SONY

3-062-473-**12**(1)

Digital Still Camera

Operating Instructions

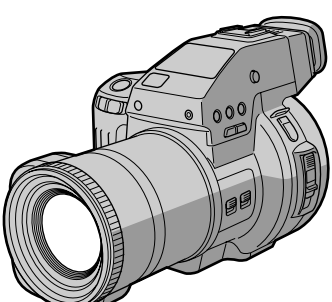
Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Owner's Record

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

Model No. MVC-CD1000

Serial No. _____



Mavica

COMPACT disc Recordable

InfoLITHIUM L SERIES

MVC-CD1000

©2000 Sony Corporation

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

For the Customers in the U.S.A.

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

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

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this camera is harmful to eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

If you have any questions about this product, you may call: Sony Customer Information Services Center 1-800-222-SONY (7669) or write to: Sony Customer Information Services Center 12451 Gateway Boulevard Ft. Myers, Florida 33913

CAUTION

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

Declaration of Conformity

Trade name:	SONY
Model No.:	MVC-CD1000
Responsible Party:	Sony Electronics Inc.
Address:	1 Sony Drive, Park Ridge, NJ 07656 USA
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

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

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

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the Customers in the U.S.A. and Canada

DISPOSAL OF LITHIUM ION BATTERY.

LITHIUM ION BATTERY.

DISPOSE OF PROPERLY.

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

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

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

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

For the Customers in Canada

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

For the Customers in the United Kingdom

A moulded plug complying with BS 1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS 1362, (i.e. marked with ♆ or ⊛ mark) must be used.
If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

For the Customers in Germany

Directive:EMC Directive 89/336/EEC.92/31/EEC
This equipment complies with the EMC regulations when used under the following circumstances:
• Residential area
• Business district
• Light-industry district
(This equipment complies with the EMC standard regulations EN55022 Class B.)

For the Customers in Europe

Attention
The electromagnetic fields at the specific frequencies may influence the picture and sound of this camera.

Be sure to read the following before using your camera

Operating instructions

Before operating the unit, please read this manual thoroughly, and retain it for future reference.
Before you start reading this manual and operating the unit, check the model number.
As you read through this manual, buttons and settings on the camera are shown in capital letters.
e.g. Press DISPLAY.
This digital still camera uses 8 cm CD-Rs as recording media. “CD-R” mentioned above is indicated as “disc” in this manual.

- **We recommend that you use this camera with Mavica discs*.**
- **While the image is being recorded on the disc, the ACCESS lamp lights up (red). When this lamp is lit, do not shake or strike the camera.**

* The Mavica disc is an 8 cm CD-R with the Mavica logo.

Trial recording

Before you record one-time events, you may want to make a trial recording to make sure that the camera is working correctly.

Note on image data compatibility

This camera conforms with the Design Rules for Camera File Systems universal standard established by the JEIDA (Japan Electronic Industries Development Association).

No compensation for contents of the recording

Contents of the recording cannot be compensated for if recording or playback is not possible due to a malfunction of your camera, etc.

Precaution on copyright

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

Do not shake or strike the camera

In addition to malfunctions and inability to record images, this may render the discs unusable or image data breakdown, damage or loss may occur.

LCD screen, viewfinder, and lens

- The LCD screen and viewfinder are manufactured using high-precision technology. However, there may be some tiny black points and/or bright points (red, blue or green in color) that constantly appear on the LCD screen or on the viewfinder. These points are normal in the manufacturing process and do not affect the recording in any way. Over 99.99% of the pixels are operational for effective use.
- Be careful when placing the camera near a window or outdoors. Exposing the LCD screen, viewfinder, or lens to direct sunlight for long periods may cause malfunctions.

Do not get the camera wet

When taking pictures outdoors in the rain or under similar conditions, be careful not to get the camera wet. If moisture condensation occurs, refer to page 64 and follow the instructions on how to remove it before using the camera.

Back up recommendation

To avoid the potential risk of data loss, always copy (back up) data to a disc.

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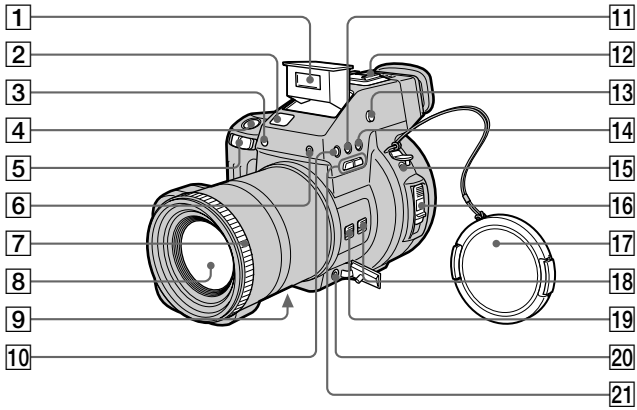
Identifying the parts

See the pages in parentheses for details of operation.



1 **Flash (22)**

2 **Built-in microphone**
Do not touch while recording.

3 **Self-timer lamp/Recording lamp (22, 24)**

4 **Shutter button (18, 24)**

5 **Zoom lever (20)**

6 **Photocell window for flash**
Do not block while recording.

7 **Focus ring (50)**

8 **Lens**

9 **DIGITAL I/O jack (34)**

10 **PROGRAM AE button (51)**

11 **WHITE BALANCE button (53)**

12 **Accessory shoe**

13 **OPEN (FLASH) button (22)**

14 **(One-push white balance) button (53)**

15 **(External flash) jack**

16 **Disc cover OPEN lever (15)**

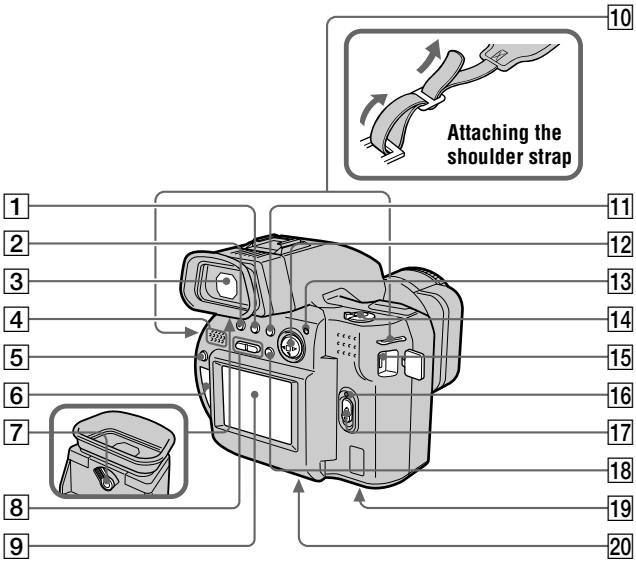
17 **Lens cap (supplied)**

18 **STEADY SHOT ON/OFF switch (21)**

19 **FOCUS AUTO/MANUAL switch (50)**

20 **A/V OUT (MONO) jack (59)**
Audio output is monaural.

21 **PROGRAM AE +/– buttons (51)**



1 **(Macro) button (50)**

2 **(Flash) button (22)**

3 **Viewfinder (19)**

4 **Speaker**

5 **DISPLAY button (21)**

6 **Disc window**

7 **Viewfinder adjustment lever (19)**

8 **VOLUME+/– buttons (27)**

9 **LCD screen**

10 **Hooks for strap**

11 **SPOT METER button (52)**

12 **Control button (40)**

13 **ACCESS lamp (18)**
Do not shake or strike the camera while the ACCESS lamp is lit.

14 **PLAY/STILL/MOVIE selector (40)**

15 **DC IN jack (9, 11)**

16 **POWER ON/OFF (CHG) lamp (9)**

17 **POWER switch (12)**

18 **LCD (ON/OFF) button (19)**

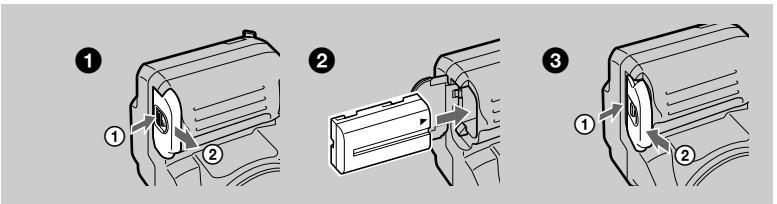
19 **Battery cover/PUSH button (bottom surface) (8)**

20 **Tripod receptacle (bottom surface)**
Use a tripod with a screw length of less than 7/32 inch (6.5 mm). You will be unable to firmly secure the camera to tripods having longer screws, and may damage the camera.

Preparing the power supply

Installing the battery pack

Your camera operates only with the NP-F550 (supplied) “InfoLITHIUM” battery pack* (L series).



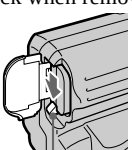
1 Open the battery cover.
Slide the battery cover in the direction of the arrow while pressing the PUSH button.

2 Install the battery pack.
Insert the battery pack with the ▲ mark facing toward the battery compartment as illustrated.

3 Close the battery cover.

To remove the battery pack

Open the battery cover. Slide the battery eject lever rightward, and remove the battery pack.
Be careful not to drop the battery pack when removing it.



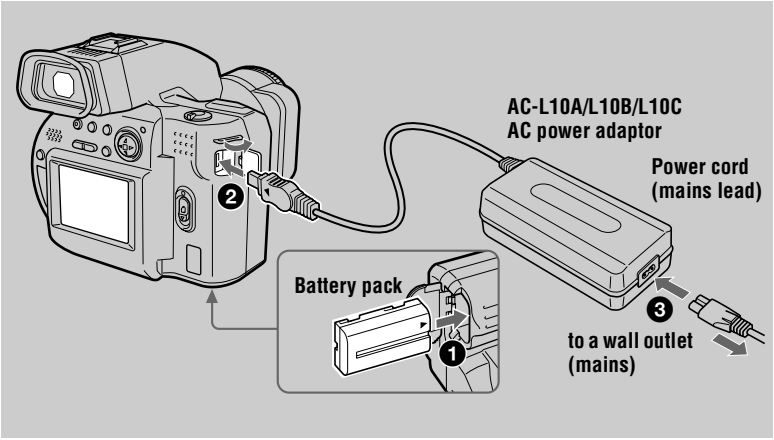
Battery eject lever

**** What is “InfoLITHIUM”?***

“InfoLITHIUM” is a lithium ion battery pack which can exchange information such as battery consumption with compatible video equipment. “InfoLITHIUM” L series battery packs have the InfoLITHIUM L mark. “InfoLITHIUM” is a trademark of Sony Corporation.

Charging the battery pack

When the camera is turned on, you cannot charge the battery pack. Be sure to turn off the power of the camera.



1 Insert the battery pack into your camera.

2 Open the DC IN cover and connect the DC connecting plug to the DC IN jack of your camera with the ▲ mark facing up.

3 Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (mains).
The POWER ON/OFF (CHG) lamp (amber) above the control button lights up when charging begins. When the POWER ON/OFF (CHG) lamp goes off, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack inserted for about one hour after normal charge is completed.

Battery remaining indicator

The LCD screen or viewfinder on the camera shows the remaining time for which you can still record or play back images.
This indication may not be entirely accurate depending on the conditions of use and the operating environment.

Auto power-off function

If you do not operate the camera for about three minutes during recording, the camera turns off automatically to prevent wearing down the battery pack. To use the camera again, slide the POWER switch downward to turn on the camera again.

Charging time

Battery pack	Full charge (min.)	Normal charge (min.)
NP-F550 (supplied)	Approx. 210	Approx. 150

Approximate time to charge a completely discharged battery pack using the AC-L10A/L10B/L10C AC power adaptor. (Lower temperatures require a longer charging time.)

Battery life and number of images that can be recorded/played back

STILL mode recording/playback

	Battery pack	Battery life (min.)	Number of images
Continuous recording*	NP-F550 (supplied)	Approx. 100 (90)	Approx. 1100 (1000)
Continuous playback**	NP-F550 (supplied)	Approx. 120 (110)	Approx. 1000 (900)

Approximate battery life and number of images that can be recorded/played back with a fully charged battery pack at a temperature of 77 °F (25 °C), 640×480 image size and in NORMAL recording mode. Numbers in parentheses indicate the time when you use a normally charged battery pack.

* Recording at about 5-second intervals

** Playing back single images continuously at about 7-second intervals

MOVIE mode recording

	Battery pack	Battery life (min.)
Continuous recording	NP-F550 (supplied)	Approx. 120 (110)

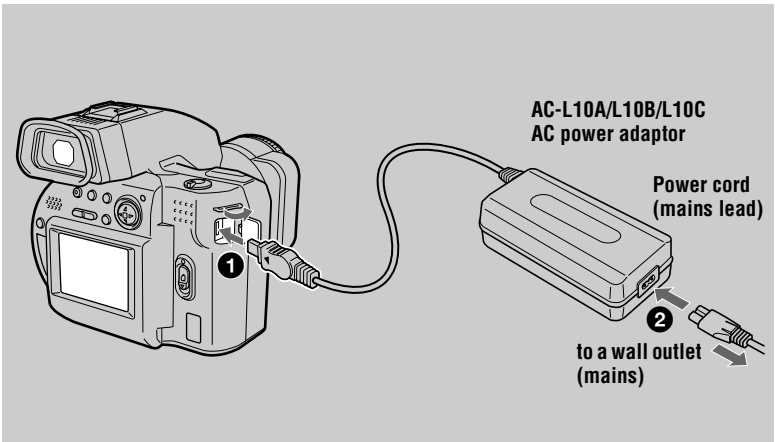
Approximate time that can be recorded with a fully charged battery pack at a temperature of 77 °F (25 °C) and 160×112 image size. Numbers in parentheses indicate the time when you use a normally charged battery pack.

Notes

- The battery life and number of images will be decreased when using at low temperature, using the flash, turning the power on/off frequently, or using the zoom.
- The number of images shown on tables above is as a guide. The number may be smaller depending on conditions.
- If sufficient battery remaining time is indicated but the battery power runs out, fully charge the battery using the full charge procedure.

• Do not short the DC plug of the AC power adaptor with a metallic object, as this may cause malfunction.
• Do not expose the battery pack to water.

Using the AC power adaptor



1 Open the DC IN cover and connect the DC connecting plug to the DC IN jack of your camera with the ▲ mark facing up.

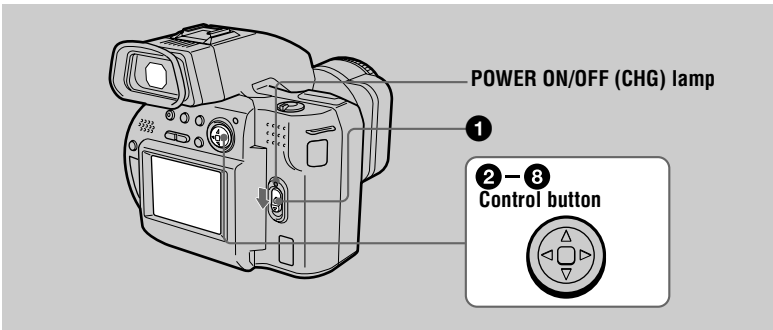
2 Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (mains).

Using a car battery

Use Sony DC adaptor/charger.

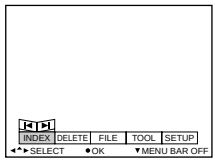
Setting the date and time

When you first use your camera, set the date and time. If these are not set, the CLOCK SET screen appears whenever you turn on your camera for recording.

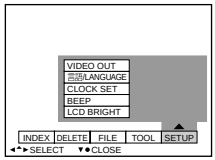


1 Slide the POWER switch downward to turn on the power.
The POWER ON/OFF (CHG) (green) lamp lights up.

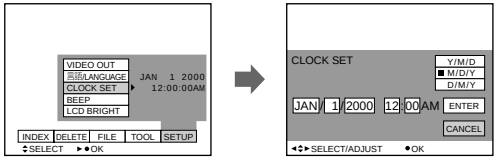
2 Press ▲ on the control button.
The menu bar appears on the LCD screen or on the viewfinder.



3 Select [SETUP] with ▶ on the control button, then press the center ■.

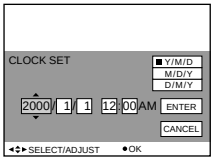


4 Select [CLOCK SET] with ▲/▼ on the control button, then press the center ■.



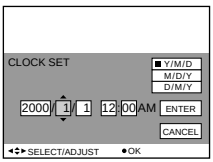
❺ Select the desired date display format with ▲/▼ on the control button, then press the center ■.

Select from [Y/M/D] (year/month/day), [M/D/Y] (month/day/year), or [D/M/Y] (day/month/year).



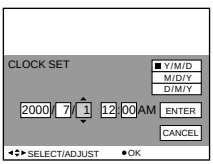
❻ Select the year, month, day, hour or minute item you want to set with ◄/► on the control button.

The item to be set is indicated with ▲/▼.



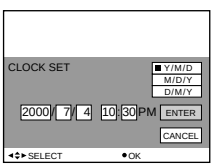
❼ Set the numeric value with ▲/▼ on the control button, then press the center ■ to enter it.

After entering the number, ▲/▼ moves to the next item. If you selected [D/M/Y] in step ❺, set the time on a 24-hour cycle.



❽ Select [ENTER] with ► on the control button, then press the center ■ at the desired moment to begin clock movement.

The date and time are entered.

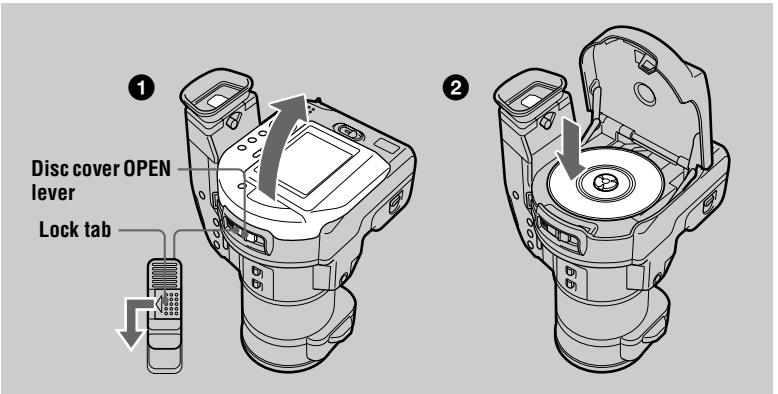


To cancel the date and time setting

Select [CANCEL] with ▲/▼/◄/► on the control button, then press the center ■.

Inserting a disc

You can use only the 8 cm CD-Rs that have this mark.

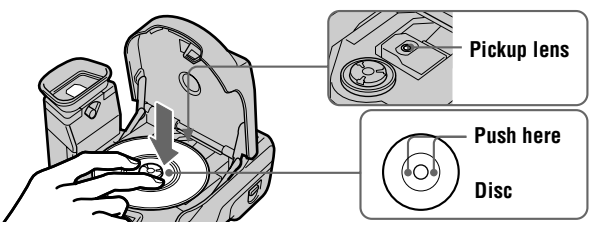


1 While sliding the lock tab to the left, slide down the disc cover OPEN lever.

Open the disc cover by your hand after the cover is unlocked.

2 Place a disc with the blue side down.

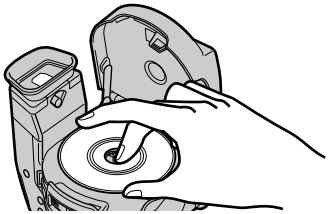
Push down the center of the disc until it clicks. When installing, do not push with too much force and do not touch the pickup lens.



3 Close the disc cover.

Removing the disc

While sliding the lock tab to the left, slide down the disc cover OPEN lever, and open the disc cover after the cover is unlocked. Then, remove the disc as illustrated below.

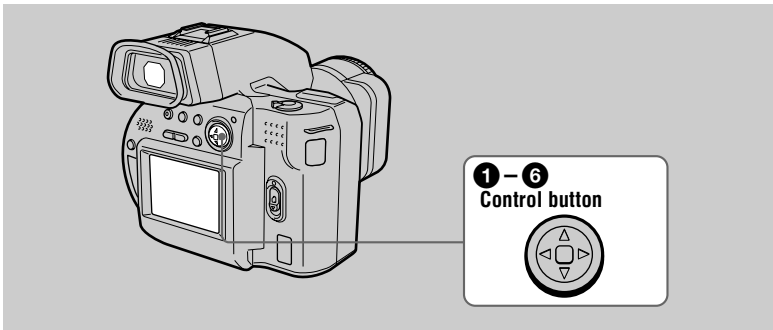


Notes

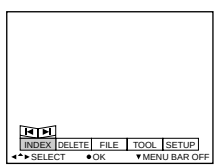
- Before removing the disc, be sure to check that the disc is not rotating.
- Do not open the disc cover while the ACCESS lamp is lit. Otherwise, the recorded image may be damaged or the disc may become unusable.

Initializing a disc (INITIALIZE)

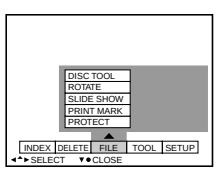
When you use a new disc, you have to initialize the disc. Slide the POWER switch downward to turn on the power before initializing a disc.



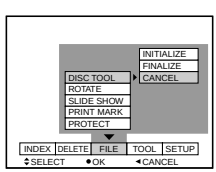
1 Press ▲ on the control button.
The menu bar appears on the LCD screen or on the viewfinder.



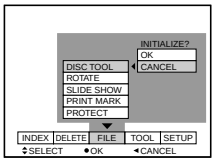
2 Select [FILE] with ► on the control button, then press the center ■.



3 Select [DISC TOOL] with ▲ on the control button, then press the center ■.

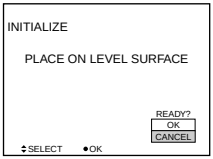


❹ Select [INITIALIZE] with ▲ on the control button, then press the center ■.



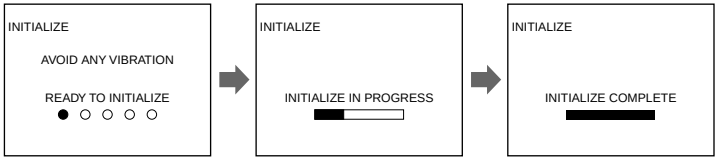
❺ Select [OK] with ▲ on the control button, then press the center ■.

"PLACE ON LEVEL SURFACE" appears on the LCD screen or on the viewfinder. Be sure to avoid any vibration during the initialization in step ❻.



❻ Select [OK] with ▲ on the control button, then press the center ■.

Initialization starts.



To cancel the initialization

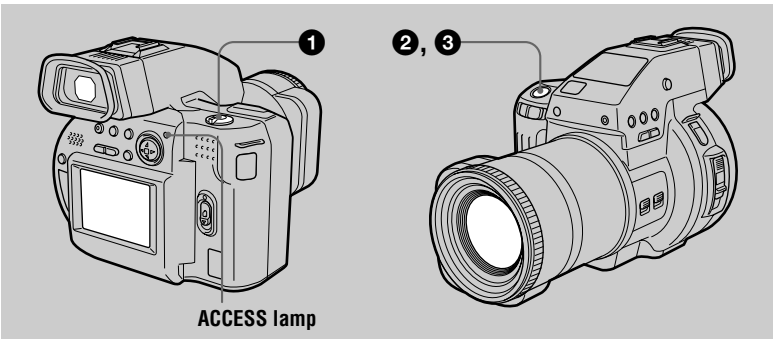
Select [CANCEL] with ▼ on the control button, then press the center ■.

What is initialization?

The initialization is required to record images on a disc.
In case that you have executed the finalization (page 29) to view images on a CD-ROM drive, you can record images on the disc if you execute the initialization again. Images previously recorded will remain on the disc.

Recording still images

To record still images, slide the POWER switch downward to turn on the power and insert a disc.

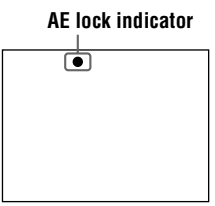


1 Set the PLAY/STILL/MOVIE selector to STILL.

2 Press and hold the shutter button halfway down and check the image.

While the AE lock indicator ● (green) is flashing, the image is frozen, however, the image is not yet recorded. When the camera finishes the automatic adjustments*, the AE lock indicator ● lights up and the camera is ready for recording.

To cancel the recording, release the shutter button.



3 Press the shutter button fully down.

The shutter clicks and the image is recorded on the disc. After "RECORDING" goes off, you can do another recording.

* The exposure and focus are automatically adjusted. The focus is not automatically adjusted when the camera is in manual focus mode.

For the number of images you can record on a disc

See page 47.

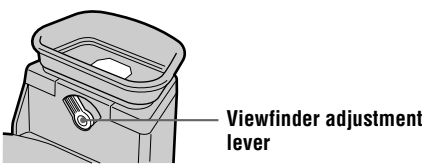
While the image is being recorded on a disc, the ACCESS lamp lights. When this lamp is lit, do not shake or strike the camera. Also, do not turn the power off, not remove the battery pack/disc, or not open the disc cover. Otherwise, an image data breakdown may occur or the disc may become unusable.

Notes

- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- When recording bright subjects, the color of the LCD screen or the viewfinder may change after the AE is locked, however, this will not affect the recorded image.
- After you change the disc, it may take about ten seconds to get ready for recording.

Recording images with the viewfinder

Adjust the viewfinder adjustment lever until the image appears clearly within the viewfinder, then record the image.

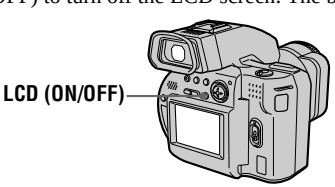


Note

The viewfinder display is automatically turned off when your face is not near the viewfinder.

To turn off the LCD screen

Press LCD (ON/OFF) to turn off the LCD screen. The battery life will be longer.



Notes

- You cannot turn off the LCD screen when the demonstration is being executed (page 46).
- When both the LCD screen and viewfinder displays are turned off, only the following will operate: LCD (ON/OFF) button, POWER switch, the PLAY/STILL/MOVIE selector, FOCUS AUTO/MANUAL switch, STEADY SHOT ON/OFF switch, focus ring, and shutter button.

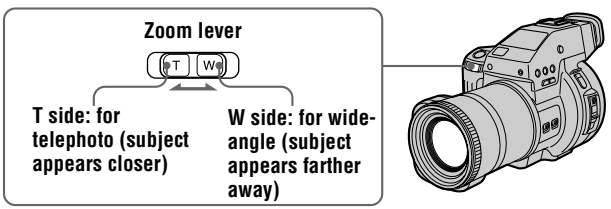
Adjusting the brightness of the LCD screen

Adjust the brightness with the [LCD BRIGHT] item in the menu settings (page 46). This adjustment does not affect the brightness of the images recorded on the disc.

Checking the last recorded image (Review)

Clear the menu bar (page 41), and press ◄ on the control button. To return to the normal recording mode, press lightly on the shutter button or select [RETURN] with ◄/► on the control button and then press the center ■. To delete the image, select [DELETE] on the review screen with ◄/► on the control button, then press the center ■. And select [OK] with ▲ on the control button, then press the center ■. However, even if you delete images, the disc remaining space does not increase.

Using the zoom feature



If you cannot get a sharp focus on a close subject

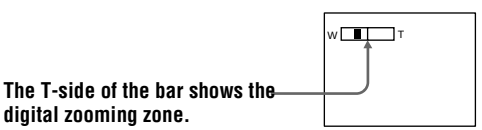
Slide the zoom lever to the W side and move closer to the subject until the focus is sharp.

Minimum focal distance to the subject

W side: About 9 7/8 inches (25 cm) or more
T side: About 31 1/2 inches (80 cm) or more
To record even closer subjects, see page 50.

Digital zoom function

This camera has a digital zoom function.
Digital zoom enlarges the image by digital processing, and it starts to function when the zoom exceeds 10×.



Using digital zoom

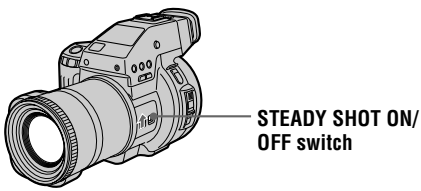
- The maximum zoom magnification is 20×.
- Digital zooming may deteriorate the picture quality. When digital zoom is not necessary, set [DIGITAL ZOOM] to [OFF] in the menu settings (page 45).

Note

Digital zoom does not work for moving images.

Activating the SteadyShot function

When the SteadyShot function is working, the camera compensates for camera-shake.



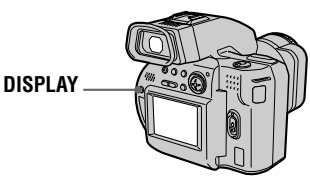
Set the STEADY SHOT ON/OFF switch to ON. The (SteadyShot) indicator appears on the LCD screen or on the viewfinder.

Notes

- The SteadyShot function will not correct excessive camera-shake.
- If you use a wide conversion lens (optional), this lens may influence the SteadyShot function.

LCD screen or viewfinder indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 75 for a detailed description of the indicators.

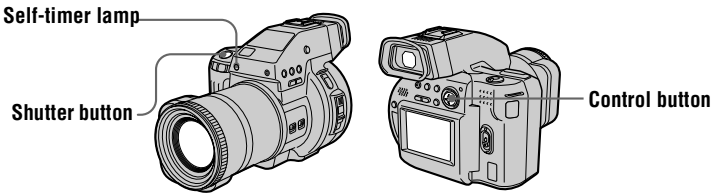


Notes

- You cannot turn off the (self-timer) indicator and some of the indicators used in advanced operations.
- The indicators on the LCD screen or on the viewfinder are not recorded.

Using the self-timer

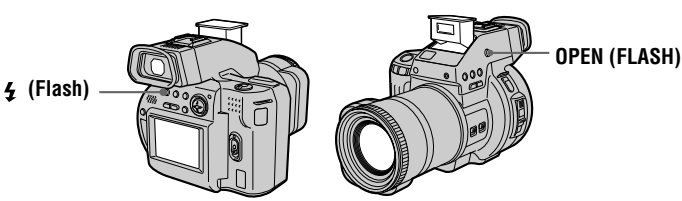
When you use the self-timer function, the subject is recorded 10 seconds after you press the shutter button.



Select ⏲ on the LCD screen with ▲/▼/◄/► on the control button, then press the center ■. The ⏲ (self-timer) indicator appears on the LCD screen or on the viewfinder, and the subject is recorded 10 seconds after you press the shutter button. The self-timer lamp flashes after you press the shutter button until the image is recorded.

Recording images with the flash

Press OPEN (FLASH) to pop up the flash. The initial setting is AUTO (no indication). In this mode, the flash automatically strobes when the surroundings become dark. When you change the flash mode, press ϟ (Flash) repeatedly so that the flash mode indicator appears on the LCD screen or on the viewfinder. This setting can be set only when the flash is popped up.



Set the PLAY/STILL/MOVIE selector to STILL. Each time you press the ϟ button, the indicator changes as follows.

(No indication) → 👁 → ϟ → ⊘ → (No indication)

- 👁 Auto red-eye reduction : The flash preparatively strobes before recording to reduce the red-eye phenomenon.
- ϟ Forced flash : The flash strobes regardless of the surrounding brightness.
- ⊘ No flash : The flash does not strobe.

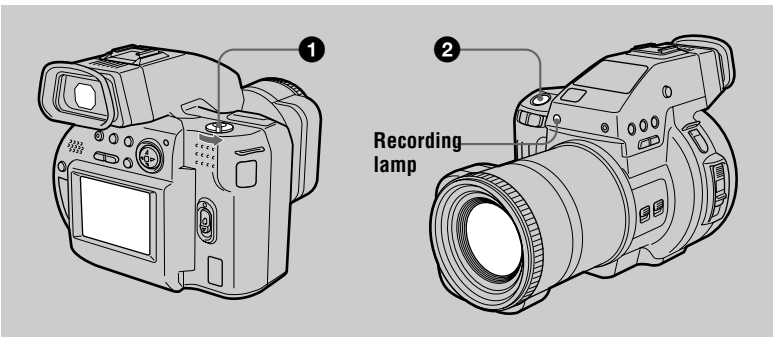
You can change the amount of the flash light with [FLASH LEVEL] in the menu settings (page 45).

Notes

- Do not block the photocell window for flash while recording.
- The recommended shooting distance is 23 5/8 inches to 8 1/3 feet (0.6 to 2.5 m).
- Attaching a conversion lens (optional) may block the light from the flash and the recorded image may be eclipsed.
- You cannot use the built-in flash and an external strobe at the same time.
- The ⚡ indicator appears when the flash is not popped up under situations that you should use the flash.
- Auto red-eye reduction may not produce the desired red-eye reduction effects depending on individual differences, the distance to the subject, if the subject does not see the pre-strobe, or other conditions. In addition, red-eye reduction effects are also difficult to obtain if you select a slow shutter speed in shutter priority mode of the PROGRAM AE function.
- The flash effect is not obtained easily when you use forced flash in a bright location.

Recording moving images

Moving images with audio are recorded in MPEG format.
To record moving images, slide the POWER switch downward to turn on the power and insert a disc.



1 Set the PLAY/STILL/MOVIE selector to MOVIE.

2 Press the shutter button fully down.
"REC" appears on the LCD screen or on the viewfinder, and the image and sound are recorded on the disc. The recording lamp lights up during recording.

If you press the shutter button momentarily
The image and sound are recorded for 5 seconds. The recording time can be set to 10 or 15 seconds with [REC TIME SET] in the menu settings (page 44).

If you hold the shutter button down
The image and sound are recorded while the shutter button is held down for up to 60 seconds. However, when [IMAGE SIZE] in the menu settings is set to [320 (HQ)] or [320×240], the maximum recording time is 15 seconds (page 47).

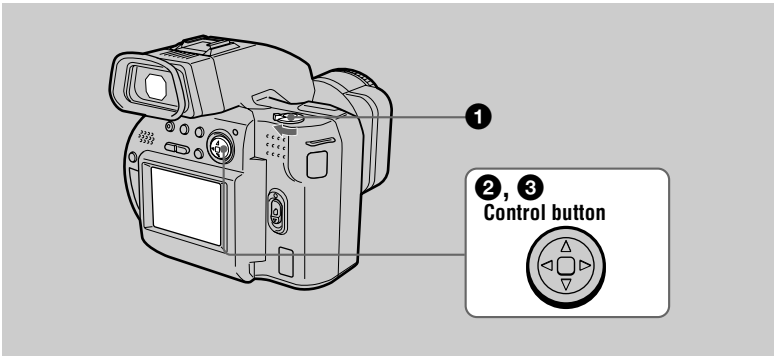
Adjusting the brightness of the LCD screen, zooming or using the self-timer

See page 20 to 22.

LCD screen or viewfinder indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. These indicators are not recorded. See page 75 for a detailed description of the indicators.

Playing backs still images

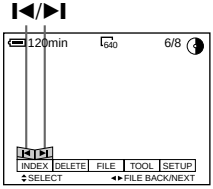


1 Set the PLAY/STILL/MOVIE selector to PLAY.
The last recorded image (still or moving) appears on the LCD screen or on the viewfinder.

2 Press ▲ on the control button to display the menu bar on the LCD screen or on the viewfinder.

3 Select the desired still image with the control button.
Press ▲/▼/◀/▶ on the control button to select I◀/▶I on the LCD screen or on the viewfinder, then press ◀/▶.
I◀: To display the preceding image.
▶I: To display the next image.

I◀/▶I



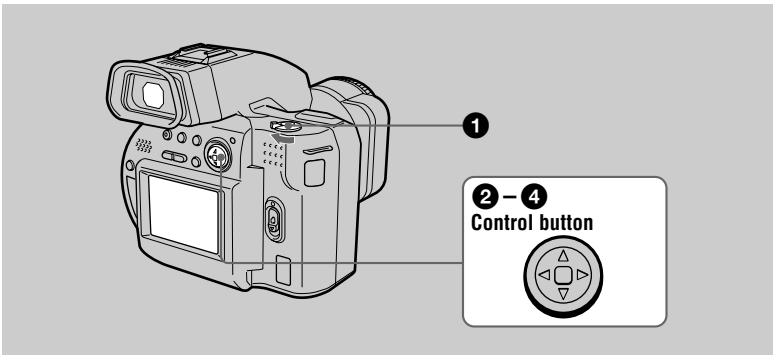
When the menu bar is not displayed

You can directly select and play back the image with ◀/▶ on the control button.

LCD screen or viewfinder indicators during still image playback

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 76 for a detailed description of the indicators.

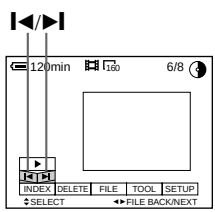
Playing back moving images



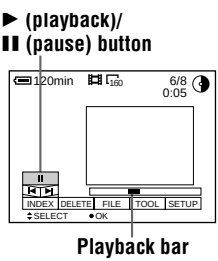
1 Set the PLAY/STILL/MOVIE selector to PLAY.
The last recorded image (still or moving) appears on the LCD screen or on the viewfinder.

2 Press ▲ on the control button to display the menu bar on the LCD screen or on the viewfinder.

3 Select the desired moving image with the control button.
Moving images are displayed one size smaller than still images.
Press ▲/▼/◀/▶ on the control button to select ⏮/⏭ on the LCD screen or on the viewfinder, then press ◀/▶.
⏮: To display the preceding image.
⏭: To display the next image.



4 Select the ▶ (playback) button on the LCD screen or on the viewfinder with ▲ on the control button, then press the center ■.
The moving image and sound are played back.
During playback, ▶ (playback) changes to ❚❚ (pause).



To pause playback

Select ❚❚ (pause) on the LCD screen or on the viewfinder with ▲/▼/◀/▶ on the control button, then press the center ■.

When the menu bar is not displayed

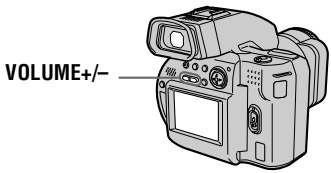
You can directly select the image with ◀/▶ on the control button, and play back the image and sound by pressing the center ■. When you press the center ■ during playback, playback is paused.

Moving images recorded with the image of [320 (HQ)]

The images are displayed over the entire screen in steps ❸ and ❹.

Adjusting the volume of the built-in speaker

Press VOLUME+/– to adjust the volume.



LCD screen or viewfinder indicators during moving image playback

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 76 for a detailed description of the indicators.

Viewing images using a personal computer

You can view data with your camera on a personal computer and attach it to e-mail. This section describes the general method for viewing images on a personal computer. Be sure to also see the operation manuals for your personal computer and application software.

For Windows users

A Viewing images with a CD-ROM drive (page 33)

Finalize the disc beforehand (page 29).

B Viewing images with a personal computer connected with the USB cable (page 33)

You do not need to finalize the disc. You have to install the USB driver and the software, DirectCD included in the supplied CD-ROM. For details on DirectCD, refer to the software operating instructions of DirectCD.

C Viewing images using a CD-R/CD-RW drive (page 37)

You do not need to finalize the disc. You have to install the software, DirectCD included in the supplied CD-ROM.

For Macintosh users

Viewing images with a CD-ROM drive (page 37)

Finalize the disc beforehand (page 29).You have to install the driver, Adaptec UDF Volume Access included in the supplied CD-ROM.

Notes on using your personal computer

Software

- Data recorded with your camera is stored in the following formats. Make sure that applications that support these file formats are installed on your personal computer.
  - — Still image (except TEXT mode and uncompressed mode): JPEG format
  - — Moving image/Voice memo: MPEG format
  - — Uncompressed mode still image: TIFF mode
  - — Still image in TEXT mode: GIF format.
- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using the supplied retouch software from your personal computer to the camera, the image format will differ so the “FILE ERROR” message may appear and you may be unable to open the file.

Communications with your personal computer

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

- Windows and Windows NT, ActiveMovie, DirectShow 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.
- DirectCD is a trademark of Adaptec, Inc.
- 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.

Preparing for viewing images on CD-ROM drives (FINALIZE)

You can play back the disc recorded with this camera on CD-ROM drives. You have to execute the finalization before viewing images on a CD-ROM drive. A disc that has not been executed the finalization cannot be read with CD-ROM drives.

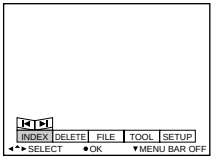
What is finalization?

- The finalization is required to view images on a CD-ROM drive.
- You can record new images on the finalized disc if you execute the initialization on it again. You have to execute the finalization to view new images on a CD-ROM drive. Each time you execute the finalization, approximate 13.5 MB of the disc will decrease. We recommend that you execute the finalization onto compiled data at a time.
- You can execute the finalization onto the disc later, even if you remove it from the camera.

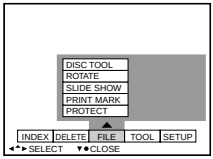
Executing the finalization

❶ Press ▲ on the control button.

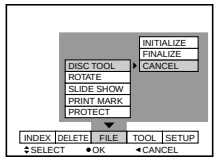
The menu bar appears on the LCD screen or on the viewfinder.



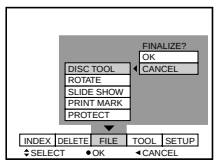
❷ Select [FILE] with ► on the control button, then press the center ■.



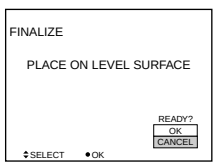
❸ **Select [DISC TOOL] with ▲ on the control button, then press the center ■.**



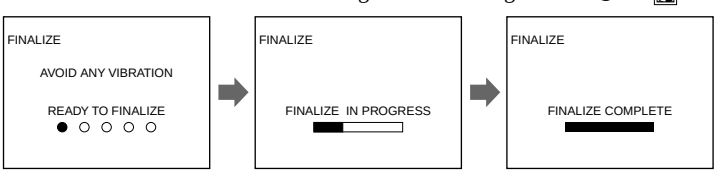
❹ **Select [FINALIZE] with ▲ on the control button, then press the center ■.**



❺ **Select [OK] with ▲ on the control button, then press the center ■.**
"PLACE ON LEVEL SURFACE" appears on the LCD screen or on the viewfinder. Be sure to avoid any vibration during the finalization.



❻ **Select [OK] with ▲ on the control button, then press the center ■.**
Finalization starts and the disc remaining indicator changes from ◑ to ◔.



To cancel the finalization

Select [CANCEL] with ▼ on the control button, then press the center ■. Once the finalization starts, you cannot cancel it.

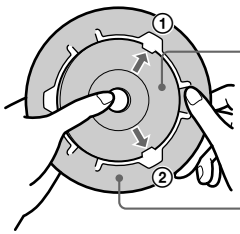
Notes

- It takes for about one minute to execute the finalization. Do not shake or jar the camera during this operation. Place the camera on a stable surface during the finalization.
- When you execute the finalization, we recommend that you use the an external power source (page 11).

Using the supplied 8 cm CD adaptor

When your disc drive does not conform to 8 cm CD or is an upright type, use the supplied 8 cm CD adaptor.

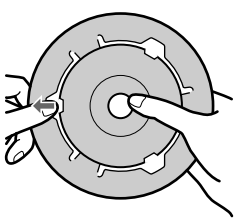
❶ Slide the disc into the inner groove and under two of the tabs on the inner circle of adaptor in the numbered order.



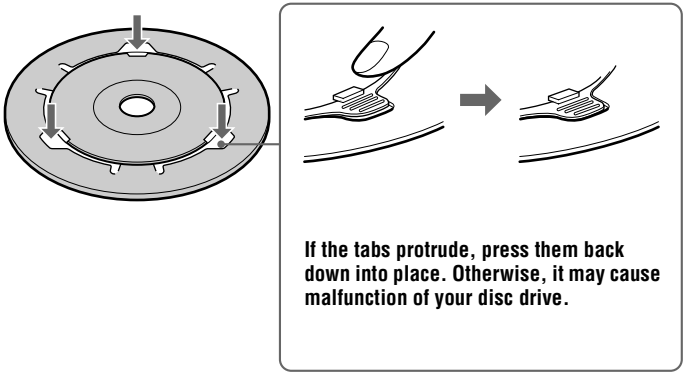
Printed side of the disc (The other blue side is recordable side.)

Printed side of the adaptor (SONY is printed on this side and the other side is the luster side.)

❷ Pull the third tab out away from the disc and the disc will slip into place. Release the third tab and the disc will be held firmly in place.



❸ **Check that the disc is set correctly in the grooves of the adaptor, that all the tabs are even with the surface of the adaptor, and that the disc is not protrude from the adaptor.**



If the tabs protrude, press them back down into place. Otherwise, it may cause malfunction of your disc drive.

Notes

- The supplied adaptor may not be used with your disc drive. For details, refer to the operating instructions of the disc drive.
- Use the adaptor at a low-speed (8-speed or lower).
- Do not place the adaptor under direct sunlight or near the heat.
- The adaptor is only used with Mavica discs. This cannot be used with other 8 cm CD-Rs.

Viewing images on a Windows computer

Recommended Windows environment

OS: Microsoft Windows 98, Windows 98SE
Standard installation is required.
Operation is not assured in an environment upgraded from:
Windows 3.1, Windows 95 to Windows 98 or
Windows 98 to Windows 98SE
CPU: MMX Pentium 200 MHz or faster
The USB connector must be provided as standard.
ActiveMovie (DirectShow) must be installed (to play back moving pictures)

Notes

- Operations are not guaranteed if you connect two or more USB equipment to a single personal computer at the same time (except for the USB keyboard and mouse which are provided as standard), 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.

A Viewing images with a CD-ROM drive

Finalize the disc beforehand (page 29).

For Windows 98 users

1. **Start up your personal computer and insert the disc into the CD-ROM drive of your personal computer.**
2. **Open [My Computer] and double click the drive recognizing the camera (Example:[CD-ROM (D:)]).**
3. **Double-click the desired data file.**

B Viewing images with a personal computer connected with the USB cable

Once you install DirectCD included in the supplied CD-ROM, you do not need to finalize the disc to view images on the disc.
You can exchange data between the camera and a computer using the supplied USB cable and CD-ROMs.

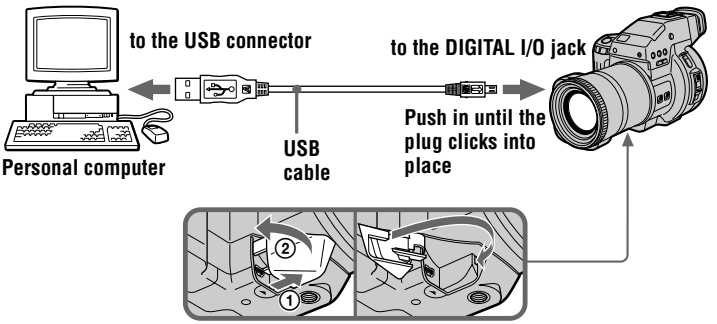
Installing the USB driver

Before connecting your camera to your personal computer, install the USB driver to the computer. The USB driver is contained in the supplied CD-ROM (SPVD-001).

For Windows 98 users

1. **Turn on your personal computer and allow Windows 98 to load.**
2. **Insert the supplied CD-ROM (SPVD-001) in the CD-ROM drive of your personal computer**
   If the setup screen of DirectCD appears, click [Finish] on the screen.

❸ **Connect the DIGITAL I/O jack on your camera with the USB connector on your personal computer using the supplied USB cable.**



❹ **Insert a disc into your camera, connect the AC power adaptor and turn on your camera.**

"PC MODE" appears on the LCD screen or on the viewfinder of your camera and the camera is set to communication standby mode. Your personal computer recognizes the camera, and the Windows 98 Add Hardware Wizard starts.

❺ **Follow the on-screen messages to specify the CD-ROM drive and install the USB driver.**

① Check that the Add Hardware Wizard is displayed, then click [Next].

② Select the option [Search for the best driver for your device. [Recommended].] in the window, then click [Next].

③ Check that the option [CD-ROM] is selected, then click [Next].

④ After the location of the driver is searched, click [Next]. File copy starts.

⑤ After [Windows has finished installing the software that your new hardware device requires.] is displayed, click [Finish].

The Add Hardware Wizard starts twice because two different USB drivers are installed. Repeat steps ① to ⑤ again.

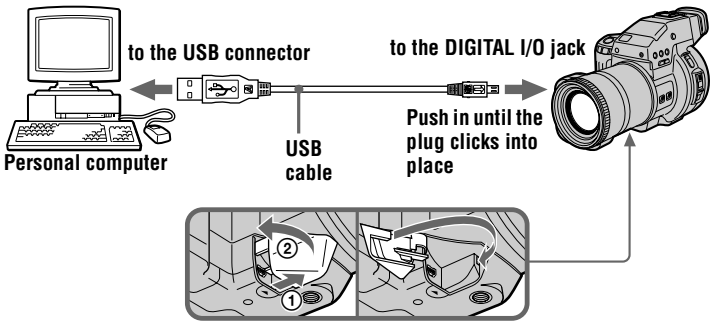
Viewing images

When you view images on the disc which has not been finalized, you have to install DirectCD included in the supplied CD-ROM. For details on DirectCD, refer to the software operating instructions of DirectCD.

For Windows 98 users

❶ Turn on your personal computer and allow Windows 98 to load.

❷ Connect the DIGITAL I/O jack on your camera with the USB connector on your personal computer using the supplied USB cable.



❸ Insert a disc into your camera, connect the AC power adaptor to your camera and then to a wall outlet (mains), and turn on the power of your camera.

"PC MODE" appears on the LCD screen or on the viewfinder of the camera.

❹ Open [My Computer] on Windows 98 and double click the newly recognized drive. (Example: [Removable Disk (D:)])

The folders inside the disc are displayed.

❺ Select and double-click the desired image/sound file from the folder.

For the detailed folder and file name, see "Image file storage destinations and image file names" (page 39).

Desired file type	Double-click in this folder
Still image	"Dcim" folder → "100msdcf" folder** → Image file
Moving image*	"Mssony" folder → "Moml0001" folder** → Image file
Audio*	"Mssony" folder → "Momlv100" folder** → Audio file
E-mail image Tiff image (uncompressed)	"Mssony" folder → "Imcif100" folder** → Image file

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

** When these file names are described in capital letters to distinguish the small letter "l" and the number "1," these are shown as follows: 100MSDCF, MOML0001, MOMLV100, IMCIF100.

Copying a file in the disc to a personal computer

Select the desired file, and drag it to the desired drive or folder.

Copying a file in a personal computer to a disc

Once you install DirectCD included in the supplied CD-ROM, you can select the desired file, and drag it to the disc. To view a image with this camera, the file name format must be as follows, “DSC0□□□□.JPG”.
For details, see “Image file storage destinations and image file names” (page 39).

C Viewing images using a CD-R/CD-RW drive

You do not need to finalize the disc. You have to install DirectCD included in the supplied CD-ROM. For details on DirectCD, refer to the software operating instructions of DirectCD.

Viewing images on a Macintosh computer

Recommended Macintosh environment

Macintosh computer with the Mac OS 8.5.1/8.6/9.0 standard installation
However, note that the update to Mac OS 9.0 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 G4 with the Mac OS 8.6 standard installation

QuickTime 3.2 or newer must be installed (to play back moving pictures).

Note

Operations are not guaranteed for all the recommended computer environments mentioned above.

Viewing images with a CD-ROM drive

Finalize the disc beforehand (page 29). You have to install the driver, Adaptec UDF Volume Access included in the supplied CD-ROM (SPVD-001).

For Macintosh users

❶ Start up your personal computer and allow the Mac OS to load.

❷ Insert the supplied CD-ROM (SPVD-001) in the CD-ROM drive of your personal computer.

❸ Double-click the CD-ROM drive icon to open the window.

❹ Double-click the icon of the hard disk containing the OS to open the window.

❺ Move the driver, “Adaptec UDF Volume Access” from the window opened in step ❸ to “System Folder” folder in the window opened in step ❹ (drag and drop).

❻ When “Put these items into the Extensions folder?” appears, click “OK.”

❼ Restart your personal computer.

Viewing images

❶ Start up your personal computer and insert the disc into the CD-ROM drive of your personal computer.

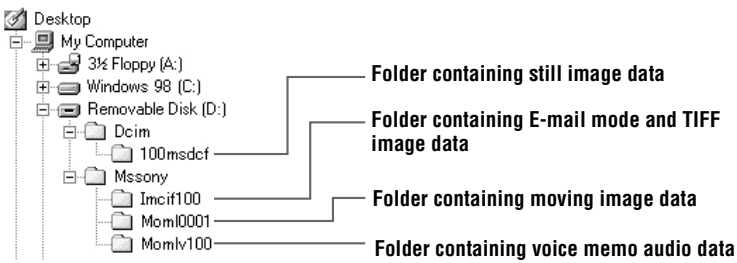
❷ Double click the disc folder.

❸ Double-click the desired data file.

Image file storage destinations and image file names

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

For Windows 98 users (The drive recognizing the camera is [D].)



Folder	File	Meaning
100msdcf	DSC0□□□□.JPG	• Still image file recorded normally • Still image file recorded in E-MAIL mode (page 48) • Still image file recorded in VOICE mode (page 48)
	TXT0□□□□.GIF	• Still image file recorded in TEXT mode (page 49)
Imcif100	DSC0□□□□.JPG	• Small-size image file recorded in E-MAIL mode (page 48)
	DSC0□□□□.TIF	• Uncompressed image file recorded in TIFF mode (page 49)
Moml0001	MOV0□□□□.MPG	• Moving image file
Momlv100	DSC0□□□□.MPG	• Audio file recorded in VOICE mode (page 48)

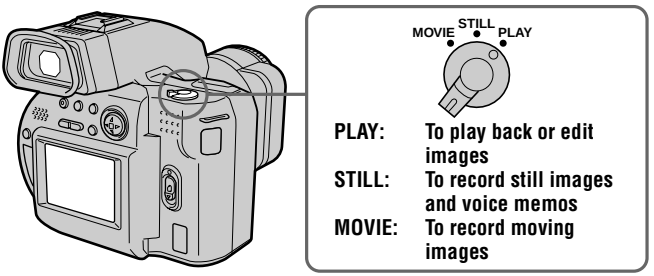
The numerical portion of the following files are the same.
—An image file recorded in E-MAIL mode and its corresponding small-size image file
—An uncompressed image file recorded in TIFF mode and its corresponding image file
—An image file recorded in VOICE mode and its corresponding audio file

Before performing advanced operations

This section describes the basic control methods that are frequently used for "Advanced operations."

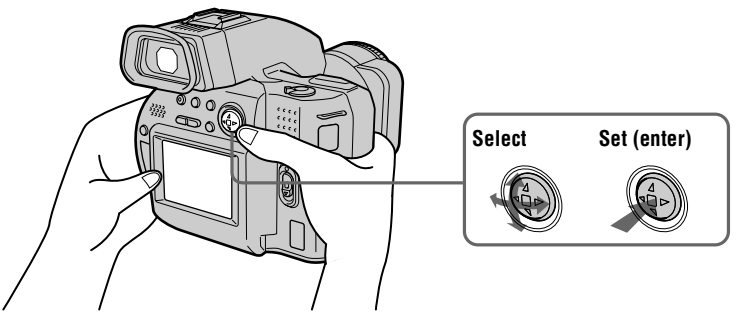
How to use the PLAY/STILL/MOVIE selector

The PLAY/STILL/MOVIE selector selects whether you can use your camera to record or to play back and edit images. Set the selector as follows before starting to operate your camera.

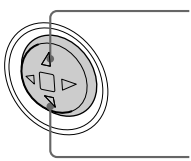


How to use the control button

The control button is used to select the buttons, images and menus displayed on the LCD screen or on the viewfinder of your camera and modify the settings. The operation methods that are frequently used for "Advanced operations" are described below.

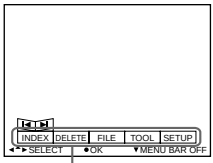


Turning on/off the operation buttons (menu bar) on the LCD screen or on the viewfinder



Press ▲ to display the menu bar on the LCD screen or on the viewfinder.

Press ▼ to clear the menu bar from the LCD screen or on the viewfinder.



Menu bar

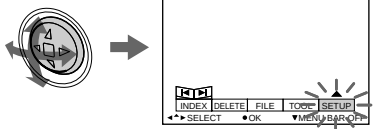
Note

You cannot clear the menu bar on the INDEX screen (page 56).

Selecting items or images on the LCD screen or on the viewfinder

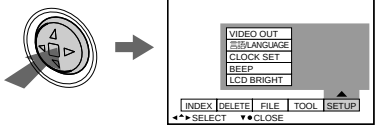
❶ Press ▲/▼/◄/► on the control button to select the item you want to set or the image you want to display.

The color of the selected item or the frame of the selected image changes from blue to yellow.



❷ Press the center ■ to enter the item.

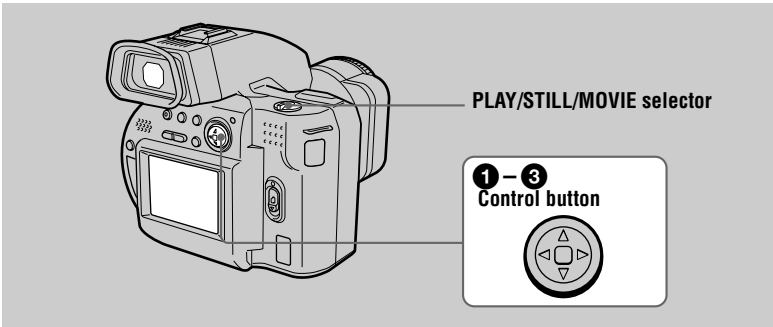
Repeat steps ❶ and ❷ to execute each function.



The "Advanced operations" section of this manual refers to selecting and entering items by the above procedure as "Select [item name]."

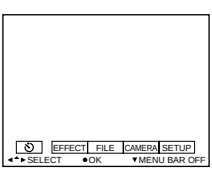
How to change the menu settings

Some of the advanced operations for your camera are executed by selecting menu items displayed on the LCD screen or on the viewfinder with the control button.

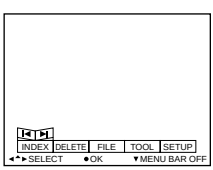


1 Press ▲ on the control button to display the menu bar.
The menu bar appears as follows according to the position of the PLAY/STILL/MOVIE selector.

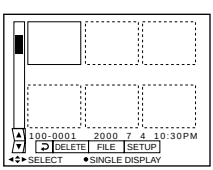
MOVIE/STILL



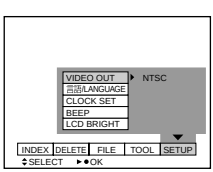
PLAY (single mode)



PLAY (INDEX mode)



2 Select the desired item with ▲/▼/◀/▶ on the control button, then press the center ■.
The color of the selected item changes from blue to yellow, and when you press the center ■, the settings that can be set for its item are displayed.



3 Select the desired setting with ▲/▼/◀/▶ on the control button, then press the center ■.

To cancel the setup

Press ▼ on the control button repeatedly until the LCD screen or on the viewfinder returns to the menu bar display in step 1. To clear the menu bar, press ▼ again.

Menu settings

Menu items that can be modified differ depending on the position of the PLAY/STILL/MOVIE selector. The LCD screen or viewfinder shows only the items you can operate at the moment. Initial settings are indicated with ■.

(self-timer)

Records with the self-timer (page 22).

EFFECT

Item	Setting	Description	PLAY/STILL/ MOVIE selector
P. EFFECT	SOLARIZE B&W SEPIA NEG.ART ■ OFF	Sets the image special effects (page 55).	MOVIE STILL
DATE/ TIME	DAY & TIME DATE ■ OFF	Sets whether to insert the date and time into the image (page 54).	STILL

FILE

Item-1	Item-2	Setting	Description	PLAY/STILL/ MOVIE selector
DISC TOOL	INITIALIZE	OK	Initializes a disc (page 14).	MOVIE STILL PLAY
		CANCEL	Cancels the initialization of a disc.	
	FINALIZE	OK	Allows you to view images recorded with this camera on a CD-ROM drive (page 29).	
		CANCEL	Cancels the finalization.	
	CANCEL	—	Goes back to the [DISC TOOL] item.	

Item	Setting	Description	PLAY/STILL/ MOVIE selector
POS. SENSOR	ON	Plays back images recorded with the camera on its side (vertical images) as vertical images. This function does not work for images recorded in TEXT mode.	STILL
	■ OFF	When you point the camera upward or downward for shooting, set this to OFF to prevent improper horizontal/vertical judgement.	
FILE NUMBER	SERIES	Assigns numbers to files in sequence even if the disc is changed.	MOVIE STILL
	■ NORMAL	Resets the file number that starts from 0001 each time the disc is changed.	
IMAGE SIZE	■ 1600×1200 1600 (3:2) 1024×768 640×480	Selects the image size when recording still images.	STILL
	320 (HQ) 320×240 ■ 160×112	Selects the MPEG image size or quality when recording moving images.	MOVIE
REC MODE	TIFF	Records a TIFF (uncompressed) file in addition to the JPEG format.	STILL
	TEXT	Records a GIF file in black-and-white.	
	VOICE	Records an audio file (with a still image) in addition to the JPEG file.	
	E-MAIL	Records a small-size (320×240) JPEG file in addition to the selected image size.	
	■ NORMAL	Records a JPEG file in the selected image size.	
REC TIME SET	15 sec 10 sec ■ 5 sec	Selects the recording time for moving images.	MOVIE
ROTATE (in single mode only)	—	Rotates the still image.	PLAY

Item	Setting	Description	PLAY/STILL/ MOVIE selector
SLIDE SHOW (Only in PLAY (single) mode)	INTERVAL	Sets the slide show interval. ■ 5 sec/10 sec/30 sec/1 min	PLAY
	REPEAT	A slide show can be repeated for up to approx. 20 minutes. ■ ON/OFF	
	START	Starts the slide show.	
	CANCEL	Cancels the slide show settings or execution.	
PRINT MARK	ON	Marks the still images to be printed (page 62).	PLAY
	■ OFF	Removes the print mark of the still images.	
PROTECT	ON	Protects images against accidental erasure (page 60).	PLAY
	■ OFF	Releases protection of images.	

CAMERA

Item	Setting	Description	PLAY/STILL/ MOVIE selector
DIGITAL ZOOM	■ ON	Uses digital zoom.	STILL
	OFF	Does not use digital zoom.	
SHARPNESS	+2 to –2	Adjusts the sharpness of the image. The ◫ indicator appears (except when the setting is 0).	STILL
FLASH LEVEL	HIGH	Makes the flash level higher than normal.	STILL
	■ NORMAL	Normal setting.	
	LOW	Makes the flash level lower than normal.	
EXPOSURE	+2.0EV to –2.0EV	Adjusts the exposure.	MOVIE STILL

TOOL (Only in PLAY (single) mode)

Item	Setting	Description	PLAY/STILL/ MOVIE selector
RESIZE	1600×1200 1024×768 640×480 CANCEL	Changes the recorded image size (page 62).	PLAY

SETUP

Item	Setting	Description	PLAY/STILL/ MOVIE selector
DEMO	■ STBY/ON OFF	Displayed only when you use the AC power adaptor in MOVIE or STILL mode. When [ON] is selected, a demonstration will start if you do not operate your camera for about 10 minutes. To stop the demonstration, turn off your camera. Select [ON] to make the demonstration appear again.	MOVIE STILL
VIDEO OUT	NTSC PAL	Sets the video output signal to NTSC mode (e.g., Japan, the USA). Sets the video output signal to PAL mode (e.g., Europe).	MOVIE STILL PLAY
言語 / LANGUAGE	■ ENGLISH 日本語 /JPN	Displays the menu items in English. Displays the menu items in Japanese.	MOVIE STILL PLAY
CLOCK SET	—	Sets the date and time (page 12).	MOVIE STILL PLAY
BEEP	SHUTTER ■ ON OFF	Turns off the beep only. (The shutter sound is heard when you press the shutter button.) Turns on the beep/shutter sound (when you press the control button/shutter button). Turns off the beep/shutter sound.	MOVIE STILL PLAY
LCD BRIGHT		Adjusts the LCD screen brightness using +/- on the LCD screen.	MOVIE STILL PLAY

INDEX (Only in PLAY (single) mode)

Displays six images at a time (PLAY (INDEX) mode) (page 56).

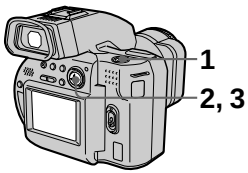
DELETE

Setting	Description	PLAY/STILL/MOVIE selector
OK	Deletes the displayed image.	PLAY
CANCEL	Cancels deleting of the image.	

⮐ (Return) (Only in PLAY (INDEX) mode)

Returns to PLAY (single) mode.

Setting the image size (IMAGE SIZE)



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Select [FILE] and then [IMAGE SIZE] from the menu.

3 Select the desired image size.

Still image sizes:
1600×1200, 1600 (3:2)*, 1024×768, 640×480

* The image is recorded in the ratio of three to two to fit the printing paper size.

Moving image sizes:
320 (HQ)*, 320×240, 160×112

* High Quality mode

The number of images or the time that you can record on a disc

Image size	Number of images or time*
1600×1200	Approx. 160
1600 (3:2)	Approx. 170
1024×768	Approx. 350
640×480	Approx. 1080
320 (HQ)	Approx. 370 (15)** sec
320×240	Approx. 1400 (15)** sec
160×112	Approx. 5100 (60)** sec

* When [REC MODE] is set to [NORMAL].

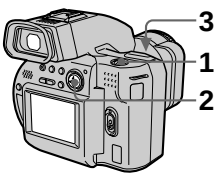
** Numbers in parentheses indicate the maximum time in a continuous recording.

Notes

- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- The number of images recordable on a disc may decrease depending on conditions.

Recording still images for e-mail (E-MAIL)

The E-MAIL mode records a small-size (320×240) image at the same time as a still image. Small-size images are convenient for e-mail transmission, etc.



1 **Set the PLAY/STILL/MOVIE selector to STILL.**

2 **Select [FILE], [REC MODE], and then [E-MAIL] from the menu.**

3 **Record the image.**

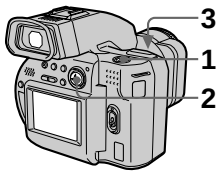
The number of images that you can record on a disc in E-MAIL mode

Image size	Number of images
1600×1200	Approx. 140
1600 (3:2)	Approx. 150
1024×768	Approx. 300
640×480	Approx. 730

To return to normal recording mode

Select [NORMAL] in step **2**.

Adding audio files to still images (VOICE)



1 **Set the PLAY/STILL/MOVIE selector to STILL.**

2 **Select [FILE], [REC MODE], and then [VOICE] from the menu.**

3 **Record the image.**
If you press and release the shutter button, sound is recorded for five seconds.
If you hold down the shutter button, sound is recorded until you release the shutter button for up to 40 seconds.

The number of images that you can record on a disc in VOICE mode

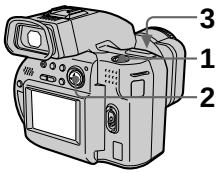
Image size	Number of images
1600×1200	Approx. 130
1600 (3:2)	Approx. 150
1024×768	Approx. 270
640×480	Approx. 620

To return to normal recording mode

Select [NORMAL] in step **2**.

Recording text documents (TEXT)

Text is recorded in black and white GIF format to provide a clearer image.



1 Set the PLAY/STILL/MOVIE selector to STILL.

2 Select [FILE], [REC MODE], and then [TEXT] from the menu.

3 Record the image.

The number of images that you can record on a disc in TEXT mode

Image size	Number of images
1600×1200	Approx. 1370
1600 (3:2)	Approx. 1450
1024×768	Approx. 1510
640×480	Approx. 1570

To return to normal recording mode

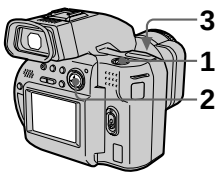
Select [NORMAL] in step **2**.

Notes

- If the subject is not evenly illuminated, you may be unable to record a clear image.
- Writing and reading data take more time than normal recording.
- The image will be displayed in monochrome in TEXT mode.

Recording uncompressed images (TIFF)

This mode simultaneously records still images in both TIFF format (uncompressed) and JPEG format (compressed).



1 Set the PLAY/STILL/MOVIE selector to STILL.

2 Select [FILE], [REC MODE], and then [TIFF] from the menu.

3 Record the image.

The number of images that you can record on a disc in TIFF mode

Image size	Number of images
1600×1200	Approx. 20
1600 (3:2)	Approx. 22

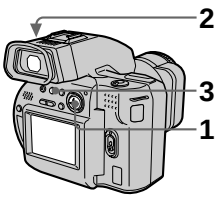
To return to normal recording mode

Select [NORMAL] in step **2**.

Notes

- JPEG images are recorded in the image size selected by the [IMAGE SIZE] menu. TIFF images are recorded in [1600×1200] size other than when [1600 (3:2)] is selected.
- Writing data takes more time than in normal recording. It will take for about 40 seconds.

Recording images in macro



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Set the FOCUS AUTO/ MANUAL switch to AUTO.

3 Press (macro).
The (macro) indicator appears on the LCD screen or on the viewfinder.
With the zoom lever set to the W side, you can shoot a subject that is about 13/16 inch (2 cm) away from the lens surface in macro mode.

To return to normal recording mode

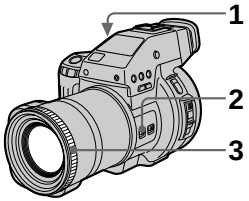
Press again. The indicator disappears.

Notes

- You cannot record images in macro with the following PROGRAM AE modes:
  —Landscape mode
  —Panfocus mode
- You cannot record images in macro if the indicator appears.

Focusing manually

Normally the focus is automatically adjusted. The manual focus function is convenient to focus the subject such as under dark situations.



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Set the FOCUS AUTO/ MANUAL switch to MANUAL.
The (manual focus) indicator appears on the LCD screen or on the viewfinder.

3 Turn the focus ring to achieve a sharp focus.
When you shoot still images, the image on the LCD screen or on the viewfinder is enlarged (double*) and the focal point information appears while the focus is being adjusted. After adjusting, the image returns to normal size. The range is from 13/16 inch (2 cm) to ∞ (infinity).

* When using the digital zoom function, the enlarged image will be less than double size.

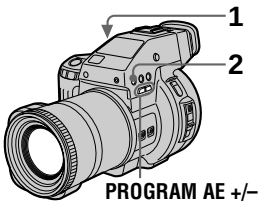
To reactivate auto focusing

Set the FOCUS AUTO/MANUAL switch to AUTO.

Notes

- Focal point information may not completely show the correct distance. Use the information as a guide.
- Focal point information does not show the correct distance when attaching the conversion lens.
- If you shoot a subject within 31 1/2 inches (0.8 m) while the zoom lever is set to T side, you cannot get a clear focus. In such cases, the focal point information flashes. Move the zoom lever to the W side until the indicator stops flashing.
- You cannot adjust the focus manually if you have selected the Panfocus mode in the PROGRAM AE function.

Using the PROGRAM AE function



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Press PROGRAM AE repeatedly to select the desired PROGRAM AE mode.

AE A Aperture priority mode
For making the subject stand out against an unclear background or providing a larger in-focus range. Press PROGRAM AE +/– repeatedly to select an aperture value in 9 steps from F2.8 to F11.

AE S Shutter speed priority mode
For recording a sharp picture of a fast-moving subject or recording the flow of motion of a moving subject.
Press PROGRAM AE +/– repeatedly to select a shutter speed in 17 steps from 8" to 1/500 when recording a still image, or in 11 steps from 1/8 to 1/500 when recording a moving image.

Twilight mode
Suppresses the blurring of colors of a bright subject in a dark place so that you can record the subject without losing the dark atmosphere of the surroundings.

Twilight plus mode
Increases the effectiveness of the twilight mode function.

Landscape mode
Focuses only on a distant subject to record landscapes, etc.

Panfocus mode
Changes the focus quickly and simply from a close subject to a distant subject.

To cancel PROGRAM AE

Press PROGRAM AE repeatedly until the indicator on the LCD screen or on the viewfinder goes out.

Notes

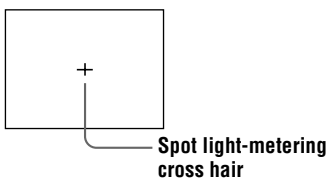
- You can focus only on distant subjects in Landscape mode.
- In Panfocus mode, the zoom position is set to the W side and focus is fixed.
- When you record in Twilight plus mode, we recommend that you use a tripod to prevent shaking.
- Set the forced flash ϟ when you use the flash in the following modes:
  - Twilight mode
  - Twilight plus mode
  - Landscape mode
- You cannot use the PROGRAM AE function when [REC MODE] is set to [TEXT].
- If the setting is not appropriate in Aperture priority mode and Shutter speed priority mode, the setting value indicator on the LCD screen or on the viewfinder flashes when you press the shutter button. In this case, reset the value.
- If you select a slow shutter speed in Twilight plus mode or select Shutter speed priority mode, the image may not be clear.

Using the Spot light-metering function

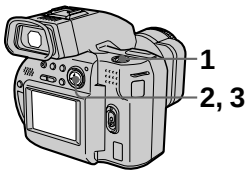
Select this mode when there is backlight or when there is strong contrast between the subject and the background, etc.

Press SPOT METER to activate the spot light-metering function. Position the point you want to record at the spot light-metering cross hair.

LCD screen/viewfinder



Adjusting the exposure (EXPOSURE)



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Select [CAMERA] and then [EXPOSURE] from the menu.

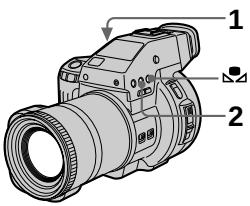
3 Select the desired exposure value.
Adjust the exposure value while checking the brightness of the background. You can select values ranging from +2.0 EV to -2.0 EV in steps of 1/3 EV.

Note

If a subject is under extremely bright or dark situations, or the flash is used, the exposure adjustment may not be effective.

Adjusting the white balance (WHITE BALANCE)

Normally the white balance is automatically adjusted.



1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.

2 Press WHITE BALANCE repeatedly to select the desired white balance setting.

IN DOOR ( )
- Places where the lighting condition changes quickly
- Under bright lighting such as photography studios
- Under sodium or mercury lamps

OUT DOOR ( )
Recording a sunrise/sunset, night scene, neon signs, or fireworks

One-push white balance ( )
Adjusting the white balance depending on the light source

AUTO (No indicator)
Adjusts the white balance automatically

To shoot in one-push white balance mode

① Press WHITE BALANCE repeatedly until the indicator appears.

② Shoot a white object such as paper full under the same situation you will shoot.
③ Press .
The indicator flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing.

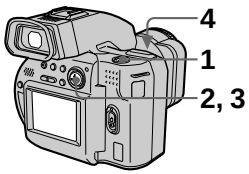
To reactivate auto adjustment

Select [AUTO] in step **2**.

Notes

- Select [AUTO] when shooting with fluorescent lighting.
- The indicator means:
  Slow flashing: white balance is not set.
  Quick flashing: white balance is being adjusted (after you pressed).
  Lit steady: white balance has been set.
- If the indicator keeps flashing even when you press , record in automatic white balance mode.

Recording the date and time on the still image (DATE/TIME)



1 Set the PLAY/STILL/MOVIE selector to STILL.

2 Select [EFFECT] and then [DATE/TIME] from the menu.

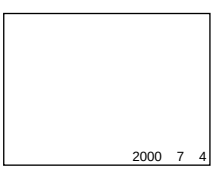
3 Select the date and time.

DAY & TIME
Imposes the date, hour, and minute.

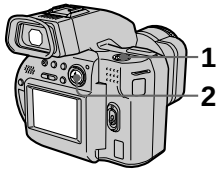
DATE
Imposes the year, month, and day.

OFF
Does not impose the date and time.

4 Record the image.
The date and time do not appear on the LCD screen or on the viewfinder during shooting, these appear during playback only.



Enjoying picture effects (PICTURE EFFECT)



1 **Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.**

2 **Select [EFFECT] and then [P. EFFECT] from the menu.**

Select the desired mode.

SOLARIZE
The light contrast is clearer and the picture looks like an illustration.

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

SEPIA
The picture is sepia-toned like an old photograph.

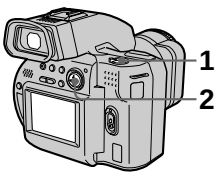
NEG.ART
The color and brightness of the picture are reversed as in a negative.

OFF
Does not use the picture effect function.

To cancel picture effect

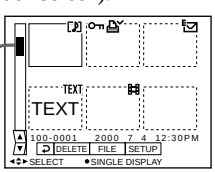
Select [OFF] in step **2**.

Playing back six images at once (INDEX)



1 Set the PLAY/STILL/MOVIE selector to PLAY.

2 Select [INDEX] on the LCD screen or on the viewfinder.
Six images are displayed at once (index screen).



This shows the position of the currently displayed images relative to all the recorded images.

The following marks are displayed on each image according to the image type and settings.
: Moving image file
: Voice memo file
: E-mail file
: Print mark
: Protect mark
TEXT: TEXT file
TIFF: TIFF mark
(No mark): Normal recording (no settings)

To display the next (previous) index screen

Select ▲/▼ at the lower-left on the LCD screen or on the viewfinder.

Displays the previous index screen.
Displays the next index screen.

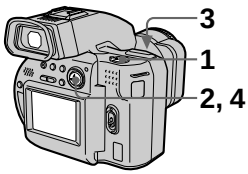
To return to normal playback (single image)

- Select the desired image with the control button.
- Select ⮌ (Return).

Note

Images shot in TEXT mode cannot be displayed on the INDEX screen.

Enlarging a part of the still image (Zoom and trimming)



1 Set the PLAY/STILL/MOVIE selector to PLAY.

2 Display the image to be enlarged.

3 Zoom in/out the image with the zoom lever.

The zoom scaling indicator appears on the LCD screen or on the viewfinder.

4 Press the control button repeatedly to trim the image.

▲: The image moves downward
▼: The image moves upward
◀: The image moves rightward
▶: The image moves leftward

To return to the normal size

Zoom out with the zoom lever until the zoom scaling indicator (🔍 ×1.1) disappears from the screen, or simply press the center ■.

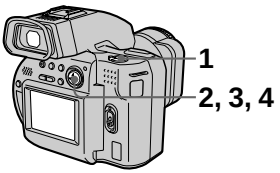
To record an enlarged image (trimming)

① Enlarge the image.
② Press the shutter button. The image is recorded at 640×480 size and the image on the LCD screen or on the viewfinder returns to the normal size after recording.

Notes

- You cannot use this function on moving images, TEXT mode images, or uncompressed images.
- Zoom scaling is up to 5× regardless of the original image size.
- The quality of enlarged images may be deteriorated.
- The original data is left even if you enlarge the image.
- The enlarged image is recorded as the newest file.
- If you trim an image, the disc space will be decrease.
- If the disc space is not sufficient, you may not be able to trim an image.

Rotating a still image (ROTATE)



1 **Set the PLAY/STILL/MOVIE selector to PLAY.**

2 **Display the image to rotate.**

3 **Select [FILE] and then [ROTATE] from the menu.**

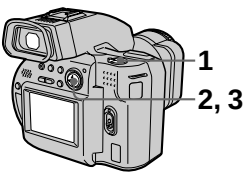
4 **Rotate the image clockwise ↷ or counterclockwise ↶, then select [RETURN].**

Notes

- You may not be able to rotate protected images or images recorded with other equipment.
- Also, when viewing images on a personal computer, the image rotation information may not be reflected depending on the application software.
- You cannot rotate protected or uncompressed images, or images recorded in TEXT mode.
- If you rotate an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to rotate an image.

Playing back the still images in order (SLIDE SHOW)

This function is useful for checking the recorded images or for presentations, etc.



1 **Set the PLAY/STILL/MOVIE selector to PLAY.**

2 **Select [FILE] and then [SLIDE SHOW] from the menu.**
Set the following items.

INTERVAL
You can select from 1 min (one minute), 30 sec (30 seconds), 10 sec (10 seconds), or 5 sec (5 seconds).

REPEAT
ON: Plays back images in a continuous loop (approximately 20 minutes) until [RETURN] is selected.
OFF: After all images have been played back, the slide show ends.

3 **Select [START] with the control button.**
The slide show begins.

To cancel the slide show

Select [CANCEL] in step **2** or **3**.

To skip to the next/previous image during the slide show

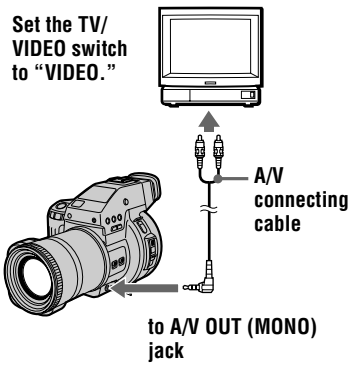
Select ⏮/⏭ at the lower-left on the screen.

Notes

- The interval setting time may vary depending on the image size.
- When [REPEAT] is set to [ON], the slide show does not end until all the images played back, even if it takes more than 20 minutes.

Viewing images on a TV screen

You can view images recorded onto a disc on a TV.



1 Connect the A/V connecting cable to the A/V OUT (MONO) jack of your camera and to the audio/video input jacks of the TV.

If your TV has stereo type input jacks, connect the audio plug of the A/V connecting cable to the Lch jack.

2 Turn on the TV and start playback on your camera.

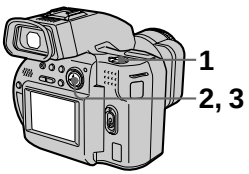
The playback image appears on the TV screen.

Note

You cannot use a TV that has an antenna (aerial) connector only.

Preventing accidental erasure (PROTECT)

The (protect) indicator appears on protected images.



In single mode

1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be protected.

2 Select [FILE], [PROTECT], and then [ON] from the menu.
The displayed image is protected and the indicator appears.

To release protection

Select [OFF] in step **2**.

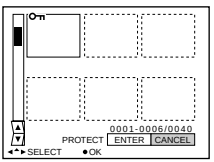
In INDEX mode

1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

2 Select [FILE], [PROTECT], and then [ALL] or [SELECT] from the menu.

3 When you select [ALL]
Select [ON].
All the images in the disc are protected.

When you select [SELECT]
Select all the images to be protected with the control button, then select [ENTER]. The selected images are protected.



To release protection

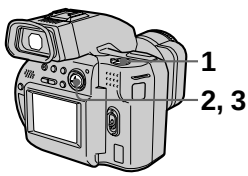
If you selected [ALL] in step **2**, select [OFF]. If you selected [SELECT] in step **2**, select the images to be unprotected with the control button, then select [ENTER].

Notes

- If you protect an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to protect an image.

Deleting images (DELETE)

Protected images cannot be deleted.



In single mode

1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be deleted.

2 Select [DELETE] and then [OK] from the menu.
The image is deleted.

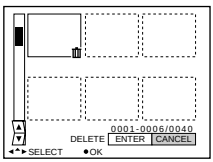
In INDEX mode

1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

2 Select [DELETE] and then [ALL] or [SELECT] from the menu.

3 When you select [ALL]
Select [ENTER].
All the unprotected images are deleted.

When you select [SELECT]
Select all the images to be deleted with the control button, then select [ENTER]. The 🗑 (delete) indicator appears on the selected images and these images are deleted.



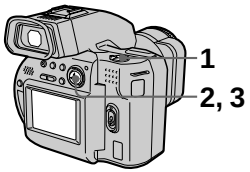
To cancel deleting

Select [CANCEL] in step **2** or **3**.

Notes

- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- If you delete an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to delete an image.
- If the lower four-digit file number of an image is the same as the number of the selected image, that image also will be deleted.

Changing the recorded still image size (RESIZE)



1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image of which you want to change the size.

2 Select [TOOL] and then [RESIZE] from the menu.

3 Select the desired size.
1600×1200, 1024×768, 640×480.
The resized image is recorded and the image on the LCD screen or on the viewfinder returns to the previous size after recording.

To cancel changing the size

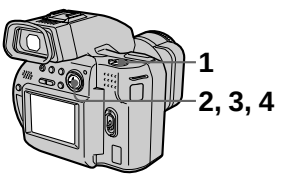
Select [CANCEL] in step **3**.

Notes

- When you change from a small size to a large size, the picture quality deteriorates.
- The original image is retained even after resizing.
- You cannot change the size of images recorded in TEXT mode, uncompressed image, or moving pictures.
- If you resize an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to resize an image.
- The resized image is recorded as the newest file.

Selecting still images to print (PRINT MARK)

You can mark a print mark on still images recorded with your camera. This mark is convenient when you have images printed at a shop that conforms with the DPOF (Digital Print Order Format) standard.



In single mode

1 Set the PLAY/STILL/MOVIE selector to PLAY and display the image you want to print.

2 Select [FILE], [PRINT MARK], and then [ON] from the menu.
The 🖶✓ (print) mark is marked on the displayed image.

To remove the print mark

Select [OFF] in step **2**.

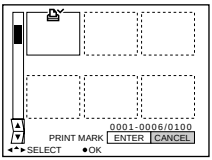
In INDEX mode

1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.

2 Select [FILE], [PRINT MARK], and then [SELECT] from the menu.

3 Select the images to be marked with the control button.

4 **Select [ENTER].**
The marks on the selected images change from green to white.



To remove selected print marks

Select the images to be removed in step **3** with the control button, then select [ENTER].

To remove all the print marks

Select [FILE], [PRINT MARK], [ALL], and then [OFF] from the menu. The marks on all images are removed.

Notes

- You cannot mark a print mark on moving images or TEXT mode images.
- If you mark an image recorded in TIFF mode with a print mark, only the uncompressed image is printed, and the JPEG image recorded at the same time is not printed.
- If you mark an image with a print mark, the disc space will decrease.
- If the disc space is not sufficient, you may not mark an image with a print mark.

Precautions

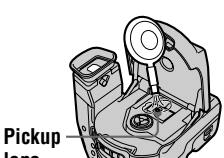
On handling the camera

Do not carry the camera by holding the disc cover

Do not touch the rotating disc
This may cause serious injuries.

On pickup lens cleaning

When the pickup lens is dirty and the camera cannot read any image, clean the pickup lens using a commercially available blower.



On cleaning

Cleaning the LCD screen or viewfinder
Wipe the screen surface with a cleaning cloth (not supplied) or an LCD cleaning kit (not supplied) to remove fingerprints, dust, etc.

Cleaning the camera surface
Clean the camera surface with a soft cloth slightly moistened with water, then wipe the surface dry. Do not use any type of solvent such as thinner, alcohol or benzene as this may damage the finish or the casing.

After using your camera at the seashore or other dusty locations
Clean your camera carefully. Otherwise, the salty air may corrode the metal fittings or dust may enter the inside of your camera, causing a malfunction.

On operating temperature

Your camera is designed for use between the temperatures of 32 °F to 104 °F (0 °C to 40 °C). Recording in extremely cold or hot places that exceed this range is not recommended.

On moisture condensation

If the camera is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense inside or outside the camera. Should this occur, “DISC ERROR” appears and the camera will not operate properly.

Moisture condensation occurs easily when:

- The camera is brought from a cold location such as a ski slope into a warmly heated room.
- The camera is taken from an air-conditioned room or car interior to the hot outdoors, etc.

How to prevent moisture condensation

When bringing the camera from a cold place to a warm place, seal the camera in a plastic bag and allow it to adapt to conditions at the new location over a period of time (about an hour).

If moisture condensation occurs

Turn off the camera and wait about an hour for the moisture to evaporate. Note that if you attempt to record with moisture remaining inside the camera lens, you will be unable to record clear images.

On pickup lens

Do not touch the pickup lens inside the disc cover. And do not open the disc cover except when inserting or removing a disc to keep dust out.

On AC power adaptor

- Unplug the unit from the wall outlet (mains) when you are not using the unit for a long time. To disconnect the power cord (mains lead), pull it out by the plug. Never pull the power cord (mains lead) itself.
- Do not operate the unit with a damaged cord (mains lead) or if the unit has been dropped or damaged.
- Do not bend the power cord (mains lead) forcibly, or place a heavy object on it. This will damage the cord (mains lead) 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 no place the unit in locations that are:
  - — Extremely hot or cold
  - — Dusty or dirty
  - — Very humid
  - — Vibrating

On battery pack

- Use only the specified charger 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 140 °F (60 °C), 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 camera securely.
- Charging while some capacity remains does not affect the original battery capacity.

On vanadium-lithium battery

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

Charging the vanadium-lithium battery:

- Connect your camera to house current (mains) using the AC power adaptor supplied with your camera, and leave your camera with the power turned off for more than 24 hours.
- Or install the fully charged battery pack in your camera, and leave your camera with the power turned off for more than 24 hours.

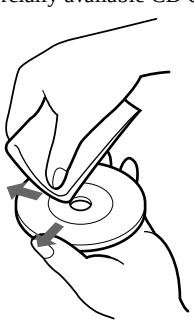
If any problem occurs, unplug your camera and contact your nearest Sony dealer.

On discs

Be sure to use only 8 cm CD-Rs. You cannot read or write data on other type discs that does not correspond to this camera.

On cleaning

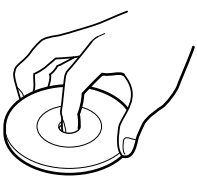
- Do not clean a disc using a cleaner before recording. Use a commercially available blower to remove dust.
- If fingerprints, dust, drop of water, or oil makes the blue side of a disc dirty, the camera may not properly record an image on the disc. You should handle a disc with a lot of care.
- If a disc does become dirty, wipe it in a straight line from center to edge with a soft dry cloth or a soft cloth lightly moistened with a mild detergent solution. You can use a commercially available CD cleaner.



- Do not use any solvent (benzine, thinner, static protection product, record cleaner, etc.) to clean a disc.

Notes

- Do not remove the disc while reading or writing data.
- Data may be damaged if:
  - — You remove the disc or turn off the power while reading or writing data.
  - — You use the camera in a location subject to the effects of static electricity or noise.
- Do not attach any material on the surface of a disc. This causes a nonuniform rotating speed and this may cause a malfunction of the camera.
- You can write only on the label surface of a disc. When you write, use only a felt-tip marker and do not touch it until it is in dry state, and do not heat it. Do not use a sharp-pointed tool, such as a ballpoint pen.
- Hold a disc at the edges while pressing the center hole lightly. Do not touch the blue side of a disc.

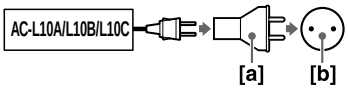


- When you carry or store a disc, put it in its case.
- Do not strike, bend or drop a disc.
- Do not rub the edge of a disc.
- If you play back the disc on which any image has not been recorded using a CD-ROM drive, the CD-ROM drive may malfunction or the disc may be scratched.

Using your camera abroad

Power sources

You can use your camera in any country or area with the supplied battery charger within 100 V to 240 V AC, 50/60 Hz. Use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet (mains) **[b]**.



Watching the playback picture on TV

If you want to view the playback picture on a TV, you need a TV having a video input jack and a video connecting cable.

The color system of the TV must be the same as that of your digital still camera. TV color systems differ from country to country. Check the following list:

NTSC system countries

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

PAL system countries

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

PAL-M system country

Brazil

PAL-N system countries

Argentina, Paraguay, Uruguay

SECAM system countries

Bulgaria, Czech Republic, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Troubleshooting

If you experience trouble with your camera, first check the following items. Should your camera still not operate properly after you have made these checks, consult your Sony dealer or local authorized Sony service facility. If code displays (C:□□:□□) appear on the LCD screen or on the viewfinder, the self-diagnosis display function is working (page 73).

Symptom	Cause and/or Solution
Your camera does not work.	• You are not using an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack (page 8). • The disc is not inserted properly. → Remove the disc, and insert it again (page 14). • The battery level is too low. (The indicator appears.) → Charge the battery pack (page 9). • The AC power adaptor is not connected securely. → Connect it securely to the DC IN jack and a wall outlet (mains) (page 9, 11). • The malfunction occurs inside the camera. → Turn off the power, and turn on after one minute, then check that the camera works properly.
Your camera cannot record images.	• The PLAY/STILL/MOVIE selector is set to PLAY. → Set it to MOVIE or STILL (page 18, 24). • No disc has been inserted into your camera. → Insert a disc (page 14). • The disc has not been initialized. → Initialize the disc (page 14).
The picture is noisy.	• Your camera is placed near a TV or other equipment that uses strong magnets. → Move your camera away from the TV, etc.
The picture is too dark.	• You are shooting a subject with a light source behind the subject. → Adjust the exposure (page 53). • The brightness of the LCD screen is too low. → Adjust the brightness of the LCD screen (page 20).

Symptom	Cause and/or Solution
The flash does not work.	• The flash is set to ⊗. → Set the flash to (no indication), 👁, or ϟ (page 22). • The camera is in one of the following PROGRAM AE modes: Twilight, Twilight plus, or Landscape. → Cancel the PROGRAM AE function or set the flash to ϟ (page 22, 51). • The PLAY/STILL/MOVIE selector is set to MOVIE. → Set it to STILL. • The flash is not popped up. → Pop up the flash (page 22).
The date and time are recorded incorrectly.	• The date and time are not set correctly. → Set the correct date and time (page 12).
Vertical streaks appear when you are shooting a very bright subject.	• This is called the smear phenomenon. → This is not a malfunction.
The battery life is short.	• You are recording/playing back images under extremely cold temperatures. • The battery pack is not charged enough. → Charge the battery pack fully. • The battery pack is dead. → Replace the battery pack with a new one.
The indication of the battery remaining time is not proper.	• You are using the camera for many hours under extremely hot or cold temperatures. • The battery pack is dead. → Replace the battery pack with a new one (page 8). • The battery level is too low. → Install the charged battery pack (page 8, 9).
The power is immediately turned off even if the battery remaining indicator indicates that the battery level is sufficient.	• — → Charge the battery pack about one hour after the normal charge is complete (page 9).
The zoom does not work.	• PROGRAM AE is set to the Panfocus mode. → Cancel the Panfocus mode (page 51).
Digital zoom does not function.	• You cannot use digital zoom to record moving pictures.

Symptom	Cause and/or Solution
The image is in monochrome.	• You shot the image in TEXT mode. → Cancel the TEXT mode (page 49). • The picture effect is set to the B&W mode. → Cancel the B&W mode (page 55).
The image cannot be played back on the CD-ROM drive of your personal computer.	• The disc has not been finalized. → Finalize the disc (page 14). • An error occurs during recording by vibration. → Possibly, you may be able to play back images if you connect the camera to your personal computer with the USB cable. • The CD-ROM drive does not correspond to the packet-write system. → Consult the personal computer or the CD-ROM drive manufacturer. • — → Consult the personal computer or software manufacturer.
Your camera cannot delete an image.	• The disc has not been initialized. → Initialize the disc (page 14). • The disc remaining capacity is not sufficient. → This is not a malfunction. • The image is protected. → Cancel the protection (page 60).
The power turns off suddenly.	• With the PLAY/STILL/MOVIE selector set to STILL or MOVIE, if you do not operate the camera for about three minutes while the power is on, the camera turns off automatically to prevent wearing down the battery pack. → Turn on the camera. • The battery pack is discharged. → Replace it with a charged battery pack.
The image does not appear on the TV screen.	• The VIDEO OUT setting of your camera is incorrect. → Change the setting (page 46).
The slide show function stops automatically.	• The slide show function stops after about 20 minutes. → To continue the slide show, select [START] again (page 58).
You cannot use the PROGRAM AE function.	• The camera is set to TEXT mode. → Cancel the TEXT mode (page 49).

Symptom	Cause and/or Solution
The button does not work.	• The camera is in manual focus mode. → Set it to auto focus mode (page 50). • PROGRAM AE is set to the Panfocus mode. → Cancel the Panfocus mode (page 51).
You cannot resize the image.	• This function does not work on a moving image nor on a TEXT image.
You cannot mark an image with the print mark.	• The print mark cannot be marked on a moving image nor on a TEXT image.
Your personal computer does not recognize your camera.	• The camera is turned off. → Turn on the camera. • The battery level is low. → Use the AC power adaptor (page 11). • The USB cable is not connected firmly. → Disconnect the USB cable, and connect it again firmly. Make sure that "PC MODE" is displayed on the LCD screen or on the viewfinder (page 34). • The USB connectors on your personal computer are connected to other equipment besides the keyboard, the mouse, and your camera. → Disconnect the USB cables except for the ones connected to the keyboard, the mouse, and your camera (page 34).
The shutter cannot be released when using an external flash (not supplied).	• The battery of the external flash is dead. → Replace the battery with a new one or remove the external flash from the camera.

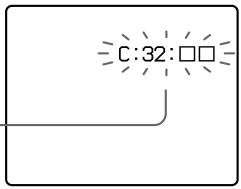
Warning and notice messages

Various messages appear on the LCD screen or on the viewfinder. Check the corresponding descriptions in the following list.

Message	Meaning
COVER OPEN	The disc cover is opened.
NO DISC	No disc has been inserted.
DRIVE ERROR	There is trouble with the disc drive or disc.
DISC ERROR	An unusable disc is inserted.
	There is trouble with the disc.
	A moisture condensation has occurred inside the camera.
DISC PROTECT	The disc was protected with a computer.
DIRECTORY ERROR	The same directory exists.
NOT ENOUGH DISC SPACE	The remaining capacity of the disc is not enough to operate other than executing the finalization.
NOT INITIALIZED	Since the disc has not been initialized, the camera cannot record any image on the disc.
ALREADY INITIALIZED	It is not necessary to execute the initialization, the disc was initialized.
ALREADY FINALIZED	It is not necessary to execute the finalization, the disc was finalized.
NO FILE	No image has been recorded on the disc.
FILE ERROR	Trouble has occurred during playback.
IMAGE SIZE OVER	You tried to play back images with an image size larger than the maximum playback size of this camera.
INVALID OPERATION	You try to play back the image recorded with other equipment.
FILE PROTECT	The image is protected.
for "InfoLITHIUM" battery only	The battery is not the “InfoLITHIUM” type.
NOT ENOUGH BATTERY	The battery level is too low to execute the initialization or finalization.
	The battery level is too low.

Self-diagnosis display

Your camera has a self-diagnosis display. This function displays the camera condition on the LCD screen or on the viewfinder with a combination of a letter and four digits of numbers. If this appears, check the following code chart. The code informs you of the camera's current condition. The last two digits (indicated by ☐☐) will differ depending on the state of the camera.



Self-diagnosis display

- C: ☐☐: ☐☐
  You can repair the camera yourself.
- E: ☐☐: ☐☐
  Contact your Sony dealer or local authorized Sony service facility.

Code	Cause and/or Corrective Action
C:32:☐☐	• There is trouble with the disc drive. → Turn the power off and on again.
C:13:☐☐	• A disc not compatible with this camera is inserted. → Change the disc (page 14).
E:61:☐☐ E:91:☐☐	• A camera malfunction that you cannot repair has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit service code (example: E:61:10).

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.

Specifications

System

Image device
1/2.7 type color CCD

Lens
10× zoom lens
f = 1/4 – 2 3/8 in (6.0 – 60.0 mm) (1 9/16 – 15 3/8 in (39 – 390 mm) when converted into a 35 mm still camera)
F = 2.8

Exposure control
Automatic exposure

White balance
Automatic, Indoor, Outdoor, One-push

Data compression system
Movie: MPEG1
Still:
JPEG, TIFF, GIF (in TEXT mode)
Audio (with still image):
MPEG AUDIO (Monaural)

Recording medium
8 cm CD-R

Flash
Recommended recording distance:
23 5/8 in to 8 1/3 feet (0.6 m to 2.5 m)

Drive
Read: Maximum ×8
Write: ×4

Readout
Noncontact optical readout (using semiconductor laser)

Laser
Wavelength: 777 to 787 nm
NA: 0.5
Maximum output: 23 mW
Emission duration: 600 ns

Input and Output connector

A/V OUT (MONO) jack (Monaural)
Minijack Video:
1 Vp-p, 75 Ω, unbalanced, sync negative
Audio: 327 mV (at a 47 kΩ load)
Output impedance: 2.2 kΩ

DIGITAL I/O jack
4-pin connector

External flash jack
Minijack

LCD screen

LCD panel
TFT (Thin Film Transistor active matrix) drive

LCD size
2.5 type

Total number of dots
123 200 (560×220) dots

Viewfinder

LCD panel
TFT (Thin Film Transistor active matrix) drive

Total number of dots
180 000 (800×225) dots

General

Application
Sony battery pack NP-F550

Power requirements
8.4 V

Power consumption (During shooting)
4.9 W (When using the LCD screen)
4.5 W (When using the viewfinder)

Operation temperature
32 °F to 104 °F (0 °C to 40 °C)

Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)

Maximum dimensions
5 1/2×5 1/4×8 3/8 in (137×131×212 mm) (w/h/d)

Mass
Approx. 35 oz (990 g) (including battery, disc and lens cap, etc.)

Built-in microphone
Electret condenser microphone

Built-in speaker
Dynamic speaker

AC-L10A/L10B/L10C AC power adaptor

Power requirements
100 V to 240 V AC, 50/60 Hz

Rated output voltage
DC 8.4 V, 1.5 A in operating mode

Operation temperature
32 °F to 104 °F (0 °C to 40°C)

Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)

Maximum dimensions
5×1 9/16×2 1/2 in (125×39×62 mm) (w/h/d)

Mass
Approx. 10 oz (280 g)

NP-F550 battery pack

Used battery
Lithium ion battery

Maximum voltage
DC 8.4 V

Nominal voltage
DC 7.2 V

Capacity
10.8 Wh (1 500 mAh)

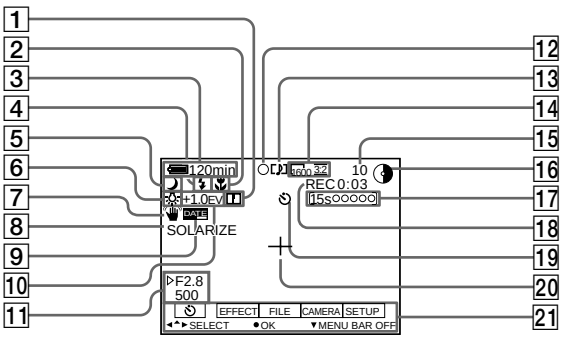
Accessories

AC-L10A/L10B/L10C
AC power adaptor (1)
Power cord (mains lead) (1)
NP-F550 battery pack (1)
A/V connecting cable (1)
USB cable (1)
8 cm CD adaptor (1)
Mavica disc (5)
Shoulder strap (1)
Lens cap (1)
Lens cap strap (1)
CD-ROM (3)
Operating instructions (3)

Design and specifications are subject to change without notice.

LCD screen/viewfinder indicators

The indicators during recording



1 **Sharpness indicator**

2 **Focus mode indicator/Macro indicator**

3 **Battery remaining indicator**

4 **Flash level indicator/Flash mode indicator**

5 **PROGRAM AE indicator/Zoom indicator**

6 **White balance indicator**

7 **SteadyShot indicator**

8 **Picture effect indicator**

9 **Date and time indicator**

10 **EV level indicator**

11 **Iris/Shutter speed indicator**

12 **AE lock indicator/Focus lock indicator**

13 **Recording mode indicator**

14 **Image size indicator**

15 **Number of recorded images**

16 **Remaining disc capacity indicator**

This indicator changes to after executing the finalization.

17 **Recording time indicator**

18 **Self-diagnosis function indicator/Recording time indicator**

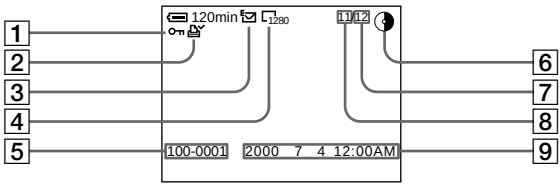
19 **Self-timer indicator**

20 **Spot light-metering indicator**

21 **Menu bar and guide menu**

They appear by pressing ▲ on the control button and disappear by pressing ▼.

The indicators during still image playback



1 **Protect indicator/Zoom scaling indicator**

2 **Print mark of the playback image**

3 **Recording mode of the playback image**

4 **Image size indicator**

5 **File name***

6 **Remaining disc capacity indicator**

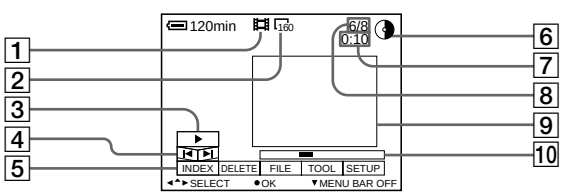
7 **Number of stored images on a disc**

8 **Image number**

9 **Recording date of the playback image***

∗ When the menu bar is displayed, this indicator disappears from the screen.

The indicators during moving image playback



1 **Moving image file indicator**

2 **Image size indicator**

3 **Playback button**

► is displayed during stop, and ❚❚ during playback.

4 **Image searching buttons**

5 **Menu bar and guide menu**

6 **Remaining disc capacity indicator**

7 **Counter**

8 **Image number/number of stored images on a disc**

9 **Playback image**

10 **Playback bar**

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