

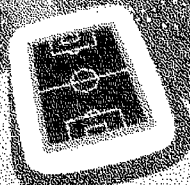
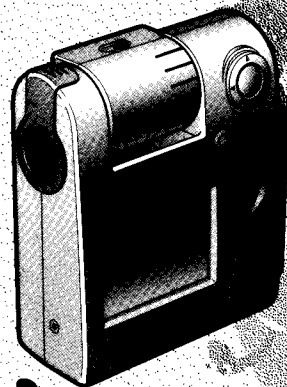
SHARP®

MPEG-4 Digital Recorder

MODEL

VN-EZ1U

OPERATION MANUAL ■



Please read this operation manual carefully before using the Digital Recorder.

Important

For assistance in reporting the theft or loss of this product, record on the line below the serial number which is located on the bottom of the unit.

Please retain this information.

Model No.: VN-EZ1U

Serial No.: _____

Important Information

Preparations

Basic Operations

Advanced Features

Importing Images
Into a Computer

References

Internet
VIEWCAM
INTERNET VIEWCAM

Thank you for purchasing this Digital Recorder from SHARP.

Before using the MPEG-4 Digital Recorder, please read this operation manual carefully and then save it for future reference.

Important Information for Consumers in the U.S.

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



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electric shocks.



This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.

WARNING—FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

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 distance 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.

A shielded I/F cable is required to insure compliance with FCC regulations for Class B computing equipment.

NOTE

The LCD panel of this Digital Recorder is a very high technology product with more than 61,000 thin-film transistors*, giving you fine picture detail. Occasionally, a pixel may appear on the screen as a fixed point of blue, green, red, or black. Please note that this does not affect the performance of your Digital Recorder.

*Specifications are subject to change without notice.

COPYRIGHT WARNING:

It is the intent of SHARP that this unit be used in full compliance with the copyright laws of the United States and that prior permission be obtained from copyright owners whenever necessary.

TRADEMARKS

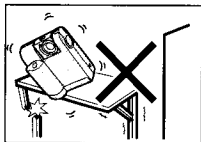
- **SmartMedia** is a registered trademark of Toshiba Corporation.
- **Microsoft** and **Windows** are registered trademarks of Microsoft Corporation, USA.
- All other brand or product names are trademarks or registered trademarks of their respective holders.

About The Supplied Software “PixLab Integrated Digital Media Software”

- **PixLab Integrated Digital Media Software** is the property of Sharp Corporation and all related copyright and other rights belong to Sharp Corporation.
- Sharp Corporation shall in no event be liable for damages, loss of revenue or third party claims arising from the use of the software.
- Software specifications and the contents of the on-line operation manual are subject to change without prior notice.
- Operating speed may slow down depending on computer operating environment and processing capability.

IMPORTANT SAFEGUARDS

1. Read Instructions—All the safety and operating instructions should be read before operating the Digital Recorder.
2. Retain Instructions—The safety and operating instructions should be retained for future reference.
3. Heed Warnings—All warnings on the appliance and in the operating instructions should be heeded.
4. Follow Instructions—All operation and usage guidelines should be followed.
5. Cleaning—Unplug this Digital Recorder from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
6. Attachments—Do not use attachments not recommended by the Digital Recorder manufacturer; they may cause hazards.
7. Water and Moisture—Do not use this Digital Recorder near water; for example, near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
8. Accessories—Do not place this Digital Recorder on an unstable cart, stand, tripod, bracket, or table. The Digital Recorder may fall, causing serious injury



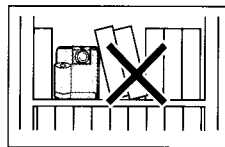
to a child or adult, and serious damage to the Digital Recorder. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the Digital Recorder. Any mounting of the Digital Recorder should follow the manufacturer's instructions, and

should use a mounting accessory recommended by the manufacturer.

9. A Digital Recorder and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the Digital Recorder and cart combination to overturn.



10. Ventilation—Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the Digital Recorder, and to protect it from overheating. These openings must not be blocked or covered by placing the Digital Recorder on a



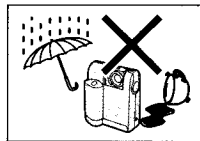
bed, sofa, rug or other similar surface. This Digital Recorder should never be placed near or over a radiator or heat registers; nor should it be placed in a

built-in installation such as a bookcase or rack unless proper ventilation is provided, or the manufacturer's instructions have been heeded.

11. Power Sources—This Digital Recorder should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For digital recorders intended to operate from battery power or other sources, refer to the operating instructions.

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12. **Grounding or Polarization**—This Digital Recorder is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
 13. **Power-Cord Protection**—Power-supply cords should be routed in such a way that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
 14. **Lightning**—To provide added protection for this Digital Recorder during a lightning storm, or when left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the Digital Recorder due to lightning and power-line surges.
 15. **Overloading**—Do not overload wall outlets and extension cords; this can result in a risk of fire or electric shock.

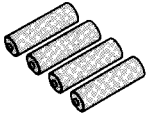




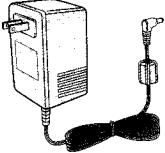
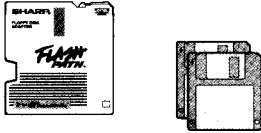
16. **Object and Liquid Entry**—Never push objects of any kind into this Digital Recorder through openings. They may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on

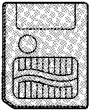
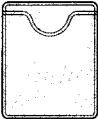
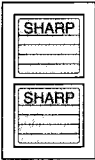
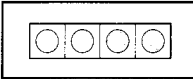


- the Digital Recorder.
17. **Servicing**—Do not attempt to service this Digital Recorder yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel. See the back of this operation manual.
 18. **Damage Requiring Service**—Unplug this Digital Recorder from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the Digital Recorder.
 - c. If the Digital Recorder has been exposed to rain or water.
 - d. If the Digital Recorder does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. An improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the Digital Recorder to its normal operation.

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- e. If the Digital Recorder has been dropped or the cabinet has been damaged.
 - f. When the Digital Recorder exhibits a distinct change in performance, this indicates a need for service.
19. Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or which have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.
20. Safety Check—Upon completion of any service or repairs to this Digital Recorder, ask the service technician to perform safety checks to determine that the Digital Recorder is in proper operating condition.

Supplied Accessories

 <p>Alkaline batteries (AA-size x 4)</p>	 <p>Hand strap UBNDT0101TAZZ</p>	 <p>Soft case GCASN0022TAZZ</p>	 <p>PixLab Integrated Digital Media Software CD-ROM CDSKA0039TA01</p>
 <p>CDSKA0032TA01</p>	 <p>AC adapter UADP-0243TAZZ</p>	 <p>Floppy disk adapter for SmartMedia™ VR-1FPN RUNTK0350TAZZ</p>	

 <p>3.3 V type SmartMedia™ (4MB)</p>	 <p>SmartMedia holder</p>	 <p>Index label (x 2)</p>	 <p>Write-protect seal (x 4)</p>
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Contents

Important Information

Precautions	3
Care	4
SmartMedia Card Precautions	5
Dew Formation	6
Part Names & Index	7
Indicators on the LCD Monitor	9
Warning Indicators	13

Preparations

Inserting and Removing the Batteries	14
Powering the Digital Recorder from an AC Outlet	16
Inserting and Removing a SmartMedia Card	17
Setting the Date and Time	18
Attaching the Hand Strap	21
Using the Soft Case	21

Basic Operations

Camera Recording

Quick Reference	22
Movie Recording	23
Zooming	25
Still Recording	26

Recording with the Self-Timer	27
Remaining Battery Power-Display	28

Playback

Movie Playback	29
Volume Control	30
Slow	31
Skipping	32
Fast Forward/Fast Reverse	32
Deleting Unwanted Movie One by One	33
Deleting All the Movies	35
Protecting Important Movie and Images from Deletion	37
Still Playback	39
Deleting Unwanted Still Image One by One	41
Deleting All the Still Images	43

Advanced Features

Camera Recording

Resolution Setting	45
Recording Backlit Subjects	47
Macro Shots	48
Time-Lapse Movie Recording	49
Selecting the White Balance Mode	51
Selecting the Iris Mode	53
Recording Yourself (Self Recording)	54
Turning Off the Indicators	55
To Turn the Beep Off	56

Playback

Continuous Playback	57
Dividing a Movie	59
Auto Playback for Still Images	62
Darking the Backlight of the LCD Monitor	63
Formatting a SmartMedia Card	64

Importing Images into a Computer

Image Files in the SmartMedia Card	65
Using a Floppy Disk Adapter	67
Using a PC Card Adapter	68
Transferring Image Data to Your Computer	69

References

Before Requesting Service	70
Specifications	73
SERVICE INFORMATION (For the U.S.)	74

Guía de operación rápida en español	75
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Important Information

Preparations

Basic Operations

Advanced Features

**Importing Images
into a Computer**

References

Important Information

Precautions

Use & Care

- **After operation, remove the batteries from the unit.**

- **Do not aim the lens at the sun.**

Do not allow direct sunlight to strike the Digital Recorder lens or LCD monitor, whether recording is in progress or not, as it may damage the lens or may result in severe damage to the eyes. Be particularly careful when recording outside.

- **Avoid pointing the lens into direct sunlight or other strong light sources.**

The concentrated light may cause a fire.

- **Avoid magnetic sources.**

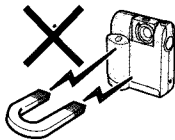
Using the Digital Recorder near strong fluorescent lights, motors, televisions, or other magnetic sources may adversely affect recorded images.

- **Be sure to back up all important files on other media to protect against damages or loss of image files.**

Malfunction, repairs, misoperation, static electricity or noise may delete data on the SmartMedia card.

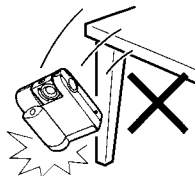
- **Remember to remove the SmartMedia card, turn off the power, and remove the batteries when the Digital Recorder is not in use.**

- **Using the Digital Recorder near a broadcasting station or other powerful transmission source may cause buzzing or picture deterioration.**



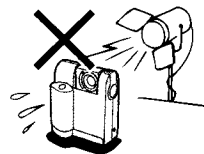
- **Avoid shocks and dropping.**

Do not drop or otherwise subject the Digital Recorder to hard shocks or strong vibrations. Bumping or striking the unit during recording will generate noise in the recorded image.



- **Avoid placing the Digital Recorder in close proximity to lighting equipment.**

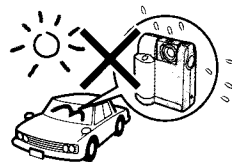
The heat from incandescent lights may deform the Digital Recorder, or cause it to malfunction.



- **Always respect prohibitions or restrictions on the use of electronic equipment on commercial flights or in other sensitive areas.**

- **Be aware of the temperature and humidity.**

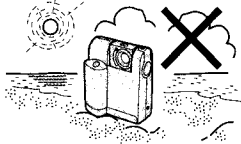
You can use your Digital Recorder at 0°C to +40°C (32°F to 104°F) and at 30% to 80% relative humidity. Do not store the unit in an unventilated car in the summer, in direct sunlight, or near strong heat sources; this can result in severe damage to the unit's casing and circuitry.



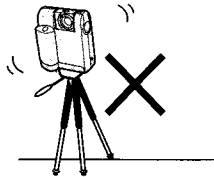
Do not use or keep the Digital Recorder and the SmartMedia card in areas subject to extremely high temperature.

- **Avoid situations where water, sand, dust or other foreign matter could get on or inside the Digital Recorder, and do not use or leave your Digital Recorder in areas with excessive smoke, steam or moisture.**

Such environments can cause malfunctions or cause mildew to form on the lenses. Be sure to keep the unit in a well-ventilated location.



- **Some small, portable tripods may be difficult to attach and may not be sturdy enough to support your Digital Recorder. Be sure to use only a strong, stable tripod.**



- **When using your Digital Recorder in a cold environment, the color LCD monitor may appear less bright immediately after the power is turned on. This is not a malfunction. To prevent the Digital Recorder from becoming too cold, wrap it in a thick cloth (a blanket, etc.).**
- **Power the Digital Recorder occasionally to operate some function even if you do not plan to use it for a long time.**

It will prevent malfunction.

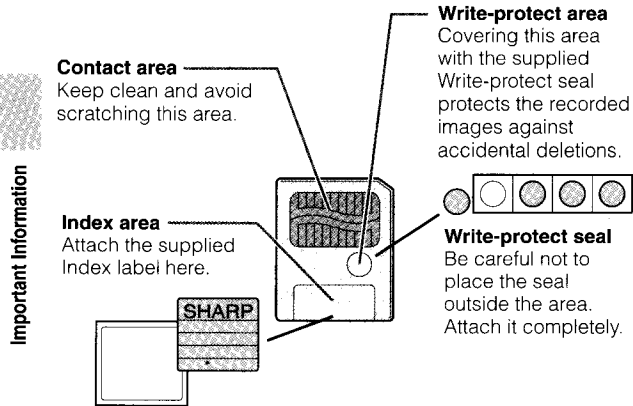
- **Always conduct a tentative recording before important shootings to check whether the Digital Recorder operates normally.**

Care

Cleaning and Maintenance

- Many plastic parts are used in the Digital Recorder casing. Do not use thinners, benzenes or other strong chemical cleaners. These may cause discoloration and damage to the casing.
- Clean the casing with a soft, dry cloth. If the casing is particularly dirty, wipe the casing with a tightly wrung cloth dampened with a diluted, neutral detergent. Then wipe it again with a soft, dry cloth.
- Use a soft, dry cloth to wipe finger marks and other soiling off the LCD monitor.
- Then clean the lens with a soft, dry cloth or compressed air.

SmartMedia Card Precautions



- **Avoid shocks and dropping.**
Dropping, bending or subjecting the card to hard shocks will cause damage to the card and the recorded image.
- **Avoid static electricity and electrical noise.**
Using or storing the card near such electrical phenomena can corrupt or even cause total loss of the recorded images.
- **Avoid stains, foreign matter and finger prints on the Contact area.**
Wipe with a soft, dry cloth.

- **Use the supplied Index labels and Write-protect seals.**
Using other labels and seals may damage the card . Do not reuse the seals once removed.
- **When putting the SmartMedia card into the supplied holder, hold the Index area to insert the Contact area first.**
- **Do not put the SmartMedia card into your pocket.**
It may apply excessive force and damage the card.
- **Be aware of the temperature and humidity. Avoid using or storing in dusty place. Do not expose to moisture, water or salt water.**
- **Do not dispose of in fire. Keep out of fire.**
- **Note that a SmartMedia card has a service life.**
Replace the card with a new one before it cannot store images anymore because of deterioration.
- **Do not eject the SmartMedia card while recording or erasing images.**
Also do not turn off the connected device while using the Digital Recorder. It may cause total loss of the recorded images or even destroy the card.

Cautions:

- **USE THE DIGITAL RECORDER TO FORMAT A SMARTMEDIA CARD.** The Digital Recorder may not recognise the recorded images on the card formatted by your computer.
- Using a floppy disk adapter can both store and delete images even if the Write-protect area covered with the Write-protect seal.

Dew Formation

• What is “dew formation”?

When cold water is poured into a glass, dew drops form on the glass. This clinging of water drops is called dew formation. Dew formation inside the Digital Recorder causes malfunction. (e.g. recording images on the SmartMedia card may not function properly.)

• When dew forms in your Digital Recorder, the lens and the SmartMedia card.

Dew is likely to form in the following circumstances:

- when moving the Digital Recorder from a cold place to a warm place.
- when placing the Digital Recorder in a cold room which is then heated rapidly.
- when moving the Digital Recorder outdoors from an air conditioned room.
- when placing the Digital Recorder in the direct path of air blowing from an air conditioner.
- when placing the Digital Recorder in a humid room.

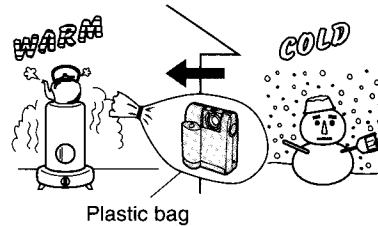
• How to prevent trouble due to dew formation.

When using the Digital Recorder in a place where dew formation is likely to occur, allow the Digital Recorder and the SmartMedia card to acclimate to the surroundings for about one hour.

For example, when bringing the Digital Recorder indoors after skiing, place it in a plastic bag and allow it to adapt to room conditions for some period of time.

Dew formation on the SmartMedia card prevents the card storing or playing back images. In this case, allow the card to acclimate to the surroundings for about two hours.

If dew formation mists the lens, acclimate it until the mist disappears.



- ① Be sure to tightly seal the plastic bag containing the Digital Recorder.
- ② Remove the bag when the air temperature inside it reaches the temperature of the surroundings.

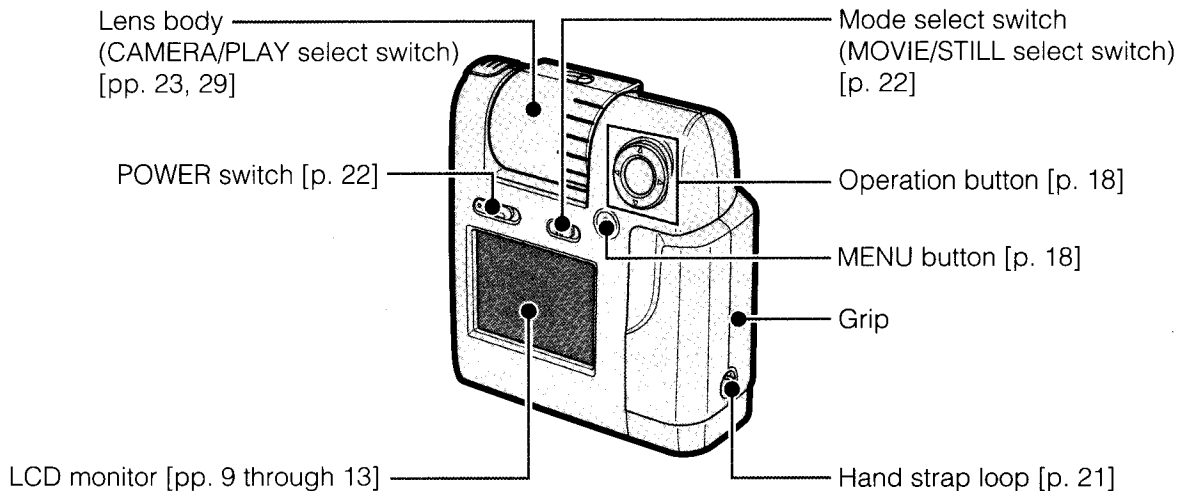
Important Information

Part Names & Index

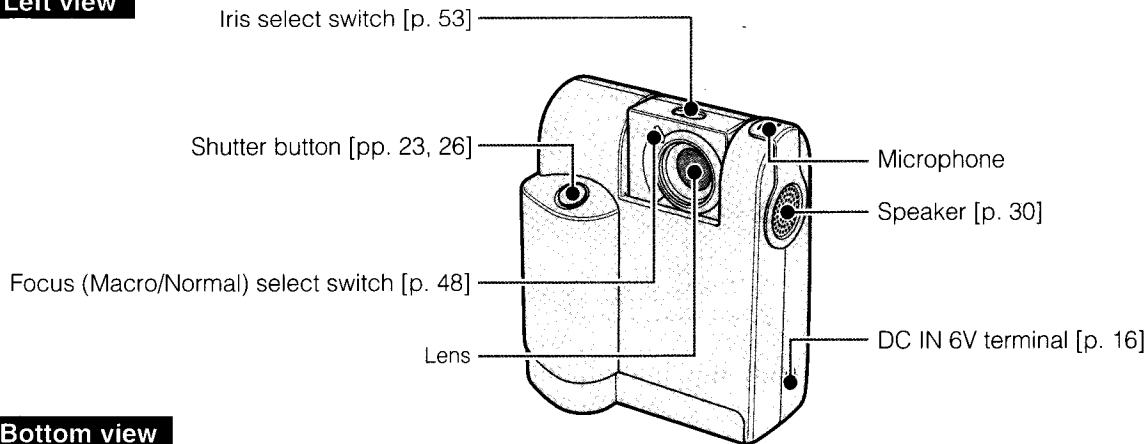
For details on the use of each control, refer to the page number indicated in the brackets.

Front view

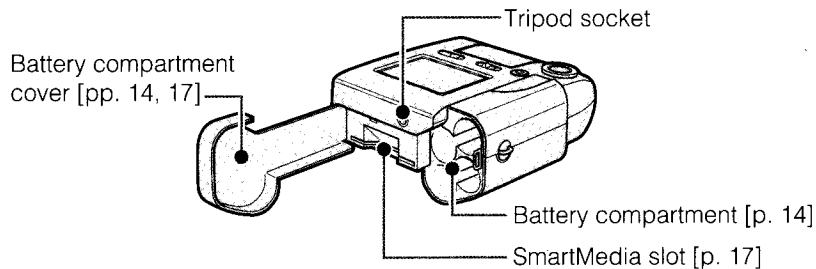
Important Information



Left view



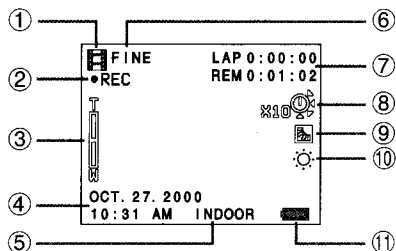
Bottom view



Indicators on the LCD Monitor

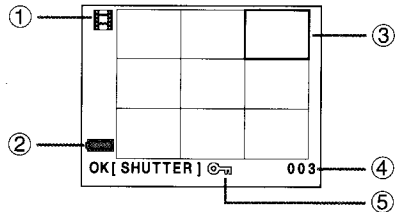
See page 55 for turning on and off the indicators on the LCD monitor.

Movie Recording Mode



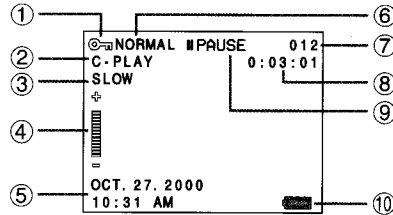
- ① MOVIE mode indicator (p. 23)
Indicates the Digital Recorder is in the Movie mode.
- ② Recording/Pause indicator (p. 23)
● **REC**: Recording
■ **PAUSE**: Pausing
- ③ Zoom indicator (p. 25)
Appears when zooming in or out.
- ④ Date and time indicators (p. 20)
Indicates the current date and time.
- ⑤ White balance indicator (p. 51)
Indicates the white balance setting.
- ⑥ Movie resolution mode indicator (pp. 45 and 46)
Indicates the Movie resolution mode setting:
→NORMAL↔FINE↔S-FINE↔1/4VGA↔LP←
- ⑦ Recording time and Remaining time (p. 23)
LAP: The time passed since you started the recording.
REM: The time left to record in the current mode
(The figures are approximations and depend on the Movie Resolution mode.)
- ⑧ Time-lapse mode indicator (p. 49)
Indicates the Time-lapse setting.
☀: x10 setting
☀☀: x40 setting
☀☀☀: x100 setting
- ⑨ BLC indicator (p. 47)
Appears when compensating the backlight on the subject.
- ⑩ Lighting indicator (p. 53)
Warns you in case of inappropriate lighting conditions.
☀: Too bright for recordings
●: Too dark for recordings
- ⑪ Battery power indicator (p. 28)
Indicates remaining power of the batteries.

Movie Index Playback Mode



- ① MOVIE mode indicator (p. 29)
Indicates the Digital Recorder is in the Movie mode.
- ② Battery power indicator (p. 28)
Indicates remaining power of the batteries.
- ③ Selecting frame (p. 29)
Indicates the currently selected image.
- ④ The number of the movie (p. 29)
Indicates the serial number of the framed movie.
- ⑤ Protect indicator (pp. 37 and 38)
Appears when the framed movie is protected.

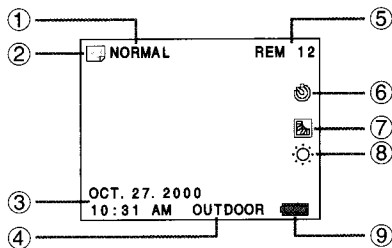
Movie Playback Mode



- ① Protect indicator (pp. 37 and 38)
Appears when the current movie is protected.
- ② Continuous Playback indicator (p. 57)
Appears when the Continuous Playback mode is set.
- ③ Slow playback indicator (p. 31)
Appears when slowing the playback.
- ④ Volume indicator (p. 30)
Appears when adjusting the volume
- ⑤ Date and time indicators (p. 20)
Indicates the recording date and time.
- ⑥ Movie resolution mode indicator (pp. 45 and 46)
Indicates the Movie resolution mode setting for the current movie.
- ⑦ The number of the movie (p. 29)
Indicates the serial number of the current movie.
- ⑧ Elapsed playback time (p. 29)
Indicates the time passed since you started the playback.
- ⑨ Pause indicator (p. 30)
Appears when pausing during the playback.
- ⑩ Battery power indicator (p. 28)
Indicates remaining power of the batteries.

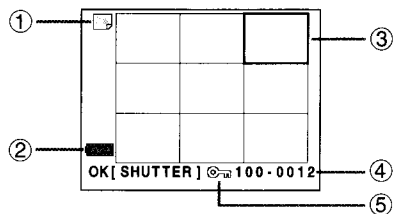
Important Information

Still Recording Mode



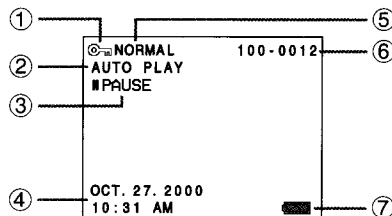
- ① Still image resolution mode indicator (p. 46)
Indicates the Still image resolution mode setting;
→ NORMAL ← FINE ←
- ② STILL mode indicator (p. 26)
Indicates the Digital Recorder is in the Still mode.
- ③ Date and time indicators (p. 20)
Indicates the current date and time.
- ④ White balance indicator (p. 51)
Indicates the white balance setting.
- ⑤ Remaining number of still images (p. 26)
Indicates the number you can record.
(The figures are approximations and depend on the Still Image Resolution mode.)
- ⑥ Self-timer indicator (p. 27)
Appears when setting the Self-timer.
- ⑦ BLC indicator (p. 47)
Appears when compensating the backlight on the subject.
- ⑧ Lighting indicator (p. 53)
Warns you in case of inappropriate lighting conditions.
☼: Too bright for recordings
●: Too dark for recordings
- ⑨ Battery power indicator (p. 28)
Indicates remaining power of the batteries.

Still Index Playback Mode



- ① STILL mode indicator (p. 39)
Indicates the Digital Recorder is in the Still mode.
- ② Battery power indicator (p. 28)
Indicates remaining power of the batteries.
- ③ Selecting frame (p. 39)
Indicates the currently selected image.
- ④ The number of the still image (p. 39)
Indicates the serial number of the framed still image.
- ⑤ Protect indicator (pp. 37 and 38)
Appears when the framed still image is protected.

Still Playback Mode



- ① Protect indicator (pp. 37 and 38)
Appears when the current still image is protected.
- ② Auto Play mode indicator (p. 62)
Appears when setting the Auto Play mode.
- ③ Pause indicator (p. 62)
Appears when pausing during the Auto Play.
- ④ Date and time indicators (p. 20)
Indicates the recording date and time.
- ⑤ Still image resolution mode indicator (p. 46)
Indicates the Still image resolution mode setting for the current still image.
- ⑥ The number of the still image (p. 39)
Indicates the serial number of the current still image.
- ⑦ Battery power indicator (p. 28)
Indicates remaining power of the batteries.

Important Information

Warning Indicators

CLOCK SET	You have not yet set the built-in clock.
POWER OFF	The batteries are almost dead.
NO CARD	The SmartMedia card is not loaded properly. Make sure that the correct side of the card is facing up and insert the correct end of the card into the slot.
NO FILE	The SmartMedia card has no images recorded in the format the Digital Recorder can recognise.
CARD FULL	The SmartMedia card's capacity is insufficient. Delete unnecessary images from the card or replace the card with new one.
FILE NO. FULL	The Digital Recorder has used up all the assignable image numbers for file names. Delete unnecessary images from the card or replace the card with capacity.
CARD ERROR	The image files in the SmartMedia card is corrupted or is recorded in a format which is not compatible with the Digital Recorder. Copy the necessary images in your computer's hard disk and reformat the SmartMedia card.
NOT INITIALIZED	The SmartMedia card is not formatted.
PROTECTED CARD	The SmartMedia card is protected. Remove the Write-protect seal.

PROTECTED	You are trying to delete a protected image. Unprotect it before deletion.
READ ERROR	Can not read the images in the SmartMedia card. The Digital Recorder possibly cannot play back the images recorded by another digital cameras. Make backup copies of images on other media, if necessary. And then format the SmartMedia card.
WRITE ERROR	Cannot record the images on the SmartMedia card. Check that the battery power is sufficient and the SmartMedia card is loaded properly.
AUTO POWER OFF	The power will be turned off about five seconds later. To turn it on again, slide the POWER switch.
BUSY	Now processing instructions. Wait until this indicator disappears.
TEMP ERROR	The Digital Recorder becomes warm to touch. Turn off the power and do not use for a while.
CAN'T REC	Cannot record the images in the Time-lapse Movie mode because the recording time is too short. For "x100" mode, recording time should be more than 10 sec.
CAN'T DIVIDE	Cannot divide the movie.

Preparations

Inserting and Removing the Batteries

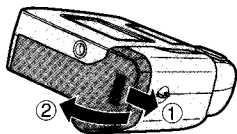
To supply power to the Digital Recorder, use AA-size batteries (alkaline, nickel cadmium (Ni-Cd) rechargeable or nickel metal hydride rechargeable batteries). See precautions on page 15.

Precaution:

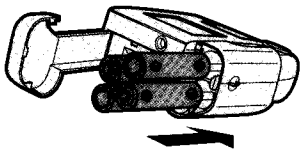
- Do not use different type batteries together.

Inserting batteries

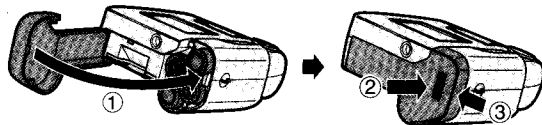
- 1 Make sure the power of the Digital Recorder is turned off.
- 2 Slide the battery compartment cover (①) to open it in the direction of the arrow (②).



- 3 Load batteries, making sure their plus (+) and minus (-) ends are facing as shown below.



- 4 Close the battery compartment cover (①), hold down the cover (②) and slide it in the direction of the arrow (③) until it clicks.



Note:

- Press and slide the battery cover until it is closed securely, or the batteries push up the cover.

Removing Batteries

Take out the batteries in step 3 above.

Maximum Time for Continuous Recording

The table below shows the approximate time that battery power can last when the Digital Recorder continuously records a movie at standard temperature (25°C (77°F)).

Battery type	Continuous recording time
AA-size Alkaline batteries (supplied batteries)	60 min.
AA-size nickel metal hydride rechargeable batteries (1450 mAh)	100 min.

Preparations

Battery Handling Precautions

Incorrect use or handling of batteries might cause them to leak or burst and seriously damage the Digital Recorder. Be sure to note the following important precautions to avoid problems with batteries.

Cautions:

- NEVER USE MANGANESE BATTERIES. USE OF LITHIUM BATTERIES IS NOT RECOMMENDED. USE:
 - alkaline batteries (alkaline-manganese dioxide batteries)
 - nickel cadmium (Ni-Cd) rechargeable batteries
 - nickel metal hydride rechargeable batteries
- NEVER USE DIFFERENT TYPE BATTERIES TOGETHER.
- When using commercially available batteries, refer to the instructions that come with them.
- Never mix old batteries with new ones. It may shorten the service lives of the new batteries, or cause the old batteries to leak.
- Do not use different brand batteries together.
- Always make sure that plus (+) and minus (-) ends of the batteries are facing correctly.
- Remove the dead batteries from the Digital Recorder immediately. It might leak and cause serious damage to the Digital Recorder, if left in the battery compartment for a long time.
- If the batteries leak, never touch the chemical liquid. It might damage your skin. In case you touch the liquid, wipe it off with a cloth.
- Avoid shocking and dropping.
- Using the Digital Recorder in low temperatures (below 10°C (50°F) around) shorten the battery life. We recommend that you have spare batteries in such cases.

Notes:

- The batteries that power the Digital Recorder normally become warm when they lose power. This is not a malfunction.
- Battery power is consumed even when the Digital Recorder is turned off. If you are not going to use it for a period of time, remove the batteries.
- Note that if power source is interrupted for more than 30 minutes, the date and time setting will be automatically canceled. Set them again (see page 18).

Powering the Digital Recorder from an AC Outlet

Use the supplied AC adapter when recording or playing back for a long time, or formatting a SmartMedia card.

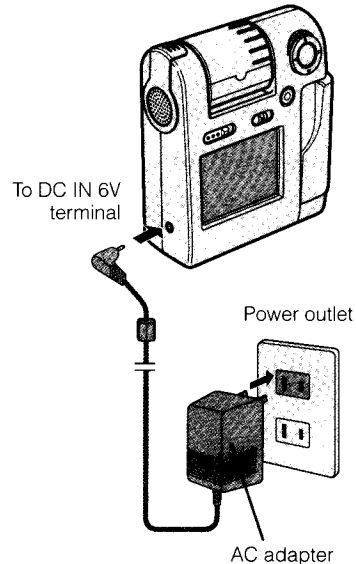
- 1 Make sure the power of the Digital Recorder is turned off.
- 2 Insert the DC cable plug of the AC adapter into the DC IN 6V terminal on the Digital Recorder.
- 3 Insert the power plug of the AC adapter into a power outlet.

Cautions:

Make sure to turn off the Digital Recorder when;

- Connecting and disconnecting the AC adapter.
- Inserting/removing the AC adapter into/from a power outlet.

If not, it may cause recording failures or deletion of the recorded images.



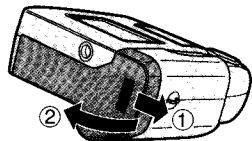
Preparations

Inserting and Removing a SmartMedia Card

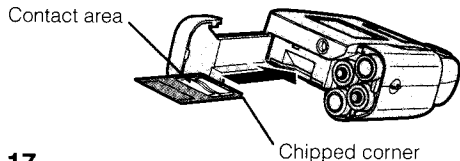
This Digital Recorder uses a SmartMedia card for memory. It will retain recorded images even if the batteries are depleted or the power source is interrupted.

Inserting a SmartMedia Card

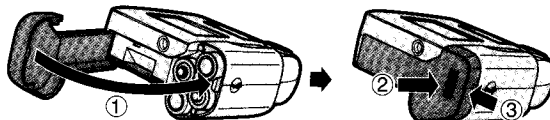
- 1 Make sure the power of the Digital Recorder is turned off.
- 2 Slide the battery compartment cover (①) to open it in the direction of the arrow (②).



- 3 Insert a SmartMedia card in the direction of the arrow and push it in as far as it will go.
 - Make sure that the Contact area is facing up and that you insert the end with a chipped corner into the slot.



- 4 Close the battery compartment cover (①), hold down the cover (②) and slide it in the direction of the arrow (③) until it clicks.



Note:

- Press and slide the battery cover until it is closed securely, or the batteries push up the cover.

Removing a SmartMedia card

Pull out the SmartMedia card in step 3 above.

Notes:

- Be careful not to drop the batteries when opening the battery compartment cover.
- Do not use a 5 V SmartMedia card. Use the supplied SmartMedia card or a commercially available card, which is 3.3 V type.

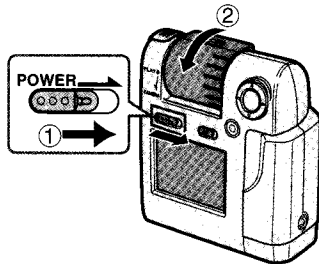
Setting the Date and Time

Set the built-in clock before the first use, and the Digital Recorder automatically records the date and time with the images.

Example:

Setting the date to October 27, 2000 (OCT. 27, 2000) and the time to 10:30 am (10:30 AM).

- Slide the POWER switch (①) and then rotate the lens body toward CAMERA (②).

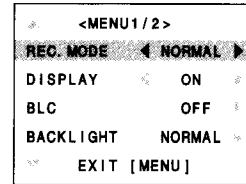


Note:

- If you turn on the Digital Recorder before setting the built-in clock, the CLOCK SET mode screen appears. In this case, proceed to step 4.

- Press the MENU button to display <MENU 1/2>

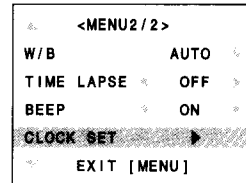
MENU



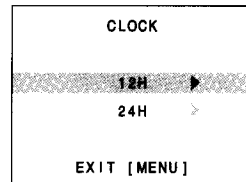
- Press ▲ or ▼ on the Operation button to move the pointer to "CLOCK SET" in <MENU 2/2> (①) and then press ► (②).

- The CLOCK SET mode screen appears.

①

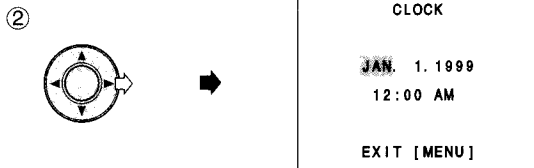
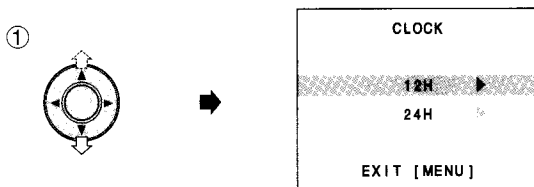


②

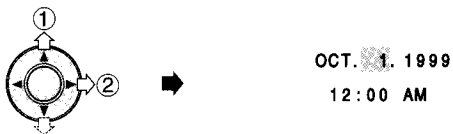


Preparations

- 4 Press ▲ or ▼ to select the 12-hour or 24-hour time mode (①) and then press ► (②).
- The second CLOCK SET mode screen appears.



- 5 Press ▲ or ▼ to select "OCT" (month) (①) and press ► (②).



- 6 Press ▲ or ▼ to select "27" (date) (①) and press ► (②).
- To return to the previous step, press ◀.



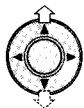
- 7 Press ▲ or ▼ to select "2000" (year) (①) and press ► (②).



- 8 Press ▲ or ▼ to select "10 AM" (hour) (①) and press ► (②).



9 Press ▲ or ▼ to select “30” (minutes).

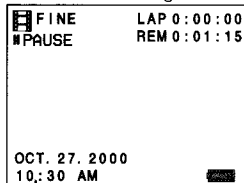


OCT. 27. 2000
10:30 AM

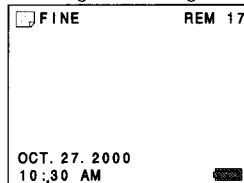
10 Press the MENU button twice to turn off the menu.

- The data and time indicators appear and then the built-in clock begins to work.

Movie Recording mode



Still Image Recording mode



—Date and time indicators—

Notes:

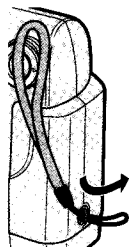
- If you press the MENU button by mistake before finishing the setting, the time then displayed on the LCD monitor is set as the current time. In this case, proceed to step 4.
- The batteries power the built-in clock. In case of no power source, the Digital Recorder backs up the clock for 30 minutes. Replace batteries or change the power source meanwhile.
- Note that if power source is interrupted for more than 30 minutes, the date and time setting may be automatically canceled. In this case, you should set them again.



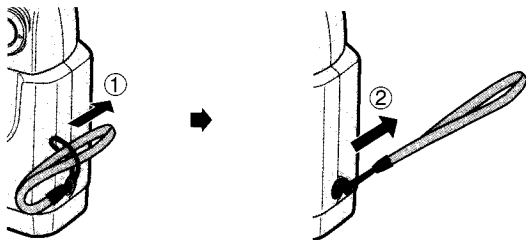
Preparations

Attaching the Hand Strap

- 1 Hold the end of the strap and thread it through the Hand strap loop on the grip.

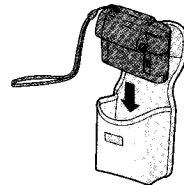


- 2 Let the other end through as shown below (①) and tie it up (②).



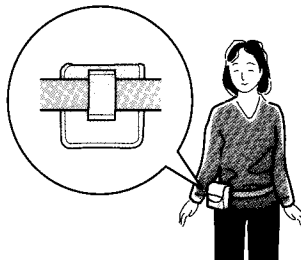
Using the Soft Case

- 1 After attaching the hand strap (see the left column), make sure the lens section is set to PLAY position (see page 29). Then put the Digital Recorder in the soft case with the monitor screen facing down.
- 2 Close the cover and seal the Velcro® closures.



Note:

- Let your belt through the loop of the soft case and you can carry the Digital Recorder on your waist.



Basic Operations

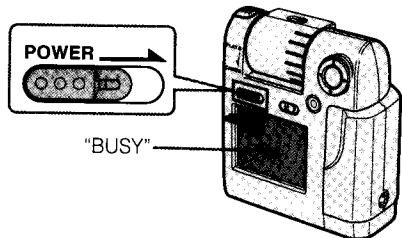
Quick Reference

Precautions:

- Take care not to touch the lens with your fingers when handling the Digital Recorder.
- Operate the switches slowly.

To Turn On the Power

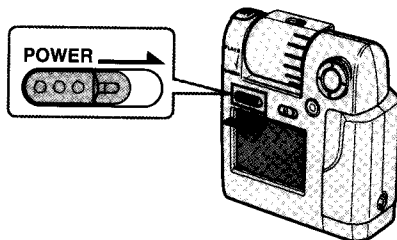
Slide the POWER switch and hold for more than one second. (It springs back when released.)



- After the "BUSY" indicator, a blue screen is displayed. It may take time until the operation screen appears because of the recording contents on the SmartMedia.

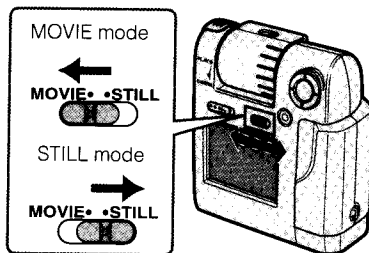
To Turn Off the Power

Slide the POWER switch again and hold it until the operation screen disappears.



Switching the Movie Mode and the Still Mode

Set the Mode select switch to MOVIE or STILL.



- Recording in the MOVIE mode is **Movie Recording mode**.
Recording in the STILL mode is **Still Recording mode**.
- Playback in the MOVIE mode is **Movie Playback mode**.
Playback in the STILL mode is **Still Playback mode**.

Basic Operations

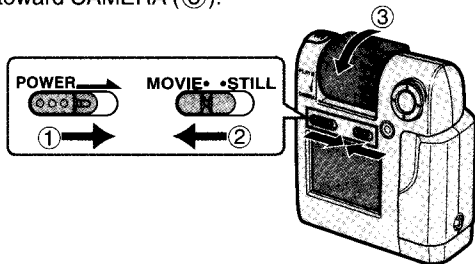
Movie Recording

You can record moving subjects with sound. Before you start recording, see pages 14 through 20 to prepare your Digital Recorder.

Precaution:

- Do not try to record images with low battery power. It may cause malfunctions.

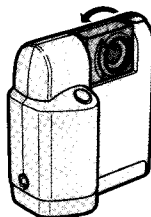
- Slide the POWER switch (①), set the Mode select switch to MOVIE (②) and then rotate the lens body toward CAMERA (③).



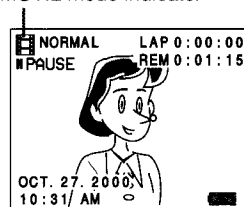
Note:

- If the warning indicator "NOT INITIALIZED" appears, format the SmartMedia card by the Digital Recorder (see page 64).

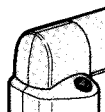
- Adjust the angle of the lens body to compose the image on the LCD monitor.



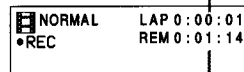
MOVIE mode indicator



- Press the Shutter button to begin recording.



Recording time



Remaning time

Notes:

- The Digital Recorder automatically chooses the correct shutter speed for the lighting conditions. Note that the slow shutter speed set for the poor lighting may cause small image shakes. And the image on the LCD monitor will be adversely affected.
- Using the Digital Recorder under fluorescent lights, mercury lamps or sodium-vapour lamps causes flickers on the recorded images. Sometimes those lightings affect tint of the images.
- The Movie Recording mode is factory preset to NORMAL. If you want to record movies in higher picture quality or for a long time, change the resolution setting by selecting one of five modes (see pages 45 and 46).**

To Finish Movie Recording

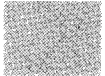
Press the Shutter button again.

- The Recording time indicator "LAP" returns 0:00:00.



The Auto Power Off

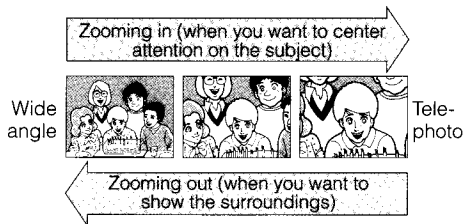
The Digital Recorder is automatically turned off to save the battery power whenever you do not perform any operation for about three minutes. Slide the POWER switch again to turn it on.



Basic Operations

Zooming

The digital zooming allows you to move visually closer or farther from the subject without changing your position, **while the movie recording**. Zoom range is 1-4x.



Precautions:

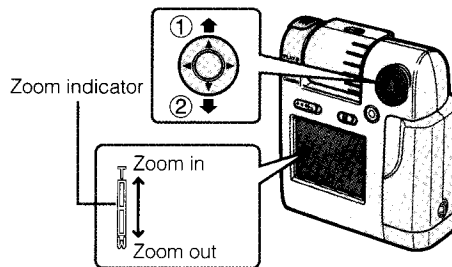
- During a movie recording in the 1/4 VGA mode (see pages 45 and 46) or during a still recording, you can not operate zooming.
- Using this function causes some noise on the picture and deteriorates the picture quality.

To Zoom In

Press **▲ (T)** on the Operation button to get a close-up view (①).

To Zoom Out

Press **▼ (W)** on the Operation button to get a wide field of view (②).



Notes:

- To prevent small image shakes, press **▼** to enlarge the view a little.
- The zoom setting will return to "W" (zooming out) whenever the power is turned off.

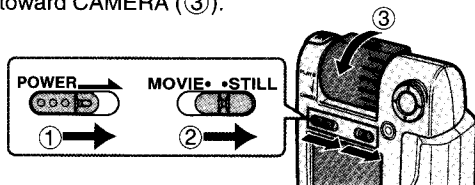
Still Recording

You can record still images with operation similar to that of film cameras. Before you start recording, see pages 14 through 20 to prepare your Digital Recorder.

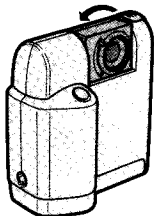
Precaution:

- Do not try to record images with low battery power. It may cause malfunctions.

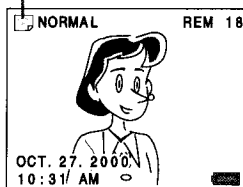
- Slide the POWER switch (①), set the Mode select switch to STILL (②) and then rotate the lens body toward CAMERA (③).



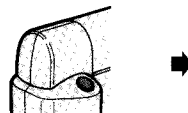
- Adjust the angle of the lens body to compose the image on the LCD monitor.



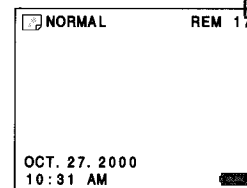
STILL mode indicator



- Press the Shutter button to record the image.



Remaining number



Notes:

- If the warning indicator "NOT INITIALIZED" appears, format the SmartMedia card by the Digital Recorder (see page 64).
- The Digital Recorder automatically chooses the correct shutter speed for the lighting conditions. Note that the slow shutter speed set for the poor lighting may cause small image shakes. And the image on the LCD monitor will be adversely affected.
- Using the Digital Recorder under fluorescent lights, mercury lamps or sodium-vapour lamps causes flashes on the recorded images. Sometimes those lightings affect tint of the images.
- The Still Recording mode is factory preset to NORMAL. If you want to record still images in higher picture quality, change the mode to FINE (see page 46).**

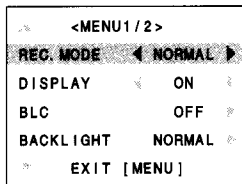
Recording with the Self-Timer

The Self-Timer allows you a time-lag of 10 seconds for Still Recordings. Rotate the lens body 180° so the LCD monitor faces the same direction as the lens, and you can always see the Timer indicator.

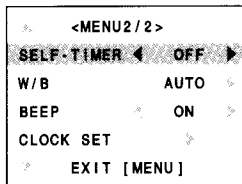
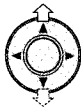
Precaution:

- When using the Self-Timer, fix the Digital Recorder on a tripod, etc. to place it horizontally.

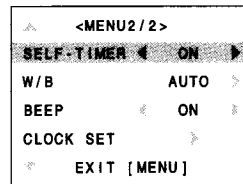
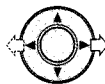
- 1 Set the Still Recording mode (see page 26), then press the MENU button to display <MENU 1/2>.



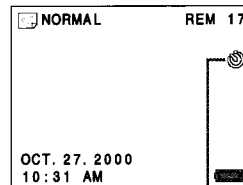
- 2 Press ▲ or ▼ on the Operation button to move the pointer to "SELF-TIMER" in <MENU 2/2>.



- 3 Press ◀ or ▶ to select "ON".

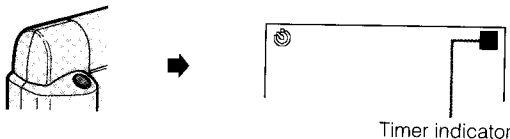


- 4 Press the MENU button to turn off the menu.
 - The Self-Timer indicator appears.



Self-Timer indicator

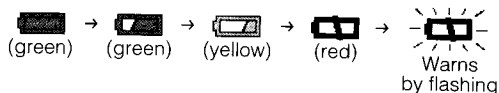
- 5 Composing the image on the LCD monitor, adjust the angle of the lens body.
- 6 Press the Shutter button to set the timer.
- The Timer indicator appears to flash in black and red alternately until the start time is reached.
 - The Shutter will be released automatically 10 seconds after the Shutter button is pressed.
 - To cancel the Self-Timer recording, press the MENU button.

**Notes:**

- **Do not turn off the power or change the mode once the Timer indicator appears.**
- Whenever the Self-Timer recording finished, the Self-Timer mode returns to "OFF". Turn the Self-Timer "ON" every time you want to record images with it.

Remaining Battery Power-Display

The Battery power indicator appears on the LCD monitor whenever the power is on. It suggests remaining battery power in 5 levels, as shown below. When the battery power is very low, replace all four batteries with new ones immediately.



If the battery is almost dead, the Battery power indicator flashes on the blue LCD monitor screen until the power is turned off five seconds later.

Notes:

- Use the Battery power indicator only as an indication.
- Battery consumption may vary depending on the operating conditions.
- **The Battery power indicator may not work properly for nickel cadmium (Ni-Cd) rechargeable batteries.**

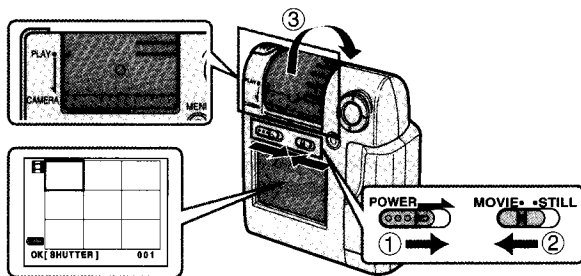


Basic Operations

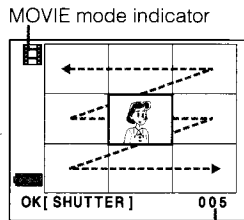
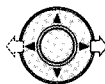
Movie Playback

The LCD monitor makes it possible to play back what you have just recorded. You can also enjoy the sound through the built-in speaker.

- Slide the POWER switch (①), set the Mode select switch to MOVIE (②) and then rotate the lens body to PLAY (③).
 - The first scenes of the movies will be displayed in a thumbnail format (reduced size images) by the Movie Index Playback mode.



- Press ◀ or ▶ on the Operation button to move the frame to the desired image.



The number of the movie

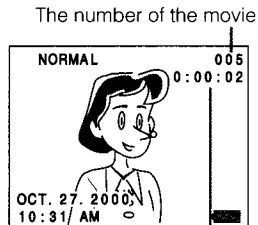
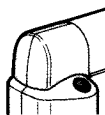
Note:

- If you have recorded more than nine movies, there are other pages before and after the current page.

To go to the previous page, press ▲.

To go to the next page, press ▼.

- Press the Shutter button to play back the selected movie in the full size.



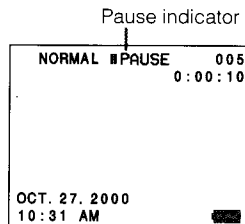
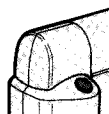
Elapsed playback time

Notes:

- To return to the first scene of the current movie, press ◀ once. Pressing ◀ twice starts the previous movie. If there is no previous movie, the last numbered movie starts.
- Pressing ▶ plays the next movie. If there is no next movie, the first numbered movie starts.

To Pause the Movie Playback

Press the Shutter button. To resume the playback, press the Shutter button again.



To Return to the Movie Index Playback Mode

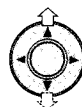
Press the MENU button and hold it until the Movie Index Playback mode screen appears.



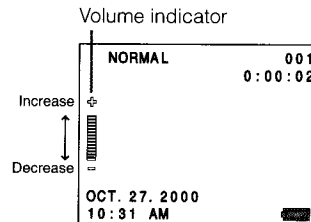
Volume Control

During a movie playback, press ▲ or ▼ on the Operation button to adjust the volume of built-in speaker.

Increase

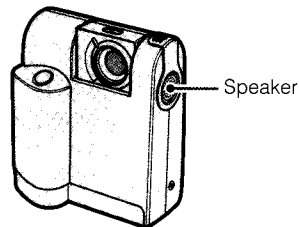


Decrease



Note:

- The volume setting will be retained even after the Digital Recorder is turned off.

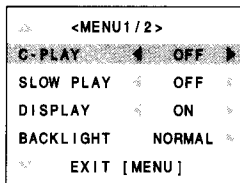


Basic Operations

Slow

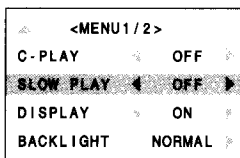
This function halves the normal speed of playback. You can play the movie in slow motion.

- 1 Set the Movie Playback mode (see page 29), then press the MENU button.
 - <MENU 1/2> appears on the LCD monitor.

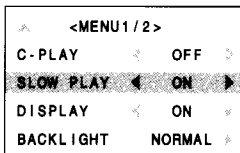
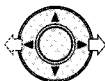


- 2 Press ▲ or ▼ on the Operation button to move the pointer to "SLOW PLAY" (①) and then press ◀ or ▶ to select "ON" (②).

①

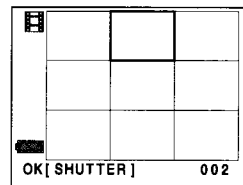


②



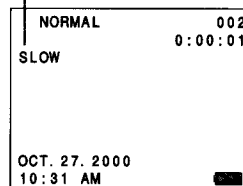
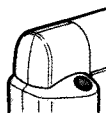
- 3 Press the MENU button to turn off the menu.
 - The Movie Index Playback mode screen appears.

MENU



- 4 Select the desired movie, and press the Shutter button to play in slow motion.

Slow playback indicator

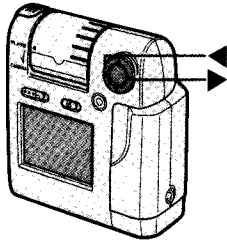


Notes:

- You cannot play back sounds using this function.
- The Slow setting will return to "OFF" whenever the power is turned off.

Skipping

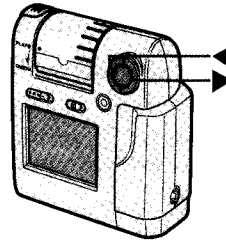
During a movie playback, press and release immediately ◀ or ▶ on the Operation button. It allows you to jump to the first scene of the current or the next movie and automatically start playing it again.



- To jump back to the first scene of the current movie, press ◀. Each time you press ◀, it skips backwards by one movie.
- To jump forward to the first scene of the next movie, press ▶.

Fast Forward/Fast Reverse

During a movie playback, press ◀ or ▶ on the Operation button for more than two seconds. This operation fast-forwards or reverses the movie.



- To run forwards, press and hold ▶.
- To run backwards, press and hold ◀.

Notes:

- If you release the Operation button within two seconds, the screen jumps to the first scene of the current (or next) movie.
- If the movie is extremely short, this function may not work.

Basic Operations

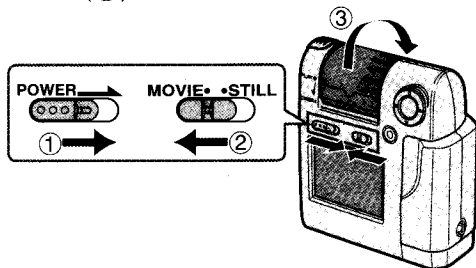
Deleting Unwanted Movie One by One

This function allows you to delete unwanted movie one by one.

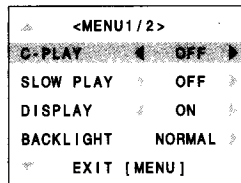
Precautions:

- Please protect your important movie against accidental deletion. To delete a protected movie, unprotect it before the deletion (see pages 37 and 38).
- Do not open the battery compartment cover while the Digital Recorder delete a movie.

- 1 Slide the POWER switch (①), set the Mode select switch to MOVIE (②) and then rotate the lens body to PLAY (③).

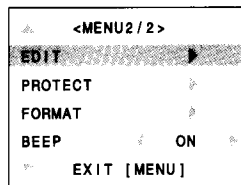
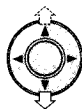


- 2 Press the MENU button to display <MENU 1/2>.

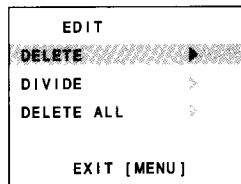


- 3 Press ▲ or ▼ on the Operation button to move the pointer to "EDIT" in <MENU 2/2> (①) and then press ► (②).

①

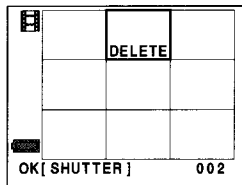
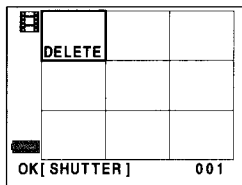
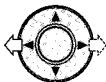


②



4 Press **▶**.

- The Movie Index Playback mode screen appears with a "DELETE" frame.

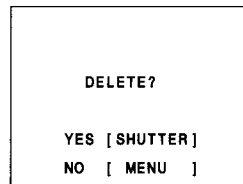
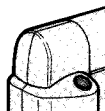
5 Press **◀** or **▶** to move the frame to the unwanted movie.**Note:**

- If you have recorded more than nine movies, there are other pages before and after the current page.

To go to the previous page, press **▲**.

To go to the next page, press **▼**.

6 Press the Shutter button.



7 Press the Shutter button to delete the selected movie.

- The screen returns to the Movie Index Playback mode with a "DELETE" frame. If you want to delete another movie, repeat the procedure from step 5 to 7.

8 Press the MENU button three times to display the Movie Index Playback mode screen.

**Note:**

- To cancel the deletion, press the MENU button in step 6.



Basic Operations

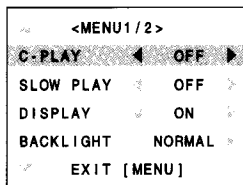
Deleting All the Movies

Use this function if you no longer need any of the movies, for example, after transferring them to your computer.

Precautions:

- Please protect your important movies against accidental deletion. To delete protected movies, unprotect them before the deletion (see pages 37 and 38).
- Do not open the battery compartment cover while the Digital Recorder deletes movies.

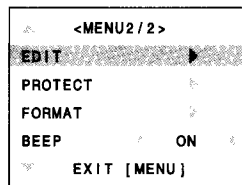
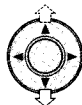
- 1 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.



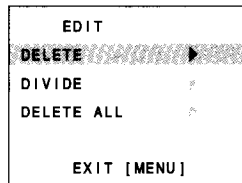
- 2 Press ▲ or ▼ on the Operation button to move the pointer to "EDIT" in <MENU 2/2> (①) and then press ► (②).

- The EDIT mode screen appears.

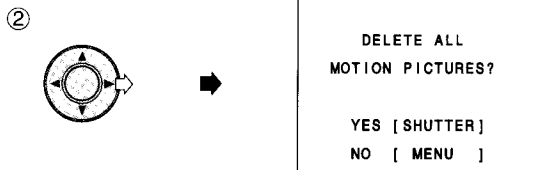
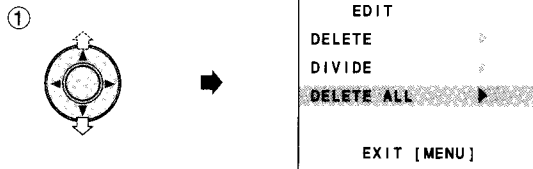
①



②

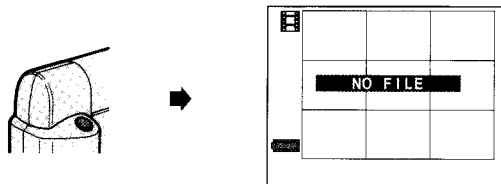


3 Press ▲ or ▼ to select “DELETE ALL” (①) and press ► (②).



4 Press the Shutter button to delete all recorded movies.

- The Movie Index Playback mode screen appears.



Notes:

- Protected movies cannot be deleted. See pages 37 and 38 for the details on protecting and unprotecting images.
- To cancel the deletion, press the MENU button in step 3.



Basic Operations

Protecting Important Movie and Images from Deletion

This function protects your important movies or still images against accidental deletion.

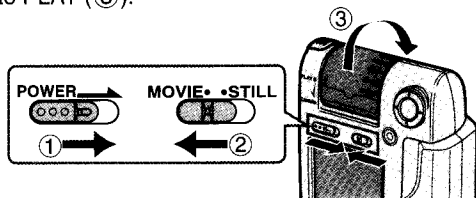
Note:

- You can perform this procedure in the Playback mode.

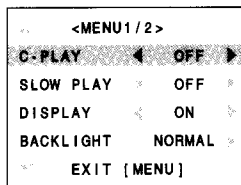
Example:

- Protecting an important movie.

- 1 Slide the POWER switch (①), set the Mode select switch to MOVIE (②) and then rotate the lens body to PLAY (③).



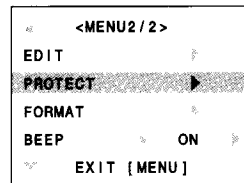
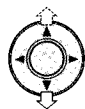
- 2 Press the MENU button to display <MENU 1/2>.



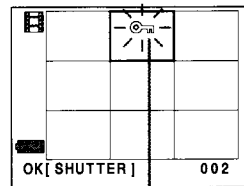
- 3 Press ▲ or ▼ on the Operation button to move the pointer to "PROTECT" in <MENU 2/2> (①) and then press ► (②).

- The Movie Index Playback mode screen appears with the protect indicator "Ⓢ".

①

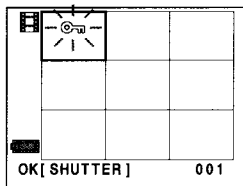
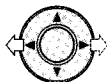


②



Protect indicator

4 Press ◀ or ▶ to move the frame to the desired movie.



Note:

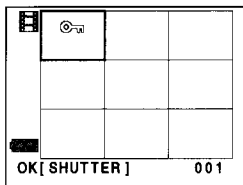
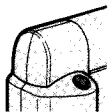
- If you have recorded more than nine movies or still images, there are other pages before and after the current page.

To go to the previous page, press ▲.

To go to the next page, press ▼.

5 Press the Shutter button.

- The protect indicator "Ⓢ" is lit on the desired movie.



6 Press the MENU button twice to end the protect setting procedure.

- The Movie Index Playback mode screen appears.



Notes:

- If you protect a still image, perform steps 2 through 6 in the Still Playback mode.
- To protect another movie, repeat the procedure in steps 4 and 5.
- Formatting a SmartMedia card (see page 64) deletes all images on it, regardless of whether the images are protected or not.

To Cancel the Protect Setting

Perform steps 2 through 4, and then press the Shutter button. When the "Ⓢ" indicator flashes, press the MENU button.

- If you want to cancel another protection, press ◀ or ▶ to select the protected image and press the Shutter button.

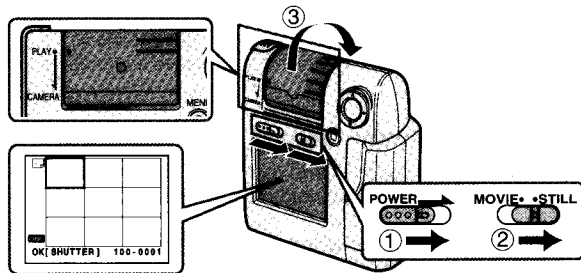


Basic Operations

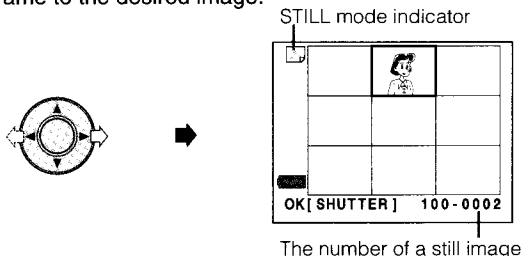
Still Playback

Using the LCD monitor, you can see the still images as soon as you have finished the shooting.

- 1 Slide the Power switch (①), set the Mode select switch to STILL (②) and then rotate the lens body to PLAY (③).
 - The still images will be displayed in a thumbnail format (reduced size images) by the Still Index Playback mode.



- 2 Press ◀ or ▶ on the Operation button to move the frame to the desired image.



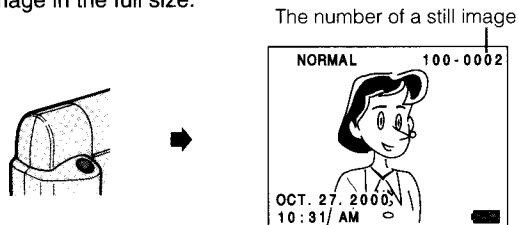
Note:

- If you have recorded more than nine still images, there are other pages before and after the current page.

To go to the previous page, press ▲.

To go to the next page, press ▼.

- 3 Press the Shutter button to playback the selected still image in the full size.



Notes:

- Pressing ◀ plays the previous image.
- Pressing ▶ plays the next image.

To Return to the Still Index Playback Mode

Press the MENU button and hold it until the Still Index Playback mode screen appears.



Basic Operations

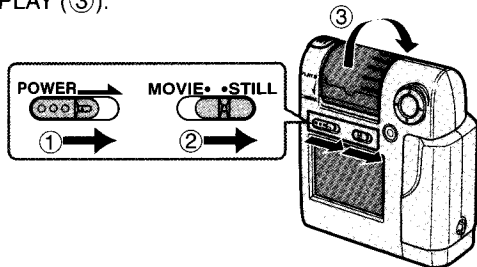
Deleting Unwanted Still Image One by One

This function allows you to delete unwanted still image one by one.

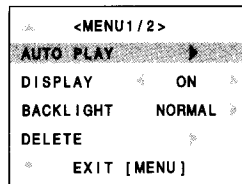
Precautions:

- Please protect your important still image against accidental deletion. To delete a protected still image, unprotect it before the deletion (see pages 37 and 38).
- Do not open the battery compartment cover while the Digital Recorder deletes a still image.

- 1 Slide the POWER switch (①), set the Mode select switch to STILL (②) and then rotate the lens body to PLAY (③).



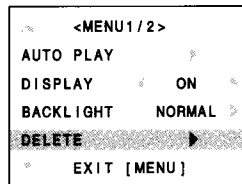
- 2 Press the MENU button to display <MENU 1/2>.



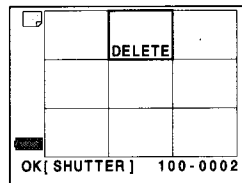
- 3 Press ▲ or ▼ on the Operation button to move the pointer to "DELETE" (①) and then press ► (②).

- The Still Index Playback mode screen appears with a "DELETE" frame.

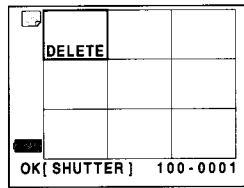
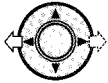
①



②



- 4 Press ◀ or ▶ to move the frame to the unwanted still image.



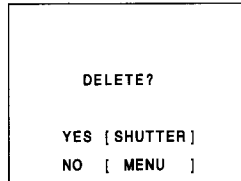
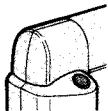
Note:

- If you have recorded more than nine still images, there are other pages before and after the current page.

To go to the previous page, press ▲.

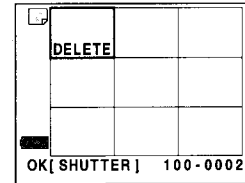
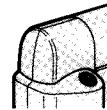
To go to the next page, press ▼.

- 5 Press the Shutter button.



- 6 Press the Shutter button again to delete the selected still image.

- The screen returns to the Still Index Playback mode with a "DELETE" frame. If you want to delete another still image, repeat the procedure from step 4 to 6.



- 7 Press the MENU button twice to display the Still Index Playback mode screen.

Note:

- To cancel the deletion, press the MENU button in step 4.

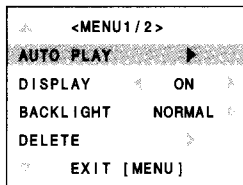
Deleting All the Still Images

Use this function if you no longer need any of the still images, for example, after transferring them to your computer.

Precautions:

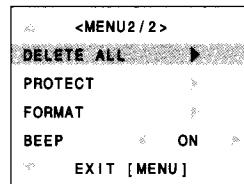
- Please protect your important still images against accidental deletion. To delete protected still images, unprotect them before the deletion (see pages 37 and 38).
- Do not open the battery compartment cover while the Digital Recorder deletes still images.

- 1 Set the Still Playback mode (see page 39), then press the MENU button to display <MENU 1/2>.

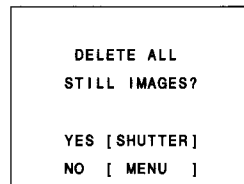


- 2 Press ▲ or ▼ on the Operation button to select "DELETE ALL" in <MENU 2/2> (①) and then press ► (②).

①

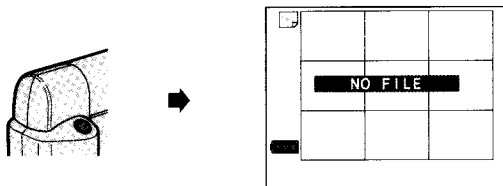


②



3 Press the Shutter button to delete all recorded still images.

- The Still Index Playback mode screen appears.



Notes:

- Protected still images cannot be deleted. See pages 37 and 38 for the details on protecting and unprotecting images.
- To cancel the deletion, press the MENU button in step 2.



Advanced Features

Resolution Setting

The picture quality and the recording time/the number of shots depend on the resolution mode. Select an appropriate mode for your needs or the shooting conditions.

Precaution:

- The figures below are approximations only. The actual recordable time/the number of images stored in a SmartMedia card cannot be specified precisely because the amount of memory required for storage of each image differs according to image contents.

Movie Resolution Mode

NORMAL: Recording with the standard picture quality.

LP: Images in this mode is suitable for sending and receiving across the Internet through analogue telephone circuits. Its picture quality is lower than that of the NORMAL mode.

FINE: Recording with higher quality than that of the NORMAL mode images, while the recordable time is one-third long of that of the NORMAL mode.

S-FINE: Recording with higher quality than that of the FINE mode, while the recordable time is about half of that of the FINE mode.

1/4 VGA: Recording with the best quality of all. The moving of subject in playback is not fluent because the number of images recorded per one second is about one-third of that of the S-FINE mode.

Resolution mode	Record time according to SmartMedia card capacity				Computer output image (dot)	Frame rate* (number of images per sec.)	Transfer rate (kbps) image/sound
	32 MB	16 MB	8 MB	4 MB			
1/4VGA	10 min.	5 min.	2 min. 30 sec.	1 min. 15 sec.	320 x 240	2 to 5	384/32
S-FINE	10 min.	5 min.	2 min. 30 sec.	1 min. 15 sec.	160 x 120	5 to 15	384/32
FINE	20 min.	10 min.	5 min.	2 min. 30 sec.		5 to 12	192/24
NORMAL	60 min.	30 min.	15 min.	7 min. 30 sec.		5 to 10	64/16
LP	2 hr. 17 min.	1 hr. 8 min.	34 min.	17 min.		1 to 2	28.8/16

* "Frame rate" is the number of the frames the Digital Recorder can record per second. It depends on the image of the movie.

Still Image Resolution Mode

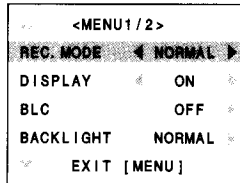
NORMAL: Recording with standard picture quality.
FINE: Recording with higher quality than that of the NORMAL mode images, while the recordable number is about half of that of the NORMAL mode.

Resolution mode	Record No. of shots according to SmartMedia card capacity				Computer output image (dot)
	32 MB	16 MB	8 MB	4 MB	
FINE	288	144	72	36	640 × 480
NORMAL	576	288	144	72	

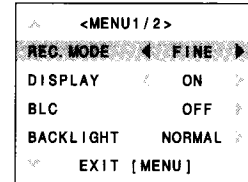
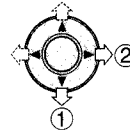
To Select a Resolution Mode

Note:
 • You can perform this procedure in the Recording mode.

1 Set the Movie (or Still Image) Recording mode (see page 23 or 26), press the MENU button to display <MENU 1/2>.



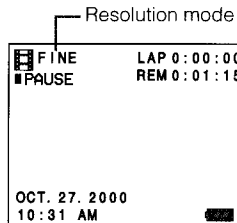
2 Press ▲ or ▼ on the Operation button to move the pointer to "REC. MODE" (①) and press ◀ or ▶ to select the desired mode (②).



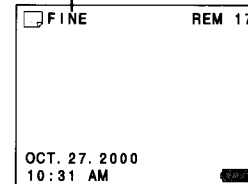
Movie → NORMAL ↔ FINE ↔ S-FINE ↔ 1/4VGA ↔ LP ←

Still → NORMAL ↔ FINE ←

3 Press the MENU button to turn off the menu.
 • The indicator of the selected mode appears.



Movie Recording mode



Still Image Recording mode

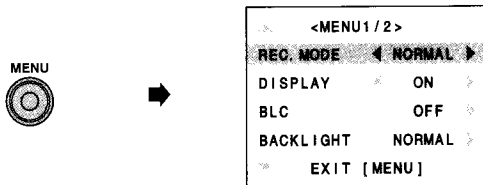
Recording Backlit Subjects

When the subject is backlit, the image will be darkened in the regular recording. The following procedure makes it possible to brighten the subject and suppress the whitening of the background to improve the image.

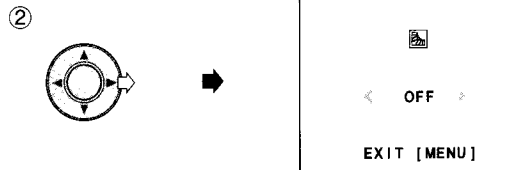
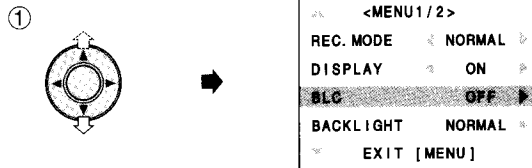
Example:

- Setting during a movie recording.

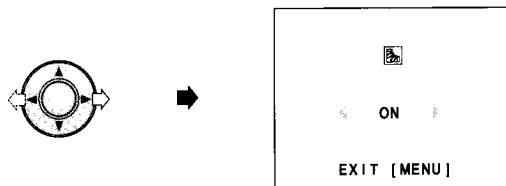
- 1 During a movie recording (see page 23), press the MENU button to display <MENU 1/2>.



- 2 Press ▲ or ▼ on the Operation button to move the pointer to “BLC” (①) and then press ► (②).
 - The BLC (Backlight compensation) setting mode screen appears.

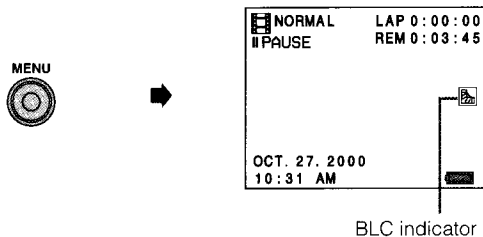


- 3 Press ◀ or ▶ to select “ON”.



- 4 Press the MENU button to turn off the BLC setting mode screen.


- The BLC indicator appears.

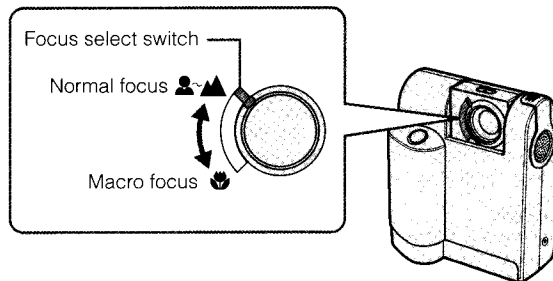


Notes:

- To cancel the backlight compensation, press "OFF" in step 3.
- The compensation setting returns to "OFF", whenever the power is turned off.

Macro Shots

Slide the projection of the Focus (Macro/Normal) select switch to the  mark, when a subject is at a short distance (min. 4" (10 cm)) from the lens.



Normal focus :

The focal distance will be about 24" (60 cm) to ∞.
Recording outdoors or a bust shot indoors

Macro focus :

The focal distance will be about 4" (10 cm).
Recording a close-up shot outdoors or indoors

Note:

- Slide the switch until it stops at the end.

Advanced Features

Time-Lapse Movie Recording

Use the Time-Lapse Movie mode when you want to record an extremely slow-moving subject. When playing back normally, you can enjoy the movie which appears to be moving 10 times, 40 times or 100 times faster than an actual subject's motion.

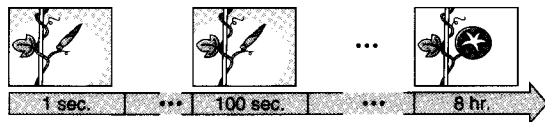
Precautions:

- We recommend that you use the supplied AC adapter as the power source (see page 16) and a tripod for this function.
- This function cannot record sounds.
- Extremely short recording time may not be available for the Time-Lapse Movie mode.

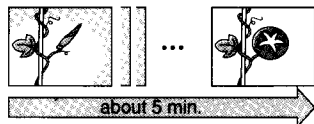
Example:

- Recording a blooming flower in x100 mode of the time-lapse movie. The motion for 8-hour is played back in about 5 minutes.

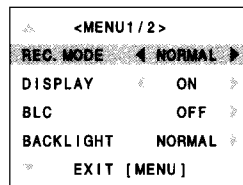
Recording time



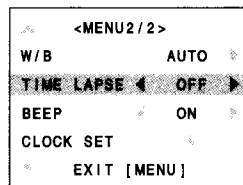
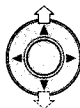
Playback time



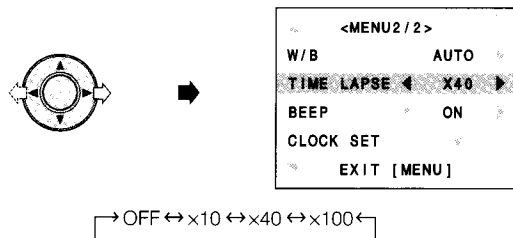
- 1 Set the Movie Recording mode (see page 23), then press the MENU button to display <MENU 1/2>.



- 2 Press ▲ or ▼ on the Operation button to move the pointer to "TIME LAPSE" in <MENU 2/2>.



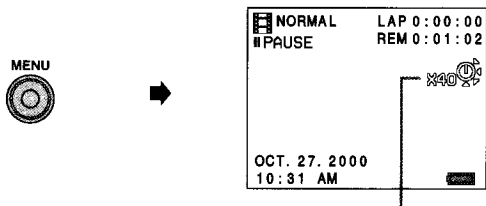
3 Press ◀ or ▶ to select the desired interval mode.



- OFF : normal recording
- x10 : 10x time-lapse recording
- x40 : 40x time-lapse recording
- x100 : 100x time-lapse recording

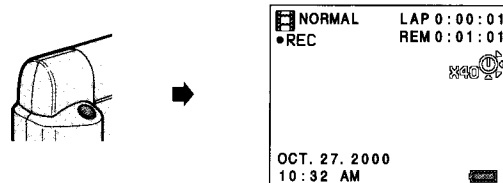
4 Press the MENU button.

- The Movie Recording mode screen appears with the Time-Lapse mode indicator.



Time-Lapse mode indicator

5 Adjust the angle of the lens body to compose the image on the LCD monitor, and then press the shutter button to begin the recording.



Notes:

- To stop the time-lapse movie recording while the operation goes on, press the Shutter button again.
- The time-lapse movie setting will return to "OFF" whenever the power is turned off.
- You can play back the time-lapse recording with the normal procedure.

To Cancel the Time-Lapse Movie Recording

Perform steps 1 and 2, and then press ◀ or ▶ to select "OFF" for the item "TIME LAPSE".



Selecting the White Balance Mode

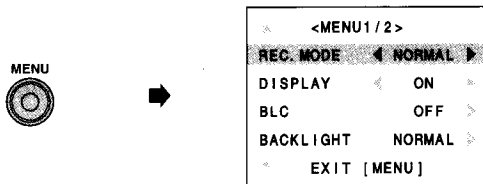
Recorded images will take on somewhat different colors depending on the kind of light source. For recording in as natural colors as possible, you can select from three different white balance modes.

The "AUTO" mode constantly adjusts white balance automatically allowing you to record in relatively natural colors in most situations. Select the "OUTDOOR" mode for outdoor recording or the "INDOOR" mode for indoor recording to obtain more natural colors.

Example:

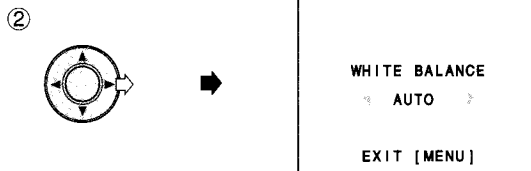
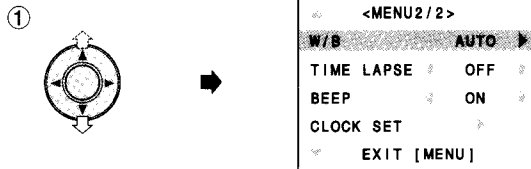
- Setting during a movie recording.

- 1 During a movie recording (see page 23), press the MENU button to display <MENU 1/2>.

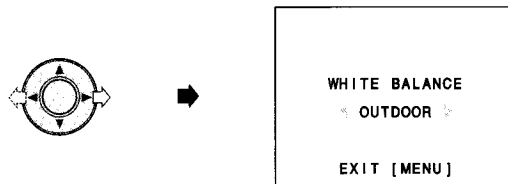


- 2 Press ▲ or ▼ on the Operation button to move the pointer to "W/B" in <MENU 2/2> (①) and then press ▶ (②).

- The White balance mode screen appears.



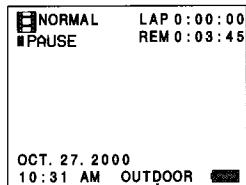
- 3 Press ◀ or ▶ to select "OUTDOOR" or "INDOOR".



→OUTDOOR↔INDOOR↔AUTO←

4 Press the MENU button to turn off the White balance setting screen.

- The selected White balance indicator appears.



White balance indicator

To Return to Auto-White Balance Mode

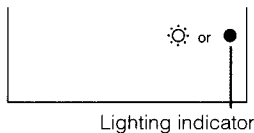
Select "AUTO" in step 3.

Note:

- The White balance setting returns to "AUTO", whenever the power is turned off. The "AUTO" mode has no mode indicator.

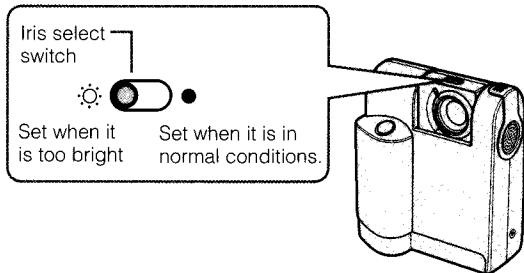
Selecting the Iris Mode

When the amount of light that the lens receives is too much or insufficient for recording, the Lighting indicator appears on the LCD monitor.



Set the Iris select switch to the ☀ or ● position to match with the lighting condition.

- **When no indicator appears**, we recommend that you normally set the Iris select switch to the ● position.
- **When the Lighting indicator "☀" appears**, set the Iris select switch to the ☀ position. The ☀ indicator means too much light.



Notes:

- Make sure the iris select switch is not set in between the ☀ and ● positions.
- Under the dark or extremely bright lighting conditions, the Lighting indicator may not disappear even if you switch the Iris mode. This does not indicate malfunction.
- ● on the LCD monitor indicates lack of light. In this case, using a video light is recommended.

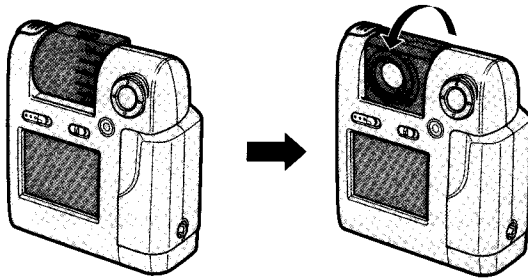
Recording Yourself (Self Recording)

Rotate the lens body 180° so the LCD monitor faces the same direction as the lens. This way you can record yourself while watching yourself on the LCD monitor. Try recording you and your friends together while holding the Digital Recorder by hand or fixing it on a tripod.

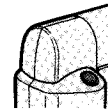
Precautions:

- Do not rotate the lens body over the rotatable range.
- Do not rotate the lens body while the Self-timer is set.

- 1 During a recording (see page 23 or 26), rotate the lens body 180°.
 - The LCD monitor screen displays a mirror image of the subject.



- 2 Press the Shutter button to record the image on the LCD monitor.



Note:

- Recording with the LCD monitor reversed slows down the speed of the indicator's appearance.



Turning Off the Indicators

The following procedure allows you to turn off the indicators on the LCD monitor.

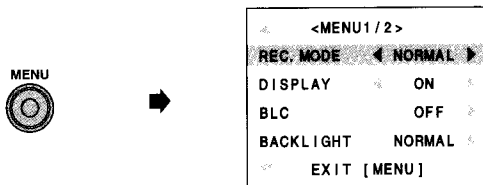
Note:

- You can perform this procedure in any mode.

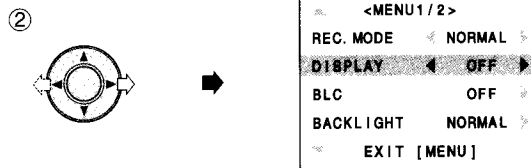
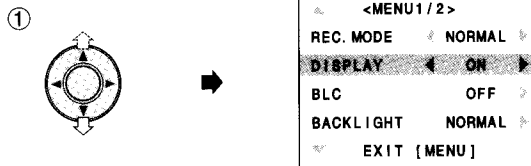
Example:

- Setting during a movie recording.

- 1 During a movie recording (see page 23), press the MENU button to display <MENU 1/2>.



- 2 Press ▲ or ▼ to move the pointer to "DISPLAY" (①) and then press ◀ or ▶ to select "OFF" (②).



- 3 Press the MENU button to turn off the menu.



Notes:

- To display the indicators again, select "ON" in step 2 above.
- The following indicators do not disappear.

Mode indicators ("E" "□")

Recording /Pause indicator ("●REC" "|| PAUSE")

Time-Lapse mode indicator ("Ⓢ")

Zoom indicator and Volume indicator

In some conditions the Battery power indicator and the warning indicators appear although the setting is "OFF".

To Turn the Beep Off

The following procedure lets you turn the beep off.

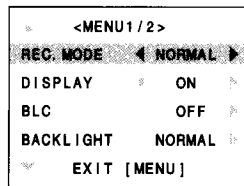
Note:

- You can perform this procedure in any mode.

Example:

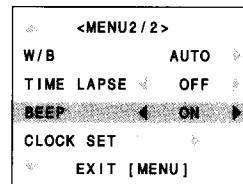
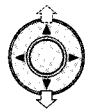
- Setting during a movie recording.

- During a movie recording (see page 23), press the MENU button to display <MENU 1/2>.

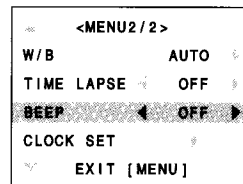
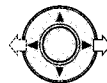


- Press ▲ or ▼ on the Operation button to move the pointer to "BEEP" in <MENU 2/2> (①) and then press ◀ or ▶ to select "OFF" (②).
 - The beep is turned off.

①



②



- Press the MENU button to turn off the menu.



Note:

- To turn the beep on, select "ON" for the item "BEEP" in step 2.

Continuous Playback

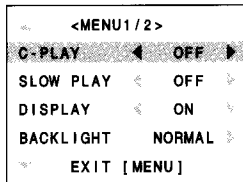
This feature automatically plays back movies one after another in the order that they were recorded.

Precaution:

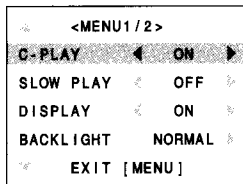
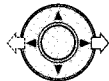
- We recommend that you use the supplied AC adapter as the power source for this function. See page 16.

- 1 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.

MENU



- 2 Press ◀ or ▶ to select "ON".

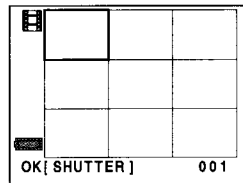


ON: Plays back all the movies once in order of recording.

REPEAT: Repeats the Continuous Playback.

- 3 Press the MENU button to turn off the menu.
 - The Movie Index Playback mode screen appears.

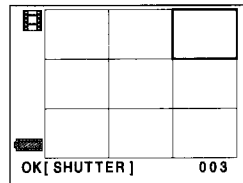
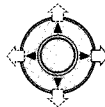
MENU



Note:

- If you paused a playback before proceeding this procedure, the operation in step 3 resumes the playback. To display the Movie Index Playback mode screen in this case, press and hold the MENU button for more than two seconds.

- 4 Press ▲, ▼, ◀ or ▶ to select the desired movie to start with.



To Turn the Beep Off

The following procedure lets you turn the beep off.

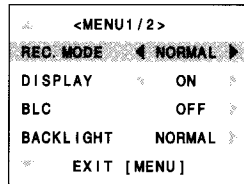
Note:

- You can perform this procedure in any mode.

Example:

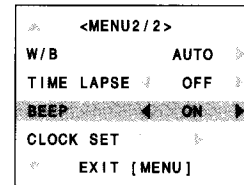
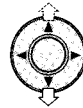
- Setting during a movie recording.

- During a movie recording (see page 23), press the MENU button to display <MENU 1/2>.

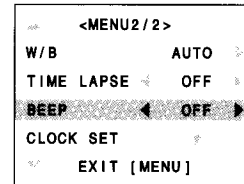
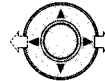


- Press ▲ or ▼ on the Operation button to move the pointer to "BEEP" in <MENU 2/2> (①) and then press ◀ or ▶ to select "OFF" (②).
 - The beep is turned off.

①



②



- Press the MENU button to turn off the menu.

MENU



Note:

- To turn the beep on, select "ON" for the item "BEEP" in step 2.

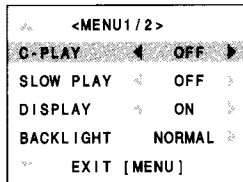
Continuous Playback

This feature automatically plays back movies one after another in the order that they were recorded.

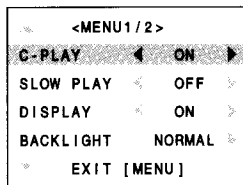
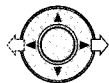
Precaution:

- We recommend that you use the supplied AC adapter as the power source for this function. See page 16.

- 1 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.



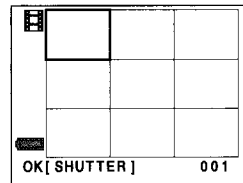
- 2 Press ◀ or ▶ to select "ON".



ON: Plays back all the movies once in order of recording.

REPEAT: Repeats the Continuous Playback.

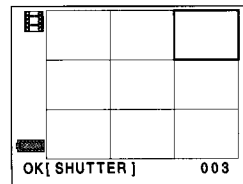
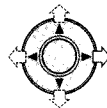
- 3 Press the MENU button to turn off the menu.
 - The Movie Index Playback mode screen appears.



Note:

- If you paused a playback before proceeding this procedure, the operation in step 3 resumes the playback. To display the Movie Index Playback mode screen in this case, press and hold the MENU button for more than two seconds.

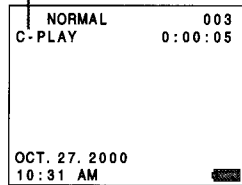
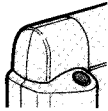
- 4 Press ▲, ▼, ◀ or ▶ to select the desired movie to start with.



5 Press the Shutter button.

- The Playback starts with the selected movie and continues in the recording order.
- After the Continuous Playback, the first scene of the playback is displayed and pauses.

Continuous playback indicator



- **To pause**, press the Shutter button. To resume playback, press the Shutter again.
- **To play back the previous movie**, press ◀. A single press starts the current movie from the beginning. A double press plays the previous movie.
- **To play back the next movie**, press ▶.

Notes:

- You can skip or run the movie forwards or backwards (see page 32) during Continuous Playback.
- The "ON" setting returns to "OFF" whenever the power is turned off. The "REPEAT" setting, however, is retained.

To Cancel the Continuous Playback

Press the MENU button to display <MENU 1/2> and press ◀ or ▶ to select "OFF" for the item "C-PLAY".



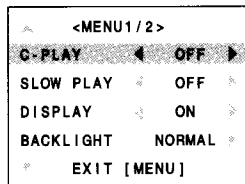
Dividing a Movie

You can divide a movie data. Use this function when you want to cut unnecessary scene from a movie recorded at random. Or divide a movie to sort it out into "chapters".

Precaution:

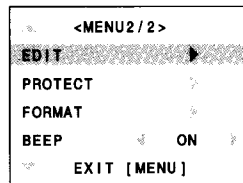
- Movies should be long enough for division.
If not, the warning indicator "CANT DIVIDE" appears.

- 1 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.

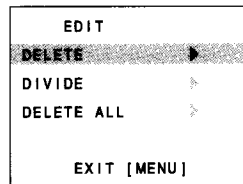


- 2 Press ▲ or ▼ on the Operation button to move the pointer to "EDIT" in <MENU 2/2> (①) and then press ► (②).
 - The EDIT mode screen appears.

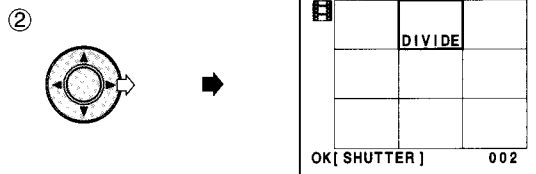
①



②



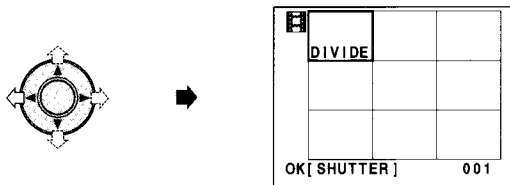
- 3** Press ▲ or ▼ to select "DIVIDE" (①) and then press ► (②).
- The EDIT Index mode screen appears with a "DIVIDE" frame.



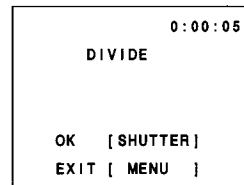
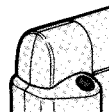
Note:

- To cancel the division, press the MENU button to return to the "EDIT" mode screen.

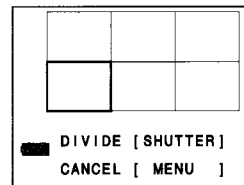
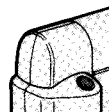
- 4** Press ▲, ▼, ◀ or ▶ to move the frame to the desired movie.



- 5** Press the Shutter button.
- The Digital Recorder plays back the selected movie.



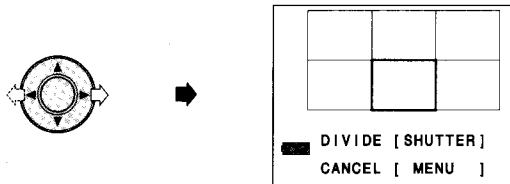
- 6** Press the Shutter button again at the desired scene for division.
- Six sequential frames appear. They are the divisible points of the scene.



Advanced Features

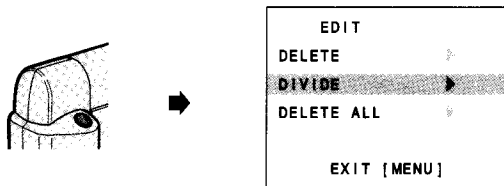
7 Press ◀ or ▶ to select the desired frame for division.

- The selected frame will be the first image of the new movie.



8 Press the Shutter button.

- The EDIT mode screen appears again.



9 Press the MENU button twice to turn off the menu.

- The Movie Index Playback mode screen appears.



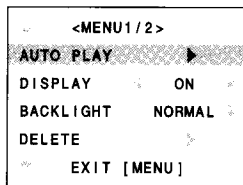
Notes:

- You can divide a movie at the specified points only. For example, the LP mode movie, which has fewer frames, should be more than one minute long for division. Select the nearest frame to your desired scene in step 7.
- An alphabetical letter "A", "B", "C"... will automatically attach to each file name of the divided movie (see page 65).
- If you want to playback the divided movies on your computer, see page 66 and the online manual of the supplied software.
- If you protect the latter file of the divided movie, you cannot divide the original movie again. The warning indicator "CAN'T DIVIDE" appears.
- If the SmartMedia card's capacity is insufficient to record the divided movies, the warning indicator "CARD FULL" appears. Delete unnecessary images from the card or replace the card with new one.

Auto Playback for Still Images

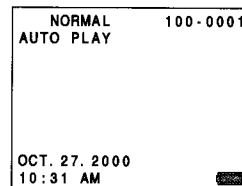
This function automatically plays back the still images every five seconds in order of recording.

- 1 Set the Still Playback mode (see page 39), then press the MENU button to display <MENU 1/2>.



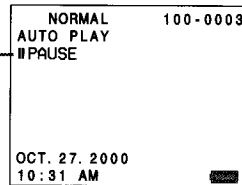
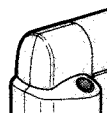
- 2 Press ▶.

- Playback starts in order of recording.



- **To pause**, press the Shutter button. Pressing the Shutter button again resumes the Auto playback.

Pause indicator



- **To cancel the Auto playback**, press ▲, ▼, ◀ or ▶.

Note:

- The Auto play setting is canceled whenever the power is turned off.

Darkening the Backlight of the LCD Monitor

Darkening the backlight of the LCD monitor makes it possible to conserve the power.

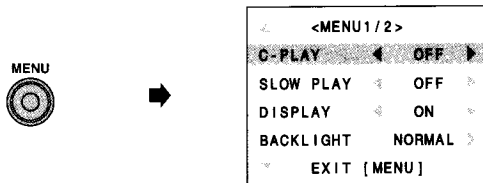
Note:

- You can perform this procedure in any mode.

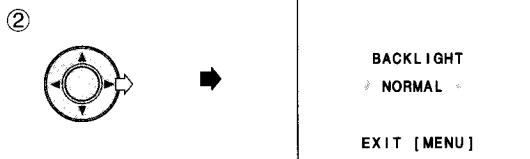
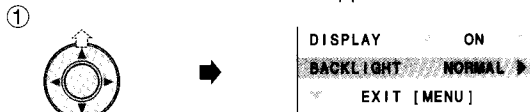
Example:

- Setting during a movie playback.

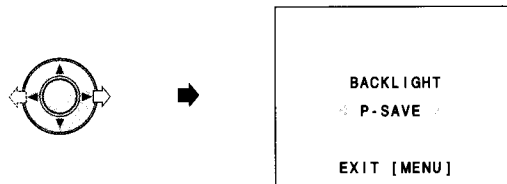
- 1 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.



- 2 Press ▲ or ▼ on the Operation button to move the pointer to "BACKLIGHT" (①) and then press ► (②).
 - The BACKLIGHT mode screen appears.



- 3 Press ◀ or ▶ to select "P-SAVE".
 - The LCD monitor darkens.



- 4 Press the MENU button to turn off the backlight setting screen.
 - The Movie Index Playback mode screen appears.

Note:

- To return to "NORMAL", select "NORMAL" in step 3.

Formatting a SmartMedia Card

Formatting is necessary to the commercially available SmartMedia (2 MB and 4 MB type) before its first use. The supplied and commercially available SmartMedia (8 MB, 16 MB and 32 MB type) are already formatted so you can use it as it is.

Reformat the card when :

- **“READ ERROR”** often appears while operating any function.
- **“NOT INITIALIZED”** appears and you cannot use the Digital Recorder.
- **“FILE NO. FULL”** appears and you cannot record images.

Precautions:

- USE THE DIGITAL RECORDER TO FORMAT A SMARTMEDIA CARD. The Digital Recorder may not recognise the recorded images on the card formatted by your computer.
- Formatting a SmartMedia card deletes all images on the card, even if some or all of the images are protected. You should always make backup copies of important images on other media (e.g. floppy disks, computer hard disk).
- We recommend that you use the supplied AC adapter as the power source for this function. See page 16.
- Do not open the battery compartment cover while the Digital Recorder formats a SmartMedia card.

Notes:

- You cannot format a SmartMedia card which is physically damaged. The warning indicator “CARD ERROR” appears.
- You can perform this procedure in the Movie and Still Playback mode.

Example:

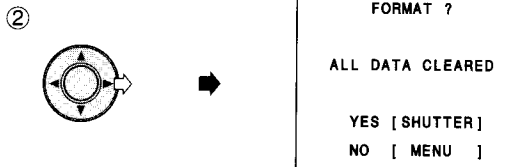
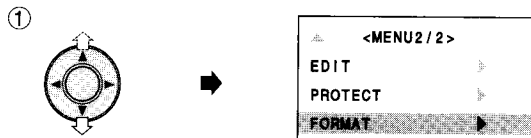
- Setting during a movie playback.

- 1 Load the SmartMedia (see page 17).
- 2 Set the Movie Playback mode (see page 29), then press the MENU button to display <MENU 1/2>.



- 3 Press ▲ or ▼ on the Operation button to move the pointer to “FORMAT” in <MENU 2/2> (①) and then press ► (②).

- The FORMAT mode screen appears.



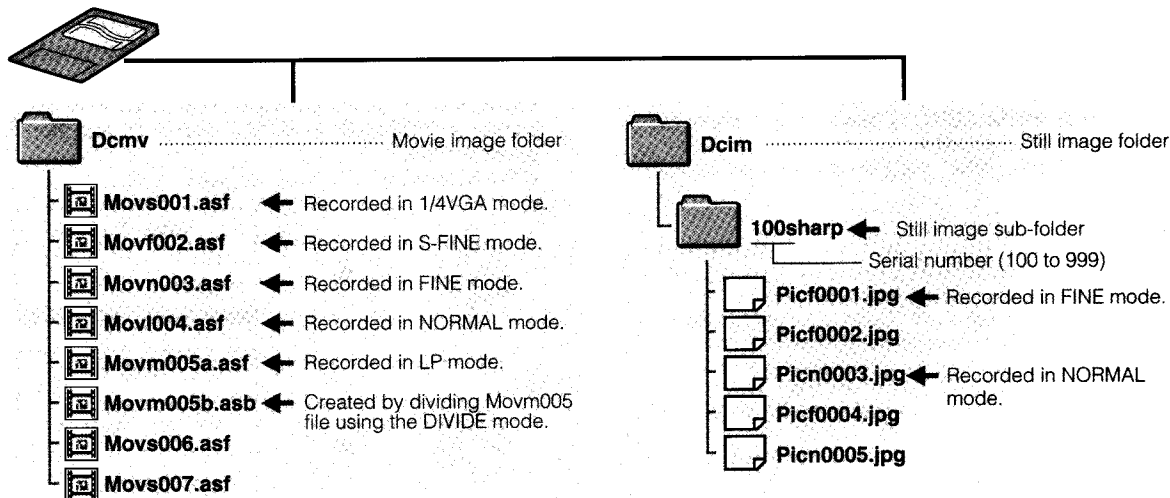
- 4 Press the Shutter button.

- The “NO FILE” warning indicator appears when the formatting ends.

Importing Images into a Computer

Image Files in the SmartMedia Card

The Digital Recorder creates folders on the SmartMedia card when formatting it. A recorded image is stored as a image file with an automatically assigned file name. Movie image files are stored in the **Dcmv** folder and still image files in the **Dcim** folder.



A file name is made up of the following parts.

Movie image file



Movs001.asf

Extension : Shows its file format.

.asf Created for movies recorded by the Digital Recorder (in ASF file format).

.asb Created by the DIVIDE mode.

To play back an image file with this extension, convert it to ASF format file. Please refer to the online manual of the supplied software for details.

Serial numbers : Assigned automatically in order of recording.

For a file created by the DIVIDE mode, an alphabetical letter follows.

Recording mode

s Recorded in 1/4VGA mode.

f Recorded in S-FINE mode.

n Recorded in FINE mode.

l Recorded in NORMAL mode.

m Recorded in LP mode.

Unchangeable header, "Mov" : Shows it is a movie.

Still image file



Picf0001.jpg

Extension : Shows its file format.

.jpg Created for still images recorded by the Digital Recorder (in JPEG file format).

Serial numbers : Assigned automatically in order of recording.

Recording mode

f Recorded in FINE mode.

n Recorded in NORMAL mode.

Unchangeable header, "Pic" : Shows it is a still image.



Note:

- Even if you delete one image (file) or more, the other files' serial numbers do not change.

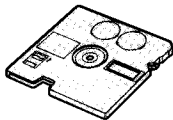
Importing Images into a Computer

Using a Floppy Disk Adapter

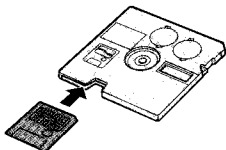
Some computers require a commercially available floppy disk adapter to read a SmartMedia card contents.

Precaution:

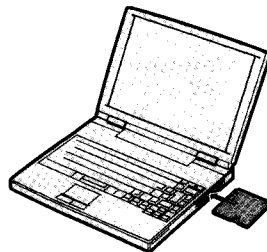
- Also see the instructions that come with the floppy disk adapter and the documentation attached to your computer for the operations.



- 1 Remove the SmartMedia card from the Digital Recorder (see page 17). Install the supplied driver software for the floppy disk adapter on your computer.
- 2 Insert the SmartMedia card into a floppy disk adapter as shown below. Make sure to insert the correct end of the card into the slot.



- 3 Insert a commercially available floppy disk adapter into your computer's 3.5" floppy disk drive slot.



Notes:

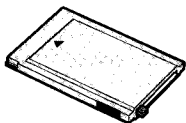
- Note that you can write and delete images on the SmartMedia card through a floppy disk adapter even if the write-protect seal is attached on the card.
- Note that some of commercially available floppy disk adapters are not compatible with a SmartMedia card of 16 MB or more.

Using a PC Card Adapter

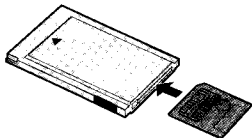
Some computers require a commercially available PC card adapter to read a SmartMedia card contents.

Precautions:

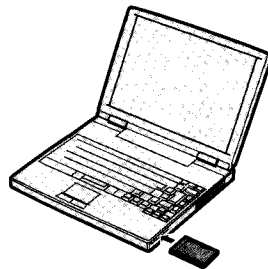
- Note that some of commercially available PC card adapters are not compatible with a SmartMedia card of 16 MB or more.
- Also see the instructions that come with the PC card adapter and the documentation attached to your computer for the operations.
- Remove the write-protect seal from the SmartMedia card before inserting the card into the PC card adapter.



- 1 Remove the SmartMedia card from the Digital Recorder (see page 17).
- 2 Insert the SmartMedia card into a PC card adapter as shown below. Make sure to insert the correct end of the card into the slot.

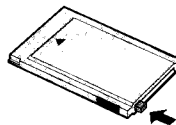


- 3 Insert the PC card adapter into your computer's PC card slot.



To Remove the SmartMedia Card

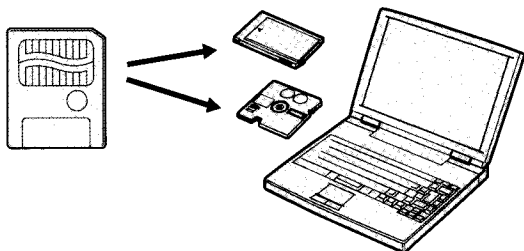
Press the eject button on the PC card adapter to pull out the SmartMedia card.



Importing Images into a Computer

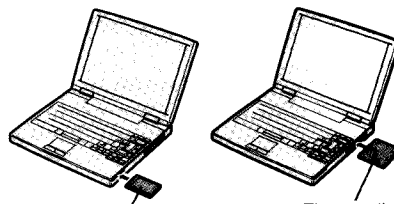
Transferring Image Data to Your Computer

Use the supplied image transfer software, PixLab Integrated Digital Media Software to transfer the images to your computer. Refer to the operation manuals for your computer and PixLab Integrated Digital Media Software for details of installation and operations.



- 1 Install the PixLab Integrated Digital Media Software on your computer.
- 2 Turn on your computer, and start up Windows 95/98.

- 3 Load the SmartMedia card into a card slot of your computer (see page 67 or page 68).



PC card adapter

Floppy disk adapter

- 4 Click the "PixLab Media Browser" icon to start up the software.
- 5 Transfer the desired images to your computer

To Playback the Movies on Your Computer

- To play back movies recorded by the Digital Recorder, install the following softwares.
 - * Microsoft Windows Media Player (Ver.6.0 or later)
 - * A CODEC filter for movies and still images
- The both are not installed, install Windows Media Player and PixLab Integrated Digital Media Software on the supplied CD-ROM. Installing PixLab replaces a CODEC filter.
- When you send a movie file [ASF file format (see page 66)] on E-mail, the addressee's computer also requires the both softwares above. If they are not installed, inform the addressee that it can be obtain from the Microsoft's download site on Internet.
- Operating speed may slow down depending on computer operating environment and processing capability.

References

Before Requesting Service

Before calling for service, please check the following troubleshooting table.

Symptom	Possible cause	Suggestion	
Power source	No power	• The specified batteries not loaded correctly.	• Correctly load batteries (page 14).
		• A formatted SmartMedia card not loaded properly, or no card loaded.	• Load the SmartMedia card correctly (page 17).
		• Dead batteries.	• Replace all four batteries with a set of new ones or fully charged rechargeable batteries (page 14).
		• (For using the supplied AC adapter) The adapter not connected correctly, or wrong AC adapter.	• Properly connect the adapter (page 16). Use only the supplied AC adapter.
		• The battery compartment cover not closed securely.	• Make sure to close the cover.
	Sudden power failure	• Power is automatically turned off for saving whenever you do not perform any operation for about three minutes (Auto Power Off).	• Slide the POWER switch again.
		• Low battery power	• Replace all four batteries with a set of new ones or fully charged rechargeable batteries (page 14).
		• Use of manganese batteries	• Replace manganese batteries with alkaline, nickel cadmium (Ni-Cd) rechargeable or nickel metal hydride rechargeable batteries.
	• The battery compartment cover not closed securely.	• Make sure to close the cover.	

References

	Symptom	Possible cause	Suggestion
Power source	Power failure without Battery power indicator's warning	<ul style="list-style-type: none"> Power is automatically turned off for saving whenever you do not perform any operation for about three minutes (Auto Power Off). 	<ul style="list-style-type: none"> Slide the POWER switch again.
		<ul style="list-style-type: none"> The Battery power indicator may not work properly for nickel cadmium (Ni-Cd) rechargeable batteries. 	_____
Recording	The CLOCK SET mode screen appears.	<ul style="list-style-type: none"> Occurs when turning on the Digital Recorder without the built-in clock set. 	<ul style="list-style-type: none"> Set the date and time before the first use (page 18).
	Cannot record when pressing the Shutter button.	<ul style="list-style-type: none"> The lens body ● mark aligned with PLAY ●. 	<ul style="list-style-type: none"> Rotate the lens body toward CAMERA.
		<ul style="list-style-type: none"> Dead batteries. 	<ul style="list-style-type: none"> Replace the batteries with new ones or fully charged rechargeable batteries (page 14).
		<ul style="list-style-type: none"> The MENU mode screen is displayed . 	<ul style="list-style-type: none"> Press the MENU button to turn off the menu.
		<ul style="list-style-type: none"> The SmartMedia card not loaded properly, or no card loaded. 	<ul style="list-style-type: none"> Load the SmartMedia card correctly (page 17).
		<ul style="list-style-type: none"> Insufficient or full card capacity. 	<ul style="list-style-type: none"> Delete unnecessary images from the card (pages 33, 35, 41 and 43) or replace the card with new one (page 17).
Cannot record soon after pressing the Shutter button.	<ul style="list-style-type: none"> Self-timer mode is "ON". 	<ul style="list-style-type: none"> Press the MENU button to cancel the Self-timer recording. 	
Bright subject causes vertical stripes.	<ul style="list-style-type: none"> Occurs when recording subject with strong contrast against background. Does not indicate a malfunction. 	_____	




	Symptom	Possible cause	Suggestion
Playback	Cannot play back	• The lens body ● mark not aligned with PLAY ●.	• Rotate the lens body to align with PLAY ●.
		• The Mode (MOVIE/STILL) select switch not set securely.	• Securely set the Mode select switch (page 22).
		• Dead batteries.	• Replace the batteries with new ones or fully charged rechargeable batteries (page 14).
		• The SmartMedia card not loaded properly, or no card loaded.	• Correctly load the SmartMedia card (page 17).
	Bad picture quality	• Occurs when recorded in the LP (Movie Recording) or NORMAL (Still Recording) mode which tends to lower quality to record longer movie or larger number of still images.	• Change the resolution setting as you desired (see pages 45 and 46).
	No sounds during the Movie playback mode.	• The volume set in too low.	• Press ▲ on the operation button to turn the volume up.
Cannot delete images.	• The write-protect seal attached to the SmartMedia card.	• Remove the write-protect seal (page 5).	
	• The images delete-protected.	• Unprotect the desired images (page 38).	
Cannot format the SmartMedia card.	• The write-protect seal attached to the SmartMedia card.	• Remove the write-protect seal (page 5).	

Note:

- The Digital Recorder is equipped with a microprocessor. Its performance could be adversely affected by external electrical noise or interference. If this should happen, turn off the power and disconnect the Digital Recorder from any power sources. Then reconnect the power sources to resume operation.

Specifications

MPEG-4 Digital Recorder

Power requirement:	DC 6 V
Power consumption:	[Recording] 3.4 W [Playback] 2.7 W
Record format/Image compression system:	[Movie] MPEG-4/ASF [Still] JPEG base line conformance/JPEG (Exif 2.1)
Sound recording system:	ADPCM, monaural, 8 kHz sampling
Pixel composition:	[Movie] 160 × 120 pixels/320 × 240 pixels [Still] 640 × 480 pixels (square dots)
Recording medium:	SmartMedia card (SSFDC) (3.3 V) (2MB, 4MB, 8MB, 16MB, 32MB)
Photometry:	TTL center-weighted average metering
Exposure control:	Aperture-priority auto exposure
Pickup device:	1/4-inch square pixel color CCD image sensor (with approx. 350,000 pixels including optical black) progressive scanning
LCD Monitor:	1.8 inch color screen with approx. 61,000 pixels
Lens:	Fixed focus with macro position, F=3.4/8 f=3.8 mm
Focus range:	[Normal]   approx. 24" (60 cm) to ∞ [Macro]  approx. 4" (10 cm)
White balance:	Automatic tracking, manual switching ("OUTDOOR"/"INDOOR")
Shutter speed:	Auto variable [Movie] 1/15 to 1/4000 second [Still] 1/4 to 1/4000 second
Self-timer:	10 second
Microphone:	Monaural nondirectivity
Speaker:	φ20 mm 100 mW output (monaural)
Operating temperature:	0°C to +40°C (32°F to 104°F)
Storage temperature:	-20°C to +60°C (-4°F to 140°F)

- Operation humidity:** 30% to 80% (with no dew formation)
Dimensions: $3\frac{7}{32}$ " (W) \times $3\frac{17}{32}$ " (H) \times $1\frac{21}{32}$ " (D)
 [81.4 mm (W) \times 89.5 mm (H) \times 42 mm (D)]
Weight: 0.33 lbs (148 g) [body only]/ 0.53 lb (240 g) [including a SmartMedia card, four AA-size alkaline batteries and a hand strap]

AC Adapter (UADP-0243TAZZ)

- Power requirement:** AC 110-130 V/60 Hz
DC output: DC 6.0 V/700 mA
Operating temperature: 0°C to +40°C (32°F to 104°F)
Storage temperature: -20°C to +60°C (-4°F to 140°F)
Dimensions (approx.): $2\frac{3}{8}$ " (W) \times $3\frac{3}{8}$ " (H) \times $1\frac{29}{32}$ " (D)
 [60 mm (W) \times 86 mm (H) \times 49 mm (D)]
Weight (approx.): 1.08 lbs (490 g)

Supplied SmartMedia™ Card

- Memory capacity:** 4MB
Memory type: NAND flash EEPROM
Power requirement: 3.3 V
Operating temperature: 0°C to +40°C (32°F to 104°F)
Storage temperature: -20°C to +60°C (-4°F to 140°F)

Specifications are subject to change without notice.

SERVICE INFORMATION (For the U.S.)

For the location of the nearest Sharp Authorized Service, or to obtain product literature, accessories, supplies or customer assistance, please call 1-800-BE SHARP (1-800-237-4277) or visit SHARP's web site (<http://www.sharp-usa.com>).

Operational Support

If you have read the operation manual but are still having difficulty using your unit, you can call a SHARP Representative at: 630-378-3590



Guía de operación rápida en español

Instalación y remoción de las pilas

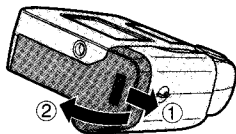
Para suministrar energía a la Grabadora Digital, use pilas tamaño AA (alcalinas, pilas recargables de níquel-cadmio (Ni-Cd) o pilas recargables de hidruro de níquel-metal).

Precaución:

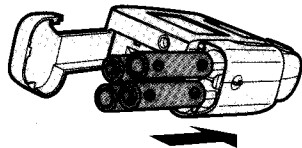
- No use distintos tipos de pilas conjuntamente.

Instalación de las pilas

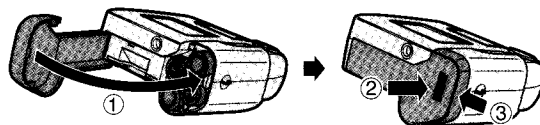
- 1 Asegúrese de que la Grabadora Digital esté apagada.
- 2 Deslice la tapa del compartimiento de las pilas (①) en la dirección de la flecha (②) para abrirla.



- 3 Instale las pilas, asegurándose de que sus polos positivo (+) y negativo (-) queden como se indica a continuación.



- 4 Para cerrar la tapa del compartimiento de las pilas (①), presione la tapa (②) y deslícela en la dirección de la flecha (③) hasta escuchar un "clíc".



Nota:

- Presione y deslice la tapa del compartimiento de las pilas hasta que quede debidamente cerrada; de lo contrario, las pilas abrirán la tapa.

Remoción de las pilas

Retire las pilas en el paso 3 antes descrito.

Tiempo máximo para grabación continua

La tabla de abajo indica el tiempo aproximado de duración de las pilas cuando la Grabadora Digital graba continuamente una película a temperatura normal (25°C (77°F)).

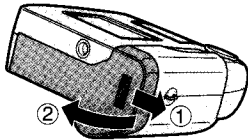
Tipo de pila	Tiempo de grabación continua
Pilas alcalinas tamaño AA (pilas incluidas)	60 min.
Pilas recargables de hidruro de níquel-metal tamaño AA (1450 mAh)	100 min.

Instalación y remoción de una tarjeta SmartMedia

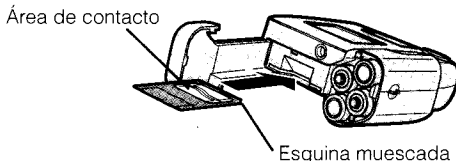
Esta Grabadora Digital utiliza una tarjeta SmartMedia para la memoria. La tarjeta retendrá las imágenes grabadas incluso si las pilas se agotan o si el suministro de energía se interrumpe.

Instalación de una tarjeta SmartMedia

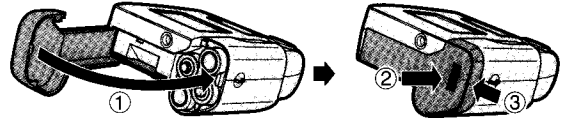
- 1 Asegúrese de que la Grabadora Digital esté apagada.
- 2 Deslice la tapa del compartimiento de las pilas (①) en la dirección de la flecha (②) para abrirla.



- 3 Inserte la tarjeta SmartMedia en la dirección de la flecha, y empújela hasta que tope.
 - Asegúrese de que el área de contacto quede de cara hacia arriba y de insertar en la ranura el extremo con la esquina que tiene una muesca.



- 4 Para cerrar la tapa del compartimiento de las pilas (①), presione la tapa (②) y deslícela en la dirección de la flecha (③) hasta escuchar un "clic".



Nota:

- Presione y deslice la tapa del compartimiento de las pilas hasta que quede debidamente cerrada; de lo contrario, las pilas abrirán la tapa.

Remoción de la tarjeta SmartMedia

Retire la tarjeta SmartMedia en el paso 3 antes descrito.

Notas:

- Tenga cuidado de no dejar caer las pilas al abrir la tapa del compartimiento de las pilas.
- No utilice una tarjeta SmartMedia de 5 V. Use la tarjeta SmartMedia proporcionada o una equivalente disponible en el comercio, del tipo 3,3 V.

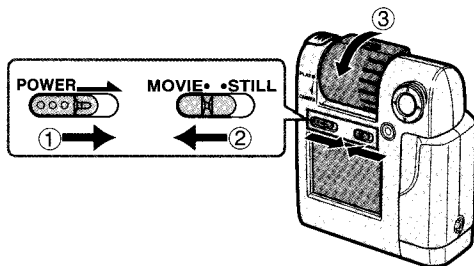
Grabación de películas

Usted puede grabar objetos en movimiento con sonido. Antes de iniciar la grabación, consulte las páginas 75 y 76 para preparar la Grabadora Digital.

Precaución:

- No intente grabar imágenes cuando la carga de las pilas sea baja. Esto puede causar mal funcionamiento.

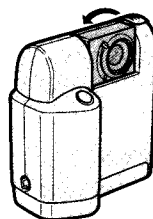
- 1 Deslice el interruptor POWER (encendido) (①), ajuste el interruptor selector de modo a la posición MOVIE (película) (②), y luego gire el cuerpo del objetivo hacia CAMERA (cámara) (③).



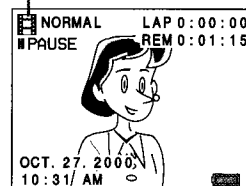
Nota:

- Si el indicador de advertencia "NOT INITIALIZED" (no designada por las iniciales) aparece, formatee la tarjeta SmartMedia con la Grabadora Digital.

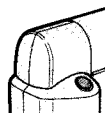
- 2 Ajuste el ángulo del cuerpo del objetivo para componer la imagen en el monitor LCD.



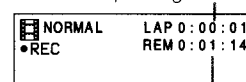
Indicador de modo MOVIE (película)



- 3 Presione el botón del obturador para iniciar la grabación.



Tiempo de grabación



Tiempo restante

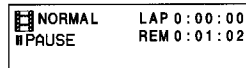
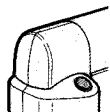
Notas:

- La Grabadora Digital selecciona automáticamente la velocidad de obturación correcta según las condiciones de iluminación. Tenga presente que una velocidad de obturación baja seleccionada para condiciones de baja iluminación puede producir imágenes ligeramente movidas. En este caso, la imagen que aparece en el monitor LCD también es afectada.
- El uso de la Grabadora Digital con luces fluorescentes, lámparas de mercurio o lámparas de vapor de sodio causa parpadeo en las imágenes grabadas. Asimismo, algunas veces este tipo de iluminación también puede afectar el tinte de las imágenes.
- **El modo de grabación de películas viene ajustado de fábrica a NORMAL. Si desea grabar películas con una mejor calidad de imagen o por períodos prolongados, cambie el ajuste de resolución seleccionando uno de los cinco modos disponibles.**

Cómo finalizar la grabación de una película

Vuelva a presionar el botón del obturador.

- El indicador de tiempo de grabación "LAP" volverá a indicar 0:00:00.



Desconexión automática

La Grabadora Digital se apaga automáticamente para ahorrar la energía de las pilas cada vez que transcurren aproximadamente tres minutos sin que usted realice una operación. Para encender la grabadora, vuelva a deslizar el interruptor POWER (encendido).

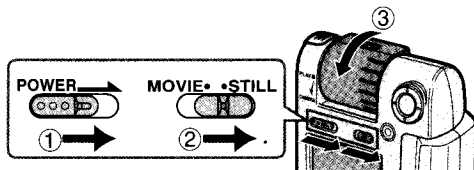
Grabación de imágenes estáticas

Usted puede grabar imágenes estáticas con un procedimiento similar al de las cámaras que utilizan película. Antes de iniciar la grabación, consulte las páginas 75 y 76 para preparar la Grabadora Digital.

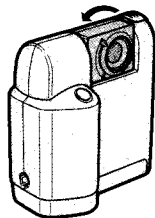
Precaución:

- No intente grabar imágenes cuando la carga de las pilas sea baja. Esto puede causar mal funcionamiento.

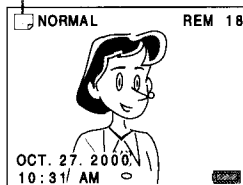
- 1 Deslice el interruptor POWER (encendido) (①), ajuste el interruptor selector de modo a la posición STILL (imagen estática) (②), y luego gire el cuerpo del objetivo hacia CAMERA (cámara) (③).



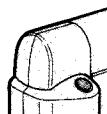
- 2 Ajuste el ángulo del cuerpo del objetivo para componer la imagen en el monitor LCD.



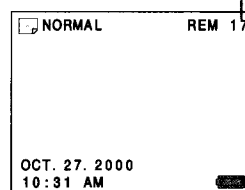
Indicador de modo STILL (imagen estática)



- 3 Presione el botón del obturador para iniciar la grabación.



Número de cuántas quedan



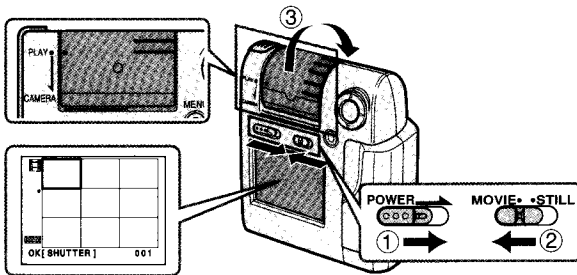
Notas:

- Si el indicador de advertencia "NOT INITIALIZED" (no designada por las iniciales) aparece, formatee la tarjeta SmartMedia con la Grabadora Digital.
- La Grabadora Digital selecciona automáticamente la velocidad de obturación correcta según las condiciones de iluminación. Tenga presente que una velocidad de obturación baja seleccionada para condiciones de baja iluminación puede producir imágenes ligeramente movidas. En este caso, la imagen que aparece en el monitor LCD también es afectada.
- El uso de la Grabadora Digital con luces fluorescentes, lámparas de mercurio o lámparas de vapor de sodio causa parpadeo en las imágenes grabadas. Asimismo, algunas veces este tipo de iluminación también puede afectar el tinte de las imágenes.
- **El modo de grabación de imágenes estáticas viene ajustado de fábrica a NORMAL. Si desea grabar imágenes estáticas con una mejor calidad de imagen, cambie el modo a FINE (fino).**

Reproducción de películas

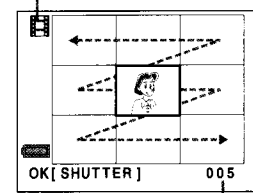
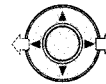
El monitor LCD le permite reproducir lo que acaba de grabar. Usted también puede escuchar el sonido a través del altavoz incorporado.

- Deslice el interruptor POWER (encendido) (①), ajuste el interruptor selector de modo a la posición MOVIE (película) (②), y luego gire el cuerpo del objetivo hacia PLAY (reproducción) (③).
- Las primeras escenas de la película aparecerán en formato de miniatura (imágenes de tamaño reducido) en el modo de Reproducción de Índices de Película.



- Presione la parte ◀ o ▶ del botón de operación para cambiar de cuadro hasta encontrar la imagen deseada.

Indicador de modo MOVIE (película)



Número de la película

Nota:

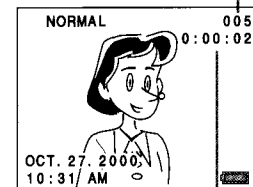
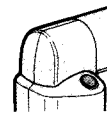
- Si ha grabado más de nueve películas, habrá otras páginas antes y después de la página actual.

Para retroceder a la página anterior, presione ▲.

Para avanzar a la siguiente página, presione ▼.

- Presione el botón del obturador para reproducir la película seleccionada a tamaño natural.

Número de la película



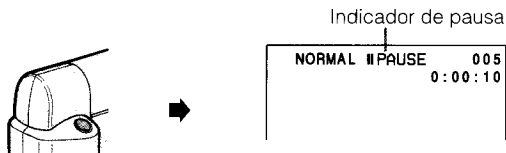
Tiempo de reproducción transcurrido

Notas:

- Para volver a la primera escena de la película actual, presione ◀ una vez. Si presiona ◀ dos veces, la película anterior comenzará a ser reproducida. Si no hay ninguna película anterior a la actual, la película que tenga el último número comenzará a ser reproducida.
- Presione ▶ para reproducir la siguiente película. Si no hay ninguna película posterior a la actual, la película que tenga el primer número comenzará a ser reproducida.

Cómo hacer una pausa en la reproducción de una película

Presione el botón del obturador. Para reanudar la reproducción, vuelva a presionar el botón del obturador.



Cómo volver al modo de Reproducción de Índices de Película

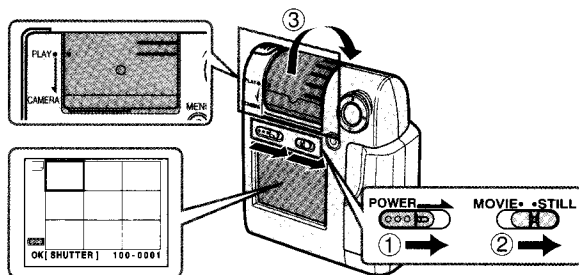
Presione el botón MENU (menú) y manténgalo presionado hasta que aparezca la pantalla de modo de Reproducción de Índices de Película.



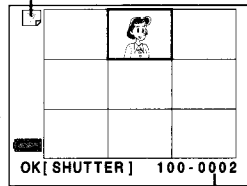
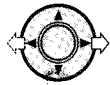
Reproducción de imágenes estáticas

Usando el monitor LCD, usted podrá ver las imágenes estáticas tan pronto como termine de grabarlas.

- 1 Deslice el interruptor POWER (encendido) (①), ajuste el interruptor selector de modo a la posición STILL (imagen estática) (②), y luego gire el cuerpo del objetivo hacia PLAY (reproducción) (③).
- Las imágenes estáticas aparecerán en formato de miniatura (imágenes de tamaño reducido) en el modo de Reproducción de Índices de Imágenes Estáticas.



- 2 Presione la parte ◀ o ▶ del botón de operación para cambiar de cuadro hasta encontrar la imagen deseada.



Indicador de modo STILL (imagen estática)

Número de la imagen estática

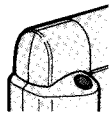
Nota:

- Si ha grabado más de nueve imágenes estáticas, habrá otras páginas antes y después de la página actual.

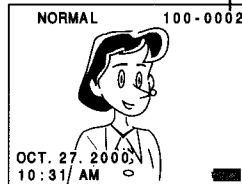
Para retroceder a la página anterior, presione ▲.

Para avanzar a la siguiente página, presione ▼.

- 3 Presione el botón del obturador para reproducir la imagen estática seleccionada a tamaño natural.



Número de la imagen estática



Notas:

- Presione ▲ para reproducir la imagen anterior.
- Presione ▼ para reproducir la siguiente imagen.

Cómo volver al modo de Reproducción de Índices de Imágenes Estáticas

Presione el botón MENU (menú) y manténgalo presionado hasta que aparezca la pantalla de modo de Reproducción de Índices de Imágenes Estáticas.



CONSUMER LIMITED WARRANTY

SHARP ELECTRONICS CORPORATION warrants to the first consumer purchaser that this Sharp brand product (the "Product"), when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective Product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for the period(s) set forth below.

This warranty does not apply to any appearance items of the Product nor to the additional excluded item(s) set forth below nor to any Product the exterior of which has been damaged or defaced, which has been subjected to improper voltage or other misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth below and provide proof of purchase to the servicer.

The limited warranty described herein is in addition to whatever implied warranties may be granted to purchasers by law. ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD(S) FROM THE DATE OF PURCHASE SET FORTH BELOW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described herein on behalf of Sharp.

The warranties described herein shall be the sole and exclusive warranties granted by Sharp and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Sharp to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall Sharp be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than an authorized servicer. Nor shall Sharp be liable or in any way responsible for any incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Model Specific Section**Your Product Model Number & Description:**

VN-EZ1U MPEG-4 Digital Recorder including SmartMedia™, CD-ROM, VR-1FPN and AC Adapter
(Be sure to have this information available when you need service for your Product.)

Warranty Period for this Product:

One (1) year parts and ninety (90) days labor from date of purchase

Additional Item(s) Excluded from Warranty Coverage (if any):

Disk media supplied with this Product is warranted for replacement only and limited to ninety (90) days from date of purchase. Non-rechargeable batteries are excluded from warranty coverage.

What to do to Obtain Service:

Call Sharp Electronics Corporation toll free at 1-800-BE-SHARP for instructions and the location of the nearest Servicer.

Proof of Purchase will be required.

TO OBTAIN SUPPLY, ACCESSORY OR PRODUCT INFORMATION, GO TO OUR WEBSITE AT www.sharp-usa.com OR CALL 1-800-BE-SHARP

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