

# Dubbing a tape

## Using the A/V connecting cable

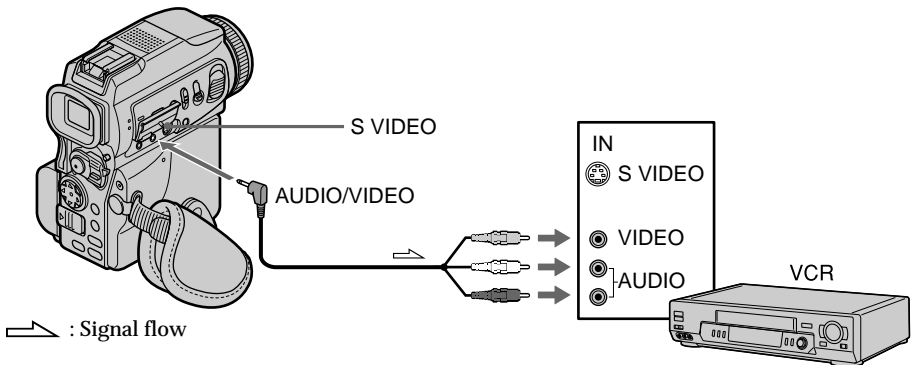
You can dub or edit on the VCR connected to your camcorder using your camcorder as a player.

Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

Before operation

- Set DISPLAY to LCD in the menu settings. (The default setting is LCD.)
- Press the following buttons to make the indicator disappear so that they will not be superimposed on the edited tape:
  - DISPLAY
  - DATA CODE on the Remote Commander
  - SEARCH MODE on the Remote Commander

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
- (2) Prepare the VCR for recording, then set the input selector to LINE. Connect the A/V connecting cable to AUDIO/VIDEO jack. Refer to the operating instructions of the VCR.
- (3) Set the POWER switch to VCR on your camcorder.
- (4) Play back the recorded tape on your camcorder.
- (5) Start recording on the VCR. Refer to the operating instructions of your VCR.



When you have finished dubbing a tape

Press **■** on both your camcorder and the VCR.

You can edit on VCRs that support the following systems:

**8** 8 mm, **Hi8** Hi8, **VHS** VHS, **S-VHS** S-VHS, **VHS-C** VHSC, **S-VHS-C** S-VHSC,  
**β** Betamax, **ED Beta** ED Betamax, **Mini DV** mini DV, **DV** DV, **Digital8**

If your VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video input jack and the white or the red plug to the audio input jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

## Dubbing a tape

If your VCR has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional).

With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect an S video cable (optional) to the S video jacks of both your camcorder and the VCR.

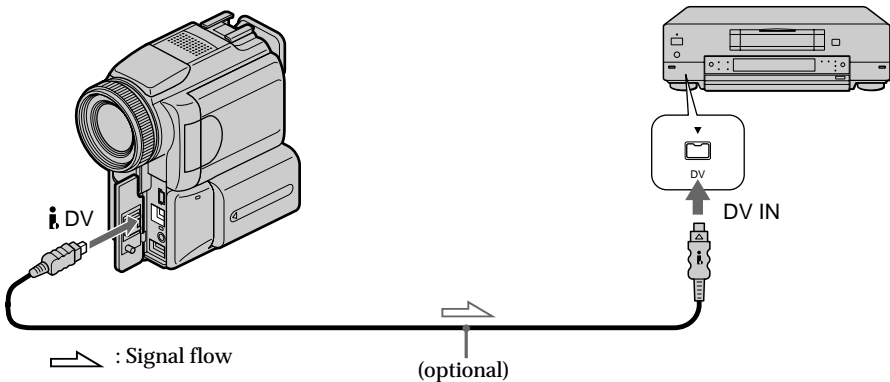
This connection produces higher quality DV format pictures.

Using the i.LINK cable (DV connecting cable)

Simply connect the i.LINK cable (DV connecting cable) (optional) to the DV jack of your camcorder and to DV IN of the DV products. With a digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing. You cannot dub the titles, display indicators or the contents of cassette memory or letters on the "Memory Stick" index screen.

Set the input selector on the VCR to the DV input position if the VCR is equipped with the input selector.

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
- (2) Prepare the VCR for recording.  
Set the input selector to LINE. Refer to the operating instructions of the VCR.
- (3) Set the POWER switch to VCR on your camcorder.
- (4) Play back the recorded tape on your camcorder.
- (5) Start recording on the VCR. Refer to the operating instructions of the VCR.



When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

You can connect one VCR only using the i.LINK cable (DV connecting cable)  
See page xxx for more information about i.LINK.

Pictures processed by the picture effect, the digital effect or PB ZOOM function

Pictures processed by the picture effect, the digital effect or PB ZOOM function are not output through the DV jack.

If you record a playback pause picture with the DV jack

The recorded picture becomes rough. And when you play back the picture using the other video equipment, the picture may jitter.

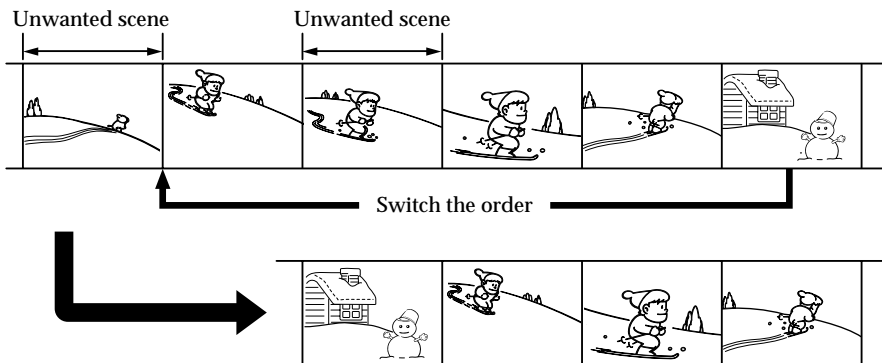
# Dubbing only desired scenes

## - Digital program editing (to a tape)

You can duplicate selected scenes (programs) for editing onto a tape without operating the VCR.

Scenes can be selected by frame. You can set up to 20 programs.

Your camcorder can dub on "Memory Stick"s. See p. xx for more information.



Before operating the Digital program editing to a tape

Step 1 Connecting the VCR (p. xx).

Step 2 Setting the VCR for operation (p. xx, xx).

Step 3 Adjusting the synchronization of the VCR (p. xx).

When you dub using the same VCR again, you can skip steps 2 and 3.

Using the Digital program editing function

Operation 1 Making the program (p. xx).

Operation 2 Performing the program (dubbing a tape) (p. xx).

Notes

- When you connect with an i.LINK cable (DV connecting cable), you may not be able to operate the dubbing function correctly, depending on the VCR.  
Set CONTROL to IR in the menu settings of your camcorder.
- When editing digital video to a tape, the operation signals cannot be sent with LANC.

### Step 1: Connecting the VCR

You can connect both an A/V connecting cable and an i.LINK cable (DV connecting cable).

When you use the A/V connecting cable, connect the devices as illustrated on page xx.  
When you use an i.LINK cable (DV connecting cable), connect the devices as illustrated on page xx.

If you connect using an i.LINK cable (DV connecting cable)

With digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing.

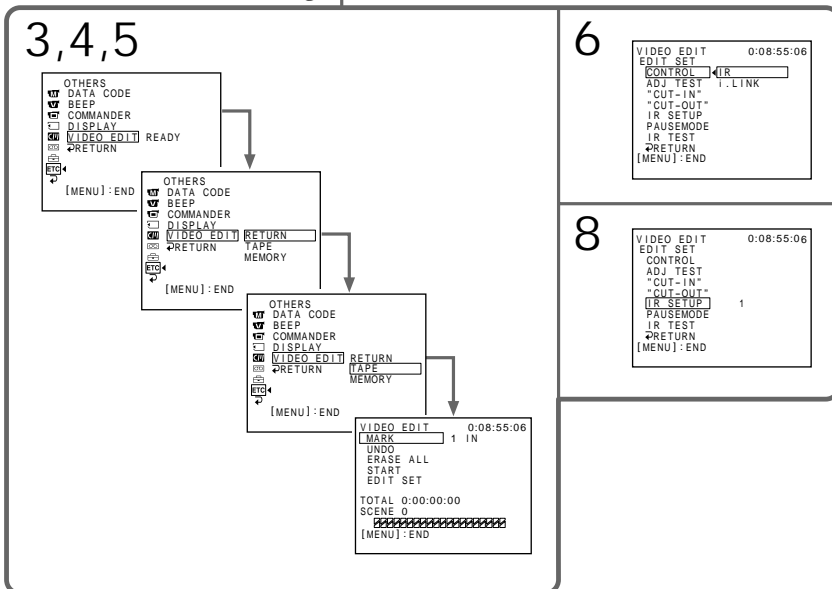
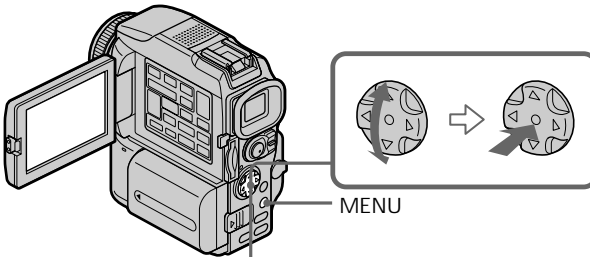
Step 2: Setting the VCR to operate with the A/V connecting cable

To edit using the VCR, send the control signal by infrared rays to the remote sensor on the VCR.

When you connect using an A/V connecting cable, follow the procedure below, (1) to (4), to send the control signal correctly.

- (1) Set the IR SETUP code
- ① Set the POWER switch to VCR on your camcorder.
- ② Turn the power of the connected VCR on, then set the input selector to LINE.
- ③ Press MENU, then select and decide upon VIDEO EDIT in  $\boxed{\text{ETC}}$  with the control button (p. xx).
- ④ Select and decide upon TAPE with the control button.
- ⑤ Select and decide upon EDIT SET with the control button.
- ⑥ Select and decide upon CONTROL with the control button.
- ⑦ Select and decide upon IR with the control button.
- ⑧ Select and decide upon IR SETUP, then select and decide upon IR SETUP code of your VCR with the control button.

Check the code in “About the IR SETUP code.” (p. xx)



## Dubbing only desired scenes – Digital program editing (to a tape)

### About the IR SETUP code

The IR SETUP code is stored in the memory of your camcorder. Be sure to set the correct code, depending on your VCR. The default setting is code number 3.

Brand	IR SETUP code
Sony	1, 2, 3, 4, 5, 6
Admiral (M. Wards)	89
Aiwa	80
Audio Dynamic	21, 35
Bell&Howell (M. Wards)	36
Brocsonic	70, 82
Canon	77, 78, 97
Citizen	47
Craig	47, 73
Curtis Mathis	8, 77, 80
Daewoo	26, 40, 77
DBX	21, 33, 35
Dimensia	8
Emerson	26, 48, 59, 70, 81, 82
Fisher	36, 37, 44, 45
Funai	80
General Electric	8, 32*, 77, 87, 94*
Goldstar	47
Hitachi	8, 42, 78
Instant Replay	77, 78
JC Penny	8, 21, 33, 35, 36, 42, 77
JVC	12, 13, 14, 21, 33, 35
Kenwood	21, 33, 35, 47
LXI (Sears)	36, 37, 42, 44, 45, 47, 80
Magnavox	77, 78, 83
Marantz	21, 33, 35
Marta	47
Memorex	37, 77
Minolta	8, 42
Mitsubishi/MGA	22, 23, 24, 28

Brand	IR SETUP code
Multitech	23, 32, 80
NEC	21, 33, 35
Olympic	77, 78
Panasonic	16, 17, 77, 78, 96
Pentax	8, 42
Philco	77, 78
Philips	77, 78, 83
Pioneer	78
Quasar	16, 17, 77, 78
RCA/PROSCAN	7, 8, 16, 40, 41, 42, 77, 78*, 83, 101
Realistic	36, 77
Sansui	21
Singer	73
Samsung	24*, 32, 32*, 41, 94, 94*
Sanyo	36, 37
Scott	22, 23, 24, 28, 32, 37, 40, 41
Sharp	88, 89
Shintom	73
Signature 2000 (M. Wards)	80, 89
Sylvania	77, 78, 80, 83
Symphonic	80
Tashiro	47
Tatung	21, 33, 35
Teac	21, 33, 35, 80
Technics	77, 78
Toshiba	7, 40
Wards	37, 47, 88, 89, 95
Yamaha	21, 33, 35, 36
Zenith	95

\* TV/VCR component

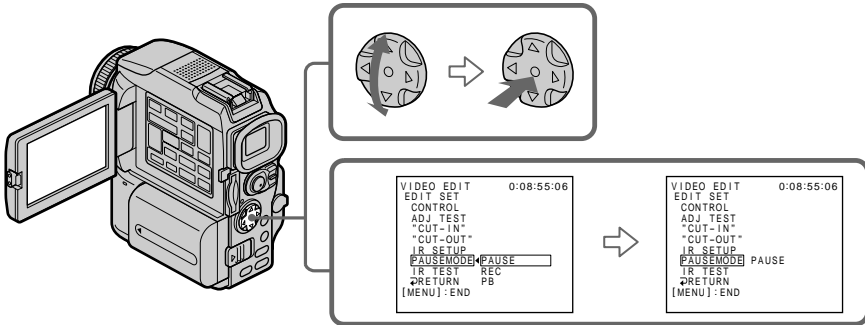
Note on IR SETUP code

Digital program editing is not possible if the VCR does not support IR SETUP codes.

## Dubbing only desired scenes – Digital program editing (to a tape)

- (2) Setting the modes to cancel the recording pause on the VCR  
Select and decide upon PAUSEMODE with the control button, then select and decide upon the mode to cancel recording pause on the VCR with the control button.

Refer to the operating instructions of your VCR.



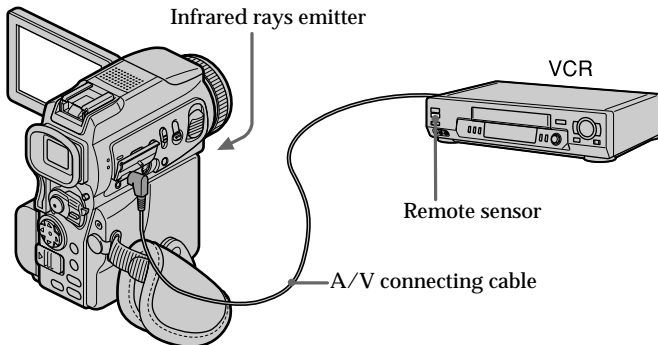
The buttons to cancel recording pause on the VCR

The buttons vary depending on your VCR. To cancel recording pause:

- Select PAUSE if the button to cancel recording pause is **II**.
- Select REC if the button to cancel recording pause is **●**.
- Select PB if the button to cancel recording pause is **▶**.

- (3) Setting your camcorder and the VCR to face each other  
Locate the infrared rays emitter of your camcorder and face it towards the remote sensor of the VCR.

Set the devices about 30 cm (12 in.) apart, and remove any obstacles between the devices.



## Dubbing only desired scenes – Digital program editing (to a tape)

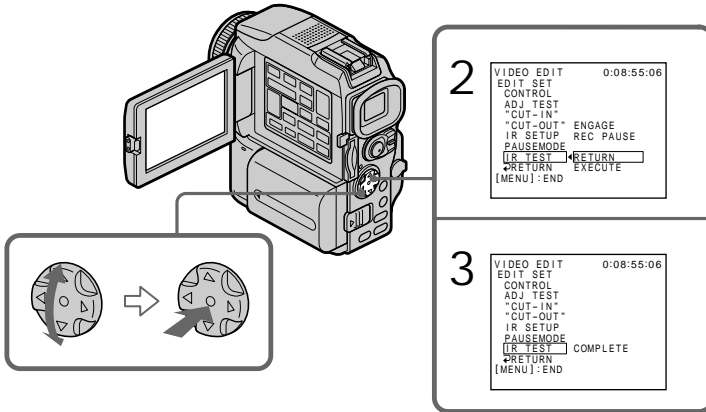
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### (4) Confirming the VCR operation

- ① Insert a recordable tape into the VCR, then set to recording pause.
- ② Select and decide upon IR TEST with the control button.
- ③ Select and decide upon EXECUTE with the control button.

If the VCR starts recording, the setting is correct.

When recording is finished, the indicator changes to COMPLETE.



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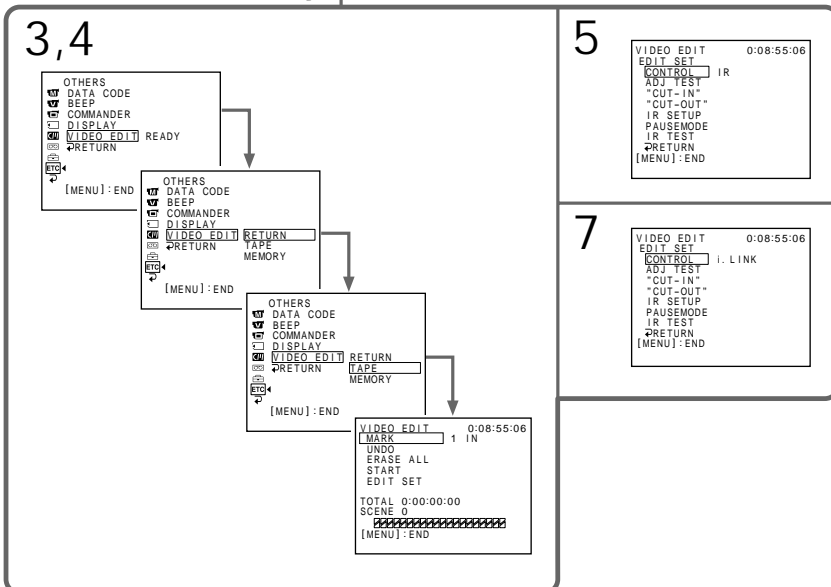
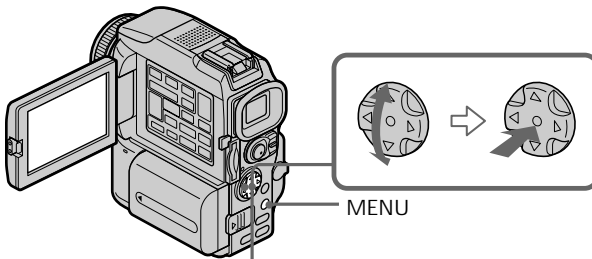
When the VCR does not operate correctly

- After checking the code in "About the IR SETUP code", set the IR SETUP or the PAUSEMODE again.
- Place your camcorder at least 30 cm (12 in.) away from the VCR.
- Refer to the operating instructions of your VCR.

Step 2: Setting the VCR to operate with the i.LINK cable (DV connecting cable)

When you connect using i.LINK cable (DV connecting cable) (optional), follow the procedure below.

- (1) Set the POWER switch to VCR on your camcorder.
- (2) Turn the power of the connected VCR on, then set the input selector to DV input. When you connect a digital video camera recorder, set its power switch to VCR/VTR.
- (3) Press MENU, then select and decide upon VIDEO EDIT in **[ETC]** with the control button (p. xx).
- (4) Select and decide upon TAPE with the control button.
- (5) Select and decide upon EDIT SET with the control button.
- (6) Select and decide upon CONTROL with the control button.
- (7) Select and decide upon i.LINK with the control button.



When you connect using i.LINK cable (DV connecting cable)  
You cannot dub the titles, display indicators.

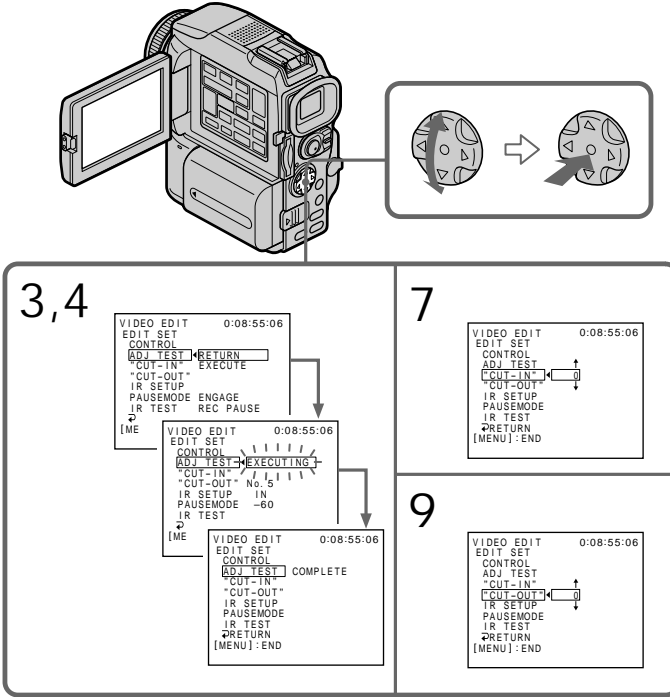


### Step 3: Adjusting the synchronization of the VCR

You can adjust the synchronization of your camcorder and the VCR. Have a pen and paper ready for notes. Before operation, eject a cassette from your camcorder.

- (1) Set the POWER switch to VCR on your camcorder.
- (2) Insert a blank tape (or a tape you want to record over) into the VCR, then set to recording pause.  
When you select i.LINK in CONTROL, you do not need to set to recording pause.
- (3) Select and decide upon ADJ TEST with the control button.
- (4) Select and decide upon EXECUTE with the control button.  
IN and OUT are recorded on an image for five times each to calculate the numerical values for adjusting the synchronization.  
The EXECUTING indicator flashes on the screen.  
When finished, the indicator changes to COMPLETE.
- (5) Rewind the tape in the VCR, then start slow playback.  
Take a note of the opening numerical value of each IN and the closing numerical value of each OUT.
- (6) Calculate the average of all the opening numerical values of each IN, and the average of all the closing numerical values of each OUT.
- (7) Select and decide upon "CUT-IN" with the control button.
- (8) Select the average numerical value of IN with the control button.  
The calculated start position for recording is set.
- (9) Select and decide upon "CUT-OUT" with the control button.
- (10) Select and decide upon the average numerical value of OUT with the control button.  
The calculated stop position for recording is set.
- (11) Select and decide upon ↩ RETURN with the control button.

## Dubbing only desired scenes – Digital program editing (to a tape)



Editing

### Notes

- When you complete step 3, the image to adjust the synchronization is recorded for about 50 seconds.
- If you start recording from the very beginning of the tape, the first few seconds of the tape may not record properly. Be sure to allow about 10 seconds' lead before starting recording.
- When the recording unit cannot be operated properly by the i.LINK cable (DV connecting cable), leave the connection as it is, and make the A/V connecting cable settings (p. xx). Video and audio are sent by digital signals.



Erasing the program you have set

Erase OUT first and then IN from of the last program.

- (1) Select and decide upon UNDO with the control button.
- (2) Select and decide upon EXECUTE with the control button.  
The last set program mark flashes, then the setting is canceled.

To cancel erasing

Select and decide upon RETURN with the control button in step 2.

Erasing all programs

- (1) Select and decide upon VIDEO EDIT in the menu settings, then select and decide upon TAPE with the control button.
- (2) Select and decide upon ERASE ALL, then select and decide upon EXECUTE with the control button.  
All the program marks flash, then the settings are canceled.

To cancel erasing all programs

Select and decide upon RETURN with the control button in step 2.

To cancel a program you have set

Press MENU.

The program is stored in memory until the tape is ejected.

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Note

You cannot operate recording during the Digital program editing.

On a blank portion of the tape

You cannot set IN or OUT on a blank portion of the tape.

If there is a blank portion between IN and OUT on the tape

The total time code may not be displayed correctly.

### Operation 2: Performing the program (Dubbing a tape)

Make sure your camcorder and VCR are connected, and that the VCR is set to recording pause. When you use an i.LINK cable (DV connecting cable) the following procedure is not necessary.

When you use a digital video camera recorder, set its power switch to VCR/VTR.

- (1) Select and decide upon VIDEO EDIT, then select and decide upon TAPE with the control button.
- (2) Select and decide upon START, then select and decide upon EXECUTE with the control button.

Search for the beginning of the first program, then start dubbing.

The program mark flashes.

The SEARCH indicator appears during search, and the EDIT indicator appears during edit on the screen.

The PROGRAM indicator changes to light blue after dubbing ends.

When the dubbing ends, your camcorder and the VCR automatically stop.

To stop dubbing during editing

Press ■ using the video operation buttons.

To end the Digital program editing function

Your camcorder stops when the dubbing ends. Then the display returns to VIDEO EDIT in the menu settings.

Press MENU to end the program editing function.

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You cannot record on the VCR when:

- The tape has run out.
- The write-protect tab on the cassette is set to lock.
- The IR SETUP code is not correct (when IR is selected).
- The button to cancel recording pause is not correct (when IR is selected).

NOT READY appears on the LCD screen when:


- The program to operate the Digital program editing has not been made.
- i.LINK is selected but an i.LINK cable (DV connecting cable) is not connected.
- The power of the connected VCR is not turned on (when you set i.LINK).

# Using with analog video unit and your computer – Signal convert function

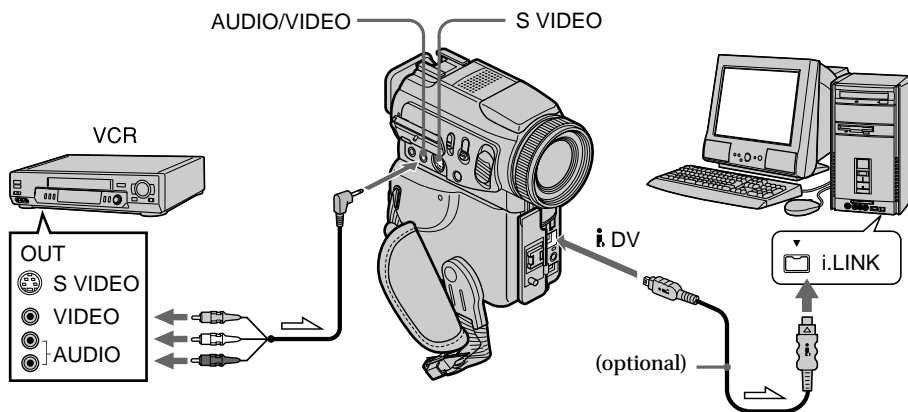
You can capture images and sound from an analog video unit connected to your computer which has the i.LINK (DV) jack to your camcorder.

Before operation

Set DISPLAY to LCD in the menu settings. (The default setting is LCD.)

- (1) Set the POWER switch to VCR.
- (2) Press MENU, then select and decide upon A/V → DV OUT in  to ON with the control button (p. xxx).
- (3) Start playback on the analog video unit.
- (4) Start capturing procedures on your computer. The operation procedures depend on your computer and the software which you use.

For details on how to capture images, refer to the instruction manual of computer and software.



Editing

After capturing images and sound

Stop capturing procedures on your computer, and stop the playback on the analog video unit.

Notes

- You need to install software which can exchange video signals.
- Depending on the condition of the analog video signals, the computer may not be able to output the images correctly when you convert analog video signals into digital video signals via your camcorder. Depending on the analog video unit, the image may contain noise or incorrect colors.
- You cannot record or capture the video output via your camcorder when the video tapes include copyright protection signals such as ID-2 system.
- You can capture images and sound with an S video cable (optional) instead of the A/V connecting cable (supplied).

# Recording video or TV programs

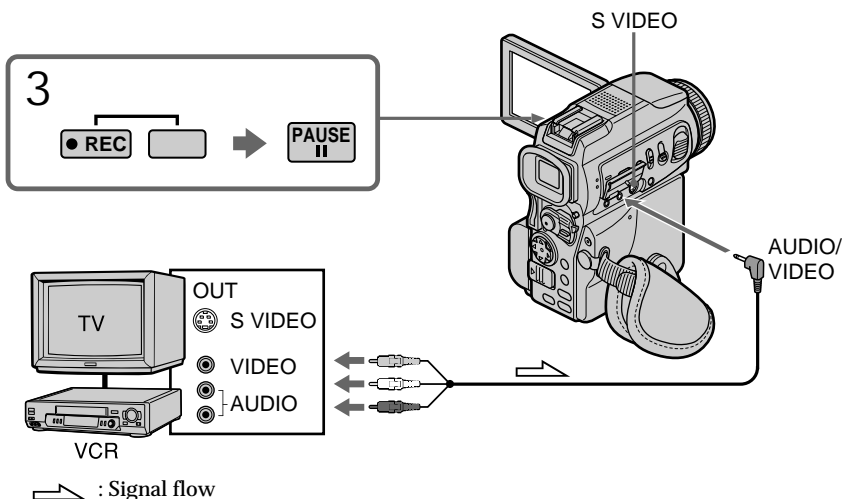
## Using the A/V connecting cable

You can record a tape from another VCR or a TV program from a TV that has video/audio outputs. Use your camcorder as a recorder.

Before operation

Set DISPLAY to LCD in the menu settings. (The default setting is LCD.)

- (1) Insert a blank tape (or a tape you want to record over) into your camcorder. If you are recording a tape from the VCR, insert a recorded tape into the VCR.
- (2) Set the POWER switch to VCR on your camcorder.
- (3) Press **● REC** and the button on its right simultaneously on your camcorder, then immediately press **||** on your camcorder.
- (4) Press **▶** on the VCR to start playback if you record a tape from a VCR. Select a TV program if you record from a TV. The picture from a TV or VCR appears on the screen.
- (5) Press **||** on your camcorder at the scene where you want to start recording from.



When you have finished dubbing a tape  
Press **■** on both your camcorder and the VCR.

## Using the Remote Commander

In step 3, press **● REC** and **MARK** simultaneously, then immediately press **||**. And in step 5, press **||** at the scene where you want to start recording from.

If your VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video output jack and the white or the red plug to the audio output jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

## Recording video or TV programs

If your TV or VCR has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional).

With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect an S video cable (optional) to the S video jacks of both your camcorder and the TV or VCR.

This connection produces higher quality DV format pictures.

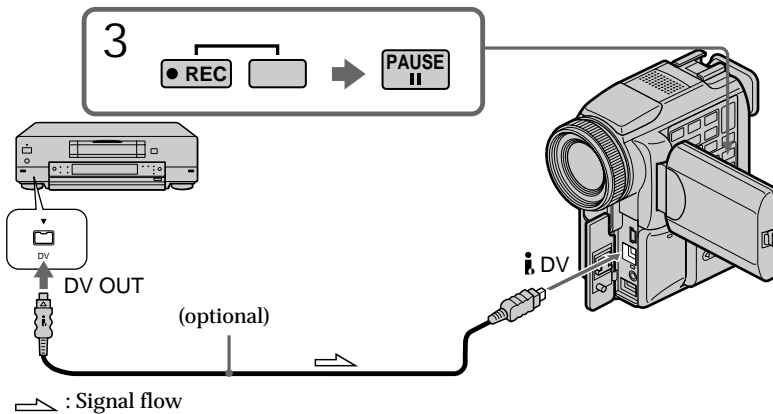
Note on the Remote Commander

Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

### Using the i.LINK cable (DV connecting cable)

Simply connect the i.LINK cable (DV connecting cable) (optional) to the DV jack of your camcorder and to DV OUT of the DV products. With a digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing.

- (1) Insert a blank tape (or a tape you want to record over) into your camcorder, and insert the recorded tape into the VCR.
- (2) Set the POWER switch to VCR on your camcorder.
- (3) Press ● REC and the button on its right simultaneously on your camcorder, then immediately press || on your camcorder.
- (4) Press ► on the VCR to start playback. The picture to be recorded appears on the screen.
- (5) Press || on your camcorder at the scene where you want to start recording from.





## Recording video or TV programs

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When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

Using the Remote Commander

In step 3, press ● REC and MARK simultaneously, then immediately press ■■. And in step 5, press ■■ at the scene where you want to start recording from.

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You can connect one VCR only using the i.LINK cable (DV connecting cable)

During digital editing

The color of the display may be uneven. However, this does not affect the dubbed picture.

If you record playback pause picture with the ⏸ DV jack

The recorded picture becomes rough. And when you play back the picture using your camcorder, the picture may jitter.

Before recording

Make sure that the DV IN indicator appears on the screen. The DV IN indicator may appear on both equipment.

Note on the Remote Commander

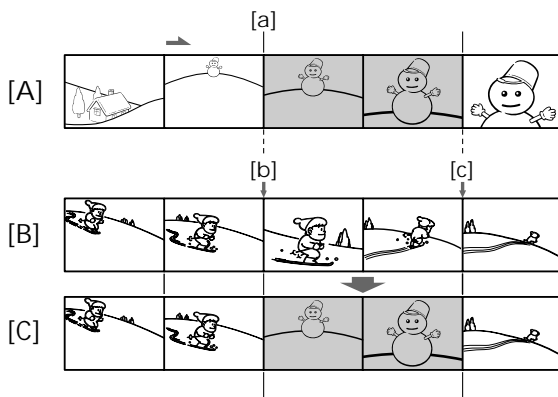
Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

# Inserting a scene from a VCR

## – Insert editing

You can insert a new scene from a VCR onto your originally recorded tape by specifying the insert start and end points. Use the Remote Commander for this operation. Connections are the same as on page xx or xx.

Insert a cassette containing the desired scene to insert into the VCR.



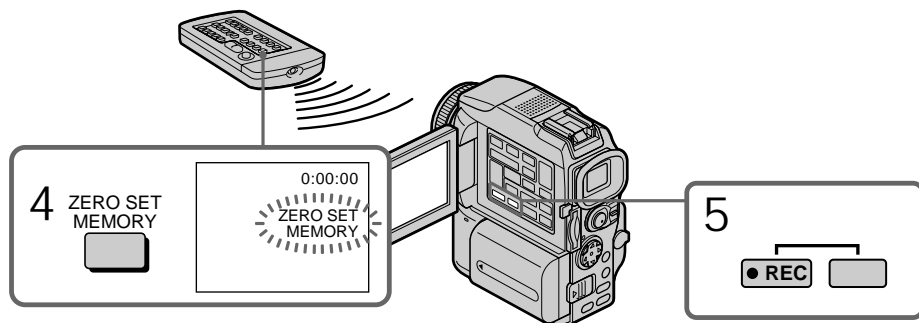
[A]: A tape that contains the scene to be superimposed

[B]: A tape before editing

[C]: A tape after editing

- (1) Set the POWER switch to VCR on your camcorder.
- (2) On the connected VCR, locate just before the insert start point [a], then press **II** to set the VCR to the playback pause mode.
- (3) On your camcorder, locate the insert end point [c]. Then press **II** to set it to the playback pause mode.
- (4) Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the insert is stored in memory. The tape counter shows "0:00:00."
- (5) On your camcorder, locate the insert start point [b] by pressing **◀◀**, then press **● REC** and the button on its right simultaneously.
- (6) First press **II** on the VCR, and after a few seconds press **II** on your camcorder to start inserting the new scene.

Inserting automatically stops near the zero point on the tape counter. Your camcorder automatically returns to the recording pause mode.



## Inserting a scene from a VCR – Insert editing

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### To change the insert end point

Press ZERO SET MEMORY again after step 5 to erase the ZERO SET MEMORY indicator and begin from step 3.

### Using the Remote Commander

In step 5, press ● REC and MARK simultaneously, then immediately press ■■. And in step 6, press ■■ at the scene where you want to start recording from.

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#### Note

The picture and sound recorded on the portion between the insert start and end points will be erased when you insert the new scene.

If you insert scenes on the tape recorded with other camcorder (including other DCR-PC115/PC120BT)

The picture and sound may be distorted. We recommend that you insert scenes on a tape recorded with your camcorder.

When the inserted picture is played back

The picture and sound may be distorted at the end of the inserted portion. This is not a malfunction.

The picture and sound at the start point and the end point may be distorted in the LP mode.

To insert a scene without setting the insert end point

Skip steps 3 and 4. Press ■ when you want to stop inserting.

Note on the Remote Commander

Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

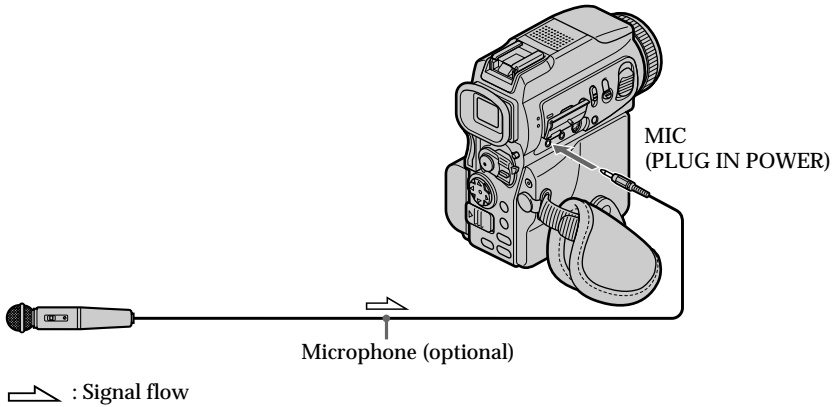
# Audio dubbing

You can record an audio sound to add to the original sound on a tape by connecting audio equipment or a microphone. If you connect the audio equipment, you can add sound to your recorded tape by specifying starting and ending points. The original sound will not be erased.

Use the Remote Commander for this operation.

Select one of the following connections to add an audio sound.

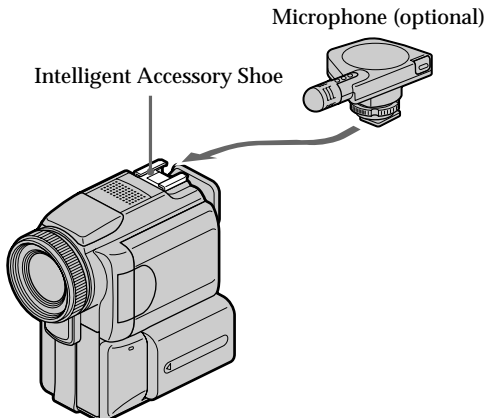
## Connecting the microphone with the MIC jack



You can check the recorded picture and sound by connecting the AUDIO/VIDEO jack to a TV.

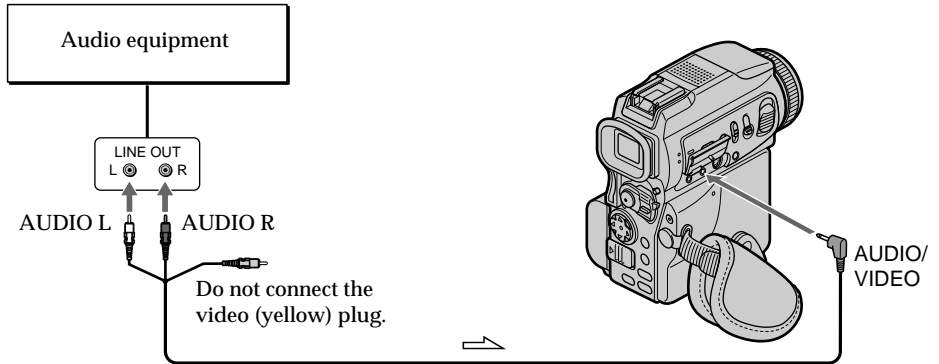
The recorded sound is not output from a speaker. Check the sound by using the TV or headphones.

## Connecting the microphone with the intelligent accessory shoe



## Audio dubbing

### Connecting the A/V connecting cable to the AUDIO/VIDEO jack



### Dubbing with the built-in microphone

No connection is necessary.

#### Note

When dubbing with the AUDIO/VIDEO jack or the built-in microphone, pictures are not output through S VIDEO jack or the AUDIO/VIDEO jack. Check the recorded picture on the screen. You can check the recorded sound by using headphones.

If you make all the connections

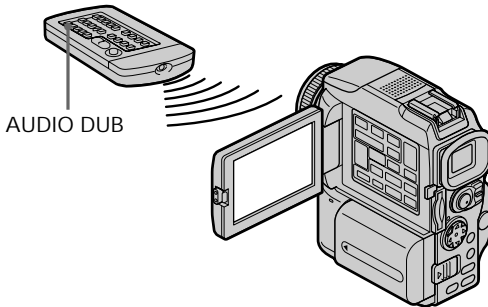
The audio input to be recorded will take precedence over others in the following order:

- MIC (PLUG IN POWER) jack
- Intelligent accessory shoe
- AUDIO/VIDEO jack
- Built-in microphone

## Adding an audio sound on a recorded tape


Choose a connection mentioned before, and connect audio equipment or microphone to your camcorder. Then follow the procedure below.

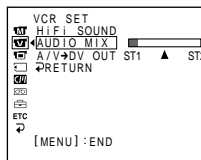
- (1) Insert the recorded tape into your camcorder.
- (2) Set the POWER switch to VCR on your camcorder.
- (3) Locate the recording start point by pressing ►. Then press ⏸ at the point where you want to start recording to set your camcorder to the playback pause mode.
- (4) Press AUDIO DUB on the Remote Commander. The green ●⏸ indicator appears on the screen.
- (5) Press ⏸ and start playing back the audio you want to record at the same time. The new sound is recorded in stereo 2 (ST2) during playback. During recording new sound, the red ● appears on the screen.
- (6) Press ■ at the point where you want to stop recording.



## Monitoring the new recorded sound

To play back the sound

Adjust the balance between the original sound (ST1) and the new sound (ST2) by selecting AUDIO MIX in  in the menu settings (p. xx).



Five minutes after when you disconnect the power source or remove the battery pack, the setting of AUDIO MIX returns to the original sound (ST1) only. The default setting is original sound only.

### Notes

- New sound cannot be recorded on a tape already recorded in the 16-bit mode (32 kHz, 44.1 kHz or 48 kHz).
- New sound cannot be recorded on a tape already recorded in the LP mode.
- You cannot add audio with the i.LINK DV jack.
- You cannot add audio on the blank portion of the tape.

If an i.LINK cable (DV connecting cable) (optional) is connected to your camcorder  
You cannot add a sound to a recorded tape.

We recommend that you add new sound on a tape recorded with your camcorder  
If you add new sound on a tape recorded with another camcorder (including other  
DCR-PC115/PC120BT), the sound quality may become worse.

If you set the write-protect tab of the tape to lock  
You cannot record on a tape. Slide the write-protect tab to release the write protection.

To add new sound more precisely  
Press **ZERO SET MEMORY** on the Remote Commander at the point where you want to  
stop recording later in the playback mode.  
Carry out from steps 3 to 5. Recording automatically stops at the point where **ZERO  
SET MEMORY** was pressed.

# Superimposing a title

CM  
only

If you use a tape with cassette memory, you can superimpose the title. When you play back the tape, the title is displayed for five seconds from the point where you superimposed it.

You can select one of eight preset titles and two custom titles (p. xx). You can also select the color, size and position of titles.



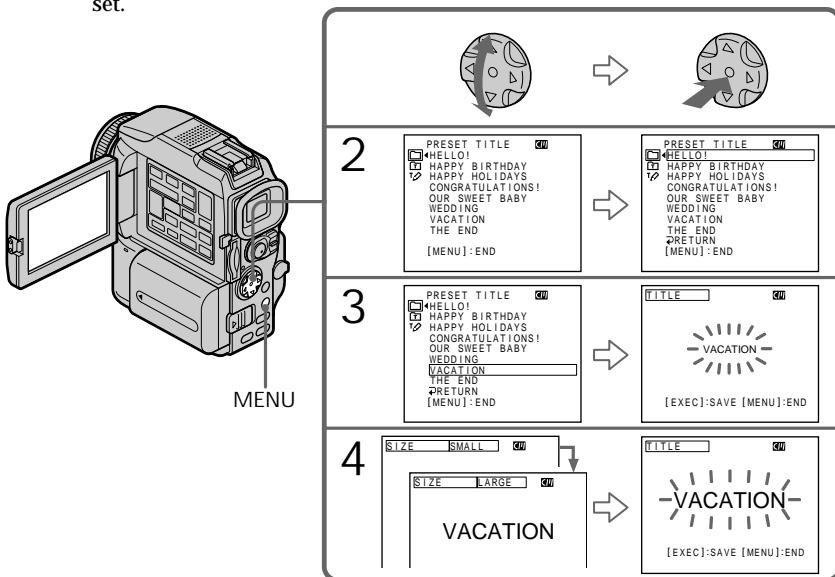
- (1) Set the POWER switch to CAMERA or VCR. Press MENU, then select and decide upon TITLE in with the control button (p. xx).
- (2) Select and decide upon with the control button.
- (3) Select and decide upon the desired title with the control button. The title flashes.
- (4) Change the color, or position, if necessary.
  - ① Select and decide upon the COLOR, SIZE or POSITION with the control button. The item appears.
  - ② Select and decide upon the desired item with the control button.
  - ③ Repeat steps ① and ② until the title is laid out as desired.
- (5) Press on the control button again to complete the setting.

In the recording, playback or playback pause mode:

The TITLE SAVE indicator appears on the screen for five seconds and the title is set.

In the standby mode:

The TITLE indicator appears. And when you press START/STOP to start recording, TITLE SAVE appears on the screen for five seconds and the title is set.






## Superimposing a title

---

If you set the write-protect tab of the tape to lock

You cannot superimpose or erase the title. Slide the write-protect tab to release the write protection.

To use the custom title

If you want to use the custom title, select  in step 2.

If the tape has a blank portion

You cannot superimpose a title on the portion.

If the tape has a blank portion in the middle of the recorded parts

The title may not be displayed correctly.

The titles superimposed with your camcorder

- They are displayed by only the DV <sup>Mini</sup> DV format video equipment with index titler function.
- The point you superimposed the title may be detected as an index signal when searching a recording with other video equipment.

If the tape has too many index signals

You may not be able to superimpose a title because the memory is full. In this case, delete data you do not need.

Not to display titles

Set TITLE DSPL to OFF in the menu settings (p. xx).

Title setting

- The title color changes as follows:  
WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE
- The title size changes as follows:  
SMALL ↔ LARGE  
You cannot input 13 characters or more in LARGE size. If you input more than 12 characters, the title size returns to SMALL even you select LARGE.
- If you select SMALL, you have nine choices for the title position.  
If you select LARGE, you have eight choices for the title position.

One cassette can have up to about 20 titles, if one title consists of five characters

However, if the cassette memory is full with date, photo and cassette label data, one cassette can have only up to about 11 titles with five characters each.

Cassette memory capacity is as follows:


- 6 date data
- 12 photo data
- 1 cassette label

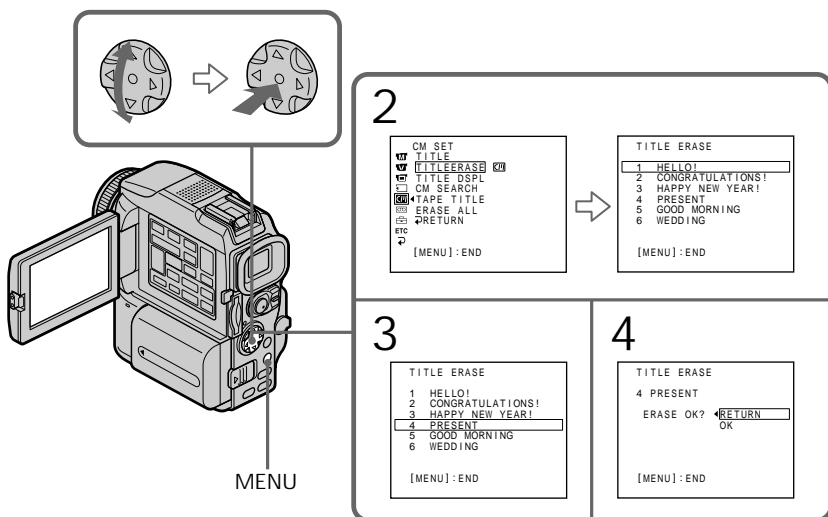
If the  FULL" mark appears

The cassette memory is full. Erase the title you do not need.

## Superimposing a title

### Erasing a title



- (1) Set the POWER switch to CAMERA or VCR.
- (2) Press MENU, then select and decide upon TITLEERASE in  with the control button (p. xx).
- (3) Select and decide upon the title you want to erase with the control button. ERASE OK ? indicator appears.
- (4) Make sure the title is the one you want to erase, and select and decide upon OK with the control button. OK changes to EXECUTE.
- (5) Select and decide upon EXECUTE with the control button. ERASING flashes on the screen. When the title is erased, COMPLETE is displayed.

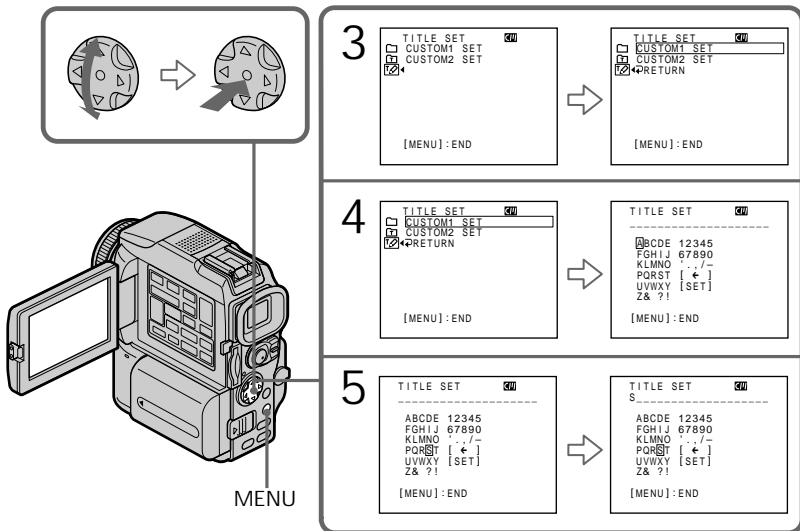


To cancel erasing a title  
Select and decide upon RETURN in step 5.


# Making your own titles



You can make up to two titles and store them in the memory of your camcorder. Each title can have up to 20 characters.

- (1) Set the POWER switch to CAMERA or VCR.
- (2) Press MENU, then select and decide upon TITLE in  with the control button (p. xx).
- (3) Select and decide upon  with the control button.
- (4) Select and decide upon CUSTOM1 SET or CUSTOM2 SET with the control button.
- (5) Select and decide upon the desired character with the control button.
- (6) Repeat steps 5 to complete making your own title.
- (7) To finish making your own titles, select and decide upon [SET] with the control button.



## To change a title you have stored

In step 4, select the original title you want to change, and then press  on the control button.

Select  to select the title to delete, then press  to delete the last character of your title. Enter the new title as desired.


---

If you take five minutes or longer to enter characters in the standby mode while a cassette is in your camcorder

The power automatically goes off. The characters you have entered remain stored in memory. Set the POWER switch to OFF (CHG) once and then to CAMERA again, then proceed from step 1.

We recommend setting the POWER switch to VCR or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

To erase the title

Select . The last character is erased.


To enter a space

Select [ Z & ? ! ], then select the blank part.

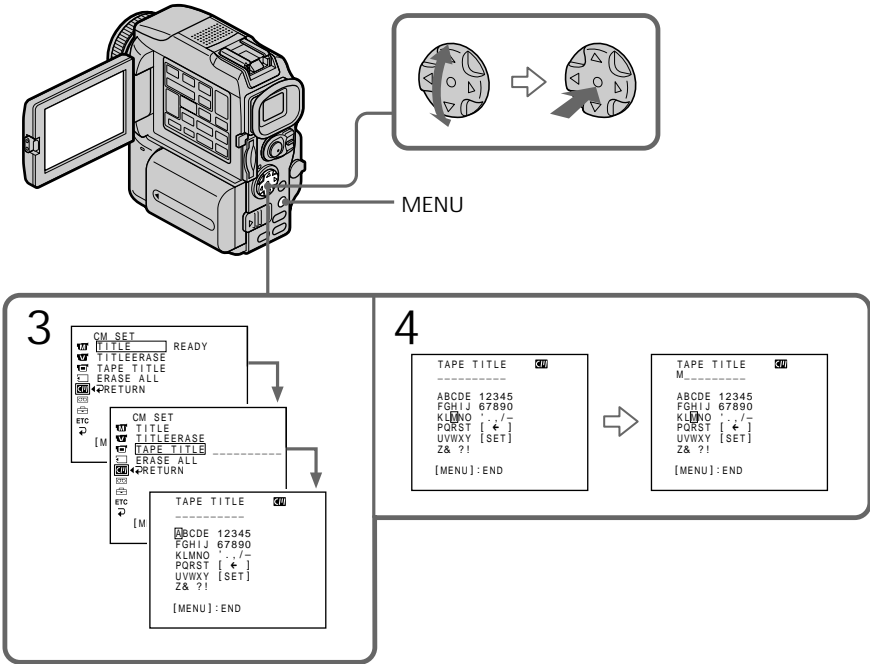
# Labeling a cassette

CM  
only

If you use a tape with cassette memory, you can label a cassette. The label can consist of up to 10 characters and is stored in cassette memory. When you insert the labelled cassette and turn the power on, the label is displayed for about five seconds.

- (1) Insert the cassette you want to label.
- (2) Set the POWER switch to CAMERA or VCR.
- (3) Press MENU, then select and decide upon TAPE TITLE in  with the control button (p. xx).  
Tape title display appears.
- (4) Select and decide upon the desired character with the control button.
- (5) Repeat steps 4 until you complete the label.
- (6) Select and decide upon [SET] with the control button.  
The label is stored in memory.

Editing



## Labeling a cassette

---

To erase the label you have made

Select and decide upon [←] with the control button in step 4. The last character is erased.

To change the label you have made

Insert the cassette to change the label, and operate in the same way to make a new label.

---

If you set the write-protect tab of the tape to lock

You cannot label a cassette. Slide the write-protect tab to release the write protection.

If the tape has too many index signals

You may not be able to label a cassette because the memory is full. In this case, delete data you do not need.

If you have superimposed titles in the cassette

When the label is displayed, up to four titles also appear.

When the "-----" indicator has fewer than 10 spaces

The cassette memory is full.

The "-----" indicates the number of characters you can select for the label.

To erase the character

Press [←]. The last character is erased.

To enter a space

Select [Z& ?!], then select the blank part.

## Erasing all the data in cassette memory

You can erase all the data in cassette memory at once.

- (1) Set the POWER switch to CAMERA or VCR.
- (2) Press MENU, then select and decide upon ERASE ALL in [☐] with the control button (p. xx).
- (3) Select and decide upon OK with the control button. OK changes to EXECUTE.
- (4) Select and decide upon EXECUTE with the control button. ERASING flashes on the screen. When all the data is erased, COMPLETE is displayed.

To cancel deleting

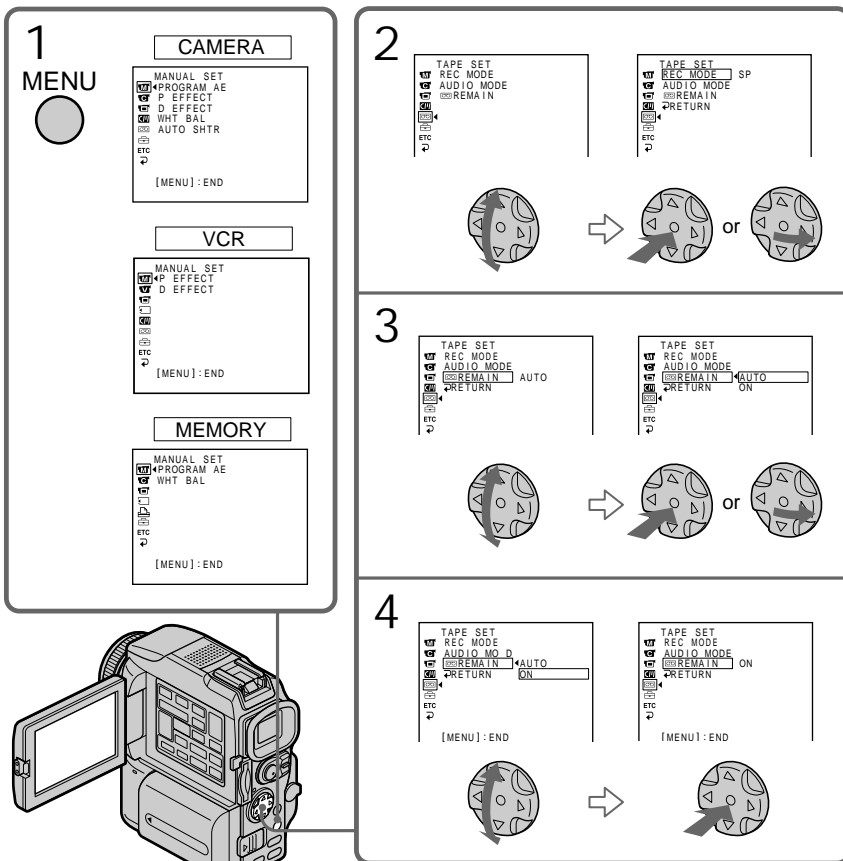
Select and decide upon RETURN with the control button in step 4.

# Changing the menu settings

To change the mode settings in the menu settings, select the menu items with the control button. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

- (1) Set the POWER switch to CAMERA, VCR or MEMORY, press MENU.
- (2) Press ▲/▼ on the control button to select the desired icon, then press ● or ►.
- (3) Press ▲/▼ on the control button to select the desired item, then press ● or ►.
- (4) Press ▲/▼ on the control button to select the desired mode, then press ●.
- (5) If you want to change other items, select ↵ RETURN and press ● or ◀, then repeat steps 2 to 4.

For details, see “Selecting the mode setting of each item” (p. xx).









To make the menu display disappear  
Press MENU.

This manual refers to selecting and deciding upon items by the above procedure as “Select and decide upon [(item name)].”



## Changing the menu settings

Menu items are displayed as the following icons:

-  MANUAL SET
-  CAMERA SET
-  VCR SET
-  LCD/VF SET
-  MEMORY SET
-  PRINT SET
-  CM SET
-  TAPE SET
-  SETUP MENU
-  OTHERS

### Selecting the mode setting of each item ● is the default setting.


Menu items differ depending on the position of the POWER switch. The screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
 PROGRAM AE	---	To suit your specific shooting requirement (p. xx).	CAMERA MEMORY
P EFFECT	---	To add special effects like those in films or on the TV to images (p. xx, xx).	VCR CAMERA
D EFFECT	---	To add special effects using the various digital functions (p. xx).	VCR CAMERA
WHT BAL	---	To adjust the white balance (p. xx).	CAMERA MEMORY
AUTO SHTR	● ON	To automatically activate the electronic shutter when shooting in bright conditions.	CAMERA
	OFF	Not to automatically activate the electronic shutter even when shooting in bright conditions.	
 D ZOOM	● OFF	To deactivate the digital zoom. Up to 10× zoom is carried out.	CAMERA
	20×	To activate the digital zoom. More than 10× to 20× zoom is performed digitally (p. xx).	
	120×	To activate the digital zoom. More than 10× to 120× zoom is performed digitally (p. xx).	
16:9WIDE	● OFF	—	CAMERA
	ON	To record a 16:9 wide picture (p. xx).	
STEADYSHOT	● ON	To compensate for camera-shake.	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S. LIGHT	● ON	To use the NightShot Light function (p. xx).	CAMERA MEMORY
	OFF	To cancel the NightShot Light function.	




Notes on the SteadyShot function

- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (optional) may influence the SteadyShot function.

If you cancel the SteadyShot function

The SteadyShot off indicator  appears. Your camcorder prevents excessive compensation for camera-shake.

## Changing the menu settings





Icon/item	Mode	Meaning	POWER switch
 FRAME REC	● OFF	To deactivate Cut recording function.	CAMERA
	ON	To activate Cut recording function (p. xx).	
INT. REC	ON	To activate Interval recording function (p. xx).	CAMERA
	● OFF	To deactivate Interval recording function.	
	SET	To set INTERVAL and REC TIME for Interval recording function (p. xx).	
FLASH LVL	HIGH	Makes the flash level higher than normal.	CAMERA MEMORY
	● NORMAL	Normal setting.	
	LOW	Makes the flash level lower than normal.	
HOLOGRAM F	● AUTO	The HOLOGRAM AF emits when focusing on subjects is difficult in dark places (p. xx).	MEMORY
	OFF	The HOLOGRAM does not emit.	
 HiFi SOUND	● STEREO	To play back a stereo tape or dual sound track tape with main and sub sound (p. xx).	VCR
	1	To play back a stereo tape with the left sound or a dual sound tape with main sound.	
	2	To play back a stereo tape with the right sound or a dual sound track tape with sub sound.	
AUDIO MIX	---	To adjust the balance between the stereo 1 and stereo 2 (p. xx).	VCR
			
A/V→DV OUT	● OFF	To output digital images and sound in analog format using your camcorder.	VCR
	ON	To output analog images and sound in digital format using your camcorder (p. xx).	

### Note on FLASH LVL

You cannot adjust FLASH LVL if the external flash (optional) is not compatible with the flash level.



## Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
 LCD BRIGHT	---	To adjust the brightness on the LCD screen with ◀/▶ on the control button.	VCR CAMERA MEMORY
			
		To darken ←————→ To lighten	
LCD B. L.	● BRT NORMAL	To set the brightness on the LCD screen normal.	VCR CAMERA MEMORY
	BRIGHT	To brighten the LCD screen.	VCR CAMERA MEMORY
LCD COLOR	---	To adjust the color on the LCD screen, press ◀/▶ on the control button.	VCR CAMERA MEMORY
			
		To get low-intensity ←————→ To get high-intensity	
VF B.L.	● BRT NORMAL	To set the brightness on the viewfinder screen to normal.	VCR CAMERA MEMORY
	BRIGHT	To brighten the viewfinder screen.	VCR CAMERA MEMORY
 STILL SET			
PIC MODE	● SINGLE	Not to record continuously.	MEMORY
	NORMAL	To record from three to nine images continuously (p. xx).	
	HIGH SPEED	To record up to 16 images continuously fast.	
	MULTI SCR N	To record nine images continuously, display the images on a single page divided into nine boxes.	
QUALITY	● SUPER FINE	To record still images in the finest image quality mode (p. xx).	VCR MEMORY
	FINE	To record still images in the fine image quality mode.	
	STANDARD	To record still images in the standard image quality mode.	
IMAGESIZE	● 1360 × 1020	To record still images in 1360 × 1020 size (p. xx).	MEMORY
	640 × 480	To record still images in 640 × 480 size.	

Notes on LCD B.L. and VF B.L.

- When you select BRIGHT, battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, BRIGHT is automatically selected.

Even if you adjust LDC BRIGHT, LCD B.L., LCD COLOR and/or VF B.L.  
The recorded picture will not be affected.

## Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
MOVIE SET			
IMAGESIZE	● 320 × 240	To record moving pictures in 320 × 240 size (p. xx).	VCR MEMORY
	160 × 112	To record moving pictures in 160 × 112 size.	
REMAIN	● AUTO	To display the remaining capacity of the “Memory Stick” in the following cases: <ul style="list-style-type: none"> <li>• For five seconds after inserting a “Memory Stick” into your camcorder</li> <li>• When the capacity of the “Memory Stick” is less than 1 minute in MEMORY mode</li> <li>• For five seconds after completing a moving picture recording</li> </ul>	VCR MEMORY
	ON	To always display the remaining capacity of the “Memory Stick.”	
PRINT MARK	ON	To write a print mark on the recorded still images you want to print out later (p. xx).	VCR MEMORY
	● OFF	To cancel print marks on still images.	
PROTECT	ON	To protect selected images against accidental erasure (p. xx).	VCR MEMORY
	● OFF	Not to protect images.	
SLIDE SHOW	---	To play back images in a continuous loop (p. xx).	MEMORY
DELETE ALL	---	To delete all the unprotected images (p. xx).	MEMORY
FORMAT	● RETURN	To cancel formatting.	MEMORY
	OK	To format an inserted “Memory Stick.” <ol style="list-style-type: none"> <li>1. Select FORMAT.</li> <li>2. Select and decide upon OK with the control button.</li> <li>3. After EXECUTE appears, press ● on the control button. FORMATTING flashes during formatting. COMPLETE appears when formatting is finished.</li> </ol>	
PHOTO SAVE	---	To duplicate still images on tape onto “Memory Stick” (p. xx).	VCR

### Notes on formatting



- Supplied “Memory Stick”s have been formatted at factory. Formatting with this camcorder is not required.
- Do not turn the POWER switch or press any button while the display shows FORMATTING.
- You cannot format the “Memory Stick” if the write-protect tab on the “Memory Stick” is set to LOCK.
- Format the “Memory Stick” when FORMAT ERROR is displayed.

### Formatting erases all information on the “Memory Stick”

Check the contents of the “Memory Stick” before formatting.

- Formatting erases sample images on the “Memory Stick.”
- Formatting erases the protected image data on the “Memory Stick.”




## Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
 9PIC PRINT	● RETURN	To cancel prints of split screen.	MEMORY
	SAME	To make prints of same split screen (p. xx).	
	MULTI	To make prints of different split screen.	
	MARKED	To make prints of images with print marks in recording order.	
DATE/TIME	● OFF	To make prints without the recording date and time.	MEMORY
	DATE	To make prints with the recording date (p. xx).	
	DAY&TIME	To make prints with the recording date and time.	
 TITLE	---	To superimpose a title or make your own title (p. xx).	VCR CAMERA
TITLEERASE	---	To erase the title you have superimposed (p. xx).	VCR CAMERA
TITLE DSPL	● ON	To display the title you have superimposed.	VCR
	OFF	Not to display the title.	
CM SEARCH	● ON	To search using cassette memory (p. xx, xx, xx).	VCR
	OFF	To search without using cassette memory.	
TAPE TITLE	---	To label a cassette (p. xx).	VCR CAMERA
ERASE ALL	---	To erase all the data in cassette memory (p. xx).	VCR CAMERA

### Note on PRINT SET

9PIC PRINT and DATE/TIME are displayed only when an external printer (optional) is connected to the intelligent accessory shoe.

## Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
 REC MODE	● SP	To record in the SP (Standard Play) mode.	VCR
	LP	To increase the recording time to 1.5 times the SP mode.	CAMERA
AUDIO MODE	● 12BIT	To record in the 12-bit mode (two stereo sounds).	VCR
	16BIT	To record in the 16-bit mode (one stereo sound with high quality).	CAMERA
 REMAIN	● AUTO	To display the remaining tape bar: • for about eight seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape. • for about eight seconds after ► or DISPLAY is pressed.	VCR CAMERA
	ON	To always display the remaining tape indicator.	
 CLOCK SET	---	To set the date or time (p. xx).	CAMERA MEMORY
LTR SIZE	● NORMAL	To display selected menu items in normal size.	VCR
	2×	To display selected menu items at twice the normal size.	CAMERA MEMORY
DEMO MODE	● ON	To make the demonstration appear.	CAMERA
	OFF	To cancel the demonstration mode.	

### Notes on the LP mode

- When you record a tape in the LP mode on your camcorder, we recommend playing the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- When you record in the LP mode, we recommend using a Sony Excellence/Master cassette so that you can get the most out of your camcorder.
- You cannot make audio dubbing on a tape recorded in the LP mode. Use the SP mode for the tape to be audio dubbed.
- When you record in the SP and LP modes on one tape or you record some scenes in the LP mode, the playback picture may be distorted or the time code may not be written properly between scenes.

### Notes on AUDIO MODE

- You cannot dub audio sound on a tape recorded in the 16-bit mode.
- When playing back a tape recorded in the 16-bit mode, you cannot adjust the balance in AUDIO MIX.

### Notes on DEMO MODE

- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- When NIGHTSHOT is set to ON, the "NIGHTSHOT" indicator appears on the screen and you cannot select DEMO MODE in the menu settings.
- DEMO MODE is set to STBY (Standby) as the default setting and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted.

To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF. To set to STBY (Standby) again, leave the DEMO MODE at ON in the menu settings, turn the POWER switch OFF (CHG), and return the POWER switch to CAMERA.

(Continued on the following page)

## Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
[ETC] DATA CODE	● DATE/CAM	To display date, time and various settings during playback (p. xx).	VCR MEMORY
	DATE	To display date and time during playback (p. xx).	
AREA SET	---	Temporarily change the area where you are using your camcorder.	CAMERA MEMORY
SUMMERTIME	● OFF	Not during summer time.	CAMERA MEMORY
	ON	During summer time.	
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder.	VCR CAMERA MEMORY
	NORMAL	To output the beep instead of the melody.	
	OFF	To cancel all sound including shutter sound.	
COMMANDER	● ON	To activate the Remote Commander supplied with your camcorder.	VCR CAMERA MEMORY
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control.	
DISPLAY	● LCD	To show the display on the LCD screen and in the viewfinder.	VCR CAMERA MEMORY
	V-OUT/LCD	To show the display on the TV screen, LCD screen and in the viewfinder.	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder.	CAMERA MEMORY
	OFF	To turn the camera recording lamp off so that the person is not aware of the recording.	
VIDEO EDIT	● RETURN	To cancel video editing.	VCR
	TAPE	To make program and perform video editing (p. xx).	
	MEMORY	To make program and perform MPEG editing (p. xx).	

### Note

If you press DISPLAY with DISPLAY set to V-OUT/LCD in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

When recording a close subject

When REC LAMP is set to ON, the red camera recording lamp on the front of the camcorder may reflect on the subject if it is close. In this case, we recommend you set REC LAMP to OFF.

In more than five minutes after removing the power source

The PROGRAM AE, WHT BAL, FLASH LVL, HiFi SOUND, AUDIO MIX and COMMANDER items are returned to their default settings.

The other menu items are held in memory even when the battery is removed.

# Using a “Memory Stick” – introduction

You can record and play back images on a “Memory Stick” supplied with your camcorder. You can easily play back, record or delete images. You can exchange image data with other equipment such as your computer etc., using the USB cable for “Memory Stick” supplied with your camcorder.

## On file format

Still image (JPEG)

Your camcorder compresses image data in JPEG format (extension .jpg).

Moving picture (MPEG)

Your camcorder compresses picture data in MPEG format (extension .mpg).

## Typical image data file name

Still image

100-0001: This file name appears on the screen of your camcorder.

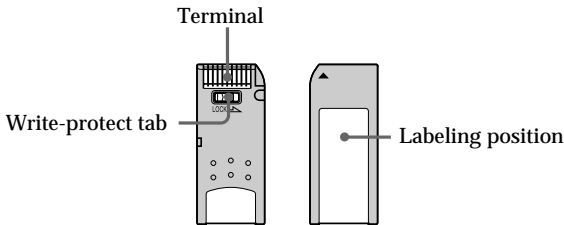
Dsc00001.jpg: This file name appears on the display of your computer.

Moving picture

MOV00001: This file name appears on the screen of your camcorder.

Mov00001.mpg: This file name appears on the display of your computer.

## Using a “Memory Stick”




- You cannot record or erase images when the write-protect tab on the “Memory Stick” is set to LOCK.
- The position and shape of the write-protect tab may be different depending on the model.
- We recommend backing up important data on the hard desk of your personal computer.
- Image data may be damaged in the following cases:
  - If you remove the “Memory Stick” or turn the power off during reading or writing.
  - If you use “Memory Stick”s near static electricity or magnetic fields.
- Prevent metallic objects or your finger from coming into contact with the metal parts of the connecting section.
- Stick its label on the labeling position.
- Do not bend, drop or apply strong shock to “Memory Stick”s.
- Do not disassemble or modify “Memory Stick”s.
- Do not let “Memory Stick”s get wet.
- Do not use or keep “Memory Stick”s in locations that are:
  - Extremely hot such as in a car parked in the sun or under the scorching sun.
  - Under direct sunlight.
  - Very humid or subject to corrosive gases.
- When you carry or store a “Memory Stick,” put it in its case.

“Memory Stick” s formatted by a computer

“Memory Stick” s formatted by Windows OS or Macintosh computers do not have a guaranteed compatibility with this camcorder.

### Notes on image data compatibility

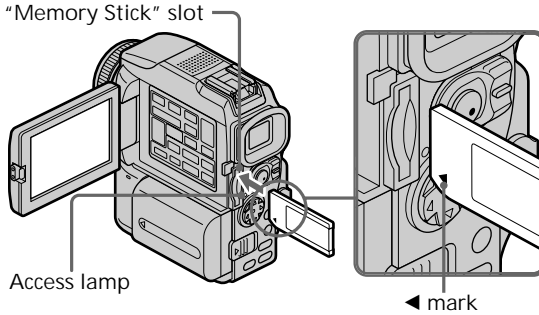
- Image data files recorded on “Memory Stick” s by your camcorder conform with the Design Rules for Camera File Systems universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association). You cannot play back on your camcorder still images recorded on other equipment (DCR-TRV890E/TRV900/TRV900E or DSC-D700/D770) that does not conform with this universal standard. (These models are not sold in some areas.)
- If you cannot use the “Memory Stick” that is used with other equipment, format it with this camcorder (p. xx). However, formatting erases all information on the “Memory Stick.”

- 
- “Memory Stick” and  are trademarks of Sony Corporation.
  - Windows and Windows Media are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
  - Macintosh and Mac OS, QuickTime are trademarks of Apple Computer, Inc.
  - Real Player is either a registered trademark or trademark of RealNet works, Inc. in the United States and/or other countries.
  - All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies.
- Furthermore, “™” and “®” are not mentioned in each case in this manual.

## Using a "Memory Stick" – introduction

### Inserting a "Memory Stick"

Insert a "Memory Stick" in the "Memory Stick" slot as far as it can go with the ◀ mark facing up as illustrated.



### Ejecting a "Memory Stick"

Press the "Memory Stick" once lightly.

While the access lamp is lit or flashing

Do not shake or strike your camcorder because your camcorder is reading the data from the "Memory Stick" or recording the data on the "Memory Stick." Do not turn the power off, eject a "Memory Stick" or remove the battery pack. Otherwise, the image data breakdown may occur.


If "MEMORYSTICK ERROR" is displayed

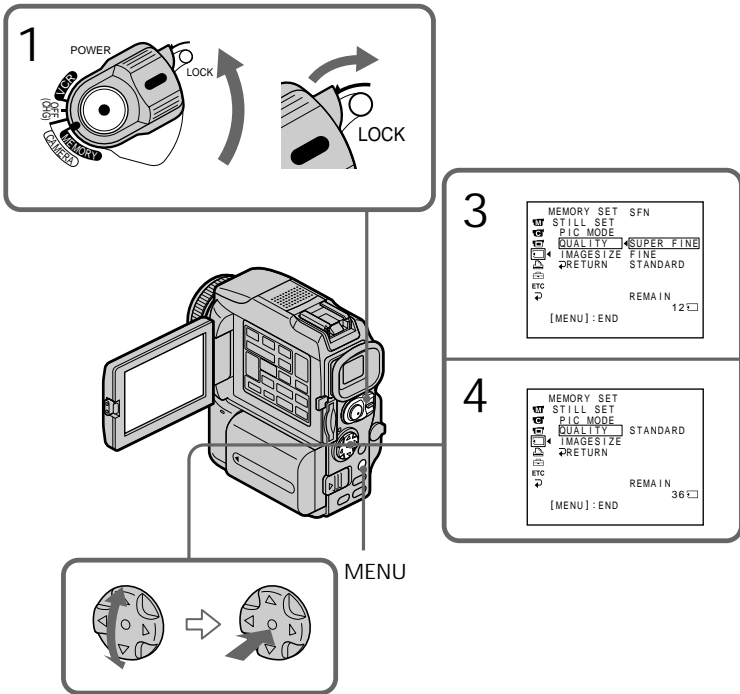
Reinsert "Memory Stick" a few times. The "Memory Stick" may be damaged if the indicator is still displayed. If this occurs, use another "Memory Stick."



## Selecting still image quality mode

You can select image quality mode in still image recording. The default setting is SUPER FINE.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MENU, then select and decide upon STILL SET in  with the control button (p. xx).
- (3) Select and decide upon QUALITY with the control button.
- (4) Select and decide upon the desired image quality with the control button.



### Image quality settings

Setting	Meaning
SUPER FINE (SFN)	This is the highest image quality in your camcorder. The number of still images you can record is less than in FINE mode. The image is compressed to about 1/3.
FINE (FINE)	Use this mode when you want to record high quality images. The image is compressed to about 1/6.
STANDARD (STD)	This is the standard image quality. The image is compressed to about 1/10.

#### Note

In some cases, changing the image quality mode may not affect the image quality, depending on the types of images you are shooting.

#### Differences in image quality mode

Recorded images are compressed in JPEG format before being stored in memory. The memory capacity allotted to each image varies depending on the selected image quality mode and image size. Details are shown in the table below. (You can select 1360 × 1020 or 640 × 480 image size in the menu settings.)

#### 1360 × 1020 image size

Image quality mode	Memory capacity
SUPER FINE	About 900 KB
FINE	About 450 KB
STANDARD	About 300 KB

#### 640 × 480 image size

Image quality mode	Memory capacity
SUPER FINE	About 190 KB
FINE	About 100 KB
STANDARD	About 60 KB

#### Image quality mode indicator

The image quality mode indicator is not displayed during playback.

#### When you select image quality

The number of images you can shoot in the currently selected image quality appears on the screen.

## Selecting the image size


You can select either of two image sizes

Still images: 1360 × 1020 or 640 × 480. (When the POWER switch is set to VCR, the image size is automatically set to 640 × 480.)




The default setting is 1360 × 1020.

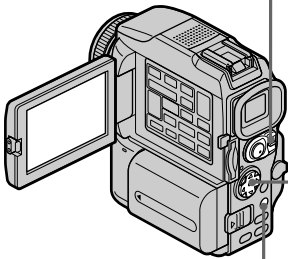
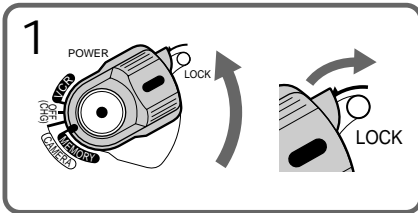
Moving pictures: 320 × 240 or 160 × 112

The default setting is 320 × 240.

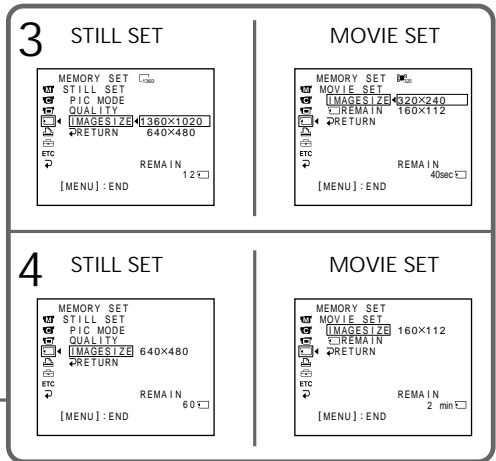
- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MENU, then select and decide upon STILL SET (still image) or MOVIE SET (moving picture) in  with the control button (p. xx).
- (3) Select and decide upon IMAGESIZE with the control button.
- (4) Select and decide upon the desired image size with the control button.

The indicator changes as follows:

Still images:  ↔   
 Moving pictures:  ↔ 

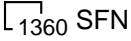

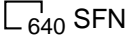







MENU



## Using a "Memory Stick" – introduction

### Image size settings

Setting	Meaning	Indicator	
		Recording	Playback
<b>1360 × 1020</b>	Records 1360 × 1020 still images.	 1360 SFN	 1360
<b>640 × 480</b>	Records 640 × 480 still images.	 640 SFN	 640
<b>320 × 240</b>	Records 320 × 240 moving pictures.	 320	 320
<b>160 × 112</b>	Records 160 × 112 moving pictures.	 160	 160

### Maximum recording time of moving pictures

Image size	Maximum recording time
<b>320 × 240</b>	<b>15 seconds</b>
<b>160 × 112</b>	<b>60 seconds</b>

## Using a “Memory Stick” – introduction

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Approximate number of still images you can record on a “Memory Stick”

The number of images you can record varies depending on which image quality and image size you select and the complexity of the subject.

Type	Image quality	640 × 480	1360 × 1020
4MB (optional)	SUPER FINE (SFN)	19 images	4 images
	FINE (FINE)	39 images	8 images
	STANDARD (STD)	58 images	12 images
8MB (supplied)	SUPER FINE (SFN)	40 images	8 images
	FINE (FINE)	80 images	17 images
	STANDARD (STD)	120 images	25 images
16MB (optional)	SUPER FINE (SFN)	80 images	17 images
	FINE (FINE)	160 images	34 images
	STANDARD (STD)	240 images	50 images
32MB (optional)	SUPER FINE (SFN)	160 images	35 images
	FINE (FINE)	325 images	69 images
	STANDARD (STD)	485 images	100 images
64MB (optional)	SUPER FINE (SFN)	325 images	71 images
	FINE (FINE)	650 images	140 images
	STANDARD (STD)	980 images	205 images
128MB (optional)	SUPER FINE (SFN)	650 images	140 images
	FINE (FINE)	1310 images	280 images
	STANDARD (STD)	1970 images	415 images

Approximate time of moving pictures you can record on a “Memory Stick”

The time of moving pictures you can record varies depending on which image size you select and the complexity of the subject.

Type	160 × 112	320 × 240
4MB (optional)	2 min. 40 sec.	40 sec.
8MB (supplied)	5 min. 20 sec.	1 min. 20 sec.
16MB (optional)	10 min. 40 sec.	2 min. 40 sec.
32MB (optional)	21 min. 20 sec.	5 min. 20 sec.
64MB (optional)	42 min. 40 sec.	10 min. 40 sec.
128MB (optional)	85 min. 20 sec.	21 min. 20 sec.

The table above shows approximate number and times of still images and moving pictures you can record on a “Memory Stick” formatted by your camcorder.

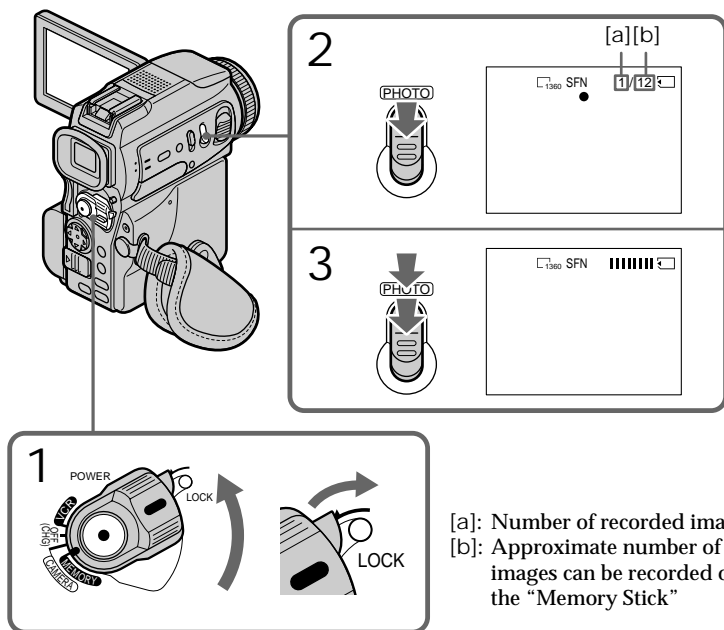
# Recording still images on “Memory Stick” s – Memory Photo recording

You can record still images on “Memory Stick”s.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Keep pressing PHOTO lightly until the desired still image appears. The green ● mark stops flashing, then lights up. The brightness of the image and focus are adjusted, being targeted for the middle of the image and are fixed. Recording does not start yet.
- (3) Press PHOTO deeper.  
The still image will be displayed after the shutter sounds.  
Recording is complete when the bar scroll indicator disappears.  
The image when you pressed PHOTO deeper will be recorded on the “Memory Stick.”



When the POWER switch is set to MEMORY

The following functions do not work:

- Wide mode
- Digital zoom
- SteadyShot function
- SUPER NIGHTSHOT
- Fader
- Picture effect
- Digital effect
- Title
- Low lux of PROGRAM AE (The indicator flashes.)
- Sports lesson of PROGRAM AE (The indicator flashes.)

# Recording still images on “Memory Stick” s – Memory Photo recording

While you are recording a still image  
You can neither turn off the power nor press PHOTO.

When you press PHOTO on the Remote Commander  
Your camcorder immediately records the image that is on the screen when you press the button.

When you press PHOTO lightly in step 2  
The image momentarily flickers. This is not a malfunction.

Recording data  
The recording data (date/time or various settings when recorded) are not displayed while recording. However, they are recorded automatically onto the “Memory Stick.” To display the recording data, press DATA CODE on the Remote Commander during playback.

When POWER switch is set to MEMORY  
The angle of view is slightly larger compared with the angle of view in CAMERA mode.


## Recording images continuously

You can record still images continuously. Select one of the three modes described below before recording.


### NORMAL [a]

Your camcorder shoots up to three still images in  $1360 \times 1020$  size or nine still images in  $640 \times 480$  size at about 0.5 sec intervals. (  )

### HIGH SPEED (Recording image size is $640 \times 480$ ) [a]

Your camcorder shoots up to 16 still images in  $640 \times 480$  size at about 0.07 sec intervals. (  )

### MULTI SCRNR (Recording image size is $640 \times 480$ ) [b]

Your camcorder shoots nine still images at about 0.4 sec intervals and displays the images on a single page divided into nine boxes. Still images are recorded in  $640 \times 480$  size. (  )


[a]

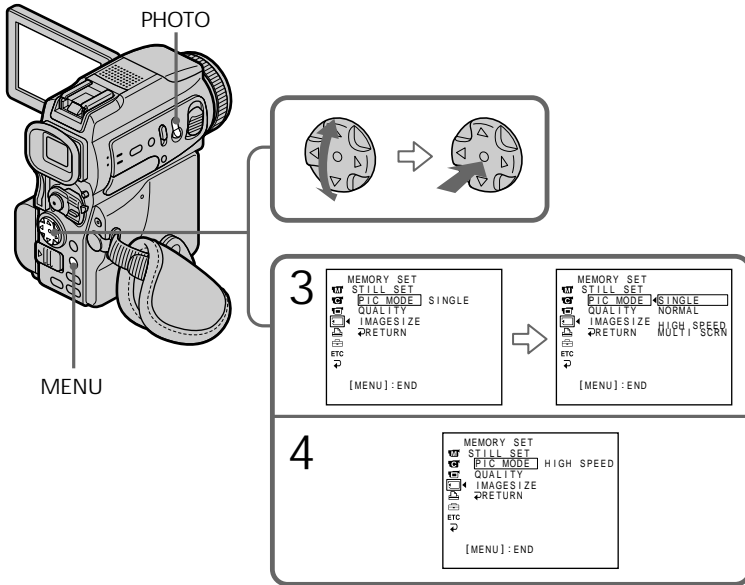


[b]



# Recording still images on "Memory Stick" s - Memory Photo recording

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MENU, then select and decide upon STILL SET in  with the control button (p. xx).
- (3) Select and decide upon PIC MODE with the control button.
- (4) Select and decide upon the desired setting with the control button.
- (5) Press MENU to make the menu setting disappear.
- (6) Press PHOTO deeper.



If the capacity of the "Memory Stick" becomes full  
"FULL" appears on the screen, and you cannot record a still image on this "Memory Stick."

The number of images in continuous shooting

The number of images you can shoot continuously varies depending on the image size and the capacity of the "Memory Stick."

During recording images continuously

The flash does not work.

When shooting with the self-timer function or the Remote Commander

Your camcorder automatically records up to the maximum recordable number of still images.

When selecting HIGH SPEED


Flickering or changes in color may occur. Also, your camcorder prevents focusing on near objects.

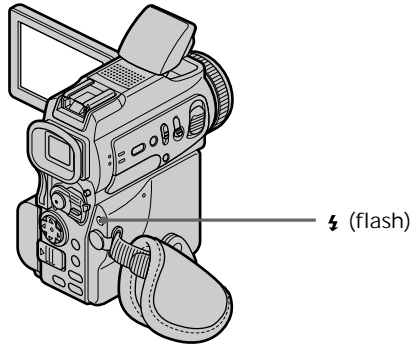
When selecting NORMAL or HIGH SPEED


Recording continues up to the maximum number of still images during pressing PHOTO deeper. Release PHOTO to stop recording.







## Recording images with the flash


The flash automatically pops up to strobe. The default setting is auto (no indicator). To change the flash mode, press the  (flash) repeatedly until the flash mode indicator appears on the screen.



Each press of  (flash) changes the indicator as follows:

 →  →  → No indicator


 Auto red-eye reduction: The flash fires before recording to reduce the red-eye phenomenon.

 Forced flash: The flash fires regardless of the surrounding brightness.

 No flash: The flash does not fire.


The flash is adjusted to the appropriate brightness through the photocell window for the flash. You can also change FLASH LVL to the desired brightness in the menu settings (p. xx). Try recording various images to find the most appropriate setting for FLASH LVL.

### Notes

- The recommended shooting distance using the built-in flash is 0.3 m to 2.5 m (31/32 feet to 8 1/3 feet).
- Attaching the lens hood (supplied) or a conversion lens (optional) may block the light from the flash or cause lens shadow to appear.
- You cannot use an external flash (optional) and the built-in flash at the same time.
-  (auto red-eye reduction) may not produce the desired effect depending on individual differences, the distance to the subject, the subject not looking at the pre-recording flash or other conditions.
- The flash effect cannot be obtained easily when you use forced flash in a bright location.
- If it is not easy to focus on a subject automatically, for example, when recording in the dark, use the focal distance information (p. xx) for focusing manually.

If you leave your camcorder for five or more minutes after disconnecting the power source

Your camcorder returns to the default setting (auto).

The flash does not fire even if you select auto and  (auto red-eye reduction) during the following operations:

- NightShot
- Exposure
- Spotlight of PROGRAM AE
- Sunset & moon of PROGRAM AE
- Landscape of PROGRAM AE

When you use an external flash (optional) which does not have the auto red-eye reduction function

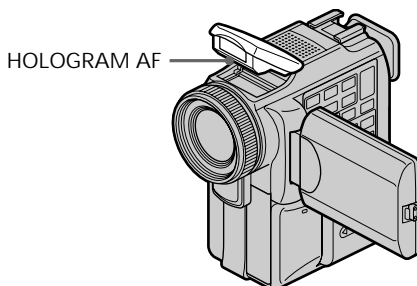
You cannot select the auto red-eye reduction.

## Shooting using the HOLOGRAM AF

The HOLOGRAM AF is an auxiliary light source used for focusing on subjects in dark places.

Set HOLOGRAM AF to AUTO in the menu settings. (The default setting is AUTO.)

When **HOLOGRAM AF** appears on the screen in a dark place, press PHOTO lightly. Then the flash will pop up and the auxiliary light will automatically emit until the subject is focused.



### About HOLOGRAM AF

“HOLOGRAM AF” is a new AF auxiliary optical system that uses laser holograms to enable photography of still pictures in dark places. This system satisfies Laser Class 1 (\*). A feature of this system is that it is gentler on the eyes than conventional high-brightness LEDs or high-brightness lamps while it maintains high safety.

Directly looking into the HOLOGRAM AF emitter at close range presents no safety problems. However, this is not recommended as you will see a residual image for several images and your eyes will be dazzled just like when you look into a flashlight.

\* HOLOGRAM AF satisfies time criteria 30,000 seconds Class 1 of all JIS (Japan), IEC (EU), and FDA (US) standards. Compliance with these standards means that this is a safe laser product even if a person looks directly into the laser light or into the light condensed by a lens for 30,000 seconds.

### Note

- If enough light does not reach the subject even if the HOLOGRAM AF emitter is emitted (recommended shooting distance is 2.5 m (8 1/3 feet)), the subject will not be focused.
- Light emitted by HOLOGRAM AF sometimes deviates from the center of the image. However, the image is in focus when the light reaches the subject.



The HOLOGRAM AF does not emit when:

- Flash is set to **No flash**
- NightShot is set to ON
- focusing manually
- Sunset & moon of PROGRAM AE
- Landscape of PROGRAM AE

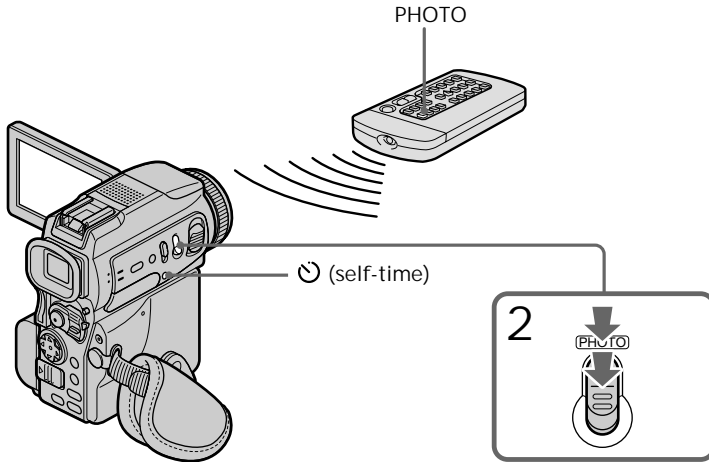
When you use the external flash (optional)  
The built-in flash pops up and HOLOGRAM AF emit.

## Self-timer memory photo recording

You can record images on “Memory Stick” s with the self-timer. You can also use the Remote Commander for this operation.

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press  (self-timer). The  (self-timer) indicator appears on the screen.
- (3) Press PHOTO deeper.



Self-timer starts counting down from 10 with a beep sound. In the last two seconds of the countdown, the beep sound gets faster, then recording starts automatically.



To record moving pictures on “Memory Stick” s with the self-timer

Press START/STOP in step 3. To cancel recording, press START/STOP again.

To cancel self-timer recording

Press  (self-timer) so that the  (self-timer) indicator disappears on the screen. You cannot cancel the self-timer recording using the Remote Commander.

---

### Note

The self-timer recording mode is automatically canceled when:

- Self-timer recording is finished.
- The POWER switch is set to OFF (CHG) or VCR.

To check the image to be recorded

You can check the image with pressing the PHOTO button lightly, then press it deeper to start the self-timer recording.

# Recording an image from a tape as a still image

Your camcorder can read moving picture data recorded on a tape and record it as a still image on a "Memory Stick." Your camcorder can also take in moving picture data through the input connector and record it as a still image on a "Memory Stick."

Before operation

- Insert a recorded tape into your camcorder.
- Insert a "Memory Stick" into your camcorder.

- (1) Set the POWER switch to VCR.
- (2) Press **▶**. The picture recorded on the tape is played back.
- (3) Keep pressing PHOTO lightly until the picture from the tape freezes. CAPTURE appears on the screen. Recording does not start yet.
- (4) Press PHOTO deeper. The image displayed on the screen will be recorded on a "Memory Stick." Recording is complete when the bar scroll indicator disappears.

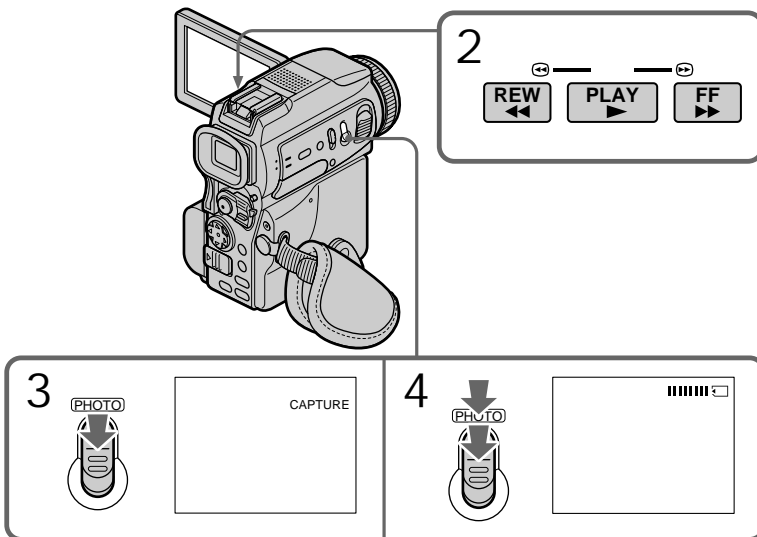


Image size of still images

Image size is automatically set to 640 × 480.

When the access lamp is lit or flashing

Do not shake or strike the unit. As well do not turn the power off, eject a "Memory Stick." Otherwise, the image data breakdown may occur.

If "⊠" appears on the screen

The inserted "Memory Stick" is incompatible with your camcorder because its format does not conform with your camcorder. Check the format of the "Memory Stick."

If you press PHOTO lightly in the playback mode  
Your camcorder stops momentarily.

## Recording an image from a tape as a still image

Sound recorded on a tape  
You cannot record the audio from a tape.

Titles have already recorded on tapes  
You cannot record the titles on "Memory Stick"s. The title does not appear while you are recording a still image with PHOTO.

Recording date/time  
The recording data (date/time) when it is recorded on "Memory Stick" is recorded.  
Various settings are not recorded.

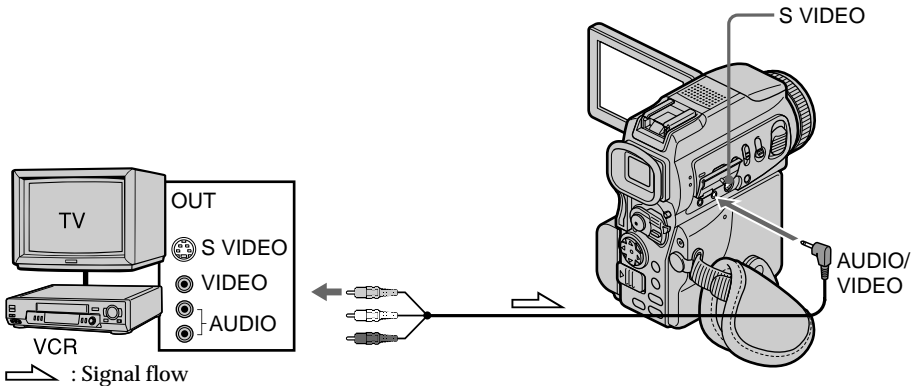
When you press PHOTO on the Remote Commander  
Your camcorder immediately records the image that is on the screen when you press the button.

## Recording a still image from other equipment

Before operation  
Set DISPLAY to LCD in the menu settings. (The default setting is LCD.)

- (1) Set the POWER switch to VCR.
- (2) Play back the recorded tape, or turn the TV on to see the desired program.  
The image of the other equipment is displayed on the LCD screen or viewfinder.
- (3) Follow steps 3 and 4 on page xx.

Using the A/V connecting cable

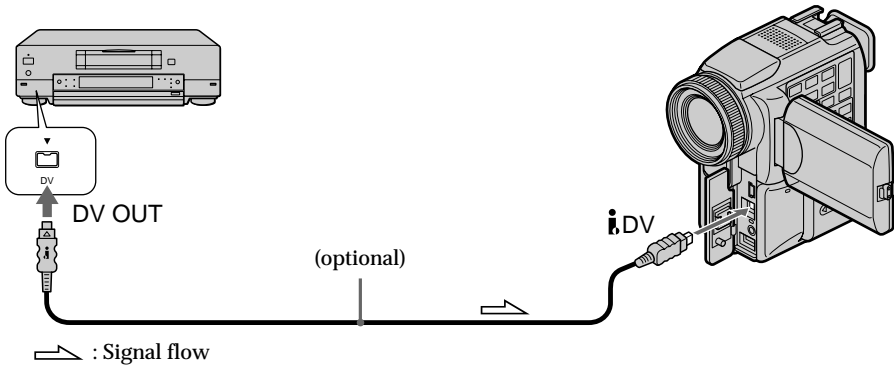


Connect the yellow plug of the A/V connecting cable to the video jack on the VCR or the TV.


If your TV or VCR has an S video jack  
Pictures can be reproduced more faithfully by using an S video cable (optional).  
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.  
Connect an S video cable (optional) to the S video jacks of both your camcorder and the TV or VCR.  
This connection produces higher quality DV format pictures.

## Recording an image from a tape as a still image

Using the i.LINK cable (DV connecting cable)



### Note

The “” may flash in the following instances. If this happens, eject and insert “Memory Stick” again, and record distortion-free images.

- When recording on a tape in a poor recording state, for example, on a tape that has been repeatedly used for dubbing
- When attempting to input images that are distorted due to poor radio wave reception when a TV tuner unit is in use

# Superimposing a still image in the “Memory Stick” on an image

## – MEMORY MIX

You can superimpose a still image you have recorded on the “Memory Stick” on top of the moving image you are recording. You can record the superimposed images on a tape or a “Memory Stick.” (However, you can record only superimposed still images on the “Memory Stick.”)

### M. CHROM (Memory chromakey)

You can swap a blue area of a still image such as an illustration or a frame with a moving image.

### M. LUMI (Memory luminancekey)

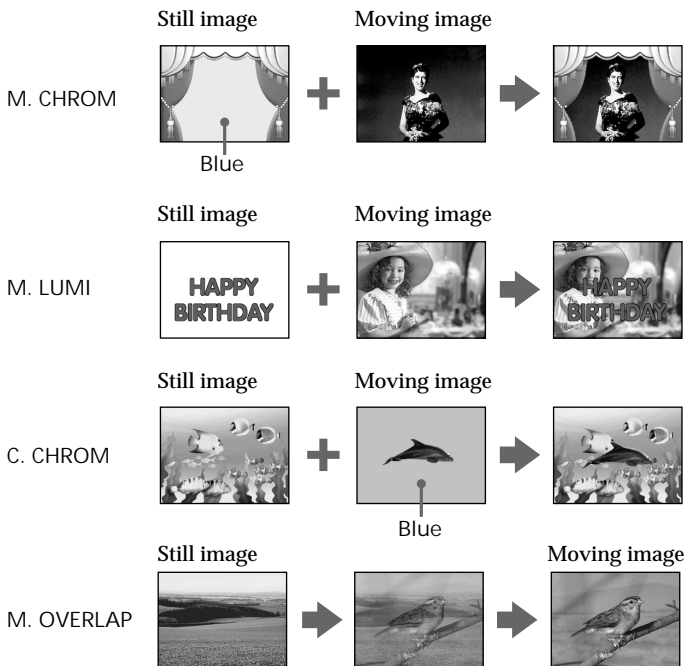
You can swap a brighter area of a still image such as a handwritten illustration or title with a moving image. Record a title on the “Memory Stick” before a trip or event for convenience.

### C. CHROM (Camera chromakey)

You can superimpose a moving image on top of a still image such as an image can be used as background. Shoot the subject against a blue background. The blue area of the moving image will be swapped with a still image.

### M. OVERLAP\* (Memory overlap)

You can make a moving image fade in on top of a still image recorded on the “Memory Stick” as the overlap function.



\* The superimposed image using Memory overlap function can be recorded on tapes only.

## Recording superimposed images on a tape

Before operation

- Insert a tape for recording into your camcorder.
- Insert a "Memory Stick" recorded still images into your camcorder.

- (1) Set the POWER switch to CAMERA.
- (2) Press MEMORY MIX in the standby mode.  
The last recorded or last composed image appears on the lower part of the screen as a thumbnail image.
- (3) Press MEMORY+/- to select the still image you want to superimpose.  
To see the previous image, press MEMORY -. To see the next image, press MEMORY+.
- (4) Select the desired mode with the control button.  
The mode changes as follows:  
M. CHROM ↔ M. LUMI ↔ C. CHROM ↔ M. OVERLAP
- (5) Press ● on the control button.  
The still image is superimposed on the moving image.
- (6) Press ◀/▶ on the control button to adjust the effect.

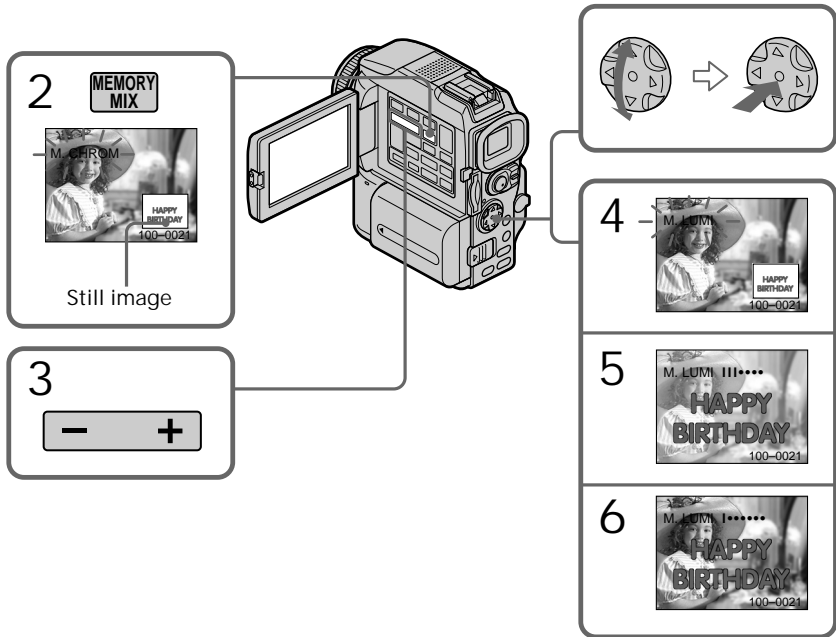
- M. CHROM – The color (blue) scheme of the area in the still image which is to be swapped with a moving image
- M. LUMI – The color (bright) scheme of the area in the still image which is to be swapped with a moving image
- C. CHROM – The color (blue) scheme of the area in the moving image which is to be swapped with a still image
- M. OVERLAP – No adjustment necessary

The fewer bars there are on the screen, the stronger the effect.

- (7) Press START/STOP to start recording.



## Superimposing a still image in the “Memory Stick” on an image - MEMORY MIX



To change the still image to superimpose

Do either of the following:

- Press MEMORY+/- before step 7.
- Press ● on the control button before step 7, and repeat the procedure from step 4.

To change the mode setting

Press ● on the control button before step 7, and repeat the procedure from step 4.

To cancel MEMORY MIX

Press MEMORY MIX.

### Notes

- You cannot use MEMORY MIX function for moving pictures recorded on “Memory Stick”s.
- When the overlapping still image has a large amount of white, the thumbnail image of the picture may not be clear.

Image data modified with your computers or shot with other equipment  
You may not be able to play them back with your camcorder.

When you select M. OVERLAP

You cannot change the still image or the mode setting.

During recording

You cannot change the mode setting.

To record the superimposed image as a still image

Press PHOTO deeper in step 7.

## Recording superimposed images on a "Memory Stick" as a still image

Before operation

Insert a "Memory Stick" recorded still images into your camcorder.

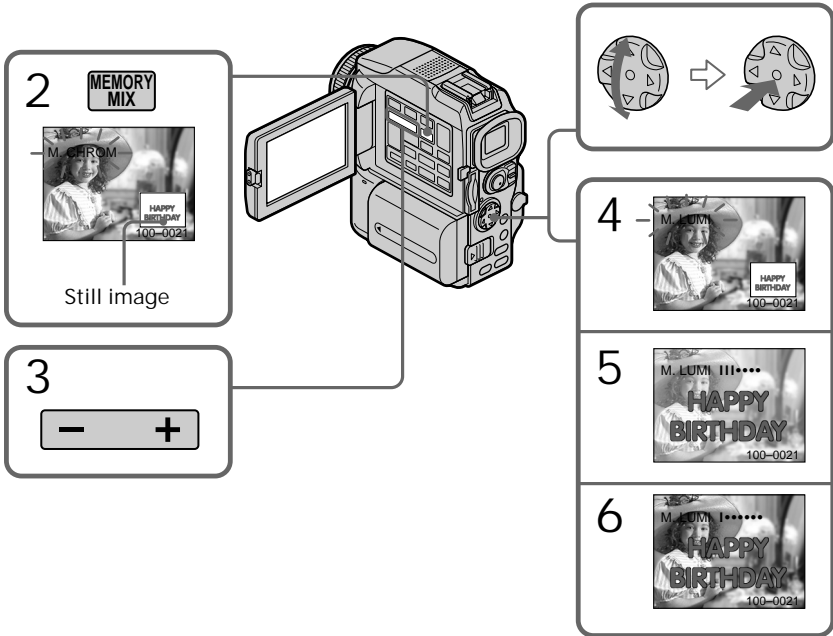
- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MEMORY MIX.  
The last recorded or last composed image appears on the lower part of the screen as a thumbnail image.
- (3) Press MEMORY+/- to select the image you want to superimpose.  
To see the previous image, press MEMORY -. To see the next image, press MEMORY+.
- (4) Select the desired mode with the control button.  
The mode changes as follows:  
M. CHROM ↔ M. LUMI ↔ C. CHROM
- (5) Press ● on the control button.  
The still image is superimposed on the moving image.
- (6) Press ◀/▶ on the control button to adjust the effect.

- M. CHROM – The color (blue) scheme of the area in the still image which is to be swapped with a moving image
- M. LUMI – The color (bright) scheme of the area in the still image which is to be swapped with a moving image
- C. CHROM – The color (blue) scheme of the area in the moving image which is to be swapped with a still image

The fewer bars there are on the screen, the stronger the effect.

- (7) Press PHOTO deeper to start recording.  
The image displayed on the screen will be recorded on a "Memory Stick."  
Recording is complete when the bar scroll indicator disappears.

# Superimposing a still image in the “Memory Stick” on an image – MEMORY MIX



To change the still image to superimpose

Do either of the following:

- Press MEMORY+/- before step 7.
- Press ● on the control button before step 7, and repeat the procedure from step 4.

To change the mode setting

Press ● on the control button before step 7, and repeat the procedure from step 4.

To cancel MEMORY MIX

Press MEMORY MIX.

## Notes

- You cannot use MEMORY MIX function for moving pictures recorded on “Memory Stick”s.
- When the overlapping still image has a large amount of white, the thumbnail image of the picture may not be clear.

Image data modified with your computers or shot with other equipment  
You may not be able to play them back with your camcorder.

During recording

You cannot change the mode setting.

When recording images on a “Memory Stick” using the MEMORY MIX function  
The PROGRAM AE function does not work. (The indicator flashes.)

The “Memory Stick” supplied with your camcorder stores 20 images

- For M. CHROM: 18 images (such as a frame) 100-0001~100-0018
- For C. CHROM: two images (such as a background) 100-0019~100-0020

Sample images

Sample images stored in the “Memory Stick” supplied with your camcorder are protected (p. xx).

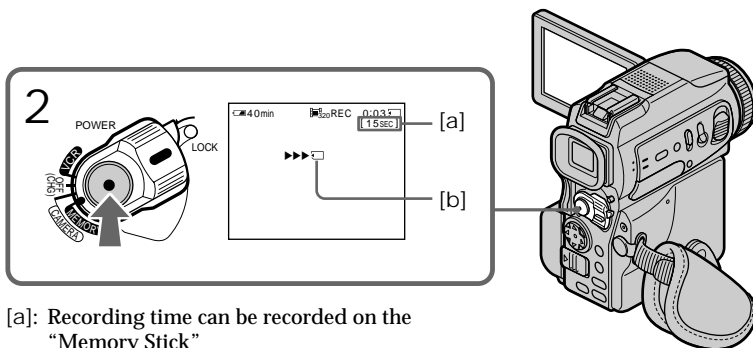
# Recording moving pictures on “Memory Stick” s – MPEG movie recording

You can record moving pictures with sound on “Memory Stick”s.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press START/STOP. Your camcorder starts recording. The camera recording lamp located on the front of your camcorder lights up. When IMAGESIZE in the menu settings is set to  $320 \times 240$ , the maximum recording time is 15 seconds. However, when IMAGESIZE in the menu settings is set to  $160 \times 112$ , the maximum recording time is 60 seconds.



- [a]: Recording time can be recorded on the “Memory Stick”
- [b]: This indicator is displayed for five seconds after pressing START/STOP. This indicator is not recorded.

## To stop recording

Press START/STOP.

### Note

Sound is recorded in monaural.

When the POWER switch is set to MEMORY

The following functions do not work:

- Wide mode
- Digital zoom
- SteadyShot function
- SUPER NIGHTSHOT
- Fader
- Picture effect
- Digital effect
- Title
- Low lux of PROGRAM AE (The indicator flashes.)
- Sports lesson of PROGRAM AE (The indicator flashes.)

## Recording moving pictures on “Memory Stick” s – MPEG movie recording

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When using an external flash (optional)

Turn the power of the external flash off when recording moving pictures on “Memory Stick” s.

Otherwise, the charging sound for the flash may be recorded.

Recording date/time

The date/time are not displayed while recording. However, they are automatically recorded onto the “Memory Stick.”

To display the recording date/time, press DATA CODE on the Remote Commander during playback. Various settings cannot be recorded.

During recording on “Memory Stick”

Do not eject the cassette tape from your camcorder. During ejecting the tape, sound is not recorded on the “Memory Stick.”

When the POWER switch is set to MEMORY

The angle of view is slightly larger compared with the angle of view in CAMERA mode.

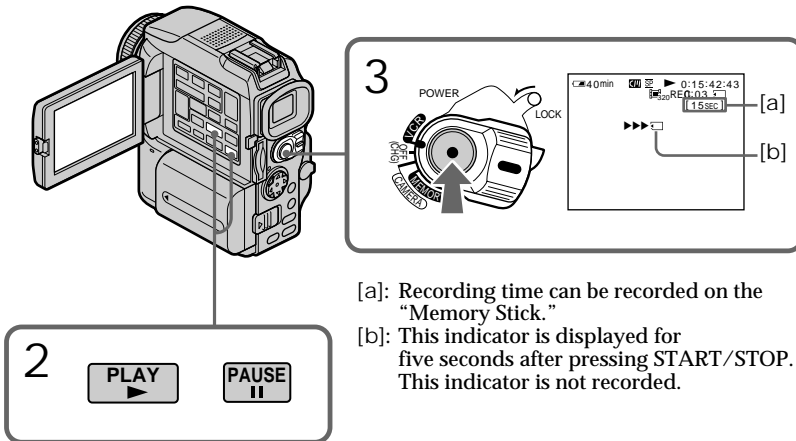
# Recording a picture from a tape as a moving picture

Your camcorder can read moving picture data recorded on a tape and record it as a moving picture on a “Memory Stick.” Your camcorder can also take in moving picture data through the input connector and record it as a moving picture on a “Memory Stick.”

Before operation

- Insert a recorded tape into your camcorder.
- Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to VCR.
- (2) Press ►. The picture recorded on the tape is played back.  
And press || at the scene where you want to start recording from.
- (3) Press START/STOP on your camcorder. When IMAGESIZE in the menu settings is set to  $320 \times 240$ , the maximum recording time is 15 seconds.  
However, when IMAGESIZE in the menu settings is set to  $160 \times 112$ , the maximum recording time is 60 seconds.



- [a]: Recording time can be recorded on the “Memory Stick.”
- [b]: This indicator is displayed for five seconds after pressing START/STOP. This indicator is not recorded.

To stop recording  
Press START/STOP.

## Recording a picture from a tape as a moving picture

---

### Notes

- Sound recorded in 48 kHz is converted to one in 32 kHz when recording images from a tape to “Memory Stick”s.
- Sound recorded in stereo is converted to monaural sound when recording from tapes.

When the access lamp is lit or flashing

Do not shake or strike the unit. As well do not turn the power off, eject a “Memory Stick” or remove the battery pack. Otherwise, the image data breakdown may occur.

Titles have already recorded on tapes

You cannot record the titles on “Memory Stick”s. The title does not appear while you are recording a moving image with START/STOP.

If “ AUDIO ERROR” is displayed

Sound that cannot be recorded by your camcorder has been recorded. Connect the A/V connecting cable to input images from an external unit used to play back the image (p. xx).

Recording date/time

The recording data (date/time) when it is recorded on “Memory Stick” is recorded. Various settings are not recorded.

## Recording a picture from a tape as a moving picture

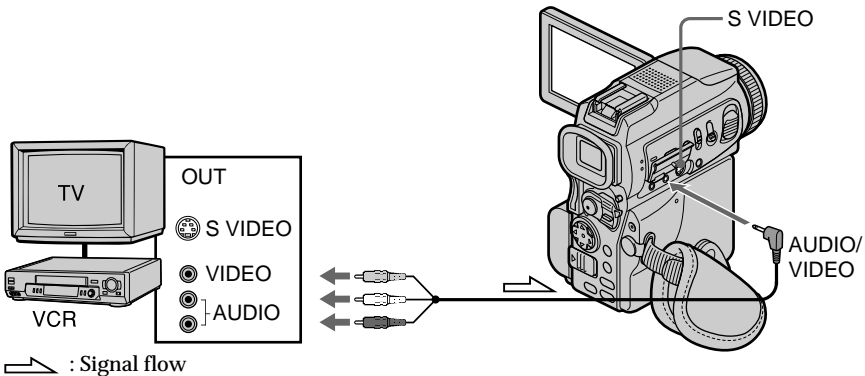
### Recording a moving picture from other equipment

Before operation

Set DISPLAY to LCD in the menu settings. (The default setting is LCD.)

- (1) Set the POWER switch to VCR.
- (2) Play back the recorded tape, or turn the TV on to see the desired program.  
The image of the other equipment is displayed on the LCD screen or viewfinder.
- (3) Follow the procedure on page xxx from the step 3 onwards at the point where you want to start recording from.

Using the A/V connecting cable



Connect the yellow plug of the A/V connecting cable to the video jack on the VCR or the TV.

If your TV or VCR has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional).

With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect an S video cable (optional) to the S video jacks of both your camcorder and the TV or VCR.

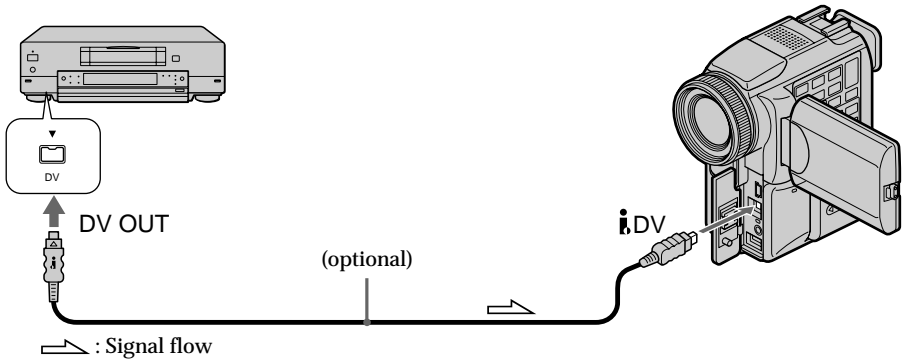
This connection produces higher quality DV format pictures.



## Recording a picture from a tape as a moving picture

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Using the i.LINK cable (DV connecting cable)



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### Note

The "⏏" may flash in the following instances. If this happens, eject and insert "Memory Stick" again, and record distortion-free images.

- When recording on a tape in a poor recording state, for example, on a tape that has been repeatedly used for dubbing
- When attempting to input images that are distorted due to poor radio wave reception when a TV tuner unit is in use

During recording on "Memory Stick"

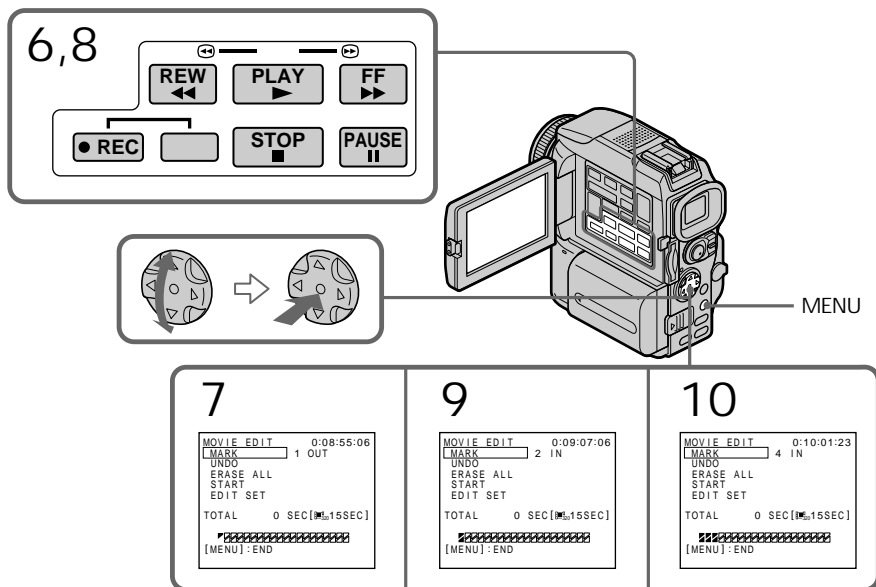
Do not eject the cassette tape from your camcorder. During ejecting the tape, sound is not recorded on the "Memory Stick."

# Recording edited pictures as a moving picture – Digital program editing (to a “Memory Stick”)

You can duplicate selected scenes (programs) for editing onto a “Memory Stick.”

## Making the program

- (1) Set the POWER switch to VCR on your camcorder.
- (2) Insert the tape for playback, and a “Memory Stick” for recording into your camcorder.
- (3) Press MENU, then select and decide upon VIDEO EDIT in  $\overline{\text{Etc}}$  with the control button (p. xx).
- (4) Select and decide upon MEMORY with the control button.
- (5) Select and decide upon IMAGESIZE with the control button.  
When IMAGESIZE is set to  $320 \times 240$ , the maximum recording time is 15 seconds. However, when IMAGESIZE is set to  $160 \times 112$ , the maximum recording time is 60 seconds.
- (6) Search for the beginning of the first scene you want to insert using the video operation buttons, then pause playback.  
You can fine-adjust one frame at a time with EDITSEARCH.
- (7) Press MARK on the Remote Commander, or ● on the control button.  
The IN point of the first program is set, and the top part of the program mark changes to light blue.
- (8) Search for the end of the first scene you want to insert using the video operation buttons, then pause playback.
- (9) Press MARK on the Remote Commander, or ● on the control button.  
The OUT point of the first program is set, then the bottom part of the program mark changes to light blue.
- (10) Repeat steps 6 to 9, then set the program.  
When one program is set, the program mark changes to light blue.  
You can set 20 programs in maximum.



## Recording edited pictures as a moving picture – Digital program editing (to a “Memory Stick”)

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Erasing the program you have set  
Erase OUT first and then IN from of the last program.

- (1) Select and decide upon UNDO with the control button.
- (2) Select and decide upon EXECUTE with the control button.  
The last set program mark flashes, then the setting is canceled.

To cancel erasing  
Select and decide upon RETURN with the control button in step 2.

Erasing all programs

- (1) Select and decide upon VIDEO EDIT, then select and decide upon MEMORY with the control button.
- (2) Select and decide upon ERASE ALL in the menu settings, then select and decide upon EXECUTE with the control button.  
All the program marks flash, then the settings are canceled.

To cancel erasing all programs  
Select and decide upon RETURN with the control button in step 2.

To cancel a program you have set  
Press MENU.  
The program is stored in memory until the tape is ejected.

---

Notes

- You cannot dub the titles, display indicators, or the contents of cassette memory.
- You cannot operate recording during the digital program editing to a “Memory Stick”.
- You cannot set IN or OUT on a blank portion of the tape.
- If there is a blank portion between IN and OUT on the tape, the total time code may not be displayed correctly.

During making a program  
If you eject the cassette, NOT READY appears on the screen. The program will be erased.

If you set over the maximum recording time  
The program mark changes to yellow, and OVER 15 SEC LIMIT appears when IMAGESIZE is set to  $320 \times 240$ , or OVER 60 SEC LIMIT appears when IMAGESIZE is set to  $160 \times 112$ . However, you can record up to the maximum recording time.

### Performing a Digital program editing (Dubbing a “Memory Stick”)

- (1) Select and decide upon VIDEO EDIT in the menu settings, then select and decide upon MEMORY with the control button.
- (2) Select and decide upon START in the menu settings, then select and decide upon EXECUTE with the control button.  
Search for the beginning of the first program, then start dubbing.  
The program mark flashes.  
The SEARCH indicator appears during search, the EDIT indicator appears during writing of data on your camcorder, and EDITING appears during dubbing on the screen.  
The PROGRAM indicator changes to light blue after dubbing is complete.  
When the dubbing ends, your camcorder automatically stop.

To stop dubbing during editing  
Press ■ using the video operation buttons.  
The program you made is recorded until you eject the tape from your camcorder.

## Recording edited pictures as a moving picture - Digital program editing (to a "Memory Stick")

---

To end the Digital program editing function

Your camcorder stops when the dubbing ends. Then the display returns to VIDEO EDIT in the menu settings.

Press MENU to end the program editing function.

---

NOT READY appears on the LCD screen when:

- The program to operate the Digital program editing has not been made.
- The "Memory Stick" is not inserted.
- The write-protect tab on the "Memory Stick" is set to LOCK.
- "Memory Stick" does not have enough space to record

When "Memory Stick" does not have enough space to record

LOW MEMORY appears on the screen. However, you can record pictures up to the time indicated.

If you set over the maximum recording time


OVER MEMORY LIMIT appears on the screen. However, you can record moving pictures up to the maximum recording time.

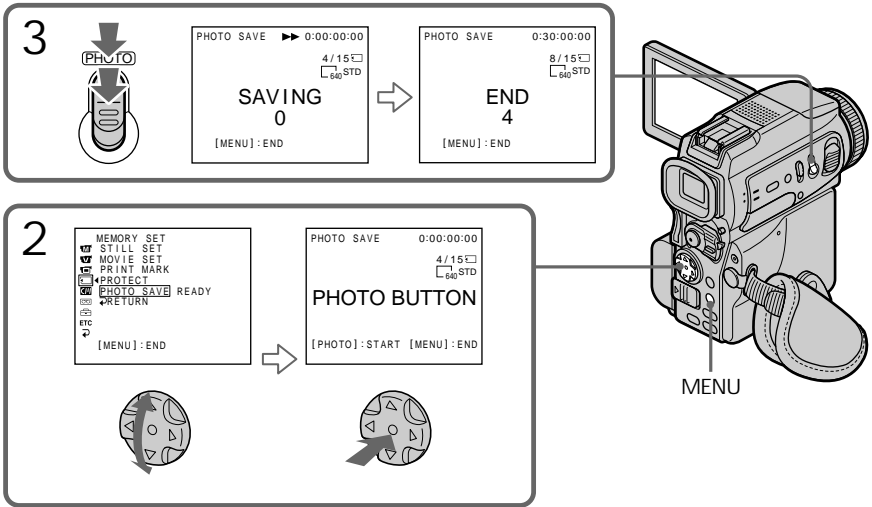
# Copying still images from a tape – Photo save

Using the search function, you can automatically take in only still images from tapes and record them on a “Memory Stick” in sequence.

Before operation

- Insert a recorded tape into your camcorder and rewind the tape.
- Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to VCR.
- (2) Press MENU, then select and decide upon PHOTO SAVE in  with the control button (p. xx).  
PHOTO BUTTON appears on the screen.
- (3) Press PHOTO deeper. The still image from the tape is recorded on a “Memory Stick.” The number of still images copied is displayed. END is displayed when copying is completed.



To stop copying  
Press MENU.

When the memory of the “Memory Stick” is full  
MEMORY FULL appears on the screen, and the copying stops. Insert another “Memory Stick” and repeat the procedure from step 2.

Image size of still images  
Image size is automatically set to 640 × 480.

When the access lamp is lit or flashing  
Do not shake or strike your camcorder. As well do not turn the power off, eject a “Memory Stick” or remove the battery pack. Otherwise, the image data breakdown may occur.

If the write-protect tab on the “Memory Stick” is set to LOCK  
NOT READY appears when you select the item in the menu settings.

When you change “Memory Stick”s in the middle of copying  
Your camcorder resumes copying from the last image recorded on the previous “Memory Stick.”

# Viewing a still image

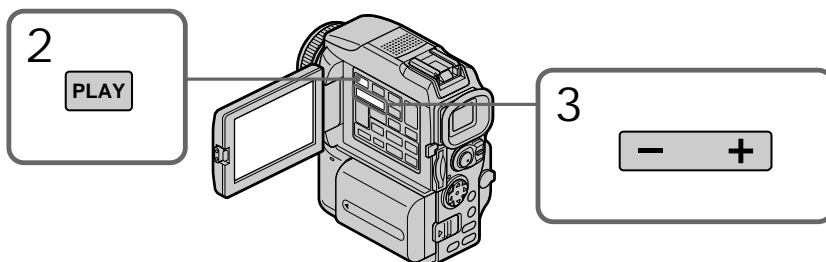
## - Memory photo playback

You can play back still images recorded on a "Memory Stick." You can also play back six images including moving pictures in order at a time by selecting the index screen.

Before operation

Insert a "Memory Stick" into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MEMORY PLAY. The last recorded image is displayed.
- (3) Press MEMORY +/- to select the desired still image. To see the previous image, press MEMORY -. To see the next image, press MEMORY +.



To stop memory photo playback

Press MEMORY PLAY.

Note

You may not be able to play back images with your camcorder:

- when playing back image data modified on personal computers.
- when playing back image data shot with other equipment.

Notes on the file name

- The directory number may not be displayed and only the file name may be displayed if the structure of the directory does not conform to the DCF standard.
- "⊠ ⊠ DIRECTORY ERROR" may appear on the screen if the structure of the directory does not conform to the DCF standard. While this message appears, you can play back images but cannot record them on the "Memory Stick."
- The file name flashes on the screen if the file is corrupted or the file is unreadable.

To play back recorded images on a TV screen

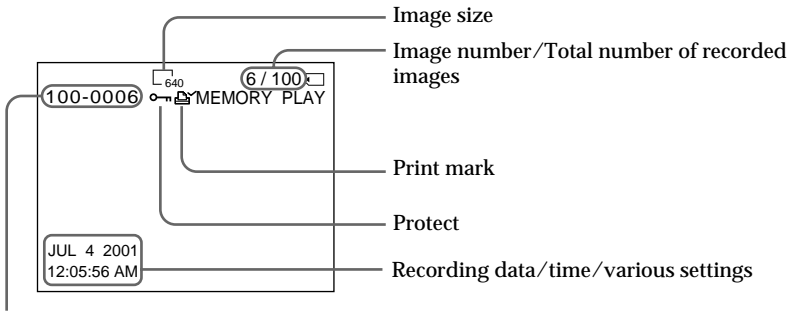
- Connect your camcorder to the TV with the A/V connecting cable supplied with your camcorder before operation.
- When operating memory photo playback on a TV or on the LCD screen, the image quality may appear to have deteriorated. This is not a malfunction. The image data is as good as ever.
- Turn the audio volume of the TV down before operation, or noise (howling) may be output from the TV speakers.

When no image is recorded on the "Memory Stick"

The message "⊠ NO FILE" appears.

# Viewing a still image – Memory photo playback

## Screen indicators during still image playback



Data Directory Number, File Number

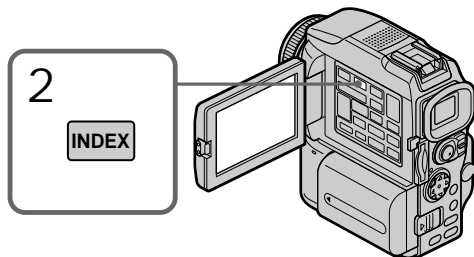
### Recording data

When you press DATA CODE on the Remote Commander, you can see the recording data (date/time or various settings when recorded).

### Playing back six recorded images at a time (index screen)

You can play back six recorded images at a time. This function is especially useful when searching for a particular image.

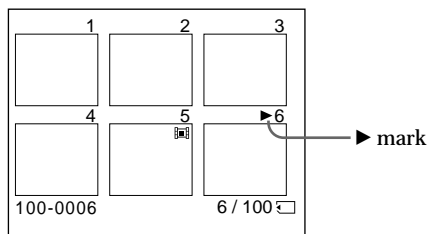
- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MEMORY INDEX to display the index screen.



A red ► mark appears above the image that is displayed before changing to the index screen mode.

MEMORY - : to display the previous six images

MEMORY + : to display the following six images



To return to the normal playback screen (single screen)

Press MEMORY +/- to move the ► mark to the image you want to display on full screen, then press MEMORY PLAY.

#### Note

When displaying the index screen, the number appears above each image. This indicates the order in which images are recorded on the "Memory Stick." These numbers are different from the data file names (p. xx).

Image data modified with your computers or shot with other equipment  
These files may not be displayed on the index screen.



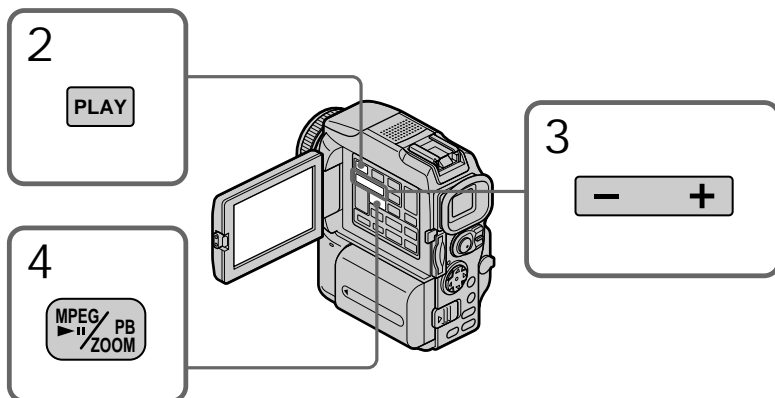
# Viewing a moving picture – MPEG movie playback

You can play back moving pictures recorded on a “Memory Stick.” You can also play back six images including still images in order at a time by selecting the index screen.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MEMORY PLAY. The last recorded image is displayed.
- (3) Press MEMORY +/- to select the desired moving pictures. To see the previous picture, press MEMORY -. To see the next picture, press MEMORY +.
- (4) Press MPEG ► || to start playback.



To stop MPEG movie playback

Press MEMORY PLAY.

---

Note

You may not be able to play back images with your camcorder:

- when playing back image data modified on your computers.
- when playing back image data shot with other equipment.

To play back recorded images on a TV screen

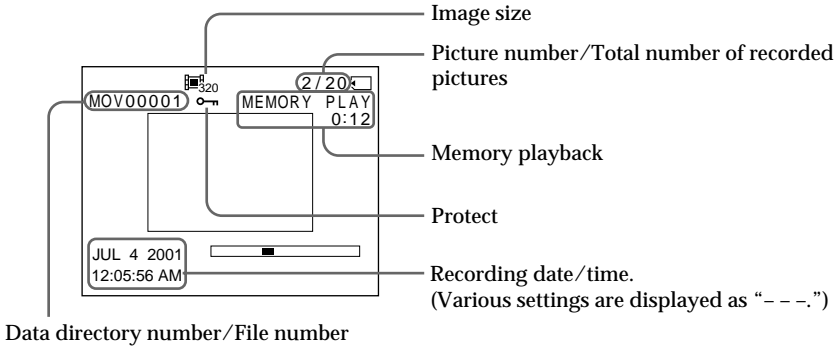
- Connect your camcorder to the TV with the A/V connecting cable supplied with your camcorder before operation.
- Turn the audio volume of the TV down before operation, or noise (howling) may be output from the TV speakers.

When no image is recorded on the “Memory Stick”

The message “ NO FILE” appears.

## Viewing a moving picture – MPEG movie playback

### Screen indicators during moving picture playback



Recording date/time

To display the recording date/time, press DATA CODE on the Remote Commander during playback.

# Viewing images using computer

---

You can view data recorded on the “Memory Stick” using your computer.

## Notes

- Data recorded on the “Memory Stick” is stored in the following formats. Make sure that applications that support these file formats are installed on your computer.
  - Still images: JPEG format
  - Moving images/audio: MPEG format

## Recommended computer environment

Recommended Windows environment

OS: Microsoft Windows 98, Windows 98SE, Windows Me or Windows 2000 Professional standard installation is required.

However, operation is not assured if the above environment is upgraded OS.

CPU: MMX Pentium 200 MHz or faster

The USB connector must be provided as standard.

An application such as Real Player or Windows Media Player capable of playing back MPEG picture must be installed (to play back moving pictures).

Recommended Macintosh environment

Macintosh computer with the Mac OS 8.5.1/8.6/9.0/9.1 or Mac OS X standard installation

However, note that the update to Mac OS 9.0/9.1 should be used for the following models.

- iMac with the Mac OS 8.6 standard installation and a slot loading type CD-ROM drive
- iBook or Power Mac G4 with the Mac OS 8.6 standard installation

The USB connector must be provided as standard.

QuickTime 3.0 or newer must be installed (to play back moving pictures).

---

## Notes

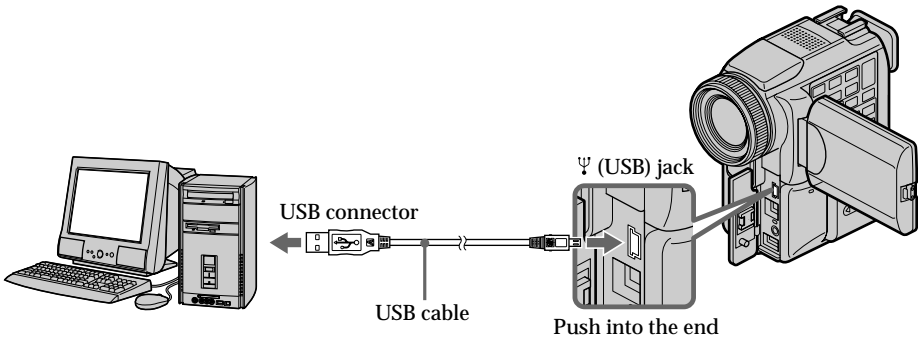
- Operations are not guaranteed for either the Windows or Macintosh environment if you connect two or more USB equipment to a single computer at the same time, or when using a hub.
- Depending on the type of USB equipment that is used simultaneously, some equipment may not operate.
- Operations are not guaranteed for all the recommended computer environments mentioned above.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, “™” and “®” are not mentioned in each case in this manual.

## Installing the USB driver

Before connecting your camcorder to your computer, install the USB driver to the computer. The USB driver is contained together with application software for viewing images on a CD-ROM which is supplied with your camcorder. Do not connect the USB cable to your computer before installation of the USB driver is completed.

Example: For Windows 98/98SE/Me, Windows 2000 users

- (1) Turn on the power of your computer and allow Windows to load.
- (2) Insert the supplied CD-ROM in the CD-ROM drive of your computer. The application software screen appears.
- (3) Set the cursor on "USB Driver Installation for Windows 98/98SE/Me and Windows 2000" and click. USB driver installation starts.
- (4) Follow the on-screen messages to install the USB driver.
- (5) Connect the Ψ (USB) jack on your camcorder with the USB connector on your computer using the supplied USB cable.
- (6) Insert a "Memory Stick" into your camcorder, connect the AC power adaptor and set the POWER switch to MEMORY. USB MODE appears on the LCD screen of your camcorder. Your computer recognizes the camcorder, and the Windows Add Hardware Wizard starts.
- (7) Follow the on-screen messages to have the Add Hardware Wizard recognize the hardware. The Add Hardware Wizard starts twice because two different USB drivers are installed. Be sure to allow the installation to complete without interrupting it.



### Notes

- You cannot install the USB driver if a "Memory Stick" is not in your camcorder. Be sure to insert a "Memory Stick" into your camcorder before installing the USB driver.
- The USB driver has been registered incorrectly as your computer was connected to your camcorder before installation of the USB driver was completed. Re-install the USB driver following the procedure on page xxx.

### Image data cannot be transferred by the USB connection

The USB driver has been registered incorrectly as your computer was connected to your camcorder before installation of the USB driver was completed. Perform the following procedure to correctly install the USB driver.

#### Step 1 Uninstall the incorrect USB driver

- ① Turn on the power and allow Windows to load.
- ② Connect the USB jack on your computer to the Ψ (USB) jack on your camcorder using the USB cable supplied with your camcorder.
- ③ Insert a "Memory Stick" into your camcorder, connect the AC power adaptor, and set the POWER switch to MEMORY.
- ④ Open your computer's "Device Manager".  
Windows 2000 Professional:  
Open "My Computer" → "Control Panel" → "Hardware" tab, and click the "Device Manager" button.  
Other OS:  
Select "My Computer" → "Control Panel" → "System", and click "Device Manager".
- ⑤ Select "Other devices".  
Select the device prefixed with the "?" mark and delete.  
Ex: (?)Sony Handycam
- ⑥ Turn the power OFF (CHG), and then disconnect the USB cable.
- ⑦ Restart your computer.

#### Step 2 Install the USB driver on the CD-ROM

Perform the entire procedure listed in "Installing the USB Driver" on the page xxx.

Example: For Mac OS 8.5.1/8.6/9.0 users

- (1) Turn on the power of your computer and allow the Mac OS to load.
- (2) Insert the supplied CD-ROM in the CD-ROM drive of your computer.
- (3) Double-click the CD-ROM drive icon to open the window.
- (4) Double-click the icon of the hard disk containing the OS to open the window.
- (5) Move the following two files from the window opened in step 3 to the System Folder icon in the window opened in step 4 (drag and drop).
  - Sony Camcorder USB Driver
  - Sony Camcorder USB Shim
- (6) When "Put these items into the Extensions folder?" appears, click OK.
- (7) Restart your computer.

---

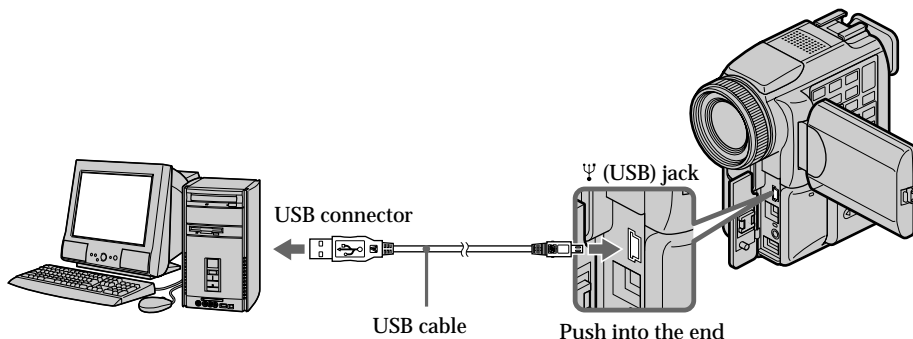
For Mac OS 9.1 and Mac OS X

The USB driver need not be installed. Your Mac is automatically recognized as a driver just by connecting your Mac using the USB cable.

## Viewing images

For Windows users

- (1) Turn on the power of your computer and allow Windows to load.
- (2) Connect one end of USB cable to the  $\Psi$  (USB) jack on the camcorder and the other end to the USB connector on your computer.
- (3) Insert a "Memory Stick" into your camcorder, and connect the AC power adaptor to your camcorder and then to a wall outlet.
- (4) Set the POWER switch to MEMORY.  
USB MODE appears on the screen of the camcorder.
- (5) Open "My Computer" on Windows and double click the newly recognized drive (Example: "Removable Disk (E:)").  
The folders inside the "Memory Stick" are displayed.
- (6) Select and double-click the desired image file from the folder.  
For the detailed folder and file name, see "Image file storage destinations and image files" (p. xx).



Desired file type	Double-click in this order
Still image	"Dcim" folder → "100msdcf" folder → Image file
Moving picture*	"Mssony" folder → "Moml0001" folder → Image file*

\* Copying a file to the hard disk of your computer before viewing it is recommended. If you play back the file directly from the "Memory Stick," the image and sound may break off.

## Viewing images using computer

---

### For Windows 2000 Professional/Me users

To unplug the USB cable or eject the “Memory Stick”, follow the procedure below.

- (1) Move the cursor to the “Unplug or Eject Hardware” icon on the Task Tray and click to cancel the applicable drive.
- (2) A message to remove the device from the system appears, then unplug the USB cable or eject the “Memory Stick.”

### For Macintosh users

To unplug the USB cable or eject the “Memory Stick”, follow the procedure below.

- (1) Quit application programs opened.  
Make sure that the access lamp of the hard disk is not lit.
- (2) Drag and drop the “Memory Stick” icon to the Trash or select Eject under the Special menu.
- (3) Unplug the USB cable or eject the “Memory Stick.”

---

For Mac OS X users

Unplug the USB cable or eject the “Memory Stick” after shutting down your computer.

### Notes on using your computer

#### “Memory Stick”

- “Memory Stick” operations on your camcorder cannot be assured if a “Memory Stick” formatted on your computer is used on your camcorder, or if the “Memory Stick” in your camcorder was formatted from your computer when the USB cable was connected.
- Do not optimize the “Memory Stick” on a Windows machine. This will shorten the “Memory Stick” life.
- Do not compress the data on the “Memory Stick.” Compressed files cannot be played back on your camcorder.

#### Software

- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using a retouch software from your computer to the camcorder or when you directly modify the image on the camcorder, the image format will differ so a file error indicator may appear and you may be unable to open the file.

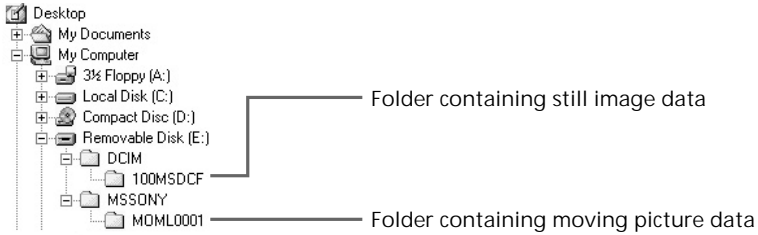
#### Communications with your computer

Communications between your camcorder and your computer may not recover after recovering from Suspend, Resume, or Sleep.

## Image file storage destinations and image files

Image files recorded with your camcorder are grouped in folders by recording mode. The meanings of the file names are as follows. □□□□ stands for any number within the range from 0001 to 9999.

For Windows Me users  
(The drive recognizing the camera is [E:].)



Folder	File	Meaning
100msdcf	DSC0□□□□.JPG	Still image file
Moml0001	MOV0□□□□.MPG	Moving picture file



# Copying the image recorded on "Memory Stick" s to tapes

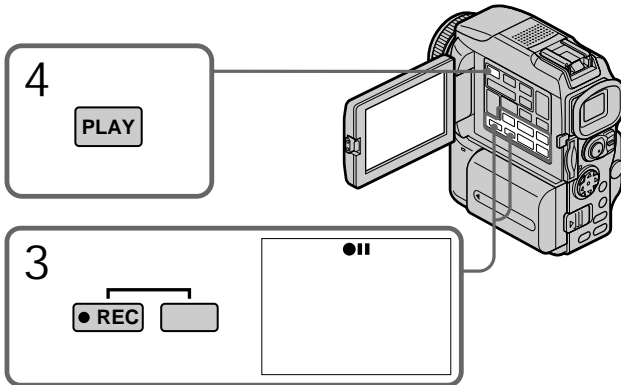
---

You can copy images recorded on "Memory Stick" and record them to a tape.

Before operation

- Insert a tape for recording into your camcorder.
- Insert a "Memory Stick" into your camcorder.

- (1) Set the POWER switch to VCR.
- (2) Using the video control buttons, search a point where you want to record the desired images. Set the tape to playback pause.
- (3) Press ● REC and the button on its right simultaneously on your camcorder.  
The tape is set to the recording pause mode.
- (4) Press MEMORY PLAY. The last recorded image is displayed.
- (5) Press MEMORY +/- to select the desired image. To see the previous image, press MEMORY -. To see the next, press MEMORY +.
- (6) Press ■■ to start recording and press ■■ again to stop.  
● appears on the screen during recording.
- (7) If you have more to copy, repeat steps 5 and 6.



To stop copying in the middle  
Press ■.

---

During copying

You cannot operate the following buttons:

- MEMORY PLAY
- MEMORY INDEX
- MEMORY DELETE
- MEMORY +/-
- MEMORY MIX

Note on the index screen

You cannot record the index screen.

If you press EDITSEARCH during pause mode

Memory playback stops.

Image data modified with your computers or shot with other equipment

You may not be able to copy them with your camcorder.

If you press DISPLAY in during recording or in recording standby mode

You can see memory playback and the file name indicators in addition to the indicators pertinent to tapes, such as the time code indicator.

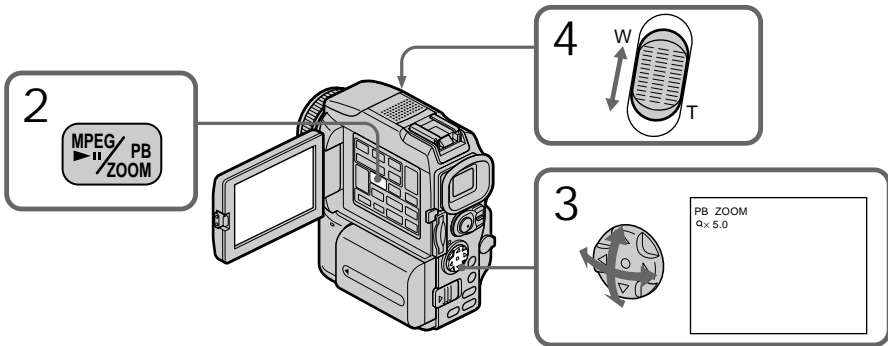
# Enlarging still images recorded on "Memory Stick" s – Memory PB ZOOM

You can enlarge still images recorded on a "Memory Stick." You can select and view the desired part from the enlarged still image. Also you can copy the desired part of the enlarged still image to tapes or "Memory Stick"s.

Before operation

Insert a "Memory Stick" into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) In the memory playback mode, press PB ZOOM on your camcorder.  
The center of the image is enlarged to twice its size.
- (3) Press the control button to move the image.  
The image moves in the same direction as the control button.
- (4) Adjust the zoom ratio by the power zoom lever.  
You can enlarge the image from 1.1 times up to five times its size.  
W : Decreases the zoom ratio.  
T : Increases the zoom ratio.



To cancel the PB ZOOM function  
Press PB ZOOM.

In the PB ZOOM mode

The digital effect function does not work.

The PB ZOOM function is canceled when the following buttons are pressed:

- MENU
- MEMORY PLAY
- MEMORY INDEX
- MEMORY +/-

Moving pictures recorded on "Memory Stick"s

The PB ZOOM function does not work.

To record an image processed by PB ZOOM on "Memory Stick"s


Press the PHOTO button to record the image processed by PB ZOOM. (The image size becomes 640 × 480)

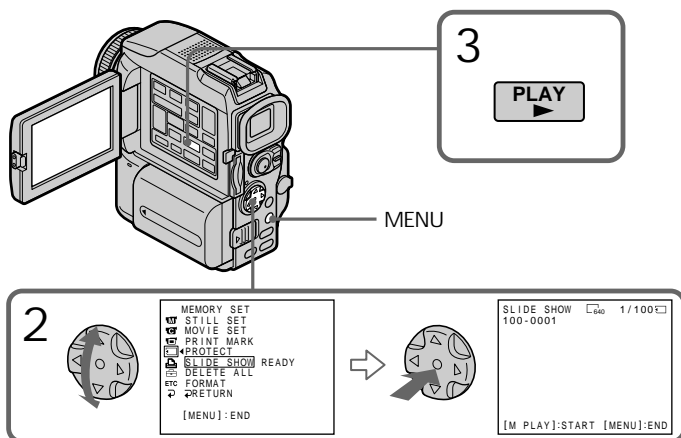
# Playing back images in a continuous loop – SLIDE SHOW

You can automatically play back images in sequence. This function is useful especially when checking recorded images or during a presentation.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MENU, then select and decide upon SLIDE SHOW in  with the control button (p. xx).
- (3) Press MEMORY PLAY. Your camcorder plays back the images recorded on a “Memory Stick” in sequence.



To stop the slide show  
Press MENU.

To pause during a slide show  
Press MEMORY PLAY.

To start the slide show from a particular image  
Select the desired image using MEMORY +/- buttons before step 2.

---

To view the recorded images on TV  
Connect your camcorder to a TV with the A/V connecting cable supplied with your camcorder before operation.



If you change the “Memory Stick” during operation  
The slide show does not operate. If you change the “Memory Stick,” be sure to follow the steps again from the beginning.

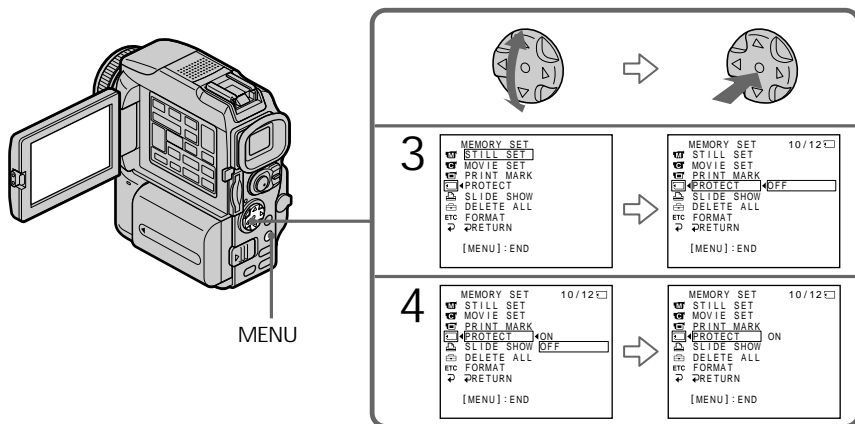
# Preventing accidental erasure – Image protection

To prevent accidental erasure of important images, you can protect selected images.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Play back the image you want to protect.
- (3) Press MENU, then select and decide upon PROTECT in  with the control button (p. xx).
- (4) Select and decide upon ON with the control button.
- (5) Press MENU to make the menu display disappear. The “” mark is displayed beside the data file name of the selected image.



“Memory Stick” Operations

To cancel image protection

Select and decide upon OFF with the control button in step 4.

Note

Formatting erases all information on the “Memory Stick,” including the protected image data. Check the contents of the “Memory Stick” before formatting.

If the write-protect tab on the “Memory Stick” is set to LOCK  
You cannot carry out image protection.

# Deleting images

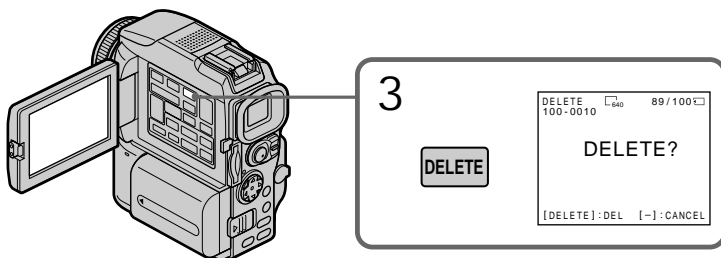
You can delete images stored in a “Memory Stick.” You can delete all images or selected images.

## Deleting selected images

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Playback the image to delete.
- (3) Press MEMORY DELETE. “DELETE?” appears on the screen.
- (4) Press MEMORY DELETE again. The selected image is deleted.



To cancel deleting an image

Press MEMORY - in step 4.

To delete an image displayed on the index screen

Press MEMORY +/- to move the ► indicator to the desired image you want to delete and follow steps 3 and 4.

---

Notes

- To delete a protected image, first cancel image protection.
- Once you delete an image, you cannot restore it. Check the images to delete carefully before deleting them.

If the write-protect tab on the “Memory Stick” is set to LOCK

You cannot delete images.


# Deleting images

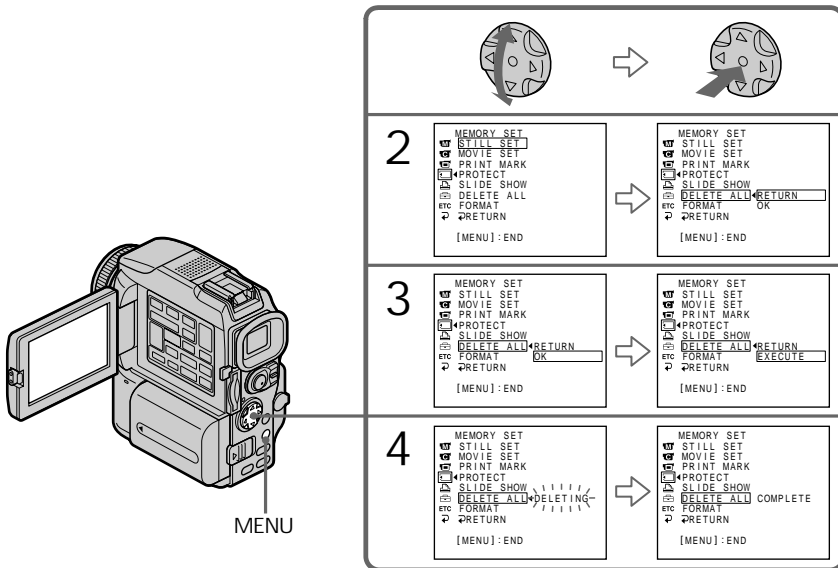
## Deleting all the images

You can delete all the unprotected images in a “Memory Stick.”

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Press MENU, then select and decide upon DELETE ALL in  with the control button (p. xx).
- (3) Select and decide upon OK with the control button. OK changes to EXECUTE.
- (4) Select and decide upon EXECUTE with the control button. DELETING flashes on the screen. When all the unprotected images are deleted, COMPLETE is displayed on the screen.



To cancel deleting all the images in the “Memory Stick”  
Select and decide upon RETURN with the control button in step 3.

While DELETING appears

Do not turn the POWER switch or press any buttons.



# Writing a print mark – PRINT MARK

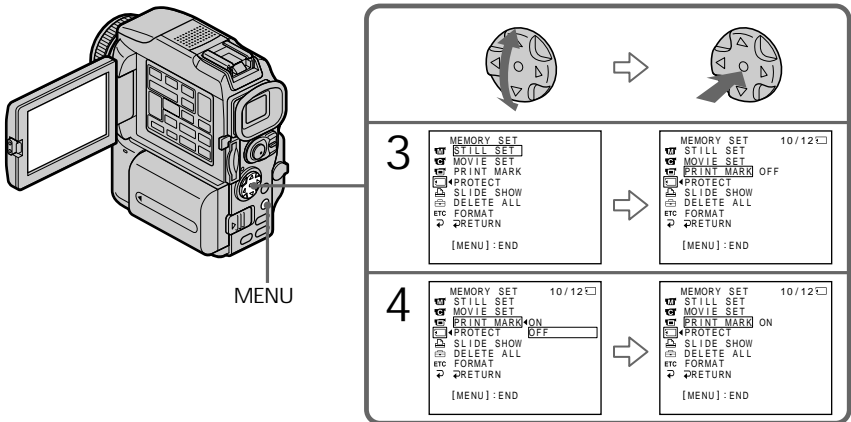
You can specify the recorded still image to print out by putting marks. This function is useful for printing out still images later.

Your camcorder conforms with the DPOF (Digital Print Order Format) standard for specifying the still images to print out.

Before operation

Insert a “Memory Stick” into your camcorder.

- (1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the right (unlock) position.
- (2) Playback the still image you want to write a print mark on.
- (3) Press MENU, then select and decide upon PRINT MARK in  with the control button (p. xx).
- (4) Select and decide upon ON with the control button.
- (5) Press MENU to make the menu display disappear. The print mark  is displayed beside the data file name of the image.



To cancel writing print marks

Select and decide upon OFF with the control button in step 4.

---

If the write-protect tab on the “Memory Stick” is set to LOCK

You cannot write print marks on still images.


Moving pictures

You cannot write print marks on moving pictures.

While the file name is flashing

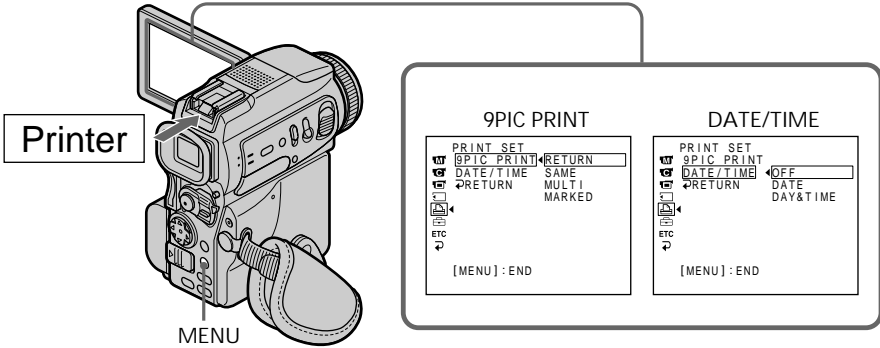
You cannot write a print mark on the still image.

# Using the optional printer

You can use the optional printer on your camcorder to print images on the print paper. For details, refer to the operating instructions of the printer. There are various ways of printing still images. The following, however, describes how to print by selecting  in the menu on your camcorder.

Before operation

- Insert a recorded “Memory Stick” into your camcorder.
- Connect the optional printer to your camcorder as illustrated.

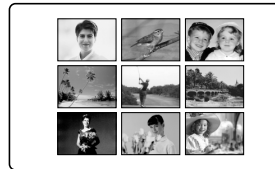


You can print nine still images on the 9-split print paper. Select the desired mode in the menu settings.

SAME PICS



MULTI PICS or \*MARKED PICS



\* Nine still images with print marks are printed together.

You can make prints with the recording date and/or recording time. Select the desired mode in the menu settings.

DATE



DAY & TIME




Images recorded in multi screen mode

You cannot print images recorded in multi screen mode on sticker type print paper.


Moving pictures recorded on “Memory Stick”

You cannot print moving pictures.

When “Memory Stick” has no files

“ NO STILL IMAGE FILE” appears on the screen.

When there are no files with a PRINT MARK

“ NO PRINT MARK” appears on the screen.



# Accessing to the network

– DCR-PC120BT only

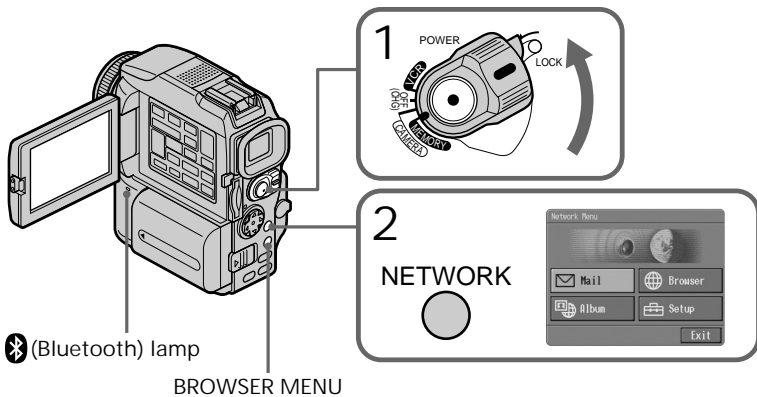
You can access to the Internet using a Bluetooth equipped device that is complied to the camcorder. Once the access is made, you can view a Web page, send/receive your e-mail, or make your album on Web, etc. This section described only how to open the Network Menu.

(1) Set the POWER switch to MEMORY.

(2) Press NETWORK.

Bluetooth lamp flashes and Network Menu appears.

For the details, refer to the operating instructions supplied with your camcorder.



On trademarks

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- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, TM and R are not mentioned in each case in this manual.

Note

Make sure that your camcorder is in the standby mode with the POWER switch set to MEMORY.

During using the network function

You cannot use the optional printer.

# Types of trouble and their solutions

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If "C:□□:□□" appears on the screen, the self-diagnosis display function has worked. See page xx.

## In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	<ul style="list-style-type: none"> <li>• The POWER switch is not set to CAMERA. → Set it to CAMERA (p. xx).</li> <li>• The tape has run out. → Rewind the tape or insert a new one (p. xx, xx).</li> <li>• The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab (p. xx).</li> <li>• The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least one hour to acclimatize (p. xxx).</li> </ul>
The power goes off.	<ul style="list-style-type: none"> <li>• While being operated in CAMERA mode, your camcorder has been in the standby mode for more than five minutes. → Set the POWER switch to OFF (CHG) and then to CAMERA (p. xx).</li> <li>• The battery pack is dead or nearly dead. → Install a charged battery pack (p. xx).</li> </ul>
The image on the viewfinder screen is not clear.	<ul style="list-style-type: none"> <li>• Viewfinder is not extended to the end. → Pull out the viewfinder.</li> <li>• The viewfinder lens is not adjusted. → Adjust the viewfinder lens (p. xx).</li> </ul>
The SteadyShot function does not work.	<ul style="list-style-type: none"> <li>• STEADYSHOT is set to OFF in the menu settings. → Set it to ON (p. xx).</li> </ul>
The autofocusing function does not work.	<ul style="list-style-type: none"> <li>• The setting is the manual focus mode. → Set FOCUS to the auto focus mode (p. xx).</li> <li>• Shooting conditions are not suitable for autofocus. → Adjust to focus manually (p. xx).</li> </ul>
The picture does not appear in the viewfinder.	<ul style="list-style-type: none"> <li>• The LCD panel is open. → Close the LCD panel (p. xx).</li> </ul>
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	<ul style="list-style-type: none"> <li>• The contrast between the subject and background is too high. Your camcorder is not a malfunction.</li> </ul>
A vertical band appears when you shoot a very bright subject.	<ul style="list-style-type: none"> <li>• Your camcorder is not a malfunction.</li> </ul>
Some tiny white spots appear on the screen.	<ul style="list-style-type: none"> <li>• Slow shutter, low lux of PROGRAM AE or Super NightShot mode is activated. This is not a malfunction.</li> </ul>
An unknown picture is displayed on the screen.	<ul style="list-style-type: none"> <li>• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE (p. xx).</li> </ul>

## Types of trouble and their solutions




Symptom	Cause and/or Corrective Actions
The picture is recorded in incorrect or unnatural colors.	<ul style="list-style-type: none"> <li>• NIGHTSHOT is set to ON. → Set it to OFF (p. xx).</li> </ul>
The picture appears too bright, and the subject does not appear on the screen.	<ul style="list-style-type: none"> <li>• NIGHTSHOT is set to ON in a bright place. → Set it to OFF (p. xx).</li> <li>• The backlight function is active. → Set it off (p. xx).</li> </ul>
The click of the shutter does not sound.	<ul style="list-style-type: none"> <li>• BEEP is set to OFF in the menu settings. → Set it to MELODY or NORMAL (p. xx).</li> </ul>
Black bands appear when you record TV or computer screen.	<ul style="list-style-type: none"> <li>→ Set the STEADYSHOT in the menu settings to OFF (p. xx).</li> </ul>
An external flash (optional) does not work.	<ul style="list-style-type: none"> <li>• The power of the external flash is off or the power source is not installed. → Turn on the external flash or install the power source.</li> <li>• Two or more external flashes (optional) are attached. → Only one external flash (optional) can be attached.</li> </ul>

### In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	<ul style="list-style-type: none"> <li>• The POWER switch is not set to VCR. → Set it to VCR (p. xx).</li> </ul>
The playback button does not work.	<ul style="list-style-type: none"> <li>• The tape has run out. → Rewind the tape (p. xx).</li> </ul>
There are horizontal lines on the picture or the playback picture is not clear or does not appear.	<ul style="list-style-type: none"> <li>• The video head may be dirty. → Clean the heads using the cleaning cassette (optional) (p. xx).</li> </ul>
No sound or only a low sound is heard when playing back a tape.	<ul style="list-style-type: none"> <li>• The stereo tape is played back with HiFi SOUND set to 2 in the menu settings. → Set it to STEREO (p. xx).</li> <li>• The volume is turned to minimum. → Turn up the volume (p. xx).</li> <li>• AUDIO MIX is set to ST2 in the menu settings. → Adjust AUDIO MIX (p. xx).</li> </ul>
Displaying the recorded date, date search function does not work.	<ul style="list-style-type: none"> <li>• The tape has no cassette memory. → Use a tape with cassette memory (p. xx).</li> <li>• CM SEARCH is set to OFF in the menu settings. → Set it to ON (p. xx).</li> <li>• The tape has a blank portion in the recorded portion (p. xx).</li> </ul>
The title search function does not work.	<ul style="list-style-type: none"> <li>• The tape has no cassette memory. → Use a tape with cassette memory (p. xx).</li> <li>• CM SEARCH is set to OFF in the menu settings. → Set it to ON (p. xx).</li> <li>• There is no title in the tape. → Superimpose the titles (p. xx).</li> <li>• The tape has a blank portion in the recorded portion (p. xx).</li> </ul>
The new sound added to the recorded tape is not heard.	<ul style="list-style-type: none"> <li>• AUDIO MIX is set to ST1 side in the menu settings. → Adjust AUDIO MIX (p. xx).</li> </ul>
The title is not displayed.	<ul style="list-style-type: none"> <li>• TITLE DSPL is set to OFF in the menu settings. → Set it to ON (p. xx).</li> </ul>

## Types of trouble and their solutions

### In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	<ul style="list-style-type: none"> <li>• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack (p. xx, xx).</li> <li>• The AC power adaptor is not connected to a wall outlet. → Connect the AC power adaptor to a wall outlet (p. xx).</li> </ul>
The end search function does not work.	<ul style="list-style-type: none"> <li>• The tape was ejected after recording when using a tape without cassette memory (p. xx).</li> <li>• You have not recorded on the new cassette yet (p. xx).</li> </ul>
The end search function does not work correctly.	<ul style="list-style-type: none"> <li>• The tape has a blank portion in the beginning or middle.</li> </ul>
The battery pack is quickly discharged.	<ul style="list-style-type: none"> <li>• The operating temperature is too low.</li> <li>• The battery pack is not fully charged. → Charge the battery pack fully again (p. xx).</li> <li>• The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. xx).</li> </ul>
The battery remaining indicator does not indicate the correct time.	<ul style="list-style-type: none"> <li>• You have used the battery pack in an extremely hot or cold environment for a long time.</li> <li>• The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. xx).</li> <li>• The battery is not fully charged. → Charge the battery pack fully again (p. xx, xx).</li> <li>• A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the battery remaining indicator is correct (p. xx).</li> </ul>
The power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate.	<ul style="list-style-type: none"> <li>• A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.</li> </ul>
The cassette cannot be removed from the holder.	<ul style="list-style-type: none"> <li>• The power source is disconnected. → Connect it firmly (p. xx, xx).</li> <li>• The battery is dead. → Use a charged battery pack (p. xx, xx).</li> </ul>
The  and  indicators flash and no functions except for cassette ejection work.	<ul style="list-style-type: none"> <li>• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least one hour to acclimatize (p. xx).</li> </ul>
<b>C//</b> indicator does not appear when using a tape with cassette memory.	<ul style="list-style-type: none"> <li>• The gold-plated connector of the tape is dirty or dusty. → Clean the gold-plated connector (p. xx).</li> </ul>
Remaining tape indicator is not displayed.	<ul style="list-style-type: none"> <li>• The  REMAIN is set to AUTO in the menu settings. → Set it to ON to always display the remaining tape indicator (p. xx).</li> </ul>

## Types of trouble and their solutions

### When operating using the “Memory Stick”

Symptom	Cause and/or Corrective Actions
The “Memory Stick” does not function.	<ul style="list-style-type: none"><li>• The POWER switch is not set to MEMORY. → Set it to MEMORY (p. xx).</li><li>• The “Memory Stick” is not inserted. → Insert a “Memory Stick” (p. xx).</li></ul>
Recording does not function.	<ul style="list-style-type: none"><li>• The “Memory Stick” has already been recorded to its full capacity. → Delete unnecessary images and record again (p. xx).</li><li>• The “Memory Stick” formatted incorrectly is inserted. → Format the “Memory Stick” or use another “Memory Stick” (p. xx).</li><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li></ul>
The image cannot be deleted.	<ul style="list-style-type: none"><li>• The image is protected. → Cancel image protection (p. xx).</li><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li></ul>
You cannot format the “Memory Stick”.	<ul style="list-style-type: none"><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li></ul>
Deleting all the images cannot be carried out.	<ul style="list-style-type: none"><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li></ul>
You cannot protect the image.	<ul style="list-style-type: none"><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li><li>• The image to protect is not be played back. → Press MEMORY PLAY to play back the image (p. xx).</li></ul>
You cannot write a print mark on the still image.	<ul style="list-style-type: none"><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li><li>• The image to write a print mark is not be played back. → Press MEMORY PLAY to play back the image (p. xx).</li><li>• You are trying to write a print mark on a moving picture. → Print marks cannot be written on a moving picture.</li></ul>
The photo save function does not work.	<ul style="list-style-type: none"><li>• The write-protect tab on the “Memory Stick” is set to LOCK. → Release the lock (p. xx).</li></ul>
You cannot playback images in actual size.	<ul style="list-style-type: none"><li>• You may not be able to playback images in actual size when you try to play back images recorded by other equipment. This is not a malfunction.</li></ul>

## Types of trouble and their solutions

### Others

Symptom	Cause and/or Corrective Actions
The title is not recorded.	<ul style="list-style-type: none"><li>• The tape has no cassette memory. → Use a tape with cassette memory (p. xx).</li><li>• The cassette memory is full. → Erase unnecessary titles (p. xx).</li><li>• The tape is set to prevent accidental erasure. → Slide the write-protect tab so that red portion is not visible (p. xx).</li><li>• The tape has a blank portion in the recorded portion. → Superimpose the title to the recorded position (p. xx).</li></ul>
The cassette label is not recorded.	<ul style="list-style-type: none"><li>• The tape has no cassette memory. → Use a tape with cassette memory (p. xx).</li><li>• The cassette memory is full. → Erase unnecessary data (p. xx).</li><li>• The tape is set to prevent accidental erasure. → Slide the write-protect tab so that red portion is not visible (p. xx).</li></ul>
Digital program editing to a tape does not function.	<ul style="list-style-type: none"><li>• The input selector on the VCR is not set correctly. → Check the connection and set the input selector on the VCR again (p. xx)</li><li>• The camcorder is connected to DV equipment of other than Sony using the i.LINK cable (DV connecting cable). → Set it to IR (p. xx).</li><li>• Setting program on a blank portion of the tape is attempted. → Set the program again on a recorded portion (p. xx).</li><li>• The camcorder and the VCR are not synchronized. → Adjust the synchronization (p. xx).</li><li>• The IR SETUP code is incorrect. → Set the correct code (p. xx).</li></ul>
Digital program editing to a "Memory Stick" does not function.	<ul style="list-style-type: none"><li>• Setting program on a blank portion of the tape is attempted. → Set the program again on a recorded portion (p. xx).</li></ul>
The Remote Commander supplied with your camcorder does not work.	<ul style="list-style-type: none"><li>• COMMANDER is set to OFF in the menu settings. → Set it to ON (p. xx).</li><li>• Something is blocking the infrared rays. → Remove the obstacle.</li><li>• The batteries are inserted in the battery holder with the + - polarities incorrectly matching the + - marks. → Insert the batteries with the correct polarity (p. xx).</li><li>• The batteries are dead. → Insert new ones (p. xx).</li></ul>
The picture from a TV or VCR does not appear even when your camcorder is connected to output on the TV or VCR.	<ul style="list-style-type: none"><li>• Display is set to V-OUT/LCD in the menu settings. → Set it to LCD (p. xx).</li></ul>

## Types of trouble and their solutions

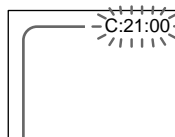
Symptom	Cause and/or Corrective Actions
The melody or beep sounds for five seconds.	<ul style="list-style-type: none"> <li>Moisture condensation has occurred.                             <ul style="list-style-type: none"> <li>→ Remove the cassette and leave your camcorder for at least one hour to acclimatize (p. xx).</li> </ul> </li> <li>Some troubles have occurred in your camcorder.                             <ul style="list-style-type: none"> <li>→ Remove the cassette and insert it again, then operate your camcorder.</li> </ul> </li> </ul>
No function works though the power is on.	<ul style="list-style-type: none"> <li>Disconnect the power cord of the AC power adaptor or remove the battery, then reconnect it in about one minute. Turn the power on. If the functions still do not work, press the RESET button using a sharp-pointed object (If you press the RESET button, all the settings including the date and time return to the default.) (p. xx).</li> </ul>
When you set the POWER switch to VCR or OFF (CHG), if you move your camcorder, you may hear a clatter sound from inside your camcorder.	<ul style="list-style-type: none"> <li>This is because some functions use a linear mechanism. Your camcorder is not a malfunction.</li> </ul>
While charging the battery pack, the CHG lamp does not light up.	<ul style="list-style-type: none"> <li>Charge is completed.</li> <li>The battery pack is not properly installed.                             <ul style="list-style-type: none"> <li>→ Install it properly (p. xx).</li> </ul> </li> </ul>
You cannot charge the battery pack.	<ul style="list-style-type: none"> <li>The POWER switch is not set to OFF (CHG).                             <ul style="list-style-type: none"> <li>→ Set it to OFF (CHG).</li> </ul> </li> </ul>
While charging the battery pack, the CHG lamp flashes.	<ul style="list-style-type: none"> <li>The battery pack is not properly installed.                             <ul style="list-style-type: none"> <li>→ Install it properly (p. xx).</li> </ul> </li> <li>Something is wrong with the battery pack.                             <ul style="list-style-type: none"> <li>→ Please contact your Sony dealer or local authorized Sony service facility.</li> </ul> </li> </ul>
Image data cannot be transferred by the USB connection.	<ul style="list-style-type: none"> <li>The USB cable was connected before installation of the USB driver was completed.                             <ul style="list-style-type: none"> <li>→ Uninstall the incorrect USB driver and re-install the USB driver (p. xx).</li> </ul> </li> </ul>
The cassette cannot be removed even if the cassette lid is open.	<ul style="list-style-type: none"> <li>Moisture has started to condense in your camcorder.</li> </ul>

# Self-diagnosis display

Your camcorder has a self-diagnosis display function.

This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) on the screen. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

LCD screen or Viewfinder



Self-diagnosis display

- C:□□:□□  
You can service your camcorder yourself.
- E:□□:□□  
Contact your Sony dealer or local authorized Sony service facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	<ul style="list-style-type: none"> <li>• You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack (p. xx, xx).</li> </ul>
C:21:□□	<ul style="list-style-type: none"> <li>• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least one hour to acclimatize (p. xx).</li> </ul>
C:22:□□	<ul style="list-style-type: none"> <li>• The video heads are dirty. → Clean the heads using the cleaning cassette (optional) (p. xx).</li> </ul>
C:31:□□	<ul style="list-style-type: none"> <li>• A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the power cord of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.</li> </ul>
C:32:□□	
E:61:□□	<ul style="list-style-type: none"> <li>• A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code (example: E:61:10).</li> </ul>
E:62:□□	
E:91:□□	

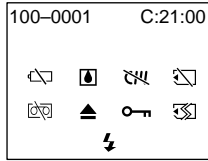
If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.



# Warning indicators and messages

If indicators and messages appear on the screen, check the following:  
See the page in parentheses “( )” for more information.


## Warning indicators




100-0001 Warning indicator as to file  
Slow flashing:

- The file is corrupted.
- The file is unreadable.
- You are trying to carry out MEMORY MIX function on moving picture.

C:21:00 Self-diagnosis display (p. xx).

 The battery is dead or nearly dead

Slow flashing:

- The battery is nearly dead.  
Depending on the operating conditions, environment and battery condition, the  indicator may flash, even if there are approximately five to ten minutes remaining.


Fast flashing:

- The battery is dead (p. xx).

 Moisture condensation has occurred\*


Fast flashing:

- Eject the cassette, turn off your camcorder, and leave it for about one hour with the cassette compartment open (p. xx).

 Warning indicator as to cassette memory\*

Slow flashing:

- No tape with cassette memory is inserted (p. xx).


 Warning indicator as to “Memory Stick”\*

Slow flashing:

- No “Memory Stick” is inserted.

Fast flashing:

- The “Memory Stick” is not readable with your camcorder (p. xx).
- The image cannot be recorded on “Memory Stick” (p. xx).

 Warning indicator as to “Memory Stick” formatting\*

Fast flashing:

- “Memory Stick” is not formatted correctly (p. xx).
- The “Memory Stick” data is corrupted.

 Warning indicator as to tape

Slow flashing:

- The tape is near the end.
- No tape is inserted.\*
- The write-protect tab on the cassette is out (red) (p. xx).\*

Fast flashing:

- The tape has run out.\*

 You need to eject the cassette\*

Slow flashing:

- The write-protect tab on the cassette is out (red) (p. xx).

Fast flashing:

- Moisture condensation has occurred (p. xx).
- The tape has run out.
- The self-diagnosis display function is activated (p. xx).

 The image is protected\*

Slow flashing:

- The image is protected (p. xx).

 Warning indicator as to the flash

Slow flashing:

- During charging

Fast flashing:

- The self-diagnosis display function is activated (p. xx).\*
- There is something wrong with the built-in flash or the external flash (optional).

\* You hear the melody or beep sound.



# Usable cassettes

## Selecting cassette types

You can use the <sup>Mini</sup>**DV** mini DV cassette only\*. You cannot use any other **8** 8 mm, **Hi8** Hi8, **D** Digital8, **VHS** VHS, **VHS-C** VHS-C, **S-VHS** S-VHS, **S-VHS-C** S-VHS-C, **β** Betamax, **ED Beta** ED Betamax or **DV** DV cassette.

\* There are two types of mini DV cassettes: with cassette memory and without cassette memory. Tapes with cassette memory have **CM** (Cassette Memory) mark. We recommend that you use the tape with cassette memory.

The IC memory is mounted on this type of cassette. Your camcorder can read and write data such as dates of recording or titles, etc. to this memory. The functions using the cassette memory require successive signals recorded on the tape. If the tape has a blank portion in the beginning or between the recorded portions, a title may not be displayed properly or the search functions may not work properly. Not to make any blank portion on the tape, operate the followings. Press END SEARCH to go to the end of the recorded portion before you begin the next recording if you operate the followings:

- you have ejected the cassette while recording.
- you have played back the tape in the VCR.
- you have used the edit search function.

If there is a blank portion or discontinuous signal on your tape, re-record from the beginning to the end of the tape concerning above.

The same result may occur when you record using a digital video camera recorder without a cassette memory function on a tape recorded by one with the cassette memory function.

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**CM4K** mark on the cassette

The memory capacity of tapes marked with **CM4K** is 4KB. Your camcorder can accommodate tapes having a memory capacity of up to 16KB. 16KB tape is marked with **CM16K**.

Mini **DV** Digital Video Cassette This is the mini DV mark.

**CM** Cassette Memory This is the Cassette Memory mark.

These are trademarks.

## Copyright signal

When you play back

Using any other video camera recorder, you cannot record on tape that has recorded a copyright control signals for copyright protection of software which is played back on your camcorder.

When you record

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.

“COPY INHIBIT” appears on the screen, in the viewfinder or on the TV screen if you try to record such software.

Your camcorder does not record copyright control signals on the tape when it records.

## Audio mode

**12-bit mode:** The original sound can be recorded in stereo 1, and the new sound in stereo 2 in 32 kHz. The balance between stereo 1 and stereo 2 can be adjusted by selecting AUDIO MIX in the menu settings during playback. Both sounds can be played back.

**16-bit mode:** A new sound cannot be recorded but the original sound can be recorded in high quality. Moreover, it can also play back sound recorded in 32 kHz, 44.1 kHz or 48 kHz. When playing back a tape recorded in the 16-bit mode, 16BIT indicator appears on the screen.

## When you play back a dual sound track tape

When you play back a dual sound track tape recorded in a stereo system, set HiFi SOUND to the desired mode in the menu settings (p. xx).

Sound from speaker

HiFi SOUND mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Left sound	Main sound
2	Right sound	Sub sound

You cannot record dual sound programs on your camcorder.

## Notes on the cassette

When affixing a label on the cassette

Be sure to affix a label only on the locations as illustrated below [a] so as not to cause malfunction of your camcorder.

After using the cassette

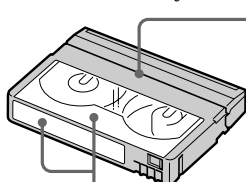
Rewind the tape to the beginning, put the cassette in its case, and store it in an upright position.

When the cassette memory function does not work

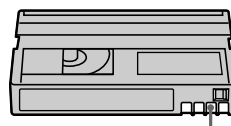
Reinsert a cassette. The gold-plated connector of cassettes may be dirty or dusty.

Cleaning gold-plated connector

If the gold-plated connector on the cassette is dirty or dusty, the remaining tape indicator is sometimes not displayed correctly, and you may not be able to operate functions using cassette memory. Clean up the gold-plated connector with cotton-wool swab, about every 10 times ejection of a cassette. [b]



[a]



[b]

# About the “InfoLITHIUM” battery pack

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## What is the “InfoLITHIUM” battery pack?

The “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between the battery pack and an optional AC adaptor / charger.

The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes.


## Charging the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F) until the CHG lamp goes off, indicating that the battery pack is fully charged. If you charge the battery outside of this temperature range, you may not be able to efficiently charge the battery pack.
- After charging is completed, either disconnect the cable from the DC IN jack on your camcorder or remove the battery pack.

## Effective use of the battery pack

- Battery pack performance decreases in low-temperature surroundings. So, the time that the battery pack can be used becomes shorter. We recommend the following to use the battery pack longer:
  - Put the battery pack in a pocket to warm it up, and insert it in your camcorder immediately before you start taking shots.
  - Use the large capacity battery pack (NP-FM70/FM90/FM91, optional).
- Frequently using the LCD panel or frequently operating playback, fast forward or rewind wears out the battery pack faster. We recommend using the large capacity battery pack (NP-FM70/FM90/FM91, optional).
- Be certain to turn off the power switch when not taking shots or playing back on your camcorder. The battery pack is also consumed when your camcorder is in the standby mode or playback is paused.
- Have spare battery packs handy for two or three times the expected recording time, and make trial recordings before taking the actual recording.
- Do not expose the battery pack to water. The battery pack is not water resistant.

## Remaining battery time indicator

- If the power may go off although the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again so that the indication on the remaining battery time indicator is correct. Note, however, that the correct battery indication sometimes will not be restored if it is used in high temperatures for a long time or left in a fully charged state, or the battery pack is frequently used. Regard the remaining battery time indication as the approximate recording time.
- The  mark indicating there is little remaining battery time sometimes flashes depending on the operating conditions or ambient temperature and environment even if the remaining battery time is about five to ten minutes.

### How to store the battery pack

- If the battery pack is not used for a long time, do the following procedure once per year to maintain proper function.
  1. Fully charge the battery.
  2. Discharge on your electronic equipment.
  3. Remove the battery from the equipment and store it in a dry, cool place.
- To use the battery pack up on your camcorder, leave your camcorder in the recording mode until the power goes off without a cassette inserted.

### Battery life

- The battery life is limited. Battery capacity drops little by little as you use it more and more, and as time passes. When the available battery time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Please buy a new battery pack.
- The battery life varies according to how it is stored and operating conditions and environment for each battery pack.

# About i.LINK

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The DV jack on this unit is an i.LINK-compliant DV input/output jack. This section describes the i.LINK standard and its features.

## What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in two directions between equipment having the i.LINK jack, and for controlling other equipment.

i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment. When two or more i.LINK-compatible equipment are connected to this unit in a daisy chain, operations and data transactions are possible with not only the equipment that this unit is connected to but also with other devices via the directly connected equipment.

Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

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## Note

Normally, only one piece of equipment can be connected to this unit by the i.LINK cable (DV cable). When connecting this unit to i.LINK-compatible equipment having two or more i.LINK jacks (DV jacks), refer to the instruction manual of the equipment to be connected.

## About the Name "i.LINK"

i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by SONY, and is a trademark approved by many corporations. IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronic Engineers.

## i.LINK Baud rate

i.LINK's maximum baud rate varies according to the equipment. Three maximum baud rates are defined:

- S100 (approx. 100Mbps\*)
- S200 (approx. 200Mbps)
- S400 (approx. 400Mbps)

The baud rate is listed under "Specifications" in the instruction manual of each equipment. It is also indicated near the i.LINK jack on some equipment. The maximum baud rate of equipment on which it is not indicated such as this unit is "S100".

When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

## \*What is Mbps?

Mbps stands for megabits per second, or the amount of data that can be sent or received in one second. For example, a baud rate of 100Mbps means that 100 megabits of data can be sent in one second.

### i.LINK functions on this unit

For details on how to dub when this unit is connected to other video equipment having DV jacks, see page xx and xx.


This unit can also be connected to other i.LINK (DV) compatible equipment made by SONY (e.g. VAIO series personal computer) other than video equipment.

Before connecting this unit to a personal computer, make sure that application software supported by this unit is already installed on the personal computer.

For details on precautions when connecting this unit, also refer to the instruction manuals for the equipment to be connected.

### Required i.LINK Cable

Use the Sony i.LINK 4-pin-to-4-pin cable (during DV dubbing).

i.LINK and  are trademarks.



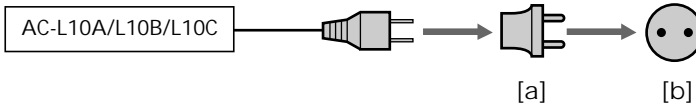
# Using your camcorder abroad

## Using your camcorder abroad

Countries and areas where you can use network functions are restricted. For details, refer to the separate Network Operating Instructions. (DCR-PC120BT only)

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

When charging the battery pack, use a commercially available AC plug adaptor [a], if necessary, depending on the design of the wall outlet [b].



Your camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV with the AUDIO/VIDEO input jack.

The following shows TV color systems used overseas.

### NTSC system

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

### PAL system

Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

### PAL-M system

Brazil

### PAL-N system

Argentina, Paraguay, Uruguay

### SECAM system



Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

## Simple setting of clock by time difference


You can easily set the clock to the local time by setting a time difference. Select AREA SET, SUMMERTIME in the menu settings. See page xxx for more information.

# Maintenance information and precautions

## Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your 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 your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the  indicator flashes. When the  indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

### If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about one hour with the cassette lid open. Your camcorder can be used again if the  indicator does not appear when the power is turned on again.

If moisture starts to condense, your camcorder sometimes cannot detect condensation. If this happens, the cassette sometimes is not ejected for ten seconds after the cassette lid is opened. This is not a malfunction. Do not close the cassette lid until the cassette is ejected.

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### Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

- You bring your camcorder from a ski slope into a place warmed up by a heating device.
- You bring your camcorder from an air-conditioned car or room into a hot place outside.
- You use your camcorder after a squall or a shower.
- You use your camcorder in a high temperature and humidity place.




### How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about one hour).

## Maintenance information

### Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:

- mosaic-pattern noise appears on the playback picture.
- playback pictures do not move.
- playback pictures do not appear.
- the  indicator and “ CLEANING CASSETTE” message appear one after another or the  indicator flashes on the screen during recording.

If the above problem, [a], [b] or [c] occurs, clean the video heads for 10 seconds with the Sony DVM-12CLD cleaning cassette (optional). Check the picture and if the above problem persists, repeat cleaning.

[a]



[b]



[c]






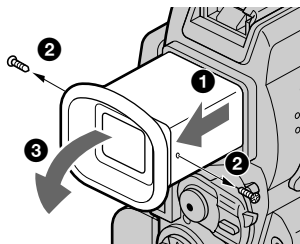
If the video heads get dirtier, the entire screen becomes blue [c].


### Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (optional) to clean the LCD screen.

## Removing dust from inside the viewfinder

- (1) Pull out the viewfinder in the direction of the arrow  1.  
Remove the two screws in the direction of the arrow  2 with a screwdriver (optional). Remove the eyecup in the direction of the arrow  3.



- (2) Remove dust from inside the eyecup and viewfinder with a commercially available blower.
- (3) In the reverse way of (1), attach the eyecup. Then replace the screws in the direction of the arrow  2.

### Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

### Notes

- Do not drop or bend the eyecup shaft.
- Be careful when handling the eyecup.

### Charging the built-in rechargeable battery

Your camcorder is supplied with a built-in rechargeable battery installed so as to retain the date and time, etc., regardless of the setting of the POWER switch. The built-in rechargeable battery is always charged as long as you are using your camcorder. The battery, however, will get discharged gradually if you do not use your camcorder. It will be completely discharged in about three months if you do not use your camcorder at all. Even if the built-in rechargeable battery is not charged, it will not affect the camcorder operation. To retain the date and time, etc., charge the battery if the battery is discharged.

Charging the built-in rechargeable battery:

- Connect your camcorder to house current using the AC power adaptor supplied with your camcorder, and leave your camcorder with the POWER switch turned off for more than 24 hours.
- Or install the fully charged battery pack in your camcorder, and leave your camcorder with the POWER switch set to OFF for more than 24 hours.

### Precautions

#### Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

#### On handling tapes

- Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.
- Do not open the tape protect cover or touch the tape.
- Avoid touching or damaging the terminals. To remove dust, clean the terminals with a soft cloth.

### Camcorder care

- Remove the tape, and periodically turn on the power, operate the CAMERA and VCR sections and play back a tape for about three minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them 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.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

### AC power adaptor

- Unplug the unit from the wall outlet when you are not using the unit for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

### About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instance:
  - When there are fingerprints on the lens surface
  - In hot or humid locations
  - When the lens is used in environments such as the seaside
- Store the lens in a well-ventilated location subject to little dirt or dust.

To prevent mold from occurring, periodically perform the above.

We recommend turning on and operating the video camera recorder about once per month to keep the video camera recorder in an optimum state for a long time.

### Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.

### Notes on dry batteries

To avoid possible damage from battery leakage or corrosion, observe the following:

- Be sure to insert the batteries with the + - polarities matched to the + - marks.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- Current flows from batteries when you are not using them for a long time.
- Do not use leaking batteries.

If batteries are leaking


- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.



If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

# Specifications

## Video camera recorder

### System

Video recording system  
2 rotary heads  
Helical scanning system  
Audio recording system  
Rotary heads, PCM system  
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)  
Video signal  
NTSC color, EIA standards  
Usable cassette  
Mini DV cassette with the  mark printed  
Tape speed  
SP: Approx. 18.81 mm/s  
LP: Approx. 12.56 mm/s  
Recording/playback time (using cassette DVM60)  
SP: 1 hour  
LP: 1.5 hours  
Fastforward/rewind time (using cassette DVM60)  
When using the battery pack:  
Approx. 2 min. and 30 seconds  
When using the AC power adaptor:  
Approx. 1 min. and 45 seconds  
Viewfinder  
Electric viewfinder (color)  
Image device  
4.5 mm (1/4 type) CCD (Charge Coupled Device)  
Approx. 1 550 000 pixels (Effective (moving): 970 000 pixels)  
(Effective (still): 1 390 000 pixels)  
Lens  
Carl Zeiss Vario-Sonnar T\*  
Combined power zoom lens  
Filter diameter: 37 mm (1 1/2 in)  
10× (Optical), 120× (Digital)  
Focal length  
4.2 – 42 mm (3/16 – 1 11/16 in.)  
When converted to a 35 mm still camera  
Camera mode:  
48 – 480 mm (1 15/16 – 19 in.)  
Memory mode:  
40 – 400 mm (1 5/8 – 15 3/4 in.)

Color temperature  
Auto, HOLD (Hold),  Indoor (3 200 K),  Outdoor (5 800 K)  
Minimum illumination  
7 lx (lux) (F 1.8)  
0 lx (lux) (in the NightShot mode)\*

\* Objects unable to be seen due to the dark can be shot with infrared lighting.

### Input/Output connectors

S video input/output  
4-pin mini DIN  
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced  
Chrominance signal: 0.286 Vp-p, 75 Ω (ohms), unbalanced  
Audio/Video input/output  
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative  
327 mV, (at output impedance more than 47 kΩ (kilohms))  
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5 mm)  
Input impedance more than 47 kΩ (kilohms)  
DV input/output  
4-pin connector  
Headphone jack  
Stereo minijack (ø 3.5 mm)  
LANC jack  
Stereo mini-minijack (ø 2.5 mm)  
USB jack  
mini-B  
MIC jack  
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (kilohms) (ø 3.5 mm)  
Stereo type

### LCD screen

Picture  
6.2 cm (2.5 type)  
50 × 37 mm (2 × 1 1/2 in.)  
Total dot number  
211 200 (960 × 220)

### Wireless communications

(DCR-PC120BT only)  
Communications system  
Bluetooth standard Ver. 1.1  
Max. baud rate<sup>1)</sup> Approx. 723 kbps  
Output Bluetooth standard  
Power Class 2  
Communications distance<sup>2)</sup>  
Max. wireless distance  
Approx. 10 m  
Compatible Bluetooth profile<sup>3)</sup>  
Generic Access Profile  
Dial-up Networking Profile  
Operating frequency band  
2.4 GHz band (2 400 GHz – 24 835 GHz)

- 1) Max. baud rate of Bluetooth standard Ver.1.1
- 2) Varies according to the distance between communicating devices, presence of obstacles, radiowave conditions, and other factors.
- 3) This is a specification matched to specific usage requirements between Bluetooth-compatible devices. It is laid down in the Bluetooth standards.

# Specifications

## General

Power requirements

7.2 V (battery pack)

8.4 V (AC power adaptor)

Average power consumption  
(when using the battery pack)

During camera recording using  
LCD

4.4 W

Viewfinder

3.8 W

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.)

113 × 118 × 57 mm

(4 1/2 × 4 3/4 × 2 1/4 in.)

(w/h/d)

Mass (approx.)

580 g (x lb x oz)

main unit only

690 g (x lb xx oz)

including the battery pack,  
NP-FM50, cassette DVM60, lens  
cap and shoulder strap

Supplied accessories

See page x.

## AC power adaptor

Power requirements

100 – 240 V AC, 50/60 Hz

Power consumption

23 W

Output voltage

DC OUT: 8.4 V, 1.5 A in the  
operating mode

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.)

125 × 39 × 62 mm

(5 × 1 9/16 × 2 1/2 in.) (w/h/d)

excluding projecting parts

Mass (approx.)

280 g (9.8 oz)

excluding power cord

Cord length (approx.)

Power cord: 2 m (6.6 feet)

Connecting cord: 1.6 m

(5.2 feet)

## Battery pack

Maximum output voltage

DC 8.4 V

Output voltage

DC 7.2 V

Capacity

8.5 Wh (1 180 mAh)

Dimensions (approx.)

38.2 × 20.5 × 55.6 mm

(1 9/16 × 13/16 × 2 1/4 in.)

(w/h/d)

Mass (approx.)

76 g (2.7 oz)

Type

Lithium ion

## "Memory Stick"

Memory

Flash memory

8MB: MSA-8A

Operating voltage

2.7 – 3.6 V

Power consumption

Approx. 45 mA in the operating  
mode

Approx. 130 µA in the standby  
mode

Dimensions (approx.)

50 × 2.8 × 21.5 mm

(2 × 1/8 × 7/8 in.) (w/h/d)

Mass (approx.)

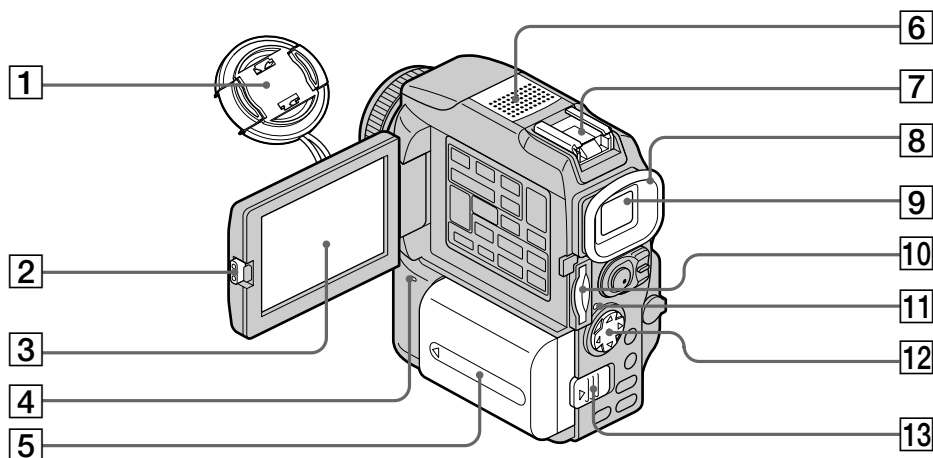
4 g (0.14 oz)


Design and specifications are  
subject to change without  
notice.



# Identifying the parts and controls

## Camcorder



- |  |                                      |
|--|--------------------------------------|
| 1 Lens Cap (p. xx)   | 6 Microphone                         |
| 2 OPEN button (p. xx)  | 7 Intelligent accessory shoe (p. xx) |
| 3 LCD screen (p. xx)   | 8 Eyecup                             |
| 4  (Bluetooth) lamp (DCR-PC120 BT only) | 9 Viewfinder (p. xx)                 |
| 5 Battery pack/Battery terminal cover (p. xx)  | 10 "Memory Stick" slot (p. xx)       |
|  | 11 Access lamp (p. xx)               |
|  | 12 Control button (p. xx)            |
|  | 13 BATT RELEASE lever (p. xx)        |



This mark indicates that this product is a genuine accessory for Sony video products.

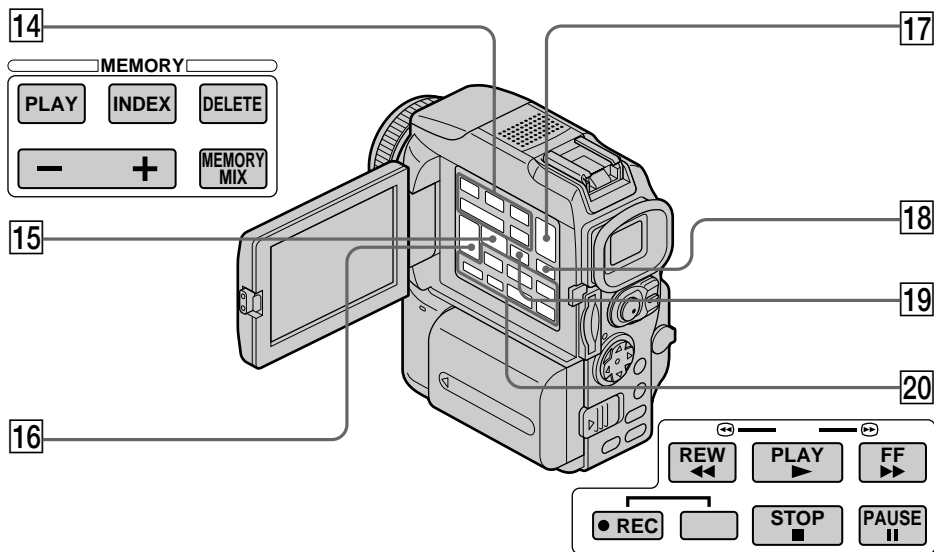
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.



Notes on the intelligent accessory shoe

- The intelligent accessory shoe supplies power to optional accessories such as a video light or microphone.
- The intelligent accessory shoe is linked to the POWER switch, allowing you to turn the power supplied by the shoe on and off. Refer to the operating instructions of the accessory for further information.
- The intelligent accessory shoe has a safety device for fixing the installed accessory securely. To connect an accessory, press down and push it to the end, and then tighten the screw.
- To remove an accessory, loosen the screw, and then press down and pull out the accessory.

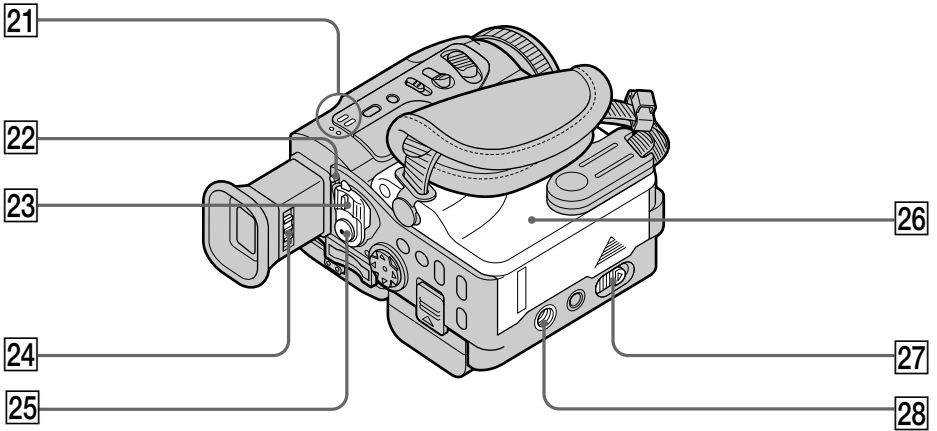
## Identifying the parts and controls



- 14** MEMORY operation buttons  
MEMORY PLAY button (p. xx)  
MEMORY INDEX button (p. xx)  
MEMORY DELETE button (p. xx)  
MEMORY +/- buttons (p. xx)  
MEMORY MIX button (p. xx)
- 15** MPEG ►||/PB ZOOM button  
(p. xx, xx, xx)
- 16** VOLUME buttons (p. xx)
- 17** EDITSEARCH button (p. xx, xx)
- 18** DISPLAY button (p. xx)
- 19** END SEARCH button (p. xx)
- 20** Video control buttons (p. xx)
  - STOP (stop)
  - ◀◀ REW (rewind)
  - ▶▶ PLAY (playback)
  - ▶▶ FF (fastforward)
  - || PAUSE (pause)
  - REC (record)

## Identifying the parts and controls

---



**21** Speaker (p. xx)

**22** LOCK switch (p. xx)

**23** POWER switch (p. xx)

**24** Viewfinder lens adjustment lever  
(p. xx)

**25** START/STOP button (p. xx)

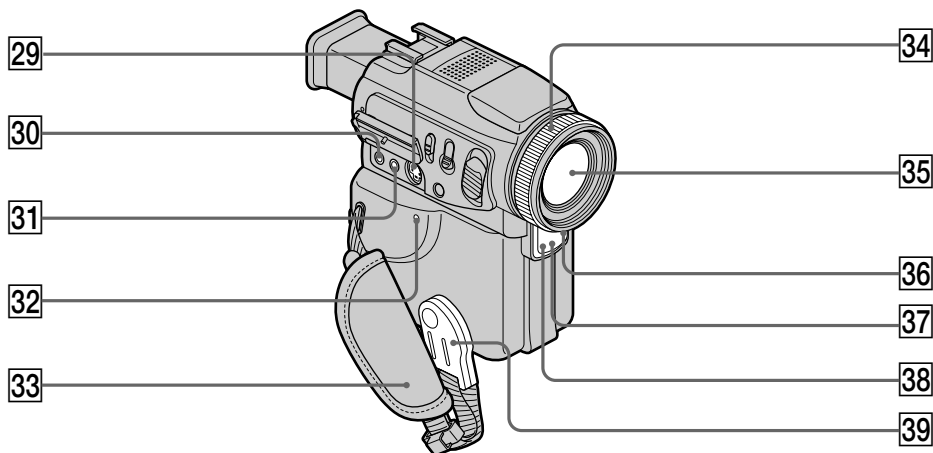
**26** Cassette lid (p. xx)

**27** OPEN/▲ EJECT lever (p. xx)

**28** Tripod receptacle

Make sure that the length of the tripod screw is less than 5.5 mm (7/32 inch). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

## Identifying the parts and controls



29 S VIDEO ID-2 jack (p. xx, xx, xx, xx)

30 MIC (PLUG IN POWER) jack  
Connect an external microphone (optional). This jack also accepts a “plug-in-power” microphone.

31 AUDIO/VIDEO ID-2 jack  
(p. xx, xx, xx, xx)

32 RESET button (p. xx)

33 Grip strap

34 Focus ring (p. xx)

35 Lens

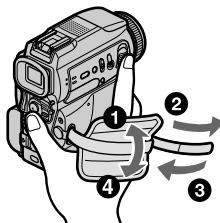
36 Camera recording lamp (p. xx)

37 Infrared rays emitter (p. xx, xx, xx)

38 Remote sensor

39 Holdind Grip

### Fastening the grip strap



Fasten the grip strap firmly.

#### Note on the Carl Zeiss lens

Your camcorder is equipped with a Carl Zeiss lens which can reproduce a fine image.

The lens for your camcorder was developed jointly by Carl Zeiss, in Germany, and Sony Corporation. It adopts the MTF\* measurement system for video camera and offers a quality as the Carl Zeiss lens.

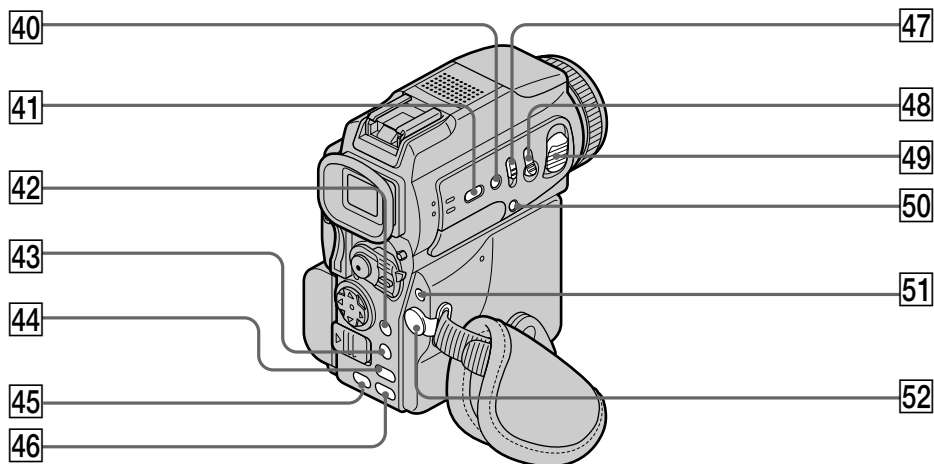
The lens for your camcorder is also T\*-coated to suppress unwanted reflection and faithfully reproduce colors.

\* MTF is an abbreviation of Modulation Transfer Function.

The value number indicates the amount of light of a subject penetrating into the lens.

## Identifying the parts and controls

---



40 SUPER NIGHTSHOT button (p. xx)

41 FOCUS button (p. xx)

42 NETWORK button (p. xx)

43 BROWSER MENU/MENU button  
(p. xx/xx) (DCR-PC120BT only)/  
MENU button (p. xx) (DCR-PC115 only)

44 EXPOSURE button (p. xx)


45 BACK LIGHT button (p. xx)


46 FADER button (p. xx)

47 NIGHTSHOT switch (p. xx)

48 PHOTO button (p. xx, xx)

49 Power zoom lever (p. xx, xx, xx)

50  (self-timer) button (p. xx, xx)

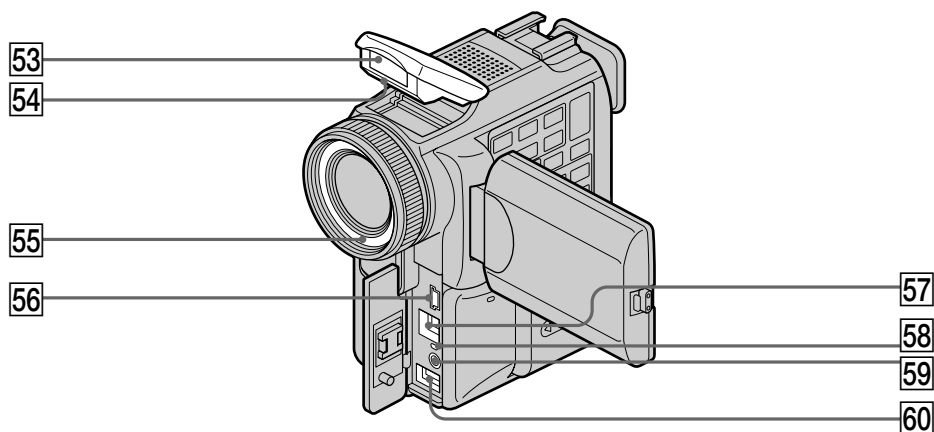
51  (flash) button (p. xx, xx)

52  (headphones) jack

When you use headphones, the speaker on your camcorder is silent.

## Identifying the parts and controls


---




53 Flash (p. xx, xx)

54 HOLOGRAM AF emitter (p. xx)

55 Photocell window for flash  
Do not block this window when recording.

56  (USB) jack (p. xx)

57  DV jack (p. xx, xx, xx)

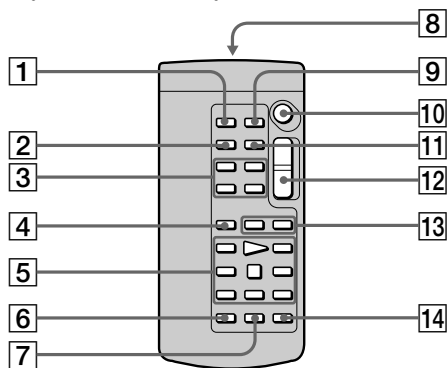
58 CHG (charge) lamp (p. xx)

59  LANC jack

60 DC IN jack (p. xx)

### Remote Commander

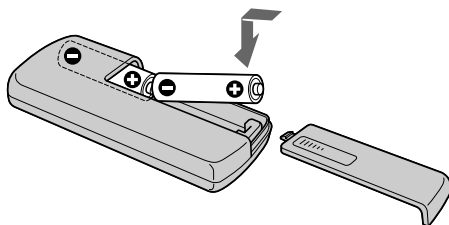
The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



- |   |   |
|---|---|
| <b>1</b> PHOTO button (p. xx, xx)           | <b>8</b> Transmitter<br>Point toward the remote sensor to control your camcorder after turning on your camcorder. |
| <b>2</b> DISPLAY button (p. xx)             | <b>9</b> ZERO SET MEMORY button (p. xx, xx)   |
| <b>3</b> Memory control buttons (p. xx)     | <b>10</b> START/STOP button (p. xx)   |
| <b>4</b> SEARCH MODE button (p. xx, xx, xx) | <b>11</b> DATA CODE button (p. xx)  |
| <b>5</b> Video control buttons (p. xx)      | <b>12</b> Power zoom button (p. xx)   |
| <b>6</b> REC button (p. xx, xx, xx)         | <b>13</b> ◀▶ buttons (p. xx)  |
| <b>7</b> MARK button (p. xx, xx)            | <b>14</b> AUDIO DUB button (p. xx)  |

To prepare the Remote Commander

Insert two size AA (R6) batteries by matching the + and - polarities on the batteries to the + - marks inside the battery compartment.

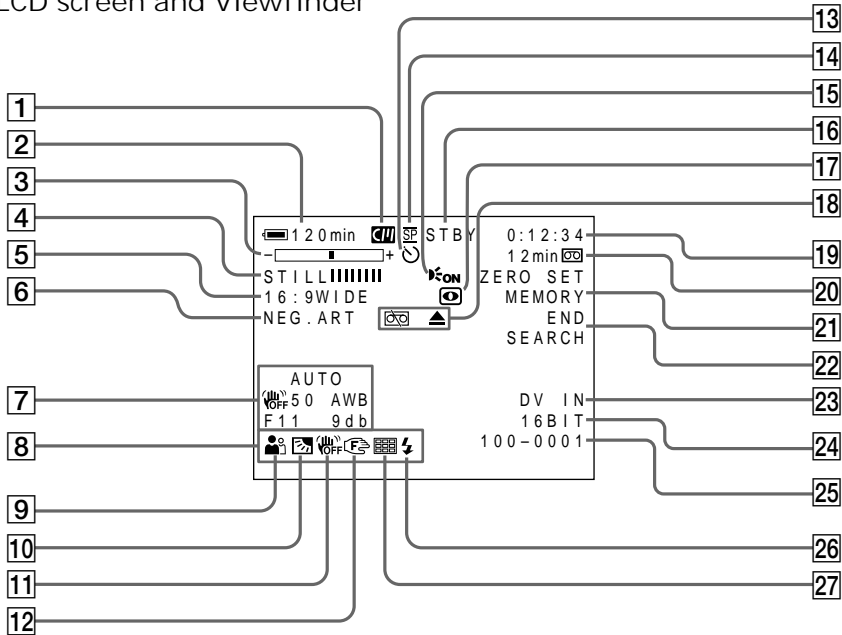


#### Notes on the Remote Commander

- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

## Operation indicators

### LCD screen and Viewfinder



- 1 Cassette memory (p. xx, xx)
- 2 Remaining battery time (p. xx)
- 3 Zoom (p. xx)/Exposure (p. xx)/  
Data file name (p. xx)
- 4 Digital effect (p. xx, xx)/MEMORY MIX  
(p. xx)/FADER (p. xx)
- 5 16:9WIDE (p. xx)
- 6 Picture effect (p. xx, xx)
- 7 Data code (p. xx)
- 8 Volume (p. xx)/Date (p. xx)
- 9 PROGRAM AE (p. xx)
- 10 Backlight (p. xx)
- 11 SteadyShot off (p. xx)
- 12 Manual focus/Infinity (p. xx)
- 13 Self-timer (p. xx, xx)
- 14 Recording mode (p. xx, xx)
- 15 HOLOGRAM AF (p. xx)
- 16 STBY/REC (p. xx)/Video control mode  
(p. xx)/Image size (p. xx)/Image  
quality mode (p. xx)
- 17 NIGHTSHOT (p. xx)/SUPER NIGHTSHOT  
(p. xx)

- 18 Warning (p. xx)
- 19 Tape counter (p. xx)/Time code (p. xx)/  
Self-diagnosis (p. xx)/Tape photo  
(p. xx)/Memory photo (p. xx)/  
Image number (p. xx, xx)
- 20 Remaining tape (p. xx)/Memory  
playback (p. xx)
- 21 ZERO SET MEMORY (p. xx)
- 22 END SEARCH (p. xx)
- 23 A/V → DV (p. xx)/DV IN (p. xx)
- 24 Audio mode (p. xx)
- 25 Data file name (p. xx)/Time (p. xx)
- 26 Flash (p. xx, xx)  
**This indicator appears only when the  
flash is in use.**
- 27 Continuous mode (p. xx)



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