selector dial to select [OUTPUT CH] and press the selector dial.

PUSH

4. Turn the selector dial to select a setting option.
  • L/R: Stereo: L+R channels, Bilingual: Main+Sub.
  • L/L: Stereo: L channel, Bilingual: Main.
  • R/R: Stereo: R channel, Bilingual: Sub.

5. Press the MENU button to close the menu.
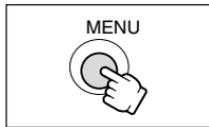
MENU

The setting resets to the L/R setting when you turn the camcorder off.

Mastering
the Basics

Menus and Settings

Many of the camcorder's advanced functions are selected from menus that appear on the screen.

Selecting Menus and Settings

1. Set the camcorder to the correct operating mode.

MV650i/MV630i

TAPE
CARD
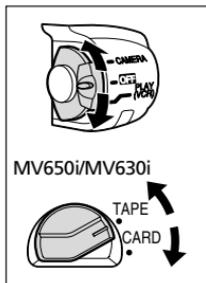
2. Press the MENU button to open the menu.
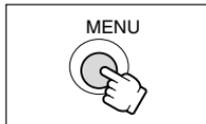
MENU

3. Turn the selector dial to select a submenu and press the selector dial.

4. Turn the selector dial to select a menu item and press the selector dial.

PUSH

5. Turn the selector dial to select a setting option.

6. Press the MENU button to close the menu.

When setting the white balance or shutter speed, press the selector dial first before pressing the MENU button.
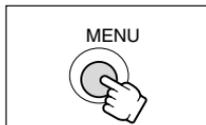
MENU

❍ Pressing the MENU button at any time closes the menu.
❍ Selecting [← RETURN] takes you back one level.
❍ Items that are not available appear in purple.
❍ You may find it more convenient to use the wireless controller to operate the menu. Press the MENU button on the wireless controller to open or close the menu. Use the arrow keys in place of the selector dial and press the SET button in place of pressing the selector dial.

Using the Full Range of Features

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Menu and Default Settings

Default settings are shown in boldface.

CAMERA Menu (CAM. MENU)

CAMERA	PLAY (VCR)		CARD CAMERA	CARD CAMERA

Submenu	Menu Item	Setting Options	📖
➡ CARD MIX *2	MIX TYPE	**CARD CHROMA**, CARD LUMI., CAM. CHROMA, C. ANIMATION	121
	ANIMAT. TYPE	**CORNER**, STRAIGHT, RANDOM	122
	MIX LEVEL		121
CAMERA SET UP	SHUTTER	**AUTO**, 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000	77
	D. ZOOM	MV650i: OFF, **88×**, 440× MV630i: OFF, **80×**, 400× MV600i/MV600: OFF, **72×**, 360×	28
	IMAGE S. (〰)	**ON**, OFF	68
	16:9	ON, **OFF**	51
	WHITE BAL.	**AUTO**, SET �, INDOOR ⚮, OUTDOOR ☀	79
VCR SET UP	REC MODE	**SP**, LP	53
	AV/PHONES	**AV**, PHONES ∩	37
AUDIO SET UP	WIND SCREEN	ON, **OFF**	70
	AUDIO MODE	16bit, **12bit**	70
DISPLAY SET UP	BRIGHTNESS		31
	LCD MIRROR	**ON**, OFF	32
	TV SCREEN	**ON**, OFF	133
	D/T DISPLAY	ON, **OFF**	25
	DEMO MODE	**ON**, OFF	52
SYSTEM	BUTTONLIGHT *1	**ON**, PUSH ON, OFF	50
	LIGHT COLOR *1	GREEN, ORANGE, BLUE, YELLOW, **TURQUOISE**, PURPLE	50
	WL. REMOTE	**((🔲1**, ((🔲2, OFF ((🔲	48
	BEEP	**ON**, OFF	51
	T.ZONE/DST	See list of time zones	23
	D/TIME SET		24
MY CAMERA	S-UP IMAGE *3	**ON**, OFF	49
	SHTR SOUND *2	**PATTERN1**, PATTERN2, PATTERN3	49
	S-UP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S/STOP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	SELF-T SOUND	**PATTERN1**, PATTERN2, PATTERN3	49

44   *1 **MV650i** , *2 **MV650i** **MV630i** , *3 **MV600i** **MV600**

PLAY (VCR) Menu (VCR MENU)

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD CAMERA |

E

Submenu	Menu Item	Setting Options	🕮
VCR SET UP	REC MODE *4	**SP**, LP	53
	AV/PHONES	**AV**, PHONES ⌂	37
	AV ➡ DV OUT *4	ON, **OFF**	92
AUDIO SET UP	OUTPUT CH	**L/R**, L/L, R/R	42
	AUDIO DUB *4	**AUDIO IN**, MIC. IN	96
	WIND SCREEN	ON, **OFF**	70
	AUDIO MODE *4	16bit, **12bit**	70
	12bit AUDIO	**STEREO1**, STEREO2, MIX/FIXED, MIX/VARI.	97
	MIX BALANCE		97
CARD SET UP *2	SI QUALITY	SUPER FINE, **FINE**, NORMAL	100
	MOVIE SIZE *1	**320 × 240**, 160 × 120	101
	FILE NOS.	RESET, **CONTINUOUS**	102
CARD OPERATIONS *2	COPY 📼➡🗔	**CANCEL**, EXECUTE	125
DISPLAY SET UP	BRIGHTNESS		31
	DISPLAYS	**ON**, OFF <PLAYBK>	133
	6SEC. DATE	ON, **OFF**	83
	DATA CODE	**DATE/TIME**, CAMERA DATA, CAM. & D/T	83
	D/TIME SEL.	DATE, TIME, **DATE & TIME**	83
SYSTEM	BUTTONLIGHT *1	**ON**, PUSH ON, OFF	50
	LIGHT COLOR *1	**GREEN**, ORANGE, BLUE, YELLOW, TURQUOISE, PURPLE	50
	WL. REMOTE	«▦1, «▦2, OFF «▧	48
	BEEP	**ON**, OFF	51
	T.ZONE/DST	See list of time zones	23
	D/TIME SET		24
MY CAMERA	S-UP IMAGE*3	**ON**, OFF	49
	SHTR SOUND *2	**PATTERN1**, PATTERN2, PATTERN3	49
	S-UP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S/STOP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	SELF-T SOUND	**PATTERN1**, PATTERN2, PATTERN3	49

*1 **MV650i**, *2 **MV650i** **MV630i**, *3 **MV600i** **MV600**, *4 Does not appear with the **MV600**.

MV650i MV630i CARD CAMERA Menu (C. CAM. MENU)

| CAMERA | PLAY (VCR) | **CARD CAMERA** | CARD PLAY (VCR) |

Submenu	Menu Item	Setting Options	📖
CAMERA SET UP	SHUTTER	**AUTO**, 1/50, 1/120, 1/250	77
	WHITE BAL.	**AUTO**, SET ⛄, INDOOR ☼, OUTDOOR ☀	79
CARD SET UP	SI QUALITY	SUPER FINE, **FINE**, NORMAL	100
	SI SIZE	**1024 × 768**, 640 × 480	100
	MOVIE SIZE *1	**320 × 240**, 160 × 120	101
	FILE NOS.	RESET, **CONTINUOUS**	102
VCR SET UP	AV/PHONES	**AV**, PHONES ⌒	37
AUDIO SET UP *1	WIND SCREEN	ON, **OFF**	70
DISPLAY SET UP	BRIGHTNESS		31
	LCD MIRROR	**ON**, OFF	32
	TV SCREEN	**ON**, OFF	133
	D/T DISPLAY	ON, **OFF**	25
	DEMO MODE	**ON**, OFF	52
SYSTEM	BUTTONLIGHT *1	**ON**, PUSH ON, OFF	50
	LIGHT COLOR *1	GREEN, ORANGE, **BLUE**, YELLOW, TURQUOISE, PURPLE	50
	WL. REMOTE	((⬚1, ((⬚2, OFF ((⬚	48
	BEEP	**ON**, OFF	51
	T.ZONE/DST	See list of time zones	23
	D/TIME SET		24
MY CAMERA	SHTR SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S-UP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S/STOP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	SELF-T SOUND	**PATTERN1**, PATTERN2, PATTERN3	49

*1 MV650i

MV650i MV630i CARD PLAY (VCR) Menu (C.PLAY MENU)

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

E

Submenu	Menu Item	Setting Options	🔲
CARD OPERATIONS (Single Image Display)	COPY 🗔➡🔳	**CANCEL**, EXECUTE	126
	🖨PRINT ORDERS ALL ERASE	YES, **NO**	116
	IMAGE ERASE	**CANCEL**, SINGLE, ALL	114
	FORMAT	**CANCEL**, EXECUTE	127
CARD OPERATIONS (Index Screen)	➡ PROTECT 🔒		113
	➡ 🖨PRINT ORDER		115
VCR SET UP	REC MODE	**SP**, LP	53
	AV/PHONES	**AV**, PHONES 🎧	37
DISPLAY SET UP	BRIGHTNESS		31
	DISPLAYS	**ON**, OFF	133
	D/TIME SEL.	DATE, TIME, **DATE & TIME**	83
SYSTEM	BUTTONLIGHT *1	**ON**, PUSH ON, OFF	50
	LIGHT COLOR *1	GREEN, ORANGE, BLUE, **YELLOW**, TURQUOISE, PURPLE	50
	WL. REMOTE	((📻1, ((📻2, OFF ((📻	48
	BEEP	**ON**, OFF	51
	T.ZONE/DST	See list of time zones	23
	D/TIME SET		24
MY CAMERA	CREATE START-UP IMAGE		129
	SEL. S-UP IMG	NO IMAGE, **CANON LOGO**, MY IMAGE	49
	SHTR SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S-UP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	S/STOP SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
	SELF-T SOUND	**PATTERN1**, PATTERN2, PATTERN3	49
➡ 🖨PRINT	Appears when connecting a printer with direct print function.		117

*1 MV650i

Using the Full Range of Features

Changing the Remote Sensor Mode 📺✎

Two remote sensor modes and an off setting are available to prevent interference from other Canon wireless controllers being used nearby.

Turning the Remote Sensor Off

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(📖 43)

| SYSTEM | ▶ | WL . REMOTE · · · ((📷)) 1 |

Open the menu and select [SYSTEM]. Select [WL. REMOTE], set it to [OFF ((📷))] and close the menu.

" ((📷)) " appears.

Changing the Remote Sensor Mode

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(📖 43)

| SYSTEM | ▶ | WL . REMOTE · · · ((📷)) 1 |

1. On the camcorder, open the menu and select [SYSTEM]. Select [WL. REMOTE], set it to [((📷)) 2] and close the menu.

The selected mode appears for 4 seconds.

2. On the wireless controller, press and hold the REMOTE SET button. Set the mode to the same of the camcorder. Press the ZOOM T button for mode 2. Keep the button pressed for over 2 seconds.

If you have set the camcorder to mode 1, press the ZOOM W button for mode 1.
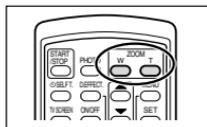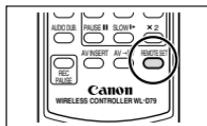
✎ ❍ The wireless controller returns to mode 1 when you replace the batteries. Change the mode if necessary.

❍ Make sure that camcorder and wireless controller are set to the same mode. Display the camcorder's mode by pressing any button on the wireless controller (except of the REMOTE SET button) and set the wireless controller's mode to the same mode. Change the batteries if the wireless controller still does not work.

Customizing the Camcorder

You can personalise your camcorder by customizing the start-up image and the sound it makes for start-up, shutter*, start/stop and self-timer (collectively called the My Camera settings).

* MV650i and MV630i only. With the MV650i and MV630i, you can also create your own start-up image. See *Creating a Start-up Image* (□ 129).

Changing the My Camera Settings

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU
(□ 43)

MY CAMERA	▶	S–UP IMAGE···ON	(MV600i/MV600)
		SHTR SOUND···PATTERN1	
		S–UP SOUND···PATTERN1	
		S/STOP SOUND·PATTERN1	
		SELF–T SOUND·PATTERN1	
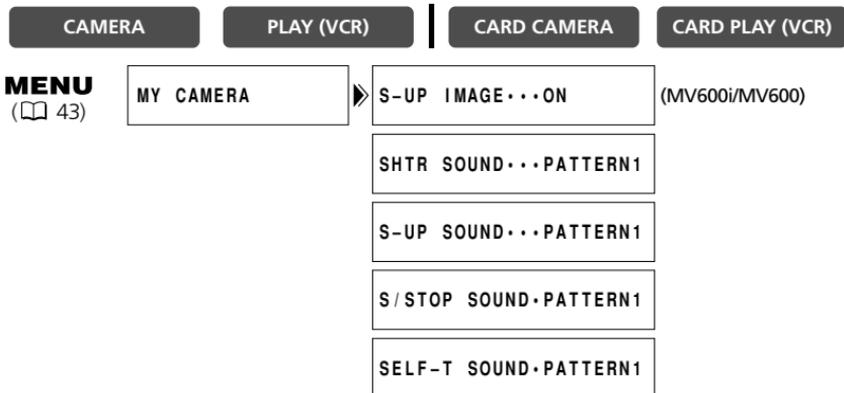
1. Open the menu and select [MY CAMERA].

2. Select the menu item you wish to change.

- **MV650i MV630i** When selecting a start-up image (only in CARD PLAY (VCR) mode): [NO IMAGE], [CANON LOGO] and [MY IMAGE] appears.
- **MV600i MV600** When selecting a start-up image: [OFF] and [ON] appears.
- When selecting a sound: [PATTERN1], [PATTERN2] and [PATTERN3] appear.

3. Select a setting option and close the menu.

Using the Full Range
of Features

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E

The buttons above the LCD panel light up when the camcorder's power is on, or when you press a button. This is helpful if, for example, you wish to play back a tape in dark places.
You can select the colour of the light-up buttons from green, orange, blue, yellow, turquoise and purple.

MENU button

Selector dial
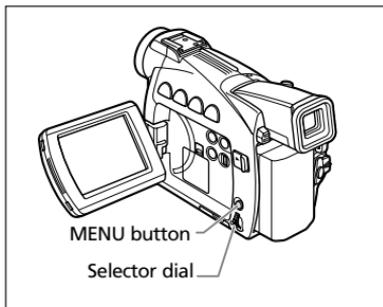
Selecting the Light-up Setting

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(📖 43)

| SYSTEM | ▶ | BUTTONLIGHT•ON |

Open the menu and select [SYSTEM]. Select [BUTTONLIGHT], set it to [PUSH ON] or [OFF] and close the menu.

• ON: The buttons light up while the camcorder is turned on. The colour changes when you press a button and turns back when you release the button.
• PUSH ON: The buttons light up when you press a button and turn off when you release the button.
• OFF: Buttons do not light up.

Selecting the Colour of the Buttons

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(📖 43)

| SYSTEM | ▶ | LIGHT COLOR•TURQUOISE |

Open the menu and select [SYSTEM]. Select [LIGHT COLOR], set it to the desired colour and close the menu.

You cannot change the colour of the buttons when [BUTTONLIGHT] is set to [OFF].

Using the Full Range of Features

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Other Camcorder Settings

Beep

You will hear a beep upon camcorder operations such as power on/off, start/stop, self-timer countdown, automatic shut-off, and unusual conditions of the camcorder. The beep will not be recorded.

If you turn off the beep, all camcorder sounds including the ones of the My Camera settings will be turned off.

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

SYSTEM	▶	BEEP · · · · · · · · · ON
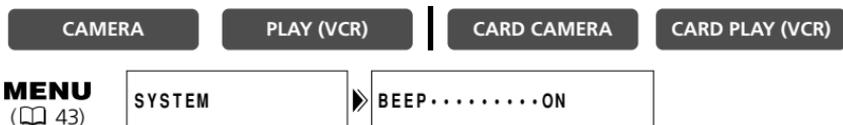
To turn the beep off, open the menu and select [SYSTEM]. Select [BEEP], set it to [OFF] and close the menu.

Recording in 16:9 (Wide Screen TV Recording)

You can record in the 16:9 format for playback on wide screen TVs.

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

CAMERA SET UP	▶	16:9 · · · · · · · · OFF
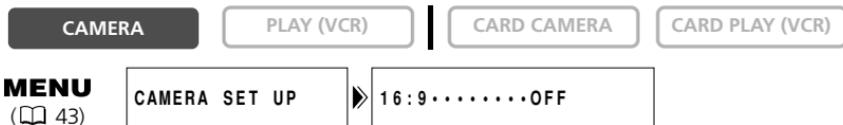
To switch 16:9 on, open the menu and select [CAMERA SET UP]. Select [16:9], set it to [ON] and close the menu.

"16:9" appears.

❍ The 16:9 mode cannot be selected in the Easy Recording mode.
❍ The multi-image screen cannot be used when the 16:9 format is selected.
❍ If you play back a 16:9 recording on a normal TV, the image appears vertically "squashed" (compressed).

Using the Full Range
of Features

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Demonstration Mode

The demonstration mode displays the camcorder's main features. It starts automatically when you leave the camcorder turned on without loading a cassette (MV650i/MV630i: and without inserting a memory card) for more than 5 minutes. You can also start the demonstration mode through the menu.

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

DISPLAY SET UP	▶	DEMO MODE•••ON

With no cassette (MV650i/MV630i: and memory card) inserted, open the menu and select [DISPLAY SET UP]. Select [DEMO MODE], set it to [OFF] and close the menu.

To cancel the demo mode, press any button, turn off the camcorder, load a cassette (MV650i/MV630i: or insert a memory card).

Changing the Recording Mode (SP/LP) 📷 🎞️

You can choose from SP (standard play) and LP (long play). LP extends the tape usage by 1.5 times.

⚠️ ❍ Tapes recorded in LP mode cannot be used for audio dubbing (□ 95) or AV insert (□ 93).

❍ Depending on the nature and usage condition of the tape, picture and sound recorded in LP mode may be distorted. We recommend using the SP mode for important recordings.

❍ We recommend recording in SP mode if you plan to transfer the images to a computer.

❍ If you record in both SP and LP modes on the same tape, the playback picture may become distorted and the time code may not be written correctly.

❍ If you play back a tape that has been recorded in LP mode with another digital device on this camcorder, or vice versa, picture and sound may become distorted.

| CAMERA | PLAY (VCR)* | CARD CAMERA | CARD PLAY (VCR) |

 * MV650i/MV630i/MV600i only.

MENU
(□ 43)

| VCR SET UP | ▶ | REC MODE····SP |

To change to LP mode, open the menu and select [VCR SET UP]. Select [REC MODE], set it to [LP] and close the menu.

Using the Full Range
of Features

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Recording Still Images on a Tape

You can record still images on the tape. Starting your recording with a still image allows you to easily locate the beginning of the recording with the Photo Search function (84).

PHOTO button
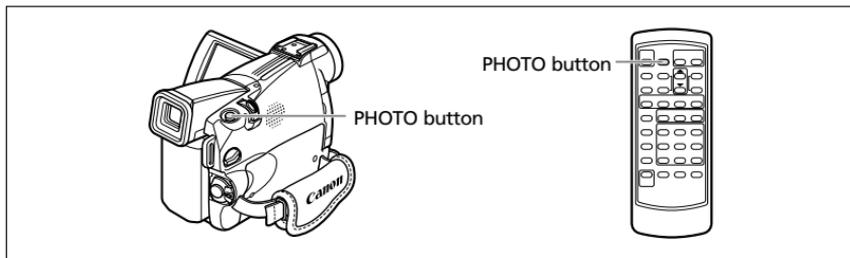
PHOTO button

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

In Record Pause Mode

1. Press the PHOTO button halfway.

- Autofocus: ◉ flashes in white and turns green when focus is adjusted.
- Manual focus: ◉ flashes in green. Adjust the focus with the selector dial.
- Exposure is locked.
- When you press the PHOTO button on the wireless controller, recording starts immediately.
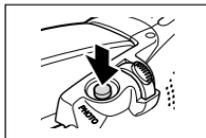
2. Press the PHOTO button fully.

- ◉ disappears.
- The camcorder records the still image for approx. 6 seconds. During this time, the camcorder displays the still image and keeps recording the sound.
- The camcorder returns to record pause mode.
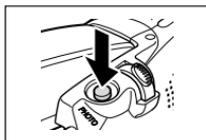
During Recording

1. Press the PHOTO button fully.

- The camcorder records the still image for approx. 6 seconds. During this time, the camcorder displays the still image and keeps recording the sound.
- The camcorder returns to record pause mode.
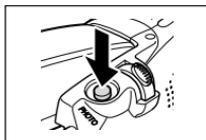
❍ When you turn the POWER switch to OFF while the camcorder is recording the still image, it will not turn off until recording is complete.
❍ Record still images under sufficient lighting condition (in which you can identify the subject on the screen).
❍ If a subject is unsuitable for autofocus, ● continues to flash. Keep the PHOTO button pressed halfway and adjust the focus with the selector dial.

Using the Recording Programs

The camcorder is equipped with the Easy Recording program and several program AE modes. The availability of functions differs depending on the selected mode.

Availability of Functions in Each Mode:

Position of the Program Selector	□	P								
Recording Program	□	[Auto]	[Sports]	[Portrait]	[Spotlight]	[Sand&Snow]	[Low Light]	[Night]	[icon]*1	[icon]*1
Digital Zoom	○	○							×	
Shutter Speed	A	○	A							
Focus	A	○								
White Balance		○								
AE Shift		○								
Image Stabilizer*2	ON	○								×
Digital Effects	×	○*3								
16:9	×	○								
Card Mix*4	×	○								×

A: Auto setting ○: Available ×: Not available
*1 MV650i only.
*2 The image stabilizer cannot be used in CARD CAMERA mode.
*3 Available effects depend upon the program AE mode.
*4 MV650i and MV630i only.

Easy Recording Program

The camcorder adjusts focus, exposure and other settings automatically, allowing you to just point and shoot.

Program AE Modes
[A] Auto

The camcorder adjusts focus, exposure and other settings automatically. However, you have the option of adjusting the settings manually.

Sports

Use this mode to record sports scenes (such as tennis or golf), moving objects (such as roller coasters) or when recording from a moving car.

❍ This mode is set at a high shutter speed and should therefore be used in sufficient light.
❍ This mode is mainly intended for frame-by-frame or slow playback. The picture may not appear smooth when played back in normal speed.

Portrait

Use this mode to give accent to your subject by blurring the background or foreground.

❍ The blur effect increases the more you zoom to telephoto.
❍ This mode is set at a higher shutter speed. The picture may not appear smooth when played back.

Spotlight

Use this mode to record spotlit scenes such as shows, recitals or fireworks.

Sand & Snow

Use this mode in bright places such as a sunny beach or ski resort. It prevents the subject from being underexposed.

❍ The subject may become overexposed in dark surroundings. Check the image on the screen.
❍ This mode is set at a higher shutter speed. The picture may not appear smooth when played back.

Low Light

Use this mode to record in dimly lit places. The shutter is fixed at a slow shutter speed.

❍ Moving subjects may leave a trailing afterimage.
❍ Picture quality may not be as good as in other modes.
❍ The camcorder may have difficulty to focus automatically.

Night

Use this mode to record in dark places. The shutter speed is adjusted automatically. It is useful when recording in places with changing light conditions (such as in amusement parks).

❍ **MV650i** **MV630i** Night mode cannot be used in CARD CAMERA mode.

❍ 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.

MV650i

Super Night (CAMERA mode)

In CAMERA mode, use this mode to record in very dark places. The shutter speed is adjusted automatically. The White LED lights up automatically illuminating the subject in the centre of the screen, allowing you to record brightly in colour.

Low Light Plus (CARD CAMERA mode)

In CARD CAMERA mode, use this mode to record in dark places. The shutter is fixed at a slow shutter speed. The White LED lights up illuminating the subject in the centre of the screen, allowing you to record brightly in colour.

❍ The range of the White LED is limited. Check the image on the screen when recording.

❍ Use this mode for recordings at close range (up to 2m).

❍ 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.

Selecting the Program AE Mode

| CAMERA | PLAY (VCR) | | CARD CAMERA | CARD PLAY (VCR) |

1. Slide the program selector to ℙ (program AE).
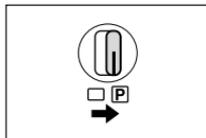
2. Press the selector dial.

A list of the program AE modes appears.
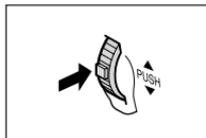
3. Select a mode and press the selector dial.

The symbol of the mode appears on the upper left corner of the screen. ▣ (Auto) disappears after 4 seconds.

❍ Do not change the mode during recording as the brightness of the image may change abruptly.

❍ The setting resets to the Auto mode when you switch the program selector to □.

❍ Bright light in a dark scene may cause a vertical light bar to appear. This is not a malfunction.

Using the Full Range of Features

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Using Digital Effects 📷✍

You can use the digital effects during recording and playback.

Faders (📖 61): Begin or end scenes with a fade to or from black.
Effects (📖 64): Add flavor to your recordings.
Multi-image screen (📖 66)

Availability of Digital Effects by Operating Modes:

	CAMERA		PLAY (VCR)	MV650i/MV630i: CARD CAMERA	MV650i/MV630i: CARD PLAY (VCR)
	Movies	Still Images			
Faders	○	✕	○	✕	✕
Effects	○	○	○	○*1	✕
Multi-image screen	○*2	○*2	○	✕	✕

○: Available   ✕: Not available

*1: Black and White only.

*2: Cannot be used in Night and Super Night (MV650i) mode.

✍ ❍ Turn off the digital effect when you do not use it.
Press the DIGITAL EFFECTS button to open the menu. Select [D.EFFECTS OFF]
and press the ON/OFF button.
❍ The camcorder retains the setting even if you turn it off or change the program
AE mode.
❍ The digital effect turns off if you switch the program selector to ☐.
❍ Digital effects can be selected but not activated on a blank blue screen
(appears in PLAY (VCR) mode).
❍ Digital effects activated during playback do not change the recording.
❍ Digital effects cannot be used during DV dubbing and photo/date search.
❍ Digital effects can also be set with the wireless controller.

Faders
Fade Trigger (FADE-T)

The image gradually fades in.
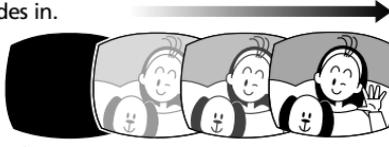
The image gradually fades out.

Wipe (WIPE)

The image begins as a vertical line in the centre and expands sideways until it fills the whole screen.
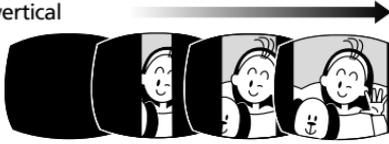
The image is wiped off from the sides of the screen.

Corner Wipe (CORNER)

The image appears from the corners until it fills the whole screen.

The image is wiped off from the corners.

Jump (JUMP)

A small image appears from the left, jumps into the centre and enlarges until it fills the whole screen.

The image shrinks, jumps from the centre to the left and disappears.

Flip (FLIP)

The image flips into the screen.

The image flips out of the screen.

Puzzle (PUZZLE)

The image appears in 16 pieces.
The pieces move
around until the
puzzle is solved.
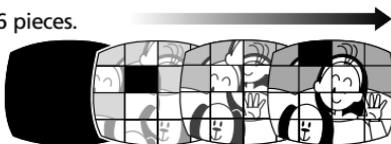
The image is divided into 16
pieces. The pieces move around
and disappear.

Zigzag (ZIGZAG)

The image appears in zigzag
from the top of the
screen.

Black stripes appear in zigzag
from the bottom of the screen
until they cover the whole image.

Beam (BEAM)

The screen turns yellow, forms
a beam that becomes
thinner and the image
appears.
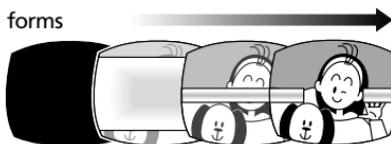
A yellow beam appears in the
centre of the screen and expands
until it covers the whole image.

Tide (TIDE)

The image appears from
both sides like tides.

The image disappears from both
sides like tides.

Selecting a Fader

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

1. In CAMERA mode, set the program selector to Ⓟ.
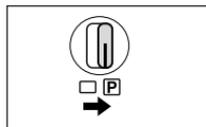
2. Press the DIGITAL EFFECTS button.

[D.EFFECTS OFF], [FADER], [EFFECT] and [MULTI-S] appear.

3. Select [FADER].
4. Select the fader option.
5. Press the DIGITAL EFFECTS button.

The name of the selected fader flashes.
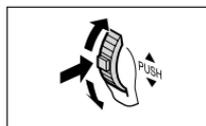
CAMERA mode:

6. Fade in: In record pause mode, press the ON/OFF button and begin recording by pressing the start/stop button.
   Fade out: During recording, press the ON/OFF button and pause recording by pressing the start/stop button.

The fader can be activated/deactivated by pressing the ON/OFF button.
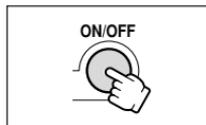
PLAY (VCR) mode:

6. Fade in: In playback pause mode, press the ON/OFF button and begin playback by pressing the ▶/❚❚ button.
   Fade out: During playback, press the ON/OFF button and pause playback by pressing the ▶/❚❚ button.

The fader can be activated/deactivated by pressing the ON/OFF button.

MV650i MV630i Faders cannot be selected when Card Mix is activated.

Using the Full Range of Features

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Effects

Art (ART)
The image becomes like a paint (solarization).

Black and White (BLK & WHT)
The image becomes black and white.

Sepia (SEPIA)
The image becomes monochrome with a brownish tint.

Mosaic (MOSAIC)
The image is blurred through enlarging the size of some pixels.

Ball (BALL)
The image becomes like a ball.

Cube (CUBE)
The image becomes a cube and rotates.

Wave (WAVE)
Both ends of the image sway in waves.

Colour Masking (COLOR M.)
The image becomes a rhombus surrounded by a masking frame that changes the colours.

Mirror (MIRROR)
Creates a symmetrical image as if there would be a mirror in the centre of the screen.

MV650i MV630i Only Black and White can be used in CARD CAMERA mode.

Selecting an Effect

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

1. Press the DIGITAL EFFECTS button.

[D.EFFECTS OFF], [FADER], [EFFECT] and [MULTI-S] appear.

2. Select [EFFECT].
3. Select the effect.

4. Press the DIGITAL EFFECTS button.

The name of the selected effect flashes.

5. Press the ON/OFF button.

• The name of the selected effect stops flashing.
• The effect can be activated/deactivated by pressing the ON/OFF button.

MV650i MV630i Selecting an Effect in CARD CAMERA Mode

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

1. Press the DIGITAL EFFECTS button.

"BLK&WHT" flashes.

2. Press the ON/OFF button.

• "BLK&WHT" stops flashing.
• The effect can be activated/deactivated by pressing the ON/OFF button.

Using the Full Range
of Features

Using the Multi-Image Screen

The multi-image screen captures moving subjects in 4, 9 or 16 sequences of still images with the Image Capture feature and displays them at one time. Sound will be recorded normally. This feature can be used in CAMERA and PLAY (VCR) mode.
You can choose the transition speed at which to capture the subject from manual, fast (every 4 frames), moderate (every 6 frames*) or slow (every 8 frames*).
* In Low Light mode: moderate (every 8 frames), slow (every 12 frames).

Selecting the Multi-Image Screen

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

1. Set the program selector to ℙ.
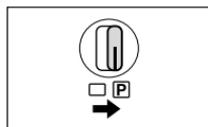
2. Press the DIGITAL EFFECTS button.

[D.EFFECTS 𝗢𝗙𝗙], [FADER], [EFFECT] and [MULTI-S] appear.

3. Select [MULTI-S].

[S.SPEED] and [S.SPLIT] appears.

4. Select [S.SPEED].

[MANUAL], [FAST], [MOD.] and [SLOW] appear.
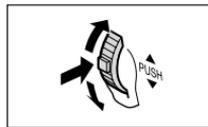
5. Select the transition speed.

6. Select [MULTI-S] again.

[S.SPEED] and [S.SPLIT] appears.

7. Select [S.SPLIT].

[4], [9], [16] settings appear.

8. Select the number of sequences.

9. Press the DIGITAL EFFECTS button.

[MULTI-S] flashes.

10.Press the ON/OFF button.

• MANUAL: Images will be captured each time you press the ON/OFF button. The blue frame indicating the next sequence disappears after the last image. To cancel the last captured image, press and hold the ON/OFF button. To cancel the multi-image screen, press and release the ON/OFF button.

• FAST, MODERATE, SLOW: The set number of images will be captured at the set speed. To cancel the multi-image screen, press the ON/OFF button.

11.Press the start/stop button begin recording.

The multi-image screen is recorded on the tape.

❍ The multi-image screen cannot be operated in Night and Super Night (MV650i) mode.
❍ You can operate the multi-image screen only in the following playback modes:
  - When [S.SPEED] is set to [MANUAL]: Playback pause, slow forward/reverse playback
  - When [S.SPEED] is set to [FAST], [MOD.] or [SLOW]: Playback pause
❍ The multi-image screen can be operated in record or record pause mode.
❍ **MV650i** **MV630i** The multi-image screen cannot be selected when Card Mix is activated.
❍ In PLAY (VCR) mode: Pressing any tape operation button (such as play or pause), or performing date/photo search cancels the multi-image screen.

Using the Full Range
of Features

Turning Off the Image Stabilizer

The image stabilizer allows you to obtain steady recordings even at telephoto. There is no need to turn off the image stabilizer during normal recording. However, the camcorder tries to compensate for horizontal movements and you may therefore decide to turn it off during panning. The image stabilizer cannot be turned off when the program selector is set to ☐.

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

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(⌘ 43)

CAMERA SET UP	▶	IMAGE S. (〰) ··ON

Open the menu and select [CAMERA SET UP]. Select [IMAGE S. (〰)], set it to [OFF] and close the menu.

(〰) disappears.

❍ We recommend turning off the image stabilizer when you mount the camcorder on a tripod.

❍ The image stabilizer is designed to compensate a normal degree of camcorder shake.

❍ **MV650i** **MV630i** The image stabilizer cannot be used in CARD CAMERA mode.

❍ The image stabilizer might not be as effective in Low Light, Night and Super Night (MV650i) mode.

Recording With the Self-Timer

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)
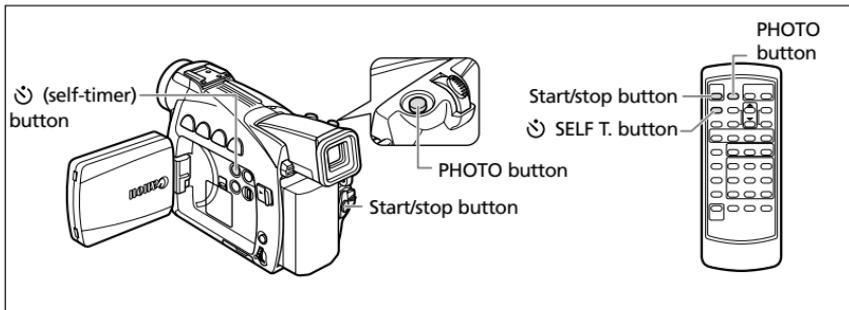
1. Press the (self-timer) button.

" " appears.

When recording movies

2. Press the start/stop button.

The camcorder starts recording after a 10-second countdown (2 seconds when using the wireless controller). The count down appears on the screen.

3. Press the start/stop button to stop recording.

The camcorder returns to record pause mode.
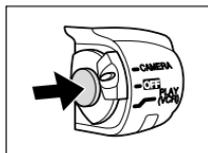
When recording still images

2. Press the PHOTO button.

• The camcorder adjusts the focus 2 seconds before recording begins. flashes in white and turns green when focus and exposure are adjusted.

• The camcorder records the still image for approx. 6 seconds and returns to record pause mode (MV650i/MV630i: In CARD CAMERA mode, it displays the still image when recording is complete).
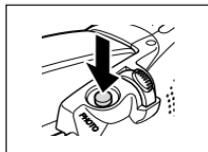
❍ To cancel the self-timer, press the (self-timer) button, start/stop button (when recording movies) or PHOTO button (when recording still images).
❍ The self-timer will be canceled when you turn off the camcorder.

Audio Recording

Changing the Audio Mode

You can record sound in two audio modes—16-bit and 12-bit. The 12-bit mode records sound on two channels (stereo 1), leaving 2 channels free (stereo 2) for adding new sound later. Select the 16-bit mode for higher sound quality.

| CAMERA | PLAY (VCR)* | CARD CAMERA | CARD PLAY (VCR) |

 * MV650i/MV630i/MV600i only.

MENU
(󰅂 43)

AUDIO SET UP ▶ AUDIO MODE··12bit

Open the menu and select [AUDIO SET UP]. Select [AUDIO MODE], set it to [16bit] and close the menu.

"16 bit" appears for approximately 4 seconds.

> For adding new sound, see *Audio Dubbing* (󰅂 95).

Recording with an External Microphone

You can use an external microphone for recording. Almost all stereo microphones with a plug diameter of 3.5 mm can be connected to the MIC terminal. Use a microphone with a built-in power supply (condenser microphone).
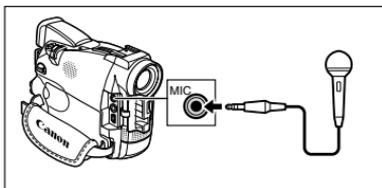
> ❍ The audio level differs from that of the built-in microphone.
> ❍ Be careful with long microphones as they may appear in the picture.
> ❍ **MV650i** See also *Using the DM-50 Microphone* (󰅂 73).
> ❍ Do not use a microphone cable longer than 3 m to avoid electromagnetic interference.

Wind Screen

You can reduce the wind noise when recording in windy places.

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

AUDIO SET UP	▶	WIND SCREEN•OFF

Open the menu and select [AUDIO SET UP]. Select [WIND SCREEN], set it to [ON] and close the menu.

"WS ON" appears when you turn the wind screen on.

❍ Low sound may be reduced together with the wind noise. We recommend turning off the wind screen for normal recordings.

❍ The wind screen function cannot be turned on/off during recording.

❍ **MV650i MV630i MV600i** The wind screen function can also be used for audio dubbing (when [AUDIO DUB.] is set to [MIC. IN] in the [AUDIO SET UP] submenu).

❍ The wind screen function cannot be used when an external microphone is connected to the MIC terminal (MV650i: or when the DM-50 Microphone is attached to the advanced accessory shoe).

Using the Full Range of Features

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MV650i *Using the VL-3 Video Light (Optional)*

This video light enables you to record brightly in colour even in dark places. This VL-3 Video Light attaches to the camcorder's ,,⚡" advanced accessory shoe for cable-free operation and is powered by the camcorder's power supply.
Refer also to the VL-3 Video Light instruction manual.

❍ Always turn off the camcorder before attaching/removing the video light.
❍ Do not touch or place flammable material or plastic close to the lamp or the surrounding parts during or immediately after use; they become very hot.
❍ Do not look directly at the lamp while the video light is on.
❍ Do not carry the camcorder by the video light.

1. Slide the video light into the accessory shoe until it clicks.

2. Tighten the fastening screw.

Be careful that the video light does not come off when tightening the screw.

3. Set the camcorder to CAMERA or CARD CAMERA mode.

4. Turn the video light's power switch to AUTO or ON.

- **C** (Connection) appears.
- ON: The video light stays on.
- AUTO: The video light turns on and off automatically.
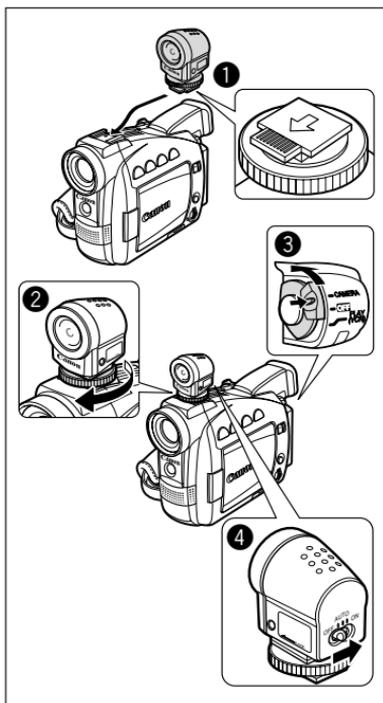
MV650i *Using the DM-50 Microphone (Optional)*

The high sensitive Directional Stereo Microphone DM-50 attaches to the ✦🛇✦
advanced accessory shoe for cable-free operation and is powered by the camcorder's
power supply. Use it for recording or dubbing audio.
Refer also to the DM-50 Microphone instruction manual.

❍ Always turn the camcorder off before attaching/removing the microphone.
❍ Do not connect any microphone to the MIC terminal when the DM-50
   Microphone is connected.
❍ Do not carry the camcorder by the microphone.

**1. Slide the microphone into the
   accessory shoe until it clicks.**

2. Tighten the fastening screw.

   Be careful that the microphone does not
   come off when tightening the screw.

**3. Set the camcorder to CAMERA or
   CARD CAMERA mode.**

   C (Connection) appears.

**4. Set the microphone's directivity
   switch.**

   • SHOTGUN: For recording clear sound from
                     the front (monaural).
   • STEREO 1: For recording sound from the
                     front and surrounding area.
   • STEREO 2: For recording surrounding
                     sound in a wider range than in
                     STEREO 1.

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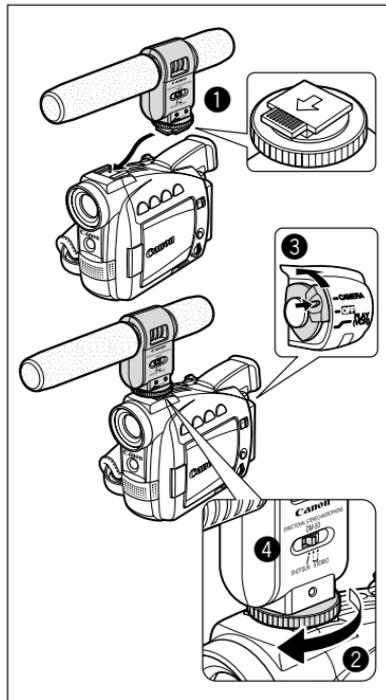
Adjusting the Focus Manually

Some subjects may not be suitable for autofocus. In such case, focus manually.

Autofocus may not work well on the following subjects:

Reflective surfaces	Subjects with low contrast (e.g. White Wall)	Fast Moving Subjects	Horizontal Stripes
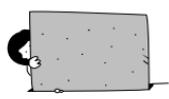
Through dirty or wet windows	Different Distances	Dark Subjects	Night Scenes

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

1. Set the program selector to Ⓟ.
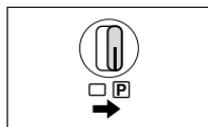
2. Adjust the zoom.

When you operate the zoom after adjusting the focus, the subject may not stay in focus. Adjust the zoom before the focus.

3. Press the FOCUS button.

"MF" appears in light blue.
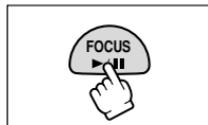
4. Turn the selector dial to adjust the focus.

• Turn the selector dial up or down until the image appears focused.
• If "AE ±0" appears in light blue, focus cannot be adjusted. Press the FOCUS button again to display "MF" in light blue.
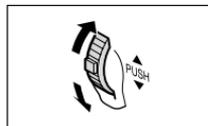
5. Press the FOCUS button to return to autofocus.
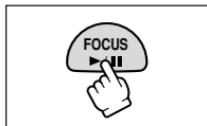
The setting resets to autofocus when you switch the program selector to ☐.

Infinity Focus

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

Press the focus button more than 3 seconds in step 3.

"MF ∞" appears. When you operate the zoom or turn the selector dial when "MF ∞" is displayed in light blue, "∞" disappears and the camcorder changes to manual focus.

Using the Full Range
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Adjusting the AE Shift

You can adjust the AE (auto exposure) function to lighten or darken the image. This allows you to compensate for backlit or overexposed scenes. Available Levels: –2 to +2, in 0.25 intervals (excluding –1.75 and +1.75).

CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

1. Set the program selector to P.
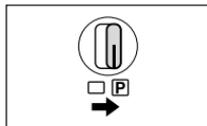
2. Set the program AE mode to ▣ Auto, ▨ Sports, ▥ Portrait, ▨ Low Light or ▨ Low Light Plus (MV650i) mode.

3. Press the AE SHIFT button.

"AE ±0" appears in light blue.

4. Turn the selector dial to adjust the AE shift level.

• Turn the selector dial up to lighten the image and down to darken the image.

• If "MF" is displayed in light blue, AE shift cannot be adjusted. Press the AE SHIFT button again to display "AE ±0" in light blue.

❍ The camcorder retains the setting even if you turn it off or change the program AE mode.

❍ The camcorder resets to the auto setting when you switch the program selector to ▢.

Setting the Shutter Speed

In the 🔲 Auto mode, you can adjust the shutter speed manually to make stable shots of fast moving subjects.

CAMERA	PLAY (VCR)	**CARD CAMERA**	CARD PLAY (VCR)

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(□ 43)

CAMERA SET UP	▶	SHUTTER·····AUTO

1. Set the program selector to P.

2. Set the program AE mode to the 🔲 Auto mode.

3. Open the menu and select [CAMERA SET UP].

4. Select [SHUTTER].

5. Select the shutter speed and press the selector dial.

CAMERA Mode	**MV650i MV630i** **CARD CAMERA Mode**
AUTO	AUTO
1/50	1/50
1/120	1/120
1/250	1/250
1/500	
1/1000	
1/2000	

6. Close the menu.

❍ Do not point the camcorder directly at the sun when the shutter speed is set to 1/1000 or higher.

❍ The image may flicker when recording with high shutter speeds.

❍ The setting resets to the auto setting when you switch the program selector to ☐, or change the program AE mode.

❍ **MV650i MV630i** If the shutter speed is set to 1/500 or higher in CAMERA mode and you switch to CARD CAMERA mode, it automatically changes to 1/250.

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❍ Guidelines for Recording with High Shutter Speeds:
- Outdoor sports such as golf or tennis: 1/2000

- Moving objects such as cars or roller coasters: 1/1000, 1/500 or 1/250

- Indoor sports such as basketball: 1/120

Setting the White Balance

The camcorder's auto white balance system adjusts the colours to appear natural for
different lighting conditions. However, you can use the preset modes to reproduce
colours more accurately, or set a custom white balance to obtain the optimal setting.

Zoom lever

White sheet or paper

Program selector

Selector dial
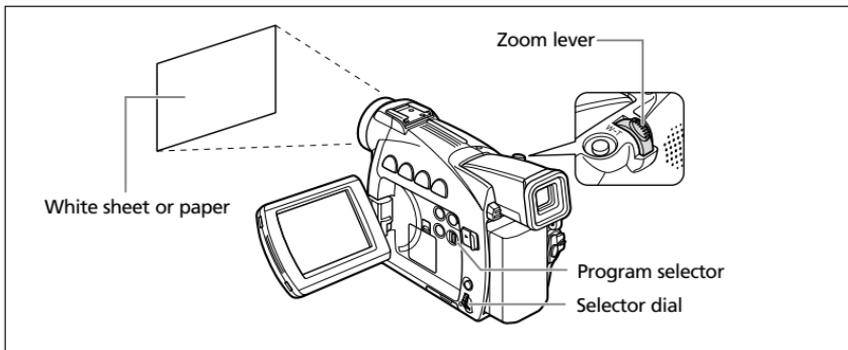
❍ When the program selector is set to □, white balance is preset to [AUTO].
   Indoor, outdoor and custom white balance cannot be selected.
❍ The camcorder retains the setting even if you turn it off.
❍ When you have set the custom white balance:
   - Reset the white balance when the lighting condition changes.
   - Turn off the digital zoom.
❍ Setting the white balance manually may provide better results in the following
   cases:
   - Changing lighting conditions
   - Close-ups
   - Subjects in a single colour (sky, sea or forest)
   - Under mercury lamps or certain types of fluorescent lights
❍ Use the ☼ Indoor or ☀ Outdoor mode in the following cases:
   ☼ Indoor:
   - Changing lighting condition
   - Under video light
   - Under sodium lamps
   ☀ Outdoor:
   - For night scenes or fireworks
   - Sunrise or sunset
   * Use the auto setting for normal outdoor scenes.

E

MENU
(🕮 43)

| CAMERA SET UP | ▶ | WHITE BAL...AUTO |

For ☼ (Indoor) or ☀ (Outdoor) Setting:

....

1. Set the program selector to ℙ.

2. Open the menu and select [CAMERA SET UP].

3. Select [WHITE BAL.].

4. Select ☼ (indoor) or ☀ (outdoor).

   ☼ or ☀ appears.

5. Close the menu.

For Custom White Balance:

....

1. Set the program selector to ℙ.

2. Open the menu and select [CAMERA SET UP].

3. Select [WHITE BAL].

**4. Point the camcorder at a white object (such as a sheet of paper), zoom
   in until it fills the whole screen and select [SET ⬜].**

   • ⬜ flashes and stops flashing when settings is complete.

   • Depending on the light source, ⬜ may keep flashing. The result will still be better
     than with the auto setting.

5. Close the menu.

Using the Full Range
of Features

80

Magnifying the Image

The playback image can be magnified by 2 times.

| CAMERA | **PLAY (VCR)** | **CARD CAMERA** | **CARD PLAY (VCR)** |

1. Move the zoom lever toward T.
- The image is magnified by 2 times.
- A frame appears indicating the position of the enlarged part.
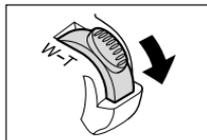
2. Move the image.
- Turn the selector dial to move the image to the right and left, or up and down. Pressing the selector dial switches between the directions.
- To cancel the magnification, move the zoom lever toward W.

MV650i Movies played back from a memory card cannot be magnified.

Using the Full Range
of Features

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Displaying the Data Code

Once date and time are set, the camcorder maintains a data code containing recording date and time and other camera data such as shutter speed and exposure (f-stop). (MV650i/MV630i: Only date and time appear when playing back a memory card).

DATA CODE button
Controller buttons
MENU button
DATA CODE button
MENU button
Selector dial
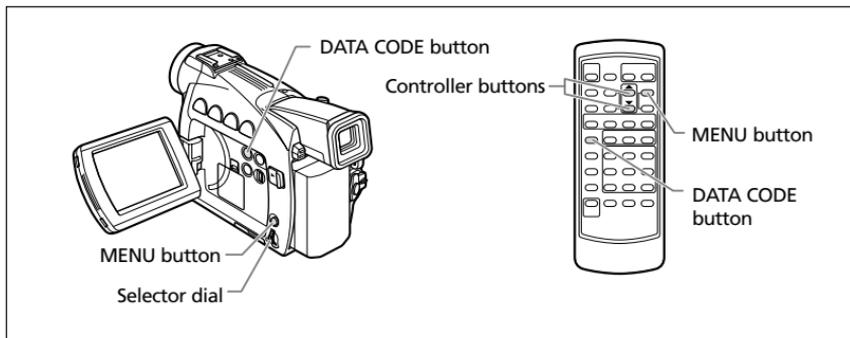
❍ The data code display turns off when you turn the camcorder off.
❍ The data code may not be displayed if a recording made with this camcorder is played back on a different digital camcorder.
❍ The data code cannot be displayed in frame advance/reverse playback. Camera data may not appear in some special playback modes.
❍ When the TV screen displays are hidden (□ 133), the displays still appear on the LCD screen. If you turn on the data code, displays other than the data code will disappear from the LCD screen.

Available Data Code Combinations (in PLAY (VCR) mode):

DATA CODE (tape only) / D/TIME SEL.	Date/Time	Camera data	Date/Time & Camera data
Date	1.JAN.2003	F1.8 1/250	F1.8 1/250 1.JAN.2003
Time	12:00:00 PM	F1.8 1/250	F1.8 1/250 12:00:00 PM
Date & Time	12:00 PM 1.JAN.2003	F1.8 1/250	F1.8 1/250 12:00 PM 1.JAN.2003

Selecting the Date/Time Display Combination

MENU
(📖 43)

| DISPLAY SET UP | ▶ | D/TIME SEL.•DATE & TIME |

Open the menu and select [DISPLAY SET UP]. Select [D/TIME SEL.], set it to [DATE] or [TIME] and close the menu.

Selecting the Data Code Display Combination

MENU
(📖 43)

| DISPLAY SET UP | ▶ | DATA CODE•••DATE/TIME |

Open the menu and select [DISPLAY SET UP]. Select [DATA CODE], set it to [DATE/TIME], [CAMERA DATA] or [CAM. & D/T] and close the menu.

Displaying the Data Code

Press the DATA CODE button.

Only date and time appear in CARD PLAY (VCR) mode.

Six-Second Auto Date

Date and time appear for 6 seconds when you begin playback, or to indicate that date or time zone has changed.

MENU
(📖 43)

| DISPLAY SET UP | ▶ | 6SEC.DATE•••OFF |

Open the menu and select [DISPLAY SET UP]. Select [6SEC.DATE], set it to [ON] and close the menu.

Using the Full Range
of Features

Photo Search/Date Search

You can search for a still image recorded anywhere on the tape with the photo search function, or locate the change of the date/time zone with the date search function.

SEARCH SELECT button

Search buttons

STOP ■ button
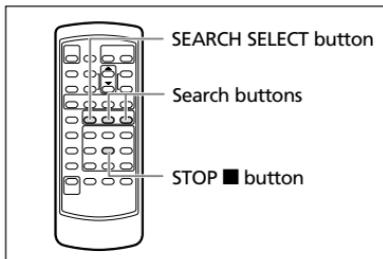
| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD PLAY (VCR) |

1. Press the SEARCH SELECT button to choose between photo search and date search.

"PHOTO SEARCH" or "DATE SEARCH" appears.
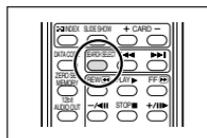
2. Press the ►► or ◄◄ button to begin searching.

• Press the ►► button to search forward and the ◄◄ button to search backward.
• Press more than once to search for further still images or date changes (up to 10 times).
• Press the ►► or ◄◄ button to change the search direction.
• Press the ■ (stop) button stop searching.
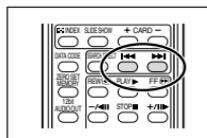
❍ Photo search: A still image recorded very close to the point you start the search may not be detected.
❍ Date search: A recording of longer than a minute per date/area is required.
❍ Date search: Playback may start slightly before or after the date change.
❍ Date search may not function if the data code is not correctly displayed.

Returning to a Pre-marked Position

E

If you wish to return to a particular scene later, mark the point with the zero set memory and the tape will stop at that point when you rewind/fast forward the tape.

REW ◀◀ button
PLAY ▶ button
ZERO SET MEMORY button
FF ▶▶ button
STOP ■ button
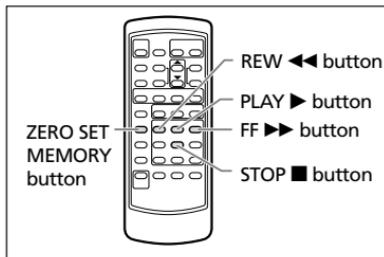
CAMERA	PLAY (VCR)		CARD CAMERA	CARD PLAY (VCR)

1. Press the ZERO SET MEMORY button at the point you wish to return to later.
- "0:00:00 **M**" appears.
- To cancel, press the ZERO SET MEMORY button again.

2. When you have finished playback, fast forward or rewind the tape.
- RTN ▶▶ or ◀◀ RTN appears.
- The tape stops automatically at "0:00:00".
- The tape counter changes to time code.
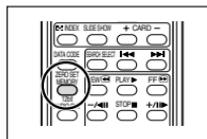
❍ Time code and tape counter display may not match accurately.
❍ The zero set memory may not function correctly when blank sections exist on the tape.
❍ If you remove the tape, the zero set memory is cancelled and the counter display shows the time code.

Using the Full Range of Features

Recording to a VCR or Digital Video Device 📷 🖊

You can copy your recordings by connecting the camcorder to a VCR or a digital video device. If you connect a digital video device, you can copy recordings with virtually no generation loss in image and sound quality.

When connecting a VCR:
❍ Make sure that "∩" is not displayed on the screen. If "∩" is displayed, change the setting (📖 37).
❍ The quality of the edited tape will be slightly lower than that of the original.
When connecting a digital video device:
❍ You can connect only one device to the camcorder with the DV cable.
❍ Blank sections may be recorded as anomalous picture.
❍ If the picture does not appear, reconnect the DV cable or turn the camcorder off and back on again.

Example: Recording to a VCR

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD CAMERA |

1. Connect the camcorder to the VCR.
See *Playing Back on a TV Screen* (📖 39).

2. Set the camcorder to PLAY (VCR) mode and load a recorded cassette.

3. Connected device: Load a blank cassette and set the device to record pause mode.

4. Locate the scene you wish to copy and pause playback shortly before the scene.

5. Play back the tape.

6. Connected device: Begin recording when the scene you wish to copy appears. Stop recording when copying is complete.

7. Stop playback.

Editing

Connecting a Digital Video Device

Refer also to the instruction manual of the digital video device.

Side with an arrow

Signal flow ⟹

4 pin – 4 pin: CV-150F DV Cable (optional)
4 pin – 6 pin: CV-250F DV Cable (optional)

MV650i **MV630i** **MV600i**
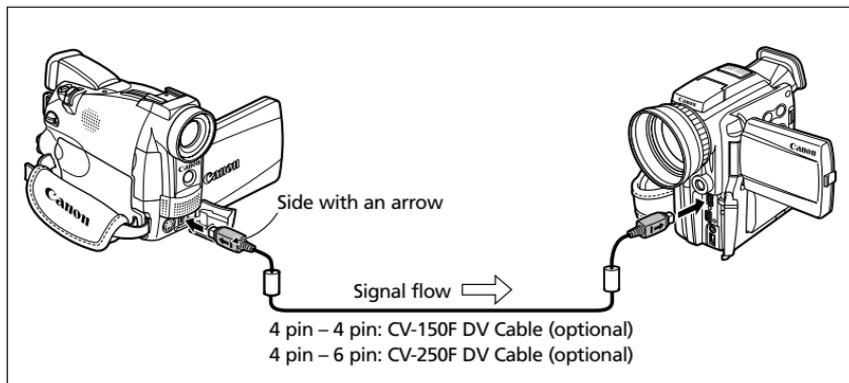
Recording from Analog Video Devices (VCR, TV or Camcorder)

You can record videos or TV programs from a VCR or analog camcorder on the tape in the camcorder.

⚠ ❍ Anomalous signals sent from the connected device may be recorded as anomalous picture (although it may not appear so on the screen), or it may not be recorded at all.
❍ You cannot record from tapes with copyright protective signals.
❍ Headphones cannot be used during analog line-in recording. If the AV/headphones terminal set to [PHONES ∩], it will automatically switch to [AV].
❍ When connecting to a TV/video with SCART terminal, use a SCART adapter with input capability (commercially available). The SCART Adapter PC-A10 is for output only.

CAMERA	**PLAY (VCR)**	CARD CAMERA	CARD CAMERA

1. Connect the camcorder to the analog video device.

See *Playing Back on a TV Screen* (39).

2. Set the camcorder to PLAY (VCR) mode and load a blank cassette.

3. Connected device: Load the recorded cassette.

4. Press the REC PAUSE button on the wireless controller.

In record pause mode and during recording, you can check the picture on the screen.
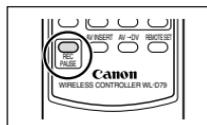
5. Connected device: Play back the tape.

6. Press the PAUSE ❚❚ button on the wireless controller when the scene you wish to record appears.
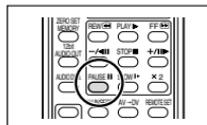
7. Press the STOP ■ button on the wireless controller to stop recording.

• Press the PAUSE ❚❚ button on the wireless controller to pause recording.

• Press the PAUSE ❚❚ button again to restart recording.
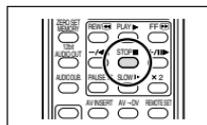
8. Connected device: Stop playback.

MV650i MV630i MV600i
Recording from Digital Video Devices (DV Dubbing)

You can record from other digital video devices equipped with a DV terminal with virtually no loss in picture and sound quality.

❍ When recording from digital video devices, make sure that "AV ➡ DV" is not displayed on the screen. If "AV ➡ DV" is displayed, change the setting (❑ 92).
❍ Anomalous signals sent from the connected device may be recorded as anomalous picture (although it may not appear so on the screen), or it may not be recorded at all.
❍ Copyright protected signals cannot be recorded.
❍ Blank sections may be recorded as anomalous picture.
❍ If the picture does not appear, reconnect the DV cable or turn the camcorder off and back on again.

❍ You can connect only one device with the DV cable.
❍ You can use the camcorder for playback and recording without reconnecting the DV cable.

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD CAMERA |

1. Connect the camcorder to the digital video device.
See *Connecting a Digital Video Device* (❑ 87).

2. Set the camcorder to PLAY (VCR) mode and load a blank cassette.
"DV IN" appears.

3. Connected device: Load the recorded cassette.

4. Press the REC PAUSE button on the wireless controller.
In record pause mode and during recording, you can check the picture on the screen.

5. Connected Device: Play back the tape.

6. Press the PAUSE II button on the wireless controller when the scene you wish to record appears.

7. Press the STOP ■ button on the wireless controller to stop recording.
• Press the PAUSE II button on the wireless controller to pause recording.
• Press the PAUSE II button again to restart recording.

8. Connected Device: Stop playback.

Editing

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Concerning Copyright

Copyright Precaution

Certain pre-recorded video tapes, films and other materials, as well as some television programmes are copyrighted. Unauthorised recording of these materials may violate copyright protection laws.

Copyright Signals

During playback: If you try to play back a tape that contains copyright control signals for protection of software, "COPYRIGHT PROTECTED PLAYBACK IS RESTRICTED" appears for a few seconds and the camcorder displays a blank blue screen. You cannot playback the contents of the tape.

During recording: If you try to record from software that contains copyright control signals for protection of software, "COPYRIGHT PROTECTED DUBBING RESTRICTED" appears. You cannot record the contents of the software.
You cannot record copyright protection signals to a tape using this camcorder.

Editing

Converting Analog Signals into Digital Signals (Analog-Digital Converter)

E

By connecting the camcorder to a VCR or 8mm video camcorder, you can convert analog video/audio signals to digital signals and output the digital signals via the DV terminal. The DV terminal serves as output terminal only.

❍ Headphones cannot be used during analog-digital conversion.
❍ Unload the tape from the camcorder.
❍ Turn off all devices before starting the connections.
❍ Depending on the signal sent from the connected device, the conversion from analog to digital signals might not work properly (e.g., signals that include copyright protective signals or anomalous signals such as ghost signals, etc.)
❍ When connecting to a TV/video with SCART terminal, use a SCART adapter with input capability (commercially available). The SCART Adapter PC-A10 is for output only.

We recommend powering the camcorder from a household power source.

Connecting the Devices

This illustration shows how to connect using a S-video cable. You can also connect the yellow plug of the stereo video cable to the VIDEO terminal. Refer also to the instruction manual of the connected device.

OUTPUT

⇐ Signal flow
S-150 S-video Cable (optional)
S(S1)-VIDEO

VIDEO

⇐ Signal flow
STV-250N Stereo Video Cable (supplied)
L
AUDIO
R

AV

DV

Signal flow ⇒

4 pin – 4 pin: CV-150F DV Cable (optional)
4 pin – 6 pin: CV-250F DV Cable (optional)

Editing

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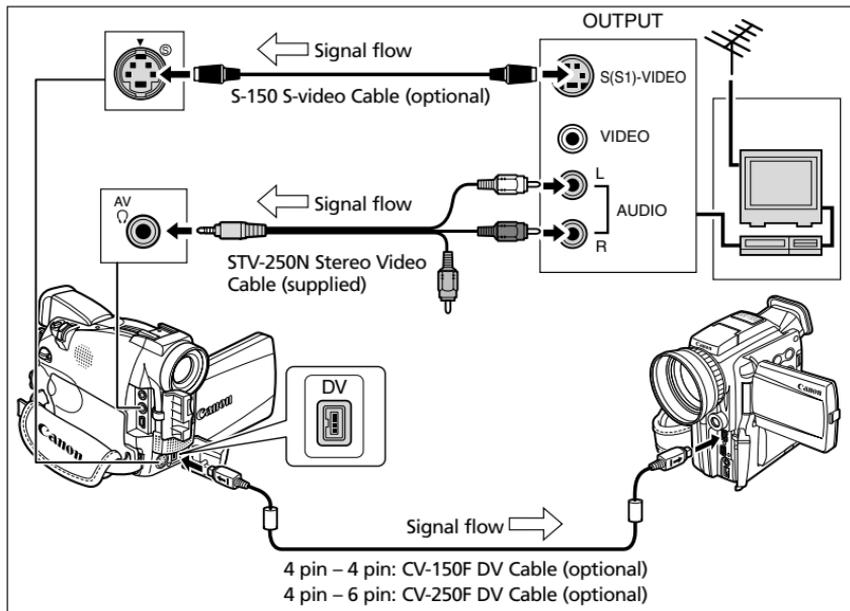
Turning On the Analog-Digital Converter

E

Press the AV ➡ DV button on the wireless controller.

OR

MENU
(□ 44)

| VCR SET UP | ▶ | AV ➡ DV OUT··OFF |

Open the menu and select [VCR SET UP]. Select [AV ➡ DV OUT], set it to [ON] and close the menu.

❍ For normal use, set [AV ➡ DV OUT] to [OFF] (so that "AV ➡ DV" does not appear on the screen). If it is set to [ON], digital signals cannot be input via the camcorder's DV terminal.

❍ Depending on the software and the specifications of your computer, you may not be able to transfer converted signals via the DV terminal.

Editing

[MV650i] [MV630i] [MV600i]
Replacing Existing Scenes (AV Insert)

You can insert and replace images/audio on the tape of the camcorder with images/audio from other video devices connected via AV terminal or DV terminal.

Scene to be inserted

Playback tape

Insert start   Insert end

Tape in the
camcorder
before inserting

Tape in the
camcorder after
inserting

Inserted scene
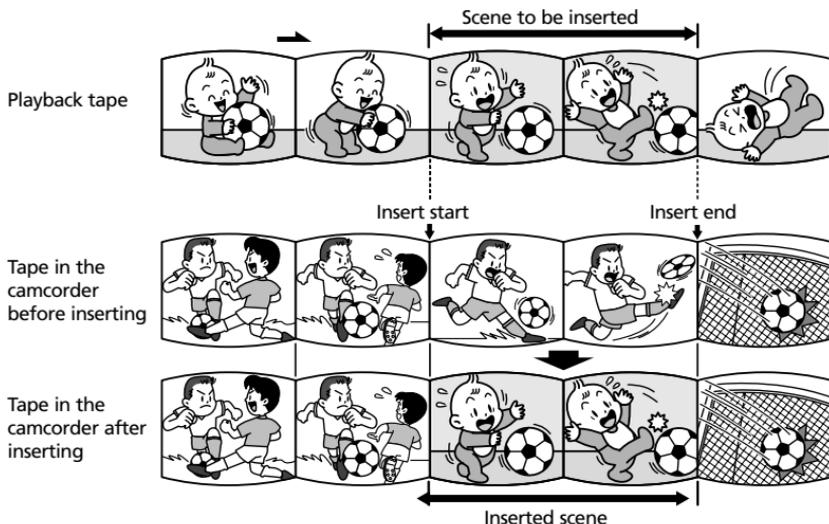
❍ Make sure that "Ω" is not displayed on the screen. If "Ω" is displayed, change the setting (📖 37).

❍ You cannot insert from a TV program when the synchronised signals are distorted.

Camcorder:

❍ Use only tapes recorded in SP mode.

❍ AV insert will stop if the camcorder detects a blank section or a section not recorded in SP mode on the tape.

Connected device:

❍ Use only tapes without blank sections.

❍ AV insert may not work correctly if the tape has a blank section or changes in the recording mode.

❍ AV insert cannot be performed when the quality of the recording is poor, or during special playback such as fast forward, rewind, playback pause, slow playback etc.

Editing

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Example: AV Insert from a VCR

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD CAMERA |

1. Connect the camcorder to the VCR.

See *Playing Back on a TV Screen* (□ 39).

2. VCR: Load a recorded cassette. Locate the scene you wish to insert and pause playback shortly before the scene.

3. Set the camcorder to PLAY (VCR) mode and load a recorded cassette.

Make sure the tape-protect switch is set to allow recording.

4. Locate the scene you wish to replace and pause playback shortly before the scene.

You can use the playback buttons on the camcorder or the special playback buttons on the wireless controller.

5. Press the AV INSERT button on the wireless controller.

"AV INSERT" and "●❚❚" appear.

6. VCR: Play back the tape.

7. Press the PAUSE ❚❚ button on the wireless controller when the scene you wish to insert appears.
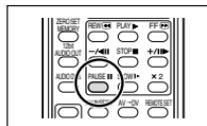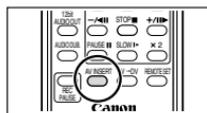
8. Press the STOP ■ button on the wireless controller to stop inserting.

Press the PAUSE ❚❚ button on the wireless controller to pause inserting.
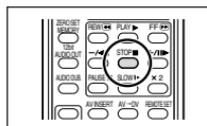
9. VCR: Stop playback.

Set the zero set memory at the end of the scene you wish to replace. The camcorder will automatically stop AV insert at that point.

Audio Dubbing

You can add sound from audio devices (AUDIO IN) or with the built-in or an external microphone (MIC. IN). With the MV600, audio dubbing can only be performed with the built-in or an external microphone (MIC. IN).

❍ Use only tapes recorded in SP mode 12-bit audio sound with this camcorder. Audio dubbing will stop if the tape has a blank section or a section recorded in LP mode, 16-bit or 12-bit 4-channel sound. In above case, create a copy in SP mode 12-bit audio sound using the analog line-in function.

❍ Do not connect/disconnect any cable to/from the camcorder while dubbing.

❍ You cannot use the DV terminal for audio dubbing.

❍ If you add sound to a tape not recorded with this camcorder, sound quality may decrease.

❍ Sound quality may decrease when you add sound to the same scene for more than 3 times.

MV650i MV630i MV600i **Connecting an Audio Device**
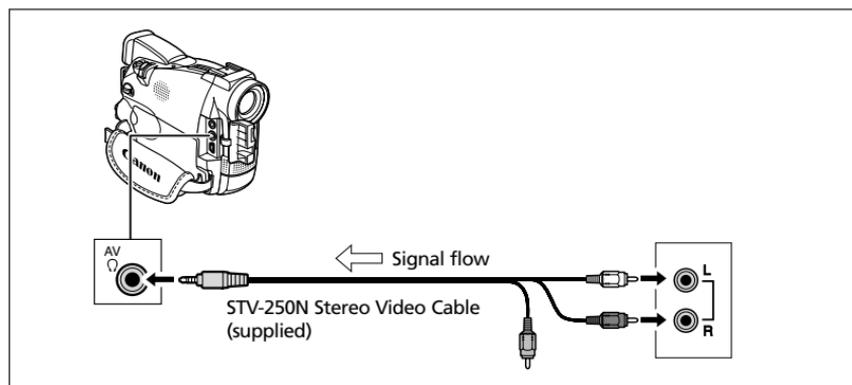
AV

⇐ Signal flow

STV-250N Stereo Video Cable
(supplied)

L

R

❍ Make sure that "🎧" is not displayed on the screen. If "🎧" is displayed, change the setting (37).

❍ You can monitor the picture on the LCD screen or a TV connected via the S-video terminal, and check the sound with the built-in speaker.

Editing

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Using a Microphone
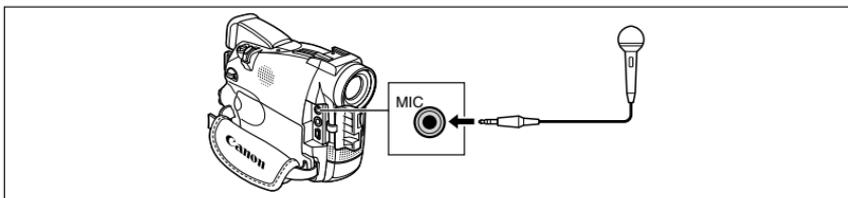
❍ When using the built-in microphone: do not connect any cables to the microphone terminal or the accessory shoe.

❍ When using an external microphone: Connect it to the microphone terminal.

❍ **MV650i** When using the DM-50 Microphone: Do not connect any cables to the microphone terminal.

❍ When you connect a TV via the S-video terminal, you can check the picture on the TV screen and the sound with headphones connected to the camcorder. When you connect a TV via the AV terminal, you can check the picture on the TV screen but you cannot check the sound with headphones.

Dubbing

| CAMERA | PLAY (VCR) | | CARD CAMERA | CARD CAMERA |

1. **Set the camcorder to PLAY (VCR) mode and load a recorded cassette.**

2. **MV650i MV630i MV600i Open the menu and select [AUDIO SET UP]. Select [AUDIO DUB.], set it to [AUDIO IN] or [MIC. IN] and close the menu.**
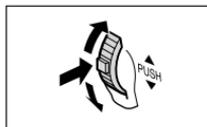
3. **Locate the scene you wish audio dubbing to start.**

4. **Press the PAUSE II button on the wireless controller.**

5. **Press the AUDIO DUB. button on the wireless controller.**
   - "AUDIO DUB." and ⏸ appear.
   - **MV650i** If the optional DM-50 microphone is attached, **C** (Connection) appears.
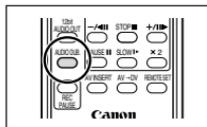
6. **Press the PAUSE II button on the wireless controller to begin dubbing.**
   - **MV650i MV630i MV600i** Audio device: Begin playback.
   - Microphone: Direct your voice to the microphone.
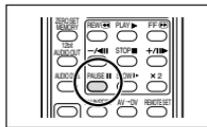
Editing

7. Press the STOP ■ button on the wireless controller to stop dubbing.

MV650i MV630i MV600i Audio device: Stop playback.
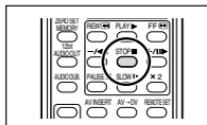
Set the zero set memory at the end of the scene you wish to dub audio. The camcorder will automatically stop audio dubbing at that point.

Playing Back the Added Sound

You can select to play back Stereo 1 (original sound), Stereo 2 (added sound), or adjust the balance of both sounds.

12bit AUDIO OUT button

MENU button

Selector dial
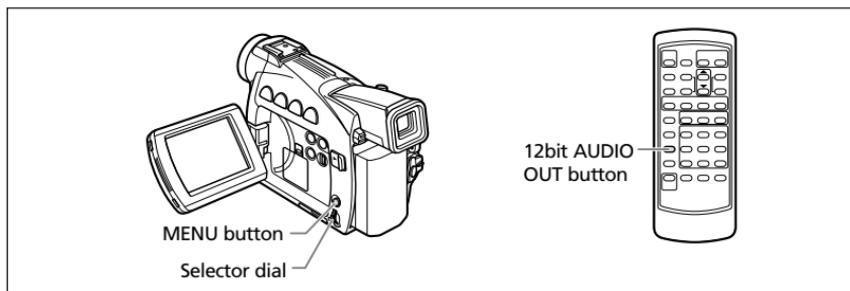
CAMERA	**PLAY (VCR)**	CARD CAMERA	CARD CAMERA

MENU
(📖 43)

AUDIO SET UP	▶▶	12bit AUDIO·STEREO1

1. Open the menu and select [AUDIO SET UP], select a setting and close the menu.

- STEREO 1: Plays back the original sound.
- STEREO 2: Plays back the added sound.
- MIX/FIXED: Plays back stereo 1 and stereo 2 in the same level.
- MIX/VARI.: Plays back stereo 1 and stereo 2. The mix balance can be adjusted.

2. If you have selected [MIX/VARI.], adjust the mix level: Open the menu and select [AUDIO SET UP]. Select [MIX BALANCE], adjust the balance with the selector dial and close the menu.

Turn the selector dial down to increase the volume of Stereo 1 and up to increase the volume of Stereo 2.

❍ The camcorder resets to [STEREO 1] when you turn the camcorder off. However, the mix balance is memorised by the camcorder.

❍ You can also press the 12bit AUDIO OUT button on the wireless controller to select the audio output. However, the mix balance can only be adjusted in the menu.

Editing

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Connecting to a Computer Using a DV (IEEE1394) Cable

You can transfer recordings to a computer equipped with a DV (IEEE1394) terminal or IEEE1394 capture board (optional software required).
Use the optional CV-150F (4 pin–4 pin) or CV-250F (4 pin– 6 pin) DV Cable.

DV

IEEE1394 (DV) terminal

DV IN/OUT terminal

DV Cable (optional)
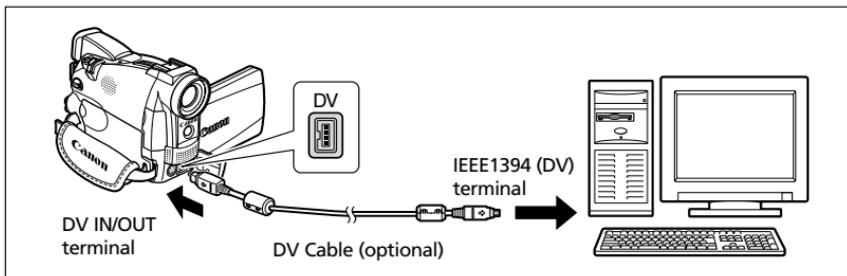
❍ Do not disconnect the DV cable, or turn off the camcorder or computer while data is being transferred to the computer.
❍ Operation may not work correctly depending on the software and the specifications/settings of your computer.

❍ We recommend powering the camcorder from a household power source while it is connected to the computer.
❍ Refer also to the instruction manual of the computer.
  Optional software required. Refer also to the instruction manual of the software.
❍ **MV650i MV630i** For transferring recordings from a memory card to the computer using a USB cable, see p. 128.

DV NETWORK SOLUTION DISK (Windows XP Users)

Windows XP users can use the software on the supplied DV NETWORK SOLUTION DISK to perform videoconference and file transfer over the Internet, or upload files from the computer to the memory card and use the camcorder as card reader/writer. The available functions depend upon the camcorder model and the networking environment. For details, refer to the DV NETWORK SOLUTION DISK Software Instruction Manual.

MV650i MV630i
❍ Do not disconnect the DV cable, remove the memory card or turn off the camcorder or computer while data is being transferred to the computer (while the camcorder's card access indicator is flashing). Doing so may damage the memory card's data.
❍ The image files on your memory card and the image files saved on the hard disk drive of your computer are your valuable, original data files. If you wish to use image files on your computer, be sure to make copies of them first, retaining the original.

Inserting and Removing the Memory Card

The chapter *Using a Memory Card* (❏ 99 - 132) refers to functions of the MV650i and MV630i only.

You can use 💳 SD Memory Cards or a commercially available MultiMediaCards with this camcorder. The SD Memory Card has a protect switch for prevent accidental erasure.

Terminals
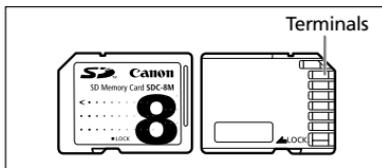
❍ This camcorder is compatible with SD Memory Cards or MultiMediaCards only. Do not use any other types of memory cards.

❍ Turn off the camcorder before inserting or removing the memory card. Otherwise it may result in data damage.

❍ Do not touch the memory card terminals.

❍ If you use memory cards other than the supplied one, make sure to format them with the camcorder (❏ 127).

❍ For instructions on how to connect the camcorder to the computer, see *Connecting to a Computer using a USB Cable* (❏ 128).

Inserting the Card

1. Turn off the camcorder.

2. Open the cover.

3. Insert the memory card all the way into the memory card slot.

4. Close the cover.

Do not close the cover forcefully without having the card correctly inserted.
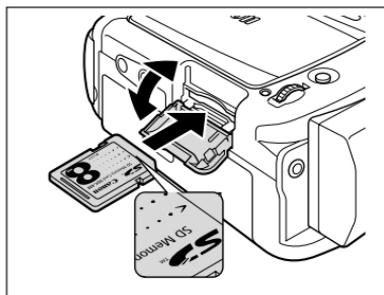
Removing the Card

Do not forcefully remove the memory card without first pushing it in.

1. Turn off the camcorder.

Make sure that the card access indicator is not flashing.

2. Open the cover.

3. Push the memory card to release it. Remove the memory card.

4. Close the cover.

Card access indicator

CARD/ CHARGE
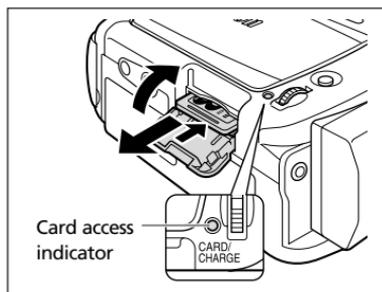
Selecting the Image Quality/Size

Changing the Still Image Quality

You can choose between Superfine, Fine and Normal.

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

CARD SET UP	▶	SI QUALITY··FINE

Open the menu and select [CARD SET UP]. Select [SI QUALITY], set it to [SUPER FINE] or [NORMAL] and close the menu.

Changing the Still Image Size

You can choose between 1024 × 768 pixels and 640 × 480 pixels.

CAMERA	PLAY (VCR)	CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43)

CARD SET UP	▶	SI SIZE·····1024×768

Open the menu and select [CARD SET UP]. Select [SI SIZE], set it to [640 × 480] and close the menu.

❍ Still images recorded in 1024 × 768 pixels may not be displayed correctly in a camcorder not supporting this size.

❍ Still images are compressed and recorded in the JPEG (Joint Photographic Experts Group) format.

❍ Depending on subject and recording condition, changing the image quality may not show a significant difference.

❍ Estimated Capacity of a 8 MB Memory Card and File Size per Image:

Image Size Image Quality	1024 × 768		640 × 480	
	No. of Images	File Size per Image	No. of Images	File Size per Image
Superfine	14 images	440 KB	35 images	175 KB
Fine	20 images	300 KB	52 images	120 KB
Normal	39 images	160 KB	86 images	65 KB

These figures are approximate. They vary according to the recording condition and the subject. Sample images already recorded on the supplied SD Memory Card are to be included in the total number.

❍ Remaining Image Capacity:
   🗑 flashingin red: No card
   ⬜ in green: 6 or more images
   ⬜ in yellow: 1 to 5 images
   ⬜ in red: No more images

❍ The indication may not decrease even though a recording has been made, or may decrease by 2 images at once.
❍ All indicators are displayed in green when a memory card is played back.
❍ **MV650i** The remaining image capacity indicates the number of still images, even when movies are recorded.

MV650i Changing the Movie Size

You can choose between 320 × 240 pixels and 160 × 120 pixels.

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
($\square$ 43)

| CARD SET UP | ▶ | MOVIE SIZE··320×240 |

Open the menu and select [CARD SET UP]. Select [MOVIE SIZE], set it to [160 × 120] and close the menu.

❍ Movies are recorded in the Motion JPEG format.
❍ Maximum continuous recording time:

Image Size	Max. Continuous Recording Time	Total File Size	File Size per Second
320 × 240	10 sec.	2.7 MB	270 KB/sec.
160 × 120	30 sec.	2.7 MB	90 KB/sec.

File Numbers

Images are automatically assigned file numbers from 0101 to 9900 and stored in folders containing up to 100 images. Folders are assigned numbers from 101 to 998. (The sample images on the supplied memory card are saved in the [100canon] folder.)

You can choose to use consecutive file numbers (CONTINUOUS) or to reset the file number each time a different memory card is inserted (RESET). We recommend setting the file numbers to CONTINUOUS.

CONTINUOUS
The camcorder memorises the file number of the last image and assigns the consecutive file number to the next image, even when a new memory card is inserted. (If a higher file number already exists on the memory card, the consecutive number will be assigned.) There will be no duplication of file numbers. This is useful for organizing images on a computer.

RESET
The file number will be reset each time a new memory card is inserted, starting with 101-0101. If the memory card already contains image files, the consecutive file number will be assigned.

MV650i MV630i
Using a Memory Card

101

When you record 3 images on the supplied memory card.

101
101-0101
101-0102
101-0103

CONTINUOUS

RESET

When you replace the memory
card and record an image.

101   101-0104

101   101-0101
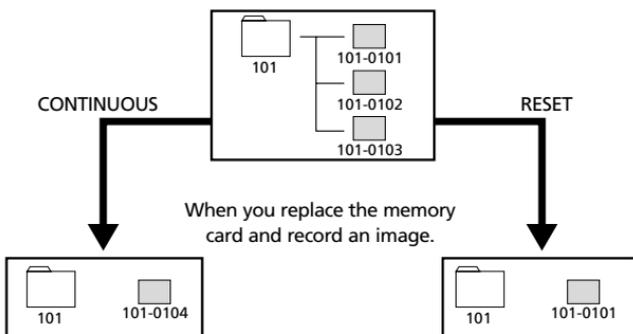
| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(□ 43)

CARD SET UP ▶ FILE NOS.・・・CONTINUOUS

**To change the setting, open the menu and select [CARD SET UP]. Select
[FILE NOS.], set it to [RESET] and close the menu.**

Recording Still Images on a Memory Card 📷

E

You can record still images with the
camcorder, from a tape in the camcorder
(□ 104), or from devices connected via the
DV terminal or AV terminal (□ 105).
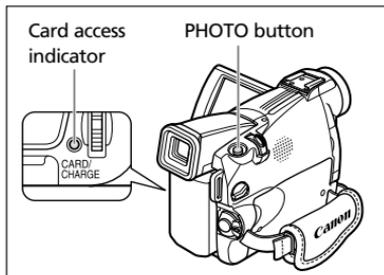
Card access
indicator

PHOTO button

CARD/
CHARGE

❗ ❍ Do not turn off the camcorder, disconnect the power source or remove the
memory card while the card access display (<<< or >>>) in the upper right
corner of the screen or the card access indicator is flashing. Doing so could
result in data damage.
❍ When you are using a SD Memory Card, make sure that the protect switch is
set to allow recording.

Make sure to insert a memory card with enough remaining capacity.

Recording with the Camcorder

| CAMERA | PLAY (VCR) | **CARD CAMERA** | CARD PLAY (VCR) |

1. Set the camcorder to CARD CAMERA mode.

The remaining image capacity and other information appear.

2. Press the PHOTO button halfway.

• ⚫ flashes in white and turns green when focus is adjusted.
• Exposure is locked.
• When you press the PHOTO button on the wireless controller,
recording starts immediately.
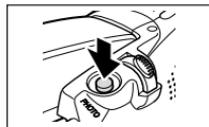
3. Press the PHOTO button fully.

• You hear a shutter sound, and the screen appears as if a
shutter has been released.
• The card access indicator flashes.
• The still image shown on the screen will be recorded on the memory card.

To use the self-timer (□ 69), press the ⏱ (self-timer) button before step 2 and
press the PHOTO button fully.

MV650i MV630i Using a Memory Card

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Recording from a Tape in the Camcorder

You can record images from a tape in the camcorder as still images on a memory card.

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD PLAY (VCR) |

1. Set the camcorder to PLAY (VCR) mode.

2. Play back the tape.

3. Press the PHOTO button halfway when the scene you wish to record appears.

- The camcorder pauses playback. The remaining image capacity and other information appear.
- When you press the PHOTO button on the wireless controller, recording starts immediately.

4. Press the PHOTO button fully.

- The card access indicator flashes.
- The still image shown on the screen will be recorded on the memory card.
- You can also record a still image by pressing the PHOTO button fully when the tape is in playback pause mode.

❍ A still image recorded from an image in 16:9 format will be vertically compressed.

❍ The data code of the still image will reflect the date and time it has been recorded on the memory card.

❍ There will be no shutter sound in PLAY (VCR) mode.

❍ The image size of a still image recorded from a tape in the camcorder will be 640 × 480.

Recording from Other Video Devices

You can record images from devices connected via the S-video terminal or AV terminal (analog line-in function), or via the DV terminal as still images on a memory card.

⚠️ When recording via the AV terminal, make sure that "AV ➡ DV" is displayed on the screen. When recording via the DV terminal, make sure that "AV ➡ DV" is not displayed. Change the setting as necessary (□ 92).

| CAMERA | **PLAY (VCR)** | CARD CAMERA | CARD PLAY (VCR) |

1. Connect the camcorder to the video device.
- S-video/AV terminal: See *Playing Back on a TV Screen* (□ 39).
- DV terminal: See *Connecting a Digital Video Device* (□ 87).

2. Set the camcorder to PLAY (VCR) mode.
If a cassette is loaded, make sure the tape is stopped.

3. Connected device: Load a recorded cassette and play back the tape.

4. Press the PHOTO button halfway when the scene you wish to record appears.
- The still image, remaining image capacity and other information appear.
- When you press the PHOTO button on the wireless controller, recording starts immediately.

5. Press the PHOTO button fully.
- The card access indicator flashes.
- The still image shown on the screen will be recorded on the memory card.

✎
❍ A still image recorded from an image in 16:9 format will be vertically compressed.
❍ The data code of the still image will reflect the date and time it has been recorded on the memory card.
❍ There will be no shutter sound in PLAY (VCR) mode.
❍ The image size of a still image recorded from other video devices will be 640×480.

Recording Panoramic Images (Stitch Assist Mode) 📷

You can shoot a series of overlapping images and merge them into one large panoramic scene using the supplied software (PhotoStitch) on a computer.

When Recording in Stitch Assist Mode:

PhotoStitch detects the overlapping portion of adjoining images and merges them. Try to include a distinctive item (landmark, etc.) in the overlapping portion.

| CAMERA | PLAY (VCR) | **CARD CAMERA** | CARD PLAY (VCR) |

1. Set the camcorder to CARD CAMERA mode.

2. Press the 📷 button.

3. Select the direction with the CARD +/− button.

CARD + button: clockwise. CARD − button: anticlockwise.
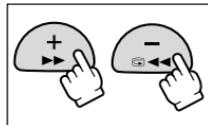
4. Select the program AE mode and zoom on the subject.

Adjust focus and AE shift manually as necessary. Once the sequence has started, you cannot change the program AE mode, AE shift, zoom or focus.

5. Press the PHOTO button to record the first image.

Direction and number of recorded images appear.
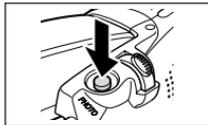
6. Record the second image so that it overlaps a portion of the first image.

- Minor discrepancies in the overlapped area can be corrected with the software.
- You can retake an image by pressing the CARD − button to return to the previous image.
- A maximum of 26 images can be recorded.

7. Press the 📷 button after the last image.

For details on how to merge these images, refer to the DIGITAL VIDEO SOLUTION DISK Software Instruction Manual.

❍ Compose each image so that it overlaps 30 to 50% of the adjoining image. Try to keep the vertical misalignment within 10%.

❍ Do not include moving subject in the overlapping portion.

❍ Do not try to stitch images that include both distant and close subjects. They may appear warped or doubled up.

MV650i MV630i
Using a Memory Card

E

You can record Motion JPEG movies with the camcorder, from a tape in the camcorder (📖 109), or from devices connected via the AV terminal (analog line-in) or the DV terminal (📖 109).

⚠️ ❍ Do not turn off the camcorder, disconnect the power source or remove the memory card while the card access display (<<< or >>>) in the upper right corner of the screen or the card access indicator is flashing. Doing so could result in data damage.
❍ When you are using a SD Memory Card, make sure that the protect switch is set to allow recording.
❍ Do not load/unload a cassette during recording.

✏️ ❍ Make sure to insert a memory card with enough remaining capacity.
❍ The sound of a movie recorded on a memory card will be monaural.

Recording with the Camcorder

| CAMERA | PLAY (VCR) | **CARD CAMERA** | CARD PLAY (VCR) |

1. Set the camcorder to CARD CAMERA mode.

2. Press the start/stop button to begin recording.

You can record up to 10 seconds in 320 × 240 and up to 30 seconds in 160 × 120.
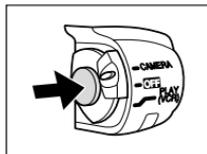
3. Press the start/stop button to stop recording.

The camcorder starts writing the movie on the memory card.

✏️ To use the self-timer, press the ⏱ (self-timer) button before step 2 (📖 69) and press the start/stop button.

Recording from a Tape in the Camcorder

You can record movies from a tape in the camcorder on a memory card.

| CAMERA | **PLAY (VCR)** | | CARD CAMERA | CARD PLAY (VCR) |

E

1. Set the camcorder to PLAY (VCR) mode.

2. Play back the tape.

3. Press the start/stop button when the scene you wish to record appears.

You can record up to 10 seconds in 320 × 240 and up to 30 seconds in 160 × 120.

4. Press the start/stop to stop recording.

❍ A movie recorded from an image in 16:9 format will be vertically compressed.
❍ The data code of the movie will reflect the date and time it has been recorded on the memory card.

Recording from Other Video Devices

You can record movies from devices connected via the S-video terminal or AV terminal (analog line-in function), or via the DV terminal on a memory card.

| CAMERA | **PLAY (VCR)** | | CARD CAMERA | CARD PLAY (VCR) |

1. Connect the camcorder to the video device.

• S-video/AV terminal: See *Playing Back on a TV Screen* (📖 40).
• DV terminal: See *Connecting a Digital Video Device* (📖 87).

2. Set the camcorder to PLAY (VCR) mode.

If a cassette is loaded, make sure the tape is stopped.

3. Connected device: Load a recorded cassette and play back the tape.

4. Press the start/stop button when the scene you wish to record appears.

You can record up to 10 seconds in 320 × 240 and up to 30 seconds in 160 × 120.

5. Press the start/stop button to stop recording.

❍ A movie recorded from an image in 16:9 format will be vertically compressed.
❍ The data code of the movie will reflect the date and time it has been recorded on the memory card.

Using a Memory Card

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Playing Back a Memory Card

You can play back memory card images on the LCD screen, viewfinder screen, or on a connected TV screen (see *Playing Back on a TV Screen* (39)).

You can display a single image (single image display 110), 6 at one time (index screen 111), or one after another (slide show 111). Use the Card Jump function to quickly locate an image without displaying them one by one (112).

❍ Images not recorded with this camcorder, uploaded from a computer (except the sample images 131), edited on a computer and images whose file names have been changed may not be played back correctly.

❍ Still images not recorded with this camcorder may not be printed correctly on a Bubble Jet Printer with the direct print function.

❍ Do not turn off the camcorder, disconnect the power source or remove the memory card while the card access display (<<<) in the upper right corner of the screen or the card access indicator is flashing. Doing so could result in data damage.

❍ Make sure to insert a memory card that contains images.

❍ Only date and time will be displayed when pressing the DATA CODE button.

❍ You can enlarge still images by 2 times during playback (81).

Single Image Display

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

1. Set the camcorder to CARD PLAY (VCR) mode.

• The last recorded image appears.

• **MV650i** Movies are displayed with the first scene as a still image indicated by "▶/❙❙".

2. Press the CARD+/– button to move between images.

Press the CARD + button to display the next image and the CARD – button to display the previous image.
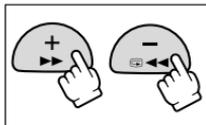
3. **MV650i** To play back a movie, press the ▶/❙❙ button.

The last scene appears as a still image when playback is complete.
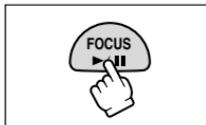
Index Screen

CAMERA	PLAY (VCR)	CARD CAMERA	**CARD PLAY (VCR)**

1. **In single image display, press the ▣ (index screen) button.**
   - Up to 6 images appear.
   - **MV650i** Movies are displayed with the first scene as a still image indicated by " ▮ ".
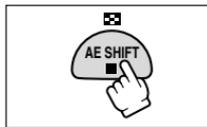
2. **Press the CARD +/– button to change the image selection.**
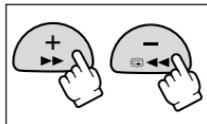
3. **Move the ☞ mark to the image you wish to view.**
   - Turn the selector dial up to move to the next image and down to move to the previous image.
   - Turning the selector dial up on the last image displays the next index screen. Turning the selector dial down on the first image displays the previous index screen.
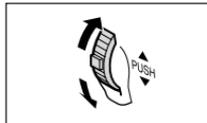
4. **Press the ▣ (index screen) button.**
   The index screen is cancelled and the selected image appears in single image display.
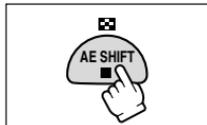
Slide Show

CAMERA	PLAY (VCR)	CARD CAMERA	**CARD PLAY (VCR)**

1. **In single image display, press the SLIDE SHOW button.**
   Images are played back one after another.

2. **Press the SLIDE SHOW button to stop the slide show.**

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Using a Memory Card

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Card Jump Function

You can locate still images/movies without displaying them one by one. The number in the upper right of the screen indicates the image number of the current image by the total number of images.

In single image display, press and hold the CARD + or CARD – button.

• Press the CARD + button to jump forward and the CARD – button to jump backward.

• When you release the button, the still image/movie of the displayed image number appears.
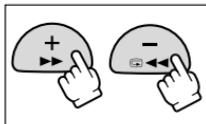
Protecting Images

You can protect important images from accidental erasure during single image display or index screen display.

 If a memory card is formatted, all images, even protected ones, will be erased permanently.

❍ The sample images recorded on the supplied SD Memory Card are already protected.
❍ **MV650i** Movies can only be protected when the first or last scene is displayed as a still image. They cannot be protected during playback pause.
❍ Make sure to insert a memory card that contains images.

Protecting during Single Image Display

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

1. Select the image you wish to protect.

2. Press the selector dial to open the FILE OPERATION menu.

3. Select [PROTECT ⊶].
  • " ⊶ " appears and now the image cannot be erased.
  • To cancel the protection, press the selector dial.

4. Select [← RETURN] to close the menu.

Protecting during Index Screen Display

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(🔲 43) | CARD OPERATIONS | ▶ | ➡PROTECT⊶ |

1. In single image display, press the ▦ (index screen) button.

Up to 6 images appear.

2. Open the menu and select [CARD OPERATIONS].

3. Select [➡ PROTECT ⊶].

4. Select the image you wish to protect and press the selector dial.
  • " ⊶ " appears on the image.
  • Repeat this step to protect more images.
  • To cancel the protection, press the selector dial.

5. Press the MENU button.

 To cancel the protection, press the selector dial in step 4. " ⊶ " disappears and the image can now be erased.

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Erasing Images

You can erase images singly or all at once.

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

❍ Protected images cannot be erased.
❍ **MV650i** Movies can only be erased when the first or last scene is displayed as a still image. They cannot be erased in playback pause mode.
❍ Make sure to insert a memory card that contains images.

Erasing a Single Image

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

1. Select the image you wish to erase.

2. Press the selector dial to open the FILE OPERATION menu.

3. Select [IMAGE ERASE].
   • "ERASE THIS IMAGE?", [NO] and [YES] appears.
   • If an image is protected, [YES] appears in purple.

4. Select [YES].
   The image is erased and the previous image appears.

5. Select [← RETURN] to close the menu.

Erasing a Single Image/All Images

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(☐ 43)

CARD OPERATIONS ▶ IMAGE ERASE

1. Open the menu and select [CARD OPERATIONS].

2. Select [IMAGE ERASE].

3. Select [SINGLE] or [ALL].
   • When erasing a single image: "ERASE THIS IMAGE?" [NO] and [YES] appears. If an image is protected, [YES] appears in purple.
   • When erasing all images: "ERASE ALL IMAGES? [EXCEPT FOR Oπ IMAGES]", [NO] and [YES] appears.

4. Select [YES] and close the menu.
   • When erasing a single image: The image is erased and the previous image appears. To erase another image, select the image with the CARD +/– button and select [YES].
   • When erasing all images: All images with exception of the protected images are erased.

Selecting Still Images for Printing (Print Order) 📷 🖊

You can select still images for printing and set the number of copies. These print order settings are compatible with the Digital Print Order Format (DPOF) standards.

Selecting in Single Image Display

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

1. Select the still image you wish to print.

2. Press the selector dial to open the FILE OPERATION menu.

3. Select [🖶 PRINT ORDER].

4. Select the number of copies.

- " 🖶 " appears on the image.
- To cancel the print order, set the number of copies to 0.

5. Select [← RETURN] to close the menu.

Selecting in Index Screen Display

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(43)

| CARD OPERATIONS | ▶ → 🖶 PRINT ORDER |

1. In single image display, press the ⊞ (index screen) button.

Up to 6 images appear.

2. Open the menu and select [CARD OPERATIONS].

3. Select [→ 🖶 PRINT ORDER].

4. Select the still image you wish to print and press the selector dial.

5. Set the number of copies with the selector dial and close the menu.

- " 🖶 " appears on the image.
- To cancel the print order, set the number of copies to 0.
- Repeat steps 4 and 5 to continue the print order setting.

E

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Using a Memory Card

Erasing All Print Orders

| CAMERA | PLAY (VCR) | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(📖 43)

| CARD OPERATIONS | ▶ | ⤵PRINT ORDERS ALL ERASE |

1. In single image display, open the menu and select [CARD OPERATIONS].

2. Select [⤵ PRINT ORDERS ALL ERASE].

"ERASE ALL ⤵ PRINT ORDERS?", [NO] and [YES] appears.

3. Select [YES].

All " ⤵ " disappear.

4. Select [⬅ RETURN] to close the menu.

Printing with the Direct Print Function 📺✏️

You can print still images by connecting the camcorder to a Canon Bubble Jet Printer with Direct Print function. The Direct Print function can also be used with the print order settings (□ 115).

⚠️ ❍ Observe the following precautions during printing, otherwise printing may not be performed correctly.
- Do not turn off the camcorder or the printer.
- Do not change the position of the TAPE/CARD switch.
- Do not detach the cable.
- Do not remove the memory card.

✍️ ❍ Canon Bubble Jet Printers with Direct Print function (as of January 2003): S830D, S820D, S530D.
❍ We recommend powering the camcorder from a household power source.
❍ Refer also to the instruction manual of the respective printer.

Connecting the Printer to the Camcorder

Canon Bubble Jet Printer with direct print function
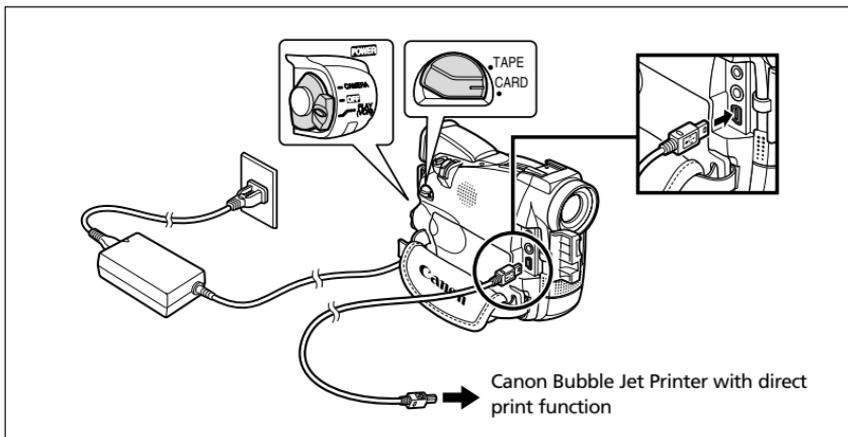
1. Turn off the camcorder and insert a memory card that contains images.

2. Connect a power source to the printer and turn on the printer.

3. Set the camcorder to CARD PLAY (VCR) mode.

Wait until the card access indicator stops flashing.

4. Connect the camcorder to the printer using the cable.

Print≫ SET appears when the printer is properly connected to the camcorder. (Does not appear with movies, or still images that cannot be played back with the camcorder.)

Using a Memory Card

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Printing

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

1. In single image display, select the still image you wish to print and press the selector dial.

The print setting menu appears.

2. Set the number of copies and the print style.

- *Selecting the Number of Copies.*
- *Setting the Print Style.*

3. Select [Print] and press the selector dial.

Printing starts. The print setting menu disappears when printing is complete.

> If an error message appears, see *Printing Errors* (☐ 120) and *Direct Print Related Messages* (☐ 139).

Selecting the Number of Copies

A maximum of 9 copies can be selected for one still image.

1. In the print setting menu, turn the selector dial so that 🖼 appears next to [Copies] and press the selector dial.

2. Turn the selector dial to select the number of copies and press the selector dial.

Setting the Print Style

Paper Size		Card #1*, Card #2*, Card #3*,LTR, A4
		For details on paper type, refer to the Bubble Jet Printer User Guide.
Borders	Borderless	Prints right to the edges of the page
	Bordered	Prints with a border

* Recommended paper size

Selecting the paper size:

1. In the print setting menu, turn the selector dial to select [Style] and press the selector dial.

2. Make sure that ⬚ is selected and press the selector dial.

3. Turn the selector dial to select the paper size and press the selector dial.

4. Press the MENU button.

You return to the print setting menu.

Selecting the Borders:

1. In the print setting menu, turn the selector dial to select [Style] and press the selector dial.

2. Select ▤ and press the selector dial.

3. Select a setting option and press the selector dial.

4. Press the MENU button.

You return to the print setting menu.

○ Bordered: The image area remains relatively unchanged from the recorded image when it is printed.

○ Borderless: The centre portion of the recorded image is printed at an enlarged size. The image's top, bottom and sides may be cropped slightly.

Printing with Print Order Settings

You can print still images you have selected with the Print Order function. If you wish to print more than 1 copy, set the number of copies in the print order (□ 115).

| CAMERA | PLAY (VCR) | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(□ 43)

➡ PRINT

1. Connect the printer to the camcorder (□ 117).

2. Press the MENU button.

3. Select [➡ PRINT].

- The print setting menu appears.
- "Set print order" appears, when you connect a printer with direct print function and select [➡ PRINT] without having set the print order.
- The total number of prints set in the print order is displayed on the upper left of the screen.

4. Set the print style.

Setting the Print Style (□ 118).

5. In the print setting menu, select [OK] and press the selector dial.

Printing starts. The print setting menu disappears when printing is complete.

❍ Cancel Printing
  Press the selector dial while "Now Printing" is displayed. A confirmation dialog appears. Select [OK] and press the selector dial. Printing stops even if it is incomplete and the paper is fed through.

❍ Restarting Printing (with ⟋ printer order only)
  Open the CARD PLAY (VCR) menu and select [➡ PRINT]. Select [Restart] in the print setting menu and press the selector dial. The remaining images will be printed.
  Printing cannot be restarted in the following cases:
  - When you change the print order settings.
  - When you delete a still image with print order settings.

❍ Printing Errors
  If an error occurs during the printing process, an error message appears (□ 139). With most errors, printing resumes automatically after you correct the error. If the error persists, press the selector dial to cancel printing.

❍ Follow below procedure when disconnecting the interface cable:
  1. Disconnect the cable from the camcorder and printer.
  2. Turn off the camcorder.

Combining Images (Card Mix)

You can produce effects not possible with just a tape with the Card Mix function. Choose one of the sample images provided on the supplied SD Memory Card (such as picture frames, backgrounds and animations) and combine it with the live video recording.

❍ Card Mix cannot be used in the Night and Super Night (MV650i) mode.
❍ **MV650i** Movies recorded on a memory card cannot be combined with camcorder recordings.

❍ Make sure to load a cassette and to insert a memory card that contains card mix images.
❍ Additional sample images are provided on the supplied DIGITAL VIDEO SOLUTION DISK. For instructions on how to upload them to the memory card, refer to *Adding Still Images from Your Computer to the Memory Card* in the DIGITAL VIDEO SOLUTION DISK Software Instruction Manual.
❍ Reselect the card mix image when you have turned off the camcorder or changed the position of the program selector.

Card Mix Effects

You can select from the following 4 types of Card Mix effects:

Card Chroma Key (CARD CHROMA)

Combines frames with your recordings. The live video recording will appear in place of the blue area of the card mix image. If you create your own frame, make sure that the area the live recording should appear is blue.

Mix level adjustment: blue area of the still image.

Live video recording   Card mix image

Card Luminance Key (CARD LUMI.)

Combines illustrations or title with your recordings. The live video recording will appear in place of the light area of the card mix image. You can create your own title or illustration by drawing on a white paper and recording it to the memory card.
Mix level adjustment: light area of the still image.

Live video recording   Card mix image

Camera Chroma Key (CAM. CHROMA)

Combines backgrounds with your recordings. Record your subject in front of a blue curtain, and the subject not blue will be superimposed on the card mix image.
Mix level adjustment: blue area of the live video recording.

Live video recording   Card mix image
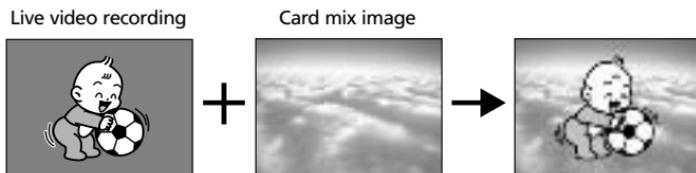
Card Animation (C. ANIMATION)

Combines animations with your recordings. You can choose from 3 types of card animation effects.
Corner: Animation appears on the upper left and the lower right corner of the screen.
Straight: Animation appears on the top and bottom of the screen and moves to the right and left.
Random: Animation moves randomly in the display.
Mix level adjustment: blue area of the card animation image.

Live video recording   Card mix image

Selecting the Card Mix Effect

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU
(☐ 43)   ➔ CARD MIX ≫ MIX TYPE···CARD CHROMA ≫ MIX LEVEL··−⊏⊐+

1. Set the program selector to P.
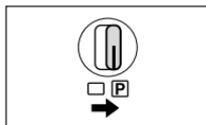
2. Open the menu and select [➔ CARD MIX].

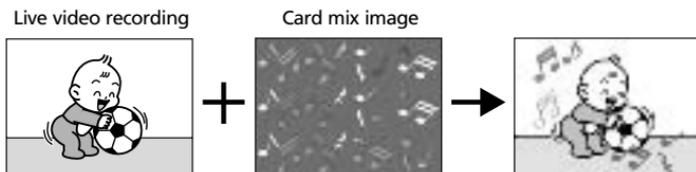The card mix menu appears.

3. Select the image you wish to combine with the CARD +/– button.

4. Select [MIX TYPE].

[CARD CHROMA], [CARD LUMI.], [CAM. CHROMA] and [C. ANIMATION] appears.

5. Select the mix type matching the image you have selected (☐ 131).

 • The screen shows the combined image.

 • When you have selected [C. ANIMATION], select [ANIMAT. TYPE] and select between [CORNER], [STRAIGHT] and [RANDOM].

6. To adjust the mix level, select [MIX LEVEL] and adjust it with the selector dial.

7. Close the menu.

"CARD MIX" flashes.
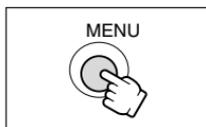
Activating the Card Mix Effect

1. Press the CARD MIX button.

 • "CARD MIX" stops flashing.

 • The combined image appears.

 • You can activate and deactivate the card mix effect by pressing the CARD MIX button.

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Recording with the Card Mix Effect

Movie:

1. Press the start/stop button to begin recording.

The combined image is recorded on the tape.
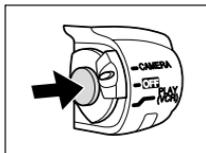
2. Press the start/stop button to end recording.

Still Image:

1. Press the PHOTO button halfway.

● flashes in white and turns green when focus is adjusted.
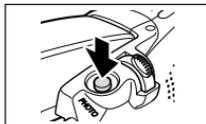
2. Press the PHOTO button fully.

• The camcorder records the still image on the tape for approx. 6 seconds. During this time, the camcorder displays the still image and keeps recording the sound.

• The camcorder returns to record pause mode.
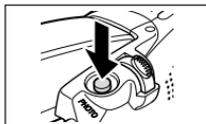
Copying Still Images

You can copy still images from tape to memory card, or from memory card to tape.

❍ All still images from the selected still image onward will be copied.
❍ The image size of a still image copied from tape to memory card will be 640 × 480.
❍ The data code of the still image reflects the date and time it has been copied.

Copying Still Images from Tape to Memory Card

Insert a memory card with enough remaining capacity, and load a recorded cassette.

CAMERA	**PLAY (VCR)**	CARD CAMERA	CARD PLAY (VCR)

MENU
(📖 43) | CARD OPERATIONS | ▶ | COPY[⌒⌒▶▢] |

1. Locate the still image you wish to copy on the tape and stop the tape shortly before the still image.
   - You can also use the photo search function to easily locate the still image.
   - To copy all still images from the tape, rewind the tape to the beginning.
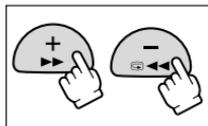
**2. Open the menu and select [CARD OPERATIONS].**

3. Select [COPY [⌒⌒ ➡ ▢]].
   [CANCEL] and [EXECUTE] appears.

4. Select [EXECUTE].
   - "NOW COPYING" appears.
   - The still image being copied is shown on the screen.
   - Copying stops when the tape reaches the end or the memory card is full ("CARD FULL" appears).

5. Press the ■ (stop) button to end copying.

Copying Still Images from Memory Card to Tape

Load a cassette with enough free space, and insert a recorded memory card. Make sure that the protect tab on the cassette is set to allow recording.

CAMERA	PLAY (VCR)	CARD CAMERA	**CARD PLAY (VCR)**

MENU
(📖 43)

CARD OPERATIONS	▷	COPY [🗀 ➡ 📼]

1. Select the first still image you wish to copy with the CARD +/– buttons.

To copy all still images from the memory card, select the first still image.
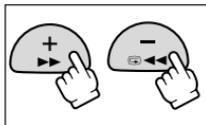
2. Open the menu and select [CARD OPERATIONS].

3. Select [COPY [🗀 ➡ 📼]].

[CANCEL] and [EXECUTE] appears.

4. Select [EXECUTE].

- "NOW COPYING" appears.
- It takes about 6 seconds per still image to be copied to the tape.
- Copying stops when all still images are copied or the tape is full.

5. Press the ■ (stop) button to end copying.
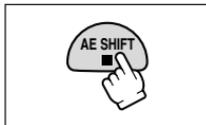
Formatting a Memory Card

Format new memory cards, or when you get the message "CARD ERROR". You can also format a memory card to erase all images recorded on it.

The camcorder formats memory cards in the Design rule for Camera File system (DCF) standard.

❍ Formatting a memory card erases all data, including protected images.
❍ Images erased by formatting cannot be recovered.
❍ If you use a memory card other than the supplied one, format it with the camcorder.
❍ Makes sure to insert the memory card you wish to format into the camcorder.

| CAMERA | PLAY (VCR) | | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(□ 43)

| CARD OPERATIONS | ▶ | FORMAT |

1. Open the menu and select [CARD OPERATIONS].

2. Select [FORMAT].

[CANCEL] and [EXECUTE] appears.

3. Select [EXECUTE].

[FORMAT THIS CARD?], [NO] and [YES] appears.

4. Select [YES] and close the menu.

• Formatting starts.
• Selecting [NO] brings you back to step 3.

Using a Memory Card

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Connecting to a Computer Using a USB Cable

You can download images from the memory card to a computer using the supplied USB cable. With the supplied software, you can easily download, browse and archive images, and arrange still images for printout.
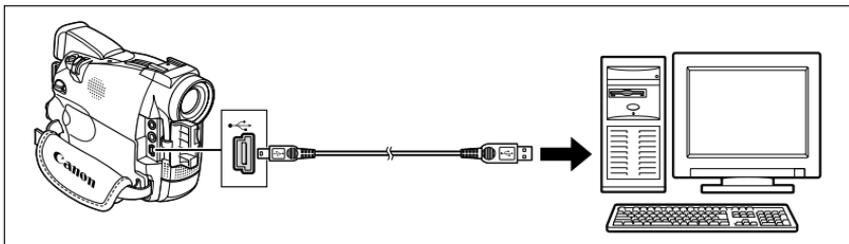
For instructions on how to connect the camcorder to the computer, and install and operate the software, refer to the DIGITAL VIDEO SOLUTION DISK Software Instruction Manual.

• Refer also to the computer instruction manual.
• "PC CONNECT ⟍⟋ " appears to indicate that the camcorder is connected to the computer via USB cable.
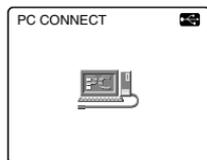
PC CONNECT

❍ Do not disconnect the USB cable, remove the memory card, change the position of the POWER switch or turn off the camcorder and computer while data is being transferred to the computer (while the camcorder's card access indicator is flashing). Doing so may damage the memory card's data.
❍ Operation may not work correctly depending on the software and the specifications/settings of your computer.
❍ The image file on your memory card and the image files saved on the hard disk drive of your computer are valuable, original data files. If you wish to use image files on your computer, make copies of them first, and use the copied file, retaining the original.

❍ We recommend powering the camcorder from a household power source while it is connected to the computer.
❍ **MV650i** The light-up buttons turn off during USB connection.
❍ For transferring recordings from to a computer using a DV cable, see p. 98.
❍ Still images/movies recorded on a tape cannot be transferred to a computer via USB interface.

Creating a Start-up Image

You can create a start-up image using a still image on the memory card or a sample start-up image provided on the DIGITAL VIDEO SOLUTION DISK and save it as [MY IMAGE].

❍ Make sure to insert a memory card with enough remaining capacity.
❍ Before you create a start-up image, you need to record a still image on the memory card.
❍ Retain the original data of the still image you have set as the start-up image on your computer or removable disk.

Preparations

Record a still image on the memory card.

OR

Upload a still image from your computer to the memory card using the software in the DIGITAL VIDEO SOLUTION DISK.

For instruction on how to upload a still image to the memory card, refer to *Adding Still Images from Your Computer to the Memory Card* in the DIGITAL VIDEO SOLUTION DISK Software Instruction Manual.

Setting the Still Image as Start-up Image

| CAMERA | PLAY (VCR) | CARD CAMERA | **CARD PLAY (VCR)** |

MENU
(□ 43)

| MY CAMERA | ▷ | CREATE START-UP IMAGE |

1. Open the menu.

2. Select [MY CAMERA].

3. Select [CREATE START-UP IMAGE].

[SET THIS AS START-UP IMAGE?], [YES] and [NO] appears.

4. Select a still image with the CARD +/– buttons and select [YES].

[OVERWRITE MY IMAGE?], [YES] and [NO] appears.

5. Select [YES].

The still image will be saved, and the image that was saved to [MY IMAGE] is erased.

Memory Card Information

Images recorded on a memory card with this camcorder can be transferred to a
computer using the following products for SD Memory Cards or MultiMediaCards:

PC Card Adapter: An adapter to insert a memory card into the card slot on the
computer.
USB Reader/Writer: Connects to the USB port of a computer for direct access to the
memory card.
FD Adapter: An adapter to insert a memory card into the floppy disk drive on
the computer.

**Memory Cards that are confirmed to operate with this camcorder
(as of January 2003):**
SD Memory Card: Panasonic: 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB
SanDisk: 16 MB, 32 MB, 64 MB
MultiMediaCard: SanDisk: 16 MB, 32 MB, 64 MB
However, we cannot guarantee that all of these memory cards work properly.

Memory Card Handling Precautions
❍ Format new memory cards with the camcorder. Memory cards formatted with
other devices such as a computer may not operate correctly.
❍ We recommend saving backups of memory card images on your computer's hard
drive or other external memory device. 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 memory cards.
❍ Do not bend, drop, or subject memory cards to shocks and do not expose them to
water.
❍ Moving a memory card rapidly between hot and cold temperatures may cause
condensation to form on its external and internal surfaces. If condensation forms
on the card, put it aside until the droplets have evaporated completely.
❍ Do not touch or expose the terminals to dust or dirt.
❍ Store and carry memory cards in the supplied case to protect the terminals.
❍ Check the direction before inserting the memory card. Forcing a memory card
backwards into the slot may damage the memory card or the camcorder.
❍ Do not remove the label from the memory card, or affix other labels on the
memory card. If you wish to add labels, affix them to the case.

MV650i MV630i
Using a Memory Card

Sample Images

27 sample images are pre-recorded on the supplied SD Memory Card: 8 card chroma key images, 5 card luminance key images, 2 camera chroma key images and 12 card animation images.

Card Chroma Key
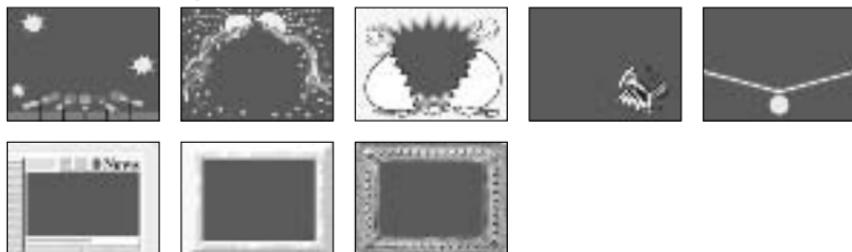
Card Luminance Key

Camera Chroma Key

Card Animation

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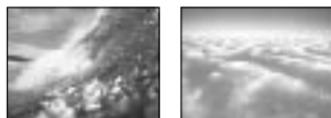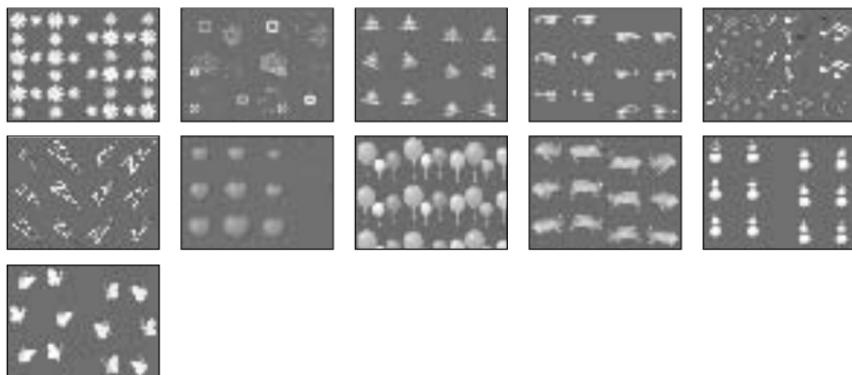
The sample images recorded on the supplied SD Memory Card are intended only for the personal use with this camcorder. Do not use these sample images for other purposes.

If you have mistakenly erased the Card Mix sample images on the supplied SD Memory Card, they can be downloaded from the following homepages:
http://www.canon-europa.com/products/products.html
http://www.canon-asia.com/
http://www.canon.com.au
For details on how to add the downloaded images to the memory card, refer to Adding Still Images from Your Computer to the Memory Card in the DIGITAL VIDEO SOLUTION DISK Software Instruction Manual.
If you cannot use the USB cable to connect the camcorder to a computer, you will need a PC Card Adapter to upload the images to a memory card.

PhotoEssentials – Royalty Free Stock Photography
The PhotoEssentials suite of royalty-free images on CD-ROM features premium quality assignment photography and is ideally suited for use in advertising, brochures, reports, multimedia, websites, books, packaging and more.
For more information, please visit their website www.photoessentials.com

Screen Displays

LCD Screen Displays

You can hide the displays on the LCD screen to have a clear screen for playback.

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU (□ 43)   `DISPLAY SET UP`   ▶   `DISPLAYS····ON`

Open the menu and select [DISPLAY SET UP]. Select [DISPLAYS], set it to [OFF <PLAYBK>] and close the menu.

• The LCD screen will become completely blank (also the TV screen if connected).
• Warning messages still appear, and the data code appears if turned on.
• Tape operation displays appear for 2 seconds.
• **MV650i** **MV630i** Displays cannot be hidden on the index screen.

TV Screen Displays

When you connect a TV for recording/playback, you can hide the displays on the TV screen. For connecting instructions, see *Playing Back on a TV Screen* (□ 39).

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

Press the TV SCREEN button on the wireless controller.

• When the POWER switch is set to CAMERA: The displays disappear from the TV screen and appear when you press the button again.

• When the POWER switch is set to PLAY (VCR): The displays appear on the connected TV screen and disappear when you press the button again. The setting resets to the OFF setting when you turn the camcorder off.
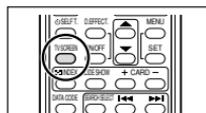
When the TV screen displays are hidden, the displays still appear on the LCD screen. If you turn on the data code, displays other than the data code will disappear from the LCD screen.

You can also change the setting in the menu during recording:

| CAMERA | PLAY (VCR) | CARD CAMERA | CARD PLAY (VCR) |

MENU (□ 43)   `DISPLAY SET UP`   ▶   `TV SCREEN···ON`

Open the menu and select [DISPLAY SET UP]. Select [TV SCREEN], set it to [OFF] and close the menu.

E

Screen Displays during Basic Recording/Playback

≋ indicates flashing.

CAMERA mode (battery pack attached):
• Remote sensor mode and audio mode disappear after 4 seconds.

```
                    ((♒)) SP PAUSE
□                       0:00:00
                        ▭ 5min
                        (((▭ 1
                        12bit
```
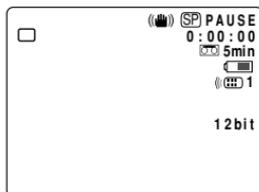
PLAY (VCR) mode:
• Remote sensor mode and volume bar disappear after 4 seconds.

```
STEREO1    ((♒)) SP STOP
                0:00:00:00
                ▭ 5min
                (((▭ 1
                ▭))
            − ▁▂▃▄▅ +
```

REC PAUSE STOP EJECT ▶ FF ▶▶ ◀◀ REW	▶▶ / ◀◀ ×2▶ / ◀×2 ×1▶ / ◀×1 ▶ / ◀ ‖▶ / ◀‖ ▶‖ / ‖◀ ▶▶‖ / ‖◀◀	: Fast forward playback/ rewind playback (□36) : ×2 playback (forward and reverse) (□36) : ×1 playback (forward and reverse) (□36) : Slow playback (forward and reverse) (□36) : Frame advance playback/ frame reverse playback (□36) : Playback pause (forward and reverse) (□36) : Date search/photo search (□84)
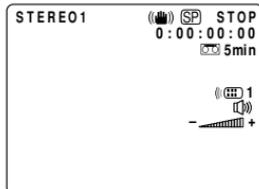
RTN ▶▶ / ◀◀ RTN
    : Zero set memory (forward
    and reverse) (□85)
●/ ●‖ : AV insert editing (□93)*
⊜/ ⊜‖ : Audio dubbing (□95)

* Not available with the MV600.

```
STEREO1          PAUSE
                1:23:45:00
                ▭ END
            ≋ ▣)) ▭ 1
                16bit
```

≋ : Backup
    battery (□17)
≋ : Condensation
    warning (□142)

Time code (□85)
Remaining tape
Remaining battery charge (□16)
▭ → ▭ → ▭ → ▭ → ◁
Remote sensor mode (□48)
Audio mode (□70)

Additional
Information

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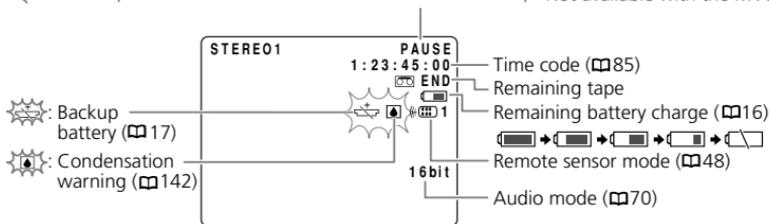
Screen Displays during Advanced Recording/Playback

CAMERA Mode

* **MV650i**   ** **MV650i** and **MV630i**

Image stabilizer (📖 68)

Zoom (📖 28)

AE shift (📖 76)

Program AE (📖 56)

Manual focus (📖 74)

Shutter speed (📖 77)

White balance (📖 79)

Card mix** (📖 121)

Digital effects (📖 60)

Date and time (📖 82)

AF/AE locked in
Photo mode (📖 54)

Recording reminder/
Self-timer countdown (📖 69)
Photo recording timer (📖 54)

Recording mode
(📖 53)

Self-timer (📖 69)

Headphones (📖 37)

Wind screen (📖 70)

Audio mode (📖 70)

16:9 mode (📖 51)

Photo mode (📖 54)

Accessory attached to
the Advanced Accessory
shoe* (📖 73)

```
                          (((•)))    SP
 AE ± 0         ⏱ 1 sec
 MF
 1 / 1 0 0
 CARD MIX                        ∩
 FADE-T                    - ▂▃▄▅▆ +
                           WS ON
 1 2 : 0 0  PM             1 2 b i t
 1 . J A N . 2 0 0 3   ◦ ⓒ 1 6 : 9
                           PHOTO
```

PLAY (VCR) Mode

* Not available with the MV600.

12bit audio out (📖 97)

Photo search/
Date search (📖 84)/
AV insert* (📖 93)/
Audio dubbing (📖 95)

Data code (📖 82)

Photo search/
Date search (📖 84)
┌ ◄◄ 1 ~ ◄◄10
└ 1 ►►~ 10►►

Volume level of built-in
speaker or headphones
(📖 38)

Audio mode* (📖 70)

DV input* (📖 89)

```
 MIX/VARI.              1 ►►|

         PHOTO  SEARCH
                            ⊲»
                       - ▂▃▄▅▆ +
 F1.8
 1/1000                 1 2 b i t
 1 2 : 0 0  PM
 1 . J A N . 2 0 0 3     DV  IN
```

Additional
Information

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MV650i MV630i CARD CAMERA Mode

* **MV650i**

Stitch assist (🔲 106)

Zoom (🔲 28)

Program AE (🔲 56)

AE shift (🔲 76)

Manual focus (🔲 74)

Shutter speed (🔲 77)

White balance (🔲 79)

Date and time (🔲 82)

AF/AE locked in Photo mode (🔲 103)

Recording on a memory card (🔲 103)

Still image quality (🔲 100)

Remaining card capacity (🔲 100)

Still image size (🔲 100)

Movie size* (🔲 101)

Self-timer (🔲 69)

Stitch assist (🔲 106)

Accessory attached to the Advanced Accessory shoe* (🔲 72)

```
                    S.FINE
             1→2 >>>⛶50
AE ±0             🔳1024
MF                🎬 320
1/120
...

12:00 PM
1.JAN.2003    ○ 🅲 🔲CLOSE
```

MV650i MV630i CARD PLAY (VCR) Mode

Print order (🔲 115)

Slide show (🔲 111)

Accessing a memory card (🔲 110)

Data code (🔲 82)

Protect mark (🔲 113)

Folder number-File number (🔲 101)

Current still image/ Total still images

```
SLIDE SHOW ⏮ ⊶101-0143
           ‹‹‹‹⛶43/50
              640×480



12:00 PM
1.JAN.2003
```

List of Messages

Message	Explanation	📖
SET THE TIME ZONE, DATE AND TIME	You have not set the time zone, date and time. This message appears each time you turn the power on until you set the time zone, date and time.	23
CHANGE THE BATTERY PACK	Battery pack is exhausted. Replace or charge the battery pack.	14
THE TAPE IS SET FOR ERASURE PREVENTION	Cassette is protected. Replace the cassette or change the position of the protect switch.	21
REMOVE THE CASSETTE	Camcorder stopped operating to protect the tape. Unload and reload the cassette.	20
CHECK THE DV INPUT	DV cable is not connected, or the connected digital device is turned off.	89
CONDENSATION HAS BEEN DETECTED	Condensation has been detected in the camcorder.	142
TAPE END	Tape reached the end. Rewind the tape or replace the cassette.	20
CHECK THE CASSETTE [REC MODE]	You attempted to perform audio dubbing or AV insert on a tape recorded in a mode other than the SP mode.	53
CHECK THE CASSETTE [AUDIO MODE]	You attempted to perform audio dubbing on a tape recorded in 16-bit or 12-bit 4-channel sound.	95
CHECK THE CASSETTE [BLANK]	You attempted to perform audio dubbing or AV insert on a tape with a blank section.	93
COPYRIGHT PROTECTED PLAYBACK IS RESTRICTED	You attempted to play back a copyright protected tape.	90
COPYRIGHT PROTECTED DUBBING RESTRICTED	You attempted to dub a copyright protected tape. May also appear when an anomalous signal is received during analog line-in recording, or during analog-digital conversion of a copyright protected tape.	90

Additional Information

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Message	Explanation	📖
NO CARD	Memory card not is inserted into the camcorder.	99
THE TAPE IS SET FOR ERASURE PREVENTION	SD Memory Card is set for erasure prevention. Replace the card or change the position of the protect switch.	99
NO IMAGES	No images are recorded on the memory card.	110
CARD ERROR	A memory card error occurred. The camcorder cannot record or play back the image. The error may be temporary. If the message disappears after 4 seconds and ⬜ flashes red, turn the camcorder off, remove the card and reinsert the card. If ⬜ changes to green, you can continue recording/playback.	99
CARD FULL	No remaining capacity on the memory card. Replace with another card or erase images.	114
NAMING ERROR	File or folder number has reached the maximum value.	101
UNIDENTIFIABLE IMAGE	Image is recorded in a not compatible JPEG format or another format not compatible with the camcorder, or the image file is corrupted.	110
⏏ PRINT ORDER ERROR	You attempted to set more than 200 still images in the print order.	115
THIS IMAGE CANNOT BE RECORDED	Some analog images cannot be recorded on the memory card depending on the signal.	105

Additional Information

MV650i MV630i Direct Print Related Messages

Message	Explanation
No Paper	Paper cassette is not correctly inserted or is out of paper.
Paper Jam	The paper jammed during printing.
No Ink	The ink cartridge is not inserted or is out of ink.
Communication Error	The printer is experiencing a data transmission error.
Could not print X images	You attempted to use the print order settings to print X images that were made with another camcorder, have a different format or were edited on a computer.
Cannot Print!	You attempted to print an image that was made with another camcorder, has a different format, or was edited on a computer.
Set print order	You attempted to print an image from the CARD PLAY (VCR) menu [➡ ↰ PRINT] without having set the print order.
Printer in use	The printer is printing from a computer or a memory card inserted into the printer. It automatically starts printing from the camcorder when current prints are complete.
Printer warming up	Printer is warming up. The printer automatically starts printing when it is ready.
No printhead	No print head is installed in the printer.
Printer cover open	Printer cover is open. Close the printer cover securely.
Media type error	Wrong paper. Cancel printing and set the paper you chose in the print settings menu.
Paper lever error	Paper lever error occurred. Adjust the paper selection lever to the proper position.
Low ink level	The ink tank needs to be replaced soon. Prepare a new ink tank. If you select [Continue] in the error screen, you can restart printing.
Waste tank full	Waste tank is full. You can restart printing by pressing the RESUME/CANCEL button on the Bubble Jet Printer. Request replacement of the waste tank at the shop where you purchased the printer or the nearest Canon customer support centre listed in the Bubble Jet Quick Start Guide.
Printer error	Turn off the printer and turn it back on. If the error persists, consult the nearest Canon customer support centre listed in the Bubble Jet Quick Start Guide.

Additional
Information

Maintenance

Camcorder Handling Precautions

❍ Do not carry the camcorder by the LCD panel or viewfinder.
❍ Do not leave the camcorder in places subject to high temperatures, such as a sun-heated car, and high humidity.
❍ Do not use the camcorder in places subject to magnetic or electric fields such as near the TV transmitters or portable communication devices.
❍ Do not point the lens or viewfinder at strong light sources. Do not leave the camcorder pointed at a bright subject.
❍ Do not use the camcorder in dusty or sandy places. Dust or sand getting inside the cassette or camcorder may cause damage. Dust and sand can also damage the lens. Attach the lens cap after use.
❍ The camcorder is not waterproof. Water, mud or salt getting inside the cassette or camcorder may cause damage.
❍ 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.
❍ Avoid sudden changes in temperature. Moving the camcorder rapidly between hot and cold temperatures may cause condensation to form on its internal surfaces (￼ 142).

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 86˚F (30˚C).
❍ After storage, check the functions of your camcorder to make sure that the camcorder is still working properly.

Cleaning

Camcorder Body and Lens
❍ Use a soft, dry cloth to clean the camcorder body and lens. Never use chemically treated cloth or volatile solvents such as paint thinner.

LCD Screen
❍ Clean the LCD screen using a commercially available cleaning cloth for glasses.
❍ Condensation may form on the surface of the screen when the temperature changes suddenly. Wipe it with a soft dry cloth.

❍ At cold temperatures, the screen may be darker than usual. This is not a
malfunction. The screen returns to normal when the camcorder warms up.

Viewfinder
❍ Rotate the viewfinder upward. Remove the protect cover
and clean the glass with a cotton swab. Reattach the
protect cover when finished.
❍ Be careful not to scratch the glass when cleaning.
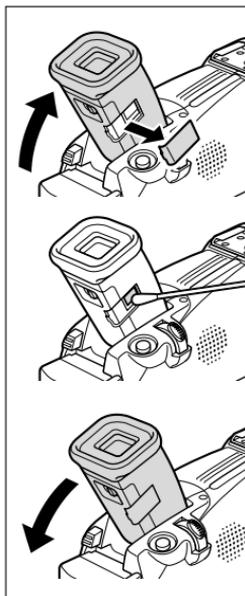
Video Heads
❍ When the playback picture becomes distorted, the video heads need to be cleaned.
❍ To maintain the best picture quality, we recommend cleaning the video heads
frequently with the Canon DVM-CL Digital Video Head Cleaning Cassette or a
commercially available dry cleaning cassette.
❍ Do not use wet type cleaning cassettes as this may damage the camcorder.

**Additional
Information**

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Condensation

Moving the camcorder rapidly between hot and cold temperature 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
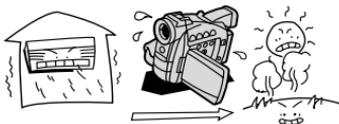
When the camcorder is moved from a cold place to a warm room
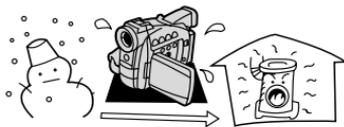
When the camcorder is left in a humid room

When a cold room is heated rapidly

How to avoid condensation:
❍ Unload the cassette, 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 stops operating and the warning message "CONDENSATION HAS BEEN DETECTED" appears for approx. 4 seconds and ▣ starts flashing.
❍ If a cassette is loaded, the warning message "REMOVE THE CASSETTE" appears and ▨ starts flashing. Remove the cassette immediately and leave the cassette compartment open. Leaving the cassette in the camcorder may damage the tape.
❍ A cassette cannot be loaded when condensation is detected.

Resuming use:
❍ It takes about 1 hour until the water droplets evaporate. After the condensation warning stops flashing, wait for 1 more hour before resuming use.

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 the Canon Service Centre for information on plug adapters for overseas use.

Playback on a TV Screen

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

Algeria, Australia, Austria, Bangladesh, Belgium, Brunei, China, Denmark, Finland, Germany, Hong Kong Special Administrative Region, Iceland, India, Indonesia, Ireland, Italy, Jordan, Kenya, Kuwait, Liberia, Malaysia, Malta, Mozambique, the Netherlands, New Zealand, North Korea, Norway, Oman, Pakistan, Portugal, Qatar, Sierra Leone, Singapore, South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Tanzania, Thailand, Turkey, Uganda, United Arab Emirates, United Kingdom, Yemen, former Yugoslavia, Zambia.

Additional Information

Troubleshooting

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

Power Source

Problem	Cause	Solution	📖
Camcorder will not turn on.	Battery pack is exhausted.	Replace or charge the battery pack.	14
	Battery pack is not correctly attached.	Attach the battery pack correctly.	14
The camcorder switches off by itself.	Battery pack is exhausted.	Replace or charge the battery pack.	14
	Power save function has been activated.	Turn on the camcorder.	26
Cassette compartment will not open.	Battery pack is exhausted.	Replace or charge the battery pack.	14
	Cassette compartment cover is not fully open.	Open the cassette compartment cover fully.	20
Cassette compartment stopped during loading/ unloading.	Battery pack is exhausted.	Replace or charge the battery pack.	14
	The camcorder malfunctions.	Consult a Canon Service Centre.	–
LCD/viewfinder switches on and off.	Battery pack is exhausted.	Replace or charge the battery pack.	14

Recording/Playback

Buttons will not work.	Camcorder is not turned on.	Turn on the camcorder.	26
	Cassette is not loaded.	Load a cassette.	20
🔋 flashes on the screen.	Battery pack is exhausted.	Replace or charge the battery pack.	14
💧 flashes on the screen.	Condensation is detected.	See reference page.	142
"Remove the cassette" appears on the screen.	Camcorder stopped operating to protect the tape.	Unload and reload the cassette.	20
The wireless controller will not work.	Camcorder and wireless controller are not set to the same remote sensor mode.	Change the remote sensor modes.	48
	Batteries of the wireless controller are exhausted.	Replace the batteries.	22

Recording

Problem	Cause	Solution	🕮
Image will not appear on the screen.	Camcorder is not set to CAMERA mode.	Set the camcorder to CAMERA mode.	26
"Set the time zone, date and time" appears on the screen.	Time zone, date and time are not set, or the backup battery is exhausted.	Set the time zone, date and time, or replace the backup battery and reset the date and time.	23
Pressing the start/stop button will not start recording.	Camcorder is turned off.	Turn on the power.	26
	Cassette is not loaded.	Load a cassette.	20
	Tape reached the end (🔚 END flashes on the screen).	Rewind the tape or replace the cassette.	20
	Cassette is protected (🔒 flashes on the screen).	Replace the tape or change the position of the protect switch.	21
	Camcorder is set to a mode other than the CAMERA mode.	Set the camcorder to CAMERA mode.	26
Camcorder will not focus.	Autofocus does not work on that subject.	Focus manually.	74
	Viewfinder is not adjusted.	Adjust the viewfinder with the diopter adjustment lever.	18
	Lens is dirty.	Clean the lens.	140
A vertical light bar appears on the screen.	Bright light in a dark scene may cause a vertical light bar (smear) to appear. This is not a malfunction.	– – –	–
Sound is distorted or recorded in a lower volume than the actual volume.	When recording near loud sound (such as fireworks, drums or concerts), sound may become distorted or may not be recorded in the actual sound level. This is not a malfunction.	– – –	–
Viewfinder picture is blurred.	Viewfinder is not adjusted.	Adjust the viewfinder with the diopter adjustment lever.	18

Playback

Pressing the playback button does not start playback.	Camcorder is turned off, or is not set to PLAY (VCR) mode.	Set the camcorder to PLAY (VCR) mode.	35
	Cassette is not loaded.	Load a cassette.	20
	Tape reached the end (🔚 END flashes on the screen).	Rewind the tape.	35
Image will not appear on the TV screen.	[AV/PHONES] is set to [PHONES🎧] in the menu.	Set [AV/PHONES] to [AV] in the menu.	37
	[AV → DV OUT] is set to [ON].	Set [AV → DV OUT] to [OFF].	92
Tape is running, but image will not appear on the TV screen.	TV/VIDEO selector on the TV is not set to VIDEO.	Set the selector to VIDEO.	41
	Video heads are dirty.	Clean the video heads.	141
	You attempted to play back or dub copyright protected tape.	Stop playback/dubbing.	90
No sound from the built-in speaker.	Speaker volume is turned off.	Adjust the volume with the selector dial.	38

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MV650i MV630i Memory Card Operation

Problem	Cause	Solution	📖
Memory card cannot be inserted.	Memory card was not facing the correct direction.	Turn the memory card over and reinsert it.	99
Memory card cannot be recorded.	Memory card is full.	Replace the memory card or erase images.	114
	Memory card is not formatted.	Format the memory card.	127
	Memory card is not inserted.	Insert a memory card.	99
	File number reached maximum value.	Set [FILE NUMBERS] to [RESET] and insert a new memory card.	101
	SD Memory Card is protected.	Change the position of the protect switch.	99
Memory card cannot be played back.	Camcorder is not set to CARD PLAY (VCR) mode.	Set the camcorder to CARD PLAY (VCR) mode.	110
	Memory card is not inserted.	Insert a memory card.	99
Image cannot be erased.	Image is protected.	Cancel the protection.	113
	SD memory card is protected.	Change the position of the protect switch.	99
🗀 flashes red.	Card error occurred.	Turn off the camcorder. Remove and reinsert the memory card. Format the memory card if flashing persists.	127

System Diagram (Availability differs from area to area)

MV650i WA-30.5 Wide Attachment

MV650i **MV630i** WL-D79 Wireless Controller
MV600i **MV600** WL-D80 Wireless Controller

WD-30.5 Wide-converter

TL-30.5 Tele-converter

MiniDV Video Cassette

FS-30.5U Filter Set

MV650i VL-3 Video Light

MV650i DM-50 Directional Stereo Microphone

BP-900 Series Battery Pack*

VL-10Li Battery Video Light

Stereo Microphone (commercially available)

SC-1000 Soft Carrying Case

WS-20 Wrist Strap

SS-800 Shoulder Strap

BP-500 Series Battery Pack

CG-570 Battery Charger

CB-570 Car Battery Cable

CA-570 Compact Power Adapter

BP-500 Series Battery Pack

S-150 S-video Cable

PC-A10 SCART Adapter

TV

STV-250N Stereo Video Cable

VCR

CV-150F/CV-250F DV Cable

Digital Device

MV650i **MV630i**

SD Memory Card

MultiMediaCard

PC Card Adapter
USB Reader/Writer
FD Adapter

IFC-300PCU USB Cable

Computer

Bubble Jet Printer with direct print function

* Charging with the CA-920 Compact Power Adapter or CH-910 Dual Battery Charger/Holder (both optional)

Optional Accessories

Call or visit your local retailer/dealer for genuine Canon video accessories.

BP-500 Series Battery Packs
When you need extra battery packs, select from the following: BP-511, BP-512, BP-522 or BP-535.

BP-512   BP-522   BP-535
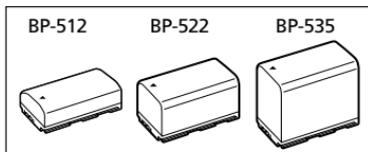
CG-570 Battery Charger
The battery charger can be used with the supplied CA-570 Compact Power Adapter or the optional CB-570 Car Battery Cable to charge BP-500 series battery packs.
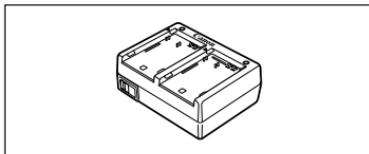
Battery Pack	Charging Time
BP-508 (MV630i/MV600i/MV600)	55 min.
BP-512 (MV650i/optional)	95 min.
BP-511 (Optional)	95 min.
BP-522 (Optional)	140 min.
BP-535 (Optional)	205 min.

CB-570 Car Battery Cable
Use the car battery cable with the CG-570 Battery Charger to charge battery packs on the move. The car battery cable plugs into your car's cigarette lighter and runs off a 12-24 V DC negative ground battery.
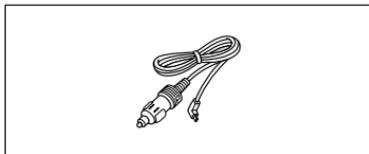
TL-30.5 Tele-converter
This tele-converter lens increases the focal length of the camcorder lens by a factor of 1.9.
• The image stabilizer is not as effective when the tele-converter is attached.
• The image quality may be degraded at the telephoto side.
• The minimum focusing distance with the Tele-converter is 4 m; 4 cm on maximum wide angle.
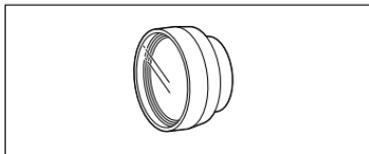
WD-30.5 Wide-converter
This lens decreases focal length by a factor of 0.7, giving you a wide perspective for indoor shots or panoramic views.
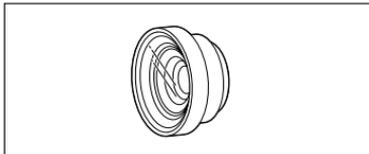
FS-30.5U Filter Set
Neutral density and MC protector filters help you to control difficult lighting conditions.
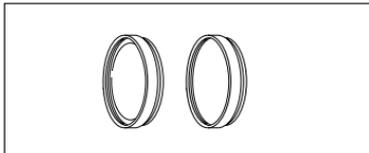
VL-10Li Battery Video Light
This compact yet powerful video light can be used for both indoor and outdoor shooting. The video light is powered by BP-900 series battery packs.
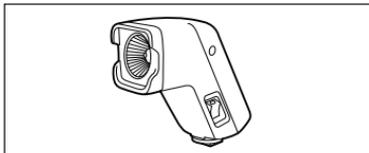
• Approximate usage time: BP-915: 60 min., BP-930: 120 min., BP-945: 170 min.
• BP-900 series battery packs are charged with the CA-920 Compact Power Adapter.

MV650i VL-3 Video Light
This video light enables you to record brightly in colour even in dark places. It attaches to the camcorder's advanced accessory shoe for cable-free operation.

MV650i DM-50 Directional Stereo Microphone
This highly sensitive, super-directional microphone attaches to the camcorder's advanced accessory shoe. It can be used as directional microphone (monaural) or stereo microphone.
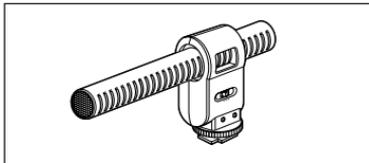
WS-20 Wrist Strap
Use this for extra additional protection for active shooting.

Additional
Information

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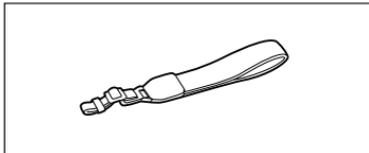
SC-1000 Soft Carrying Case
A handy camcorder bag with padded compartments and plenty of space for accessories.

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

Specifications

MV650i/MV630i/MV600i/MV600

Power supply (rated):	7.4 V DC
Power consumption (AF turned on):	2.9 W (Using viewfinder), 3.8 W (Using LCD screen)
Television system:	CCIR standard (625 lines, 50 fields) PAL colour signal
Video recording system:	2 rotary heads, helical scanning DV system (Consumer digital VCR SD system); Digital component recording
Audio recording system:	PCM digital sound: 16 bit (48 kHz/2 ch); 12 bit (32 kHz/4 ch)
Image sensor:	1/6" CCD (charge coupled device), approx. 800,000 pixels (Effective pixels: tape: approx. 400,000 pixels, card*[1]: approx. 528,000 pixels)
Tape format:	Video cassettes bearing the "MiniDV" mark.
Tape speed:	SP: 18.83 mm/s, LP: 12.57 mm/s
Maximum recording time (80 min. cassette):	SP: 80 min., LP: 120 min.
Fast forward/rewind time:	Approx. 2 min. 20 sec. (with a 60 min. cassette)
Lens:	MV650i: F1.6-3.6, 22x power zoom, f=2.8-61.6 mm; MV630i: F1.6-3.2, 20x power zoom, f=2.8-56 mm; MV600i/MV600: F1.6-2.9, 18x power zoom, f=2.8-50.4 mm
Focusing system:	TTL autofocus, manual focusing possible
Minimum focusing distance:	1 m, 1 cm on maximum wide angle
Maximum shutter speed:	1/2,000 sec. (1/250 sec. when using a memory card)
Minimum illumination:	1.6 lx (using the Night mode in CAMERA mode)
Recommended illumination:	More than 100 lx
Filter diameter:	30.5 mm
Viewfinder:	0.33 in., TFT colour LCD, approx. 113,000 pixels
LCD screen:	2.5 in., TFT colour, approx. 112,000 pixels
Microphone:	Stereo electret condenser microphone
Recording media*[1]:	SD Memory Card, MultiMediaCard
Number of recording pixels*[1]:	Still image: 1024 x 768, 640 x 480 pixels Movie *[2]: 320 x 240 pixels (approx. 10 sec.), 160 x 120 pixels (approx. 30 sec.), 12.5 frames/sec. The figures in brackets represent the maximum length of one movie clip.
Estimated SD Memory Card SDC-8M capacities*[1]:	1024 x 768: Superfine: 14 images/Fine: 20 images/Normal 39 images; 640 x 480: Superfine: 35 images/Fine 52 images/Normal 86 images
The actual number varies according to the images. Sample images recorded on the supplied SD Memory Card are to be included in the total number.	
File format*[1]:	Design rule for Camera File system (DCF), Exif 2.2 compliant, Digital Print Order Format (DPOF) compliant (still images only)
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 optimised, yielding extremely high quality prints.	
Image format*[1]:	Still image: JPEG (Compression mode: Superfine, Fine, Normal), Movie: Motion JPEG

*[1] MV650i/MV630i only   *[2] MV650i only

USB terminal*¹:	mini-B
DV terminal input/output*²:	Special 4-pin connector (IEEE 1394 compliant)
AV terminal input/output*²:	ø3.5 mm minijack Audio input: -10 dBV/40 kohms or more Audio output: -10 dBV (47 kohm load)/3 kohms or less Video: 1 Vp-p/75 ohms unbalanced
S-video terminal input/output*²:	1 Vp-p/75 ohms (Y signal), 0.3 Vp-p/75 ohms (C signal)
MIC terminal input:	ø3.5 mm stereo mini-jack -57 dBV (with 600 ohm mic)/5 kohms or more
Headphone terminal:	ø3.5 mm stereo minijack
Operating temperatures:	0 – 40℃
Dimensions:	103 × 58 × 147 mm
Weight:	MV650i: 525 g, MV630i/MV600i/MV600: 520 g

*¹ MV650i/MV630i only   *² MV650i/MV630i/MV600i only

CA-570 Compact Power Adapter

Power supply:	100 – 240 V AC, 50/60 Hz
Power consumption:	17 W
Rated output:	8.4 V DC, 1.5 A
Operating temperature:	0 – 40℃
Dimensions:	52 × 90 × 29 mm
Weight:	135 g

BP-512/BP-508 Battery Pack

Battery type:	Rechargeable Lithium Ion Battery
Rated voltage:	7.4 V DC
Operating temperature:	0 – 40℃
Battery capacity:	BP-512: 1100 mAh, BP-508: 800 mAh
Dimensions:	38 × 21 × 55 mm
Weight:	BP-512: 70 g, BP-508: 65 g

SDC-8M SD Memory Card

Capacity:	8 MB
Interface:	SD Memory Card standard
Operating temperature:	0 – 40℃
Dimensions:	32 × 24 × 2.1 mm
Weight:	2 g

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

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*1 **MV650i**, *2 **MV650i** **MV630i**   *3 Not available with the **MV600**.

Additional
Information

*1 MV650i, *2 MV650i MV630i

Additional
Information

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Canon

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