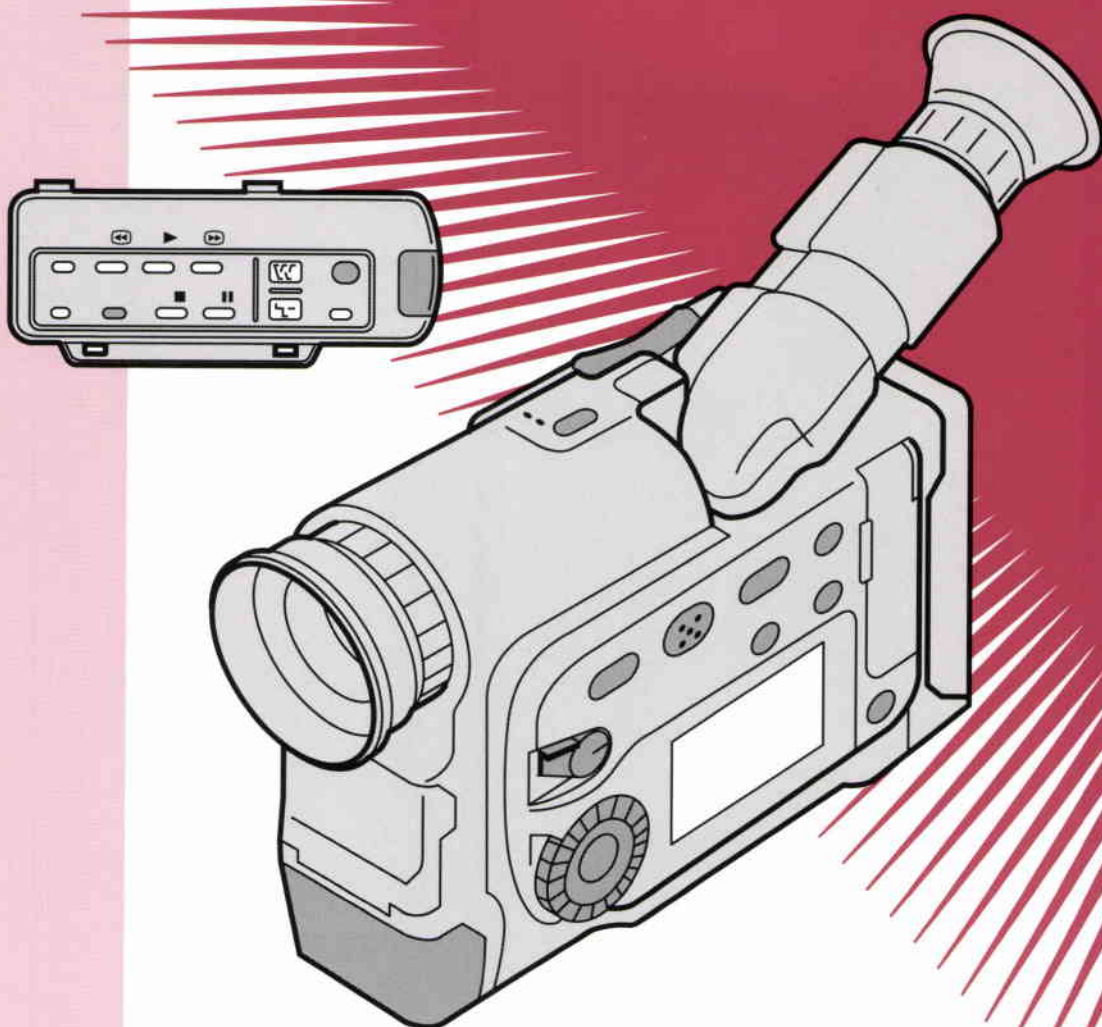


Canon **UC2Hi**

8mm VIDEO CAMCORDER

Hi 8

Instruction Manual



I

UC 2 (A)

Thank you for purchasing the Canon 8mm Video Camcorder UC2Hi. This camera can be used for both recording and playback of video cassettes in 8mm or Hi8 format.

- Please use only video cassettes bearing the **Hi8** mark (E5/P5 types) or **8** mark (P5 type) with this camera.
- With the UC2Hi, stereo recording is possible. However, tapes recorded in stereo will play back on monaural 8mm VCRs in monaural.

■ Please check that this package contains the following items:

UC2Hi	{	Lens Cap and	DC-200 DC Coupler
		Lens Cap Cord	BP-E77KE Battery Pack
		Lens Hood	CA-200 Compact Power Adapter
		WL-2 Wireless Controller	SS-400 Shoulder Strap
		Two R03/AAA Batteries	P5-30 HMP 8mm Video Cassette

The connecting accessories included in the kit vary according to areas. Use the following chart to determine what your kit should contain:

	UK, EUROPE	ASIA, OCEANIA
S-150 S-video Cable	1	1
RU-100 RF Unit	1	—
ST-150 Stereo Cable	1	1
C-150 AV Cable	—	1

■ Optional Accessories

BP-E722 Battery Pack	FS-37 Filter Set
BP-E722D Battery Pack	MM-200 Stereo Mixing Microphone
CA-100 Compact Power Adapter	ZM-100 Stereo/Zoom Microphone
CB-110 Car Battery Adapter	WS-20 Wrist Strap
MC-100 Multi-battery Charger	VL-20 Battery Video Light
HC-U2 System Case	SA-1 Adapter Bracket
SC-U1 Soft Carrying Case	ZR-100 Zoom Remote Controller
VK-U1 Video Backpack	VE-100 Video Editor
SJ-U1 Soft Video Jacket	RGB-100 RGB Converter
RS-U3 Rain Shield	(available in U.K. and Continental European countries)
TL-37 Tele-converter	PC-150 SCART Cable
WA-37 Wide Attachment	PC-170ST Stereo SCART Cable
FS-37U Filter Set	PC-270SST S-stereo SCART Cable

Important Usage Instructions

CAUTION:

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

WARNING:

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

CAUTION:

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

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Before Using Your Camera

Nomenclature

Right View 1

For details, refer to the page numbers in parenthesis.

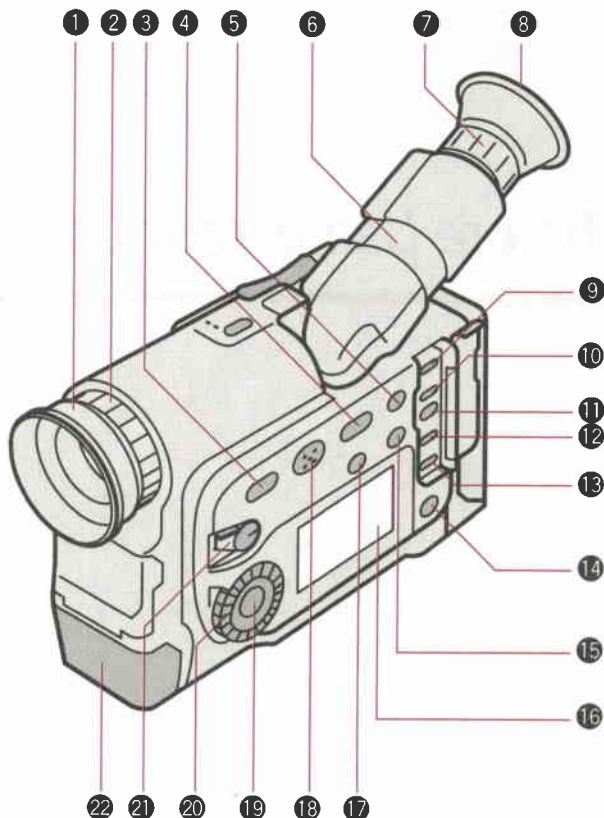
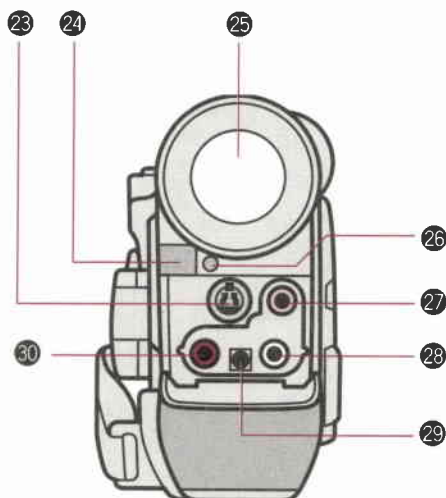
- 1 Lens Hood
- 2 Focusing Ring (p. 83)
- 3 AF- ON /OFF (p. 43, 83)/
◀ (Rewind) (p. 107) Button
- 4 DATE (p. 43, 34)/
▶▶ (Fast Forward) (p. 107) Button
- 5 C. (Character) TITLE Button (p. 104)
- 6 Finder
- 7 Dioptre Adjustment Ring (p. 31)
- 8 Eyecup
- 9 MENU (p. 86) Button
- 10 REC SEARCH (p. 56)/
+ (Forward) (p. 56) Button
- 11 REC SEARCH/− (Backward) (p. 56)/
⏮ (Record Review) (p. 57) Button
- 12 MEMO Button (p. 96)
- 13 MODE/COLOR Button (p. 96)
- 14 D. EFFECT ON/OFF Button (p. 72)
- 15 D. TITLE Button (p. 96)
- 16 LCD Display (p. 14)
- 17 W. BAL. A /SET Button (p. 43, 82)/
■ (Stop) (p. 43) Button
- 18 FADE (p. 43, 54)/
▶ (Play) Button (p. 107)
- 19 SHIFT Button (p. 34)
- 20 SELECT Dial (p. 34)
- 21 CAMERA FUNCTION Selector (p. 64)
- 22 Stereo Microphone (p. 78)

Front View 2

- 23 S-VIDEO Output Terminal (p. 46)
- 24 Remote Sensor (p. 40)
- 25 Lens
- 26 Tally Lamp (p. 40)
- 27 Audio R (Right) Output Terminal (p. 46)
- 28 Audio L (Left) Output Terminal (p. 46)
- 29 DC Output Terminal
- 30 Video Output Terminal (p. 46)

1

Pull out finder when you are viewing.

2

Left View 3

- 31 Viewfinder (p. 14)
- 32 Finder Release Switch (p. 31)
- 33 E. ERASE (p. 43, 60)/
B.T.S. Button (p. 43, 58)
- 34 MODE SELECT Button (p. 42)
- 35 CAMERA Indicator (p. 10)
- 36 PLAY Indicator (p. 42)
- 37 Power Zoom Buttons
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- 38 MIC (Microphone) Terminal (p. 61)
- 39 HEADPHONES Terminal (p. 78)
- 40 LANC  REMOTE Terminal
(Remote Control Terminal for
Editing) (p. 110)
- 41 Wireless Controller (p. 38)
- 42 Video Cassette Compartment Cover
UNLOCK Switch (p. 10)
- 43 Grip Belt (p. 30)
- 44 Wireless Controller Attachment
Clips
- 45 Tripod Socket
- 46 Power Source Compartment (p. 23)
- 47 Start/stop Button (p. 10)
- 48 Strap Attachment Bars
- 49 OPERATE Button (p. 10, 44)
- 50 BATT (Battery) EJECT Lever (p. 23)
- 51 START/STOP Button (p. 10, 30)
- 52 C. (Counter) RESET Button (p. 87)
- 53 Video Cassette Compartment (p. 10)
- 54 EJECT Button (p. 10)
- 55 Video Cassette Compartment Cover
(p. 10)

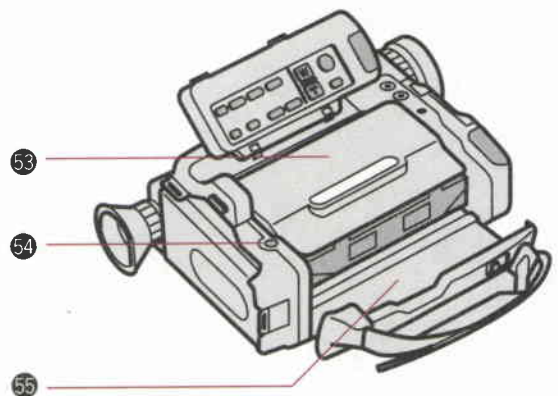
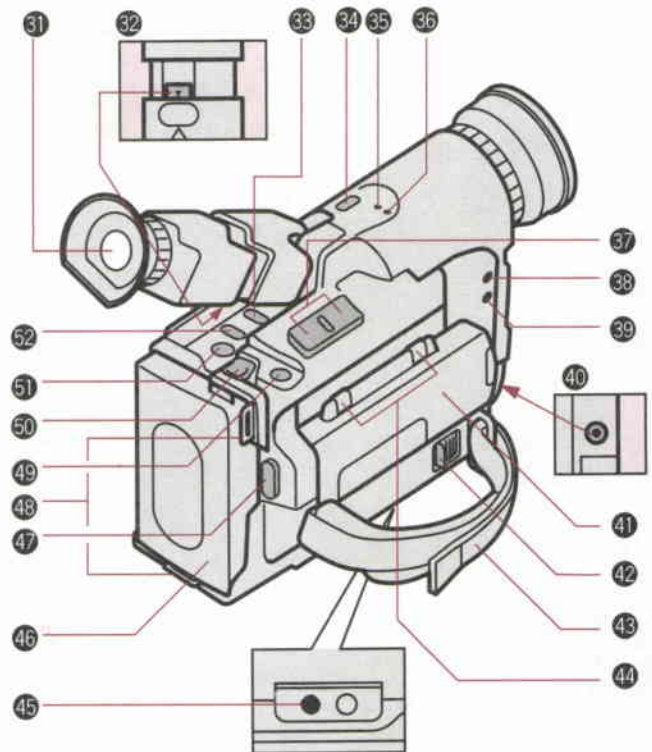
Note:

- When the safety mechanism is activated, the picture may temporarily fail to appear in the viewfinder. If this occurs, turn the camcorder off and then turn it on again.

Tally Lamp

The tally lamp performs the following functions:

- Recording (Flashes rapidly)
- Wireless controller operation (Lights up)

3

- When TALLY is selected from MENU, the tally lamp will not flash. However, it will light up during wireless controller operation.

Basic Operations

Camera Recording (CAMERA Mode)

Use 8mm video cassettes marked with the **Hi8** mark (E5/P5 types) or the **8** mark (P5 type).

For easiest operation, turn on the camera and set the CAMERA FUNCTION selector to AUTO LOCK. The camera is automatically set to autofocus, auto white balance and the auto mode of program AE.

Camera Recording

- ① CAMERA FUNCTION Selector
- ② CAMERA Indicator
- ③ OPERATE Button
- ④ Start/stop (START/STOP) Buttons
- ⑤ Dioptre Adjustment Ring
- ⑥ Video Cassette Compartment
- ⑦ EJECT Button
- ⑧ Video Cassette Compartment Cover
- ⑨ UNLOCK Switch

1. Connect a power source and turn camera on.

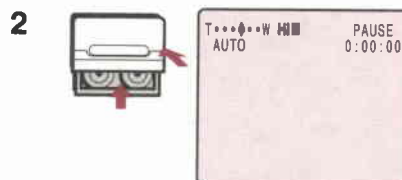
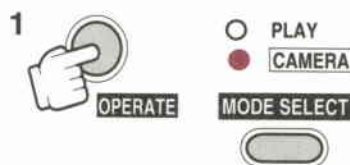
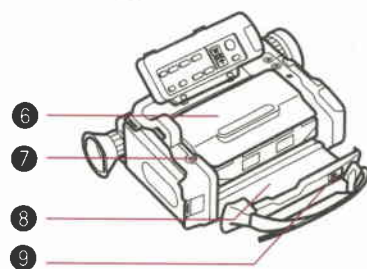
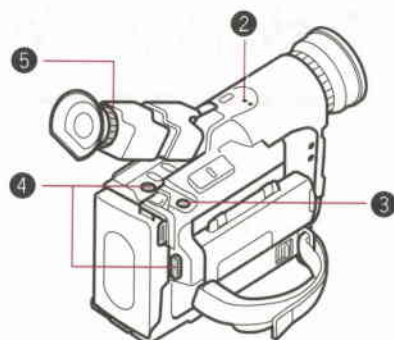
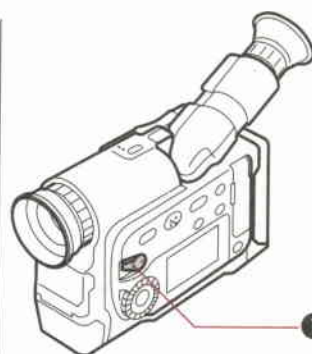
- See page 20, "Power Source".
- CAMERA indicator (red) lights up.

2. Load video cassette in camera.

- Camera goes into record pause mode.
- "PAUSE" appears in viewfinder.
- For loading procedure, see page 26.

3. Pull out finder in the direction of the arrow.

- Turn dioptre adjustment ring until viewfinder displays are clearly visible (p. 31).



4. Set CAMERA FUNCTION selector to AUTO LOCK.

- "AUTO LOCK" is displayed on LCD panel.

5. Select microphone angle and wind screen mode.

- For details, see "Selecting Microphone Angle" (p. 78) and "Wind Screen" (p. 79).

6. Press start/stop button.

- Recording starts.
- The tally lamp flashes rapidly and "REC" appears in viewfinder.
- To make more effective recordings, refer to the Advanced Operations section (pp. 54–113).

7. Press start/stop button to temporarily stop recording.

- Camera returns to record pause mode.
- "PAUSE" appears in viewfinder.
- Press the start/stop button again to resume recording.
- See "Record Review" (p. 57) to check your recording.

8. When recording is finished, unload video cassette.

- For unloading procedure, see page 26.

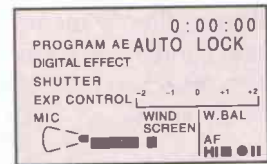
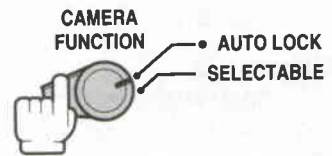
9. Turn camera off.

- CAMERA indicator (red) goes off.

Notes:

- Before recording, make sure the date and time have been correctly set. See page 37 for details.
- Make sure the lens is properly cleaned for maximum picture quality.
- Camera automatically turns off if record pause mode lasts more than approximately 5 minutes. This occurs to protect the video heads. To resume recording turn the camera on and press start/stop button.
- Avoid recording near sources of strong electric or magnetic fields, such as TV towers, as this may cause noise in the picture or a camera malfunction.
- When recording in dark places, a bright light in the scene may cause a vertical bar (smear) to appear on the screen (p. 12).

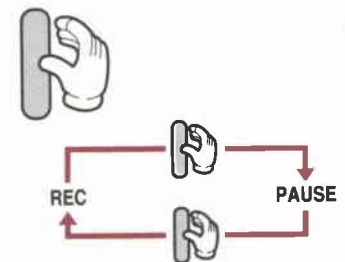
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5



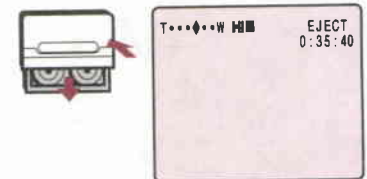
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7



8



9



Explanation:**Smear**

A luminous bar appears vertically on the screen where an excessively bright area in a scene was recorded.

Smear is caused by:

- Spotlights, directly recorded on a stage, for example.
- Burning candles on a cake recorded directly.
- Objects reflecting light, such as car bodies and traffic signs, recorded directly.



Tape Counter 1

During recording, the tape counter in the viewfinder indicates how long you have recorded.

1 You have recorded for approximately 35 minutes and 40 seconds.

- The tape counter is reset when a video cassette is loaded or when the C. RESET button is pressed.
- The tape counter also operates during search and playback. This indicates how long the tape has been running.
- Tape counter time and actual recording duration may differ. It should only be used as a rough guide.

Recording Reminder 2

When recording starts, the camera displays from "0 SEC" to "10 SEC" in the viewfinder to indicate the first 10 seconds of recording. This function is designed to help you make sure your scenes are not too short, for easy viewing and editing. Try to record at least the full 10 seconds at the first scene.

- Actual recording begins after the timer starts counting.

Video Cassette Warnings 3

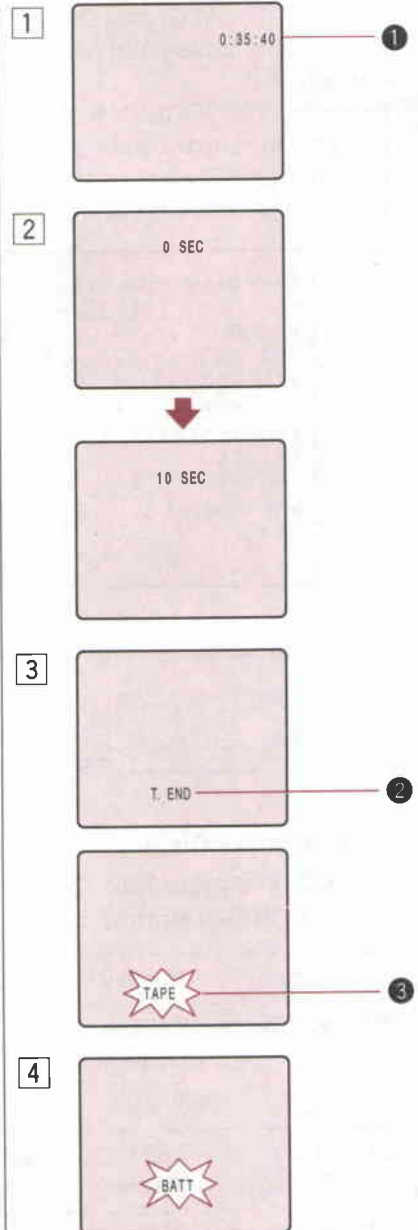
"T. END" appears in the viewfinder when the tape is completely used up and recording stops. 2

"TAPE" flashes in the viewfinder if the camera is turned on and a video cassette is not loaded or in CAMERA mode if the erasure prevention switch on the loaded video cassette is set to "SAVE" (p. 28). 3

Battery Pack Warning 4

"BATT" flashes in the viewfinder when the battery pack charge is nearly exhausted.

- If the camera is turned on with an exhausted battery pack attached, it may turn off immediately, without a "BATT" warning.

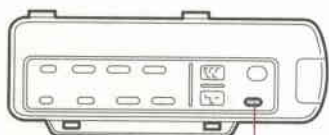
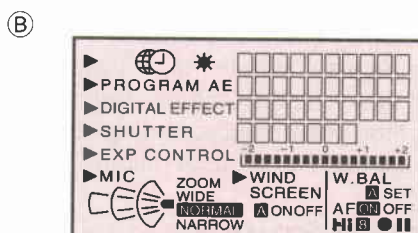
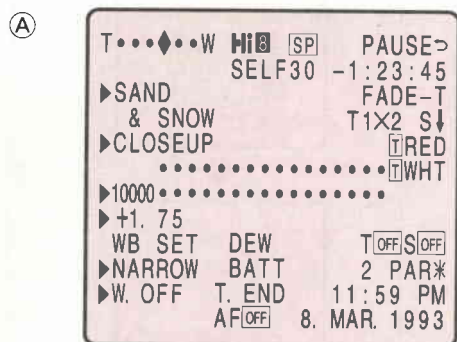


Information Displays

The LCD (Liquid Crystal Display) panel and the viewfinder provide information and warnings regarding the camera's operation.

Press the ON SCREEN button on the wireless controller to see the viewfinder displays on a connected TV screen. Press the ON SCREEN button again to cancel the display.

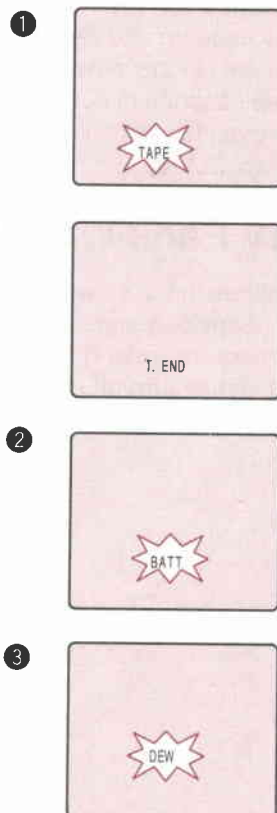
• Only titles, date and time are recorded with the scenes.



(C)

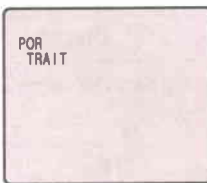
- (A) Viewfinder Display
(B) LCD (see page 126)
(C) ON SCREEN Button

NO.	Mode	Display	Description
①	Tape Status	TAPE (flashes)	No cassette is loaded or an unrecordable cassette is loaded.
		T. END	Tape has reached the end.
②	Battery Warning	BATT (flashes)	Battery charge is nearly exhausted.
③	Condensation Warning	DEW (flashes)	Condensation is detected in camera.

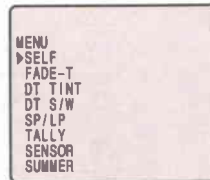


NO. Mode	Display	Description
④ Program AE (p. 64)	AUTO	AUTO mode is selected.
	SPORTS	SPORTS mode is selected.
	POR TRAIT	PORTRAIT mode is selected.
	SPOT LIGHT	SPOTLIGHT mode is selected.
	LAND SCAPE	LANDSCAPE mode is selected.
	SAND & SNOW	SAND & SNOW mode is selected.
	LOW LIGHT	LOW LIGHT mode is selected.
	MANUAL	MANUAL mode is selected.
⑤ Menu (p. 88) (p. 89) (p. 99) (p. 100) (p. 113) (p. 92) (p. 93) (p. 63)	MENU	Menu display (CAMERA mode)
	SELF	Each function on this menu can be selected and then set.
	FADE-T	
	DT TINT	
	DT S/W	
	SP/LP	
	TALLY	
	SENSOR	
	SUMMER	
Menu (p. 113) (p. 110) (p. 99) (p. 100) (p. 93)	MENU	Menu display (PLAY mode)
	BILINGUAL	Each function on this menu can be selected and then set.
	EDIT	
	DT TINT	
	DT S/W	
	SENSOR	
⑥ Edit-erase (p. 60)	↶	Appears when edit-erase function can be used (for approximately 40 seconds after recording starts).

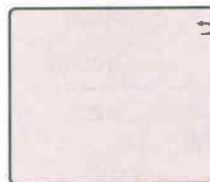
④



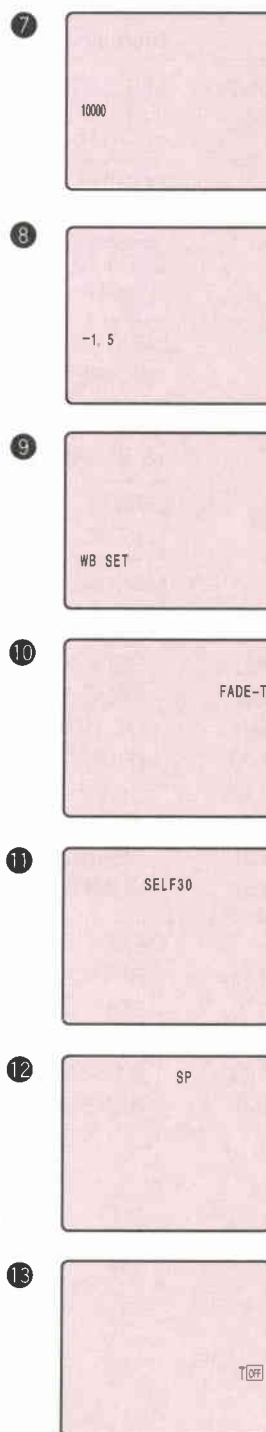
⑤



⑥



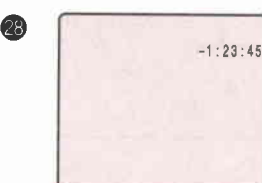
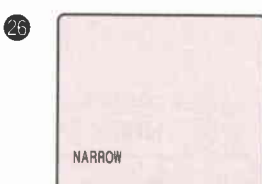
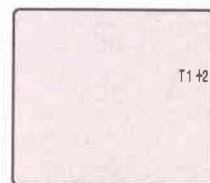
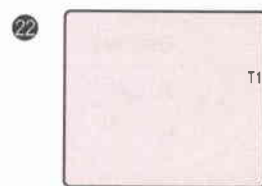
NO. Mode	Display	Description
7 Shutter Speed (No display) (p. 74)		Shutter speed is selected automatically.
	6	1/6th of a second
	8	1/8th of a second
	12	1/12th of a second
	25	1/25th of a second
	50	1/50th of a second
	120	1/120th of a second
	250	1/250th of a second
	500	1/500th of a second
	1000	1/1000th of a second
	2000	1/2000th of a second
	4000	1/4000th of a second
	10000	1/10000th of a second
8 Exposure (p. 76)	+2.0	Overexposure relative to the normal level (+0.25, +0.5, +0.75, +1.0, +1.25, +1.5, +1.75, +2.0)
	-2.0	Underexposure relative to the normal level (-0.25, -0.5, -0.75, -1.0, -1.25, -1.5, -1.75, -2.0)
9 White Balance (No display) (p. 81)		Auto white balance
	WB SET	White balance is set.
10 Fade Trigger (p. 89)	FADE-T	Fade trigger function is selected from MENU.
	T (flashes)	Camera is ready to record with fade in or fade out.
11 Timer Recording Menu (p. 88)	SELF	Self-timer recording menu
	SELF 30	
12 Tape speed (p. 91)	SP	Standard Play
	LP	Long Play
13 Tally Lamp (p. 92)	T OFF	Tally lamp off mode is selected.



NO.	Mode	Display	Description
14	Remote Sensor (p. 93)	S OFF	Remote sensor off mode is selected.
15	Operation	PAUSE	Record pause
		REC	Recording
		PLAY	Normal playback, fast forward playback or rewind playback
		STILL	Still playback
		STOP	Stop
		FF	Fast forward or fast forward search
		REW	Rewind or rewind search
		EJECT	Eject function
16	Time Zone	EJECT (flashes)	Safety mechanism functions
		1 LON	Indicates time zone of time display.
		✱	Summer time display
17	Time (p. 34)	12:00 AM to 11:59 PM	Present time
18	Zoom Lens Position (p. 32)	T...◆...W	◆ indicates the approximate focal length of the zoom lens. W indicates wide-angle end and T indicates telephoto end. ◀ (zoom in) and ▶ (zoom out) indicate zooming direction.
19	Hi8	Hi8	Hi8 recording mode
20	Scroll Display (p. 100)	S↑, S↓ S→, S←	Scrolling title mode is selected. The arrow indicates direction of scrolling.
	Wipe Display (p. 100)	W↑, W↓ W→, W←	Wiping title mode is selected. The arrow indicates direction of wiping.
21	Character Title (p. 104)	2 lines x 16 characters	Alphabet: A to Z Special characters and accents: Ä Ö Ü Ø Å Æ Ñ Ç È Numerals: 0 to 9 Symbols: , . / - ' " : ; ? ! * &

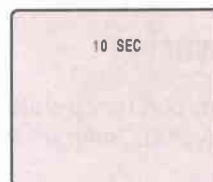


NO. Mode	Display	Description
22 Title memory/ display (p. 96)	T1	When creating a title, it can be stored in title memory 1. When displaying a title, the title stored in title memory 1 appears.
	T2	When creating a title, it can be stored in title memory 2. When displaying a title, the title stored in title memory 2 appears.
	T1 + 2	The titles in memory 1 and memory 2 are displayed together.
	T1 × 2	The titles in memory 1 and 2 are displayed alternately.
23 Digital Title (p. 98)	WHT, BLU, GRN, SKY, RED, VIO, YEL, BLK	Digital title colours are displayed. Digital title colour selection: white, blue, green, sky blue, red, violet, yellow, black.
		See-through colour (The same eight colours can be selected.)
24 Digital Function (p. 70)	(No display)	No Digital Effect is selected.
	FREEZE	The indicated function is selected.
	OVERLAP	
	ART CLOSEUP	
25 Wind Screen (p. 79)	(No display)	Auto wind screen is selected.
	W. ON	Wind screen on mode is selected.
	W. OFF	Wind screen off mode is selected.
26 Microphone Angle (p. 78)	(No display)	A normal recording angle is selected.
	NARROW	A narrow recording angle is selected.
	ZOOM	A recording angle adjusted to the zoom action is selected.
	WIDE	A wide recording angle is selected.
27 Date (p. 34)	1. JAN. 1992 to 31. DEC. 2012	Current date
28 Tape Counter (p. 13)	-9:59:59 to 9:59:59	Tape counter reading



NO. Mode	Display	Description
29 Recording Reminder	0 SEC– 10 SEC	Recording reminder
30 Focus mode (p. 83)	(No display)	Autofocus mode is selected.
	AF OFF	Manual focus mode is selected.
31 Bilingual (p. 113)	(No display)	Normal
	MAIN	Main sound track playback of bilingual tape is selected.
	SUB	Substitute sound track playback of bilingual tape is selected.
	MAIN + SUB	Main and substitute sound track playback of bilingual tape is selected.
32 Edit mode (p. 110)	EDIT	Edit mode is selected.

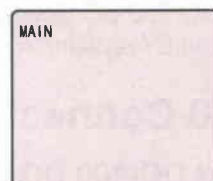
29



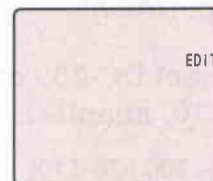
30



31



32



Power Sources

AC Power

The camera can be operated using AC power.

Use the CA-200 Compact Power Adapter and the DC-200 DC Coupler.

When operating from a car battery, use the optional CB-110 Car Battery Adapter and the DC-200 DC Coupler.

CA-200 Compact Power Adapter 1

Plug into mains outlet.

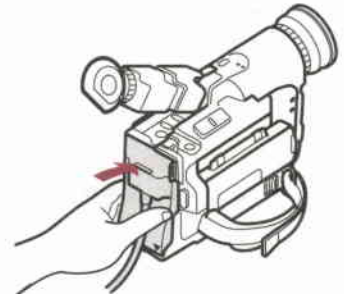
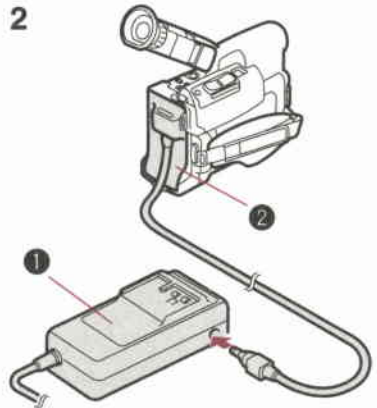
Input voltage: 100-240 V AC, 50/60 Hz

- Use the DC-200 DC Coupler.
- Refer to the CA-200 instruction manual for further details.

CA-200 Connection Procedure 2

1. Insert DC-200 DC Coupler in power source compartment.
2. Connect DC-200 cable to CA-200 (or CB-110) adapter.
 - ① CA-200 (CB-110)
 - ② DC-200

1

2
1

2


3. Insert AC plug of CA-200 into mains outlet (plug CB-110 into cigarette lighter socket).

- Use the CB-110 with the car engine idling.

4. Turn camera on.

Note:

- Using compact power adapter near a TV may cause TV to emit noise. If this occurs, move compact power adapter away from TV or aerial cable.

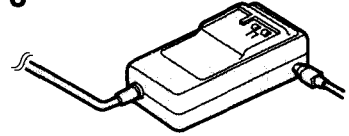
Car Battery

CB-110 Car Battery Adapter (Option) 3

Plug into a cigarette lighter socket (For use only with 12 or 24 V DC, negative ground car battery).

- Use with the DC-200 DC Coupler.
- Refer to the CB-110 instruction manual for further details.

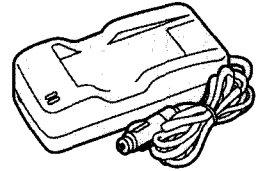
3



4



3



Battery Pack

Charging Battery Pack

The following accessories can be used to charge the battery pack.

- CA-200 Compact Power Adapter
- CA-100 Compact Power Adapter (Option) (see page 118)
- CB-110 Car Battery Adapter (Option) (see page 118)
- MC-100 Multi-battery Charger (Option) (see page 118)

Using the CA-200 Adapter 4

(For information on other accessories, refer to the relevant instruction manuals.)

1. Connect battery pack to CA-200 adapter.

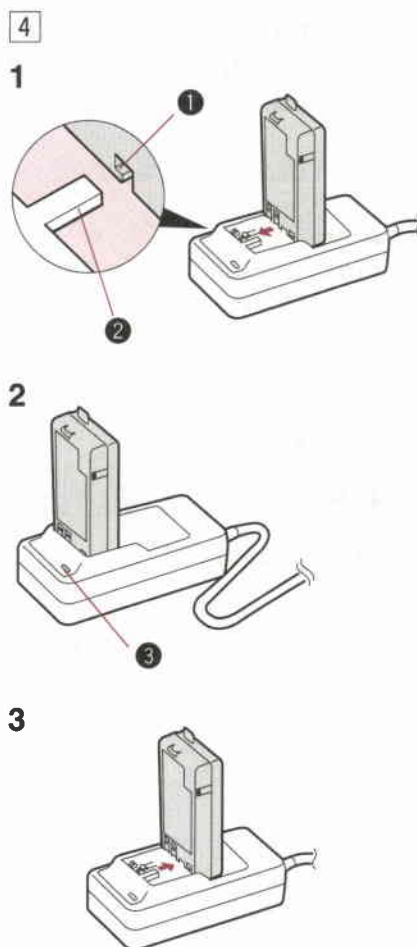
- Make sure that the CA-200 guide 1 slides into the battery pack slot 2.

2. Plug into mains outlet.

- The charge indicator (orange) 3 flashes as charging begins.

3. When charging has been completed (the charge indicator lights up), remove the battery pack.

- To remove the battery pack, slide it off the adapter.



Battery Pack	Continuous recording time	Charging time
BP-E77KE	approx. 45 minutes	approx. 70 minutes
BP-E722/722D	approx. 90 minutes	approx. 130 minutes

- Do not recharge the battery pack immediately after use. Recharge the battery pack only after the camcorder automatically turns off.

Attaching Battery Pack 5

1. Insert marked end of battery pack into power source compartment.
2. Press battery pack until it clicks and locks into place.

Removing Battery Pack 6

1. Hold BATT EJECT lever pressed in direction of arrow.
2. Remove battery pack by pulling it outward from the top as shown.

- The battery pack is a rechargeable power source. Make sure it is fully charged before use. This camera can also be operated from AC power or from a car battery (see page 20).
- The power consumption of the video camera varies according to the operation mode. Consequently, the actual recording time may be shorter than the time shown on page 22.
- Using the battery pack in low temperatures will shorten the recording time. When recording under these conditions, it is recommended to prepare enough battery packs to cover two or three times the scheduled recording time. Make sure the power is turned off when not using the camera. The camera will continue to consume power when it is turned on. (It also consumes a small amount of power even when it is turned off. See page 25.)

① BP-E77KE/BP-E77K (There is no difference between these batteries.)

② BP-E722 (Option)

With about twice the capacity of the BP-E77K this battery pack can be used for lengthy recordings. The continuous recording time of the BP-E722 is approximately 90 minutes.

③ BP-E722D (Option)

In addition to its 90 minutes long-recording capacity, this battery pack is equipped with LED indicators for displaying the remaining charge.

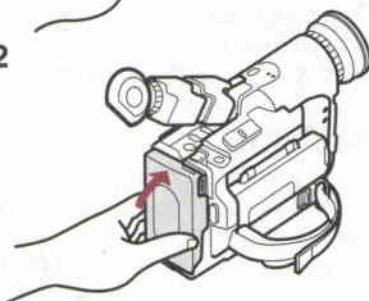
Canon camcorders and accessories are manufactured with great care and strict quality control. It is recommended that you use only genuine Canon brand accessories for your camcorder to ensure maximum performance.

5

1



2

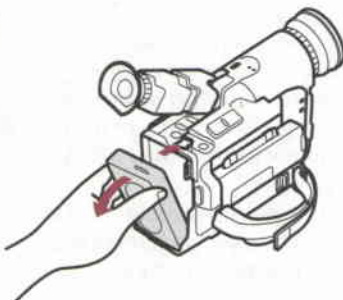


6

1



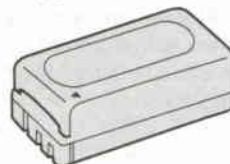
2



①



②



③



Using Your Battery Packs Effectively

TO USE THE BATTERY PACK EFFECTIVELY, KEEP THE FOLLOWING IN MIND:

1. Charge a brand-new battery before using.
2. Discharge the battery for storage.
3. Recharge the battery only after discharging completely.

Read these instructions thoroughly before using the battery pack. The battery pack is a rechargeable nickel cadmium (NiCd) battery. It can be used repeatedly after recharging. The battery pack has not been charged before shipping.

CHARGE THE BATTERY BEFORE USING:

- Use only the battery charger(s) specified in this manual.
- Refer to the battery charger instructions for charging procedure and charging time.
- To maximize the capacity of the battery pack, when using a brand-new battery pack for the first time, charge it once (charge lamp lights up), remove it and charge it once again.
- The battery pack remains warm immediately after charging or use. Though being warm has no adverse effect on the performance of the battery pack, charge the battery pack only after it has cooled.

OBSERVE THE FOLLOWING:

- Shorting the + and – terminals [7] by touching them with a metal object such as a key holder is extremely dangerous, as it can cause fire or other damage.

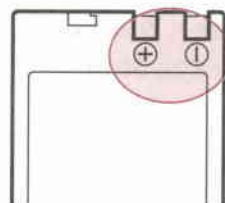
When carrying or storing the battery pack, make sure to attach the included short circuit prevention cap [8].

- Do not expose the battery pack to fire. The battery pack might explode.
- Do not disassemble or alter the battery pack.
- Do not drop the battery pack or subject it to strong shocks.
- Do not get the battery pack wet.

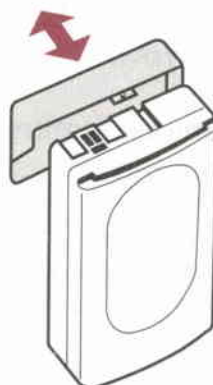
TO CHARGE BATTERY PACKS EFFECTIVELY:

- Even a newly-charged battery pack naturally discharges in time. Charge it within a couple of days of when it is to be used.
- Charge the battery pack only after the power supply of the camcorder automatically turns off.
- Repeated recharging of a battery pack which is not fully discharged shortens the time that the battery pack can be used before it needs charging again.

7



8



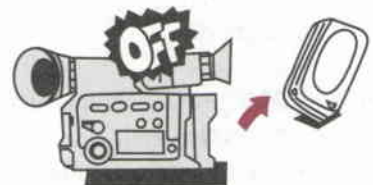
- When you haven't used the battery pack for several months, check the charge lamp 30 minutes after charging has begun. If the charge lamp does not blink for at least 30 minutes, it may mean that the time you will be able to use the battery has decreased.
- If the usage time has decreased try one of the following procedures to restore the battery pack:
 - Discharge the battery pack by attaching it to a battery video light, such as the VL-20, until the video light becomes dim.
 - Discharge the battery pack with a Canon product that has a discharge function, such as the MC-100, then recharge the battery pack.
 - Recharge the battery pack after the power supply has automatically turned off while you are using the camcorder. Repeated operation in this way is also effective.

COLD WEATHER USE:

Although the battery pack can be used at temperatures between 0°C and 40°C, it is recommended that the battery pack be used between 10°C and 30°C in order to take advantage of its full capacity.

IN ORDER TO USE THE BATTERY PACK EFFECTIVELY:

- When a battery pack is kept attached to the camcorder or video light, a very small amount of current flows into the equipment, resulting in an overdischarge. Since the battery pack cannot be fully recharged once it has overdischarged, always remove the battery pack from video equipment after use.
- Always keep the terminals  clean. If they get dirty, wipe them with a soft, dry cloth.
- Once camcorder is turned on, battery power is being consumed even when not recording (pause, etc.). Turn the camcorder off when not shooting.
- When the battery charge is low "BATT" flashes in the viewfinder, but the battery can still operate the camcorder for several seconds. Always fully discharge the battery pack (the power supply cuts off automatically before storing).



Terminology

Overcharging

Charging battery pack after it has already been fully charged.

Overdischarging

Continuing to discharge battery pack after its voltage level has fallen below a specified level (5.0 V for the nickel-cadmium batteries used by Canon 8mm video camcorders).

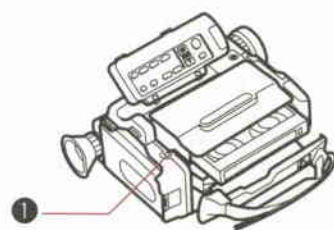
Loading and Unloading Video Cassettes

Use video cassettes with the **Hi8** mark (E5/P5 types) or the **8** mark (P5 type). Be sure to attach a power source to the camera before loading or unloading a video cassette. When a power source is attached the EJECT button will work even when the camera is turned off.

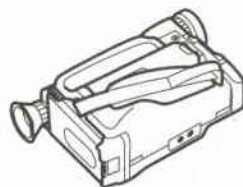
① EJECT Button

Loading/Unloading

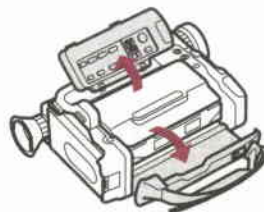
1. Place the camera so that wireless controller and hand grip are on top.
2. Slide UNLOCK switch and open video cassette compartment cover. Lift up wireless controller.
3. Press EJECT button.
 - Video cassette compartment opens automatically.
4. Load/unload video cassette.
 - When loading, gently insert video cassette with window facing out.
 - When unloading, remove video cassette by pulling it straight out.
5. Press **PUSH** mark on video cassette compartment.
 - Video cassette compartment closes automatically.
6. Close and press video cassette compartment cover until it clicks and return wireless controller to its original position.



1

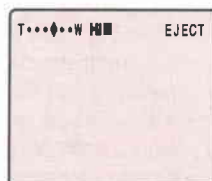


2

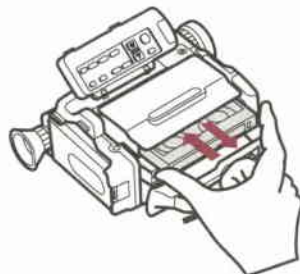


3

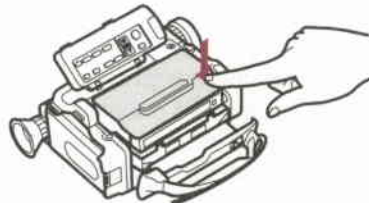
EJECT



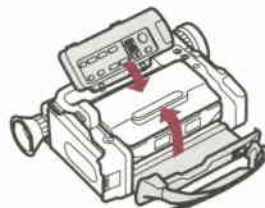
4



5



6



Notes:

- When the EJECT button is pressed, the video cassette compartment opens automatically. Do not try to pull the compartment open during this automatic stage, as it may cause a malfunction.
- The tape counter will be reset to 0:00:00 when video cassette is loaded.
- The EJECT button works with the power turned off as long as power source is attached.
- If a cassette is removed and then reloaded, the tape position will change slightly. Therefore, after reloading the cassette, use the record search function to locate the desired starting point (see p. 56).
- While the video cassette compartment is in the process of closing, it pauses and reopens slightly before closing completely. This is not a malfunction.

Video Cassette Erasure Prevention Switch

To prevent accidental erasure of recorded material, slide the switch to the "SAVE" or "ERASE OFF" position at the bottom of the video cassette as shown. Returning the switch to the "REC" or "ERASE ON" position enables recording again. Refer to the video cassette instructions for further information on erasure prevention.

- "TAPE" flashes in viewfinder if you try to record on a video cassette that has been set for erasure prevention. Use another video cassette or set the switch to enable recording.

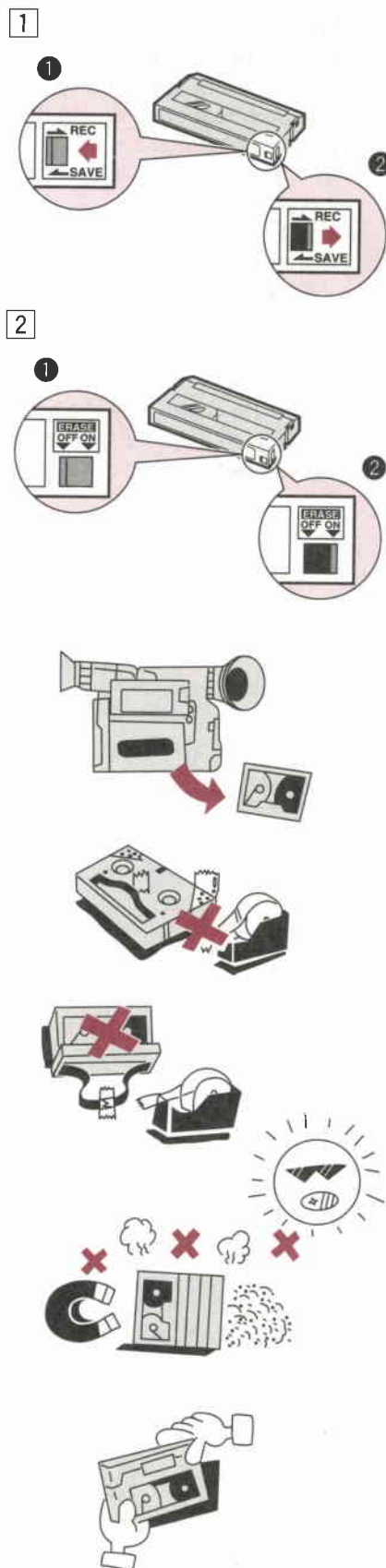
1: Metal•HG/Hi8 MP/Hi8 ME

2: Standard 8mm MP

- 1 In the "SAVE" or "ERASE OFF" position: Erasure Prevention (Window Red)**
- 2 In the "REC" or "ERASE ON" position: Recording Possible (Window Black)**

Notes:

- Do not leave the video cassette in the camera after use, especially when the camera will not be used for a long time. This may cause damage to the video cassette and heads.
- There are several holes in the back of the video cassette which are used for transferring information. Do not cover these with adhesive tape or other materials.
- Do not use video cassettes with damaged or spliced tape or ones that do not meet standards.
- Do not drop or knock video cassettes, or subject them to excessive shocks.
- Store video cassettes in their cases and avoid storing them under the following conditions:
 - In excessive heat or humidity
 - Near strong magnetic fields
 - In direct sunlight
 - In dusty or dirty places
 - Where mould may affect them
- Using a video cassette immediately after removing the wrapping will cause static electricity and may lead to malfunction. After unwrapping, touch the video cassette as shown.



What is Hi8?

Hi8 is the latest in the field of home video recording techniques developed to improve the recording and playback picture.

Using the 8mm video format as its base, Hi8 extends the picture resolution for images far clearer and sharper than ever before. Compatibility with the standard 8mm format is maintained. With this camera you can record and play back video cassettes with either the **Hi8** or **8** mark.

Video Cassettes

A special video cassette with the **Hi8** mark is required for Hi8 video recording. The Hi8 Metal-E cassettes are the metal-evaporated type and the Hi8 Metal-P cassettes have metal-particle coating.

Compatibility with normal 8mm cassettes

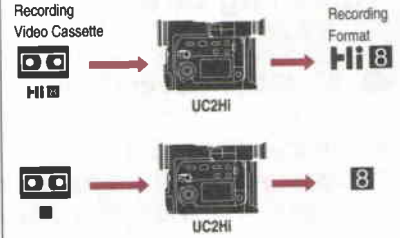
The compatibility of Hi8 and normal 8mm is shown in the diagram.

- Recording and playback in normal 8mm are possible on Hi8 units.
- Video cassettes recorded in Hi8 cannot be played back on normal 8mm units.
- The Hi8 format cannot be recorded on normal 8mm units.

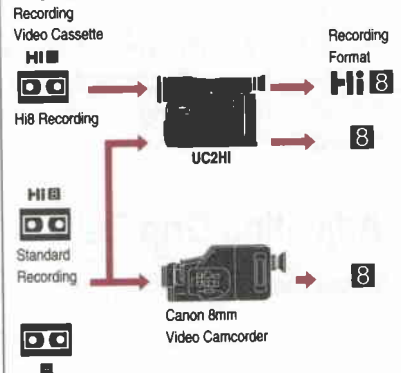
Television

Use a television equipped with an S-video input terminal for Hi8 playback.

Recording



Playback



Camera Preparations

Attaching Straps 1

① SS-400 Shoulder Strap

Attach the SS-400 Shoulder Strap by passing ends through the upper and lower strap attachment bars located at the rear of camera. Adjust length and fasten as shown.

② WS-20 Wrist Strap (option)

Attach the WS-20 Wrist Strap (option) by passing it through the lower strap attachment bar located on rear of camera. Adjust length to hang comfortably from wrist and fasten as shown.

Adjusting Grip Belt 2

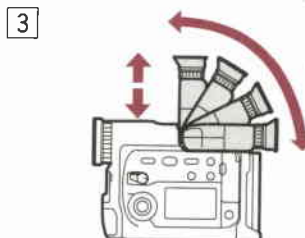
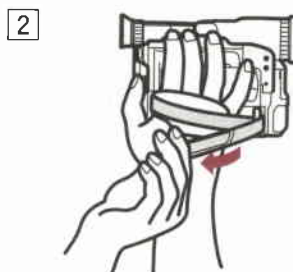
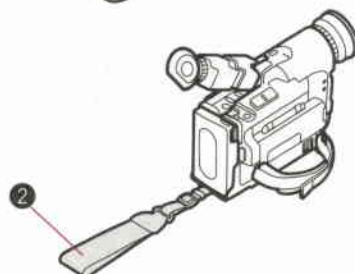
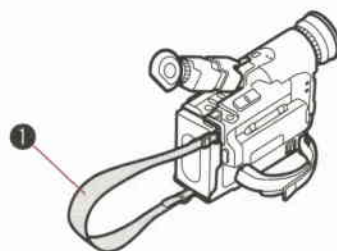
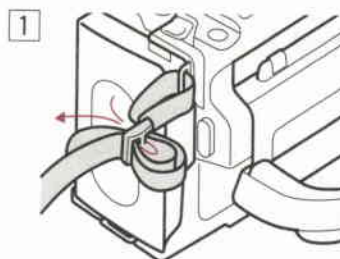
Adjust the length of the grip to provide a comfortable, secure grip.

Adjusting Viewfinder Angle 3

Viewfinder rotates 90°. Choose desired angle for recording. When recording, pull out the eyepiece adapter from the finder and push it back in when recording is finished.

For Low-Angle Shooting 4

When recording from a low angle, hold the camera as shown. Use your thumb to operate START/STOP button.



Lens Cap 5

Pass the provided cord through the eyelet on the lens cap, as shown. Then pass the grip belt of the camera through the loop on the cord. Attach the lens cap. Before recording, remove the lens cap and use its clip to hook it onto the grip belt.

When using a filter, remove the lens hood, attach the filter to the focusing ring and place the lens hood over the filter.

- ① Lens Cap
- ② Filter
- ③ Lens Hood

Note:

- When removing the lens hood, hold the camera firmly in one hand and rotate the lens hood with the palm of the other hand. Using excessive force may cause damage.

Adjusting Dioptre 6

Turn camera on and pull out the finder. Turn dioptre adjustment ring until viewfinder displays are clearly visible.

- ④ Dioptre Adjustment Ring

Removing and Attaching Finder 7

When there is dust or lint on the viewfinder display, remove finder and clean it with a commercially available blower brush.

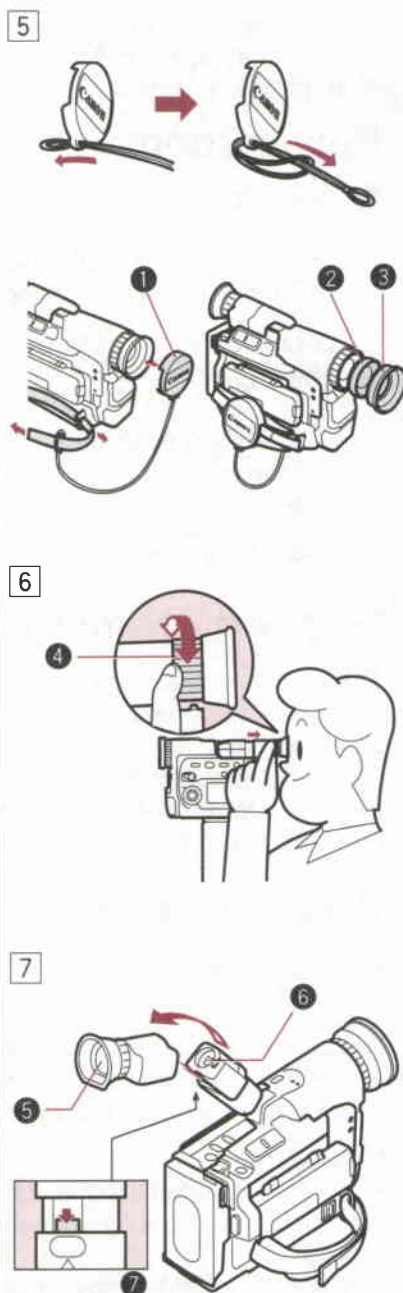
To remove:

1. Pull finder out from its base until it clicks.
2. Pressing viewfinder RELEASE switch, pull finder down in the direction of the arrow to slide it off.

To attach:

Align finder with its base and press finder in until it clicks.

- ⑤ Finder
- ⑥ Viewfinder Display
- ⑦ Viewfinder RELEASE Switch



Zooming (CAMERA Mode)

The camera is equipped with a 12× zoom lens. The zoom function enables the picture angle to be changed freely from wide angle to telephoto.

Power Zoom 1

① Power Zoom Buttons

- Press W to gradually zoom out to wide angle.
- Press T to gradually zoom in to telephoto.

② Zoom in

③ Zoom out

- Zoom lens position display “◆” appears in viewfinder. Zooming direction is also indicated by ◀ (zoom in) and ▶ (zoom out).

④ Zoom Lens Position Display

3-Speed Zooming Control

This camera is equipped with 3-speed zooming control. The zoom speed changes according to how hard you press the zoom buttons.

Press T or W lightly to zoom slowly.

Press T or W a little harder to zoom at medium speed.

Press T or W all the way down to zoom quickly.

Wireless Zoom 2

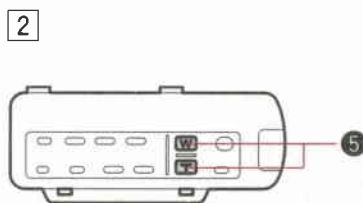
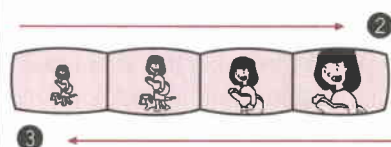
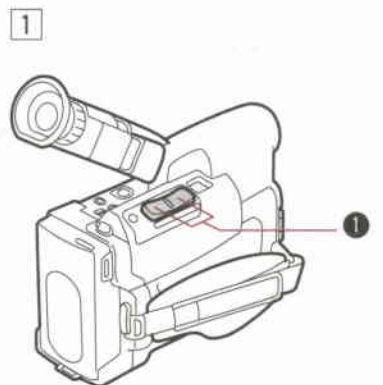
⑤ ZOOM Buttons

For remote control of the zoom function, use the ZOOM buttons on the wireless controller.

- Press W to gradually zoom out to wide angle.
- Press T to gradually zoom in to telephoto.

Notes:

- It is recommended that the camera be mounted on a tripod for telephoto recording since any hand movements are amplified.
- Overuse of zooming may make recordings seem too busy. Selective use of zooming is more effective.



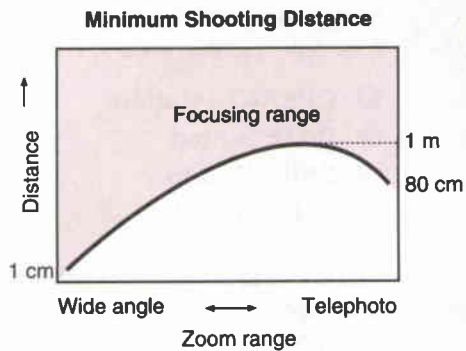
Zooming and Minimum Shooting Distance 3

The internal-focus lens causes the minimum shooting distance (how close the camera can be brought to a subject), to change with the zoom position.

- With the widest angle, shooting is possible at about 1 cm.
- With the greatest telephoto zoom the minimum distance is about 80 cm.

Notes:

- If the zoom is used with the manual focus (see p. 85), the set focus may be lost.
- A subject closer than about 1 m may become out of focus when the zoom is used.

3

Setting Date and Time

Set date and time before using camera for the first time.
Reset date and time display if camera has been stored for a long period and the display has stopped or is incorrect.
Example: Setting date to 8 March, 1993 and time to 2:35 pm.

- ① OPERATE Button
- ② DATE Button
- ③ SHIFT Button
- ④ SELECT Dial

Steps 2 and 3 are only necessary when you are changing time zones, not when you are just setting or resetting the date and time.

If your country is currently on summer time, follow procedure on page 63 to set camera to summer time before setting the date and time from step 2 below.

1. Turn camera on.

- CAMERA indicator (red) lights up.

2. Press SHIFT button to align ► mark with time display on LCD panel.

3. Turn SELECT dial to display time zone you wish to set.

- For example, London is in zone 1. (see p. 62)
- Press SHIFT button again if the ► mark disappears before you turn SELECT dial.

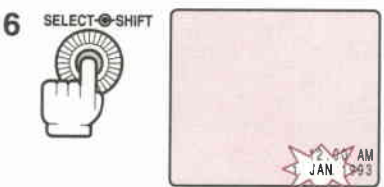
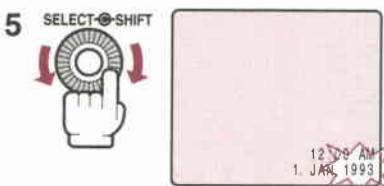
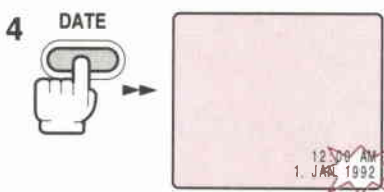
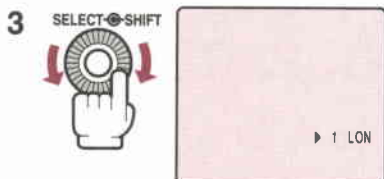
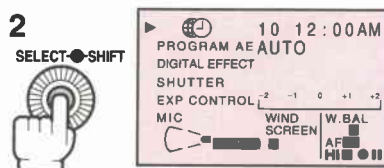
4. Press and hold DATE button until year display flashes in viewfinder.

5. Turn SELECT dial to scan year display.

→ 1992 ⇄ 1993 ⇄ ••• ⇄ 2010 ⇄ 2011 ⇄ 2012 ←

6. Press SHIFT button.

- Year is set and month display flashes.



7. Turn SELECT dial to scan month display.

→ JAN ⇌ FEB ⇌ ... ⇌ OCT ⇌ NOV ⇌ DEC ←

8. Press SHIFT button.

- Month is set and day display flashes.

9. Turn SELECT dial to scan day display.

- Camera knows the number of days in each month and which years are leap years.

$$\rightarrow 1 \rightleftharpoons 2 \rightleftharpoons 3 \rightleftharpoons 4 \rightleftharpoons 5 \rightleftharpoons \dots \rightleftharpoons 27 \rightleftharpoons 28 \rightleftharpoons 29 \rightleftharpoons 30 \rightleftharpoons 31 \leftarrow$$

10. Press SHIFT button.

- Date is set and hour display flashes.

11. Turn SELECT dial to scan hour display.

→ 12 AM ⇌ 1 AM ⇌ ... ⇌ 10 PM ⇌ 11 PM ←

12. Press SHIFT button.

- Hour is set and minute display flashes.

13. Turn SELECT dial to scan minute display.

- To return to year display press SHIFT button.

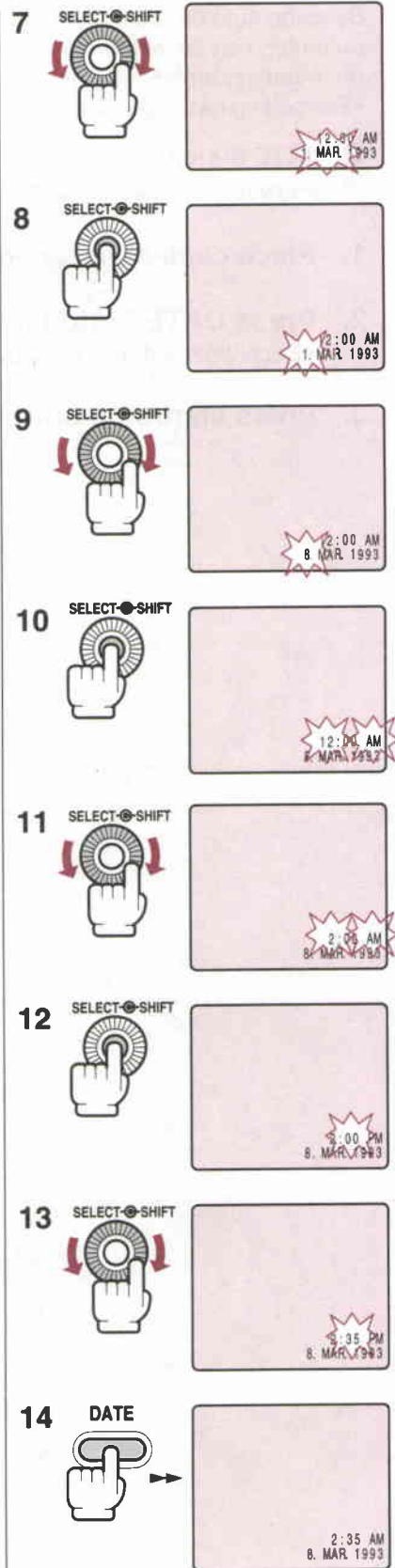
$$\hookrightarrow 00 \rightleftharpoons 01 \rightleftharpoons 02 \rightleftharpoons \dots \rightleftharpoons 58 \rightleftharpoons 59 \leftarrow$$

14. Press DATE button when correct minute is shown.

- Minute display stops flashing and auto date and time start functioning.
- Press DATE button to make display disappear from viewfinder.

Notes:

- To make a partial change to date or time setting, use the SHIFT button to find the setting to be changed, then correct it using the SELECT dial.
- To record date and time, see page 36.



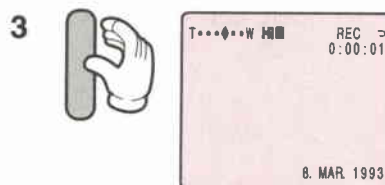
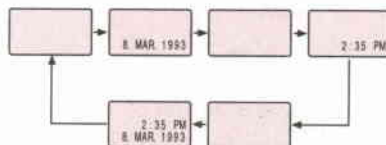
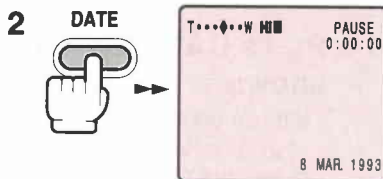
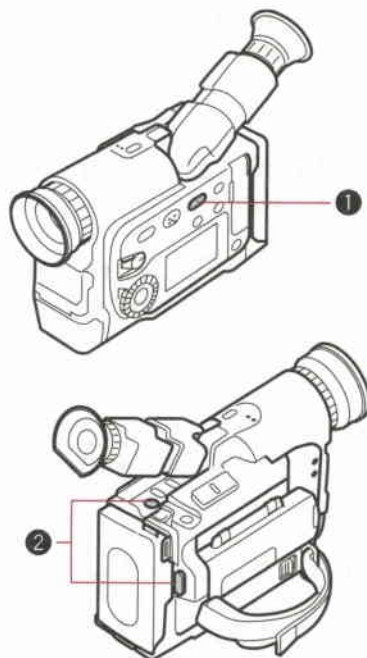
Recording Date and Time (CAMERA Mode)

By using auto date/time function, date and time of the recording can be included in the scene. Date and time can be recorded separately or together.

• For setting date and time, see page 34.

- ① DATE Button
- ② Start/stop (START/STOP) Buttons

1. Place camera in record pause mode.
2. Press DATE button to select desired display.
 - Each time button is pressed, display changes as shown.
3. Press start/stop button to start recording.



The Rechargeable Lithium Battery

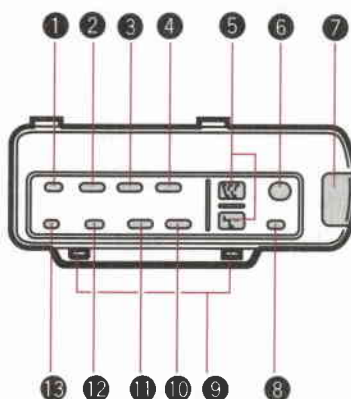
This video camera has a rechargeable lithium battery to supply power to the memory for date, time and other camera settings (see p. 87). Even when the battery pack is disconnected, the date and time function will keep on working. The lithium battery is automatically recharged whenever a power source is connected to the video camera, even when the video camera is not turned on. If the video camera is used regularly, the lithium battery will remain charged.

However, if the battery pack is removed and the video camera is stored for a long period, the lithium battery slowly discharges and the auto date/time function may stop operating. In this case, recharge the lithium battery by connecting a power source to the camera for approximately one whole day. Also reset the date and time (see p. 34).

Wireless Controller

Removed from the camera, the detachable wireless controller can be used to operate the camera from a distance.

- ① **TAPE RETURN Button**
- ② **REW/ ⏮ Button**
- ③ **PLAY ▶ Button**
- ④ **FF/ ⏭ Button**
- ⑤ **ZOOM Buttons**
- ⑥ **START/STOP Button**
- ⑦ **Transmitter**
- ⑧ **ON SCREEN Button**
- ⑨ **Attachment Bars**
- ⑩ **PAUSE ⏸ Button**
- ⑪ **PLAY MODE/STOP ■ Button**
- ⑫ **CAMERA MODE Button**
- ⑬ **C. (Counter) RESET Button**



Removing and Attaching Wireless Controller

Attached to the camera, the detachable wireless controller forms a comfortable grip when shooting and can be flipped up for easy playback control on a connected monitor.

To remove: 1

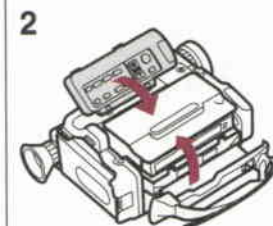
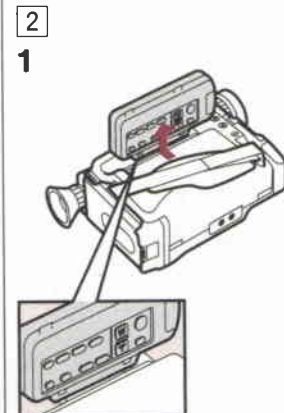
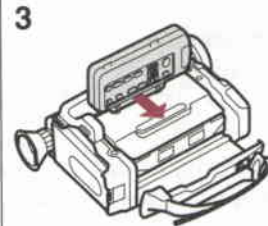
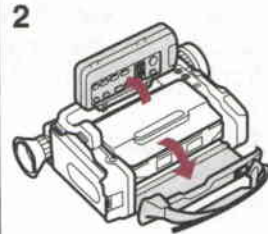
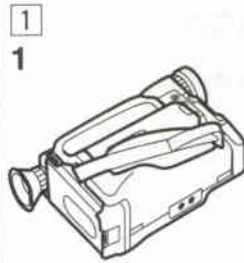
1. Place camera so that the attached wireless controller is on top.
2. Slide UNLOCK switch and open video cassette compartment cover. Lift up wireless controller.
3. Remove wireless controller from camera.

To attach: 2

1. Insert bars on wireless controller into clips on camera.
 - Make sure video cassette compartment is closed.
2. Press wireless controller down until it clicks and attaches securely to video cassette compartment cover.

Note:

- Do not use excessive strength when attaching and removing wireless controller. This may result in damage to clips and bars.



Operation

Attached to camera 1

Place camera as shown.

Lift up wireless controller and press operating buttons.

The wireless controller operates the camera by emitting infrared signals reflected by surrounding surfaces.

The camera cannot receive the signals from the wireless controller if there is no reflecting surface within approximately 3 m of the front of the camera.

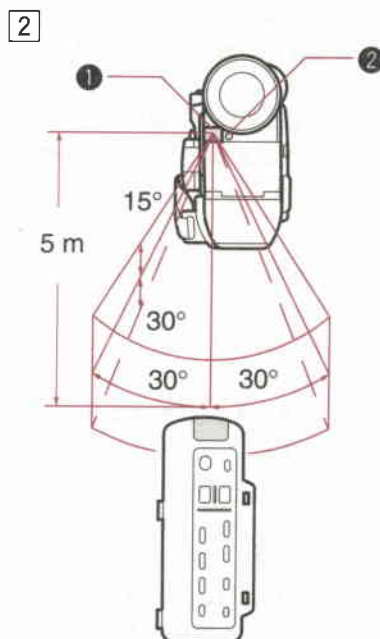
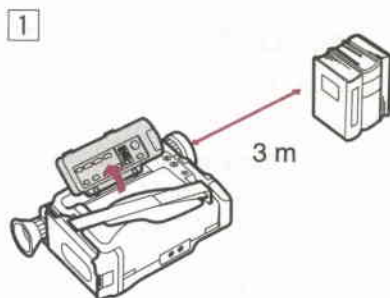
Removed from camera 2

Use the wireless controller inside the area shown in the illustration.

- ① Remote Sensor
- ② Tally lamp

Note:

- The tally lamp lights up when the remote sensor receives the wireless controller's signals.



Inserting batteries 3

The wireless controller operates on two R03/AAA batteries.

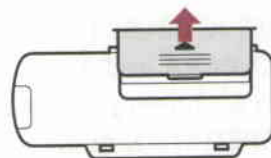
1. **Press down on battery compartment cover and slide it off in direction of arrow.**
2. **Insert two R03/AAA batteries, checking the polarity (+ and –). Be careful not to reverse polarity of batteries.**
3. **Slide cover back into place.**

Notes:

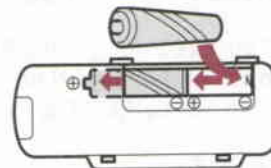
- The wireless controller uses an infrared beam to transmit signals, so sunlight or fluorescent light may shorten the operating distance. The camera may also have some difficulty in detecting the signal if the wireless controller is used at extremely close range.
- The wireless controller will not operate if "SENSOR" has been selected (see p. 93).
- When changing exhausted batteries, replace all batteries at once.

3

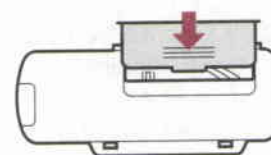
1



2



3



CAMERA and PLAY Modes

The camera has two basic modes of operation: CAMERA mode for recording and PLAY mode for playback.

- ① **MODE SELECT Button**
- ② **CAMERA (red) Indicator**
- ③ **PLAY (green) Indicator**
- ④ **OPERATE Button**

CAMERA Mode ①

Make your recordings in CAMERA mode.

When camera is turned on, it automatically enters CAMERA mode and red CAMERA indicator lights up.

PLAY Mode ②

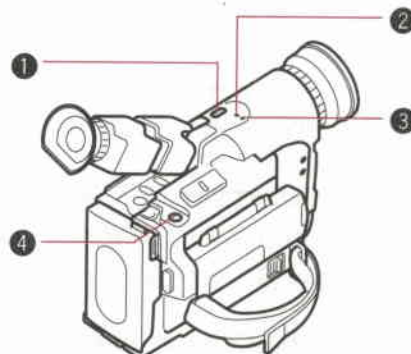
Use PLAY mode to play back your recordings.

Press MODE SELECT button once to select PLAY mode.

Red CAMERA indicator goes off and green PLAY indicator lights up. In PLAY mode the viewfinder and connected TV monitor screen will appear grey. Also, date and time will appear in viewfinder and on TV monitor screen. To eliminate this, either press DATE button, change to CAMERA mode or press PLAY button.

CAMERA and PLAY Indicators

CAMERA indicator (during CAMERA mode) or PLAY indicator (during PLAY mode) light up during normal operation, and flash to warn that there is internal condensation or a malfunction, or to indicate that battery pack needs to be recharged.



1



2



Mode Selection 3

MODE SELECT button can be used to switch between CAMERA mode and PLAY mode.

The wireless controller can also be used to switch modes:

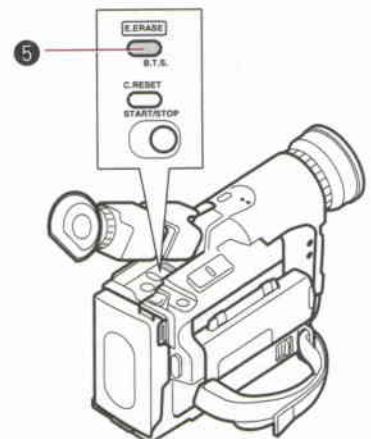
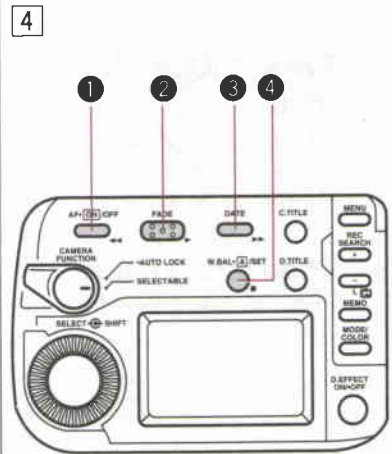
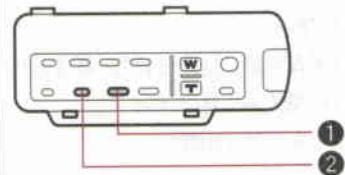
- If PLAY MODE/STOP ■ button is pressed during CAMERA mode, the camera switches automatically to PLAY mode.
- If CAMERA MODE button is pressed while the tape is either stopped or paused in PLAY mode the camera automatically switches to CAMERA mode.

- ① **PLAY MODE/STOP ■ Button**
- ② **CAMERA MODE Button**

Dual-mode Buttons 4

Four buttons located on the side of camera and one button located on top of the camera have different functions in CAMERA and PLAY modes. Functions indicated in white are active during CAMERA mode. Functions indicated in black plastic are active during PLAY mode.

CAMERA mode (white)	PLAY mode (black)
① AF ON /OFF button	◀◀ (REW) button
② FADE button	▶▶ (PLAY) button
③ DATE button	▶▶ (FF) button
④ W.BAL. • A /SET button	■ (STOP) button
⑤ E. ERASE button	B.T.S. button (This button is indicated in white.)



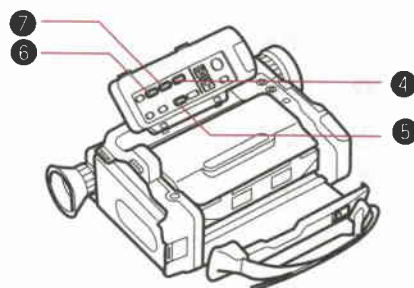
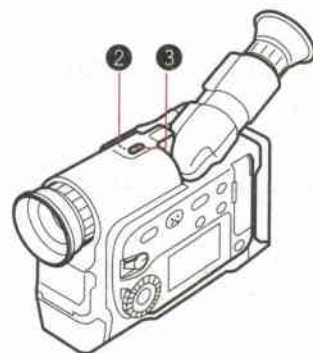
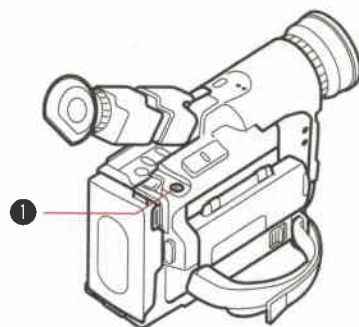
Playback Procedure (PLAY Mode)

Before playback, make sure that all connection procedures are completed (pp. 46-51).

Playback is controlled by pressing the buttons on the camera or by using the wireless controller.

- ① **OPERATE Button**
- ② **PLAY Indicator**
- ③ **MODE SELECT Button**
- ④ **FF/ ⏮ Button**
- ⑤ **PLAY MODE/STOP ■ Button**
- ⑥ **REW/ ⏪ Button**
- ⑦ **PLAY ► Button**

1. **Turn camera on.**
 - CAMERA indicator (red) lights up.
2. **Press MODE SELECT button to select PLAY mode.**
 - You must complete this step to begin playback.
 - CAMERA indicator goes off, PLAY indicator (green) lights up and the connected TV monitor appears grey.
3. **Load video cassette.**
 - For loading procedure, see page 26.



4. Locate playback starting point.

- Use FF/  (Fast Forward) and REW/  (Rewind) buttons to locate starting point or use fast forward/rewind playback or high-speed search (see p. 107).

5. Press PLAY button to start playback.

- You can monitor playback in viewfinder.

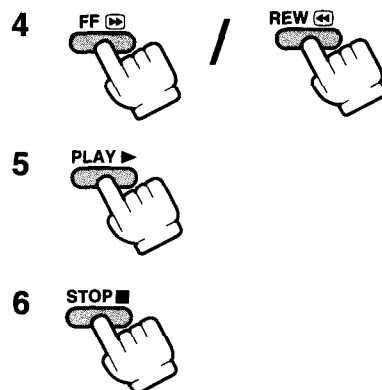
6. Press STOP button to end playback.

Explanation:

High-Frequency Feedback

High-frequency feedback is a high-pitched squeal that occurs when the sound from the TV speakers is picked up by camera microphone.

- During CAMERA mode, high-frequency feedback may occur if camera microphone is too close to TV speakers. To prevent feedback, turn down TV volume when camera is connected, and keep microphone pointed away from speakers.
- Feedback will not occur when PLAY mode is selected.



Playback Connection (PLAY Mode)

To play back a recorded video cassette on a TV, use either the DC-200 DC Coupler and CA-200 Compact Power Adapter (or CB-110 Car Battery Adapter) or the BP-E77K Battery Pack as a power source. For details on how to connect the CA-200 (or CB-110) and DC-200 to the camera, see page 20.

The procedure for connecting the video camera to your TV varies depending on the type of TV. Follow the appropriate connection procedure described below.

The connecting accessories included in the kit vary according to areas. Use the following chart to determine what your kit should contain:

	UK, EUROPE	ASIA, OCEANIA
S-150 S-video Cable	1	1
RU-100 RF Unit	1	—
ST-150 Stereo Cable	1	1
C-150 AV Cable	—	1

Using TV (or VCR) with S-video Input Terminals

Stereo

1

Connect S-VIDEO/audio terminals of camera to S-video and audio terminals of TV (or VCR) using the S-150 S-video Cable and ST-150 Stereo Cable.

- ① To Audio Terminals (L white=left; R red=right)
- ② To S-VIDEO Terminal
- ③ S-150
- ④ ST-150 Stereo Cable (white=left; red=right)
- ⑤ To Audio Input Terminals
- ⑥ To S-video Input Terminal
- ⑦ TV: Set TV/VIDEO Selector to VIDEO

Using TV (or VCR) with Audio/Video Input Terminals

Stereo

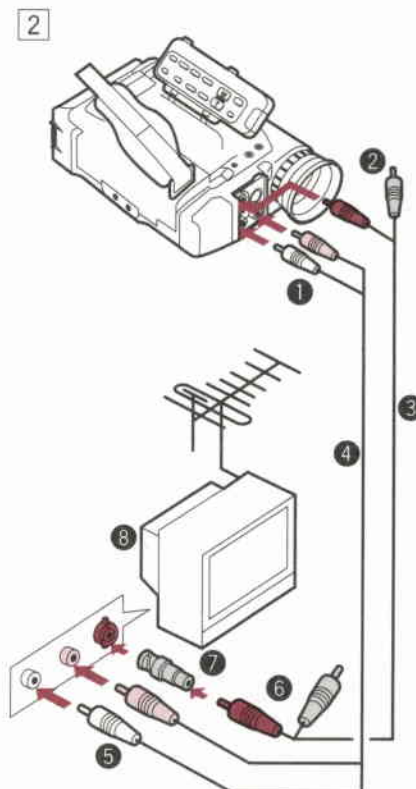
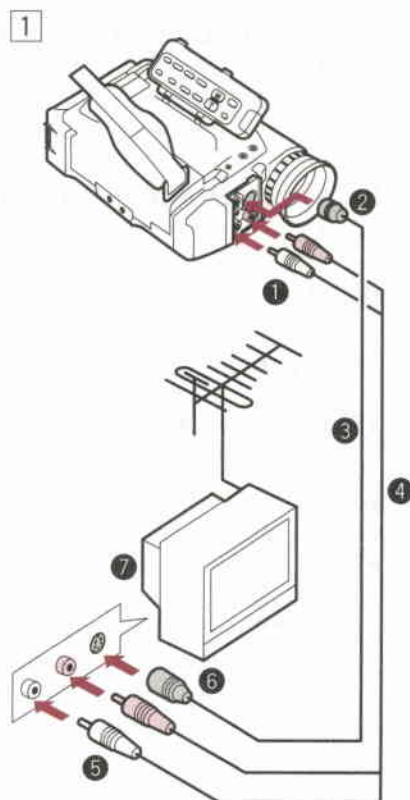
2

Connect audio and video terminals of camera to audio/video input terminals of TV (or VCR) using the ST-150 Stereo Cable and the C-150 AV Cable.

• When using the C-150 AV Cable, do not connect the S-150 S-video Cable to the S-video input terminal.

- ① To Audio Terminals (L white=left; R red=right)
- ② To Video Terminal (yellow)
- ③ C-150 (yellow=video; white [or black] plug is not used)
- ④ ST-150 Stereo Cable (white=left; red=right)
- ⑤ To Audio Input Terminals
- ⑥ To Video Input Terminal
- ⑦ BNC Adapter*
- ⑧ TV: Set TV/VIDEO selector to VIDEO

* If TV has a BNC-type video input terminal, attach a commercially available BNC adapter to C-150 AV Cable.



Monaural

Connect audio (L) and video terminals of camera to audio and video terminals of TV using the C-150 AV cable (white [or black]=audio; yellow=video).

- When only the audio (L) terminal is connected, the output is a (L)+(R) monaural signal.

Using TV with SCART Terminals**Stereo****S-video**

3

Connect audio and video terminals of camera to SCART terminal of TV using the optional PC-270SST S-stereo SCART cable.

- ① To Audio Terminals ((L) white=left; (R) red=right)
- ② To S-video Terminal
- ③ PC-270SST S-stereo SCART cable
- ④ To SCART Terminal

Stereo

4

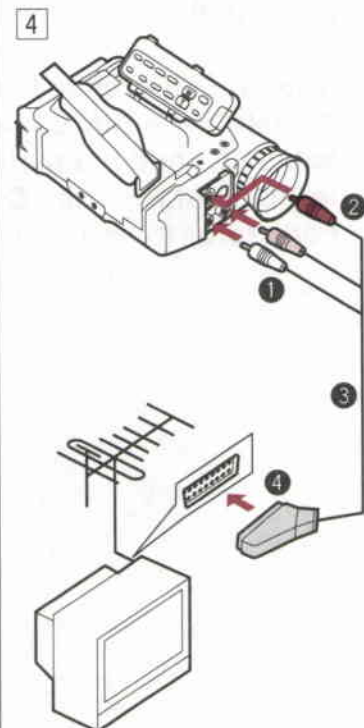
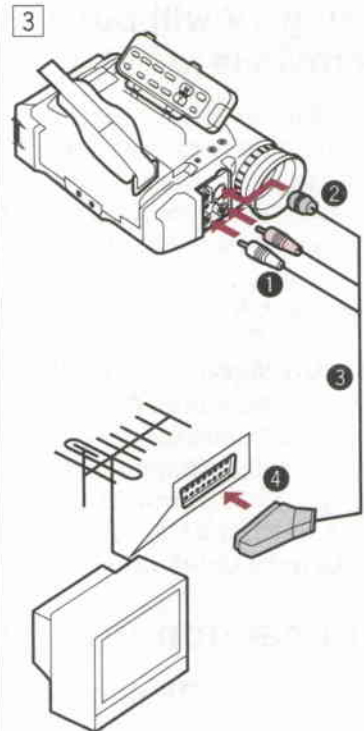
Connect audio and video terminals of camera to SCART terminal of TV using the optional PC-170ST Stereo SCART Cable.

- ① To Audio Terminals ((L) white=left; (R) red=right)
- ② To Video Terminal (yellow)
- ③ PC-170ST Stereo SCART Cable
- ④ To SCART Terminal

Monaural

Connect audio (L) and video terminals of camera to SCART terminal of TV using the optional PC-150 SCART Cable.

- When only the audio (L) terminal is connected, the output is a (L)+(R) monaural signal.



Using TV without Audio/Video Input Terminals Monaural

The optional RU-100 RF Unit is required in order to view recorded video cassettes on a TV which does not have audio/video input terminals. There are two RU-100 models, one for Europe and one for Australia. The connection and setting procedures for the European and Australian models differ.

European Model 5

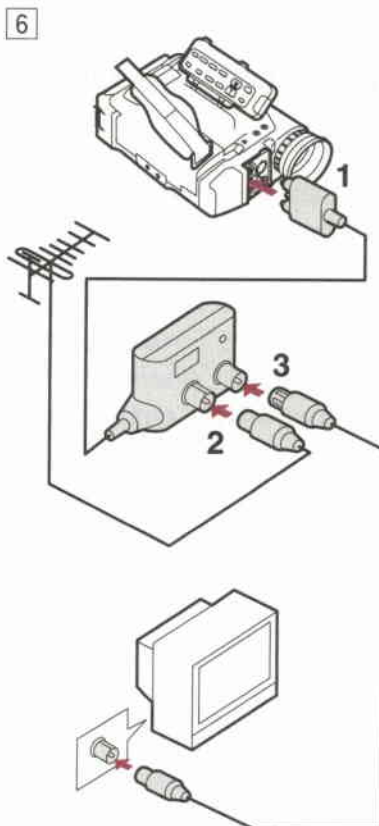
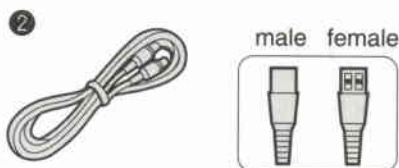
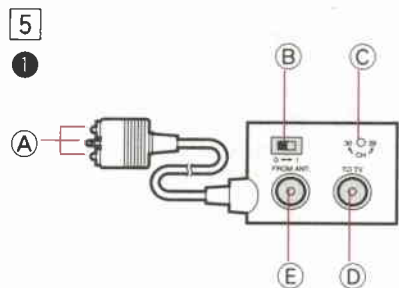
① RU-100 (Provided for UK, Europe models)

- Ⓐ Connection Plug
- Ⓑ G/I Selector
- Ⓒ Video Channel Selector
- Ⓓ TO TV Terminal
- Ⓔ FROM ANT. Terminal

② Coaxial Cable with DIN-Connectors

Connection Procedure 6

1. Connect RF unit to camera.
2. Connect aerial cable to FROM ANT. terminal of RF unit.
3. Note the difference between 'male' and 'female' type DIN-connectors on coaxial cable. Connect female connector to TO TV terminal of RF unit. Connect male connector to aerial input terminal of TV.



Selecting Video Channel 7

Video channel means the channel in your area which is not used by a broadcasting station (channels 30-39). If your TV does not have audio/video input terminals, your TV and the video channel selector of the RU-100 RF Unit must be set to the video channel in order to view playback.

1. Turn TV on.
2. Turn camera on and start playback (see p. 44).
3. Set RF unit's G/I selector using a flat-edge screwdriver.

G: Continental Europe

I: England, South Africa, Hong Kong

- If G/I selector is set improperly, picture will appear, but no sound will be heard.

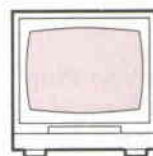
4. Set TV and video channel selector to video channel.

For example, if video channel in your area is channel 33, tune TV to channel 33, then use a flat-edge screwdriver to set video channel selector of RU-100 to CH 33, adjust by turning until picture is clear.

- The RU-100 RF Unit is shipped from the factory with the video channel selector set to channel 32.

7

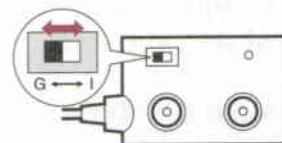
1



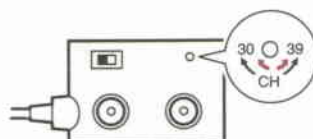
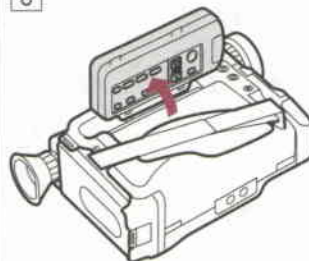
2



3



4


8


To View a Regular TV Programme

The RU-100 RF Unit automatically selects the camcorder signal whenever the camcorder is connected to the TV through the RF unit and the camcorder is turned on. To view a regular TV programme, disconnect the camcorder from the RF unit, or turn the camcorder off.

Positioning the video camera 8

For playback on a connected TV, position video camera with the hand grip and wireless controller on top and use the operating buttons on the wireless controller.

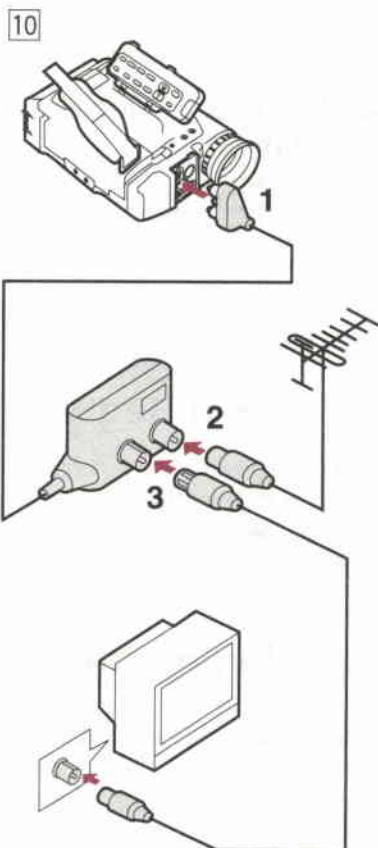
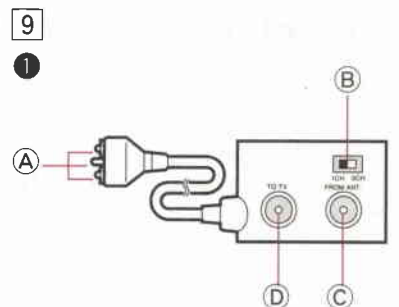
- To operate the camera, the remote sensor must receive the infrared signals emitted when the wireless controller operating buttons are pressed. To facilitate reception, point the attached wireless controller's transmitter at a wall, or place a stack of magazines near the wireless controller.

Australian Model 9

- ① **RU-100**
- Ⓐ **Connection Plug**
 - Ⓑ **Video Channel Selector**
 - Ⓒ **FROM ANT. Terminal**
 - Ⓓ **TO TV Terminal**
- ② **Coaxial Cable with DIN-Connectors**

Connection Procedure 10

1. **Connect RF unit to camera.**
2. **Connect aerial cable to FROM ANT. terminal of RF unit.**
3. **Note the difference between 'male' and 'female' type DIN-connectors on coaxial cable. Connect female connector to TO TV terminal of RF unit. Connect male connector to aerial input terminal of TV.**



Selecting Video Channel 11

Video channel means the channel in your area which is not used by a broadcasting station (Channel 0 or 1). If your TV does not have audio/video input terminals, your TV set and the video channel selector of the RU-100 RF Unit must be set to the video channel in order to view playback.

1. Turn TV on.
2. Turn camera on and start playback.
3. Set TV and video channel selector to video channel.

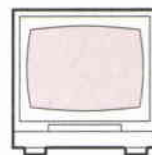
For example, if video channel in your area is channel 0, set video channel selector of RU-100 to CH 0 (using a flat-edge screwdriver), then tune TV to channel 0.

To View a Regular TV Programme

The RU-100 RF Unit automatically selects the camcorder signal whenever the camcorder is connected to the TV through the RF unit and the camcorder is turned on. To view a regular TV programme, disconnect the camcorder from the RF unit, or turn the camcorder off.

11

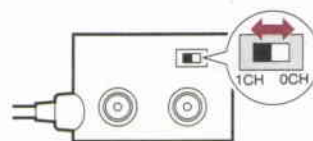
1



2



3



Advanced Operations

Fade (CAMERA Mode)

The fade functions allow you to make scenes gradually appear or disappear. This function is very effective for joining the beginnings and endings of scenes in smooth transition. There are two fade functions: fade trigger, controlled with the start/stop button (p. 89) and fade, controlled with the FADE button.

① FADE Button

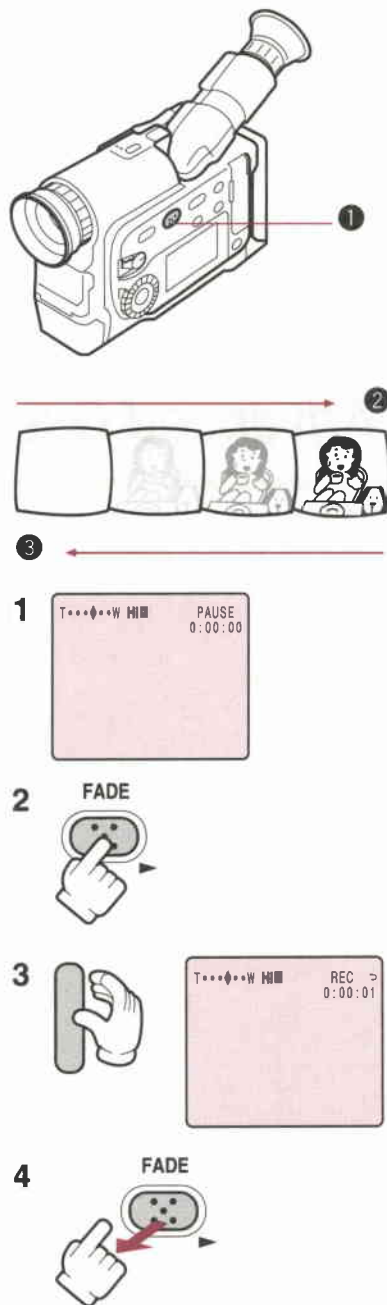
- ② **Fade In:** Scene gradually appears from a blank screen.
- ③ **Fade Out:** Scene gradually disappears, fading to a blank screen.

Notes:

- Sound fades along with image.
- Title, date and time displays do not fade.

Fade In with FADE Button

1. Place camera in record pause mode.
2. Press and hold FADE button.
 - Scene disappears from viewfinder.
3. Press start/stop button to start recording.
 - Recording begins.
4. Release FADE button.
 - Scene gradually fades in.



Fade Out with FADE Button

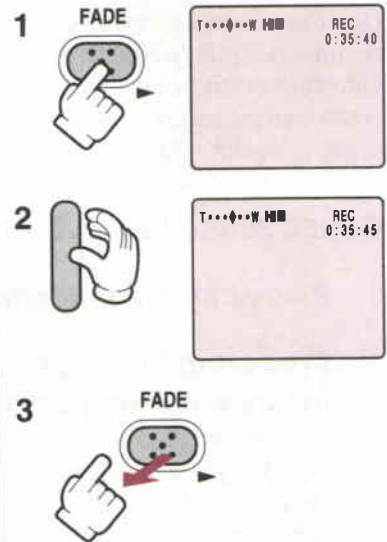
1. **Press and hold FADE button during recording.**

- Scene gradually fades out.

2. **Press start/stop button when scene has disappeared completely.**

- Camera goes into record pause mode.

3. **Release FADE button.**



Record Search (CAMERA Mode)

Use the record search function to locate the desired point to resume recording. Record search can also be used to eliminate noise between recorded scenes. Use this function when you make additional recordings on a previously used video cassette – there will be no noise between the previously recorded scene and the newly recorded scene.

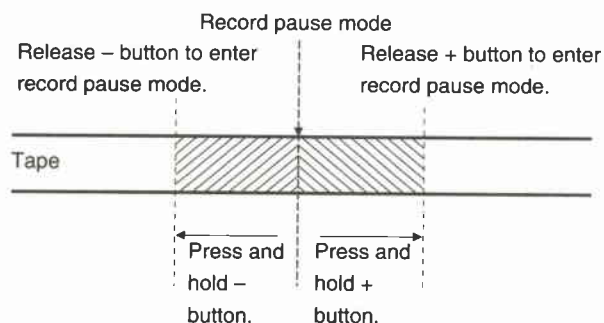
① REC SEARCH Buttons

1. **Place camera in record pause mode.**
2. **Press and hold REC SEARCH button to locate recording start position.**
 - Press and hold + button to play back recording normally.
 - Press and hold – button to play back recording in reverse.
 - When the buttons are released, a still picture is displayed briefly and camera returns to record pause mode.
3. **Press start/stop button to resume recording.**
 - Tally lamp flashes rapidly.

Explanation:

Record search (to resume recording)

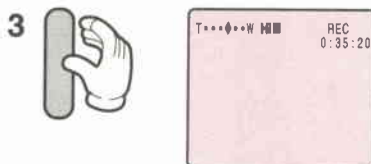
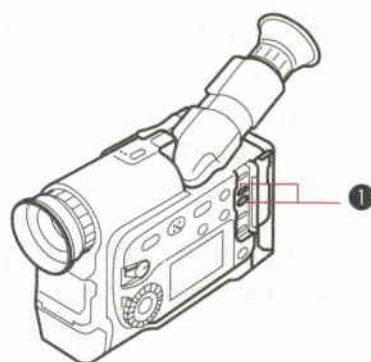
During record pause mode, press REC SEARCH + or – buttons to play back scene normally or in reverse, at normal playback speed. When you reach the point where you want to begin recording, release button. Camera returns to record pause mode. Playback picture can be monitored in viewfinder, to locate precise point to begin recording.



Note:

- Noise bars and skew (picture distortion) may appear during record search.

- ② Noise bar
- ③ Skew (distorted picture)



Record Review (CAMERA Mode)

Press the  (record review) button during record pause mode to play back the last segment of the recorded scene (approximately three seconds) in the viewfinder.

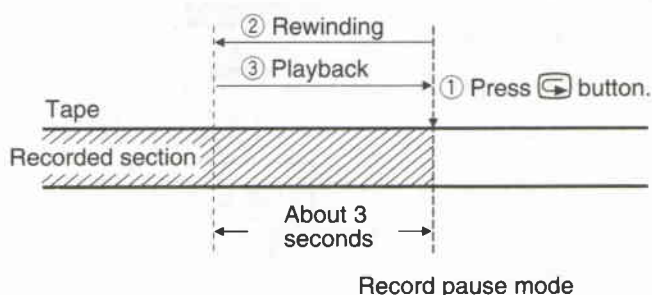
① (Record Review) Button

1. Place camera in record pause mode.
2. Press  (record review) button.
 - Scene plays back in viewfinder.
 - When record review is completed, camera returns to record pause mode.
3. Press start/stop button to resume recording.
 - Recording will continue from the last recorded scene.

Explanation:

Record Review

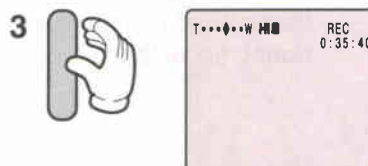
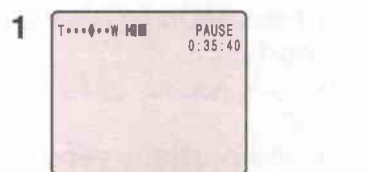
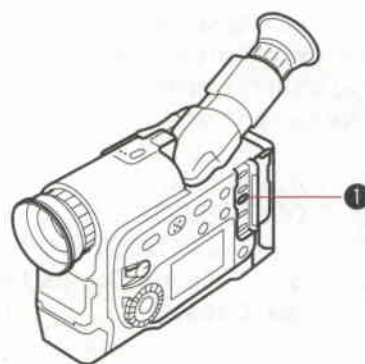
A function used in record pause mode to play back the last 3 seconds of recording in the order (① to ③) shown below. The camera returns to record pause mode after playback has ended.



Note:

- Noise or skew (picture distortion) may appear on the screen during record review.

- ② Noise bar
- ③ Skew (distorted picture)



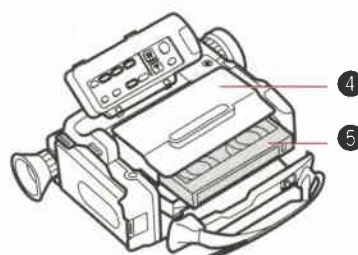
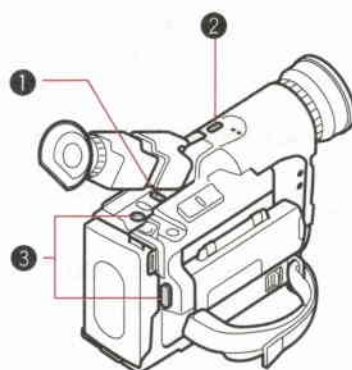
Blank Tape Search (B.T.S.) (PLAY Mode)

The blank tape search function can be used to quickly locate the end of the recorded section of tape. This is useful when you want to continue recording on a partially recorded tape. This function only operates during PLAY mode.

- ① B.T.S. Button
- ② MODE SELECT Button
- ③ Start/stop (START/STOP) Buttons
- ④ Video Cassette Compartment
- ⑤ Video Cassette

To locate a blank section of tape:

1. **Press MODE SELECT button to select PLAY mode.**
 - PLAY indicator (green) lights up.
2. **Load partially recorded video cassette.**
3. **Press B.T.S. button.**
 - Camera enters high-speed search to find end of recorded section. When it is found, camera enters still playback mode.
 - Final frame is displayed as a still image for about 5 minutes, then camera enters stop mode.
 - Recordings can be monitored through the viewfinder during blank tape search operation.



- 1 ● PLAY
○ CAMERA

MODE SELECT



To continue recording:

1. Press MODE SELECT button to select CAMERA mode.

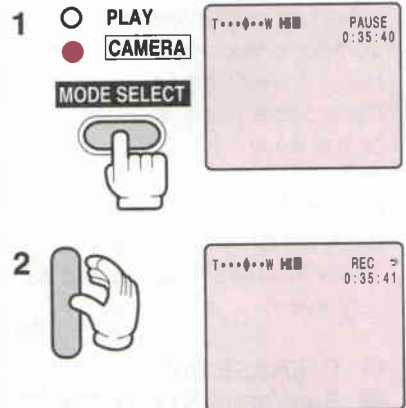
- CAMERA indicator (red) lights up.

2. Press start/stop button to begin recording.

- You will obtain a clean transition between the previously recorded and the new scene.
- To cancel blank tape search function, press ■ (STOP) button.

Notes:

- Even if the B.T.S. button is pressed while at a non-recorded section, the end of the recorded section is found and the camera enters the still playback mode.
- When the blank tape search function is used on a video cassette with no blank section, the camera enters high-speed search mode to the end of the tape and stops. "T. END" appears in the viewfinder.
- The blank tape search function detects blank sections which are at least approximately 40 seconds in SP mode (1 minute and 20 seconds in LP mode) in length. If the tape has such 40-second blank sections in the middle of recorded sections, the camera will stop when it detects them.
- The last frame is displayed in the viewfinder for about 5 minutes as a still image. Then the camera enters the stop mode to protect internal parts from damage.
- When using the blank tape search function, make sure that the erasure prevention switch on the video cassette is in the "REC" position (p. 28).
- When the blank tape search function is used, the very end of the previously recorded scene may be erased when recording is resumed.



Edit-erase (CAMERA Mode)

When an unwanted object or sound is recorded, such as someone walking across the picture or the sound of a car horn, the edit-erase function can be used to quickly return to the precise point where recording began, and record the scene again.

For about 40 seconds after starting to shoot a scene, a $\curvearrowright$ mark appears in the viewfinder next to the operating display. The edit-erase function can be used while this $\curvearrowright$ mark is displayed.

- ① E. ERASE Button
- ② Start/stop (START/STOP) Buttons

1. Make sure that $\curvearrowright$ mark is displayed in viewfinder, then place camera in record pause mode.

- $\curvearrowright$ mark remains visible.

2. Press E. ERASE button.

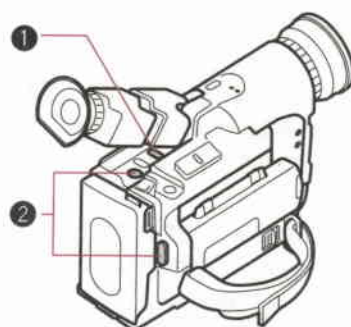
- Tape is rewound to recording start point at 3 times normal speed, and recorded picture is displayed (in reverse) in viewfinder. Camera returns automatically to record pause mode at the start of scene you want to record over.
- $\curvearrowright$ mark disappears from viewfinder.

3. Press start/stop button to resume recording.

- Previously recorded scene is erased.

Note:

- The edit-erase function cannot be used if the camera is turned off, or record search is used less than 40 seconds after recording began ($\curvearrowright$ mark disappears from the viewfinder).



Using an External Microphone

When recording in quiet places, the sound of the camera operating may be picked up by the camera's internal microphone. For better sound quality an external microphone can be attached to the camera with the optional SA-1 Adapter Bracket (see page 119). The Canon MM-200 Stereo Mixing Microphone is recommended.

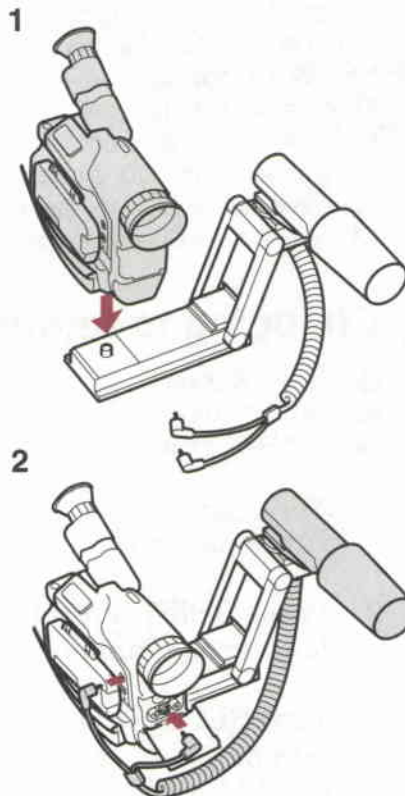
1. Attach microphone to camera using the SA-1.

- For further details, refer to SA-1 instruction manual.

2. Connect external microphone plug to MIC terminal on camera.

Note:

- When using a commercially available microphone, be sure it is a stereo microphone.



Using a Tripod

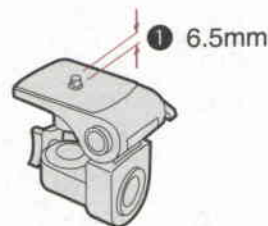
It is recommended that the camera be attached to a tripod for recording in the following situations.

- Telephoto recording
- When the wireless controller is being used
- Self-timer recording

Load the video cassette before mounting the camera on a tripod.

Notes:

- Avoid direct sunlight entering the viewfinder. The lens concentrates the rays which then melt the viewfinder casing.
- When using a tripod, make sure that the fastening screw is no longer than 6.5 mm ①. A screw longer than 6.5 mm will damage the camera.



World Clock

In addition to the date/time function, the camera is equipped with a World Clock function to let you set the correct date and time for just about any travel destination, quickly and easily. There is no need to reset the date/time function when you travel. When the time on the World Clock is displayed,  mark appears in LCD, along with the time zone number you have selected and a representative city. To set the World Clock, use the following procedure.

Changing to Another Time Zone

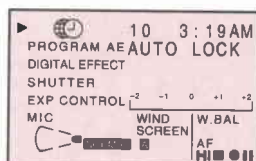
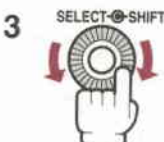
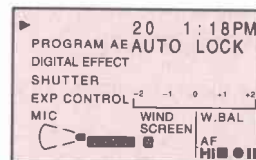
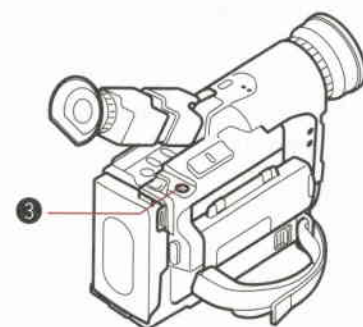
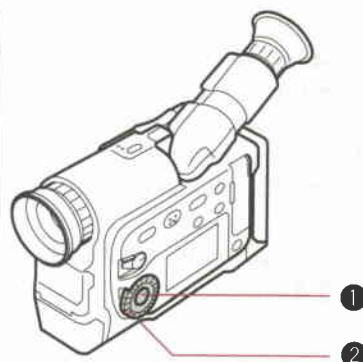
- ① **SHIFT** Button
- ② **SELECT** Dial
- ③ **OPERATE** Button

1. **Turn camera on**
 - CAMERA indicator (red) lights up.
2. **Press SHIFT button to align ► mark with time zone display on LCD.**
3. **Turn SELECT dial to choose new time zone number.**
 -  mark appears in LCD.
 - To return to previous time zone, repeat the procedure above.
 - Press SHIFT button again if the ► mark disappears before you turn SELECT dial.

Note:

- Time zone cannot be changed during recording.

Display	Name of city	Display	Name of city
1 LON	LONDON	13 WLG	WELLINGTON
2 PAR	PARIS	14 SAM	SAMOA
3 CAI	CAIRO	15 HNL	HONOLULU
4 MOW	MOSCOW	16 ANC	ANCHORAGE
5 DXB	DUBAI	17 LAX	LOS ANGELES
6 KHI	KARACHI	18 DEN	DENVER
7 DAC	DACCA	19 CHI	CHICAGO
8 BKK	BANGKOK	20 NYC	NEW YORK
9 HKG	HONG KONG	21 CCS	CARACAS
10 TYO	TOKYO	22 RIO	RIO DE JANEIRO
11 SYD	SYDNEY	23 FER	FERNANDO DE NORONHA
12 SOL	SOLOMON ISLANDS	24 AZO	AZORES

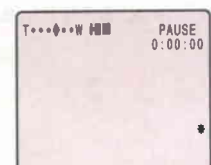
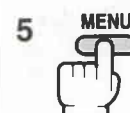
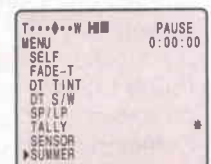
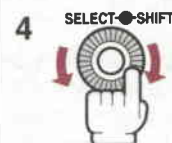
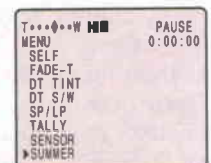
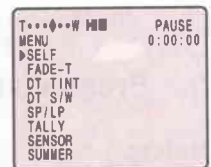
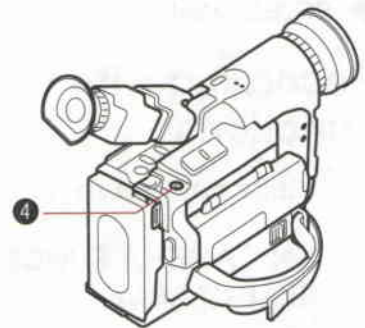
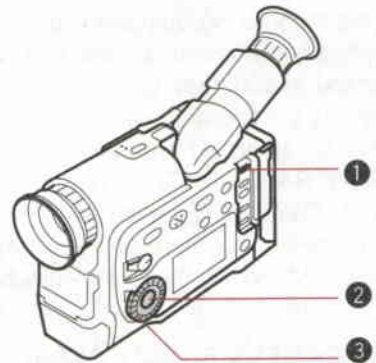


For Summer Time

Some countries have summer time in the summer. This camcorder can be set to summer time with the following procedure.

- ① MENU Button
- ② SHIFT Button
- ③ SELECT Dial
- ④ OPERATE Button

1. Turn camera on.
 - CAMERA indicator (red) lights up.
2. Press MENU button once.
 - Menu is displayed in viewfinder.
3. Press SHIFT button to align ► mark with SUMMER.
 - ► mark appears in viewfinder and LCD. The time moves ahead by an hour.
4. Turn SELECT dial once.
 - * mark appears in viewfinder and LCD. The time moves ahead by an hour.
5. Press MENU button.
 - Menu disappears from viewfinder.



Program AE (CAMERA Mode)

This camera is equipped with convenient AUTO mode for ordinary recording, as well as Program AE, to automatically adjust recording to get the best possible results in a wide variety of recording situations.

Just by selecting from among 6 recording modes (SPORTS, PORTRAIT, SPOTLIGHT, LANDSCAPE, SAND & SNOW and LOW LIGHT), you can adjust recording automatically to suit the environment and your own recording needs. There is also a MANUAL mode for selecting the shutter speed and exposure control.

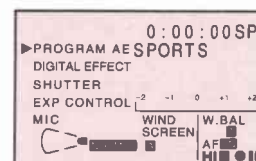
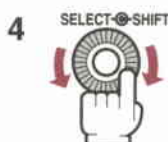
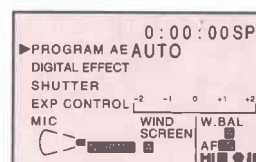
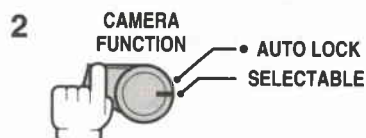
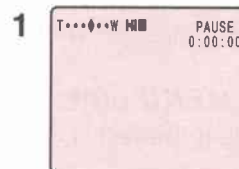
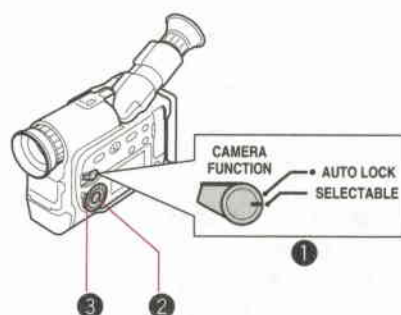
- ① **CAMERA FUNCTION Selector**
- ② **SHIFT Button**
- ③ **SELECT Dial**

Recording with Program AE Functions

1. Place camera in record pause mode.
2. Set **CAMERA FUNCTION** selector to **SELECTABLE**.
3. Press **SHIFT** button to align ► mark with **PROGRAM AE** on LCD.
4. Turn **SELECT** dial to desired mode.
 - Press **SHIFT** button again if the ► mark disappears before you turn **SELECT** dial.
5. Press **start/stop** button to start recording.

Notes:

- When switching modes using the selector, image brightness may change suddenly. Do not switch modes while recording.
- When recording bright lights or reflections, a smear effect may occur.
- Flicker may occur with some sources of illumination.
- If **D. EFFECT** (page 70) **OVERLAP** or **CLOSEUP** has already been selected, **LOW LIGHT** mode cannot be selected.
- If you select a mode with a slow shutter speed (**LOW LIGHT**) or select **MANUAL** mode with a shutter speed of 1/25 sec. or less, we recommend that you use a tripod.
- Selected mode of program AE is memorized. When **CAMERA FUNCTION** selector is set to **SELECTABLE**, memorized mode is displayed.



To Record a High-Speed Scene Clearly 1

Set program AE to SPORTS.

- "SPORTS" is displayed in viewfinder and on LCD.

In SPORTS mode, the shutter speed and iris are automatically adjusted for clear recordings of rapidly moving subjects. This mode is ideal for recording high-speed sports sequences like golf and tennis or for recordings you want to play back for analysis on a VCR with a noise-free still playback function.

Notes:

- In SPORTS mode, a high shutter speed is selected. Use this mode outdoors in bright light.
- SPORTS mode is especially designed for still playback or slow playback. Scenes will appear somewhat jerky during normal playback.

To Make a Subject Stand out against the Background 2

Set program AE to PORTRAIT.

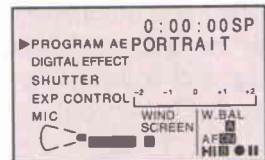
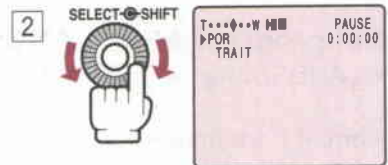
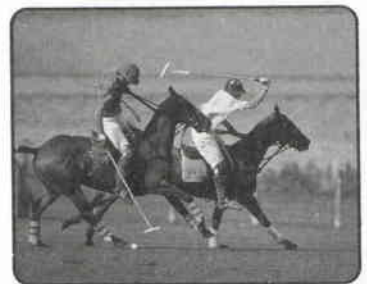
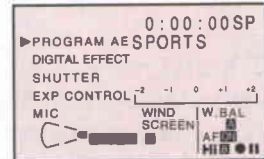
- "PORTRAIT" is displayed in viewfinder and on LCD.

In PORTRAIT mode, the shutter speed and iris are automatically adjusted so that the subject stands out amid a softened foreground and background. Since a large iris is selected, the in-focus area becomes shallower.

Use this mode outdoors to make the subject stand out. This mode also works well for slow-moving subjects.

Notes:

- This softened effect is strongest when the zoom position is between middle range and telephoto end. Conversely, it becomes weaker as the zoom is shifted from middle range to the wide-angle end.
- As the in-focus area becomes shallower in this mode, use manual focus for greater accuracy.



To Record a Spotlit Scene More Effectively

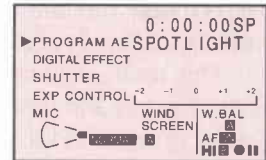
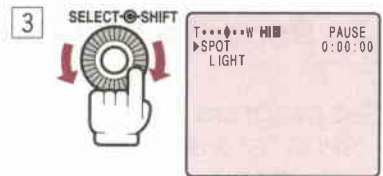
3

Set program AE to SPOTLIGHT.

- "SPOTLIGHT" is displayed in viewfinder and on LCD.

In SPOTLIGHT mode, the iris is automatically adjusted for effective, glare-free recordings of scenes illuminated by spotlights or other concentrated light sources.

Use this mode when recording spotlit scenes such as on a stage.



To Record Well-exposed Landscapes

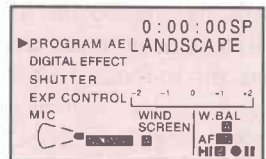
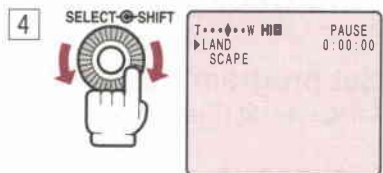
4

Set program AE to LANDSCAPE.

- "LANDSCAPE" is displayed in viewfinder and on LCD.

Normally, when recording with a bright sky in the background, the land in the landscape turns out too dark. In LANDSCAPE mode, the iris is automatically adjusted to prevent this.

Use this mode to obtain well-exposed recordings of landscapes or buildings against a bright background (the upper half of the scene).



To Record Bright Scenes More Effectively (Beach or Snowy Location)

5

Set program AE to SAND & SNOW.

- "SAND & SNOW" is displayed in viewfinder and on LCD.

In SAND & SNOW mode, the shutter speed and iris are automatically adjusted for clear recordings with no underexposure of the subject due to an excessively bright background such as a summer beach or a snowy ski resort. Use this mode in locations with strong light reflection to obtain clear recordings and optimum exposure of the subject.

Notes:

- If you use this mode in dark locations such as under a cloudy sky or in the shade, the subject may become too bright.
- Since the high-speed shutter is selected, the subject's movements may not appear smooth during playback.

To Make Clear Recordings in Places Where There is Insufficient Light

6

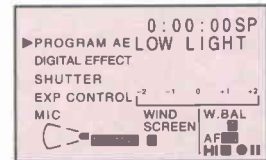
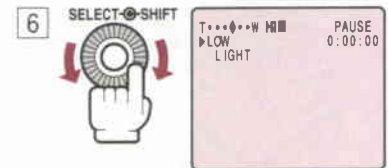
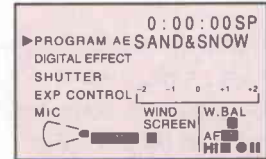
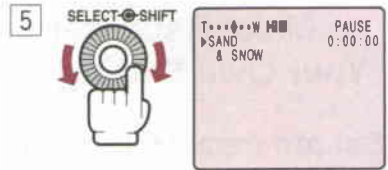
Set program AE to LOW LIGHT.

- "LOW LIGHT" is displayed in viewfinder and on LCD.

Use LOW LIGHT mode in dimly lit places, or places where illumination is not possible, for close-ups of slow- or non-moving subjects.

Notes:

- In LOW LIGHT mode, moving subjects may leave a trailing afterimage.
- LOW LIGHT mode can be used to record the subject more brightly, but image quality may suffer in comparison with normal recording.
- When recording in extremely dark situations, we recommend that you use the optional VL-20 Battery Video Light.
- Autofocus may not always work well in LOW LIGHT mode.



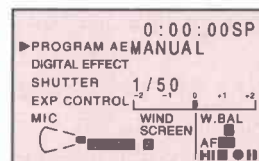
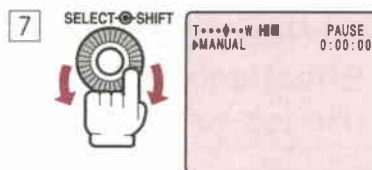
To Make Recordings with Your Own Settings

7

Set program AE to MANUAL.

- "MANUAL" is displayed in viewfinder and on LCD.

In MANUAL mode, the shutter speed and exposure control can be set as desired. For example, you can use this mode to adjust exposure compensation for artistic under- or overexposure (see p. 76).



MANUAL Mode

Freely combine shutter speed and exposure control for creative personalized recordings.

- ① **SELECT Dial**
- ② **Start/stop (START/STOP) Buttons**

1. **Set program AE to MANUAL.**
2. **While monitoring the subject in viewfinder, make following settings:**
 - Shutter speed (see p. 74)
 - Exposure (see p. 76)
3. **Press start/stop button to start recording.**

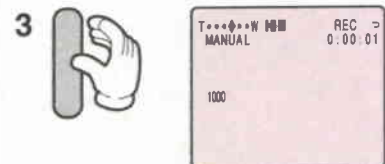
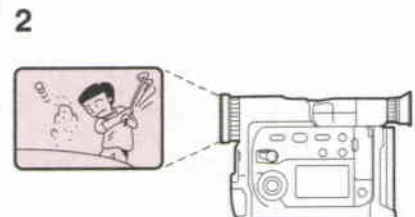
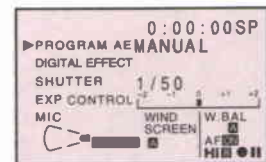
Notes:

- You can also set the white balance (see p. 81).
- Use record review or record search function to check your recordings.

Mode Memory

The following modes set in MANUAL mode are memorized even when the power is turned off.

- Shutter speed
- Exposure control
- White balance set
- Focus mode (Autofocus/Manual focus)



Digital Functions

Use the camera's digital functions to add special effects to recordings, to make them more interesting and enjoyable. A number of special effect functions are available: close-up, overlap, freeze, and art. Use these functions to liven up recordings.

Close-Up 1

This function increases the size of the selected image, effectively doubling the power of the zoom lens.

- When using this function, manual focusing is recommended.

1

2


Overlap 2

This function overlaps the final portion of the previous scene with the beginning of the next scene, so the picture fades gradually from one shot to another. The camera memorizes the final portion of the previous scene, then re-records it, gradually fading it out while replacing it with the image currently in the viewfinder.

Freeze 3

Use this function to record a subject as a still image.

- Press the D. EFFECT button repeatedly during recording to record the subject as a series of still images.

Art 4

Use this function to add artistic touches to pictures. This effect can be used to make a stronger impression of a specific image.

- Press the D. EFFECT button to record the image in the viewfinder with a “paint-like” effect.

3



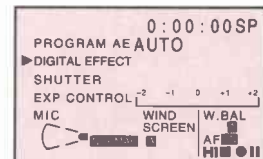
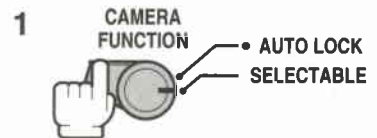
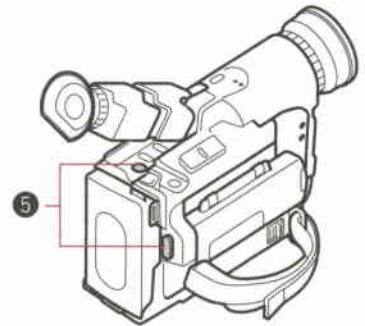
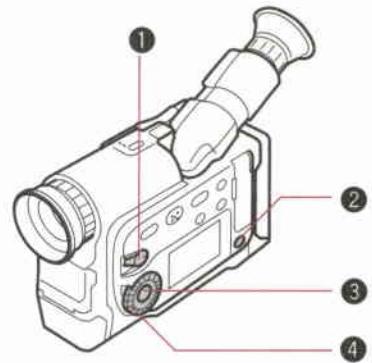
4



Digital Functions Procedure

- ① CAMERA FUNCTION Selector
- ② D. EFFECT ON/OFF Button
- ③ SHIFT Button
- ④ SELECT Dial
- ⑤ Start/stop (START/STOP) Buttons

1. Set CAMERA FUNCTION selector to **SELECTABLE**.
2. Press SHIFT button to align ► mark with **DIGITAL EFFECT** on LCD.



3. Turn SELECT dial to desired mode.

- Currently selected function flashes in viewfinder and on LCD.
- If the ► mark disappears while you are selecting a mode, press the SHIFT button once to display ► mark.

4. Press D. EFFECT button.

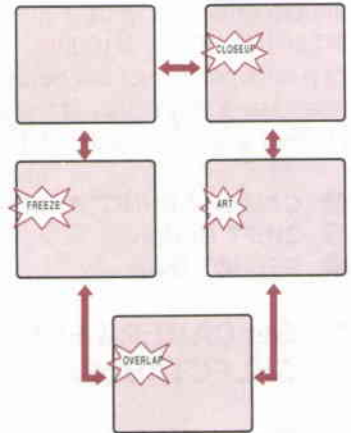
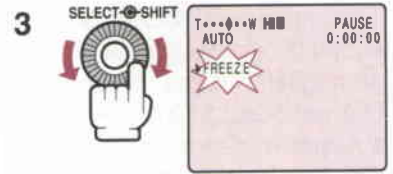
- Selected function display stops flashing.
- If the OVERLAP is selected, it begins operating after the first cut is recorded. Every time you resume recording the final portion of the previous scene will slowly fade out, to be replaced by the scene currently in the viewfinder.

5. Press start/stop button to begin recording.

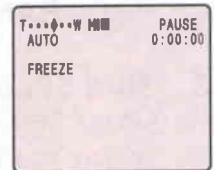
6. Press D. EFFECT button again to return to normal recording.

Notes:

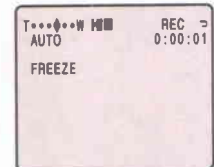
- When recording is finished, return the CAMERA FUNCTION selector to AUTO LOCK. The display in the viewfinder will disappear.
- During recording, digital function can be changed if the selected function display is flashing.
- The selected digital function is memorized even when CAMERA FUNCTION is set to AUTO LOCK or when the camera is turned off.
- If LOW LIGHT mode is selected in program AE, OVERLAP and CLOSEUP cannot be selected. Similarly, if the MANUAL mode is selected in program AE and any of the shutter speeds are slower than 1/25 sec., OVERLAP and CLOSEUP cannot be selected.



4 D.EFFECT ON/OFF



5



6 D.EFFECT ON/OFF



High-Speed/Slow Shutter (CAMERA Mode)

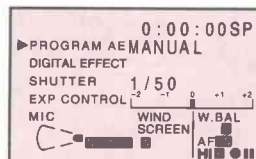
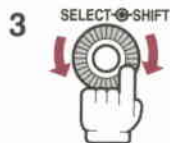
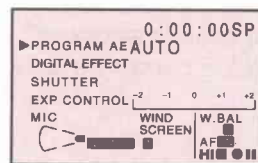
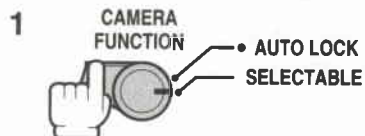
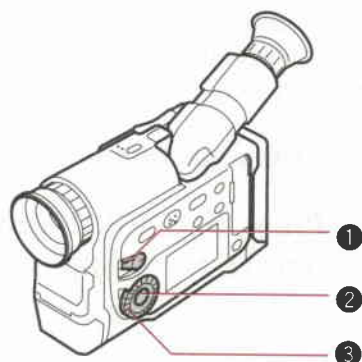
The high-speed shutter is useful for recording fast-moving subjects clearly, and for shooting sports. (When played back on a VCR with fine still and fine slow functions, little noise or blur will occur.) The slow shutter is useful for recording subjects in dark areas.

The camera has seven high-speed shutter and four slow shutter settings: 1/6th, 1/8th, 1/12th, 1/25th, 1/50th, 1/120th, 1/250th, 1/500th, 1/1000th, 1/2000th, 1/4000th and 1/10000th of a second. Select the correct shutter speed to suit the speed and brightness of the subject.

Normal shutter speed is from 1/50th to 1/250th of a second.

- ① CAMERA FUNCTION Selector
- ② SHIFT Button
- ③ SELECT Dial

1. Set CAMERA FUNCTION selector to **SELECTABLE**.
2. Press **SHIFT** button to align ► mark with **PROGRAM AE** on LCD.
3. Turn **SELECT** dial to **MANUAL** mode.
 - Press SHIFT button again if the ► mark disappears before you turn SELECT dial.



4. Press SHIFT button to align ► mark with SHUTTER on LCD.

5. Turn SELECT dial to desired shutter speed.

- Shutter speed display in viewfinder and on LCD changes as follows:
- Press SHIFT button again if the ► mark disappears before you turn SELECT dial.

1/6 ↔ 1/8 ↔ 1/12 ↔ 1/25 ↔ no display ↔ 1/120

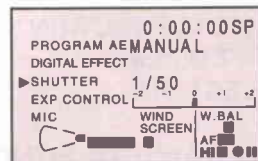
1/10000 ↔ 1/4000 ↔ 1/2000 ↔ 1/1000 ↔ 1/500 ↔ 1/250

6. Begin recording.

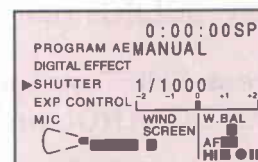
Notes:

- High shutter speeds require more light. For best results use them outdoors in bright places.
- Scenes shot with the high-speed shutter will appear somewhat jerky during normal playback and will shudder during still playback.
- When a bright object is shot with the high-speed shutter, a smear may occur.
- High-speed shutter settings are memorized even when camera is turned off.

4 SELECT-SHIFT



5 SELECT-SHIFT



6

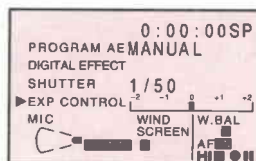
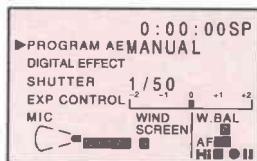
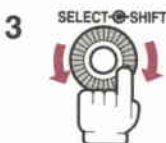
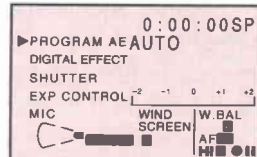
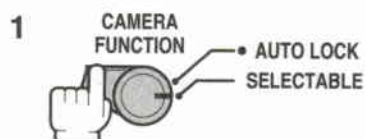


Exposure Control (CAMERA Mode)

When recording under conditions where sudden changes in lighting may occur, or when you wish to adjust the exposure to suit your own tastes or artistic purposes, use manual exposure control.

- ① CAMERA FUNCTION Selector
- ② SHIFT Button
- ③ SELECT Dial

1. Set CAMERA FUNCTION selector to **SELECTABLE**.
2. Press SHIFT button to align ► mark with **PROGRAM AE** on LCD.
3. Turn SELECT dial to **MANUAL** mode.
4. Press SHIFT button to align ► mark with **EXP CONTROL** on LCD.



5. Turn SELECT dial to desired exposure level.

- Exposure control display appears in viewfinder and on LCD.

-2.0 ↔ -1.75 ↔ -1.5 ↔ -1.25 ↔ -1.0 ↔ -0.75 ↔ -0.5 ↔ -0.25

no display (+0.0)

+2.0 → +1.75 → +1.5 → +1.25 → +1.0 → +0.75 → +0.5 → +0.25

- Press **SHIFT** button again if the ► mark disappears before you turn **SELECT** dial.

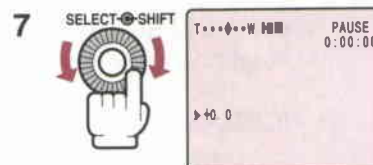
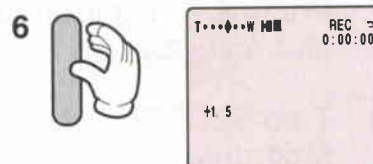
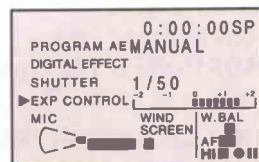
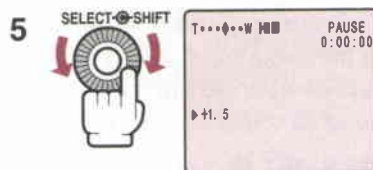
6. Make your recording.

7. To set the normal exposure, repeat steps 4 and 5.

- The viewfinder display “▶ +0.0” disappears about 10 seconds later.

Notes:

- In addition to changing the exposure control setting, the following methods can also be used to control backlighting.
 - Record closer to subject.
 - Use camera's zoom function to zoom in on subject.
- If the picture angle is changed while recording a backlit scene, the exposure level may become inappropriate. Be sure to decide on the picture angle before adjusting the exposure control.
- Exposure control setting is memorized even when the camera is turned off.



Selecting Microphone Angle (CAMERA Mode)

The camera uses a built-in MS (Mid-Side) type microphone to achieve superior stereo acoustic presence. It has four recording angle settings. Select the desired recording angle according to the recording situation.

- ① SHIFT Button
- ② SELECT Dial
- ③ Stereo Microphone
- ④ HEADPHONES Terminal

1. Place camera in record pause mode.
2. Press SHIFT button to align ► mark with MIC on LCD.
3. Turn SELECT dial to select the desired recording angle.
 - Press SHIFT button if the ► mark disappears before you turn SELECT dial.
 - Microphone angle display changes as follows:

► NORMAL ↔ ZOOM ↔ WIDE ↔ NARROW ◀

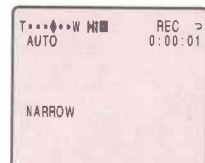
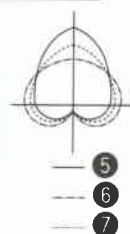
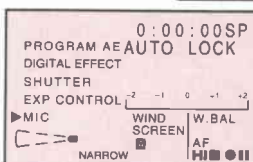
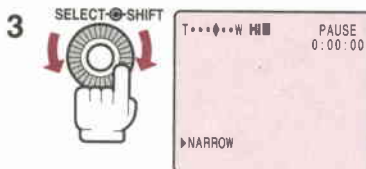
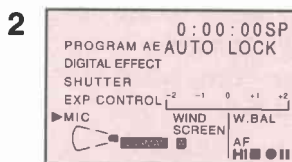
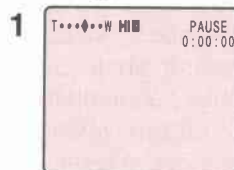
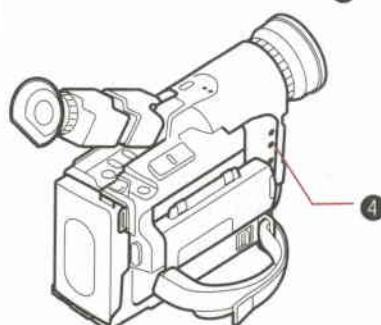
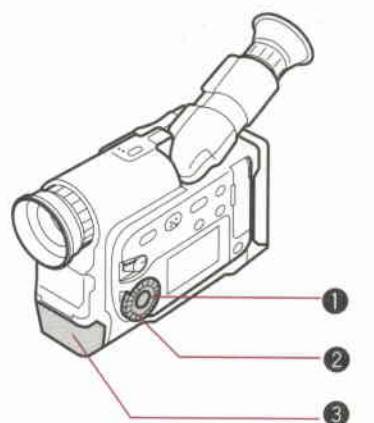
- ⑤ NARROW: For recording a narrow area around subject
 - ⑥ WIDE: For recording a wide area around subject
 - ZOOM: For automatic adjustment of recording angle (WIDE-NARROW) to zoom action (wide angle-telephoto)
 - ⑦ NORMAL: For standard recording
4. Press start/stop button.
 - To return to normal recording angle, repeat steps 1-4. The viewfinder display disappears about 10 seconds later.

Notes:

- These settings do not work for the external microphone.
- Microphone angle setting is memorized even when the camera is turned off.

Connecting Headphones

Connect commercially available stereo headphones to the HEADPHONES terminal to monitor the sound during recording and playback.



Wind Screen (CAMERA Mode)

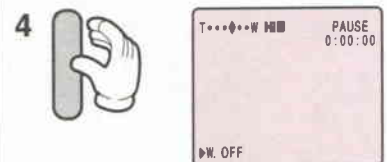
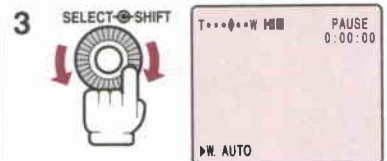
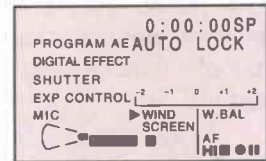
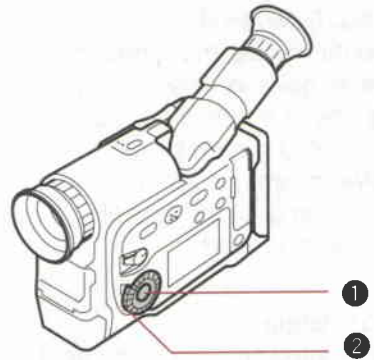
When recording outdoors, the wind noise may disrupt the sound you wish to record. The built-in wind screen function reduces the wind noise. You can choose between 3 wind screen modes: ON, OFF and AUTO. Select the mode that suits your recording needs.

- ① SHIFT Button
- ② SELECT Dial

1. Place camera in record pause mode.
2. Press SHIFT button to align ► mark with WIND SCREEN on LCD.
 - Press SHIFT button if the ► mark disappears before you turn SELECT dial.
 - The wind screen modes are displayed in the viewfinder in the following sequence:
3. Turn SELECT dial.
 - Press SHIFT button if the ► mark disappears before you turn SELECT dial.
 - The wind screen modes are displayed in the viewfinder in the following sequence:
4. Press start/stop button.
 - Recording begins.

Note:

- Select AUTO mode for normal recording (the display disappears from the viewfinder).



AUTO Mode 1

In this mode, the wind screen function begins automatically if wind noise is detected. The amount of reduction is adjusted to the strength of the wind noise. When the wind noise stops, the wind screen shuts off automatically.

We recommend that you use this mode for ordinary outdoor recording, or for recording indoors or outdoors with a lot of moving around.

ON Mode 2

The wind screen can be kept on in situations where wind noise is fairly constant.

Use this mode at the seaside, close to buildings, or in other situations where wind noise is likely to be strong.

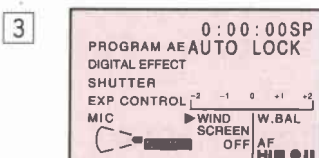
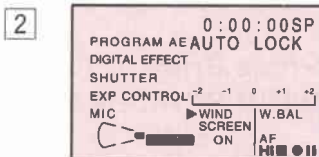
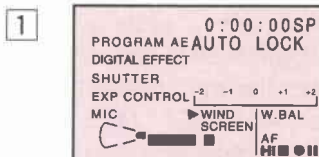
In ON mode, the wind screen function operates constantly.

OFF Mode 3

Use this mode in places where wind noise is slight or absent, and when you want to pick up low-volume sounds.

When the wind screen function is on, some low-volume sounds will be reduced, together with the wind noise. To pick up low-volume sounds, turn off the wind screen function.

Use this mode when you want to put in wind noise to heighten the sense of immediacy, or in places where wind noise will not be picked up.



White Balance (CAMERA Mode)

What is White Balance?

The human eye can perceive a white object as white, regardless of the lighting conditions. With video cameras, however, the colour temperature of the light source may cause the colour of the recorded picture to be different from the actual colour. White balance is the adjustment made, when recording, to obtain natural whites and colours under a variety of light sources. The camera has two systems for white balance adjustments: auto and set.

Explanation:

Colour temperature, measured in degrees Kelvin (K), indicates the relative redness or blueness of a light source and is not directly related to brightness. A light source with a red cast has a low colour temperature, whereas a bluish light source has a higher colour temperature.

Auto White Balance

The camera's auto white balance system divides the screen into 64 sections and individually evaluates them to achieve the optimum white balance. A natural colour balance is automatically set for sunlight and indoor lighting conditions.

Subjects Not Suitable for Auto White Balance

Auto white balance may not operate well in the following circumstances and white balance set will probably give better results:

- ① Subjects with one dominant colour, such as sky, sea or forest
- ② Close-ups
- ③ Rapidly changing lighting conditions
- ④ When recording under certain types of fluorescent or mercury vapor lights

Colour Temperature Chart

Adjustable White Balance Range	Bluish Cast	10,000 K 9,000 K 8,000 K 7,000 K 6,000 K 5,000 K	• Blue sky • Screen on TV screen • Cloudy sky • Sunlight
	White	4,000 K	• White fluorescent light • 2 hours after sunrise or before sunset • 1 hour after sunrise or before sunset • Electric halogen light • 30 minutes after sunrise or before sunset • White electric light bulb • Sunrise, sunset • Candlelight
		3,000 K	
	Reddish Cast	2,000 K 1,500 K	

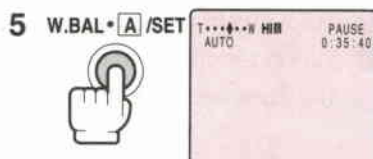
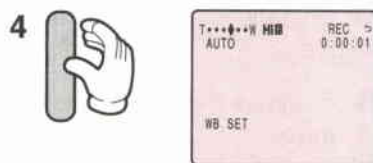
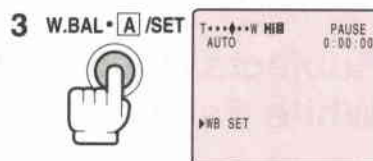
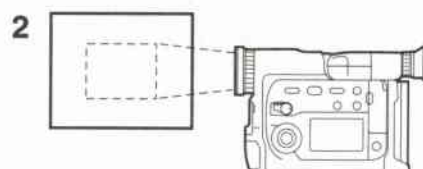
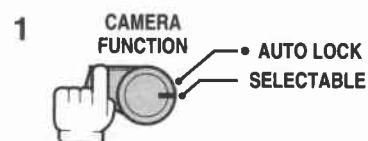
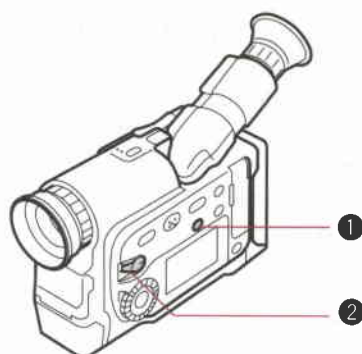


White Balance Set

Use the white balance set when shooting subjects not suitable for auto white balance and in cases where a precise colour balance cannot be achieved with auto white balance.

- ① W. BAL•A/SET Button
- ② CAMERA FUNCTION Selector

1. **Set CAMERA FUNCTION selector to SELECTABLE.**
2. **Point camera lens at a white object (paper or cloth) so it completely fills viewfinder.**
 - Set zoom to telephoto end (see p. 32).
 - Focusing is not necessary.
3. **Press W. BAL button.**
 - "WB SET" flashes in viewfinder, then appears steadily.
4. **Begin recording.**
5. **Press W. BAL button again to reset auto white balance.**
 - "WB SET" disappears from viewfinder.



Notes:

- You can use the white balance set to obtain more natural colouring even under normal conditions.
- Use the white balance set in well lit places. If lighting conditions change, reset the white balance.
- White balance set may not operate for certain light sources in which case "WB SET" continues flashing in viewfinder. In this case, use auto white balance.
- White balance settings are memorized even when camera is turned off.

Focusing (CAMERA Mode)

The camera has two focus modes: autofocus and manual focus. Each time the AF ON/OFF button is pressed, the selected mode changes, as shown below.

Camera ON → Autofocus → Manual Focus

- ① Focusing Ring
- ② AF ON/OFF Button

Autofocus ①

Autofocus mode is automatically selected when the camera is turned on and the CAMERA FUNCTION selector is set to AUTO LOCK.

In autofocus mode, the subject(s) in the center of the viewfinder will be in sharp focus. The camera is equipped with an internal-focus lens which provides an autofocus range from infinity to very close.

Subjects can be approached to a distance of:

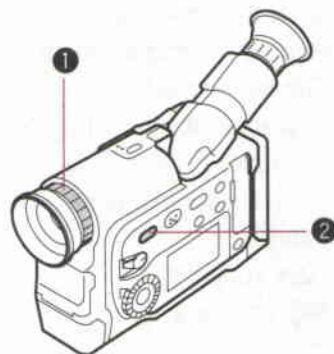
- 1 cm at the wide-angle end
- 80 cm at the telephoto end

Note:

- Focus mode is automatically memorized when CAMERA FUNCTION selector is on SELECTABLE setting. Camera will return to same focus mode when CAMERA FUNCTION selector is set back to SELECTABLE.

Changing the Focus Set by Autofocus ②

In autofocus mode the camera focuses on the subject with the highest contrast. If several high contrast subjects are in the center of the viewfinder, only one of them may be in focus. To focus on other subjects, rotate focusing ring to adjust the focus. During this time, autofocus stops operating temporarily but resumes operation when focusing ring is released. This may also be done in cases where the subject is a continuous line and you wish to focus on a particular spot.

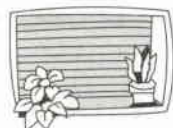


Subjects Not Suitable for Autofocus 3

Autofocus may not work well in the following instances, and manual focus will probably give you better results:

- ① Shiny subjects or subjects that reflect light
- ② Horizontally striped subjects
- ③ More than one subject in viewfinder/different distances
- ④ Rapidly moving subjects
- ⑤ Slanted subjects
- ⑥ Subjects with little or no contrast (a white wall, for example)
- ⑦ Subjects behind glass (windows with water or dirt on them)
- ⑧ Dark subjects
- ⑨ Night scenes

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Manual Focus 4

Manual focus is used for recording subjects not suitable for autofocus.

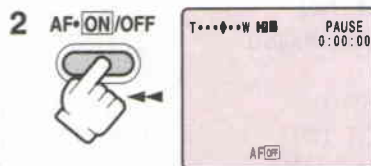
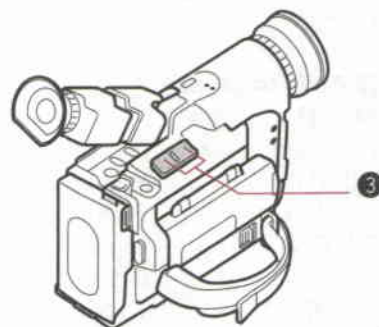
- ① Focusing Ring
- ② AF ON/OFF Button
- ③ Power Zoom Buttons

1. **Press power zoom buttons to obtain the desired picture angle.**
 - Using the zoom after having used the manual focus may cause the picture to become out of focus.
 - Therefore, zoom first, then focus.
 - For zooming, see page 32.
2. **Press AF ON/OFF button.**
 - “AF OFF” appears in viewfinder.
 - Subjects which were in focus remain locked in focus.
3. **Rotate focusing ring to focus on subject to be recorded.**
4. **Press AF ON/OFF button to cancel manual focusing.**
 - “AF OFF” disappears from viewfinder and autofocus resumes.

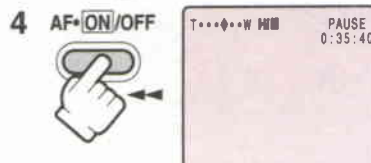
Note:

- When CAMERA FUNCTION selector is switched from SELECTABLE to AUTO LOCK, camera automatically returns to autofocus mode.

④



③



Menu System

This menu system provides you with a wide variety of functions.

The buttons on the surface of the camera handle only frequently used basic functions. Advanced functions are selected from menus which appear in the viewfinder and are controlled by the MENU button.

There is one menu in CAMERA mode and one menu in PLAY mode.

- ① **MENU Button**
- ② **SHIFT Button**
- ③ **SELECT Dial**

The functions below can be controlled from the various menus.

[CAMERA Mode] ①

MENU

(Display)	(Function)
SELF	Self-timer(p. 88)
FADE-T	Fade trigger(p. 89)
DT TINT	Digital title see-through display (p. 94)
DT S/W	Digital title scroll/wipe display (p. 94)
SP/LP	Tape speed (p. 91)
TALLY	Tally lamp on/off (p. 92)
SENSOR	Remote sensor on/off (p. 93)
SUMMER	Summer time (p. 63)

[PLAY Mode] ②

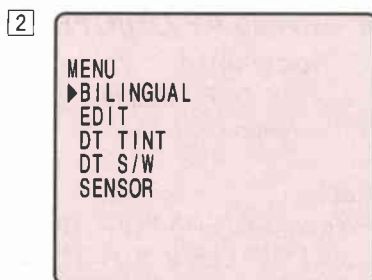
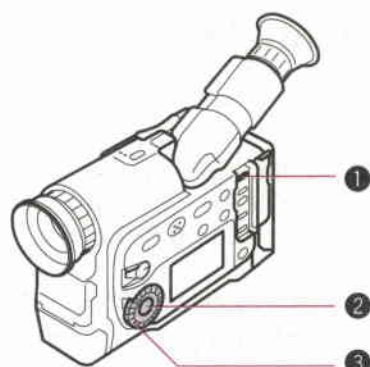
MENU

BILINGUAL	Selecting bilingual sound track mode (p. 113)
EDIT	Edit on/off (p. 110)
DT TINT	Digital title see-through display (p. 94)
DT S/W	Digital title scroll/wipe display (p. 94)
SENSOR	Remote sensor on/off (p. 93)

- The remote sensor on/off function can be controlled either from CAMERA mode or from PLAY mode.

Use the MENU button to display the desired function. Then use the SHIFT button to align the arrow with the function. Turning the SELECT dial allows a function setting to be changed or a function to be operated.

For further details, refer to the explanations of the various functions.



Initializing the Menu Displays

The following procedure allows all menu functions to be reset to their original settings.

Date, time and stored digital titles, which are not displayed on the menus, will not be affected by the following operation.

- ① **MENU Button**
- ② **C. RESET Button**

1. **Press MENU button once.**
 - MENU is displayed in viewfinder.
2. **Press C. RESET button for more than half a second.**
 - When in CAMERA mode, only CAMERA menu functions; and when in PLAY mode, only PLAY menu functions will be reset to their original settings.

Refer to pages 88 -105 to set the necessary menu functions.

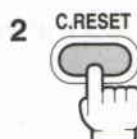
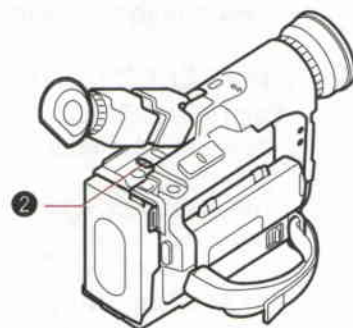
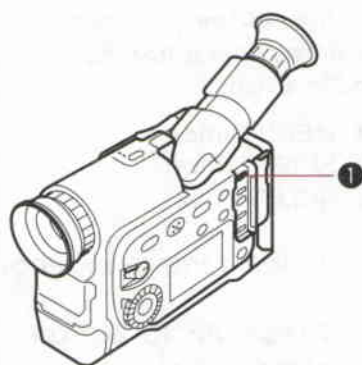
Saving the Camera's Settings

Due to the built-in lithium battery, the following settings are saved even when the power is turned off:

- | | |
|---------------------|---|
| • Date and time | • Digital titles |
| • Tape counter | • Character title |
| • Tally on/off | • Digital title see-through, shadow and scroll/wipe modes |
| • Sensor on/off | • Wind screen mode |
| • Fade trigger mode | • Digital effect mode |
| • Microphone angle | • Tape speed mode |
| • Program AE mode | |

The following settings are cancelled if the camera is turned off or if the MODE SELECT button is pressed:

- | | |
|---------------------|------------------------------|
| • MENU display | • ► mark |
| • Digital effect on | • Fade trigger standby |
| • Edit-erase mark | • Bilingual sound track mode |
| • Self-timer | • Edit mode |



Self-Timer Recording (CAMERA Mode)

Set the self-timer and camera will automatically start recording after a 10-second standby period, letting you get in on the action.

- ① MENU Button
- ② SHIFT Button
- ③ SELECT Dial

1. Place camera in record pause mode.

2. Press MENU button.

- Menu is displayed in viewfinder.
- Make sure the arrow is aligned with SELF.

3. Turn SELECT dial to select self-timer mode.

- Each time SELECT dial is turned, timer mode display in viewfinder changes as follows:

no display ↔ SELF ↔ SELF 30

SELF: After 10 second's standby, recording begins and continues.

SELF30: After 10 second's standby, recording begins and then pauses 30 seconds later.

4. Press MENU button.

- Menu disappears from viewfinder.

5. Press start/stop button.

- Countdown goes from 10 to 1 at about one-second intervals, then recording begins. In the case of SELF, press start/stop button to stop recording.

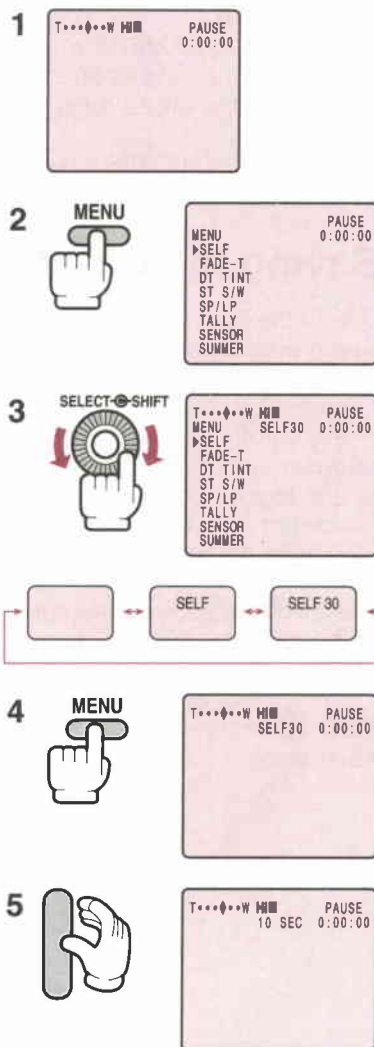
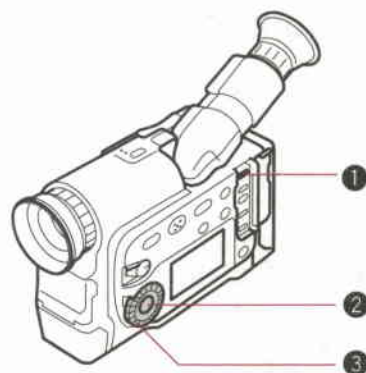
SELF: Timer is displayed.

SELF30: Countdown from 30 to 1 is displayed.

- During recording standby, tally lamp flashes slowly and begins to flash rapidly when recording begins.

Notes:

- Self-timer mode can be cancelled (before or after recording begins) by pressing start/stop button.
- The self-timer will cancel automatically after it has operated once.



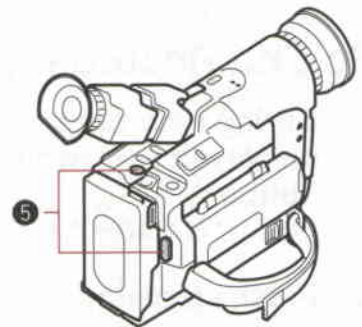
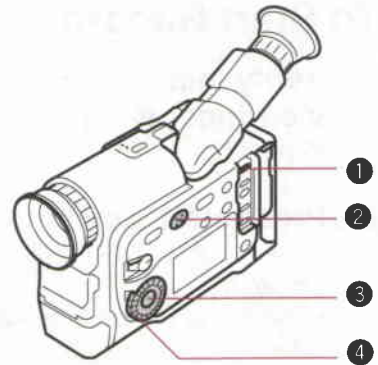
Fade Trigger (CAMERA Mode)

The fade trigger lets you begin and end recording with smooth fades.

- ① MENU Button
- ② FADE Button
- ③ SHIFT Button
- ④ SELECT Dial
- ⑤ Start/stop (START/STOP) Buttons

Selecting Fade Trigger Mode ①

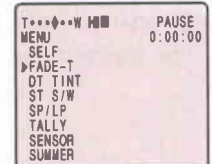
1. Press MENU button.
 - Menu is displayed in viewfinder.
2. Press SHIFT button to align ► mark with FADE-T.
3. Turn SELECT dial.
 - "FADE-T" appears in viewfinder.
4. Press MENU button.
 - Menu disappears from viewfinder.



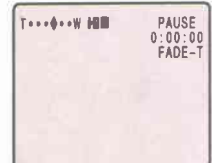
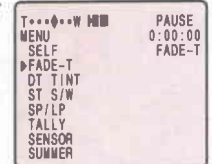
①



2 SELECT-◀SHIFT



3 SELECT-◀SHIFT



To Start Recording with Fade In 2

1. Verify that “FADE-T” is displayed in viewfinder and press FADE button.

- The “T” of “FADE-T” flashes.

2. Press start/stop button.

- The “T” of “FADE-T” stops flashing and appears steadily.
- The image in viewfinder disappears immediately. Recording begins about 0.2 seconds later and scene fades in.

To End Recording with Fade Out 3

1. During recording, verify that “FADE-T” is displayed in viewfinder and press FADE button.

- The “T” of “FADE-T” flashes.

2. Press start/stop button to place camera in record pause mode.

- The image in viewfinder fades out. Camera goes into record pause mode about 5 seconds later.
- The “T” of “FADE-T” stops flashing and appears steadily.

To cancel fade trigger mode, repeat steps 1–4 of “Selecting Fade Trigger Mode”, turning the SELECT dial (step 3) so that “FADE-T” disappears from viewfinder.

Note:

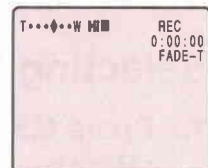
- Even if you turn the camera off or change to PLAY mode, this function will not be cancelled.

2

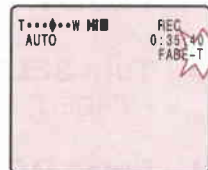
1



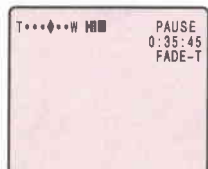
2


3

1



2



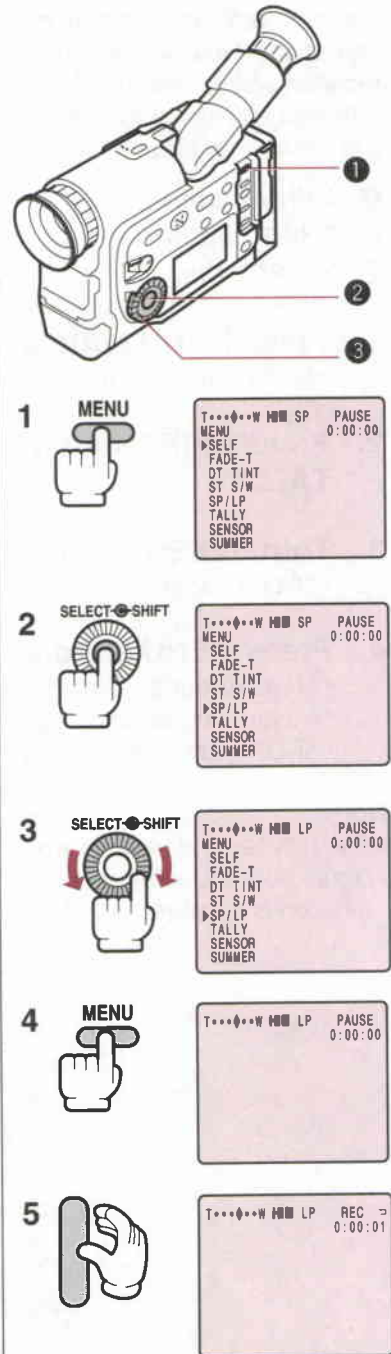
Selecting Tape Speed (CAMERA Mode)

The camera has two recording speeds for normal or double recording time. For normal recording time and best picture quality, select SP (Standard Play). For double recording time, select LP (Long Play). During playback, the camera automatically selects the tape speed.

- ① MENU Button
- ② SHIFT Button
- ③ SELECT Dial

1. **Press MENU button.**
 - MENU is displayed in viewfinder.
2. **Press SHIFT button to align ► mark with SP/LP.**
3. **Turn SELECT dial.**
 - Each time SELECT dial is turned, tape speed display in viewfinder changes to LP or SP.
4. **Press MENU button.**
 - Menu disappears from viewfinder.
5. **Press start/stop button to start recording.**

To change tape speed, repeat steps 1-4.



Tally Lamp off Function (CAMERA Mode)

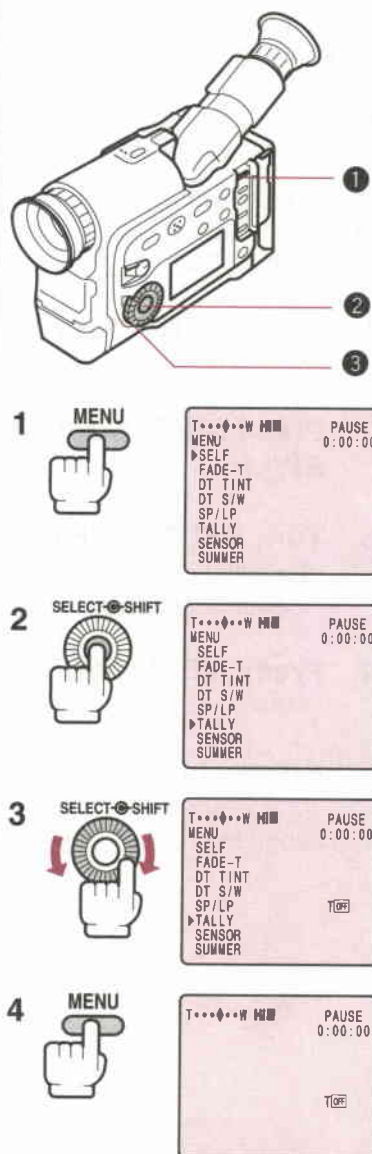
The tally lamp informs both operator and subject of camera operations. However, when recording through glass or recording close-ups, the flashing of the tally lamp may be reflected in glass or from the close-up subject. In such cases, it is possible to turn off the tally lamp.

- ① MENU Button
- ② SHIFT Button
- ③ SELECT Dial

1. **Press MENU button.**
 - Menu is displayed in viewfinder.
2. **Press SHIFT button to align ► mark with TALLY.**
3. **Turn SELECT dial.**
 - "T OFF" appears in viewfinder.
4. **Press MENU button.**
 - Menu disappears from viewfinder.
 - To turn tally lamp on again, repeat steps 1-3 and "T OFF" disappears from the viewfinder.

Note:

- The tally lamp also lights when the remote sensor receives a signal from the wireless controller, even if the tally off function is selected.



Remote Sensor off Function (CAMERA Mode)

While you are using your camera, wireless controllers from other Canon video cameras being used nearby may affect your camera. In such cases, it is possible to turn the remote sensor off.

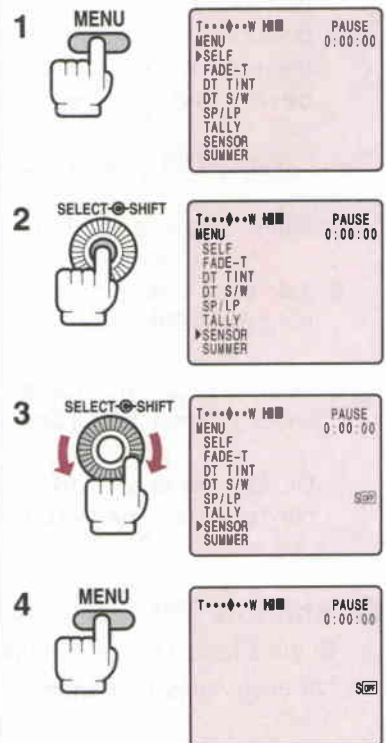
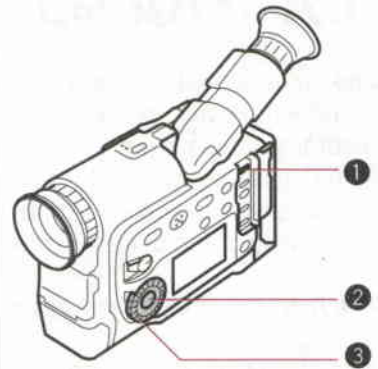
This function can be selected either from CAMERA mode MENU or PLAY mode MENU.

- ① MENU Button
- ② SHIFT Button
- ③ SELECT Dial

1. **Press MENU button.**
 - Menu appears in viewfinder.
2. **Press SHIFT button to align ► mark with SENSOR.**
3. **Turn SELECT dial.**
 - "S OFF" appears in viewfinder.
4. **Press MENU button.**
 - Menu disappears from viewfinder.
 - To turn remote sensor on again, repeat steps 1-3 and "S OFF" disappears from viewfinder.

Note:

- Remote sensor off setting is memorized even when camera is turned off.



Adding Digital Titles to Recordings (CAMERA Mode)

The camera enables previously stored lettering, handwriting and illustrations to be superimposed on scenes during recording. Two pages (2 full screens) of digital titles can be stored in the memory. The two digital titles can have different colours and shading and appear transparent. These titles can be combined and used in various ways.

The features of the digital titling function are as follows:

1. Two titles can be stored (see page 96)
2. For each title, a colour can be selected from among 8 colours. Also, the background of the title can be coloured in and the title and background can thus be reversed. (see page 98)
3. Titles can be given a shadow effect. (see page 98)
4. Titles can be made transparent. (see page 99)
5. Two titles can be displayed in up to four different ways. (see page 96)
6. The titles can be introduced and removed in 3 different ways: Normal, Scroll and Wipe. (see page 100)
7. Digital titles can be added during recording and playback. (see page 102, 106)

1 Shadow

In the shadow mode, the title can be given a three-dimensional appearance.

2 See-through

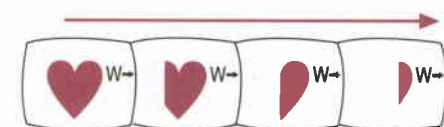
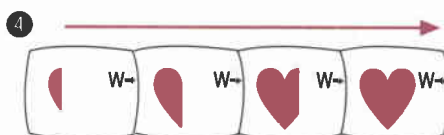
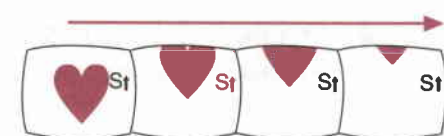
In the see-through mode, the background can be seen through the title.

3 Scroll

In scroll mode, the title flows on and off the screen.

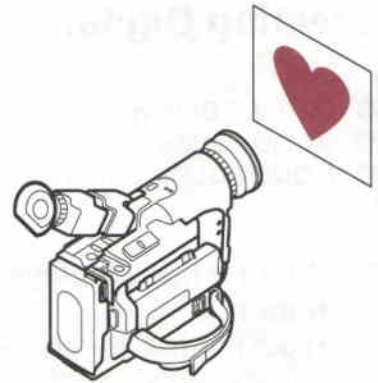
4 Wipe

In wipe mode, the title is introduced and removed as though turning a page.



Making effective titles

- Titles written on white paper with thick black pen can be stored without any problem.
- Clearly visible illustrations, letters, print and signs can also be used as titles. You can also use titles taken from magazines.
- The camera can also create a title from the playback picture, as long as it provides a clear enough image.
- Thin or complicated lines, small letters or illustrations, and light-coloured titles will be difficult for the camera to memorize.



Creating Digital Titles 1

- ① D. TITLE Button
- ② MEMO Button
- ③ MODE/COLOR Button

1. With no title displayed, press **MODE/COLOR** button.

- Each time button is pressed, title memory/display mode shown in viewfinder changes as follows.

→ T1 → T2 → T1+2 → T1×2 → no display

T1: Title can be stored in memory 1.

T2: Title can be stored in memory 2.

T1+2, T1×2: Used only for title display.

Select T1 or T2.

2. Point camera at image to be stored and press **MEMO** button.

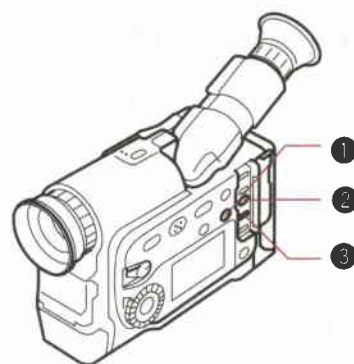
- The title is stored, and displayed on screen.
- If the title cannot be stored clearly, see page 97.

3. Press **D. TITLE** button.

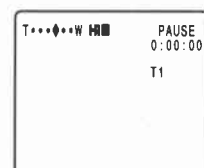
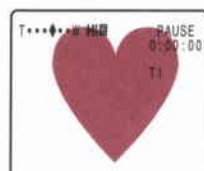
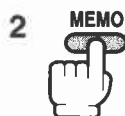
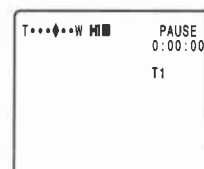
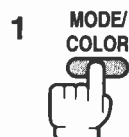
- The stored title disappears from screen.
- Pressing D. TITLE button again recalls stored title.

Notes:

- Titles can be created:
 1. during record pause mode
 2. during CAMERA mode, when a video cassette is not loaded
 3. during playback
- When a new title is stored, the previously stored title is erased.
- A digital title will be stored until it is replaced by a new one.



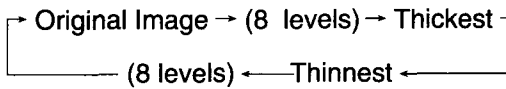
1



Adjusting Image Density 2

Camera may have difficulty memorizing images with thin lines or weak contrast. In this case, press and hold MEMO button for more than three seconds to adjust image density (16 levels).

Levels change as follows:



While monitoring the screen, release MEMO button when the level has reached a suitable point. The title will be stored.

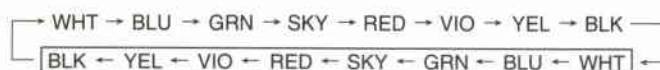


Changing Colour/Reversing 3

Titles can be created in 8 colours, and title and background can be reversed.

1. While title is displayed on screen, press **MODE/COLOR** button to select desired colour.

- Each time button is pressed, title colour display in viewfinder changes as follows:



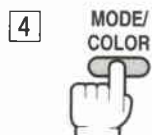
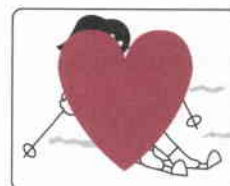
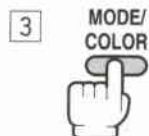
- The enclosed section indicates reversed colours.

Adding Shadow 4

In the shadow mode, the title can be given a three-dimensional appearance.

1. While title is displayed on screen, press and hold **MODE/COLOR** button.

- The title colour will change briefly and then revert to the original colour, this time in shadow mode.
- To cancel shadow mode, press and hold **MODE/COLOR** button again for three seconds or more.



See-through 5

1. While title is displayed on screen, press **MENU** button.

- Menu is displayed in viewfinder.

2. Use **SHIFT** button to align ► mark with **DT TINT**.

3. Turn **SELECT** dial.

- Title appears in see-through colour.
- T is added to the title colour display in viewfinder.

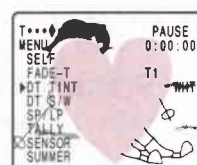
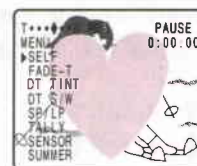
4. Press **MENU** button.

- Menu disappears from viewfinder.
- To cancel see-through mode, repeat steps 1-4 and T disappears from title colour display in viewfinder.

Note:

- Colour, reverse colour, shadow and see-through effects can not be set when T1+2 or T1X2 are displayed.

5



Scroll/Wipe Display 6

In scroll mode the title flows over the screen. In wipe mode the title is displayed as though turning a page.

- 1 Scroll in
- 2 Scroll out
- 3 Wipe in
- 4 Wipe out

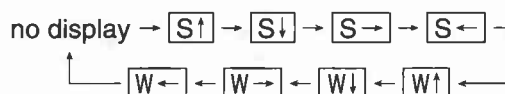
1. Press MENU button.

- Menu is displayed in viewfinder.

2. Use SHIFT button to align the ► mark with DT S/W.

3. Turn SELECT dial.

- Each time dial is turned, S or W appears with an arrow in viewfinder in the following order:



- S means scroll and W means wipe. Arrows indicate direction of scrolling or wiping.

4. Press MENU button.

- Menu disappears from viewfinder.
- To cancel scroll/wipe mode, repeat steps 1 – 4 and S or W disappears from the viewfinder.

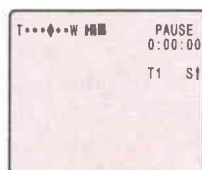
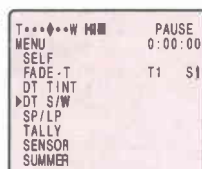
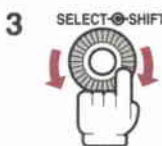
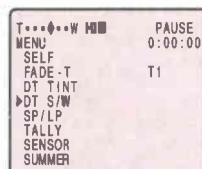
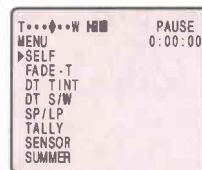
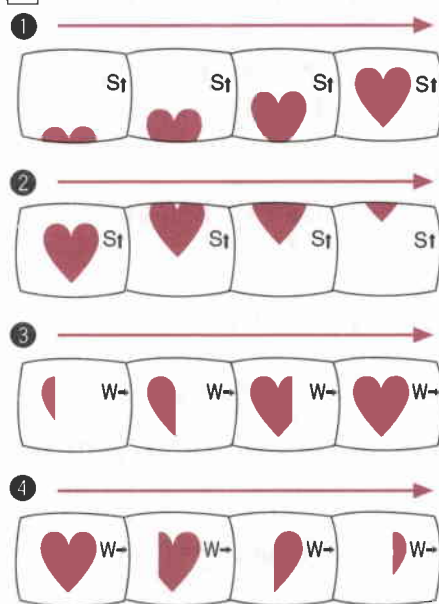
Scroll/wipe of digital title

- When no title is displayed in the viewfinder and the D. TITLE button is pressed, the title appears in the viewfinder with a scroll or wipe effect (scroll-in, wipe-in).
- When a title is displayed in the viewfinder and the D. TITLE button is pressed, the title disappears from the viewfinder with a scroll or wipe effect (scroll-out, wipe-out).

Note:

- Colour/reverse colour, shadow, see-through and scroll/wipe display can be set in CAMERA mode or PLAY mode.

6



Animated Title 7

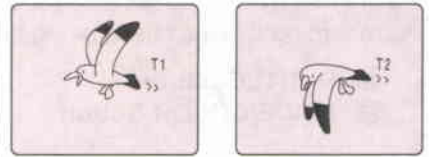
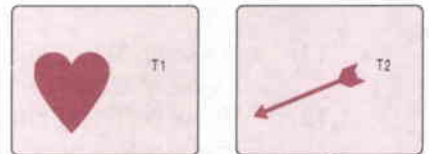
When you select T1x2 (p. 96), by alternately displaying the first and second title pages, a simple two-frame animation effect can be achieved. When combined with the scroll or wipe mode, even more interesting titles can be created.

Simultaneous Display 8

When you select T1+2 (p. 96), the two title pages can be displayed simultaneously.

Note:

- If one page is set for normal display, and the other for the see-through effect, the titles will be displayed normally. When using see-through mode for two pages of titles, select this mode for both pages.

78

Recording Digital Titles (CAMERA Mode)

Titles can be displayed one at a time, two simultaneously, or alternately. It is possible to record the title with the scene by recording while a title is being displayed.

- ① D. TITLE Button
- ② MODE/COLOR Button

Selecting a Title for Recording ①

1. When no title is displayed, press MODE/COLOR button.

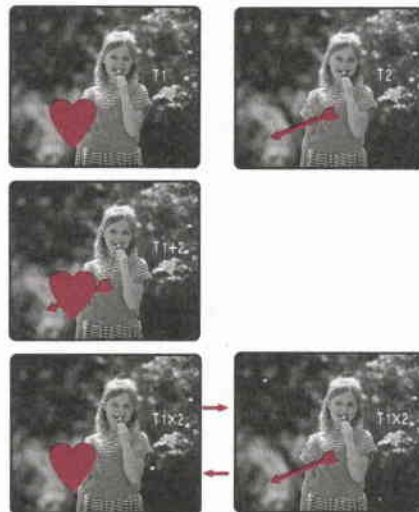
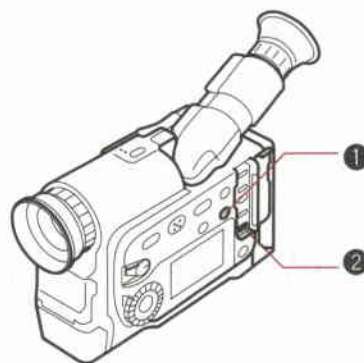
- Each time button is pressed, the title memory/display mode display in viewfinder will change as follows.

→ T1 → T2 → T1+2 → T1X2 → no display

- T1:** Press D. TITLE button to display title stored in memory 1.
- T2:** Press D. TITLE button to display title stored in memory 2.
- T1+2:** Press D. TITLE button to display titles stored in memory 1 and 2 together. When portions of the two titles overlap, T1 title is displayed.
- T1X2:** Press D. TITLE button to display titles in memory 1 and 2 alternately.

2. Press D. TITLE button.

- The selected title will be displayed.
- Press button again to make the title disappear from the viewfinder.

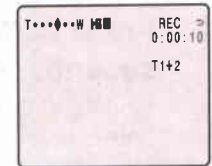
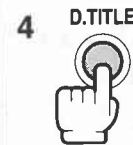
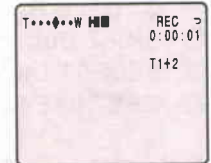
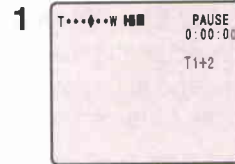


Recording Title 2

1. **Select desired title before starting to record.**
2. **Press start/stop button.**
 - Recording begins.
3. **Press D. TITLE button.**
 - The selected title mode is displayed and title is superimposed and recorded.
4. **To make the title disappear from the viewfinder, press D. TITLE button once more.**

Note:

- The title can be included from the very beginning of the recording by pressing the D. TITLE button before the start/stop button is pressed.

2

Adding Character Titles to Recordings (CAMERA Mode)

In addition to the digital title function, this camera also includes a character title function. You can create and store character titles and superimpose them on your recordings, together with the date and/or time.

- ① **MODE SELECT Button**
- ② **C. TITLE Button**
- ③ **SHIFT Button**
- ④ **SELECT Dial**
- ⑤ **OPERATE Button**

Creating Character Titles ①

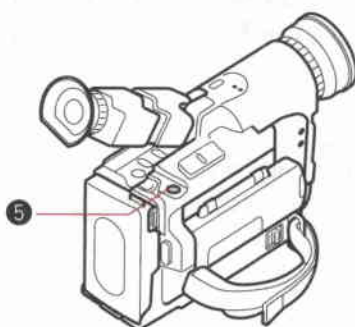
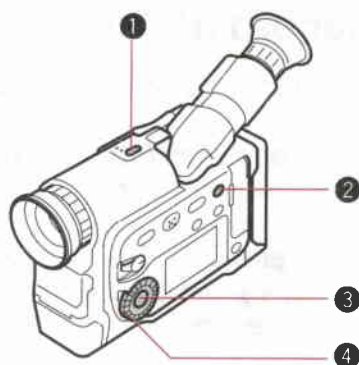
Remember to create title before you start recording. Titles may be one or two lines of up to 16 characters each.

1. **Turn camera on.**
 - CAMERA indicator (red) lights up.
2. **Press C. TITLE button for more than three seconds to display title lines in viewfinder.**
 - Flashing dot or character indicates that cursor is present.
3. **Press SHIFT button to move cursor to point where you want title to start.**
 - Press once to move cursor one space right.
 - Press and hold to move cursor continuously.
 - Cursor does not move backwards.
4. **Use SELECT dial to scan list of title characters.**
 - Turn clockwise to scan forward through list.
 - Turn anticlockwise to scan list in reverse order.
 - Turn clockwise one click at time to scan characters one at a time.

Title Characters List

→ □ A B C D E F G • • • Y Z Ä Ö Ü Ø Å Æ Ñ Ç È □
→ & * ! ? ; : " ' - / . , 9 8 7 6 5 4 3 2 1 0 ←

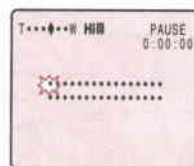
- If you select □, a flashing dot appears in viewfinder, but a space will appear during actual recording and playback.
- When scanning list of title characters, turn SELECT dial slowly.



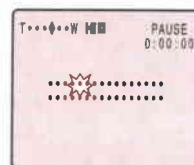
①



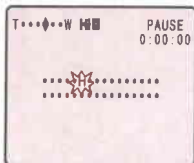
② C.TITLE



③ SELECT-⊕-SHIFT



④ SELECT-⊕-SHIFT



5. When desired character is displayed, press **SHIFT** button again to move cursor to next position.
6. Repeat steps 4 and 5 until title is complete.
7. When title is finished, press **C. TITLE** button.
 - Title is saved in camera's memory.
 - Press **C. TITLE** button again to make title disappear from viewfinder.

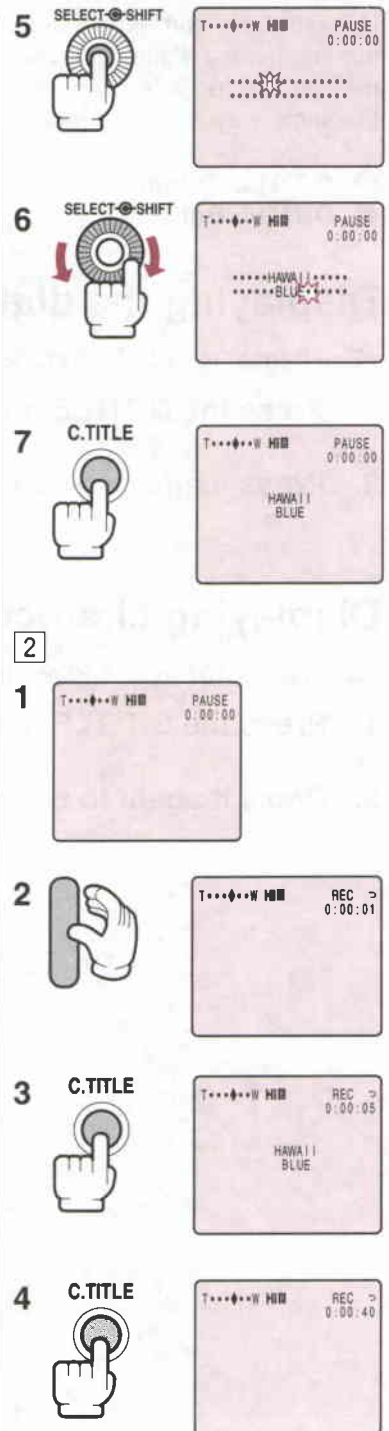
Note:

- Character titles cannot be created during recording, when setting the date or time or when a menu is being displayed.

Recording Character Titles 2

1. Create character title before starting to record.
2. Press start/stop button to start recording.
 - Make sure the character title is correct before you start recording.
3. Press **C. TITLE** button.
 - Title appears in viewfinder, and will be recorded with scene.
 - Reverse steps 2 and 3 if you want title to appear right at the beginning of recording.
4. Press **C. TITLE** button again to end title recording.
 - Character title disappears from viewfinder and recording continues.

See page 106: Adding Titles to Playback.



Adding Titles to Playback (PLAY Mode)

Using the camcorder as a playback VCR, you can superimpose a digital title and a character title on the playback picture. You can also combine and display titles in the same way as during recording.

- ① C.TITLE Button
- ② D.TITLE Button

Displaying the digital titles ①

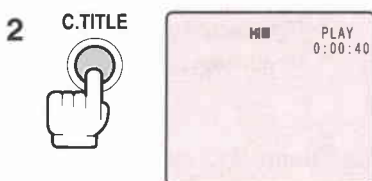
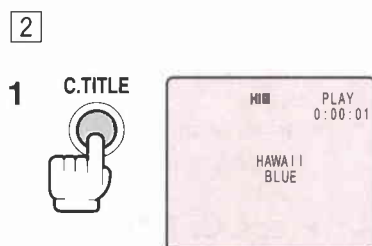
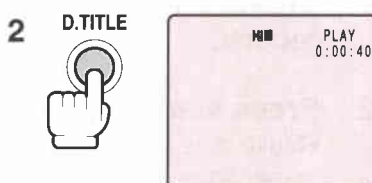
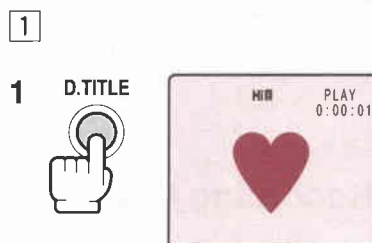
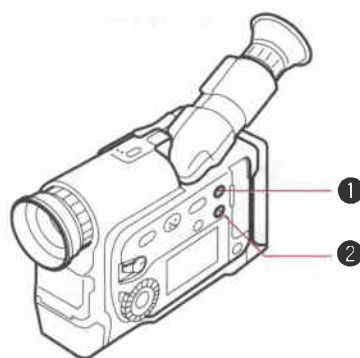
• See pages 94-101: Adding Digital Titles to Recordings.

1. Press the D.TITLE button once.
2. Press it again to cancel the display.

Displaying character titles ②

• See pages 104-105: Adding Character Titles to Recordings.

1. Press the C.TITLE button once.
2. Press it again to cancel the display.



Special Playback Methods (PLAY Mode)

In addition to normal playback, the camera also has fast forward, rewind and still playback. Playback is controlled by the buttons on the camera or the wireless controller.

- ① REW/⏮ (Rewind) Button
- ② PLAY ▶ Button
- ③ FF/⏭ (Fast Forward) Button
- ④ PAUSE ⏸ Button
- ⑤ ⏭ (Fast Forward) Button
- ⑥ ▶ (Play) Button
- ⑦ ⏮ (Rewind) Button

Fast Forward Playback ①

Press and hold FF/⏭ (Fast Forward) button during normal playback to view scenes at about 7 times (SP mode) normal speed.

- Release button to resume normal playback.

Rewind Playback ②

Press and hold REW/⏮ (Rewind) button during playback to view scenes in reverse at 5 times (SP mode) normal speed.

- Release button to resume normal playback.

Still Playback ③

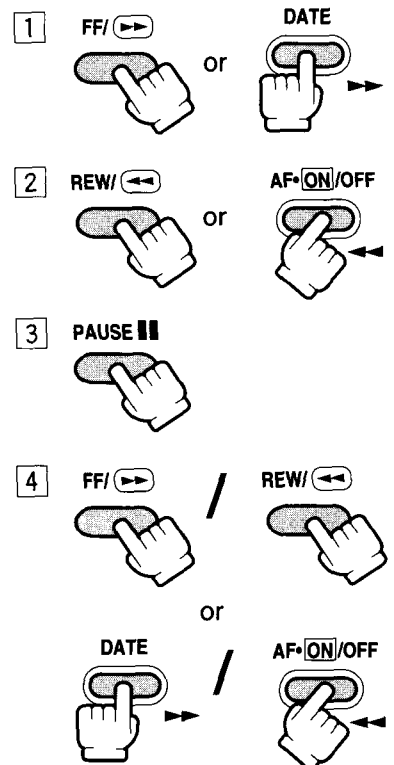
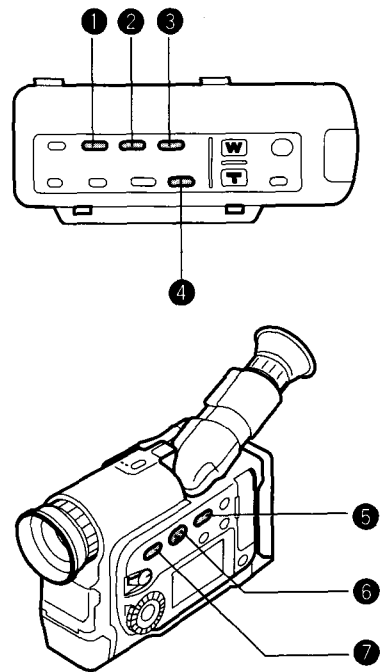
Press PAUSE ⏸ button on wireless controller during playback to pause playback. Press PAUSE ⏸ button once again, or press PLAY ▶ button, to resume normal playback.

- Camera's start/stop button can also be used to pause playback.

High-Speed Search ④

The high-speed search function plays back recorded scenes at about 11 times (SP mode) and 22 times (LP mode) the normal speed.

- Press and hold FF/⏭ (Fast Forward) button, during fast forward mode, for high-speed search in the forward direction.
Release FF/⏭ (Fast Forward) button to return to fast forward mode.
- Press and hold REW/⏮ (Rewind) button, during rewind mode, for high-speed search in reverse.
Release REW/⏮ (Rewind) button to return to rewind mode.



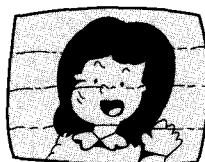
Notes:

- Several noise bars appear during special playback.

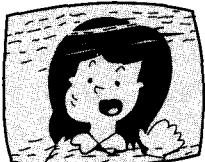
- ① **During fast forward and rewind playback modes**
- ② **During still playback**

- Audio portion of tape cannot be heard during special playback.
- Picture flickers during still playback.
- The camera automatically goes into stop mode after about 5 minutes of continuous still playback.
- When fast action scenes are shown in still playback, the picture may blur.
- Certain TVs may show the special playback picture in black and white, or picture may roll or divide.
- Notes about special playback of tapes recorded in SP:
 - (1) The still playback picture will contain much more noise than for a tape recorded in LP.
 - (2) During fast forward or rewind playback, noise bar will be much wider than for a tape recorded in LP.

①



②



Tape Return (PLAY Mode)

The tape return function allows you to quickly return to a desired scene.

The camera does not have a TAPE RETURN button. Use the WL-2 Wireless Controller to operate tape return.

- ① **TAPE RETURN Button**
- ② **PLAY ► Button**
- ③ **PLAY MODE/STOP ■ Button**
- ④ **C. RESET Button**

1. **During playback, press the C. RESET (counter reset) button if you come across a scene you wish to watch again later.**

- The tape counter is reset to "0:00:00".

2. **Press PLAY MODE/STOP ■ button when playback finishes.**

3. **Press TAPE RETURN button.**

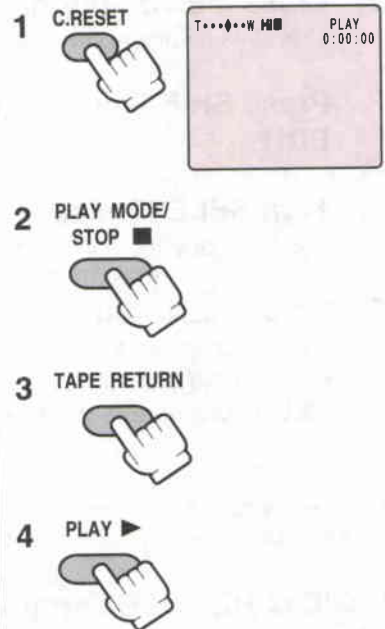
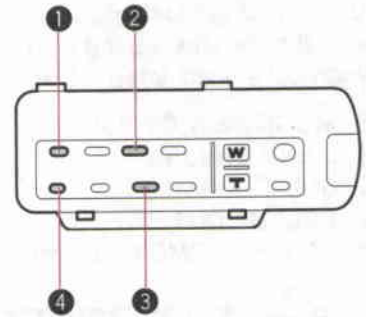
- The tape rewinds and stops automatically when tape counter nears "0:00:00".

4. **Press PLAY ► button.**

- Playback starts at the point where you pressed the C. RESET button.

Notes:

- Each time a video cassette is loaded, tape counter is automatically reset to "0:00:00". Therefore the tape return function is a convenient way to locate the recording start point.
- Press PLAY MODE/STOP ■ button to cancel tape return.
- When tape counter reading is near "0:00:00", the TAPE RETURN button does not operate.



Selecting Edit Mode (PLAY Mode)

To minimize the loss of picture quality, select the edit mode when the camera is used as a playback VCR during editing. When not editing, keep the edit mode turned off.

- ① **MODE SELECT Button**
- ② **MENU Button**
- ③ **SHIFT Button**
- ④ **SELECT Dial**
- ⑤ **LANC REMOTE Terminal**

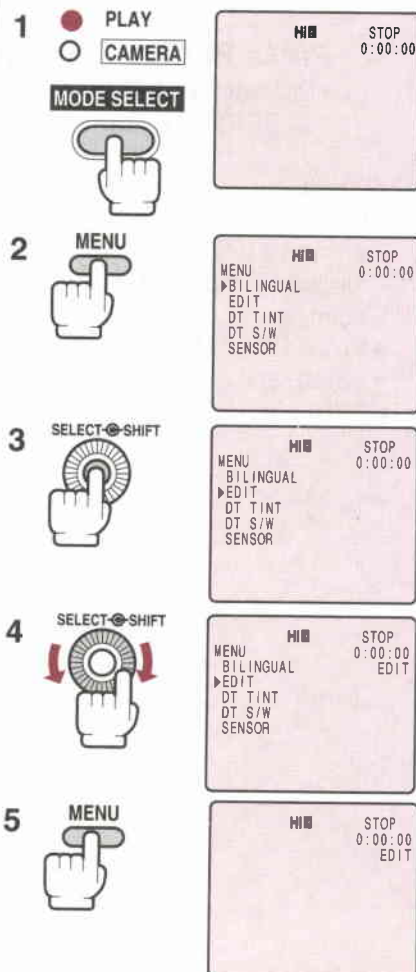
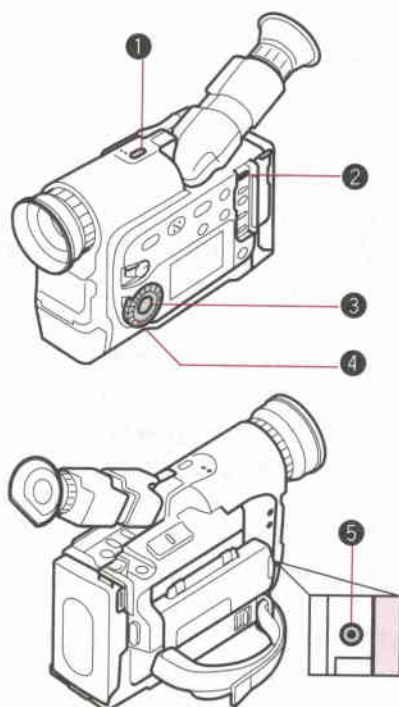
1. **Press MODE SELECT button to PLAY mode.**
2. **Press MENU button.**
 - Menu is displayed in viewfinder.
3. **Press SHIFT button to align ► mark with EDIT.**
4. **Turn SELECT dial.**
 - "EDIT" appears in viewfinder.
5. **Press MENU button.**
 - Menu disappears from viewfinder.
 - To turn the edit mode off again, repeat steps 1–5 and "EDIT" disappears from viewfinder.

Note:

- The edit mode is automatically cancelled when you switch to CAMERA mode.

LANC REMOTE Terminal (Remote control terminal for editing)

LANC stands for Local Application Control Bus system. The LANC terminal allows you to connect editing equipment such as the VE-100 Video Editor, as well as video cameras and video recorders which carry this terminal, to facilitate assembly editing. Certain buttons on the editing equipment may not operate or some may be different from those on the camera.



Editing to Another VCR (PLAY Mode)

With the help of a second VCR, your camera can also be used as a playback VCR to edit your recording.

Connection Procedure

You need the DC-200 DC Coupler, CA-200 Compact Power Adapter and the appropriate cables for editing.

- Turn camera off when connecting.

The connecting accessories included in the kit vary according to areas. Use the following chart to determine what your kit should contain:

	UK, EUROPE	ASIA, OCEANIA
S-150 S-video Cable	1	1
ST-150 Stereo Cable	1	1
C-150 AV Cable	—	1

Using VCR with S-video Input Terminals

Stereo 1

Connect S-VIDEO/audio terminals of camera to S-video/audio terminals of VCR using the S-150 S-video Cable and the ST-150 Stereo Cable.

- ① To Audio Terminals (Ⓐ white=left; Ⓑ red=right)
- ② To S-VIDEO Terminal
- ③ ST-150 Stereo Cable (white=left; red=right)
- ④ S-150
- ⑤ To S-video Input Terminal
- ⑥ To Audio Input Terminals

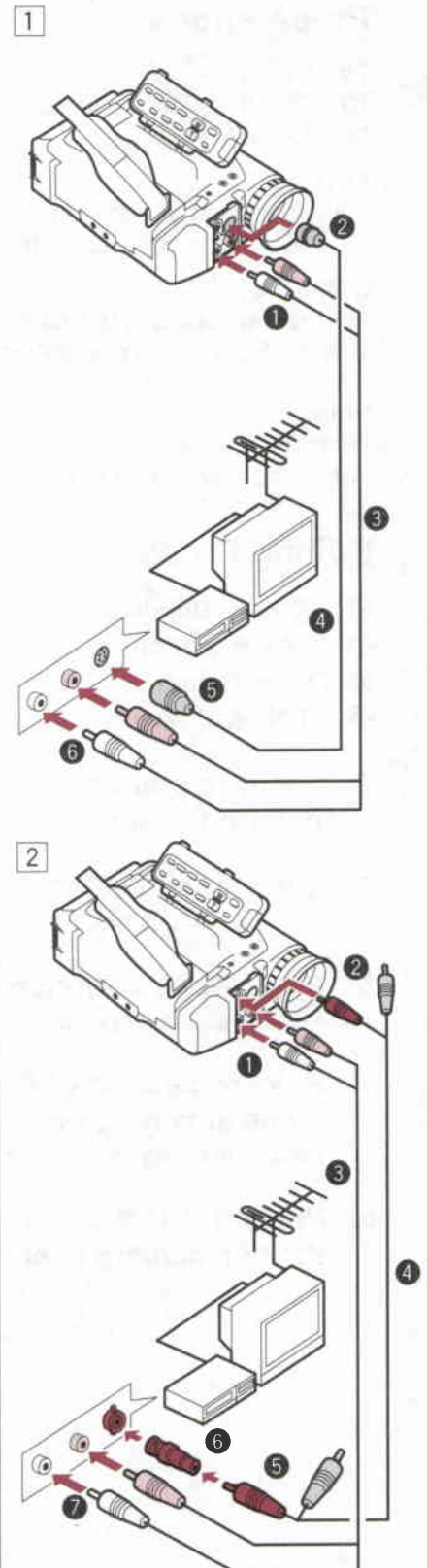
Using VCR with Audio/Video Input Terminals

Stereo 2

Connect audio/video terminals of camera to audio/video input terminals of VCR using the ST-150 Stereo Cable and C-150 AV Cable.

- ① To Audio Terminals (Ⓐ white=left; Ⓑ red=right)
- ② To Video Terminal (yellow)
- ③ ST-150 Stereo Cable (white=left; red=right)
- ④ C-150 (yellow=video; white [or black] plug is not used)
- ⑤ To Video Input Terminal
- ⑥ BNC Adapter*
- ⑦ To Audio Input Terminals

* If VCR has a BNC-type video input terminal, attach a commercially available BNC adapter to C-150 AV Cable.



Preparations

TV [3]

Turn TV on and set TV to video channel, or set TV/VCR selector to VCR.

VCR [4]

Turn on second VCR and load a recordable video cassette. See VCR instruction manual for details.

CAMERA [5]

Turn camera on and load video cassette for playback. Press MODE SELECT button to select PLAY mode. (see p. 42)

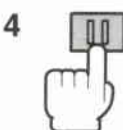
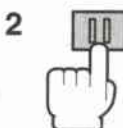
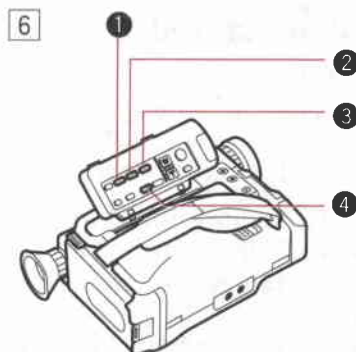
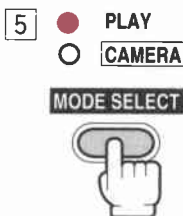
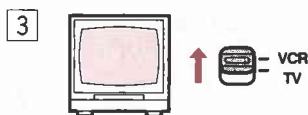
Note:

- Both image and sound quality of edited tape will be somewhat less than that of the original.

Editing Procedure [6]

- ① REW / ◀▶ Button
- ② PLAY ▶ Button
- ③ FF / ▶▶ Button
- ④ STOP ■ Button

1. **Locate a point slightly ahead of editing start point on video cassette in camera.**
2. **Set second VCR to record pause mode.**
 - Select LINE IN mode on second VCR.
3. **Press PLAY ▶ button on the camera.**
 - Check playback picture on TV screen.
4. **Release second VCR from record pause mode at editing point.**
 - Recording begins on second VCR.
5. **Press STOP ■ button on second VCR and then on camera to end editing.**



Selecting Bilingual Sound Track Mode (PLAY Mode)

You can switch between the main sound track and substitute sound track when playing back a bilingual video cassette. The current setting will be displayed in the viewfinder.

- ① **MODE SELECT Button**
- ② **MENU Button**
- ③ **► (Play) Button**
- ④ **SHIFT Button**
- ⑤ **SELECT Dial**

1. Press **MODE SELECT** button to select **PLAY** mode.

2. Press **MENU** button.

- Menu is displayed in viewfinder.
- Make sure the ► mark is aligned with **BILINGUAL**.

3. Turn **SELECT** dial to select the desired sound track.

- Each time **SELECT** dial is turned, display in viewfinder changes as follows:

→ no display ↔ MAIN ↔ SUB ↔ MAIN + SUB →

- MAIN:** Main sound track playback only
SUB: Substitute sound track playback only
MAIN + SUB: Simultaneous main and substitute sound track playback (MAIN from left channel, SUB from right channel)

4. Press **MENU** button.

- Menu disappears from viewfinder.

5. Press ► (**Play**) button.

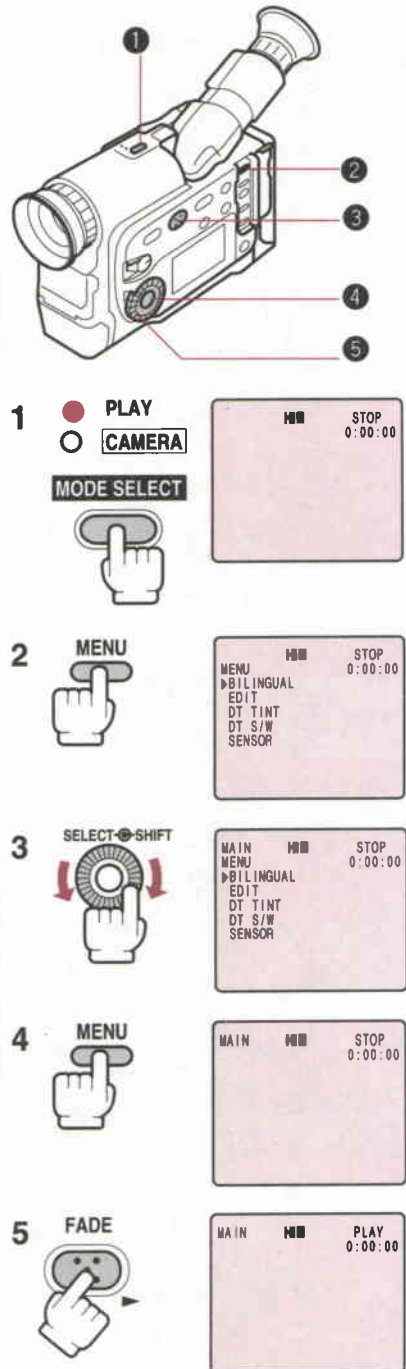
- When camera is switched to **CAMERA** mode, it goes back to normal mode.

Notes:

- You can select desired sound track(s) during playback.
- During playback of tapes recorded in regular stereo or monaural, select no display setting.

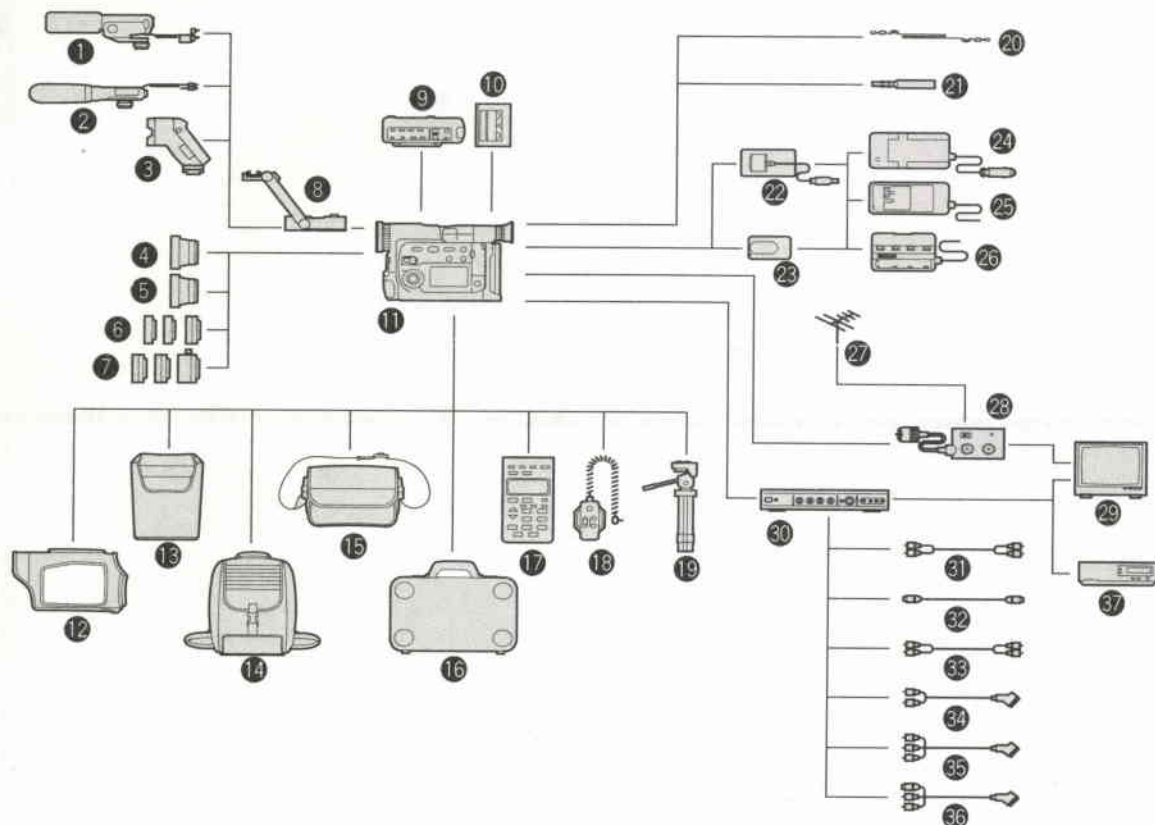
Explanation:

Bilingual video cassettes incorporate two separate sound tracks (in two different languages, for example) through the use of a special recording system. At present, video cassettes recorded using this system are available in only a few countries.



Additional Information

Canon UC2Hi Video System Chart



- ① ZM-100 Stereo/Zoom Microphone
- ② MM-200 Stereo Mixing Microphone
- ③ VL-20 Battery Video Light
- ④ TL-37 Tele-converter
- ⑤ WA-37 Wide Attachment
- ⑥ FS-37U Filter Set
- ⑦ FS-37 Filter Set
- ⑧ SA-1 Adapter Bracket
- ⑨ WL-2 Wireless Controller
- ⑩ 8mm Video Cassette
- ⑪ UC2Hi
- ⑫ RS-U3 Rain Shield
- ⑬ SJ-U1 Soft Video Jacket
- ⑭ VK-U1 Video Backpack
- ⑮ SC-U1 Soft Carrying Case
- ⑯ HC-U2 System Case
- ⑰ VE-100 Video Editor
- ⑱ ZR-100 Zoom Remote Controller
- ⑲ Tripod
- ⑳ SS-400 Shoulder Strap

- ㉑ WS-20 Wrist Strap
- ㉒ DC-200 DC Coupler
- ㉓ BP-E77KE/BP-E722/BP-E722D Battery Pack
- ㉔ CB-110 Car Battery Adapter
- ㉕ CA-200/CA-100 Compact Power Adapter
- ㉖ MC-100 Multi-battery Charger
- ㉗ Aerial
- ㉘ RU-100 RF Unit
- ㉙ TV
- ㉚ RGB-100 RGB Converter
(available in U.K. and Continental European countries)
- ㉛ C-150 AV Cable
- ㉜ S-150 S-video Cable
- ㉝ ST-150 Stereo Cable
- ㉞ PC-150 SCART Cable
- ㉟ PC-170ST Stereo SCART Cable
- ㊱ PC-270SST S-stereo SCART Cable
- ㊲ VCR

Optional Accessories

HC-U2 System Case [1]

The optional HC-U2 System Case helps protect the camera and its accessories during transportation and storage.

Items Stored in the System Case

The following items can be stored:

- ① TL-37 Tele-converter, WA-37 Wide Attachment or a filter set
- ② Two battery packs
- ③ One additional video cassette
- ④ RU-100 RF Unit
- ⑤ Cables
- ⑥ Camera with video cassette, shoulder strap/wrist strap
- ⑦ CA-200 Compact Power Adapter (or CB-110 Car Battery Adapter)
- ⑧ DC-200 DC Coupler

Opening and Closing Case

To open, place the case so that the UP sign is on top, then slide the two latches outwards.

Notes:

- Two keys are provided with the HC-U2 System Case.
- Power is slowly drained while the battery pack is attached to the camera, even when the camera is turned off. Remove the battery pack when you don't expect to use the camera.

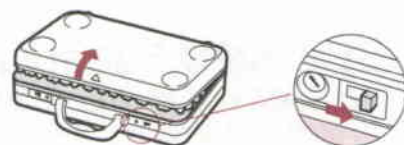
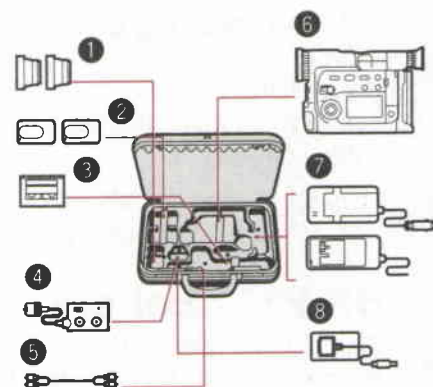
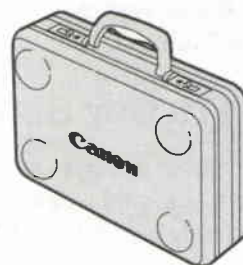
SC-U1 Soft Carrying Case [2]

The optional SC-U1 Soft Carrying Case provides lightweight protection for the camera and accessories.

VK-U1 Video Backpack [3]

The optional VK-U1 Video Backpack is a handy portable case for transporting camera and accessories. Its full-length zipper opening allows the contents to be put in and taken out easily.

[1]



[2]



[3]



CA-100 Compact Power Adapter [4]

Plug into mains outlet.

Input voltage: 100-240 V AC, 50/60 Hz

CB-110 Car Battery Adapter [5]

For recording using a car battery.

Plug into cigarette lighter socket.

For use only with 12 or 24 V DC negative ground battery.

MC-100 Multi-battery Charger [6]

MC-100 Multi-battery Charger is a sequential high-speed charger controlled by a microcomputer for charging up to four Canon battery packs. Also the MC-100 automatically performs charging, discharging and recharging to refresh battery packs.

- Charging time: 45 min. (BP-E77KE)
90 min. (BP-E722/BP-E722D)

BP-E722 Battery Pack [7]

Use for lengthy recording. Its continuous recording time is approximately 90 minutes. Hold the camera with both hands when using this battery.

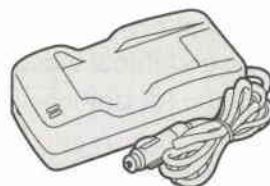
BP-E722D Battery Pack [8]

This battery pack is equipped with an LED display for indicating the remaining charge. Use it for lengthy recordings. Like the BP-E722, it has a continuous recording time of approximately 90 minutes. Hold the camera with both hands when using this battery.

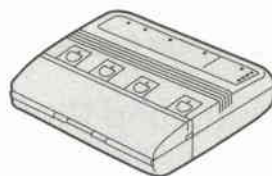
[4]



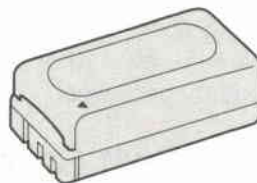
[5]



[6]



[7]



[8]



SJ-U1 Soft Video Jacket [9]

The SJ-U1 Soft Video Jacket, designed for convenient transportation of the camera, protects it from dust and scratches.

RS-U3 Rain Shield [10]

A vinyl cover to protect the camera from light rain or mist.

SA-1 Adapter Bracket [11]

Use to attach an external microphone or a battery video light to the camera.

ZM-100 Stereo/Zoom Microphone [12]

The ZM-100 Stereo/Zoom Microphone has a high-performance stereo function to adjust the angle of sound recording, and a zoom function for recording nearby or faraway sounds.

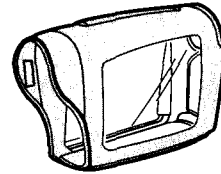
MM-200 Stereo Mixing Microphone [13]

The MM-200 enables sound from the microphone and music to be mixed.

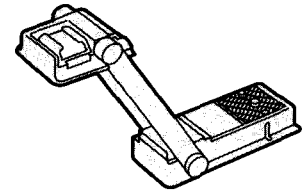
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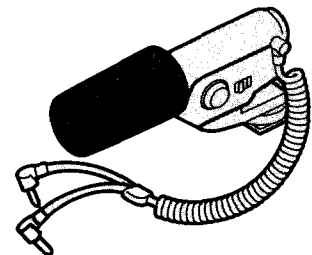
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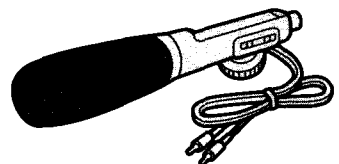
[11]



[12]

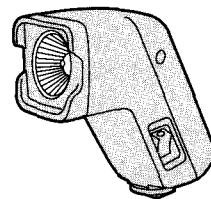


[13]

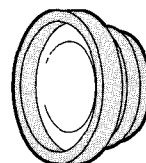


VL-20 Battery Video Light 14

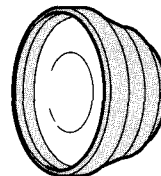
This light, compact option uses the BP-E77KE or BP-E722 or BP-E722D Battery Pack and is ideal for indoor and outdoor shooting.

**TL-37 Tele-converter** 15

This optional tele-converter is a magnification converter lens that increases the focal length of the camera lens by a factor of 1.4.

15**WA-37 Wide Attachment** 16

This optional wide attachment decreases the focal length by a factor of 0.75.

16

FS-37U Filter Set 17

The optional FS-37U Filter Set contains three filters: UV, ND8 and circular PL.

- If a filter is used when shooting at the wide-angle end, vignetting will occur at periphery of picture (edge of picture becomes dark and blurred).

FS-37 Filter Set 18

The optional FS-37 Filter Set contains three filters: multiple-image filter 5×, R-cross filter 6× and zoom spot filter.

- If a filter is used when shooting in wide-angle end, vignetting will occur at periphery of picture (edge of picture becomes dark and blurred).
- Use manual focus when using these filters.

WS-20 Wrist Strap 19

The optional wrist strap provides an extra measure of protection for active shooting.

ZR-100 Zoom Remote Controller 20

When attached to the camera's LANC  REMOTE terminal, this controller allows the camera's zoom, start/stop and record search functions to be controlled without touching the camera itself.

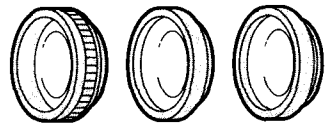
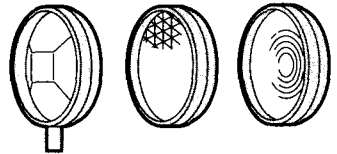
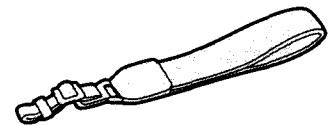
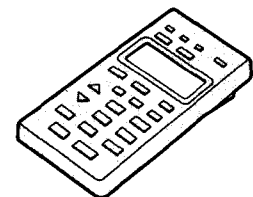
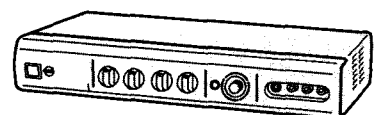
VE-100 Video Editor 21

When connected to the LANC  terminal of the camera and another video camera or VCR, the VE-100 allows assembly editing to be performed easily.

RGB-100 RGB Converter 22

This converter allows you to convert an S-VIDEO signal into an RGB signal. Now you can enjoy superb Hi8 picture quality on a TV without an S-VIDEO terminal, if it is equipped with a SCART (Peritelevision) terminal that corresponds to an RGB signal.

- Available in U.K. and Continental European countries only.

171819202122

Cautions

During Use

Avoid High Temperatures and High Humidity.

Do not expose camera to high temperatures or high humidity, such as inside a car during hot weather, when all the doors and windows are shut. Such exposure can cause damage.

Avoid Exposure to Strong Electromagnetic Waves.

Do not use camera close to sources of magnetic or electric fields (power plant, TV tower, TV set, magnets, motors, audio equipment, etc.)

Do Not Expose Camera to Rain or Water.

Place protective covering over camera if you'll be recording in the rain. If, somehow, water does get into the camera, contact qualified service personnel as soon as possible.

Avoid Pointing Lens into Direct Sunlight or Other Strong Light Sources.

Do not aim lens directly at the sun or other strong light, or leave lens aimed at a very bright subject since this can cause damage.

Do Not Expose the Camera to Excessive Heat.

When using lighting equipment, be sure not to expose the camera to too much heat radiating from such equipment.

Always Replace Lens Cap.

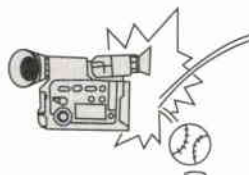
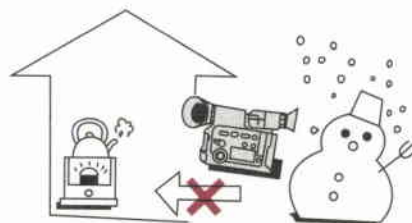
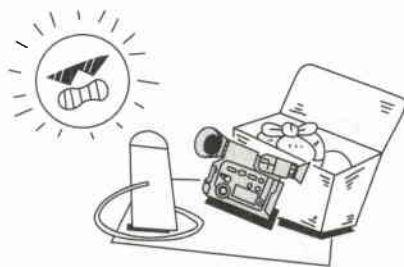
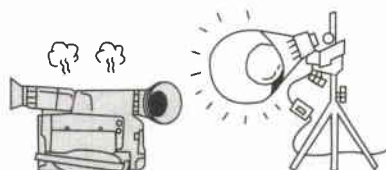
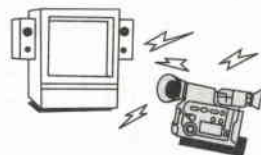
Always replace lens cap after use to prevent sand and dust from getting on the lens. Be especially careful to affix cap on windy days.

Avoid Sudden Changes in Temperature.

If camera is suddenly brought into a warm place from a cold place, condensation can form on internal parts and lens. So take appropriate care when moving the camera.

Do Not Expose Camera to Shock or Vibration.

Be sure to handle camera gently. Vibration can cause damage.



Maintenance

Keep the Heads Clean.

The video heads should be cleaned only when necessary, preferably with the Canon 8mm Video Head Cleaning Cassette CC-8 included in the optional Canon 8mm Video Cleaning Kit CK-E1.

Clean Camera with a Soft, Dry Cloth.

The camera should be cleaned using a soft, dry cloth. Do not use chemically treated cloth or volatile solvent such as paint thinner, since this can damage the camera.

Store Camera Properly.

If you do not intend to use the camera for some time, store it in an area free of moisture and dust, and where ambient temperature is no higher than 30°C.

Check the Operation of Each Component.

If the camera has not been used for a long time, be sure to check that each component functions correctly before use.

Store Cassettes Properly.

Do not place video cassettes in areas exposed to direct sunlight, near heat-radiating sources such as stoves, or close to magnetic bodies such as speakers, since these can cause tape deformation and damage to valuable recordings.

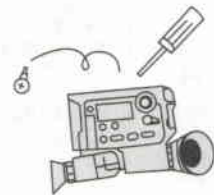
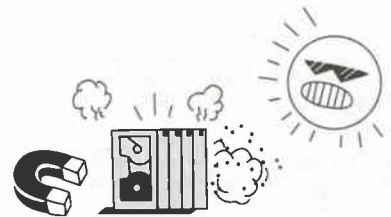
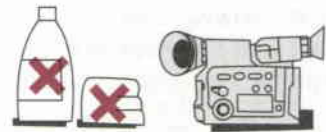
Safety Precautions

Do Not Disassemble Camera.

It is very dangerous to disassemble camera or touch any of its internal parts. If camera does not function properly, take it to qualified service personnel.

Using Battery Pack.

Carefully read battery pack instructions before use.



Problems and Troubleshooting

Use the following checklist for troubleshooting when you have problems with your camera.

Consult your local dealer or service outlet if problems persist.

Be sure all connections are properly made when using the camera with other units.

Problem	Cause	Remedy
Camera does not turn on.	Battery pack charge is low.	Replace with fully charged battery pack.
Camera turns off during operation (using battery pack).	Battery pack charge is low.	Replace with fully charged battery pack.
	Record pause mode has lasted for more than five minutes.	Turn camera on again.
Video cassette compartment does not open.	Battery pack charge is low.	Replace with fully charged battery pack.
Camera does not function when an operation button is pressed.	Camera is turned off.	Turn camera on.
	Video cassette is not loaded.	Load a video cassette.
	Battery pack is not properly attached to camera.	Attach battery pack securely to camera (see p. 23).
CAMERA or PLAY indicator flashes and "BATT" flashes in viewfinder.	Battery pack charge is low.	Replace with fully charged battery pack.
CAMERA or PLAY indicator flashes and "DEW" flashes in viewfinder.	Condensation has formed inside unit.	Refer to Condensation (see p. 130).
CAMERA or PLAY indicator flashes and "EJECT" flashes in viewfinder.	Safety mechanism is activated.	Unload and reload video cassette.
"DATE" flashes in viewfinder. Date and time are incorrect or have stopped operating.	Internal lithium battery is discharged.	Attach a power source (see p. 20).
Start/stop button is pressed, but recording does not start.	Camera is turned off.	Turn camera on.
	Video cassette is not loaded.	Load a video cassette.
	Tape has ended ("T. END" appears in viewfinder).	Rewind tape or use another video cassette.
	Erase prevention switch on video cassette is set to prevent recording ("TAPE" flashes in viewfinder).	Use another video cassette or set switch to enable recording (see p. 28).
	Camera is in PLAY mode.	Press MODE SELECT button.
No picture appears in viewfinder.	Lens cap is attached.	Remove lens cap.
	Camera is in PLAY mode.	Press MODE SELECT button.

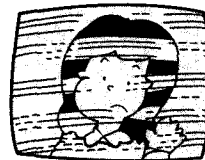
Note:

This equipment contains a microprocessor. If external noise or interference occurs, random letters may appear in the viewfinder or normal operation may be interrupted. In this case, remove the power source and then replace it.

Problem	Cause	Remedy
Cannot adjust focus.	Subject is not suitable for autofocus.	Adjust focus manually.
	Viewfinder dioptre is not properly adjusted.	Turn diopter adjustment ring until viewfinder display becomes clear (see p. 31).
	Lens is dirty.	Clean the lens using a dry, soft cloth with due care not to scratch it.
	The finder is not pulled out.	Pull finder out.
Wireless controller does not operate.	SENSOR OFF mode is selected.	Cancel SENSOR OFF mode.
Tally lamp does not light or flash.	TALLY OFF mode is selected.	Cancel TALLY OFF mode.
Playback doesn't start when ► (PLAY) button is pressed.	Camera is in CAMERA mode.	Press MODE SELECT button.
	Camera is turned off.	Turn camera on and press MODE SELECT button.
	Video cassette is not loaded.	Load a video cassette.
	Tape has ended ("T. END" appears in viewfinder).	Rewind tape or use another video cassette.
Tape is moving, but no picture appears on TV monitor.	For TV without audio/video input terminals: video channel is not set properly on both TV and RF unit.	Set TV and RF unit to appropriate video channel.
	For TV with audio/video input terminals: TV/VIDEO selector on TV is not set to VIDEO.	Set TV/VIDEO selector to VIDEO.
	Video heads are dirty.	Clean video heads using optional CK-E1 8mm Video Cleaning Kit.

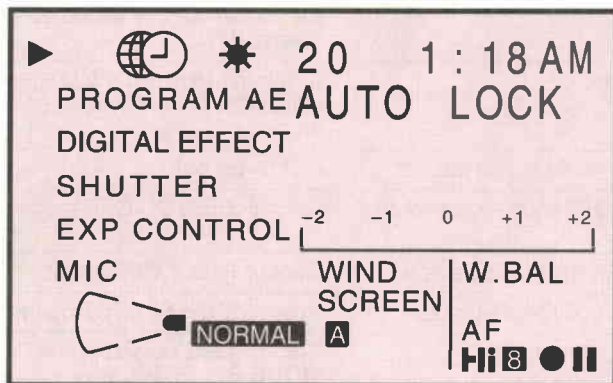
Playback appears rough

Although the TV programme has been cleanly copied, the video playback appears rough. This is due to dirty video heads. Video heads should be cleaned using the optional CK-E1 8mm Video Cleaning Kit. For further details, refer to the CK-E1 instruction manual.

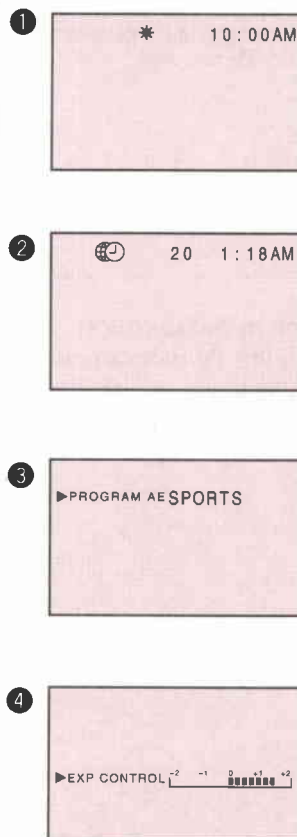


LCD Panel

The LCD shows the same type of information as the viewfinder on the operation mode of the camera.



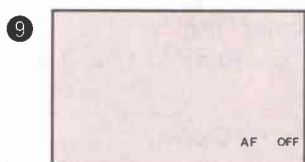
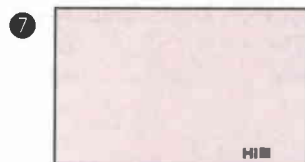
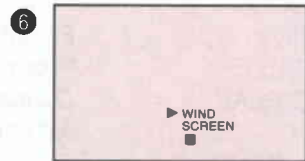
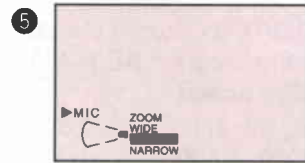
- | | | |
|---|--|--|
| ① | ☀ | The time displayed is Summer time. |
| ② | 🌐 | The time at your travel destination is displayed, using the World Clock function. (page 62). |
| ③ | PROGRAM AE Display (CAMERA Mode):
AUTO LOCK The CAMERA FUNCTION selector is set to AUTO LOCK.
AUTO AUTO Mode is selected (page 64).
SPORTS SPORTS Mode is selected (page 65).
PORTRAIT PORTRAIT Mode is selected (page 65).
SPOTLIGHT SPOTLIGHT Mode is selected (page 66).
LANDSCAPE LANDSCAPE Mode is selected (page 66).
SAND & SNOW SAND & SNOW Mode is selected (page 67).
LOW LIGHT LOW LIGHT Mode is selected (page 67).
MANUAL MANUAL Mode is selected (page 68). | |
| ④ | EXP CONTROL Display
 When MANUAL Mode of program AE is selected, correct exposure level can be selected (page 76). | |



- 5 MIC Mode Display (page 78):
NORMAL Enables ordinary sound recording.
NARROW Sound recording focuses on the center of the subject.

ZOOM Adjusts the scope of recording to zoom operation.

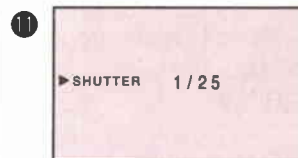
WIDE Sound recording is adjusted to wide angle.
- 6 WIND SCREEN Display (page 79):
A Automatic wind screen function is selected.
ON The wind screen function stays on at all times.
OFF The wind screen function is turned off.
- 7 Tape Format Display
Hi8 A Hi8 video cassette is being used.
- 8 Operation Mode Display (CAMERA mode):
●|| Record pause
● Recording
- 9 AF (Autofocus) Mode Display (page 83):
OFF Manual focus is selected.
ON Autofocus is selected.
- 10 W.BAL (White Balance) Mode Display (page 81):
SET White balance is set.
A Auto white balance



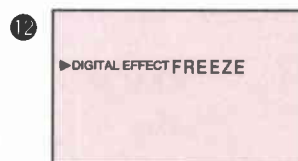
11 SHUTTER (Shutter Speed) Display (page 74):

Set the program AE to MANUAL Mode, and select the shutter speed.

(1/6, 1/8, 1/12, 1/25, 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10,000)

**12 DIGITAL EFFECT Display:**

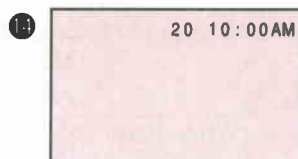
Flashing	Function is on standby.
Steady	Function is operating.
FREEZE	Freeze effect is selected (page 71).
OVERLAP	Overlap effect is selected (page 70).
ART	Art effect is selected (page 71).
CLOSEUP	Close-up effect is selected (page 70).

**13 Operation Mode Display (PLAY Mode):**

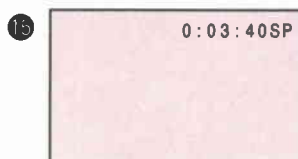
STOP	Stop
PLAY	Normal playback, fast forward/ rewind playback, or high-speed search
STILL	Still playback
FF	Fast forward
REW	Rewind

**14 Time Display:**

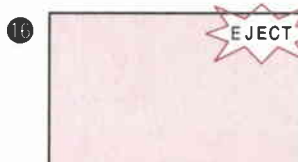
20 10:00AM	The number of the time zone you have selected, and the time there, are displayed (page 62).
10:00AM	The time in your own time zone is displayed (page 34).

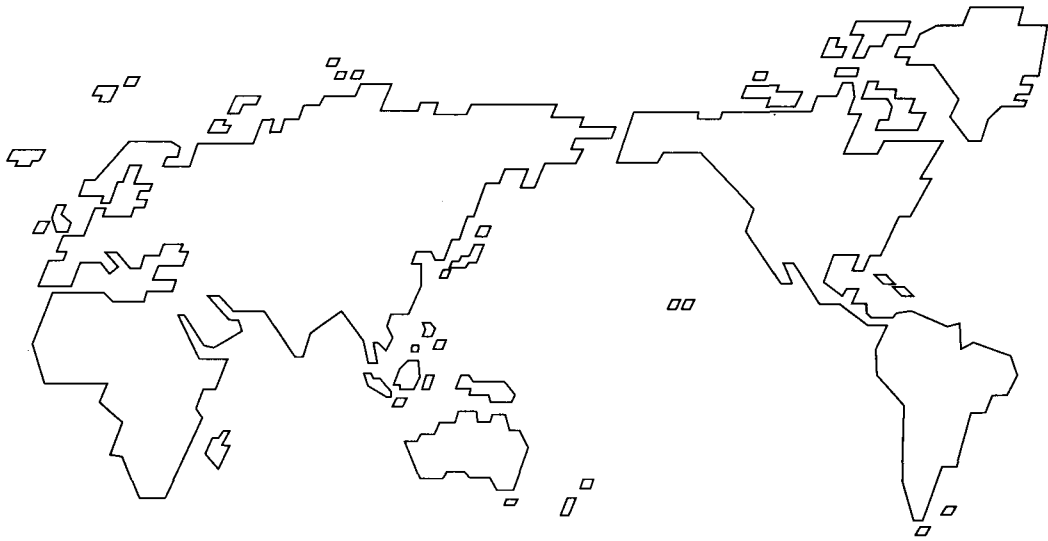
**15 Counter Display:**

0 : 03 : 40 SP	Tape counter and tape speed are displayed (page 13).
----------------	---

**16 Warning Display:**

TAPE	An unrecordable video cassette is loaded in CAMERA mode (page 13).
T.END	Video cassette has reached the end.
BATT	Battery charge is nearly exhausted.
DEW	Condensation is detected in camera (page 130).
EJECT	Safety mechanism is activated (page 130).





Twenty-four time zones are stored in the World Clock. The time zone numbers and names correspond to the cities shown in the table below.

For setting the time to another time zone using the World Clock, see page 62.

Display	Name of city	Display	Name of city
1 LON	LONDON	13 WLG	WELLINGTON
2 PAR	PARIS	14 SAM	SAMOA
3 CAI	CAIRO	15 HNL	HONOLULU
4 MOW	MOSCOW	16 ANC	ANCHORAGE
5 DXB	DUBAI	17 LAX	LOS ANGELES
6 KHI	KARACHI	18 DEN	DENVER
7 DAC	DACCA	19 CHI	CHICAGO
8 BKK	BANGKOK	20 NYC	NEW YORK
9 HKG	HONG KONG	21 CCS	CARACAS
10 TYO	TOKYO	22 RIO	RIO DE JANEIRO
11 SYD	SYDNEY	23 FER	FERNANDO DE NORONHA
12 SOL	SOLOMON ISLANDS	24 AZO	AZORES

Condensation (DEW)

What is condensation?

Condensation (DEW) means tiny droplets of water that occasionally form on the camera surface when it is moved from a cold place to a warm place. Using the camera when condensation is present may damage both tape and camera.

Preventing condensation

Remove video cassette and place camera in a plastic bag prior to bringing it into a warm area where condensation is likely to occur. Wait until camera reaches room temperature before removing it from bag.

When condensation is detected 1

When condensation is detected in the camera, the CAMERA or PLAY indicator flashes, and "DEW" flashes in the viewfinder. If a video cassette is loaded, "EJECT" flashes in the viewfinder and the tape automatically stops. Immediately remove video cassette, leave video cassette compartment open and turn camera off. Leave camera in a dry place until condensation evaporates.

- Sometimes "DEW" may not appear in the viewfinder until 10-15 minutes after condensation has formed.
- You cannot load a video cassette when condensation is detected in the camera.

To start using camera again

Even when "DEW" and the CAMERA or PLAY indicator no longer flash when the camera is turned on, wait at least one more hour before attempting operation. The time required for condensation to clear varies with surrounding conditions; it can be as long as one hour.

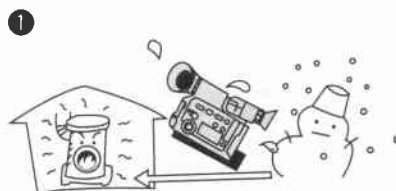
Condensation is likely to occur when: 2

- 1 Camera is brought from a cold place to a warm place.
- 2 A cold room is heated rapidly.
- 3 Camera is placed in a humid room.
- 4 Camera is taken from an air-conditioned room to a warm and humid place.

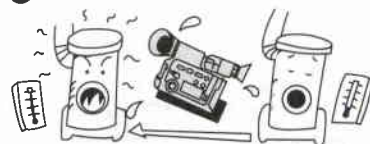
1



2



2



3



4



Specifications

UC2Hi

Power supply (rated):	6 V DC
Power consumption:	7.2 W during recording in autofocus mode (not using power zoom)
Television system:	CCIR standard (625 lines, 50 fields) PAL colour signal
Video recording system:	4 rotary heads, helical scanning system Luminance signal: FM azimuth recording Colour signal: Converted subcarrier phase invert recording (8mm video standard)
Audio recording system:	Frequency multiplexing with the video signal by 4 rotary heads (two channels)
Image sensor:	1/3-inch CCD (Charge Coupled Device) 470,000 pixels (440,000 effective pixels)
Tape format:	8mm, metal evaporated/metal particle
Tape speed:	20.051 mm/s (SP) 10.026 mm/s (LP)
Maximum recording time:	3 hours with P5-90 video cassette, in LP mode
Lens:	f/1.8, 12 × power zoom, 5.4-65 mm focal length
Focusing system:	TTL autofocus, manual focusing possible (using electronic focusing ring)
Minimum focusing distance:	10 mm wide-angle end 0.8 m telephoto end 1 m intermediate zoom position
Minimum illumination:	0.5 lux (slow shutter)
Recommended illumination:	More than 100 lux
Filter Diameter:	37 mm
Electronic viewfinder:	0.5-inch monochrome CRT
Microphone:	Stereo electret condenser microphone
Input level:	Audio: -64 dBV/600 ohms, unbalanced (external mic)
Input impedance:	More than 6 kohms (external mic)
Output level:	Video: 1 Vp-p/75 ohms, unbalanced (video terminal); 1 Vp-p (Y signal)/0.286 Vp-p (C signal) (S-video terminal) Audio: -10 dBV/less than 3 kohms, unbalanced (audio terminal/stereo terminals);
Dimensions (W × D × H):	80.5 × 183 × 134 mm
Weight:	700 g excluding battery pack

RF Unit RU-100

Power source:	5 V DC
Power consumption:	40 mA (max.)
RF output:	30-39 channels selectable
Dimensions (W × D × H):	75 × 30.4 × 51 mm
Weight:	200 g

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

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