SONY®

Video Camera Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. **CCD-TRV** _____ Model No. **AC-V**_____

Serial No. _____ Serial No. _____

Handycam
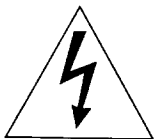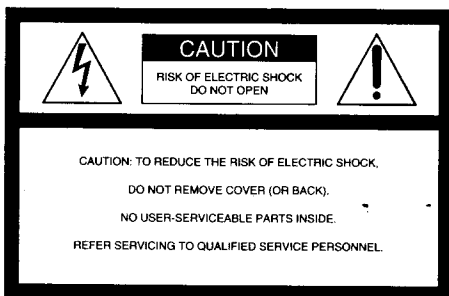**CCD-TRV81**

video Hi8
CCD-TRV81 Hi8
Video 8
CCD-TRV41 8

Welcome!

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.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

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.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DISPOSAL OF LITHIUM ION BATTERY.

LITHIUM ION BATTERY.
DISPOSE OF PROPERLY.

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

Note: In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)

For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution: Do not handle damaged or leaking lithium ion battery.

For the customers in the U.S.A.

WARNING

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

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

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Table of contents

The instructions in this manual are for the two models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TRV81 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV81 only."
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.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Types of differences

Model number	CCD-TRV41	CCD-TRV81
System	🄃	Hi🄃
Auto Date	●	—
Index	—	●
RC time code	—	●
Data code	—	●

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

Precaution on copyright

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

Precautions on camcorder care

- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight [c].**
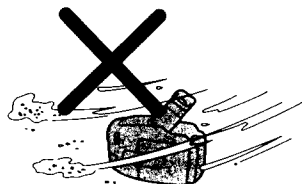
[a] **[b]** **[c]**
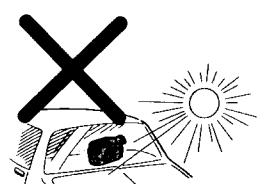
Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

1		2	3
RMT-715* RMT-708 or			
4	**5**	**6**	**7**
8			
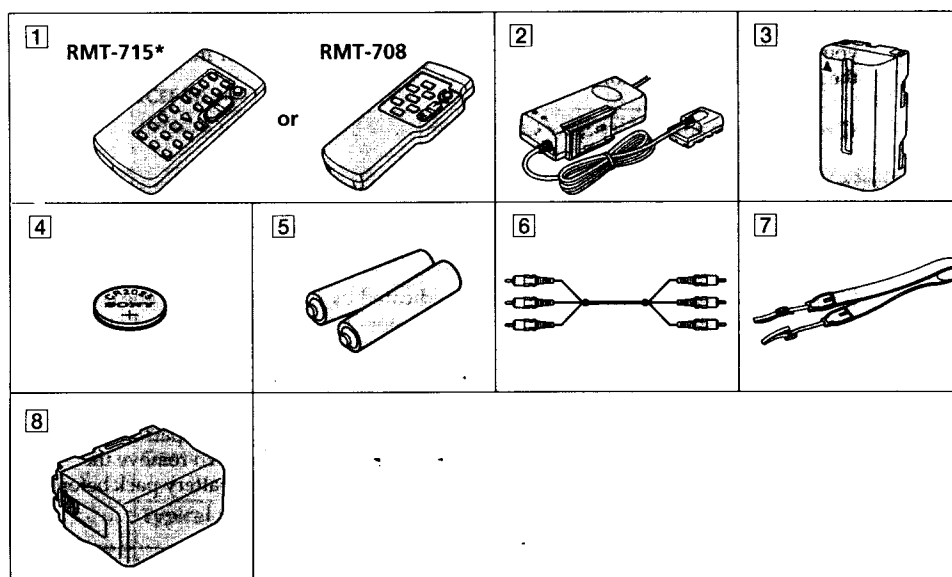
1 Wireless Remote Commander (1) (p. 80)
   * for Hi8 model

2 AC-V316 AC power adaptor (1) (p. 6, 22)

3 NP-F530 Battery pack (1) (p. 6, 21)

4 CR2025 Lithium Battery (1) (p. 60)
   The lithium battery is already installed in your camcorder.

5 Size AA (R6) battery for Remote Commander (2) (p. 81)

6 A/V connecting cable (1) (p. 46)

7 Shoulder strap (1) (p. 79)

8 Battery case (1) (p. 23, 66)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.
This camcorder operates with the "InfoLITHIUM" battery such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate (the battery life may be shorten.

ⓘ InfoLITHIUM is a trademark of Sony Corporation.

Charging the battery pack

Charge the battery pack on a flat surface without vibration.
(1) Connect the power cord to a wall outlet.
(2) Align the surface of the battery pack indicated by the ▶ mark with the edge o the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the wall outlet, then remove the battery pack and install it into the camcorder. You can also use the battery pack before is completely charged.
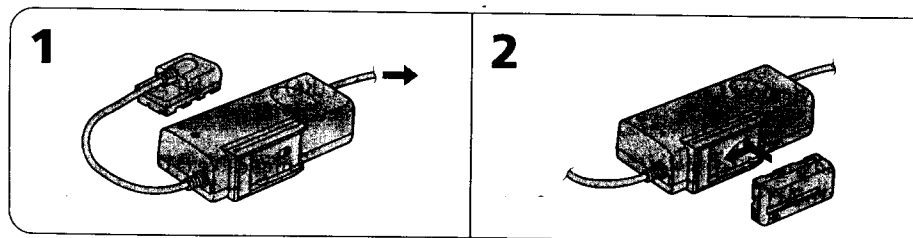
Charging time

Battery pack	NP-F530 (supplied)	NP-F730
Charging time* (min.)	170 (110)	250 (190)

The time required for a normal charge is indicated in parentheses.
* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor. (Lower temperatures require a longer charging time.)

Battery life

Upper numbers are the time when recording with the viewfinder. Lower numbers are the time when recording with the LCD screen. Using both will further reduce recording time.

CCD-TRV41

Battery pack	NP-F530 (supplied)	NP-F730
Continuous recording time*	120 (105) 90 (80)	270 (240) 200 (180)
Typical recording time**	70 (65) 55 (50)	160 (145) 120 (110)
Playing time on LCD	90 (80)	205 (185)

CCD-TRV81

Battery pack	NP-F530 (supplied)	NP-F730
Continuous recording time*	115 (105) 75 (65)	265 (240) 170 (155)
Typical recording time**	70 (65) 45 (40)	160 (145) 100 (95)
Playing time on LCD	70 (65)	170 (150)

Numbers in parentheses indicate the time when you use a normally charged battery. Battery life will be shorter if you use the camcorder in a cold environment.
* Approximate continuous recording time indoors.
** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Notes on remaining battery time indication during recording
• When you use the InfoLITHIUM battery pack, remaining battery time is displayed the viewfinder or on the LCD screen. However, the indication may not be displayed properly, depending on using conditions and circumstances.
• When you close the LCD panel and open it again, it takes about 2 minutes for the correct remaining time to be displayed.

To remove the battery pack
Slide the battery pack in the direction of the arrow.
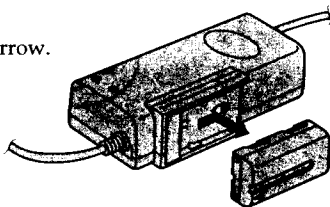
Notes on charging the battery pack
• The CHARGE lamp will remain lit for a while even if the battery pack is removed a the power cord is unplugged after charging the battery pack. This is normal.
• If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
• You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
• When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Installing the battery pack

(1) Lift up the viewfinder.

(2) Insert the battery pack in the direction of the ▼ mark on the battery pack. Slide the battery pack down until it catches on the battery release lever and clicks.
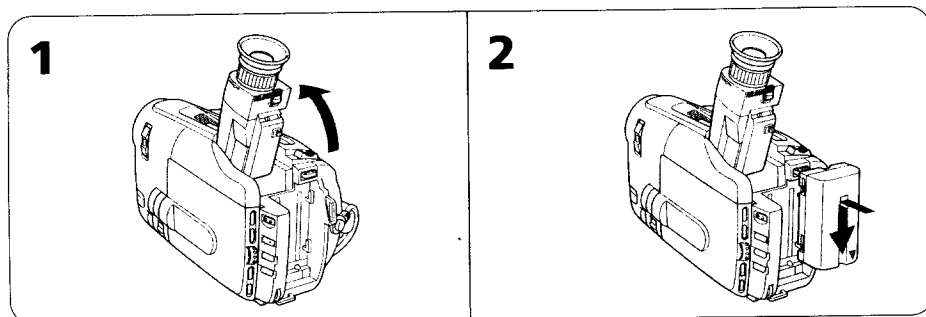
To remove the battery pack

While pressing BATT, slide the battery pack in the direction of the arrow.

BATT

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Inserting a cassette

Make sure that the power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette **Hi8** (CCD-TRV81 only).

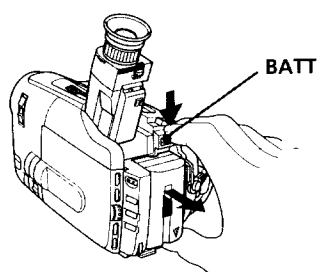**(1)** While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.

(2) Insert a cassette with the window facing out.

(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.
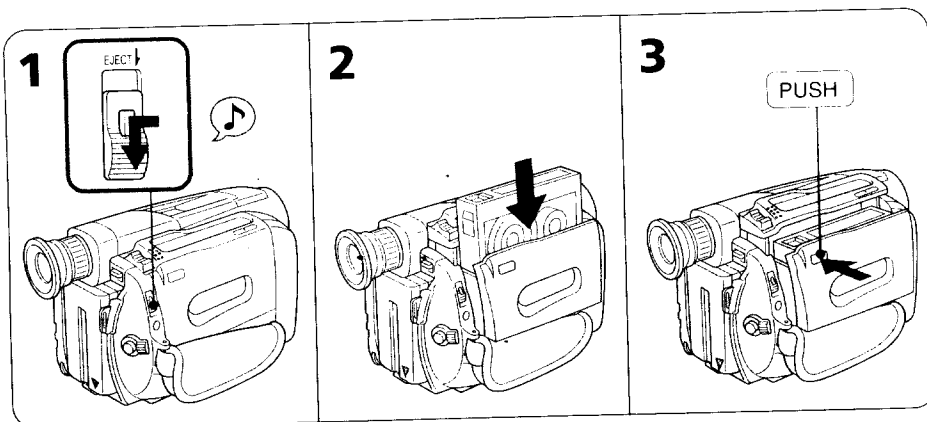
To eject the cassette
While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

To prevent accidental erasure
Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the 🖾 and ▲ indicators flash in the viewfinder or on the LCD screen, and you cannot record.
To re-record on this tape, slide the tab back out covering the red mark.
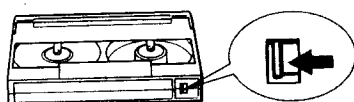
Camera recording

Make sure that the power source is installed and a cassette is inserted and that the START/STOP MODE switch inside the LCD panel is set to ⛔ . Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording (p. 62). The date is automatically recorded for 10 seconds after you start recording **(AUTO DATE feature)** (CCD-TRV41 only). This feature works only once a day.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamp located on the front of the camcorder also lights up.

You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system according to the length of your planned recording before you start.
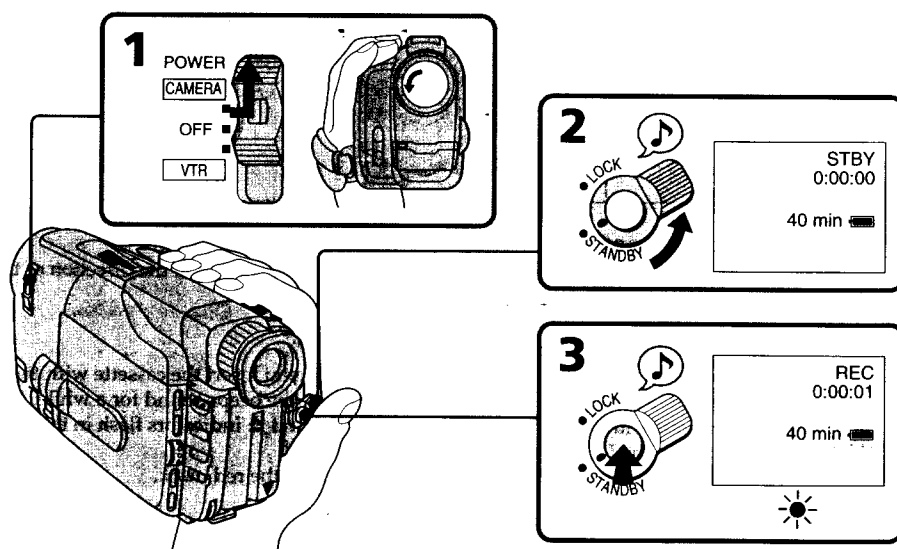
To stop recording momentarily [a]
Press START/STOP again. The "STBY" indicator appears in the viewfinder **(Standby mode)**.

To finish recording [b]
Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

[a]

[b]

To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.
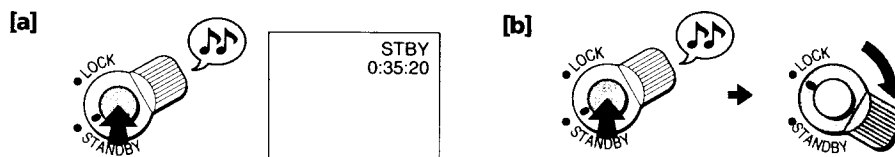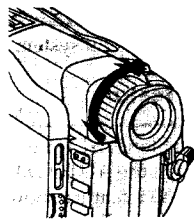

Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.
- If you select LP mode, then even if you are using a Hi8 tape, the camcorder records in the standard 8mm system. In this case, the Hi8 indicator flashes in the viewfinder or on the LCD screen.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on the beep sound

As indicated with ♪ in the illustration, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.

Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Note on the AUTO DATE feature
– CCD-TRV41 only

The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system. You can change the AUTO DATE settings by selecting ON or OFF in the menu system. The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:
– you reset the date and time.
– you eject and insert the tape again.
– you stop recording within 10 seconds.
– you set AUTO DATE to OFF once and set it to ON again in the menu system.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.

For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)
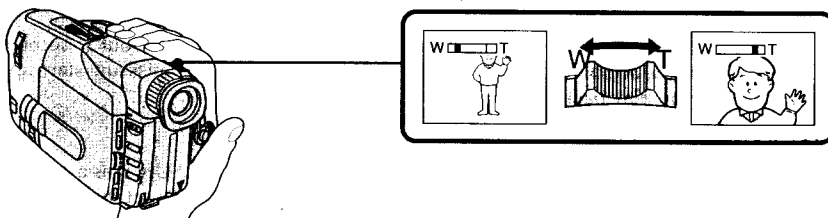
Zooming speed (Variable speed zooming)

Move the power zoom lever a little for a slower zoom, move it further for a faster zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 5/8 feet (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom
- More than 15x zoom is performed digitally, and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** of the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.
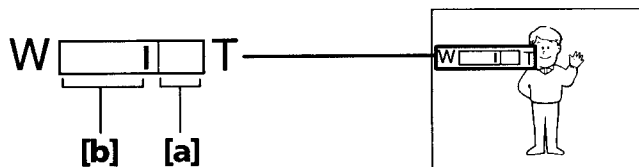
Shooting with the LCD screen

You can also record the picture while looking at the LCD screen.
When using the LCD screen, the viewfinder turns off automatically. You cannot monitor the sound from the speaker during recording.

(1) While pressing OPEN, open the LCD panel.

(2) Adjust the angle of the LCD panel.
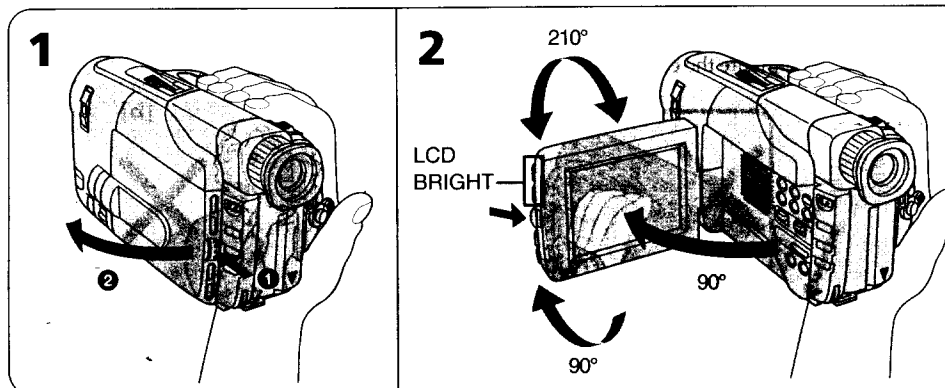The LCD panel moves about 90 degrees to this side and about 210 degrees to the other side.
To adjust the brightness of the LCD screen, press LCD BRIGHT.
+ side: to brighten the LCD screen
− side: to dim the LCD screen

The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.

To let the subject monitor the shot
Turn the LCD panel over (p. 27).

Camera recording

Notes on the LCD panel
- When closing the LCD panel, turn it vertically until it clicks **[a]**.
- When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly **[b]**.
- Close the LCD panel completely when not in use.
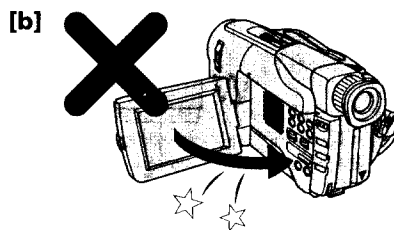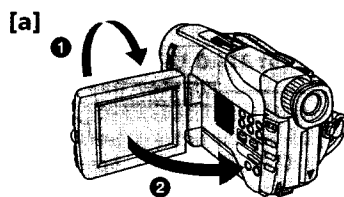
Hints for better shooting

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:
- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb.
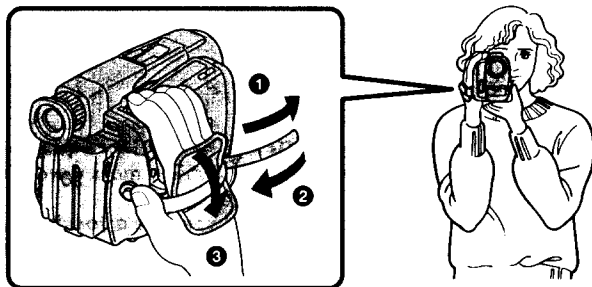
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure to not touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.

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Hints for better shooting

- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[a]**.
- While recording in a low position, you can use the START/STOP button on the top of the camcorder or the power zoom button located on the front **[b]**. Note that you cannot change the zooming speed using the front power zoom button.
- You can also record in a low position or even in a high position using the LCD panel **[c]**.
- When you use the LCD screen outdoors in direct sunlight, the LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

[a]   **[b]** START/STOP   **[c]**

Place the camcorder on a flat surface or use a tripod

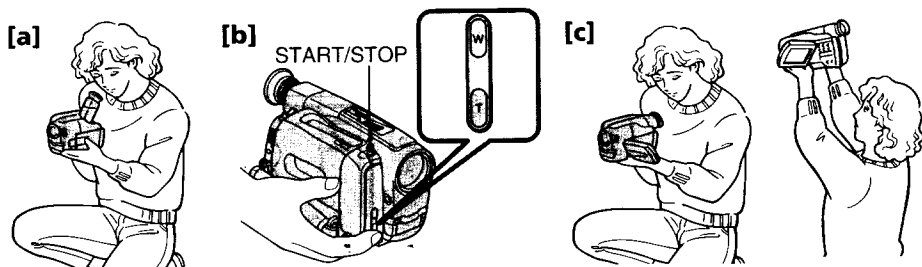Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.
When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, the screw may damage the inner parts of the camcorder.

Cautions on the viewfinder and the LCD

- Do not pick up the camcorder by the viewfinder or by the LCD panel **[d]**.
- Do not place the camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[e]**.

[d]   **[e]**
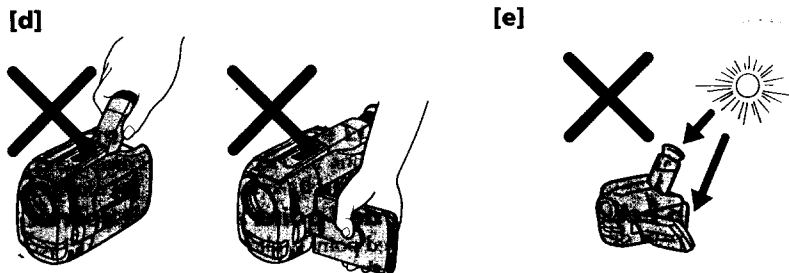
Note on the LCD screen

The LCD screen is made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear on the LCD screen. These points are not recorded on the tape. This is not a malfunction. (Effective dots: more than 99.99%).

Checking the recorded picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder and on the LCD screen.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press the – (⊖) side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back **(Rec Review)**.

Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Edit Search)**.
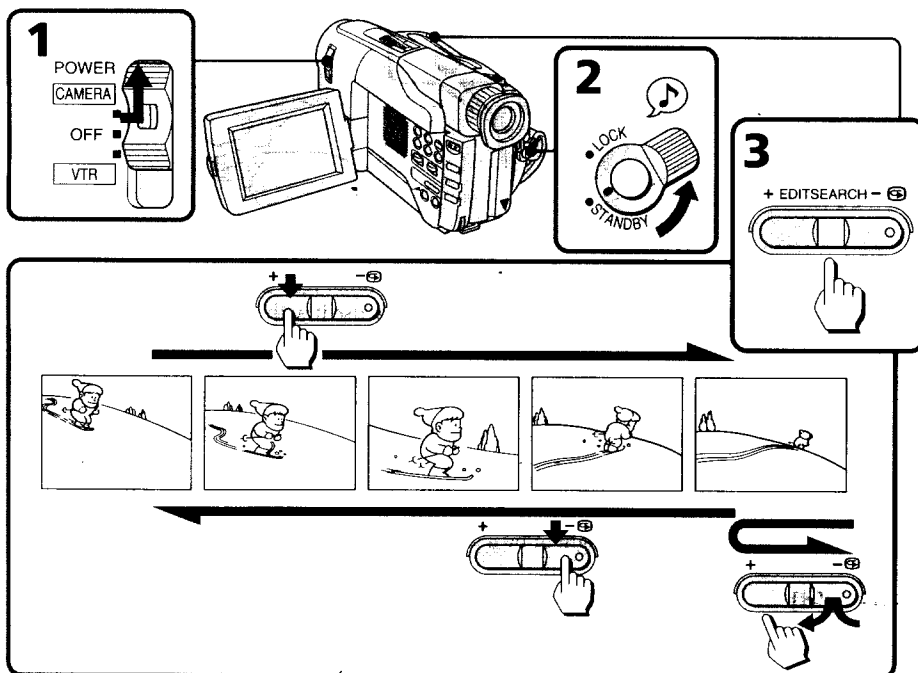
To stop playback
Release EDITSEARCH.

To go back to the last recorded point after edit search
Press END SEARCH. The last recorded point is played back for about 5 seconds (10 seconds in LP mode) and stops. Note that this function does not work once you eject the cassette after you recorded on the tape.

To begin re-recording
Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Playing back a tape

You can monitor the playback picture on the LCD screen.

(1) While pressing the small green button on the POWER switch, set it to VTR. The video control buttons light up.

(2) Insert the recorded tape with the window facing out.

(3) While pressing OPEN, open the LCD panel. Adjust the angle of the LCD panel or the brightness of the LCD screen if necessary.

(4) Press ▷ to start playback.

(5) Adjust the volume using VOLUME.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.
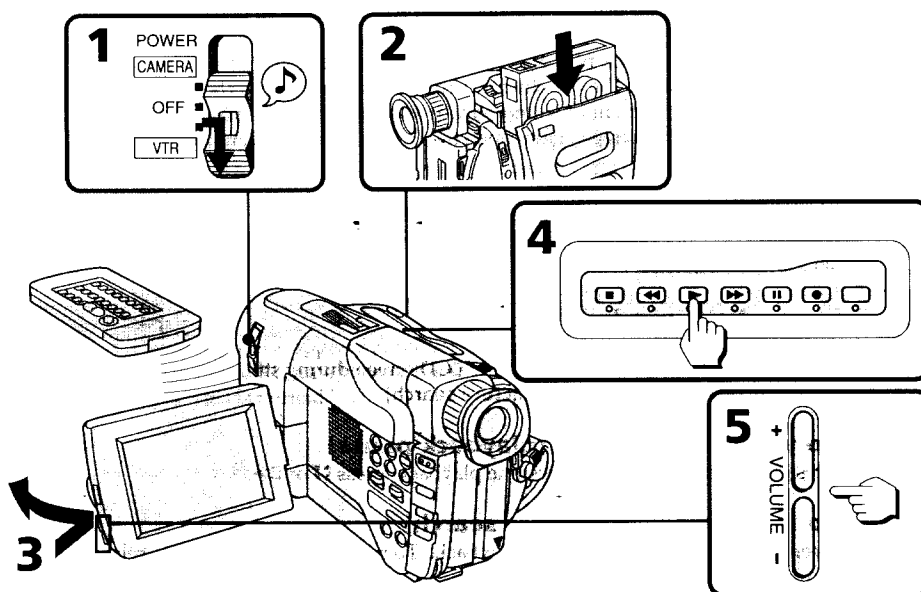
To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

When monitoring on the LCD screen

You can turn the LCD panel over and move back to the camcorder with the LCD screen facing out **[a]**. You can adjust the angle of the LCD screen by turning the LCD screen up to 20 degrees **[b]**.
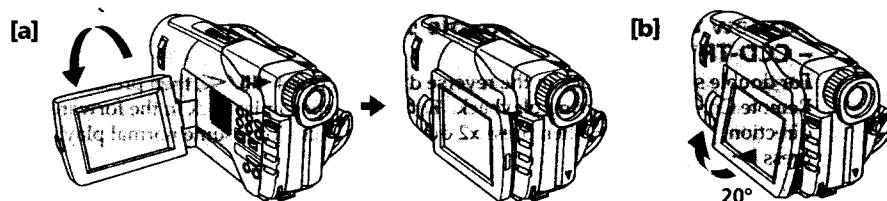
Playing back a tape

Using the remote commander
You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the size AA (R6) batteries.

Note on DISPLAY button
Press DISPLAY to display the screen indicators on the LCD screen. To erase the indicators, press DISPLAY again. If the POWER switch is set to CAMERA, you can erase the indicator by pressing DISPLAY.

Using headphones
Connect headphones (not supplied) to the ∩ jack. You can adjust the volume using VOLUME. When you use headphones, the speaker on the camcorder is silent.

To view the playback picture in the viewfinder
Close the LCD panel. The viewfinder turns on automatically. When using the viewfinder, you can monitor sound only by using headphones or an earphone. To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Note on the lens cover
The lens cover does not open when the POWER switch is set to VTR. Do not open the lens cover manually. It may cause malfunction.

Various playback modes

You can enjoy noiseless pictures on the LCD screen during still, slow and picture search. (Crystal-clear still/slow/picture search)

To view a still picture (playback pause)
Press **II** during playback. To resume playback, press **II** or ▷.

To locate a scene (picture search)
Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)
Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)
Press I► on the Remote Commander during playback. To resume normal playback, press ►. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed
– CCD-TRV81 only
For double speed playback in the reverse direction, press ◄II/<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >/II►, then press x2 during playback. To resume normal playback, press ►.

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To view the picture frame-by-frame
– CCD-TRV81 only
Press ◀II/< or >/II▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▶.

To change the playback direction
– CCD-TRV81 only
Press ◀II/< on the Remote Commander for reverse direction or >/II▶ on the Remote Commander for forward direction during playback. To resume normal playback, press ▶.

To select the playback sound
Change the "HiFi SOUND" mode setting in the menu system.

For standard 8 mm model users:
Tapes recorded in the Hi8 system can be played back on this camcorder. However, you cannot get as fine details as you would get using a Hi8 camcorder. Noise may appear during playback.

Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the centre of the screen when you play back a tape in reverse if the RC time code or the Data Code is displayed on the screen (CCD-TRV81 only). This is normal.

Playing back a tape

Displaying the date or time when you recorded – Data Code function

– CCD-TRV81 only

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and on the LCD screen.

To display the date when you recorded
Press DATE on the camcorder, or press DATA CODE on the Remote Commander. To make the date disappear, press DATE again or DATA CODE twice.

To display the time when you recorded
Press TIME on the camcorder, or press DATA CODE on the Remote Commander twice. To make the time disappear, press it again.
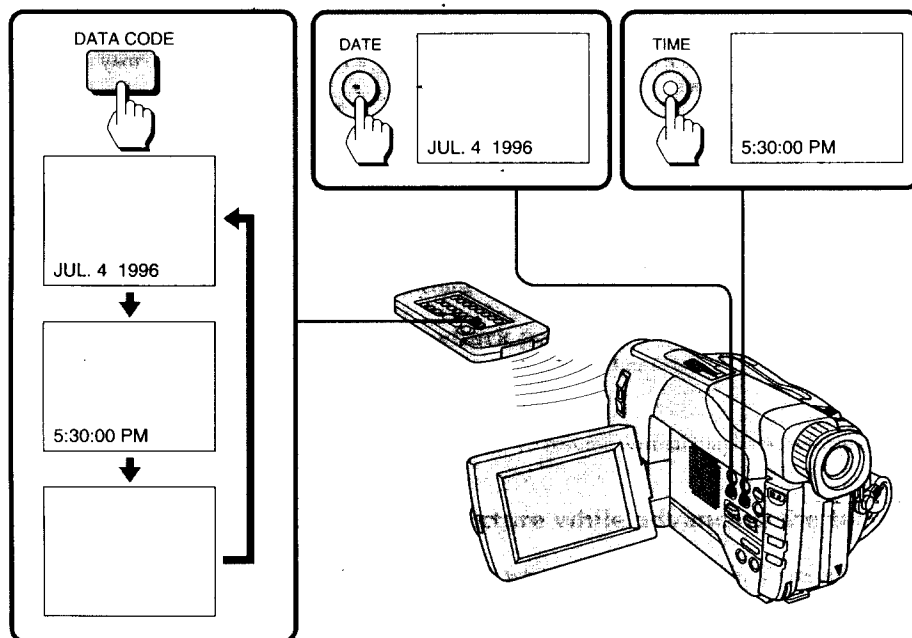
When bars (--:--:--) appear
• A blank portion of the tape is being played back.
• The tape was recorded by a camcorder without the Data Code function.
• The tape was recorded by a camcorder without having date and time set.
• The tape is unreadable due to tape damage or noise.
• The tape was recorded in LP mode.
• The tape is being played back in variable speed (Slow Playback, etc.)
• An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

Searching for the end of the picture

You can go to the end of the recorded portion after you record and play back the tape to make the transition between the last scene you recorded and the next scene smooth. The tape starts rewinding or fast-forwarding and the last 5 seconds (10 seconds in LP mode) of the recorded portion play back. Then the tape stops at the end of the recorded picture **(End Search)**.
Note that the End Search function does not work once you eject the cassette after you have recorded on the tape.

(1) While pressing OPEN, open the LCD panel.

(2) Press END SEARCH.

This function works when the POWER switch is set to either CAMERA or VTR.
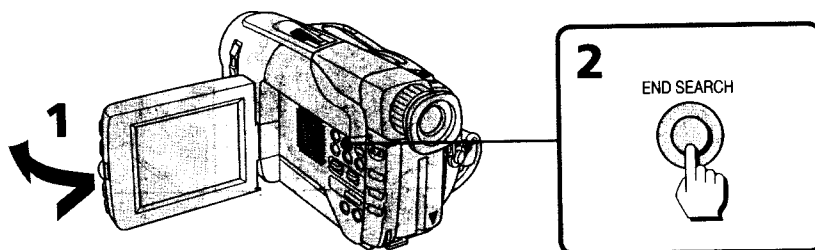
If you start recording after using END SEARCH
Occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Advanced operations
Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack, the house current and alkaline battery. Choose the appropriate power source depending on where you want to use your camcorder.

| Place	Power source	Accessory to be used
Indoors	House current	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F530 (supplied), NP-F730
`	Size AA (LR6) Sony Alkaline battery	Battery case (supplied)

Note on power sources
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the house current

(1) Connect the AC power cord to a wall outlet.

(2) Lift up the viewfinder.

(3) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.
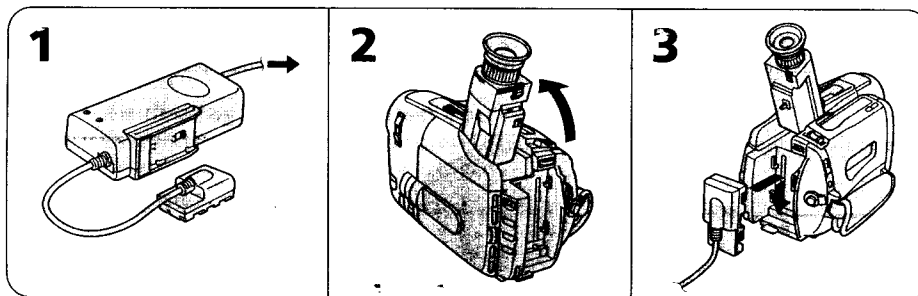
To remove the adaptor
The adaptor is removed in the same way as the battery pack.

WARNING
The power cord must only be changed at a qualified service shop.

PRECAUTION
The set is not disconnected from the AC power source (mains) as long as it is connected to the house current, even if the set itself has been turned off.

Notes on the VTR/CAMERA lamp
• The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
• If the VTR/CAMERA lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord.

Use the battery case (supplied) and six size AA (LR6) Sony alkaline batteries (not supplied).

(1) Remove the battery holder from the battery case.

(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.

(3) Insert the battery holder with the alkaline batteries.

(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack.
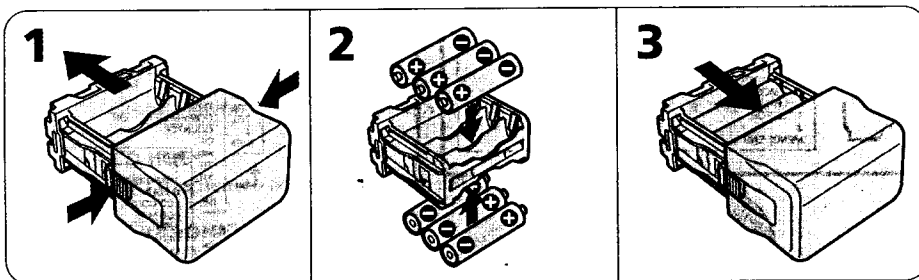
Battery life
Using Sony alkaline batteries at 77°F (25°C)

Model	Continuous recording time	Typical recording time	Playing time on LCD
CCD-TRV41	135 (90) min.	80 (55) min.	90 min.
CCD-TRV81	130 (75) min.	80 (45) min.	70 min.

Numbers in parentheses indicate the time when you record with the LCD screen.

Notes
- You may not use the battery case in cold environment.
- The above battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.

To remove the battery case
The battery case is removed in the same way as the battery pack.

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Changing the mode settings

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu.

(2) Turn the control dial to select the desired item, then press the dial.

(3) Turn the control dial to select the desired mode, and press the dial. If you want to change the other modes, repeat steps 2 and 3.

(4) Press MENU to erase the menu display.
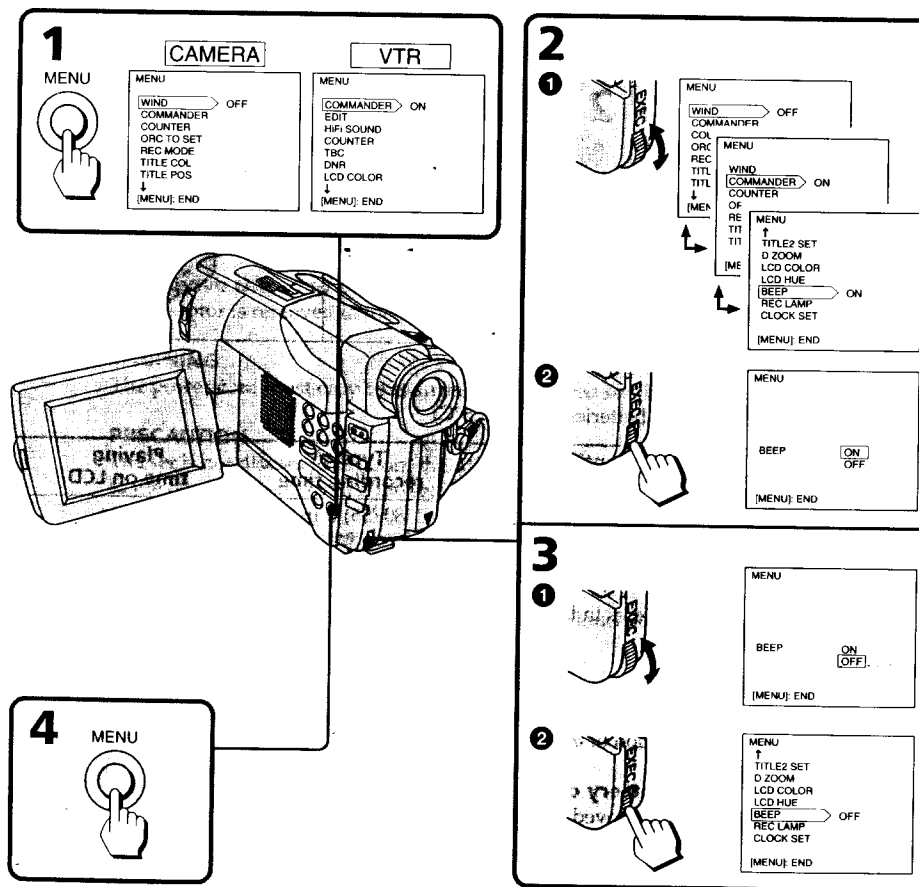
While recording in mirror mode
The menu does not appear on the LCD screen.

Selecting the mode setting of each item

Items for both CAMERA and VTR modes
COUNTER* <NORMAL/TIME CODE> (CCD-TRV81 only)
- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely.

REC MODE* <SP/LP>
- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

LCD COLOR*
Select this item to adjust the color on the LCD screen (greener or redder).

LCD HUE*
Select this item to adjust the hue on the LCD screen.

BEEP* <ON/OFF>
- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

Items for CAMERA mode only
WIND <ON/OFF>
- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

ORC TO SET*
Select this item to automatically adjust the recording condition to get the best possibl(
recording.
If you have already performed this function, "ON" is displayed.

D ZOOM* <ON/OFF>
- Select ON to activate digital zooming.
- Select OFF to not use the digital zoom. The camcorder goes back to 15x zoom.

AUTO DATE* <ON/OFF> (CCD-TRV41 only)
- Select ON to record the date for 10 seconds after recording has started.
- Select OFF to not record the date.

REC LAMP* <ON/OFF>
- Select OFF when you do not want the camera recording/battery lamp at the front (
  the unit to light up.
- Normally select ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/CYAN/GREEN/BLUE>
Select the color of the title.

TITLE POS* <CENTER/BOTTOM>
• Select CENTER to center the title in the picture.
• Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS>
Select the language of the preset titles.

TITLE1 SET*/TITLE2 SET*
Store your own titles.

CLOCK SET*
Reset the date or time.

Items for VTR mode only
EDIT <ON/OFF>
• Select ON to minimize picture deterioration when editing.
• Normally select OFF.

HiFi SOUND <STEREO/1/2>
• Normally select STEREO.
• Select 1 or 2 to play back a dual sound track tape.

TBC* <ON/OFF> (CCD-TRV81 only)
• Normally select ON, to correct for jitter.·
• Select OFF to not correct for jitter. The picture may not be steady when played back.

DNR* <ON/OFF> (CCD-TRV81 only)
• Normally select ON to reduce picture noise.
• Select OFF if the picture has a lot of movement, causing a conspicuous afterimage.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

Note on TBC setting
Set TBC to OFF when playing back:
• A tape you have dubbed over.
• A tape on which you recorded the signal of a TV game or similar machine.

The following settings work only during playback
EDIT, HiFi SOUND, TBC, and DNR.

Letting the subject monitor the shot

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel vertically first until it clicks, then turn it over. The ☺ indicator appears on the LCD screen **(Mirror mode)** and the date and remaining tape indicators disappear.
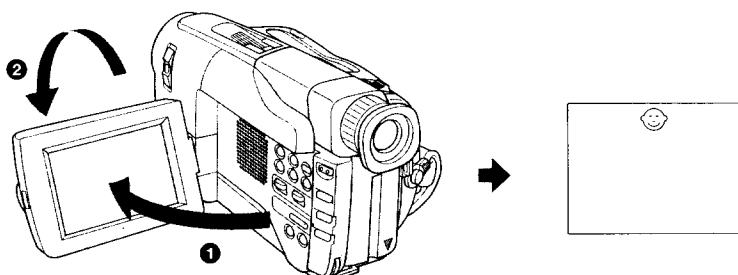

To cancel mirror mode
Turn the LCD panel back toward the viewfinder.

Notes on mirror mode
- When you turn the LCD panel about 135 degrees to 210 degrees, the camcorder enters mirror mode.
- Using the mirror mode, you can record yourself while watching yourself on the LCD **[a]**.
- The picture on the LCD looks as a mirror-image while recording in mirror mode **[b]**. The STBY indicator appears as ●II and REC as ●. Other indicators are reversed. The other indicators may not appear in mirror mode.
- While recording in mirror mode, you cannot operate the following buttons: TITLE, DATE, TIME, MENU, COUNTER RESET, and ZERO MEM on the Remote Commander (CCD-TRV81 only).
- The date appears in reverse when the AUTO DATE feature is turned on (CCD-TRV1 only). When recorded it will be normal.

[a]

[b]
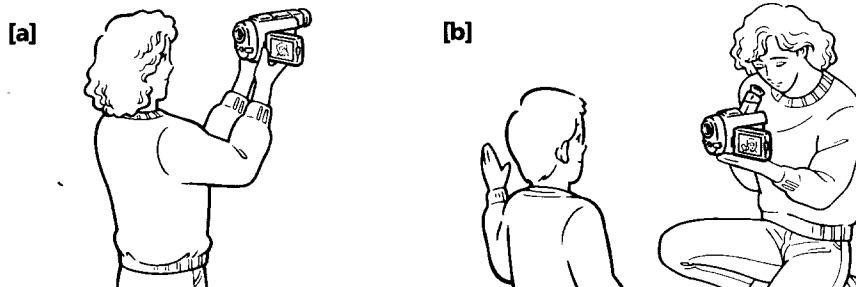
Fade-in and fade-out

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound
increases. When fading out, the picture gradually fades to black or mosaic while the
sound decreases.

When fading in [a]

(1) While the camcorder is in Standby mode, press FADER. The fade indicator
starts flashing.

(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing.

(2) Press START/STOP to stop recording. The fade indicator stops flashing, and
then recording stops.
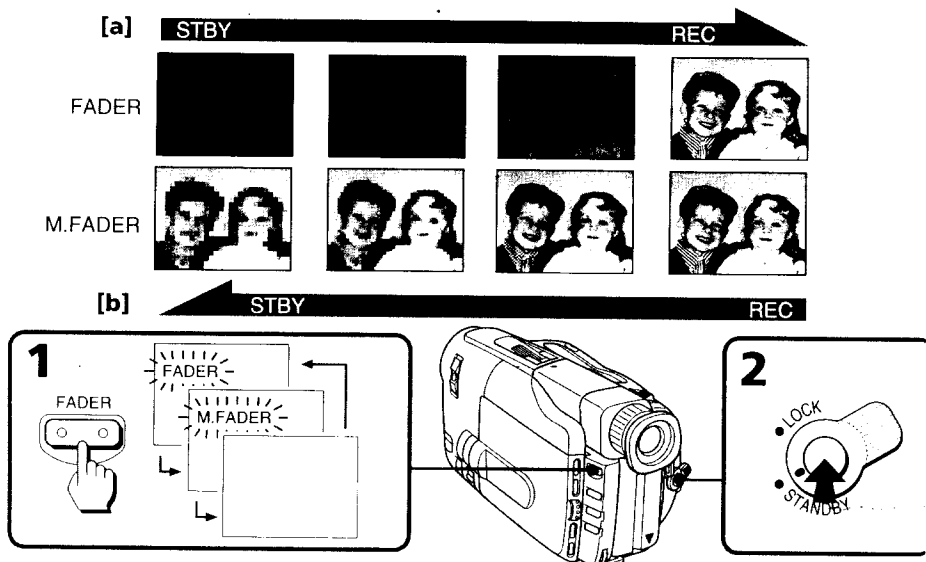
To cancel the fade-in/fade-out function
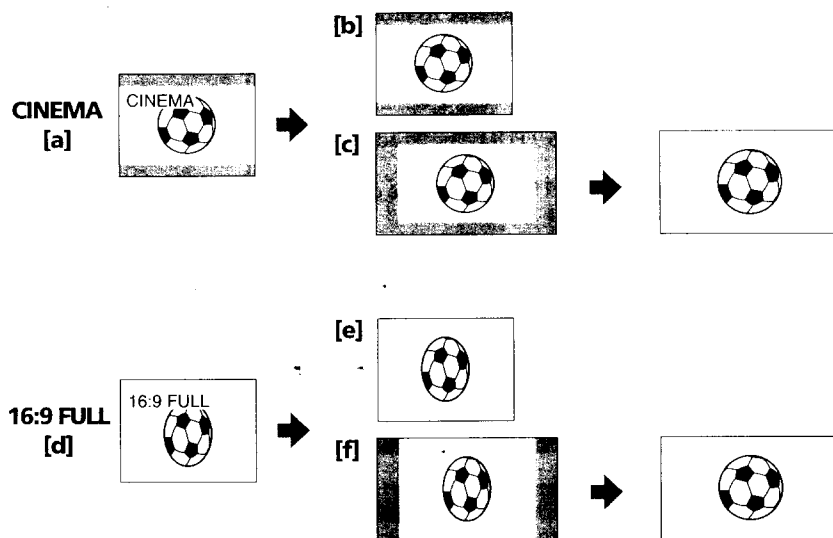Before pressing START/STOP, press FADER until the fade indicator disappears.

When the date or time indicator is displayed
The date or time indicator does not fade in or fade out.

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Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).
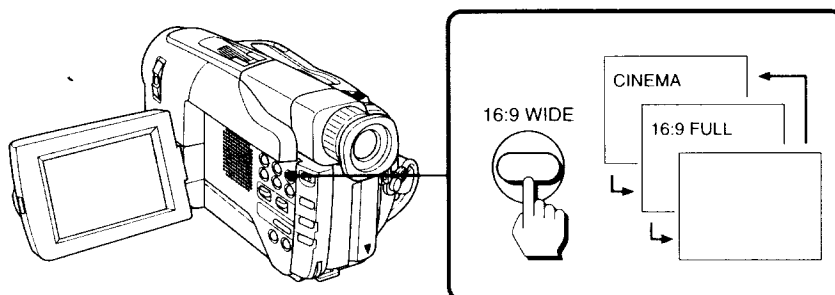

CINEMA
Black bands appear at the top and the bottom of the screen, and the viewfinder or LCI screen **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**.

16:9 FULL
The picture in the viewfinder or LCD screen **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9 WIDE repeatedly so that the desired mode indicator appears in the viewfinder or on the LCD screen.

Using the wide mode function

To cancel wide mode
Press 16:9 WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode
To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode
- If wide mode is set to 16:9 FULL, the Steady Shot function does not work and the ⦅ﾞ⦆ indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is canceled automatically 5 minutes after you remove the power source.

Enjoying picture effect

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.

[a]   [b]   [c]   [d]   [e]   [f]
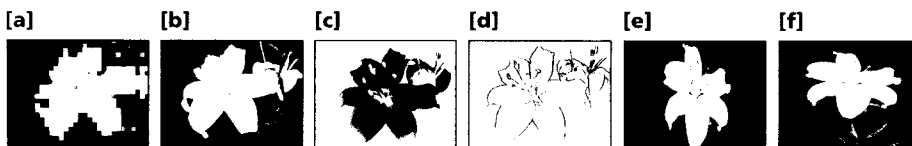
MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The color of the picture is reversed.

PASTEL [d]
The contrast of the picture is emphasized, and the picture looks like an animated cartoon.
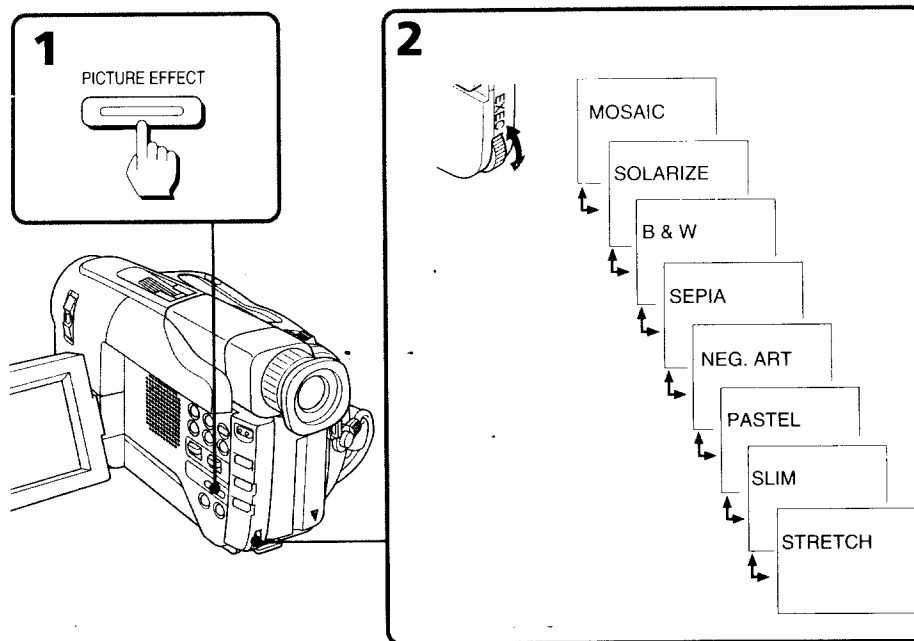
SLIM [e]
The picture expands vertically.

STRETCH [f]
The picture expands horizontally.

Using picture effect function

(1) Press PICTURE EFFECT.

(2) Turn the control dial to select the desired picture effect mode.

1

PICTURE EFFECT

2

MOSAIC

SOLARIZE

B & W

SEPIA

NEG. ART

PASTEL

SLIM

STRETCH

To turn off picture effect

Press PICTURE EFFECT. The indicator in the viewfinder or on the LCD screen goes out.
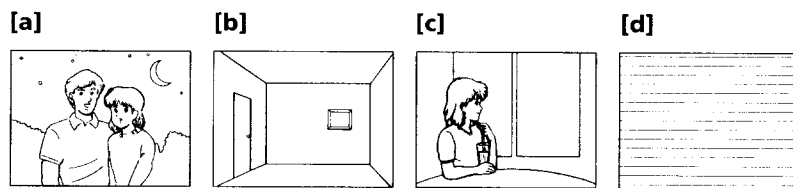
Note on the picture effect

When you turn the power off, the camcorder returns automatically to normal mode.

Focusing manually

When to use manual focus

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

[a]   **[b]**   **[c]**   **[d]**

- Insufficient light **[a]**
- Subjects with little contrast - walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

Focusing manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The ⑤ indicator appears in the viewfinder.

(2) Move the power zoom lever to the "T" side until the lever reaches the end.

(3) Turn the FAR/NEAR dial to achieve a sharp focus.

(4) Set the desired shot length using the power zoom lever.
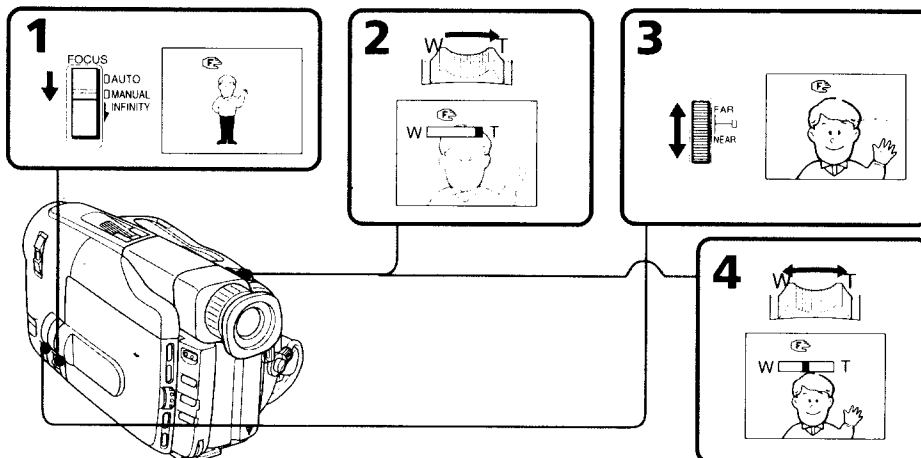
To return to autofocus mode

Set FOCUS to AUTO. The ⑤ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide-angle after focusing in the telephoto position.

To record a very distant subject
Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down. When it is released, manual focus mode is resumed.
Use this function when shooting through a window or a screen, to focus on a most distant subject.

Notes on manual focusing
The following indicators may appear:
▲ when recording a very distant subject.
▲ when the subject is too close to focus on.

Using the PROGRAM AE function

Selecting the best mode

You can select one of six PROGRAM AE (Auto Exposure) modes to suit your shooting situation, referring to the following.

⊙ Spotlight mode
For subjects in spotlight, such as at the theater or a formal event.

▲ Soft Portrait mode
For zooming in on a still subject in telephoto mode, or for a subject behind an obstacle such as a screen. Creates a soft background for subjects such as people or flowers, and faithfully reproduces skin color.

ƒ Sports Lesson mode
For recording fast-moving subjects such as in tennis or golf games.

⊤ Beach & Ski mode
For people or faces in strong light or reflected light, such as at a beach in midsummer o on a ski slope.

⊰ Sunset & Moon mode
For recording subjects in dark environments such as sunsets, fireworks, neon signs, or general night views.

▲ Landscape mode
For distant subjects (more than 10 meters away) such as mountains or when recording subject behind an obstacle such as a window or screen.

Notes on focus setting
- In the Spotlight, Sports lesson and Beach & Ski modes, you cannot take close-ups because the camcorder is set to focus only on subjects in the middle to far distance.
- In the Sunset & Moon and Landscape modes, the camcorder is set to focus only on distant subjects.

Using the PROGRAM AE function

(1) Press PROGRAM AE.

(2) Turn the control dial to select the desired PROGRAM AE mode.
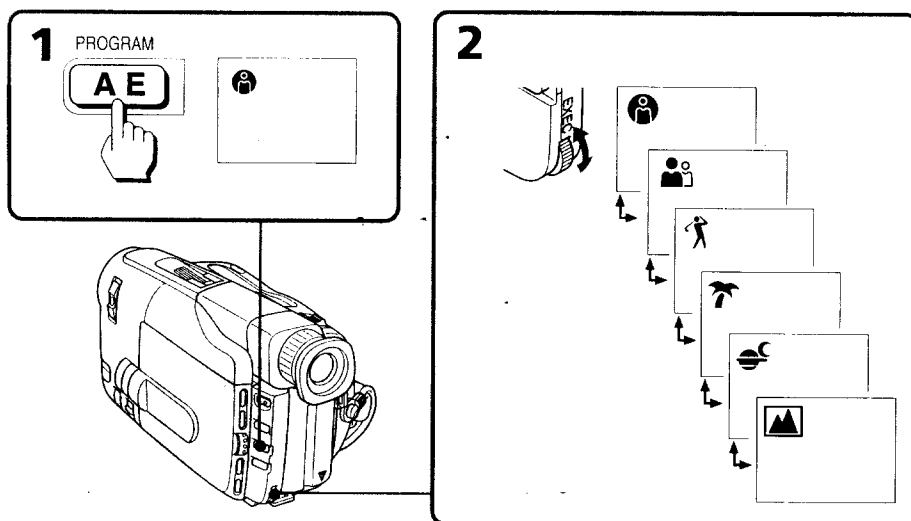
To turn off program AE
Press PROGRAM AE.

Note on shutter speed
The shutter speed in the following PROGRAM AE modes is as follows:
Soft Portrait mode - from 1/60 to 1/500
Sports Lesson mode - from 1/250 to 1/4000
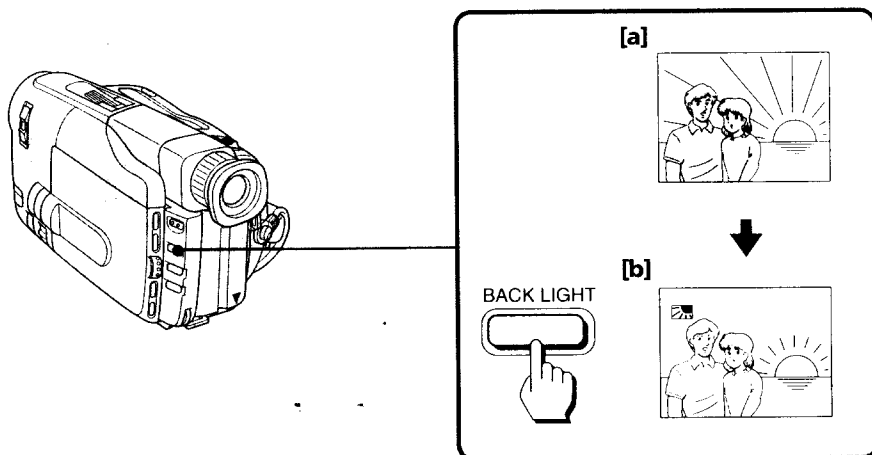Beach & Ski mode - from 1/60 to 1/250

Note on PROGRAM AE
You can adjust the exposure while recording using PROGRAM AE mode.

4

Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ⊡ indicator appears in the viewfinder.

[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting
Be sure to release this adjustment condition by pressing BACK LIGHT again. The ⊡ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:
- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

To make a fine adjustment
You can adjust the exposure manually. However, when you adjust the exposure manually, BACK LIGHT does not operate.

Adjusting the exposure

When to adjust the exposure

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture. You can also use this function when the subject is too bright - subjects on stages, night views, etc.

[a]

[b]
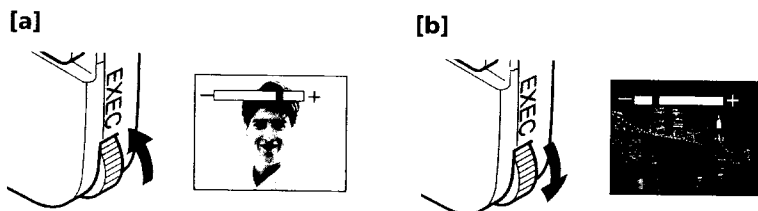
[a] Turn the control dial up when:
• The background is too bright (back lighting)
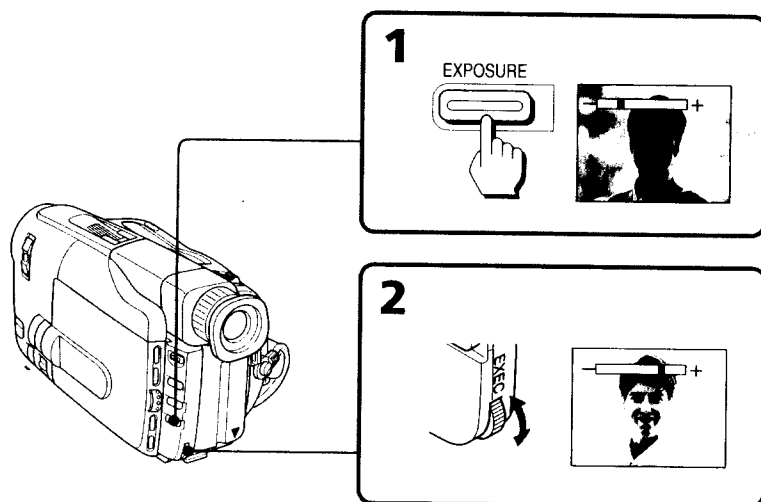• Insufficient light: most of the picture is dark

[b] Turn the control dial down when:
• Bright subject and dark background
• To record the darkness faithfully

Adjusting the exposure

(1) Press EXPOSURE.
(2) Turn the control dial to adjust the brightness.

1

EXPOSURE

2

To return to automatic exposure mode
Press EXPOSURE again.

Shooting with the sun behind you

If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
• The subject is indoors and there is a window behind the subject.
• Bright light sources are included in the scene.
• When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark

We recommend you to use a video light (not supplied). To get the best color, you must maintain a sufficient light level.

When you adjust the exposure manually

• BACK LIGHT does not work.
• If you press PROGRAM AE, the camcorder automatically returns to automatic exposure mode.

Releasing the STEADY SHOT function

When you shoot, the «⟨🖐⟩» indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function when you do not need to use the Steady Shot function. Do not use the Steady Shot function when shooting a stationary object with tripod.

Set STEADY SHOT to OFF.
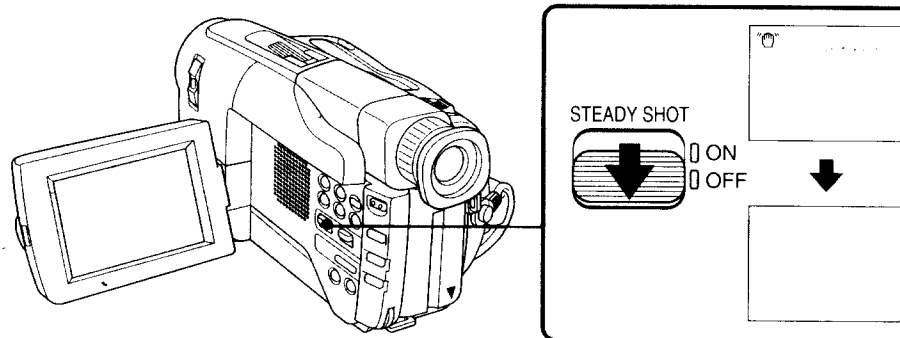
To activate the Steady Shot function again

Set STEADY SHOT to ON.

Notes on the Steady Shot function

• The Steady Shot function will not correct excessive camera-shake.
• When you switch the STEADY SHOT function on or off, the exposure may fluctuate

Superimposing a title

You can select one of eight preset titles. You can also select the language, position, and color of titles in the menu system.

Selecting the language

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to select TITLE LANG, then press the dial.

(3) Turn the control dial to select the desired language, then press the dial.

**(4)** Press MENU to erase the menu display.
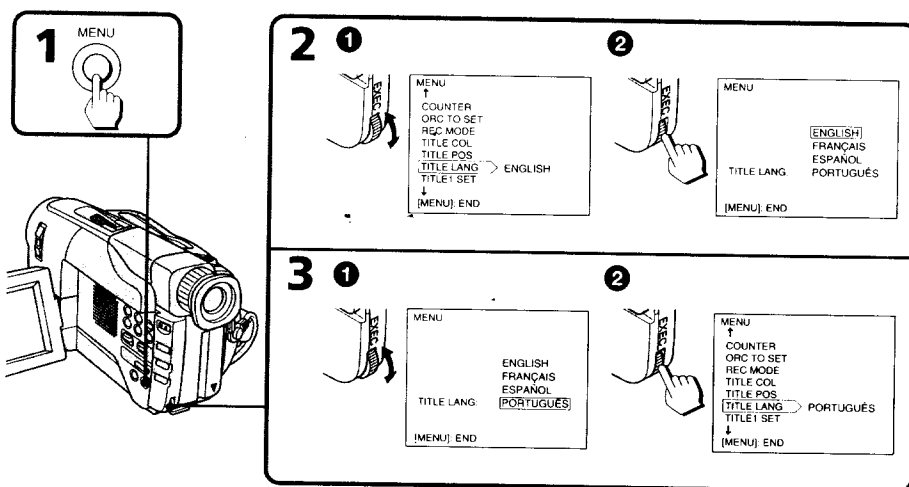
Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing. When the desired title appears, wait for it to stop flashing.

(2) Press START/STOP to start recording.

(3) When you want to stop recording the title, press TITLE.

To add the title while you are recording

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing.

(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.

(3) Press START/STOP to start recording.

(4) When you reach the point where you want to add the title, press TITLE.

(5) When you want to stop recording the title, press TITLE again.
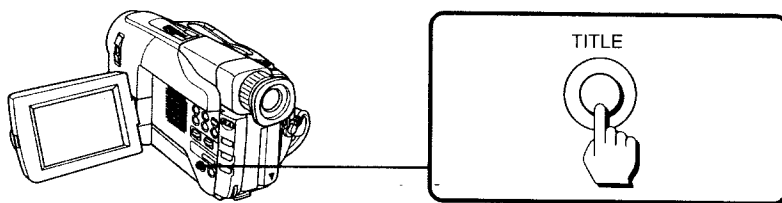
Titles cycle as follows:
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATULATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" appears, the title display disappears, and then Original title 1 returns.

Notes on superimposing a title
• If you have not made any original titles, they are not displayed.
• You cannot select a title while you are recording.
• FADER does not work while the title is displayed.
• You cannot simultaneously record the title and the date or time.
• You cannot record the title during fade-in/fade-out.
• If you display the menu while superimposing a title, the title is not recorded while the menu is being displayed.
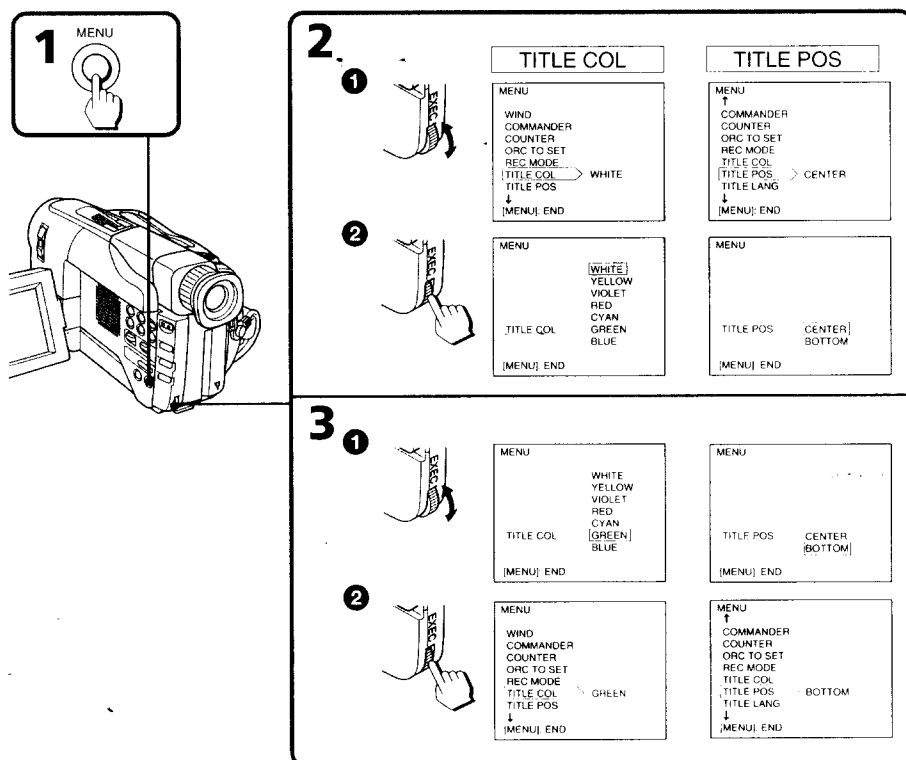
Superimposing a title

To select the color of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the dial to select TITLE COL, then press the dial.

(3) Turn the control dial to select the desired color, then press the dial.
You can chose from the following 7 colors:
WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE

(4) Press MENU to erase the menu display.

To select the position of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the dial to select TITLE POS, then press the dial.

(3) Turn the control dial to select the desired position (CENTER or BOTTOM), then press the dial.

(4) Press MENU to erase the menu display.

Making your own titles

You can make up to two titles and store them in the camcorder. We recommend to ejec the cassette before you begin.
Your title can have up to 22 characters.

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to select TITLE1 SET or TITLE2 SET, then press the dial.

(3) Turn the control dial to select the desired character, then press the dial.

(4) Repeat step 3 until you finish the title.

(5) When you are finished, turn the control dial to select ⊷ , then press the dial.

(6) Press MENU to erase the menu display.
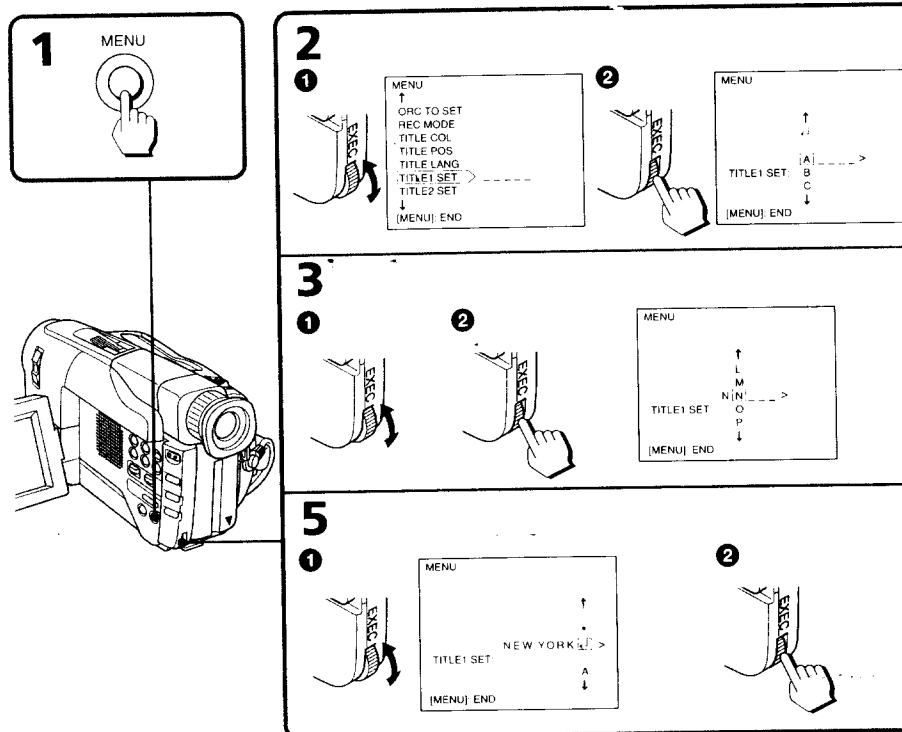
To edit a title you have stored
In step 2, select TITLE1 SET or TITLE2 SET, depending on which title you want to edi then change the title.

If you enter 22 characters in step 4
The title is stored immediately (and you can skip step 5).

If you take 5 minutes or longer to enter characters while a cassette is in the camcorder
The power goes off automatically. Characters you have entered remain. Turn STANDBY down once and then up again, then proceed from step 1.

To delete a title
At the leftmost character position, select ⊷ and press TITLE. Do not erase the title selecting empty spaces. If you do so, a title full of empty spaces is stored.

Re-recording a picture in the middle of a recorded tape

– CCD-TRV81 only

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. When the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.

(2) Press COUNTER RESET. The counter resets to zero

(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.

(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.
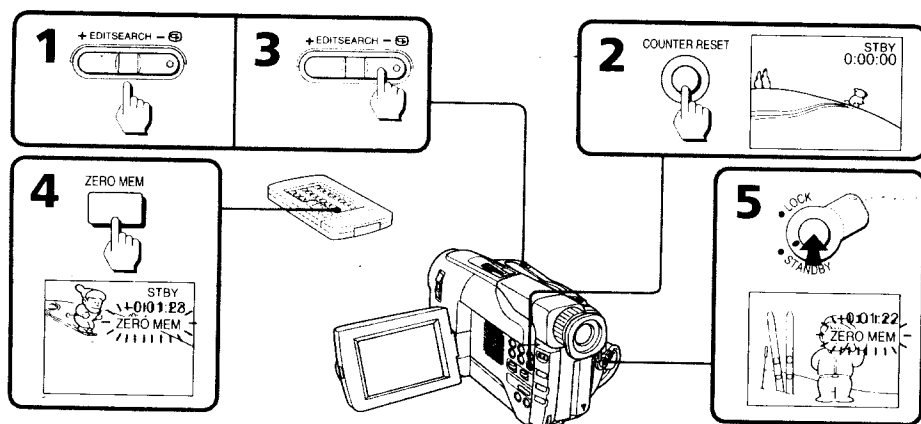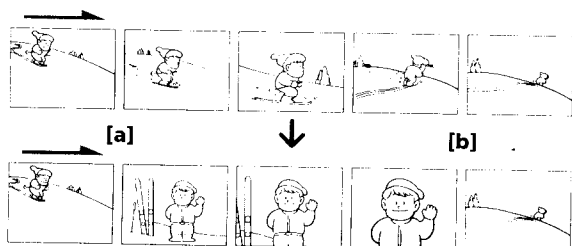
To change the end point
Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.
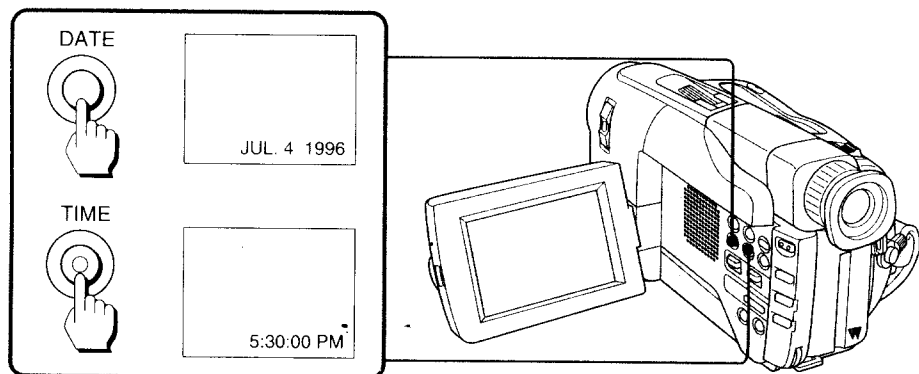
Note on re-recording
The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder or on the LCD screen with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder or on the LCD screen is recorded.
The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system.

To stop recording with the date or time
Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Note on the date or time indicator
If you press DATE or TIME while you are recording in CINEMA mode, the indicators in the viewfinder or on the LCD screen move upwards.