

Sony Video Camera Recorder Hi8
CCD-TR805E
Operation Manual
3-754-482-47
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Welcome to Video Hi8

Congratulations on your purchase of this Sony Handycam® camcorder. With your Handycam, you can capture life's precious moments with superior picture and sound quality. Your Handycam is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.
Do not open the cabinet. Refer servicing to qualified personnel only.

Note on TV Colour Systems

TV colour systems are different depending on the country. If you view the playback picture on a TV, you need a PAL system based TV or a SECAM system based TV with PAL-SECAM transcoder (as this is a PAL system based camcorder).

Please check the list on page 46 to see the TV colour system of your country.

Note on copyright

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

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Introduction

About This Manual

This manual shows you how to operate your camcorder. To get the most out of the features of the Handycam, read this manual thoroughly before you use your camcorder. If you want to shoot as soon as possible, however, read the chapters "Preparing your camcorder" and "Recording a picture using automatic adjustments" first. Once you are familiar with basic operations in these chapters, you may want to proceed to the chapter "Recording a picture using manual adjustments".

• As you read through this manual, buttons and settings on the camcorder are shown in capital letters.

e.g. Set the POWER switch to CAMERA.

• Use "Identifying the Parts" as a guide to find functions and operations printed on the camcorder itself.

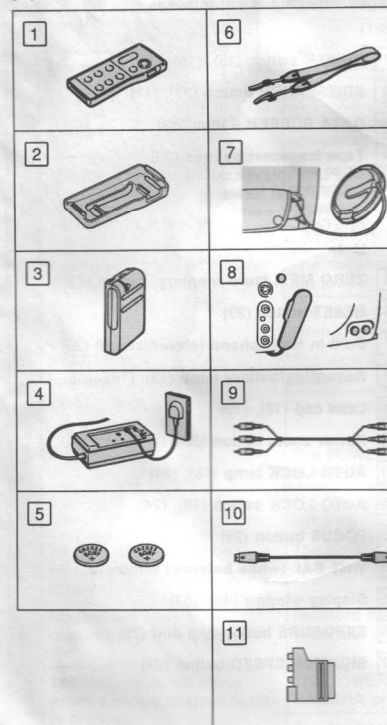
Checking Supplied Accessories

Check that the following accessories are supplied with your camcorder. (* Attached to the camcorder.)

(A)

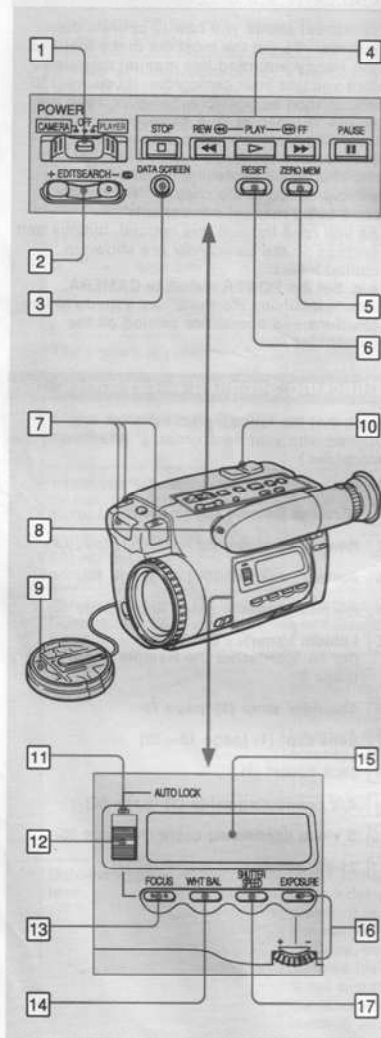
- 1 Wireless Remote Commander (1) (page 7)
- 2 Remote Commander holder (1) (page 7)
- 3 Battery pack (NP-55H) (1) (page 10)
- 4 AC power adaptor AC-V30 (1) (page 12)
- 5 Lithium batteries CR2025 (2)
(for camcorder/for the Remote Commander)
(page 8)
- 6 Shoulder strap (1) (page 7)
- 7 Lens cap* (1) (page 18—19)
- 8 Jack cover* (1)
- 9 A/V connecting cable (1) (page 35)
- 10 S video connecting cable (1) (page 35)
- 11 21-pin adaptor (1) (page 35, 37)

(A)



Identifying the Parts

(B-1)

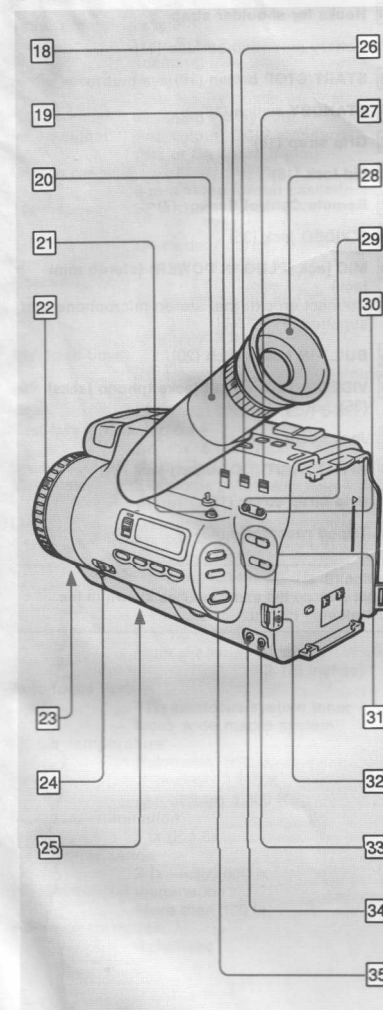


For details on the use of each part, refer to the pages indicated in parentheses.

(B-1)

- 1 **POWER switch** (15), (18), (38)
- 2 **EDITSEARCH button** (22), (41)
- 3 **DATA SCREEN button** (38)
- 4 **Tape transport buttons** (38)
 - ▷ **PLAY** (playback)
 - ▶▶ **FF** (fast forward)
 - ◀◀ **REW** (rewind)
 - **STOP**
 - || **PAUSE**
- 5 **ZERO MEM (zero memory) button** (23)
- 6 **RESET button** (23)
- 7 **Built-in Microphone (stereo/zoom)** (20)
- 8 **Recording/battery lamp** (13), (18)
- 9 **Lens cap** (18), (19)
- 10 **Power zoom button** (20)
- 11 **AUTO LOCK lamp** (18), (24)
- 12 **AUTO LOCK switch** (18), (24)
- 13 **FOCUS button** (25)
- 14 **WHT BAL (white balance) button** (26)
- 16 **Display window** (48), (51)
- 16 **EXPOSURE button and dial** (28)
- 17 **SHUTTER SPEED button** (27)

(B-2)



Identifying the Parts

(B-2)

- 18 **Viewfinder lens adjustment ring** (17)
- 19 **HI-FI SOUND switch** (39)
- 20 **Viewfinder** (17)
- 21 **REC START/STOP button** (19)
- 22 **Focus ring** (25)
- 23 **FADER button** (29)
- 24 **STEADY SHOT switch** (21)
- 25 **Lithium battery compartment** (8)
- 26 **Recording mode/EDIT switch** (41)

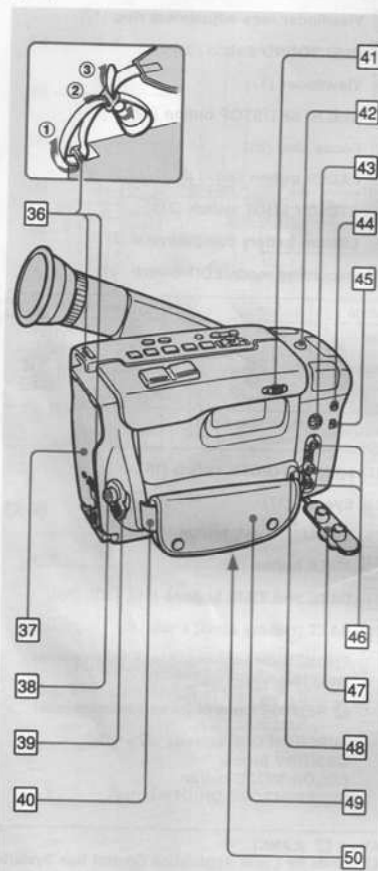
Mode	Recording	Playback	Editing
Setting			
Function	Recording mode switch	EDIT switch	

- 27 **HI AUTO/OFF switch** (18), (42)
- 28 **Eyecup** (17)
- 29 **SUMMER TIME button** (15), (30)
- 30 **AREA button** (30)
- 31 **DATE and TIME buttons** (15), (30), (39)
- 32 **BATT (battery eject) knob** (11)
- 33 **PHONES (headphones) jack (stereo mini jack)** (22)
- 34 **REMOTE control jack (mini-mini-jack)**
- 35 **SUPERIMPOSE buttons** (32)—(34)
 - MEMORY button**
 - COLOR/MODE button**
 - SUPERIMPOSE ON/OFF button**

About LANC

LANC stands for Local Application Control Bus System. The LANC control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

(B-3)



(B-4)



Identifying the Parts

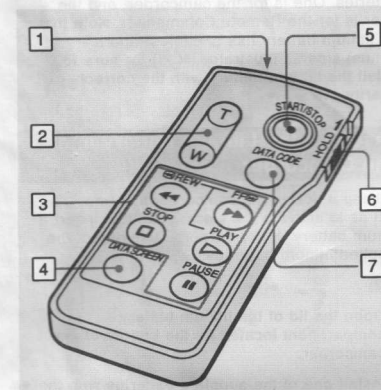
(B-3)

- 36 Hooks for shoulder strap
- 37 Battery mounting surface (14)
- 38 START/STOP button (19)
- 39 STANDBY switch (18)
- 40 Grip strap (18)
- 41 Lid lock (16)
- 42 Remote Control Sensor (7)
- 43 S VIDEO jack (35)
- 44 MIC jack (PLUG IN POWER) (stereo mini jack)
Connect an external stereo microphone (not supplied).
- 45 BUILT-IN MIC switch (20)
- 46 VIDEO/AUDIO output jacks (phono jacks) (35)
- 47 Jack cover
- 48 RFU DC OUT (DC output) jack (36)
- 49 Grip strap cover (18)
- 50 Tripod receptacle (43)

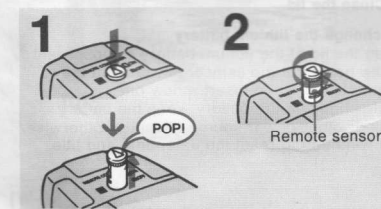
Caution (B-4)

Do not pick up the camcorder as shown in the illustration.

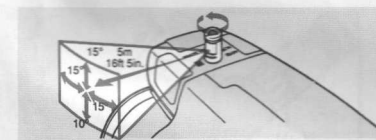
(B-5)



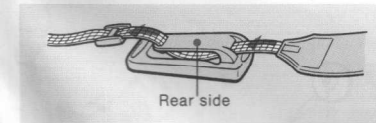
(B-6)



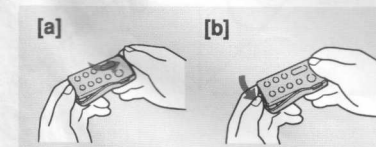
(B-7)



(B-8)



(B-9)



Identifying the Parts

Wireless Remote Commander

You can remotely record or play back a tape.

(B-5)

- 1 Transmitter
- 2 Power zoom button (20)
- 3 Tape transport buttons (38)
- 4 DATA SCREEN button (38)
- 5 START/STOP button (19)
- 6 HOLD switch (Remote commander only)
Slide in the direction of the arrow to prevent the buttons from being accidentally pressed.
- 7 DATA CODE buttons (39)

When you use the Remote Commander

Be sure to insert the supplied lithium battery into it (page 9) and turn on the POWER switch on the camcorder.

(B-6)

- 1 Push the head of the remote sensor on the camcorder lightly.
The remote sensor pops up.
- 2 Aim the remote sensor in the direction you want to control the camcorder.

Remotely controllable area (B-7)

Point the Remote Commander towards the remote sensor.

Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise the Remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works through the signals of commander mode VTR 2. A commander mode is used to distinguish this camcorder from other Sony VTR to avoid misoperation. If you use another Sony VTR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VTR with black paper.

Using the Remote Commander holder

You can clip the Remote Commander holder on your coat pocket or belt, or slide it onto a shoulder belt before attaching the Remote Commander to it. (B-8)

(B-9)

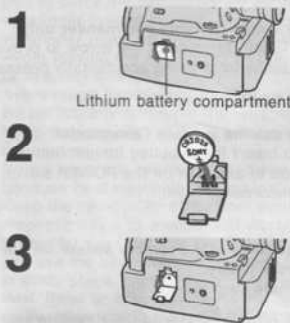
- [a] When attaching the Remote Commander to the Remote Commander holder
- [b] When detaching the Remote Commander from the Remote Commander holder

Preparing your camcorder 1 Inserting the Lithium Batteries

(C-1)



(C-2)



Your camcorder is supplied with two lithium batteries. One is for the camcorder, and the other is for the Remote Commander. Note that the lithium battery has a + (plus) and a - (minus) side as illustrated. **(C-1) Be sure to install the lithium battery with the correct polarity.**

Inserting the Lithium Battery into the Camcorder

To keep a title in the camcorder's memory, as well as to activate the clock, you must insert a lithium battery. Make sure you use one of the supplied lithium batteries.

(C-2)

- 1 Open the lid of the lithium battery compartment located on the bottom of the camcorder.
- 2 Install one of the supplied batteries with the + (plus) side facing up.
- 3 Close the lid.

To change the lithium battery

Open the lid of the lithium battery compartment at the bottom of the camcorder, pull out the lithium battery, and insert a new one. While changing the battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and title.

Inserting the Lithium Batteries

Inserting the Lithium Battery into the Remote Commander


(C-3)

- 1 Pull out the lithium battery holder from the Commander.
- 2 Install the lithium battery with the + side facing upward.
- 3 Put the lithium battery holder back into the Commander.

To change the lithium battery

Pull out the lithium battery holder, and insert a new one.

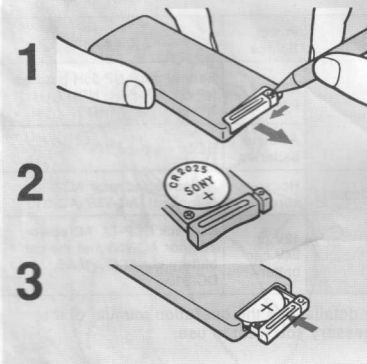
Lithium battery life

The battery for the camcorder lasts for about 1 year. When the lithium battery becomes weak or dead, the date or time indicator keeps flashing in the display window and the  indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. **(C-4)** The battery for the Remote Commander lasts for about 6 months. When the battery becomes weak or dead, the Commander does not work. In either case, **change the battery with a Sony CR2025 lithium battery. Use of any other battery may be present a risk of fire or explosion.**

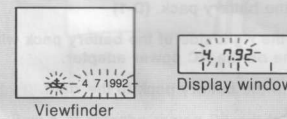
Cautions

- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

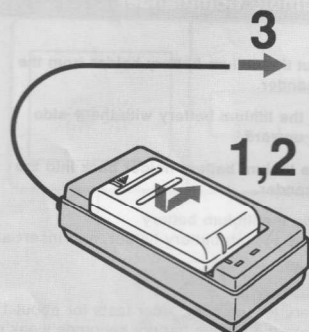
(C-3)



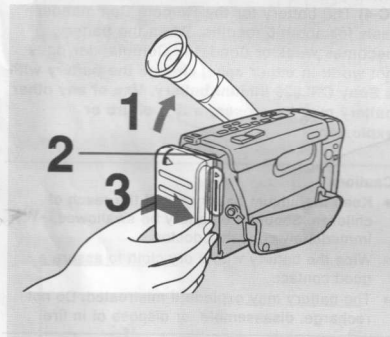
(C-4)



(D-1)



(D-2)



Preparing your camcorder 2

Connecting the Power Sources

First, Choose the Power Source

Place	Power Source	Accessory to be used
Outdoors	Battery pack	Battery pack NP-55H (supplied), NP-55, NP-66H, NP-77, NP-77H, NP-77HD
	Alkaline batteries	Battery case EBP-77
Indoors	House current	AC power adaptor AC-V30 (supplied), AC-V55, AC-S10
In the car	12V or 24V car battery	DC pack DCP-77, AC power adaptor AC-V55 and the car battery cord DCC-16AE, DC-S10

For details, see the operation manual of the accessory you want to use.

Using the Battery Pack

Step 1

Charge the battery pack. (D-1)

- 1 Align the right side of the battery pack with the line on the AC power adaptor.
- 2 Slide in the battery pack to the right.
- 3 Connect the AC power adaptor to a wall outlet.

	NP-55H	NP-77H/77HD	NP-77	NP-66H	NP-55
Required charging time*	70	140	120	110	60
Battery life**	60	130	110	80	50

* Approx. minutes using AC-V30

** Approx. minutes of continuous recording when used indoors

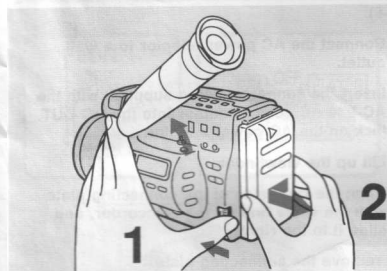
Step 2

Mount the battery pack on the camcorder.

(D-2)

- 1 Lift up the viewfinder.
- 2 Align the right side of the battery pack with the white line on the camcorder.
- 3 Slide the battery pack to the right.

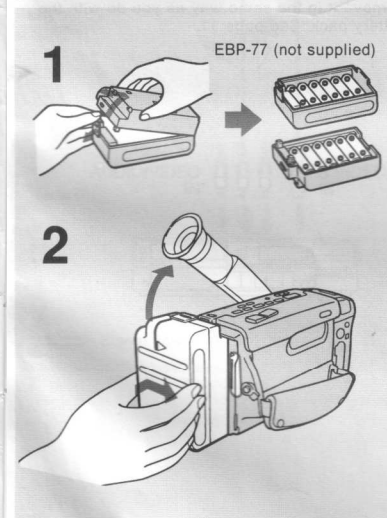
(D-3)



(D-4)



(D-5)



Connecting the Power Sources

To remove the battery pack (D-3)

While pressing the BATT knob in the direction of the arrow, slide the battery pack to the left and pull it out as illustrated.

The switch on the battery pack (D-4)

This switch is provided so that you can remember the charging condition. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is dead.

Other options for charging

- AC-S10 AC power adaptor, DC-S10 car battery charger:
These adaptors have a discharging function. When you want charging only, slide the skip switch on the adaptor in the direction of the arrow.
- AC-V55 AC power adaptor:
You can charge two battery packs.
- BC-55 portable battery charger:
You can charge a battery pack on 100 — 240 V AC.

Using Alkaline Batteries

(D-5)

- 1 Insert 12 R6 (AA) size alkaline batteries into the battery case.
- 2 Attach the case in the same way as the battery pack.

Battery life (when using Sony alkaline batteries)

The batteries last for about 2 hours and 10 minutes under continuous recording indoors. However, when you use non-Sony alkaline batteries, their life may be shorter.

Notes on battery life

- Batteries will not last as long in cold places.
- No indicator appears in the viewfinder when the batteries are weak.

To remove the battery case

Remove it the same way you do the battery pack. See above.

Connecting the Power Sources

Using House Current

(D-6)

- 1 Connect the AC power adaptor to a wall outlet.
- 2 Insert the connecting cord supplied with the AC-V30 AC power adaptor into the DC OUT jack on the AC power adaptor.
- 3 Lift up the viewfinder.
- 4 Align the right side of the connecting plate with the white line on the camcorder, and slide it to the right.

To remove the connecting plate
Remove it the same way you do the battery pack. See page 11.

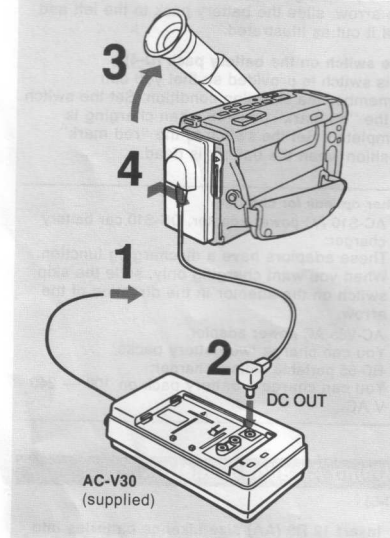
Using the Car Battery

(D-7)

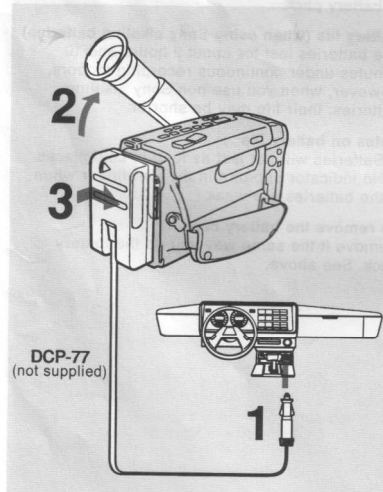
- 1 Connect the cord to the cigarette lighter socket of a car (12 V or 24 V).
- 2 Lift up the viewfinder.
- 3 Align the right side of the DC pack with the white line on the camcorder, and slide it to the right.

To remove the DC pack
Remove it in the same way as you do with the battery pack. See page 11.

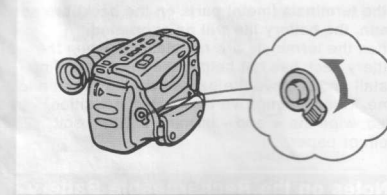
(D-6)



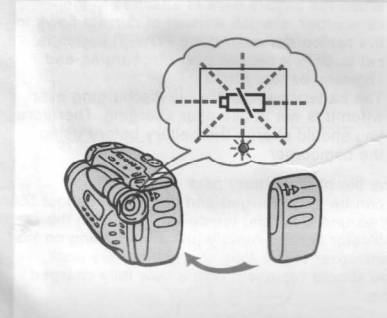
(D-7)



(E-1)



(E-2)



The Best Way to Use the Battery Pack

Preparing the Battery Pack


Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned. "Battery life" as indicated in this manual is measured by the continuous recording time of the camcorder, placed at a room temperature using a fully-charged battery.

Battery life is shorter in a cold climate. Battery efficiency is decreased and the battery will wear out more quickly.

To save battery power, turn the **STANDBY** switch of the camcorder off when not recording. A smooth recording can be made even if recording is stopped and started again. (E-1) While you are looking through the viewfinder, positioning the subject or selecting an angle, the lens inside the camcorder moves to focus the subject, and the battery is used. The battery is also used when a tape is inserted or removed.

When to Replace Battery Pack


(E-2)

When the  indicator and the battery lamp in the viewfinder changes from slow flashing to rapid flashing, replace the battery pack. Turn off the power switch of the camcorder and replace the battery pack. Leave the tape in the camcorder in order to obtain smooth transition after the battery pack is replaced.

Notes on Charging

Before using the battery pack, charge it sufficiently. A brand-new battery is not charged.

Recharge the battery pack only when it is discharged.

- If recording is completed before the mark appears in the viewfinder, you should remove the tape, set the **POWER** switch to **CAMERA**, turn up **STANDBY**, and leave the camcorder until the  indicator flashes rapidly.
- When you use the AC-S10 AC power adaptor or the DC-S10 car battery charger, you can use the discharging function.
- Charging the still usable battery causes a lowering of battery capacity. Battery capacity can be recovered if you fully discharge and charge the battery again.

Recharge the battery pack before using.

If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again but in this case, the battery life will be shorter than normal. After several charging and discharging cycles, its life will recover its original capacity.

The Best Way to Use the Battery Pack

Keep the Terminals Clean

If the terminals (metal parts on the back) are not clean, the battery life will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, install and remove the battery pack from time to time. This will improve the contact condition. Also, wipe the + and - terminals with a soft cloth or paper.

Notes on the Rechargeable Battery Pack

Why the battery pack heats up

During charging or recording, the battery pack heats up. This means energy has been generated and a chemical change has occurred inside the battery pack. This is not dangerous.

Battery care

- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. It causes over-discharging and shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore you should charge the battery before using the camcorder.

The life of the battery pack

It can be fully charged and discharged about 500 times under normal temperatures. When the indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, you should replace it with a new fully charged one.

Charging temperatures

Lower temperatures require a longer charging time. You should charge a battery under temperatures ranging from 10°C to 30°C (from 50°F to 85°F).

Be sure to observe the following

- To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack in its case.
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

Preparing your camcorder 3

Setting the Date and Time

(F-1)


Make sure that a power source (page 10) and lithium battery are installed (page 8).

- While pressing the green button, set the POWER switch to CAMERA, and turn STANDBY up.
- Press DATE (+) and TIME (NEXT) simultaneously for more than 2 seconds until "1 LONDON" flashes in the viewfinder. DATE (+) now functions as + (to advance numbers) and TIME (NEXT) functions as NEXT (to execute).
- Press DATE (+) until your area name and number appears and then press TIME (NEXT).

Countries	Area name	Area number
the United Kingdom and Portugal (GMT)	LONDON	1
other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

- Choose one of the following options to set the clock:

(a) For summer time, press SUMMER TIME. Then press TIME (NEXT).

The  indicator appears in the viewfinder and the display window.

(b) For standard time, press TIME (NEXT).

- Set the year*, month, day, hour and minute, in this order. Then press TIME (NEXT) to set the second.

First adjust the flashing digits with DATE (+) and then press TIME (NEXT). The clock starts operating.

* To set the year to 1992, no need to press DATE (+) in step 5—1.

To correct the date and time setting

Press TIME (NEXT) repeatedly until the minute digits stop flashing. Then repeat steps 2 to 5.


To advance the digits faster

Keep DATE (+) pressed.

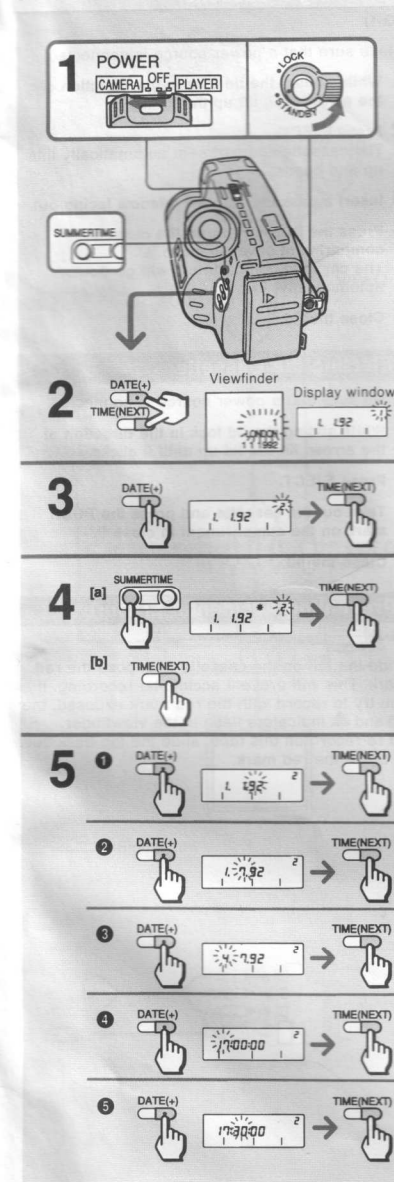
To check the preset date and time

Press DATE (+) or TIME (NEXT). When you press the same button again, the indicator goes off.

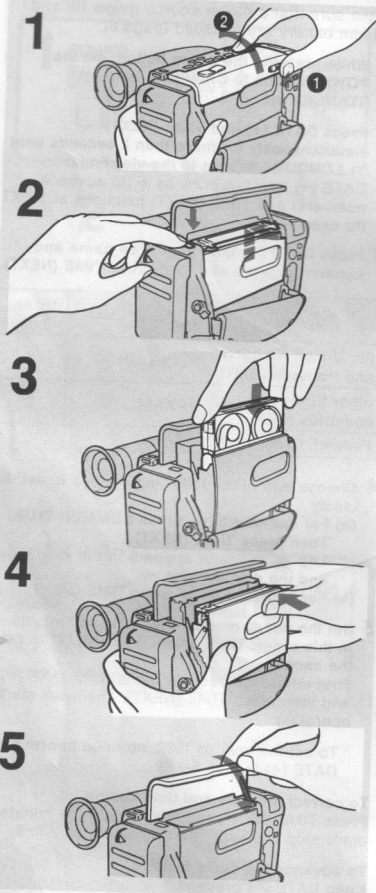
To reset standard time

Press SUMMER TIME. The  indicator goes off.

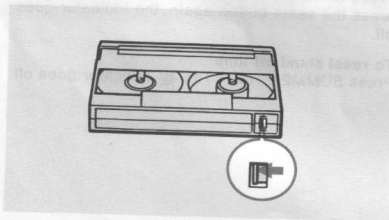
(F-1)



(G-1)



(G-2)



Preparing your camcorder 4 Inserting a Cassette

Inserting a Cassette

(G-1)

Make sure that a power source is connected.

1 While sliding the lid lock in the direction of the arrow (1), lift up the lid (2).

2 Press EJECT.

The cassette compartment automatically lifts up and opens.

3 Insert a cassette with the window facing out.

4 Press the PUSH mark on the cassette compartment cover to close it.

The cassette compartment will go down automatically.

5 Close the lid.

Ejecting the Cassette

Make sure that a power source is connected.

1 While sliding the lid lock in the direction of the arrow, lift the lid up until it clicks.



2 Press EJECT.

3 Take out the cassette and press the PUSH mark on the compartment to close it.

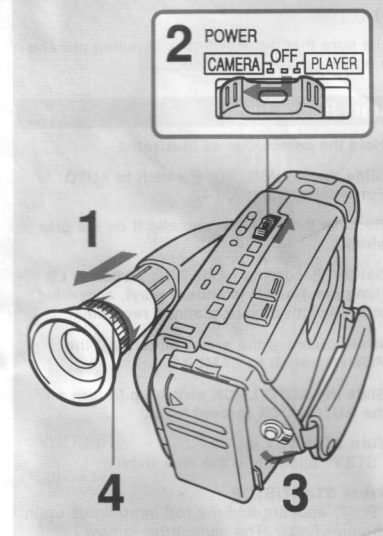
4 Close the lid.

Preventing Accidental Erasure

(G-2)

Slide the tab on the cassette to expose the red mark. This will prevent accidental recording. If you try to record with the red mark exposed, the  and  indicators flash in the viewfinder. To re-record on this tape, slide the tab back out to cover the red mark.

(H)



Preparing your camcorder 5

Adjusting the Viewfinder Lens

Before you use the camcorder for the first time (or after someone else has used it), adjust the viewfinder lens to best fit your eyesight. Make sure that the power source is attached to the camcorder, and a cassette is inserted.

If you wear glasses

You can bend back the eyecup to get a better view of the viewfinder.

(H)

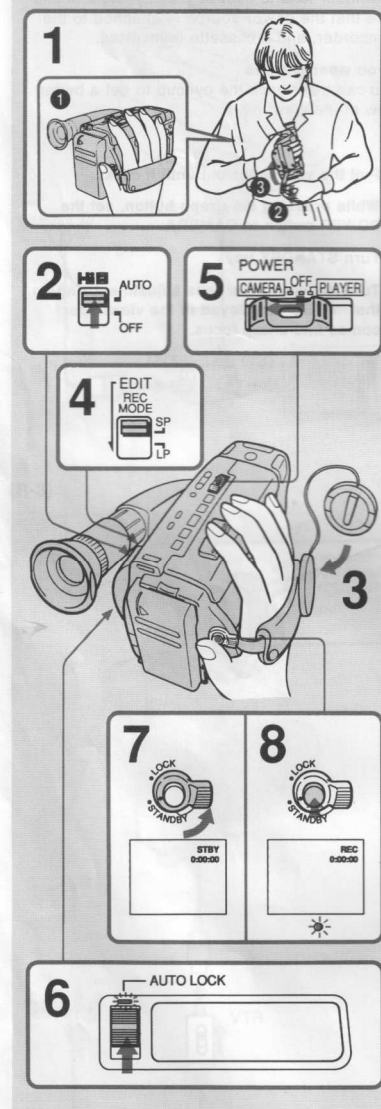
1 Pull the viewfinder out until it clicks.

2 While pressing the green button, set the POWER switch to CAMERA.

3 Turn STANDBY up.

4 Turn the viewfinder lens adjustment ring so that "STBY" displayed in the viewfinder comes into sharp focus.

(I-1)



Recording a Picture Using Automatic Adjustments

Before recording "once-only" events, we strongly recommend you make a trial recording and check that everything is working properly.

(I-1)

Make sure that the viewfinder is pulled out and the power source is attached.

Start Recording

- 1 Hold the camcorder as illustrated.
- 2 Slide the Hi8 AUTO/OFF switch to AUTO.
For details, see page 42.
- 3 Remove the lens cap and clip it on the grip strap.
- 4 Set the Recording mode/EDIT switch to LP (long play) or SP (standard play), according to the length of your planned recording.
- 5 While pressing the green button, set the POWER switch to CAMERA.
- 6 Slide the AUTO LOCK switch up to turn on the AUTO LOCK (green) lamp.
- 7 Turn STANDBY up.
"STBY" appears in the viewfinder.
- 8 Press START/STOP.
"REC" appears and the red lamp lights up in the viewfinder. The camcorder is now recording.

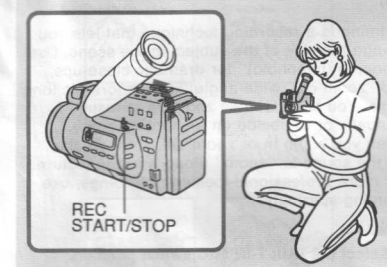
Recording mode

You can record and play back a picture on a tape in both SP (standard play) and LP (long play) modes.
However, the quality of the playback picture in the LP will not be as good as that in the SP mode.

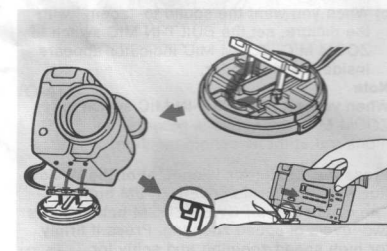
To stand-by (to stop momentarily)
Press START/STOP again.
"STBY" appears in the viewfinder.

To stop
Turn STANDBY down and set the POWER switch to OFF.

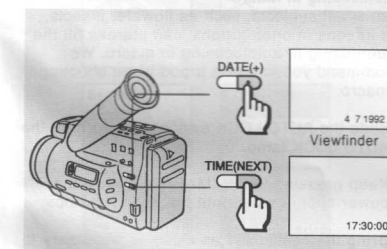
(I-2)



(I-3)



(I-4)



Recording a Picture Using Automatic Adjustments

For low-position recording (I-2)

When the viewfinder is pushed down, you can monitor the picture without being close to the viewfinder.

- 1 Adjust the viewfinder barrel. (You can turn it up to 90 degrees.)
- 2 Turn STANDBY up.
- 3 Press REC START/STOP with your left thumb.

Note on recording

To record from the beginning of the tape, run the tape for about 15 seconds before recording. This will avoid missing the starting point when the tape is played back.

Note on the standby mode

If you leave the camcorder in the standby mode for 5 minutes or more, the camcorder will go off automatically. To resume the standby mode, turn STANDBY down once and slide it up again. To start recording, press START/STOP directly.

Note on lens cap

You can use the supplied lens cap as a handy camcorder stand. (I-3)

Recording Date and Time

(I-4)

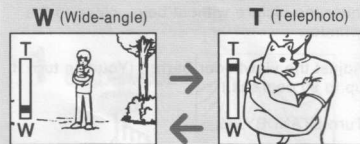
During camera recording or when in recording pause mode, press DATE (+) for date indicator or TIME (NEXT) for time indicator.
The date or time displayed in the viewfinder is recorded with the picture.

To stop recording date and time

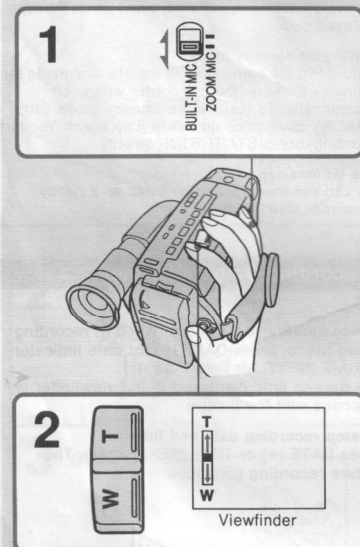
Press DATE (+) or TIME (NEXT) again. The picture recording continues.

Recording a Picture Using Automatic Adjustments

(I-5)



(I-6)



Zooming

(I-5)

Zooming is a recording technique that lets you change the size of the subject in the scene. Use "zoom-in (telephoto)" for dramatic close-ups, and "zoom-out (wide-angle)" for panoramic long shots. You can also use zooming to focus manually or to decide on a shooting angle. When you zoom in or zoom out, you can also set the sound to "zoom" along with the picture. For more professional-looking recordings, use zooming sparingly.

(I-6)

- 1 Select the **BUILT-IN MIC** switch position.
 - a) When you want to record the usual Hi-Fi stereo sound regardless of zooming, set the **BUILT-IN MIC** switch to the green mark position.
 - b) When you want the sound to "zoom" with the picture, set the **BUILT-IN MIC** switch to **ZOOM MIC**. **ZOOM MIC** indicator appears inside the viewfinder.

Note

When you set the **BUILT-IN MIC** switch to **ZOOM MIC**, the sound is recorded in monaural at the telephoto position.

- 2 Press the **T** side (for telephoto) or the **W** side (for wide-angle) of **POWER ZOOM** button. The camcorder's **POWER ZOOM** button offers two-levels of speed zooming. Press it firmly for high speed zooming and softly for relatively slow zooming.

Autofocusing in macro

Even small subjects, such as flowers, insects, and images in photographs, can literally fill the screen using in autofocusing in macro. We recommend you to use a tripod when shooting in macro.

- 1 Slide the **AUTO LOCK** switch up to turn on the **AUTO LOCK** lamp.
- 2 Keep pressing the **W** (**MACRO**) side of the power zoom button until the zooming stops.
- 3 Bring the camcorder as close as necessary to obtain the desired subject size.

Manual focusing in macro

You can also shoot with manual focus while doing close-up. For details, see page 25.

Notes

- When you zoom out with the tele-conversion lens (not supplied), the frame of the lens may appear on both sides of the picture. For details, consult your Sony dealer.
- You can shoot a subject that is at least 80 cm (about 31 1/2 inches) away from the lens surface in the telephoto position.

Recording a Picture Using Automatic Adjustments

Getting a Steady Picture

(I-7)

You can use the **Steady Shot** function to compensate for camera-shake.

Use **Steady Shot**:

- When you zoom in
- When you shoot scenery from a car window
- When you shoot scenes while moving

- 1 Set the **STEADY SHOT** switch to **ON**.

The indicator appears in the viewfinder and in the display window.

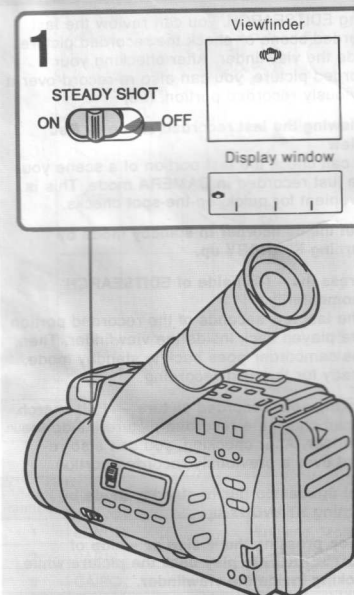
To release Steady Shot function

Set the **STEADY SHOT** switch to **OFF**.

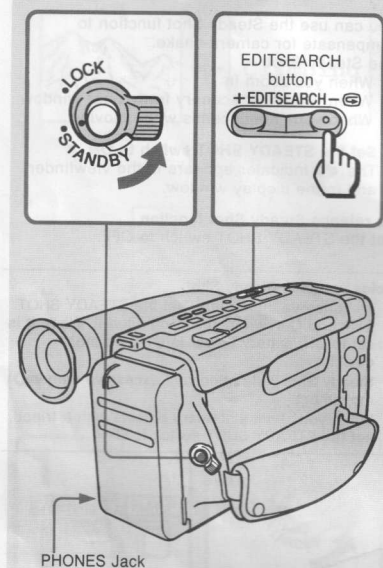
Notes on using Steady Shot

- To conserve the battery, set the **STEADY SHOT** switch to **OFF** when you don't need it. When it is set to **ON**, battery power is used up more quickly.
- Steady Shot will not correct excessive camera movement.
- When you shoot stationary objects with a tripod, set the **STEADY SHOT** switch to **OFF**.

(I-7)



(I-8)



Recording a Picture Using Automatic Adjustments

Checking the Recorded Picture In the Viewfinder (EDITSEARCH)

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture inside the viewfinder. After checking your recorded picture, you can also re-record over a previously recorded portion. (I-8)

Reviewing the last recorded scene — Rec Review

You can check the last portion of a scene you have just recorded in CAMERA mode. This is convenient for quick, on-the-spot checks.

- 1 Set the camcorder in standby mode by turning STANDBY up.
- 2 Press the - (⊖) side of EDITSEARCH momentarily.
The last few seconds of the recorded portion are played back inside the viewfinder. Then, the camcorder goes back to standby mode, ready for the next recording.

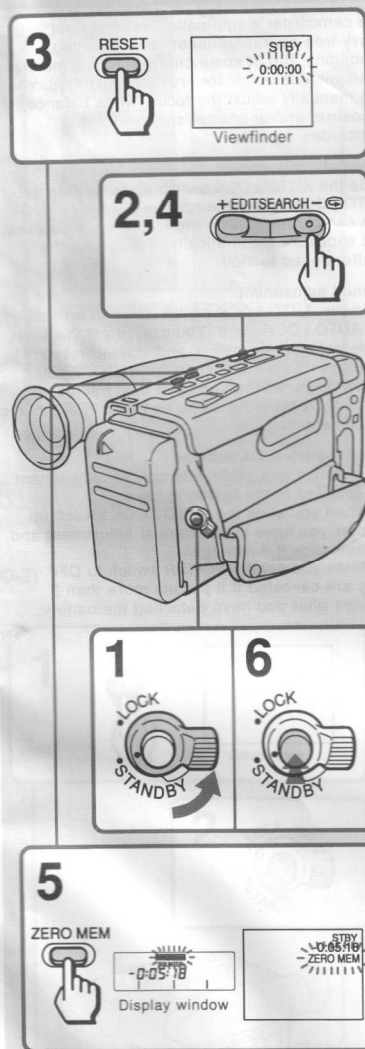
Checking your recorded picture — Edit search
You can check the recorded picture inside the viewfinder. After checking, you can also re-record over a previously recorded portion.

- 1 Set the camcorder in standby mode by turning STANDBY up.
- 2 Keep pressing the + side or - side of EDITSEARCH to play back the picture while looking inside the viewfinder.
+ side: to view the forward playback picture
- side: to view the reverse playback picture
To stop playback, release EDITSEARCH.
- 3 To re-record over a recorded portion:
 - 1 Keep pressing the + side or the - side of EDITSEARCH to locate the point you want to begin re-recording.
 - 2 Press START/STOP to begin re-recording.
Re-recording begins from the point you released EDITSEARCH. As long as you do not eject the tape, the transition between the scenes will be smooth.

To monitor the sound while viewing the playback picture in the viewfinder
Connect a headphone to the PHONES jack.

- 1 While pressing the green button, set the POWER switch to PLAYER.
- 2 Press ◀ to rewind the tape and press □ where you want to stop.
- 3 Press ▶ to start playback.

(I-9)



Recording a Picture Using Automatic Adjustments

Re-recording a Picture in the Middle of a Recorded Tape (Insert Recording)

(I-9)

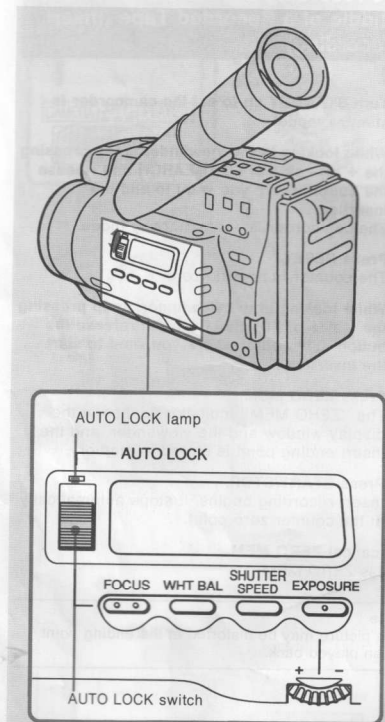
- 1 Turn STANDBY up to set the camcorder in standby mode.
- 2 While looking in the viewfinder, keep pressing the + or - side of EDITSEARCH and release the button where you want to end the insertion.
The camcorder is set to standby mode.
- 3 Press RESET.
The counter is reset to zero.
- 4 While looking in the viewfinder, keep pressing the - side of EDITSEARCH and release the button at the point where you want to start the insertion.
- 5 Press ZERO MEM.
The "ZERO MEM" indicator flashes in the display window and the viewfinder, and the insert ending point is stored in memory.
- 6 Press START/STOP.
Insert recording begins. It stops automatically at the counter zero point.

To cancel ZERO MEM
Press ZERO MEM.

Note

The picture may be distorted at the ending point when played back.

(J)



Recording a picture using manual adjustment

Selecting the Automatic/Manual Adjustment

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording. You can manually adjust the focus, white balance, exposure, and/or shutter speed with this camcorder. (J)

Automatic adjustment

Slide the AUTO LOCK switch up to turn on the AUTO LOCK (green) lamp. The camcorder adjusts the focus, white balance, and exposure automatically. It also sets the shutter speed to 1/50.

Manual adjustment

Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp. You can adjust the focus, white balance, exposure, and shutter speed manually. Even if you slide the AUTO LOCK switch down, the settings you didn't adjust manually remain the same as those in automatic adjustment.

About the previous settings

The settings you made with manual adjustment are retained in the following case:

- When you slide the AUTO LOCK switch up after you have made manual adjustment and then slide it down again
 - When you set the POWER switch to OFF
- They are canceled if it passes more than 5 minutes after you have detached the battery.

Manual Focusing


We recommend manual focusing in the following cases. (K-1)

- [a] Too much brightness behind the subject
- [b] Subjects with little contrast—walls, sky, etc.
- [c] Horizontal stripes
- [d] Subjects through frosted glass
- Insufficient light
- One subject is close; the other is in the center, but at a distance
- Subjects beyond nets, etc., or another subject passes in front of the camcorder
- Bright subject or subject reflecting light
- High contrast behind the subject (the background may be focused)
- Shooting a stationary subject when using a tripod
- To save battery power

(K-2)

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press FOCUS.

The  (manual focusing) indicator appears in the viewfinder and the FOCUS MANUAL indicator appears in the display window.

3 Keep pressing the T (telephoto) side of the power zoom button until the zooming stops.


4 Turn the focus ring to achieve sharp focus.

Note

The focus ring does not have a stop position.

5 Set the desired shot length using the power zoom button.

To reactivate autofocus

Press FOCUS again, or slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp. The  indicator in the viewfinder disappears.

Manual focusing in Macro

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press FOCUS.

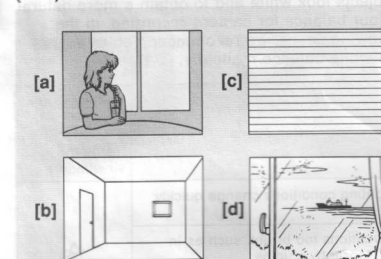
3 Keep pressing the W (MACRO) side of the power zoom button until the zooming stops.

4 Turn the focus ring to achieve sharp focus.

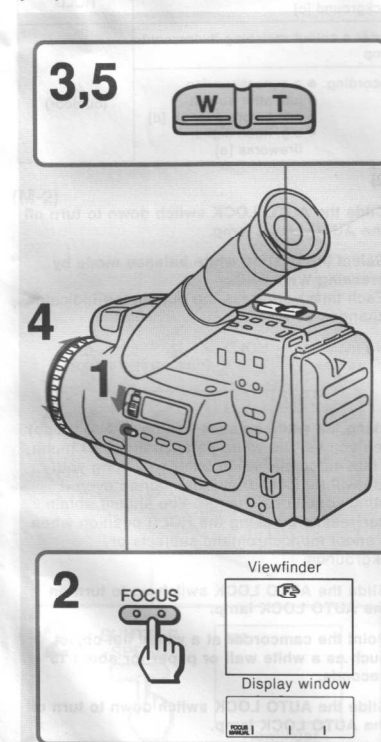
Shooting in relatively dark places

Shoot at wide angles after focusing in telephoto.

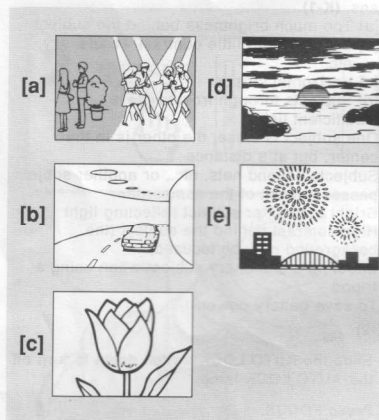
(K-1)



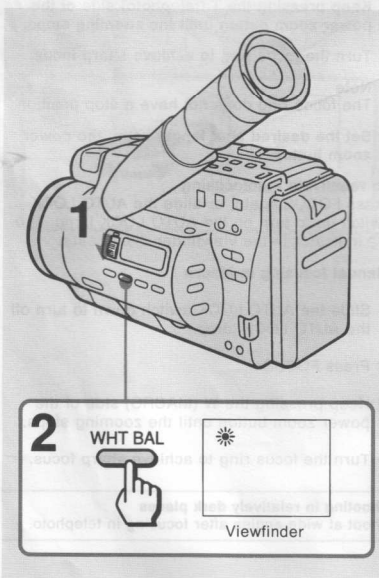
(K-2)



(L-1)



(L-2)



Adjusting the White Balance

White balance is the adjustment to make white subjects look white and to obtain a more natural colour balance for camera recording. In the following cases, we recommend you to adjust the white balance manually. (L-1)

Conditions	White balance mode (indicator inside the viewfinder)
Lighting conditions change quickly [a]	(indoor)
Conditions too bright, such as in photography studios	
Under sodium lamps [b]	
Under mercury lamps	HOLD
Monochromatic subject or background [c]	
Under a colour matching fluorescent lamp	(outdoor)
Recording: <ul style="list-style-type: none"> • a sunset/sunrise • just after sunset • just before sunrise [d] • e.g. neon signs, fireworks [e] 	

(L-2)

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Select the desired white balance mode by pressing WHT BAL. Each time you press the button, the indicator changes as follows:

No indicator → HOLD → (outdoors) → (indoors)

Locking the white balance setting (HOLD mode)
When you set the white balance at HOLD mode, the last automatic white balance setting you made will be locked and maintained even if lighting conditions change. You should obtain better results by using the HOLD position when you shoot monochromatic subjects or backgrounds.

1 Slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.

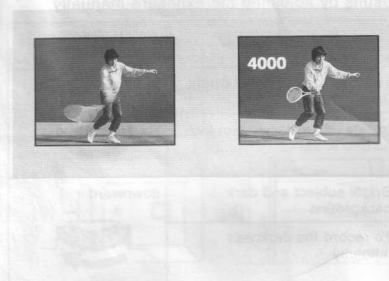
2 Point the camcorder at a white, flat object such as a white wall or paper for about 15 seconds.

3 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

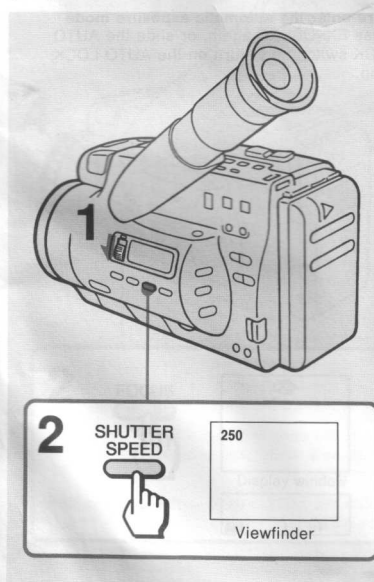
4 Press WHT BAL to display the HOLD indicator inside the viewfinder.

When you detach the battery or change the white balance setting, the locked white balance setting is no longer maintained. In this case, re-enter HOLD mode by following the procedures above again.

(M-1)



(M-2)



Setting the Shutter Speed

When you record a fast-moving subject, choose a higher shutter speed. The movement will look sharper during freeze frame when you play back the recorded tape with an 8 mm recorder that has the clean still function. Remember that you need enough lighting to use the high-speed shutter. (M-1)

Recommended setting for your situation

Example use	Recommended shutter speed
<ul style="list-style-type: none"> • On clear days, recording a golf or tennis swing (To view the hit ball clearly in the still picture mode, set to 1/4000 or 1/10000) • Recording skiers 	1/10000 or 1/4000 or 1/2000
<ul style="list-style-type: none"> • On overcast days, recording a moving merry-go-round or roller, coaster • Recording outdoors from inside a vehicle (for stable shooting) 	1/1000 or 1/250
<ul style="list-style-type: none"> • Instead of the ND2 filter (To reduce the exposure level to about half) • Recording indoor sports (for stable shooting) 	1/120

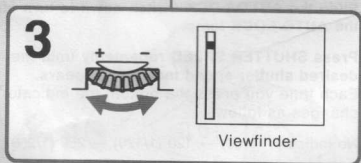
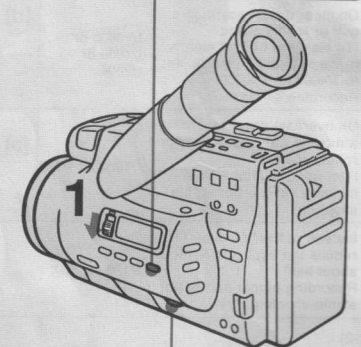
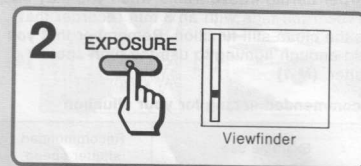
(M-2)

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press SHUTTER SPEED repeatedly until the desired shutter speed indicator appears. Each time you press the button, the indicator changes as follows:

No indicator (1/50) → 120 (1/120) → 250 (1/250)
 10000 (1/10000) ↓
 4000 (1/4000) ← 2000 (1/2000) ← 1000 (1/1000)

(N)



Adjusting the Exposure

In the following cases you should obtain better results by adjusting the exposure manually.

Conditions	Turn the EXPOSURE dial:
The background is too bright (backlighting)	upward
Insufficient light: most of the picture is dark.	downward
Bright subject and dark background	downward
To record the darkness faithfully	downward

(N)

1 Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp.

2 Press EXPOSURE.

The exposure is locked at the actual brightness.
The exposure indicator appears in the viewfinder.

3 Adjust the exposure by using the EXPOSURE dial.

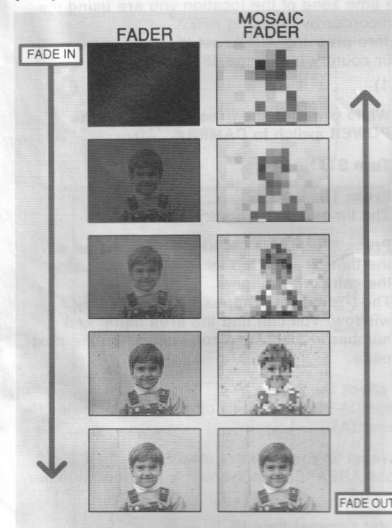
The exposure is locked at the adjusted brightness.

To re-enter the automatic exposure mode
Press EXPOSURE again, or slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.

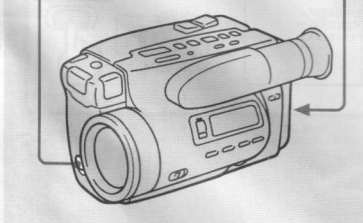
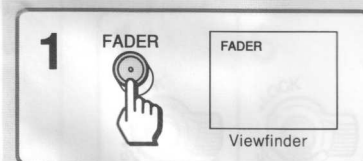
When you detach the battery or change the white balance setting, the locked white balance setting is no longer maintained. In this case, re-enter HOLD mode by following the procedure above again.

Using the World Clock

(O-1)



(O-2)



Fade-in and Fade-out

You can fade a picture in or out with sound to give your recording a professional touch. When fading-in, you can make the picture gradually appear from black or mosaic while increasing the sound. When fading-out, you can make the picture gradually fade to black or mosaic while decreasing the sound. (O-1)

Note on the FADER button

Each time you press FADER, the indicator changes as follows:

FADER → M. FADER → No indicator
(black fade) (mosaic fade)

(O-2)

1 Select the type of fade by pressing FADER as follows:

- When fading-in, press it after turning STANDBY up to put the camcorder into standby mode. The fade indicator starts flashing.
- When fading-out, press it while recording. The fade indicator starts flashing.

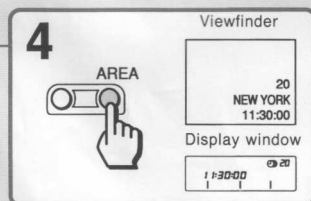
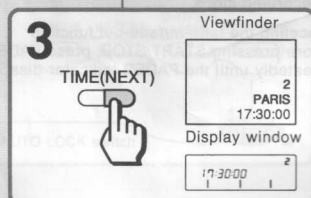
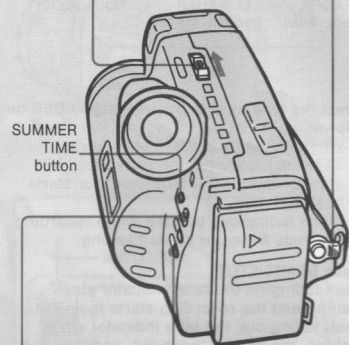
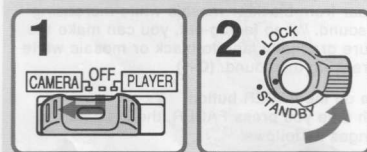
2 Press START/STOP.

When fading-in, the fade indicator stops flashing and the recording starts fading in. When fading-out, the fade indicator stops flashing, the picture fades out, and then the recording stops.

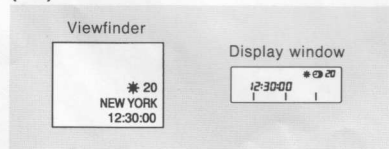
Canceling the fade-in/fade-out function

Before pressing START/STOP, press FADER repeatedly until the FADER indicator disappears.

(P-1)



(P-2)



Using the World Clock

While traveling abroad, you can easily adjust to the time zone of the location you are using the camcorder by pressing AREA. Before pressing AREA, set the date and time in your country (see page 15).

(P-1)

1 While pressing the green button, set the POWER switch to CAMERA.

2 Turn STANDBY up.

3 Press TIME (NEXT).
The time in your country appears.

4 Press AREA until the name and number of the time zone of the location you are using the camcorder appear.
The indicator appears in the display window. You can find the area name and number in the "Time zone chart" on the next page.

To check the date

Press DATE (+). To turn off the date indicator, press DATE (+) again.

To reset to your country area time

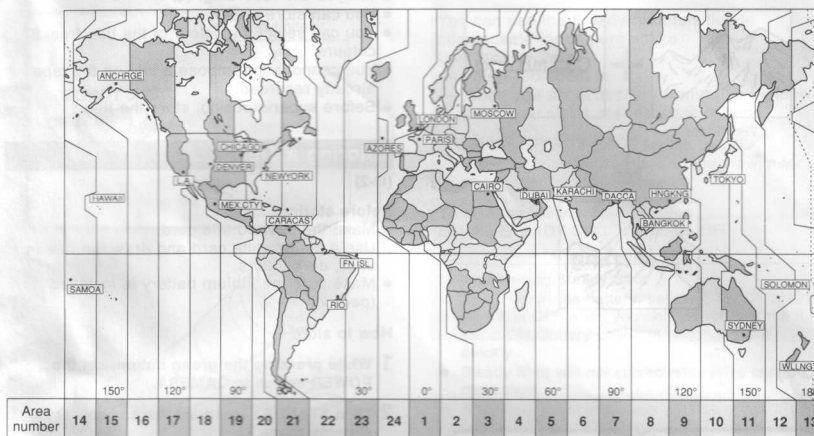
Press AREA until your country area and number appears.

To set summer time (P-2)

Press SUMMER TIME. Time changes to summer time. indicator appears in the viewfinder and in the display window. To set to standard time, press SUMMER TIME again.

Using the World Clock

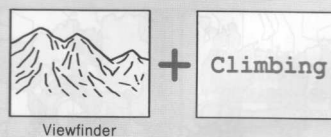
Time Zone Chart



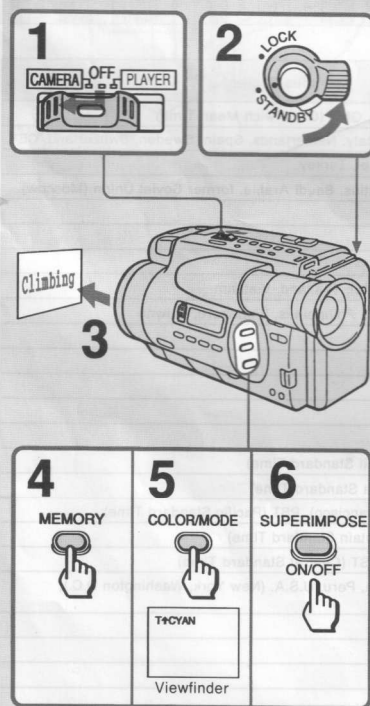
* These are common names. The formal names may be different.

Superimposing a Title

(Q-1)



(Q-2)



You can superimpose your own hand-written message or illustration (title) over the picture while you are recording. (Q-1)

- You can store one title.
- You can select the colour of the title from 8 colours.
- You cannot superimpose a title on the tape already recorded.
- Before superimposing, store the title.

Storing a Title

(Q-2)

Before storing

- Make the desired title card.
Use a plain, white card and draw the title in thick, dark letters.
- Make sure the lithium battery is installed (page 8).

How to store

- 1 While pressing the green button, set the POWER switch to CAMERA.
- 2 Turn STANDBY up to set the camcorder in standby mode.
- 3 Point the camcorder to the title card and adjust the focus.
- 4 Press MEMORY to store the title.
- 5 Press COLOR/MODE and select the title colour.
Each time you press the button, the indicator changes as follows:
WHT (white) → BLUE → GRN (green) → CYAN
BLK (black) ← YEL (yellow) ← VIO (violet) ← RED
- 6 Press SUPERIMPOSE ON/OFF to turn off the title.

To check the title

Press SUPERIMPOSE ON/OFF in the standby mode.

Superimposing a Title

Various Display Modes of the Title

You can scroll your title like scrolling credits in the movies, or reverse the title. Select the display mode of the title from the following table.

Display mode	Indicator inside the viewfinder
Scrolling up the title (Q-3) The title scrolls up and stops at the center, then disappears scrolling up.	↑
Scrolling down the title (Q-3) The title scrolls down and stops at the center, then disappears scrolling down.	↓
Reversing the title with the picture (Q-4)	⏮
Scrolling up the reversed title (Q-5)	⏮↑
Scrolling down the reversed title (Q-5)	⏮↓
Normal display mode	No indicator

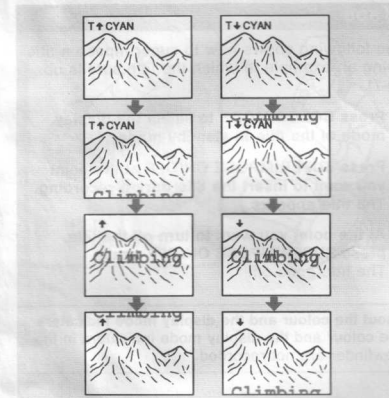
Selecting the display mode

Before displaying the title, press COLOR/MODE until the indicator of the mode you want appears. (Q-6)

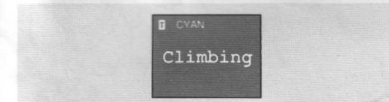
Function of the COLOR/MODE Button

This button has two functions: One is to select the title colour and the other is to select the title display mode. If the title is displayed, this button functions as the colour selection button, and if it is not, it functions as the mode selection button.

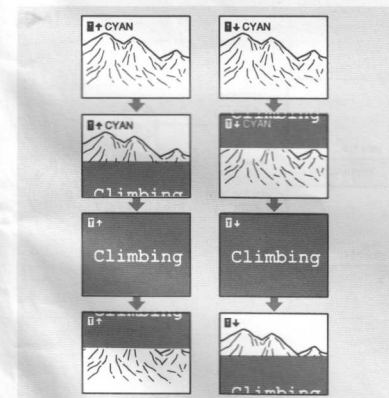
(Q-3)



(Q-4)



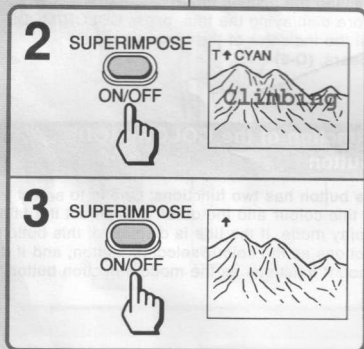
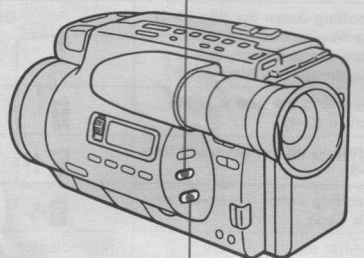
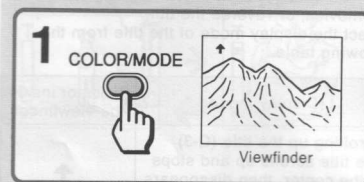
(Q-5)



(Q-6)



(Q-7)



Superimposing a Title

Superimposing a Title on Your Tape

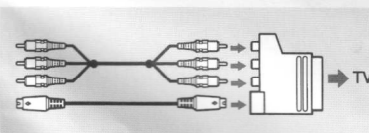
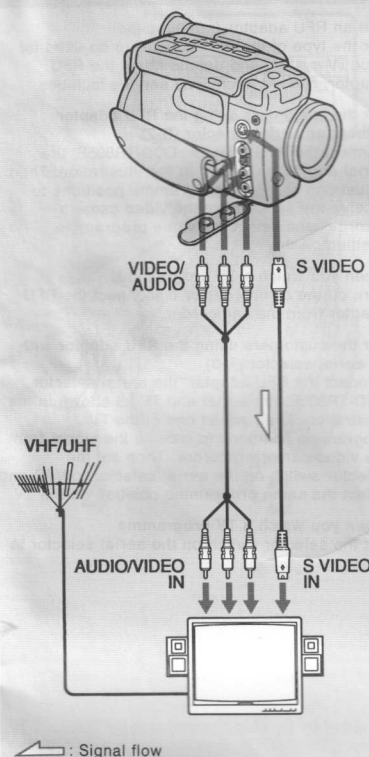
The following shows how to superimpose a title using an example in which the title scrolls up. (Q-7)

- 1 Press **COLOR/MODE** to select the display mode of the title in standby mode.
- 2 Press **SUPERIMPOSE ON/OFF** at the point you want to insert the title during recording. The title appears.
- 3 At the point you want to turn off the title, press **SUPERIMPOSE ON/OFF** again. The title goes off.

About the colour and the display mode indicators
The colour and the display mode indicators in the viewfinder are not recorded.

Connection for Playback

(R-1)



You must connect the camcorder to the TV and/or VTR properly to view the playback picture. Check if your TV has video/audio input jacks. For details on the TV and VTR, refer to their operation manuals.

Case 1: Connecting to a TV with Video/Audio Input Jacks

(R-1)

Leave the TV aerial cable connected to the TV.

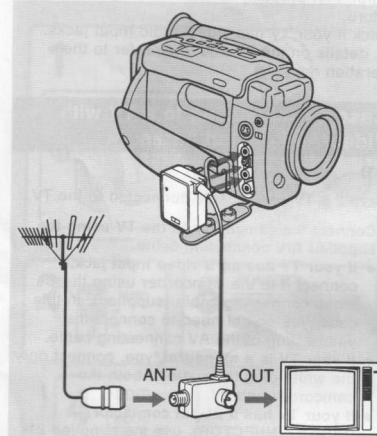
- 1 Connect the camcorder to the TV using the supplied A/V connecting cable.
 - If your TV has an S video input jack, connect it to the camcorder using the S video connecting cable (supplied). In this case, you do not need to connect the yellow plug of the A/V connecting cable.
 - If your TV is a monaural type, connect only the white plug for audio to both the camcorder and TV.
 - If your TV has a 21-pin connector (EUROCONNECTOR), use the supplied 21-pin adaptor.

- 2 Set the TV/VIDEO selector on the TV to VIDEO.

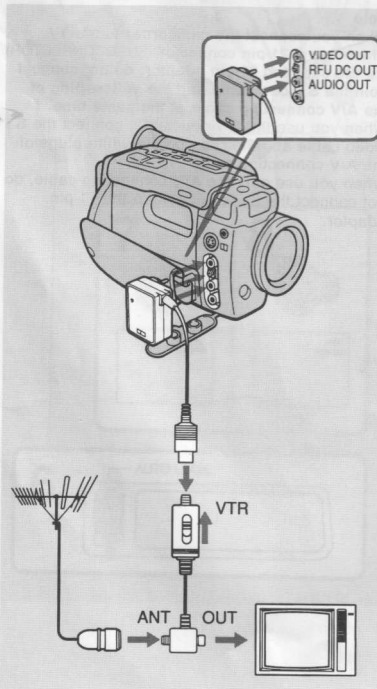
Note

When you connect the camcorder to the TV which has a 21-pin connector (EUROCONNECTOR) via the supplied 21-pin adaptor, **do not connect both the S video cable and the yellow plug of the A/V connecting cable at the same time.** When you use the S video cable, connect the S video cable and the red and the white plugs of the A/V connecting cable. When you use only the A/V connecting cable, do not connect the S video cable to the 21-pin adaptor.

(R-2) You must connect the camcorder to the TV. You must connect the camcorder to the TV. You must connect the camcorder to the TV.



(R-3)



Connection for Playback

Case 2: Connecting to a TV without Video/Audio Input Jacks

Use an RFU adaptor (not supplied). For the type of the RFU adaptor to be used for your TV system and details about the RFU adaptor, consult your Sony service facilities.

For the customers using the RFU adaptor without an aerial selector (R-2)

Connect the RFU adaptor, CCD-TR805E, the aerial and TV as shown in the illustration. Then adjust one of the TV programme positions to receive the signal from the video camera recorder and select the same programme position on the TV.

When you watch a TV programme

Turn off the camcorder or disconnect the RFU adaptor from the camcorder.

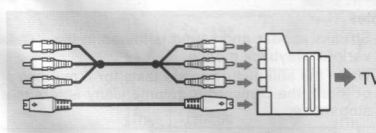
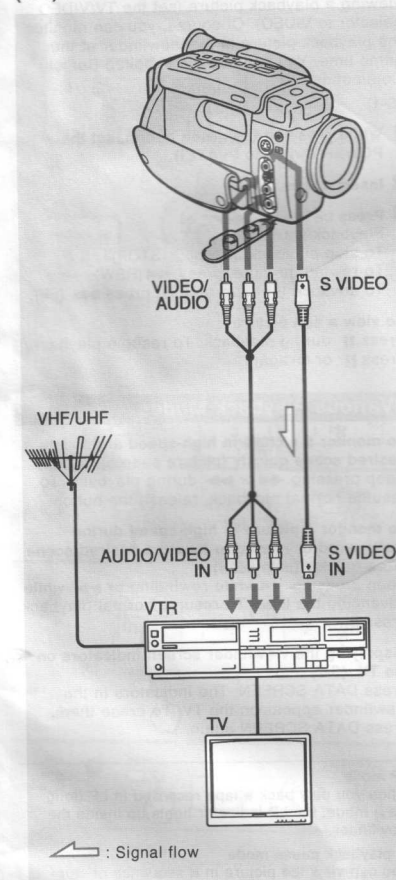
For the customers using the RFU adaptor with an aerial selector (R-3)

Connect the RFU adaptor, the aerial selector, CCD-TR805E, the aerial and TV as shown in the illustration. Then adjust one of the TV programme positions to receive the signal from the video camera recorder. Then set the selector switch on the aerial selector to VTR and select the same programme position on the TV.

When you watch a TV programme

Set the selector switch on the aerial selector to TV.

(R-4)



Connection for Playback

Case 3: Connecting to a TV via a VTR

(R-4)

1 Connect the camcorder to the VTR using the supplied A/V connecting cable.

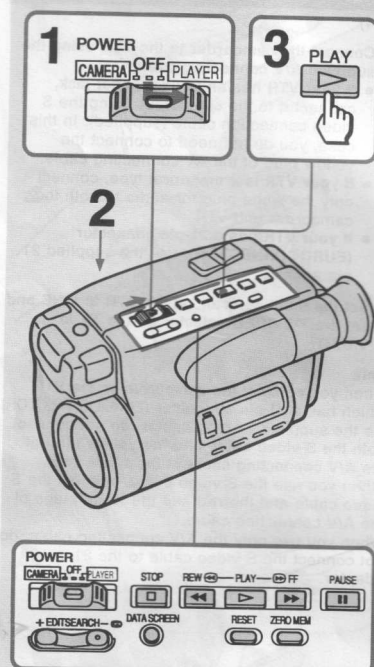
- If your VTR has an S video input jack, connect it to the camcorder using the S video connection cable (supplied). In this case, you do not need to connect the yellow plug of the AV connecting cable.
- If your VTR is a monaural type, connect only the white plug for audio to both the camcorder and VTR.
- If your VTR has a 21-pin connector (EUROCONNECTOR), use the supplied 21-pin adaptor.

2 Set the input selector on the VTR to LINE and set the TV/VIDEO selector on the TV to VIDEO.

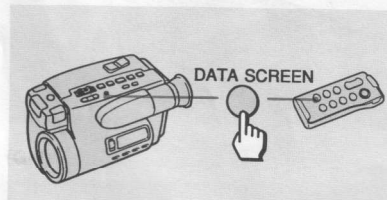
Note

When you connect the camcorder to the VTR which has a 21-pin connector (EUROCONNECTOR) via the supplied 21-pin adaptor, **do not connect both the S video cable and the yellow plug of the A/V connecting cable at the same time.** When you use the S video cable, connect the S video cable and the red and the white plugs of the A/V connecting cable. When you use only the A/V connecting cable, do not connect the S video cable to the 21-pin adaptor.

(S-1)



(S-2)



Playing Back a Tape

Turn on the TV, and select the channel for viewing a playback picture (set the TV/VIDEO selector to VIDEO). Of course, you can monitor the playback picture in the viewfinder at the same time. You can use the supplied Remote Commander.

(S-1)

1 While pressing the green button, set the POWER switch to PLAYER.

2 Insert a tape.

3 Press \triangleright .
Playback starts.
To stop playback, press \square (STOP).
To rewind the tape, press \blacktriangleleft (REW).
To advance the tape rapidly, press \blacktriangleright (FF).

To view a still picture

Press \parallel during playback. To resume playback, press \parallel or \triangleright again.

Various Playback Modes

To monitor a picture in high-speed and locate a desired scene quickly (picture search).
Keep pressing \blacktriangleleft or \blacktriangleright during playback. To resume normal playback, release the button.

To monitor a picture in high-speed during fastforward or rewind to locate a desired scene more quickly (skip scan)
Keep pressing \blacktriangleleft while rewinding or \blacktriangleright while advancing the tape. To resume normal playback, press \triangleright .

Displaying the viewfinder screen indicators on the TV. (S-2)

Press DATA SCREEN. The indicators in the viewfinder appear on the TV. To erase them, press DATA SCREEN again.

LP mode

When you play back a tape recorded in LP (long play) mode, the LP indicator lights up inside the viewfinder.

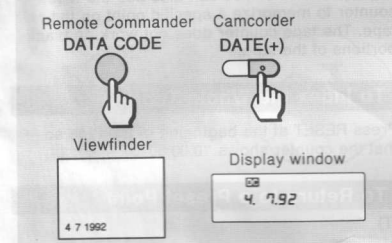
In playback pause mode

You can view the picture in a sequence of stop-motion images by pressing EDITSEARCH. If you keep pressing EDITSEARCH, you can view the picture playback in forward or reverse direction.

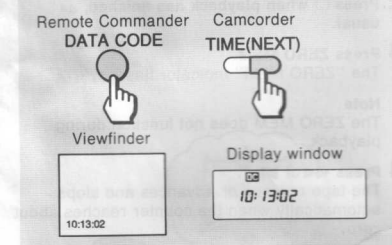
Notes

- Streaks appear and sound is muted in the various playback modes.
- When the still picture mode lasts for 5 minutes or more, the camcorder automatically enters the stop mode.

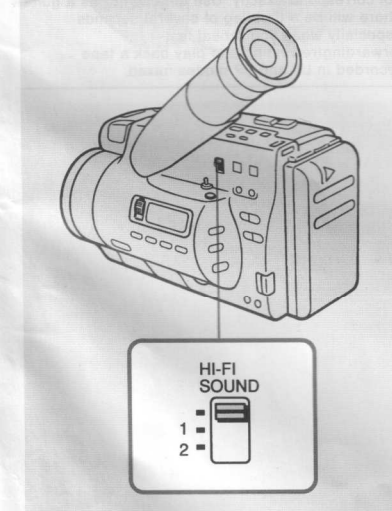
(S-3)



(S-4)



(S-5)



Playing Back a Tape

Displaying the Recording Date or Time — Data Code Function

Even if you didn't record date or time, you can display the recording date or time (data code) on the TV during playback or editing. You can also display the data code in the viewfinder and in the display window at the same time.

Each time you press DATA CODE on the Remote Commander, display changes as follows:

Date → Time → No indicator

Displaying the recording date (S-3)

Press DATE (+) on the camcorder, or press DATA CODE on the Remote Commander. To erase the date, press DATE (+) again or DATA CODE twice.

Displaying the recording time (S-4)

Press TIME (NEXT) on the camcorder, or press DATA CODE on the Remote Commander twice. To erase the time, press TIME (NEXT) or DATA CODE again.

Note on the data code

When bars (---) appear in place of the data code, it indicates:

- A blank portion of the tape is being played back.
- The tape was recorded by another camcorder without a data code function.
- The tape is recorded without having date and time set.
- The tape is unreadable due to tape damage or noise.

Selecting the Monitor Sound

(S-5)

You can select the playback sound with the HI-FI SOUND switch.

Normally set the switch to the "Green position."

When playing back an AFM monaural sound recorded tape

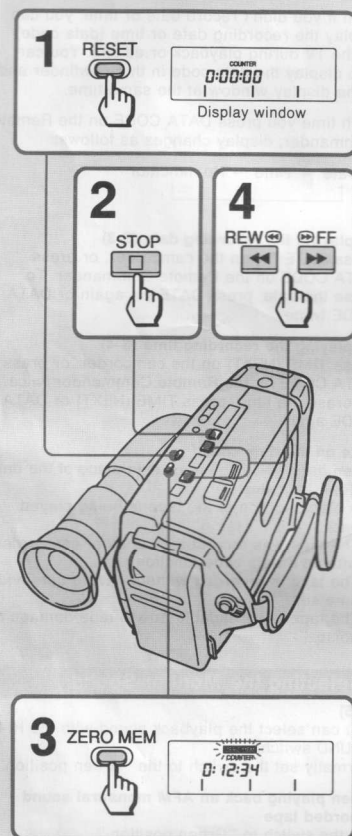
Set the switch to "Green position."

Monaural sound comes from both audio jacks.

When playing back a dual soundtrack tape

Set switch to "1" or "2."

(T)



Using the Tape Counter

The tape counter tells you the actual recording or playback time. You can also use the tape counter to memorize a specific point on the tape. The tape counter does not work on blank portions of the tape.

To Index the Whole Tape

Press RESET at the beginning of the tape so that the counter shows "0:00:00".

To Return to a Preset Point

(T)

1 During playback, press RESET at the point you later want to locate.
The counter shows "0:00:00".

2 Press when playback has finished, as usual.

3 Press ZERO MEM.
The "ZERO MEM" indicator flashes.

Note

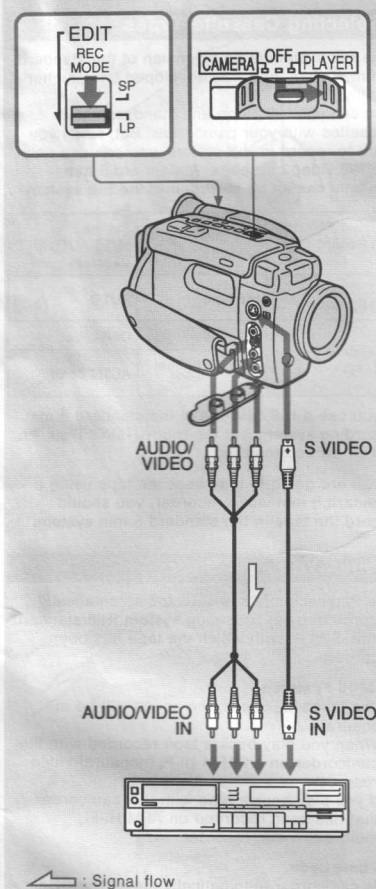
The ZERO MEM does not function during playback.

4 Press or .
The tape rewinds or advances and stops automatically when the counter reaches about zero.

Note

The counter reading and the point on the tape may not correspond exactly. Use the counter as a guide. There will be a time lag of several seconds especially when you repeat fast-forwarding/rewinding and play back a tape recorded in LP and SP modes mixed.

(U)



Editing onto Another VTR

You can create your own video programme by editing with any other 8mm, Hi8, Betamax, VHS, S-VHS, VHS-C, S-VHS-C VTRs that has video/audio inputs.

Before you begin, you need to connect the camcorder to a TV via a VTR as illustrated. For details, see page 37. (U)

1 Insert a tape to be recorded on into the recording VTR.

2 Move EDIT on the camcorder in the direction of the arrow.

3 Set the POWER switch of the camcorder to PLAYER and insert your recorded tape.

4 Play back the tape on the camcorder and locate the point where you want to start editing and set the camcorder to the playback pause mode.

5 On the recording VTR, locate the recording start point and set the VTR to the recording pause mode.

6 Press on the camcorder and on the VTR simultaneously to start editing.

To edit more scenes, repeat steps 4 to 6.

To stop editing, press on the camcorder and on the VTR.

Use of the EDITSEARCH button

You can play back a tape in normal/reverse direction by keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Note on DATA SCREEN function

If you have displayed the viewfinder screen indicators on the TV (DATA SCREEN function), erase the indicators by pressing DATA SCREEN so that they will not be superimposed on the edited tape.

Use of the EDIT switch

When you set the EDIT switch in the direction of the arrow (EDIT ON), picture deterioration resulting from editing can be kept to a minimum.

Note on the Data Code signal

Data code signal is not output from the S VIDEO or VIDEO jack on the camcorder. But, you can record the recording date or time displayed on the TV or inside the viewfinder onto the editing tape.

Usable Cassettes and Recording/Playback Modes

This section describes the usable cassettes and recording/playback modes with your camcorder.

Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for a higher-quality picture.

You can use Hi8 video and standard 8 mm cassettes with your camcorder. But, when you want to record in Hi8 system, you can use only the Hi8 video cassettes. A standard 8 mm cassette cannot be recorded in the Hi8 system.

To Record in	Use this kind of cassette	Set the Hi8 AUTO/OFF switch to
Hi8 Hi8 system	Hi8 type	AUTO
Standard 8 mm 8 system	Hi8 type	OFF
	Standard 8 mm type	AUTO or OFF

If you use a Hi8 cassette in the standard 8 mm recording system, set the Hi8 AUTO/OFF switch to OFF while recording.

If you are going to play back the tape using a standard 8 mm video recorder, you should record the tape in the standard 8 mm system.

When You Play Back

The Playback mode is selected automatically according to the recording system (Hi8/standard 8 mm, SP/LP) with which the tape has been recorded.

AFM Hi-Fi stereo

In the following cases, the sound will be in monaural.

- When you play back a tape recorded with this camcorder on an AFM Hi-Fi monaural video recorder.
- If you play back a tape with this camcorder that has been recorded on AFM Hi-Fi monaural video recorder.

RC time code

This camcorder automatically marks the RC time code during recording, but cannot display the RC time code. When you want to display the RC time code, use the other video equipment with the RC time code displaying function.

Hints for Better Shooting

Getting Stable Pictures

Assume good posture for shooting (V)

For hand-held shots, it is important to hold the camcorder properly.

- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the camcorder with your thumb.
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. When adjusting the focus manually, make sure the camcorder does not move.
- Place your eye firmly against the viewfinder eyecup.

Use a tripod

If you have a tripod for a still camera, you can also use it with the camcorder. If a tripod is not available, try placing the camcorder on a table top or any other flat surface of suitable height.

Note

When attaching a non-SONY tripod, make sure that the length of the camera mounting screw is less than 6.5 mm (9/32 in). Otherwise, the screw may damage the inner parts of the camcorder.

Keep the horizontal plane level

You can easily determine the horizontal plane by using the viewfinder frame as a reference.

Lighting

Shoot with the sun behind you

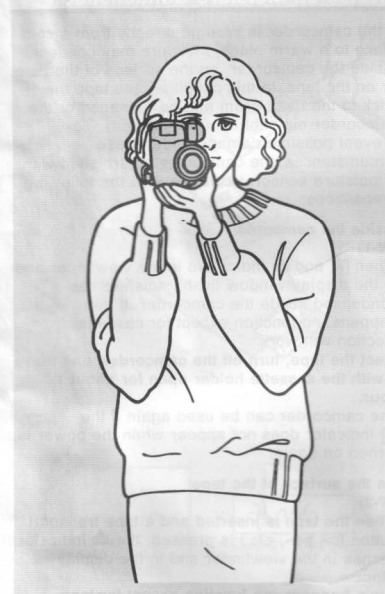
When the light source is behind the subject, or in the following situations, the subject will be recorded too dark and the background too light. In this case, use the manual EXPOSURE function. (See page 28.)

- The subject is indoors and there is a window behind the subject.
- Bright light sources such as fluorescent or incandescent lamps are included in the scene.
- When you are shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

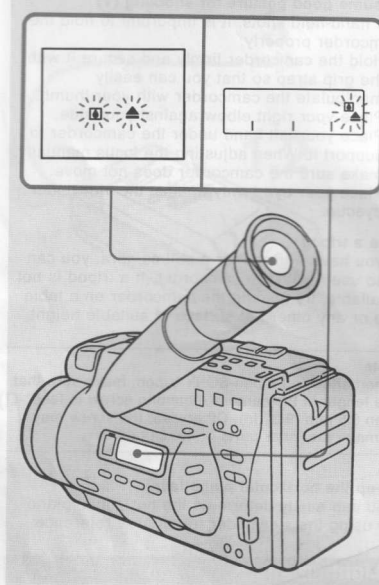
Use video light in the dark

To get the best colours, you must maintain a very high lighting level. When using a video light, attach it to this camcorder with a video light attachment (not supplied).

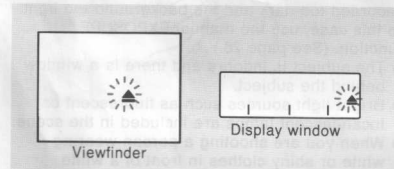
(V)



(W-1)



(W-2)



Notes and Precautions

Notes on Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape or on the lens. In this condition, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with a moisture sensor. However, take the following precautions:

Inside the camcorder (W-1)

When and indicators in the viewfinder and in the display window flash, moisture has condensed inside the camcorder. If this happens, no function except for cassette ejection will work.

Eject the tape, turn off the camcorder, and leave it with the cassette holder open for about 1 hour.

The camcorder can be used again if the indicator does not appear when the power is turned on again.

On the surface of the tape (W-2)

When the tape is inserted and a tape transport button (, , etc.) is pressed, the indicator flashes in the viewfinder and in the display window.

If this happens, no function except for tape ejection will work.

Eject the tape and let it sit for about 1 hour.

The tape can be used again if the indicator does not appear when the tape is inserted and a tape transport button is pressed.

On the lens

No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

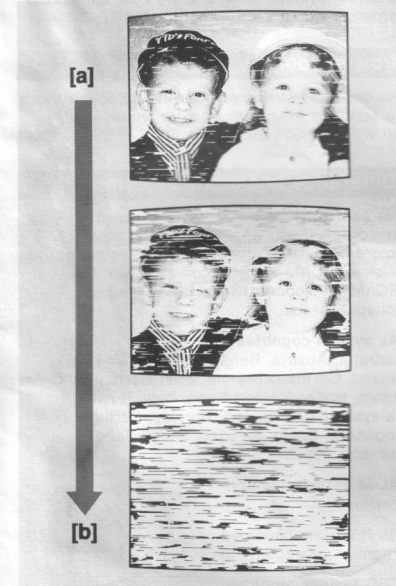
How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

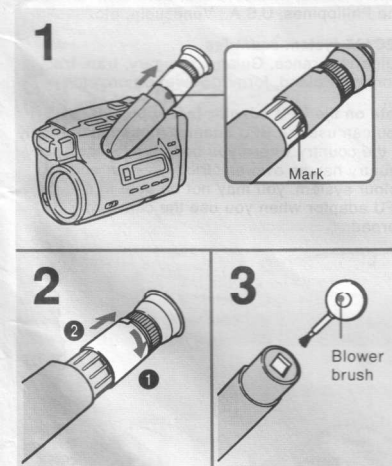
- 1 Be sure to tightly seal the plastic bag containing the camcorder.
- 2 Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about one hour).

3 Slide the battery pack to the right.

(W-3)



(W-4)



Notes and Precautions

Notes on Video Head Cleaning

(W-3)

To ensure clear pictures, clean the video heads periodically.

When playback pictures are noisy or hardly visible, the video heads may be contaminated.

[a] Slight contamination

[b] Critical contamination

If this happens,

- 1 Clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied).
- 2 After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.
- 3 If the picture is still noisy, repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Removing Dust from inside the Viewfinder

(W-4)

- 1 Pull out the viewfinder barrel until the illustrated mark appears.
- 2 Turn it counterclockwise until it stops (1) and pull it out (2).
- 3 Clean the surface of the cover with a blower brush.

After cleaning, push it in the viewfinder barrel and align it with the mark on the viewfinder. Then turn it clockwise until it stops and push it in.

Notes and Precautions

Precautions

On operation

- Operate the camcorder on 6.0 V (battery pack), 7.5 V (AC power adaptor), or 9.0 V (alkaline batteries).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not hold the camcorder by the viewfinder.
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder heats up and may be damaged. Avoid leaving the camcorder next to a window or in direct sunlight.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the lens cap on the lens when not using the camera.
- Do not wrap the camcorder and operate it because heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction and sometimes the malfunction cannot be repaired.**
- **Do not let the camcorder get wet. Keep the camcorder away from rain or sea water. It may cause malfunction and sometimes the malfunction cannot be repaired.**

On handling cassettes

- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape, or if the tab is out or in, etc.

On care

- Never leave the camcorder under temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- When the unit is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera section and player section, and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, wipe them off with a soft cloth.
- Clean the camcorder body with a dry, soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Using Your Camcorder Abroad

Each country has its own electricity system and TV colour system. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 100 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV or a SECAM system based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country

Brazil

PAL-N system countries

Argentina, Paraguay, Uruguay

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, The Philippines, U.S.A., Venezuela, etc.

SECAM system countries

Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

Note on the RFU adaptor (not supplied)

You can use the RFU adaptor (not supplied) only in the country where you bought it. Since each country has its own electricity system and TV colour system, you may not be able to use the RFU adaptor when you use the camcorder abroad.

Specifications

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Four Rotary heads, Helical scanning FM system
Video signal	PAL colour, CCIR standards (Hi8 or Standard 8 mm)
Usable cassette	8 mm video format cassette
Tape speed	SP mode: Approx. 2.0051 cm (13/16 in)/sec. LP mode: Approx. 1.0058 cm (13/32 in)/sec.
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 10 x power zoom lens f = 6.2 — 62.4 mm (1/4 to 2 1/2 inches), 45 to 450 mm (1 13/16 to 17 3/4 inches) when converted into a 35-mm still camera F = 1.6 — 2.9 Filter diameter 52 mm (2 1/8 inches)
Auto focus system	TTL autofocus system inner focus wide macro system
Colour temperature	Automatic, HOLD, ☼ (indoor) 3,200 K ☼ (outdoor) 5,800 K
Minimum illumination	3 lx (F 1.6)
Illumination range	3 lx — 100,000 lx
Recommended illumination	More than 100 lx
Aperture correction	Automatic

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Input and output connector

S video output	4-pin mini-DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.3 Vp-p 75 ohms, unbalanced
Video output	Phono jack, 1 Vp-p, 75 ohms unbalanced sync negative
Audio output	Phono jacks Output: -7.5 dBs, (at load impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special minijack, DC 5 V
Headphones jack	Stereo minijack
Remote jack	Stereo mini-mini-jack
MIC jack	Stereo minijack, -66 dBs, low impedance with 2.5 — 3 V DC output, impedance 6.8 kilohms

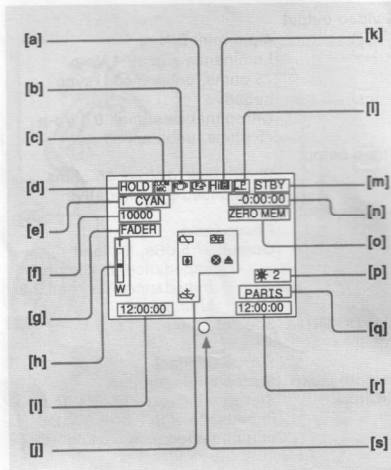
General

Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	6.4 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Dimensions	Approx. 109 x 106 x 189 mm (w/h/d) (4 3/8 x 4 1/4 x 7 1/2)
Weight	Approx. 860 g (1 lb 14 oz) excluding the battery pack, lithium battery, cassette, lens cap, jack cover, and shoulder strap Approx. 1100 g (2 lb 6 oz) including the battery pack NP-55H, lithium battery CR2025, cassette E5-90, lens cap, jack cover, and shoulder strap
Microphone	Electret condenser microphone, stereo type
Supplied accessories	See page 3.

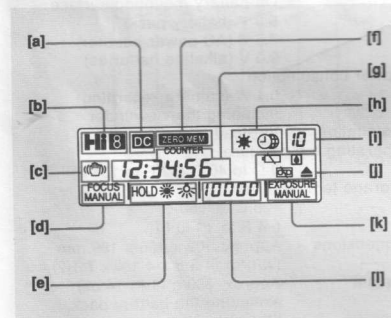
Design and specifications are subject to change without notice.

Indicators in the Viewfinder and the Display Window

(X-1)



(X-2)



For details on each indicator, refer to the pages indicated in parentheses.

In the Viewfinder

(X-1)

- [a] Manual focusing (MF) (25)
- [b] Lights up while compensating for camera-shake. (21)
- [c] Lights up while setting BUILT-IN MIC to the ZOOM MIC. (20)
- [d] White balance mode (WB, HOLD) (26)
- [e] Title mode and colour (32)
- [f] Shutter speed (27)
- [g] FADER has been pressed. (29)
- [h] Power zoom indicator (20)/ Exposure indicator (28)
- [i] Data code (39)
- [j] Warning indicators (51)
- [k] Lights up while recording in Hi8 system. (42)
- [l] Lights up when recording in SP/LP mode and playing back a tape recorded in SP/LP mode. (42)
- [m] Tape transport mode (18), (38)
- [n] Tape counter (18), (40)
- [o] ZERO MEM is pressed. (23), (40)
- [p] Area number and summer time indicator (15), (31)
- [q] Area name (15), (31)
- [r] Date or Time (15), (19)
- [s] Lights up during recording. When flashing: "Change battery or cassette." (13), (51)

Display Window

(X-2)

- [a] Data code (39)
- [b] Playing back or recording in Hi8 format (42)
- [c] Appears while compensating for camera-shake (21)
- [d] Manual focusing (25)
- [e] White balance mode (26)
- [f] ZERO MEM is pressed. (23), (40)
- [g] Tape counter, time, date, or tape counter indicator (15), (18), (19), (40)
- [h] World clock indicator (15), (31)
- [i] Area number (15), (31)
- [j] Warning indicators (51)
- [k] Adjusting exposure manually (28)
- [l] Shutter speed (27)

Trouble Check

If you run into any problems using the camcorder, use the following table to troubleshoot the problem.

	Symptom	Cause	Corrective Actions	Page
Power	The power will not turn on.	The battery is not attached.	Attach the battery.	10
		The battery is exhausted.	Use a charged battery.	10
		The AC power adaptor is not connected to a wall outlet.	Connect the adaptor to a wall outlet.	12
	The power turns off.	The camcorder has been in the recording pause mode for more than 5 minutes.	Turn STANDBY to LOCK once and turn it to STANDBY again.	19
		The battery is exhausted.	Use a charged battery.	10
	The battery pack is quickly discharged.	The ambient temperature is too low.	—	13
Operation	START/STOP does not operate.	The battery pack has not been charged fully.	Charge the battery pack again.	10
		The tape is stuck to the drum.	Eject the tape.	16
		The tape has run out.	Rewind the tape or use a new one.	38
		The POWER switch is set to PLAYER.	Set it to CAMERA.	18
	The cassette cannot be removed from the compartment.	The tab on the cassette is out (red).	Use a new cassette or slide the tab.	16
		The battery is exhausted.	Use the charged battery or the AC power adaptor.	10, 13
	No function except for cassette ejection works.	Moisture condensation has occurred.	Eject the tape and do not use the camcorder for about an hour.	44
	The tape does not move when a tape transport button is pressed.	The POWER switch is set to CAMERA or OFF.	Set it to PLAYER.	38
		The tape has run out.	Rewind the tape or use a new one.	38
	The STEADY SHOT function does not activate.	The STEADY SHOT switch is set to OFF.	Set the STEADY SHOT switch to ON.	21
	The auto focusing function does not work.	Shooting conditions are not suitable for autofocus operation.	Slide the AUTO LOCK switch down to turn off the AUTO LOCK lamp and press FOCUS to adjust the focus manually.	25
		The AUTO LOCK switch is slid down.	Slide the AUTO LOCK switch up to turn on the AUTO LOCK lamp.	24
		The lens inside the focus ring is dirty.	Clean the lens with a dry, soft cloth.	46
	No sound or only a low sound is heard when playing back a tape.	The stereo tape is played back with the camcorder set to Hi-Fi SOUND "1" or "2."	Set to "Green position".	39

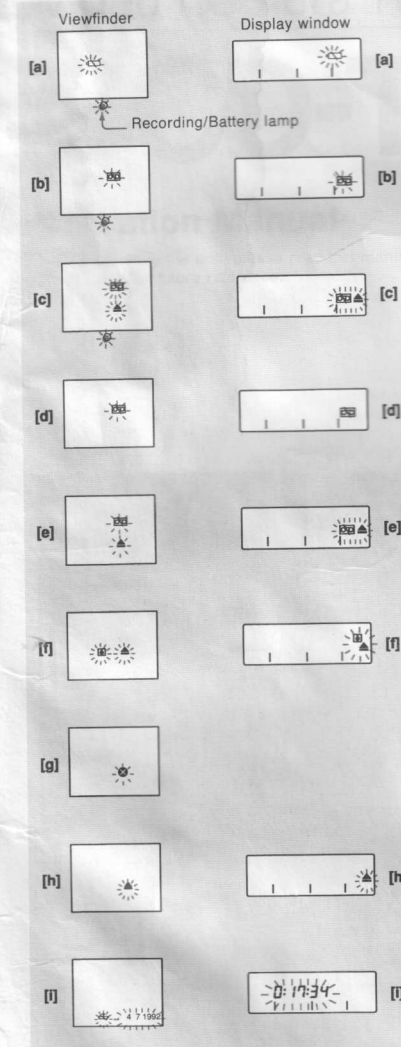
Trouble check

	Symptom	Cause	Corrective Actions	Page
Picture	The image on the viewfinder screen is not clear.	The viewfinder lens is not adjusted.	Adjust the viewfinder lens.	17
	A vertical band appears when a subject such as lights or candle flame is shot against a dark background.	The contrast between the subject and background is too high: The camcorder is not malfunctioning.	Change locations.	—
	The colour of the playback picture is strange.	Shooting conditions were not suitable for auto-white balance operation.	—	26
	The playback picture is not clear.	The EDIT switch is set in the direction of the arrow.	Set the EDIT switch in the reverse direction of the arrow.	41
		The channel for the VTR is not adjusted on the TV.	Adjust the TV.	36
Others	The picture is noisy.	The video heads may be contaminated.	Clean the heads using the Sony V8-25CLH cleaning cassette.	45
	There is dust inside the viewfinder.	—	Pull out the viewfinder and clean the viewfinder screen cover or viewfinder lens.	45
	When you adjust the clock by viewing picture on the connected TV, the area name and area number do not appear on the TV screen.	The DATA SCREEN function is set to OFF.	Press DATA SCREEN.	38
	The supplied Remote Commander does not function.	The remote sensor has not been popped up.	Push the head of the remote sensor so that the remote sensor pops up.	7
		Something interrupts the infrared rays.	Take off the obstacles.	7
		The lithium battery is not inserted with the correct polarity.	Insert the lithium battery with the correct polarity.	9
		The lithium battery is dead.	Insert a new one.	9
		The HOLD switch is working.	Set the switch in the opposite direction of the arrow.	7
	Bubbles appear inside the lens.	When you use the camcorder where the air pressure is low such as on a mountain or in an airplane, you may find bubbles inside the lens. This is not a malfunction, and will not hinder recording. Bubbles will usually disappear after about a week. But, how long it takes depends on the air pressure and use.	—	—

Trouble Check

If indicators flash in the viewfinder or in the display window, or a caution lamp on the camcorder flashes, check the following (Y):

(Y)



[a] Battery Remaining
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

[b] The tape is near the end.

[c] The tape has run out.

[d] No tape has been inserted.

[e] The tab on the tape is out (red).

[f] Moisture condensation has occurred.

[g] The video heads may be contaminated.

[h] Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

[i] The lithium battery is weak or the lithium battery is not installed.

