

SHARP®

MODEL VL-DX10U

LIQUID CRYSTAL DISPLAY CAMCORDER OPERATION MANUAL

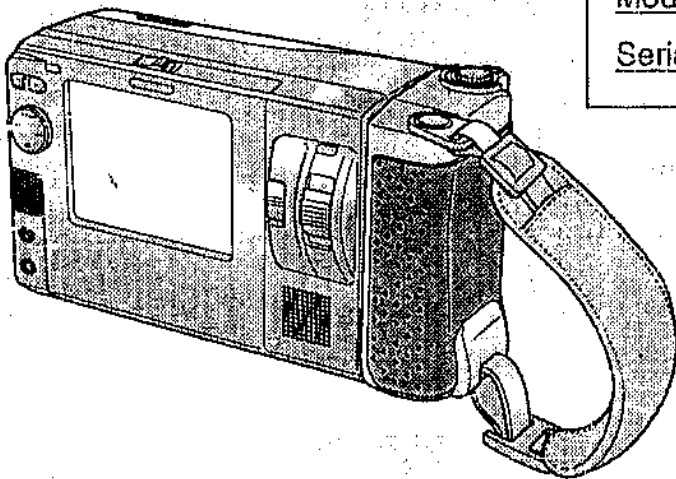
Please read this operation manual carefully
before using the VIEWCAM.

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.: VL-DX10U _____

Serial No.: _____



Mini DV

•The "DV" logo is a trademark.

SHARP VIEWCAM

Important
Information

Preparation

Video Camera
Basic Operation

Video Camera
Features

Digital Still Camera
Features

Transferring and
Editing Data

Others

Thank you for purchasing this VIEWCAM from SHARP.

The VIEWCAM will enhance your home video enjoyment and allow you to capture those special moments. Please read this operation manual to familiarize yourself with the VIEWCAM's features, so that you will get the most out of it. The video techniques section will help you fully enjoy the many features this VIEWCAM offers, and expand your video world.

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:

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.

CAUTION

(applies to the supplied AC adapter)
TO PREVENT ELECTRIC SHOCK,
MATCH WIDE BLADE OF PLUG TO
WIDE SLOT, FULLY INSERT.

CAUTION

To prevent electric shocks and fire hazards, do NOT use any other power source.

BATTERY DISPOSAL

CONTAINS LITHIUM-ION RECHARGEABLE BATTERY. MUST BE RECYCLED OR DISPOSED OF PROPERLY. CONTACT LOCAL AGENCIES FOR INFORMATION ON RECYCLING AND DISPOSAL PLANS IN YOUR AREA.

NOTE

The VIEWCAM's LCD panel is a very high technology product with close to 90,000 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 your VIEWCAM's performance.

*Specifications are subject to change without notice.

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.

INFORMATION

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

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

- The supplied DC output cable and PC connecting cables are required to insure compliance with FCC regulations for Class B computing equipment.

DECLARATION OF CONFORMITY

SHARP PC PACK (Personal Computer adapter) QJAKZ0051TAZZ Supplied

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.

RESPONSIBLE PARTY: SHARP ELECTRONICS CORPORATION
Sharp Plaza, Mahwah, New Jersey 07430-2135
Phone : 1-800-BE SHARP.

CAUTION ON LITHIUM BATTERY (MEMORY BACKUP BATTERY)

If a battery is reversed (positive end where the negative end belongs and vice versa), it can overheat and rupture. This has happened when young children install batteries backwards. Warn children *not* to take out batteries or install them. *Parents should install the lithium battery in the VIEWCAM.*

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.

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Transferring and Editing Data

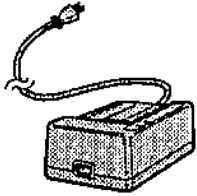
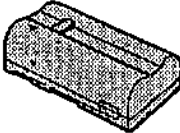

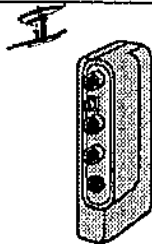
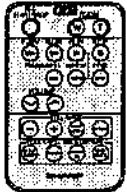
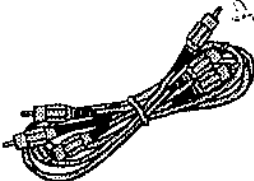

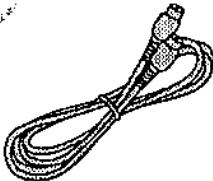
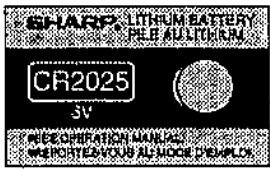
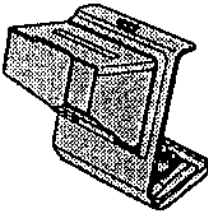
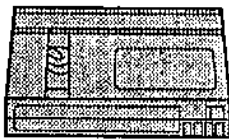
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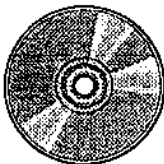

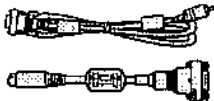
Supplied Accessories

VIEWCAM Accessories

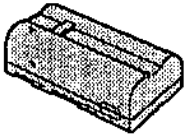
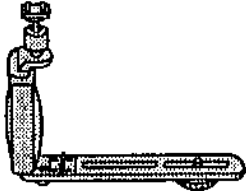
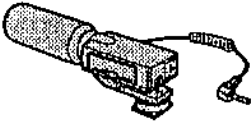
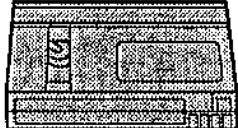
 <p>AC adapter/ battery charger * UADP-0250TAZZ ✓</p>	 <p>Battery pack *BT-L31□ ✓</p>	 <p>DC output cable QCNW-J682TAZZ ✓</p>	 <p>AV pack QJAKZ0041TAZZ</p>
 <p>Infrared remote control RRMCG0057TASA</p>	 <p>Audio/video cable (RCA type) (4.9 feet [1.5 m]) QCNW-1335TAZZ</p>	 <p>Shoulder strap UBNDS0015TAZZ</p>	 <p>S-video cable (4.9 feet [1.5 m]) QCNW-1170TAZZ or QCNW-1350TAZZ</p>
 <p>Lithium battery x 2 UBATL0006TAZZ</p>	 <p>Sun hood GCOVH1214TAZZ</p>	 <p>Mini DV video cassette VR-DVM60N</p>	

***Note:** The part numbers for the AC adapter and battery pack supplied with this VIEWCAM are valid only in the U.S. and Latin America. If this VIEWCAM was purchased outside of these areas, the part numbers may be different. Please refer to the part numbers printed on the labels of the supplied AC adapter and battery pack.

PC Date Communication Accessories

 <p>PC software CD-ROM (The digital still image transferring software : PIXLAB) CDSKA0006TA01 ✓</p>	 <p>PC pack (Personal Computer adapter) QJAKZ0051TAZZ</p>	 <p>PC connecting cables (RS-232C/RS-422) CCNW-1669TA01 ✓</p>
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Optional Accessories

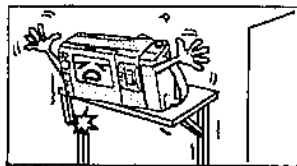
 <p>Battery pack BT-L31U</p>	 <p>Accessory shoe adapter VR-30ADIN</p>	 <p>Stereo Microphone VR-1MCIN</p>	 <p>Mini DV video cassette VR-DVM60N</p>
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Note: The listed model names are for U.S. accessories.

Contact your local dealer for optional and additional accessories or call the Sharp Accessories and Supply Center at 1-800-642-2122.

IMPORTANT SAFEGUARDS

1. Read Instructions—All the safety and operating instructions should be read before operating the VIEWCAM.
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 video product 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 video product manufacturer; they may cause hazards.
7. Water and Moisture—Do not use this video product 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 video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage



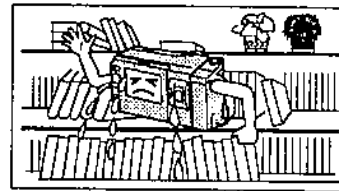
to the VIEW-CAM. Use only with a cart, stand, tripod, bracket, or table recommended

by the manufacturer, or sold with the video product. Any mounting of the VIEWCAM should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. A VIEWCAM and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the VIEW-CAM and cart combination to overturn.
10. Ventilation—Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the video product, and to protect it from overheating. These openings must not be blocked or covered by placing the video product on a bed, sofa, rug or



other similar surface. This video product should never be placed near or over a radiator or heat registers; nor should it



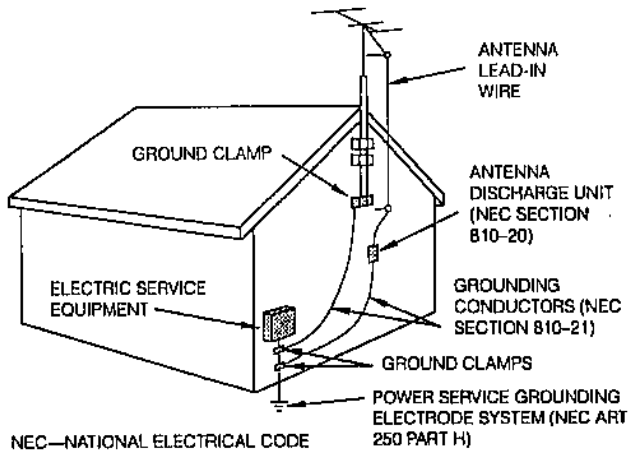
be placed in a built-in installation such as a bookcase or rack unless proper

ventilation is provided, or the manufacturer's instructions have been heeded.

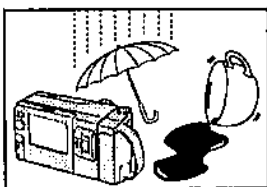
11. Power Sources—This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power or other sources, refer to the operating instructions.
12. Grounding or Polarization—This video product 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. Outdoor Antenna Grounding—If an outside antenna or cable system is connected to the video product, be sure that the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to the proper grounding of the mast and supporting structures, grounding of the

lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

See figure as follows:



15. **Lightning**—To provide added protection for this video product 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 video product due to lightning and power-line surges.
16. **Power Lines**—An outside antenna system should not be located in the vicinity of over-head power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
17. **Overloading**—Do not overload wall outlets and extension cords; this can result in a risk of fire or electric shock.
18. **Object and Liquid Entry**—Never push objects of any kind into this video



product 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 video product.

19. **Servicing**—Do not attempt to service this video product 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.
20. **Damage Requiring Service**—Unplug this video product 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 video product.
 - c. If the video product has been exposed to rain or water.
 - d. If the video product 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 video product to its normal operation.
 - e. If the video product has been dropped or the cabinet has been damaged.
 - f. When the video product exhibits a distinct change in performance, this indicates a need for service.
21. **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.
22. **Safety Check**—Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

Precautions

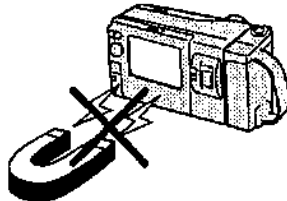
Use & Care

- After operation, remove the battery pack from the unit.

- **Do not aim the lens at the sun.**
Do not allow direct sunlight to strike the VIEWCAM lens or LCD panel, whether recording is in progress or not, as it may damage the CCD sensor or LCD panel surface. Be particularly careful when recording outside.

- When shooting in dark places, avoid sudden brightly lit objects or light sources, such as the sun. Otherwise, the image may white out. Should this happen, point the camera in a different direction until the picture returns to normal.

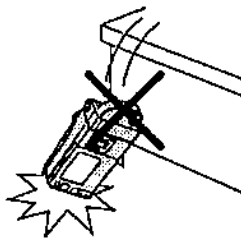
- **Avoid magnetic sources.**
Using the VIEWCAM near strong fluorescent lights, motors, televisions, or other magnetic sources may adversely affect recorded images.



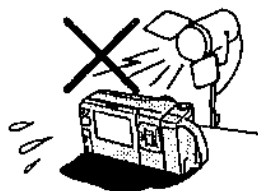
- **Remember to remove the cassette tape, turn off the power, and remove the battery pack when the VIEWCAM is not in use.**

- **Using the VIEWCAM 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 VIEWCAM to hard shocks or strong vibrations. Bumping or striking the unit during recording will generate noise in the recorded image.

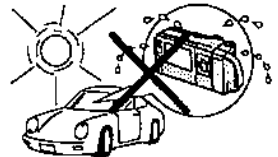


- **Avoid placing the VIEWCAM in close proximity to lighting equipment.**
The heat from incandescent lights may deform the VIEWCAM, or cause it to malfunction.



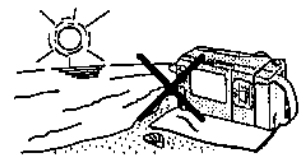
- **Always respect prohibitions or restrictions on the use of electronic equipment on commercial flights or in other sensitive areas.**

- **Be aware of the temperature and humidity.**
You can use your VIEWCAM 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.



- **Avoid situations where water, sand, dust or other foreign matter could get on or inside the VIEWCAM, and do not use or leave your VIEWCAM 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 VIEWCAM. Be sure to use only a strong, stable tripod.**



- **When using your VIEWCAM in a cold environment, the color LCD view screen often appears less bright immediately after the power is turned on. This is not a malfunction. To prevent the VIEWCAM from becoming too cold, wrap it in a thick cloth (a blanket, etc.).**

- **If sunscreen or any other liquid cosmetic spills onto /or adheres to the cabinet, the cabinet may be damaged or the coating may peel off. Take care handling your VIEWCAM.**

Dew Formation

• What is "dew formation"?

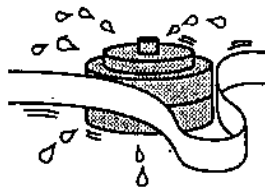
When cold water is poured into a glass, dew drops form on the glass. This clinging of water drops is called dew formation.

• When dew forms in your VIEWCAM.

Dew will gradually form on the head drum of your VIEWCAM and make the video tape stick to the head. This causes damage both to the head and the tape. When dew formation occurs, recording and playback may not function properly.

Dew is likely to form in the following circumstances:

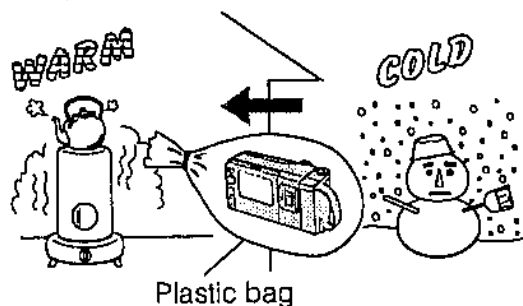
- when moving the VIEWCAM from a cold place to a warm place,
- when placing the VIEWCAM in a cold room which is then heated rapidly,
- when moving the VIEWCAM outdoors from an air conditioned room,
- when placing the VIEWCAM in the direct path of air blowing from an air conditioner,
- when placing the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



• How to prevent trouble due to dew formation.

When using the VIEWCAM in a place where dew formation is likely to occur, allow the VIEWCAM and the video tape to acclimate to the surroundings for about one hour.

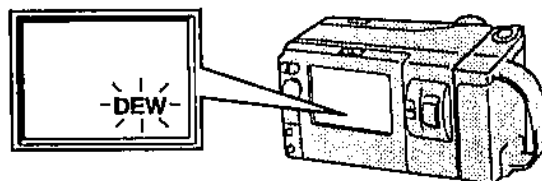
For example, when bringing the VIEWCAM indoors after skiing, place it in a plastic bag and allow it to adapt to room conditions for some period of time.



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

• "Dew" warning feature

If dew forms, the word "DEW" flashes on the LCD monitor, and the power will automatically turn off in approximately 10 seconds.



- ① If the word "DEW" flashes on the LCD monitor, remove the cassette, leave the cassette compartment open, and wait several hours to allow the VIEWCAM to acclimate to the surrounding temperature.
- ② To use the VIEWCAM again, turn on the power after waiting for several hours. Be sure that the word "DEW" has disappeared from the monitor screen.
- ③ Do not insert a cassette while the word "DEW" is flashing; this may result in damage to the tape.
- ④ Since dew forms gradually, it may take 10 to 15 minutes before the dew warning feature engages.

• How to maintain high recording quality.

If used in a variety of places, eventually your VIEWCAM may not function properly due to accumulation of dirt on the head drum. Avoid the following as much as possible when using your VIEWCAM.

- 1) Dew formation on the head drum.
- 2) Using a damaged or soiled video tape.
- 3) Use in a humid or dusty place.

• When the video heads become clogged.

Using the VIEWCAM when the video tape is dirty may cause the head to clog, producing noise on the recorded image or preventing the image from being recorded at all. Under such circumstances, contact the nearest SHARP service center or your dealer for further advice.

Note:

- Video head cleaning can be done by using a commercially available cleaning tape. However, excessive use of the cleaning tape may also cause damage to the video heads. Please read the instructions accompanying the cleaning tape carefully, before using it.

Precautions

About the DV (Digital VCR)

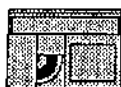
The "DV" trademark can only be used on digital VCR products which have been evaluated and have met the specifications set by the **HD Digital VCR Conference for Standardization of Consumer Use Digital VCR Formats**.

1. **High horizontal resolution**
Detailed, accurate images with the highest level of horizontal resolution for home use.
2. **Clear color reproduction with virtually no color contamination**
Provides three times the color resolution of conventional VCRs (based on Sharp models). Clear images with virtually no distracting color contamination (which usually appears as red).
3. **Standard use of TBC (time base collector) to prevent jittery images**
Ensures stable images with a high signal-to-noise ratio.
4. **PCM digital recording**
PCM digital recording gives you high-quality stereo sound that puts you in the middle of the action.

DV digital VCR tapes

There are two kinds of DV digital VCR tapes: the Mini DV cassette and the larger DV cassette used for extended playback and recording. This VIEWCAM only operates with Mini DV cassettes. DV cassettes cannot be used. Be sure to use Mini DV cassettes with the **Mini DV** mark.

Mini DV cassette



DV cassette



DV digital technology and conventional VCRs

- 8 mm, VHS, or Beta cassettes cannot be used for playback or recording with this unit.

8 mm cassette



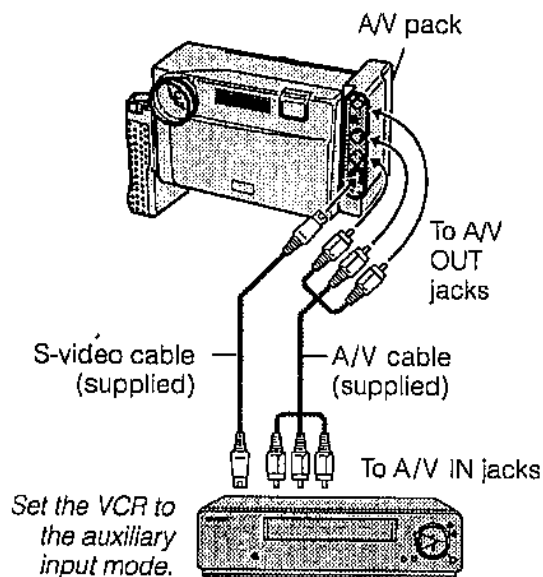
VHS cassette



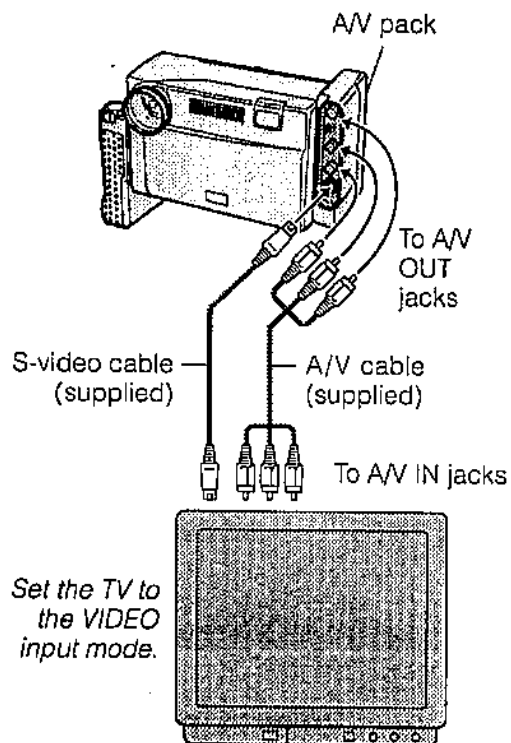
Beta cassette



- An 8mm, VHS, or Beta VCR (or camcorder) can be connected using the A/V pack, and the A/V cable or S-video cable.



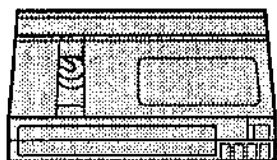
- **Audio and video cannot be input to this VIEWCAM.**
- You can also watch tapes by connecting to a conventional TV.



Note:

- This VIEWCAM reproduces the highest picture quality when used with an ME tape. We recommend you use an ME tape for high-quality recording and playback.

Mini DV Cassette



Precautions when using a Mini DV cassette

- Be sure to use only Mini DV cassettes with the "DV" mark.
- This VIEWCAM can record and play back Mini DV cassettes with cassette memory, but it cannot record or play back this memory.
- 8 mm, VHS, or Beta cassettes cannot be used for playback or recording with this unit.

8 mm cassette



VHS cassette



Beta cassette

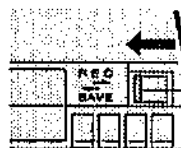


- When recording in LP mode, use a Mini DV cassette with the "LP" mark.
- Do not insert anything into the holes on the bottom of the Mini DV cassette or block them in any way.
- Avoid placing the cassette in an area conducive to dust or mold.
- Do not place the cassette near magnetic sources such as electric clocks or magnetic devices as this may adversely affect recorded material.
- When a previously recorded Mini DV cassette is used again for recording, the previously recorded material will be automatically erased.
- The Mini DV cassette will not operate if inserted on the wrong side.
- Do not repeatedly insert and eject the Mini DV cassette without running the tape as this may cause uneven tape winding and damage the tape.
- Do not place the cassette in direct sunlight, near strong heat sources, or in areas with excessive steam.
- Store the cassette in its case and stand it in an upright position.

- If the tape is not properly wound, rewind the tape.
- Do not drop the cassette or subject it to excessive shocks.

To protect recordings against accidental erasure

Slide the protect tab on the rear of the Mini DV cassette to the "SAVE" position.



Erasure protect tab

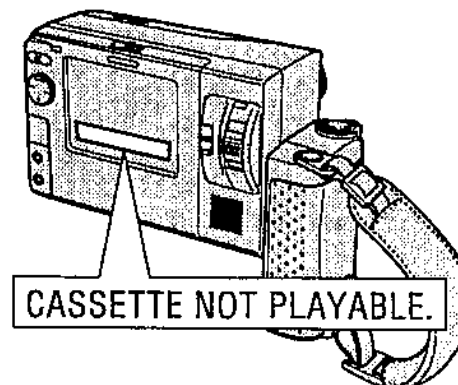
To record over a previously recorded tape, slide the protect tab to the "REC" position.



Erasure protect tab

Copyright protection

- The digital VCR has far superior recording and playback ability than the traditional analog VCR, and in order to protect digital video software copyrights, a system for managing copyrights has been established. Some digital video software may have pre-recorded copyright protection signals and cannot be played back on this VIEWCAM. When playing back a copyright-protected tape, the "CASSETTE NOT PLAYABLE." warning will be displayed on the monitor screen. Copyright protection signals cannot be recorded with this VIEWCAM.



Precautions

Battery Pack

This VIEWCAM uses a lithium-ion type battery pack. It is not necessary to store the lithium-ion battery pack in a fully discharged state. Also, if stored in the charged state, the battery will gradually self-discharge, resulting in decreased recording time. Charge the battery pack soon (one day) before use.

Battery pack consumption

- Recording with many starts and stops, frequent zooming, and recording in low temperatures will somewhat shorten actual recording times. Accordingly, be sure to turn off the power when not recording. Use of an auxiliary battery pack is recommended to prevent undesirable interruptions in your recording.
- Do not use an insufficiently charged or weak battery pack. Such battery packs may cause the power to automatically stop during VIEWCAM operation to protect both the battery pack and the unit.

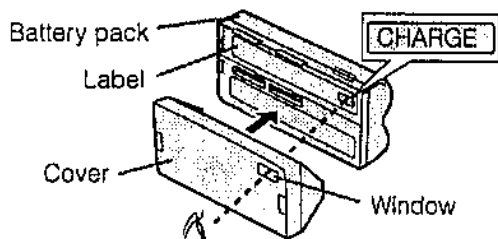
Battery power is consumed even when the VIEWCAM's power is turned off. If you are not going to use your VIEWCAM immediately, remove the battery pack. (See page 16.)

Note:

- Use only the SHARP BT-L31 battery pack. It is designed specifically for use with this VIEWCAM.

How to use the battery pack cover

- After the battery pack is charged, put the cover on it so that the "CHARGE" mark printed on the label is seen through the window, as shown.



- Before the battery pack is charged, put the cover upside down so that only the battery pack casing is seen through the window.

Temperature during charging

- Store the battery pack in a dry, cool place.
- Charge the battery pack at temperature of 10°C to 30°C (50°F to 86°F).

For long battery lifetime

- Charge the battery pack (lithium-ion type) at least once every six months.
- Do not leave the battery pack being charged for long periods of time.

Cautions:

- If the battery pack is misused, there is danger of fire or explosion. Pay close attention to the following:
 1. Do not dispose of it in fire.
 2. Do not allow metallic objects to come in contact with the terminals. This can cause a short circuit.
 3. Do not disassemble or repair by yourself.
 4. Do not use any battery charger other than those designed for use with these battery packs.
 5. Do not place the battery pack under direct sunlight or in excessively hot places (over 60°C or 140°F) such as the dashboard of cars.
 6. Do not expose to moisture, water, or salt water.
 7. Do not drop or subject to strong force.
 8. Keep battery out of reach of children and in the original package until ready to use.
 9. Dispose of used batteries promptly.
- The battery pack will become warm during charging and use. This is normal and not a malfunction.
- The battery pack has a limited service life. If the period of use becomes noticeably shorter with a normal charge, the battery pack is at the end of its service life. Replace it with a new battery pack.
- For safety, keep the battery pack in its protective cover when it is not being used. If the metal parts of the battery pack come in contact with other metal objects, there is a danger that a short circuit may occur.

AC Adapter/Battery Charger

- If used near a radio, the AC adapter/battery charger may interfere with reception.
- Prevent flammables, liquids, and metal objects from entering the unit.
- This is a sealed unit. Do not attempt to open or modify it.
- Do not damage, drop, or subject the unit to vibration.
- Do not leave the unit in direct sunlight.
- Avoid using the unit in humid or extremely hot places.
- If the power source becomes disconnected during recording, playback, or other operations, the tape will remain wrapped around the drum and may be damaged. Reconnect the power source to the main unit immediately.
- The supplied AC adapter/battery charger is specially designed for use with the VIEWCAM, and should not be used as a power supply for other camcorders.

Care

Cleaning and maintenance

- Many plastic parts are used in the VIEWCAM 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 it with a tightly wrung cloth dampened with a diluted, neutral detergent. Then wipe it again with a soft, dry cloth.
- Use a soft cloth to wipe finger marks and other soiling off the LCD monitor.
- Use a soft cloth, or compressed air and lens papers designed for photographic lenses to clean the lens.

Replacing the Fluorescent Lamp

This VIEWCAM uses a fluorescent lamp backlight which has a limited service life. If the monitor becomes dark or difficult to view, the fluorescent lamp may need to be replaced. Contact the nearest SHARP service center or your dealer for further advice.

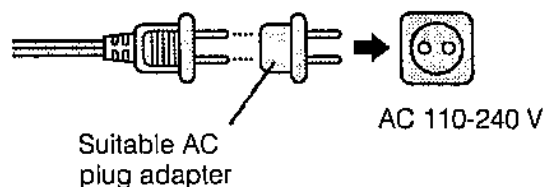
Using Your VIEWCAM Abroad

Television signal standards and electrical voltages and frequencies vary substantially from country to country. When you are abroad, check the sections below before using the AC adapter or connecting the VIEWCAM to a TV.

AC Adapter/Battery Charger (Supplied Accessory)

The supplied AC adapter is compatible with 50 Hz and 60 Hz electrical systems in the range of 110 V to 240 V AC.

An AC plug adapter may be required depending on the design of the electrical outlet.



Television Signal Standards

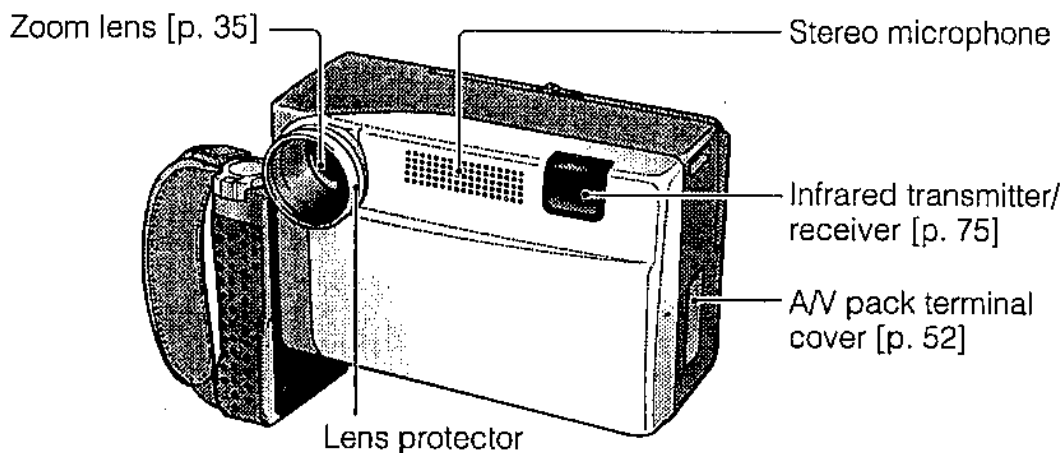
In any country, you can always watch the video picture by using the LCD monitor screen. However, if you want to watch the picture on a TV screen, the TV must be NTSC-M system compatible. NTSC-M is used in the following areas:

The Bahamas, Barbados, Bermuda, Myanmar (previously Burma), Canada, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Greenland, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, South Korea, Mexico, the Netherland Antilles, Nicaragua, Panama, Peru, the Philippines, Puerto Rico, St. Kitts, St. Lucia, Surinam, Taiwan, Trinidad, the U.S.A., Venezuela, Southern Vietnam, and the Virgin Islands.

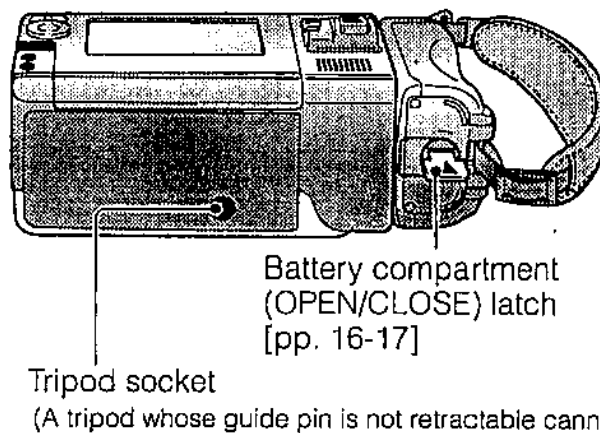
Part Names

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

Front view

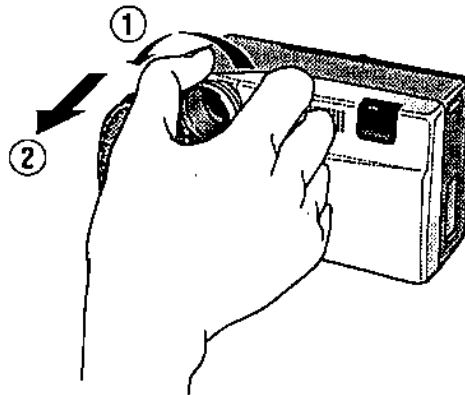


Bottom view

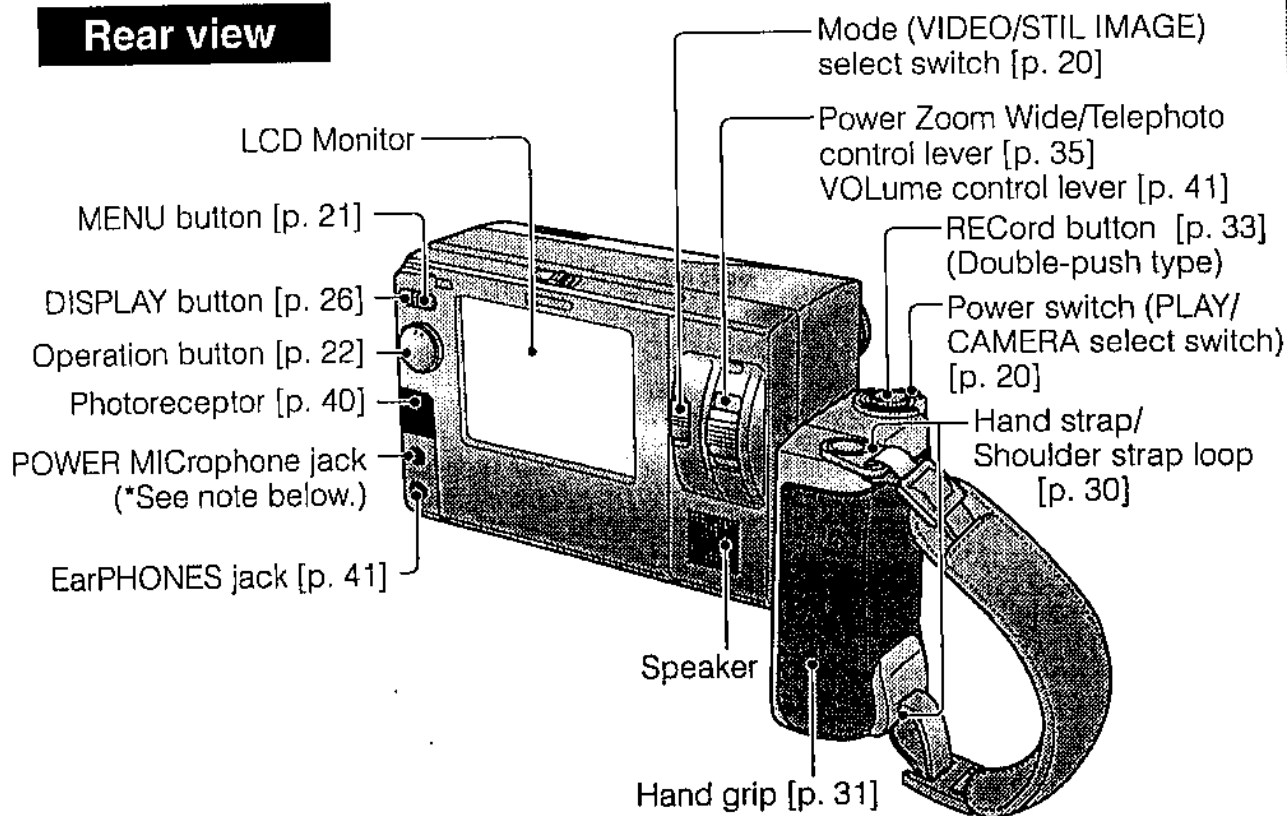


Removing the Lens Protector

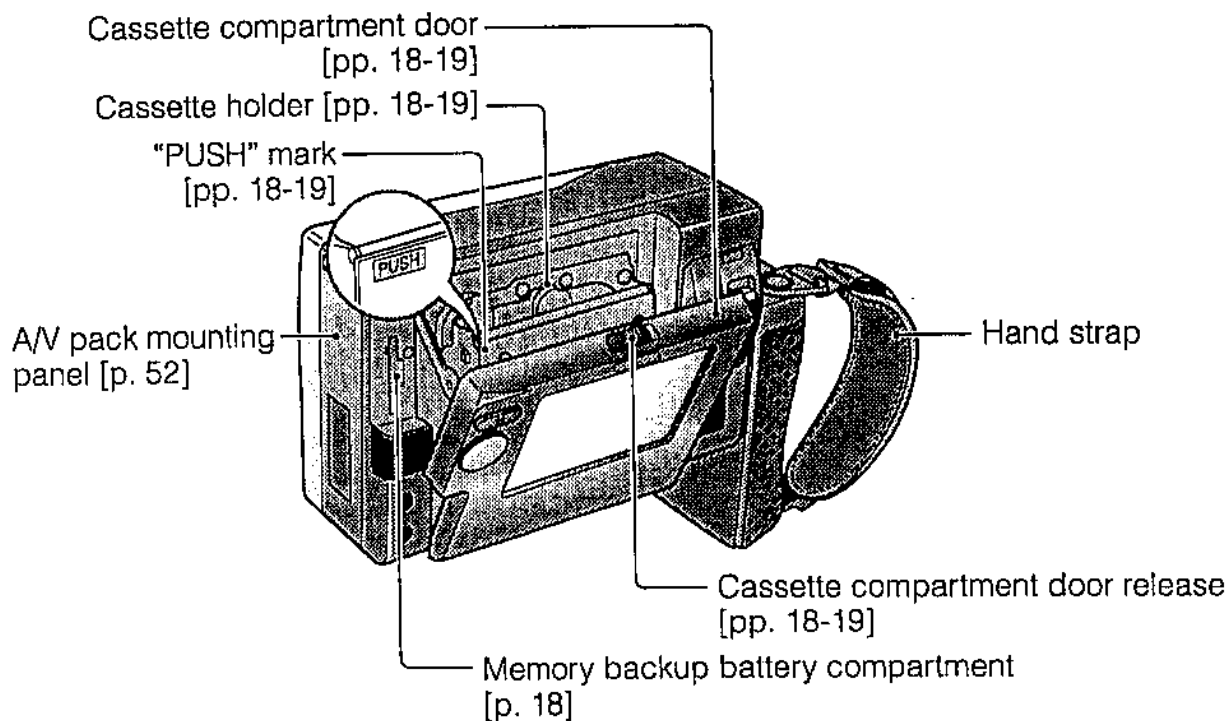
The lens protector can be removed (e.g. for cleaning the lens) by rotating it in a counterclockwise direction (①) and then gently pulling it off (②).



Rear view



When the cassette compartment door is opened.



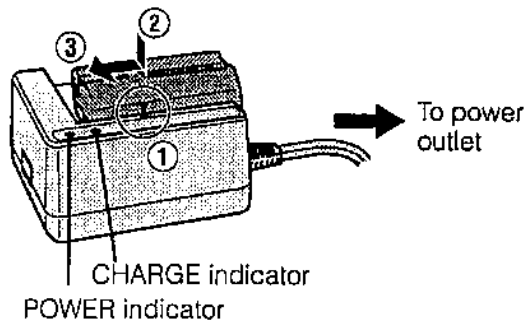
*About the PLUG IN POWER MIC Jack

This external microphone jack outputs a DC voltage of 4.0 V. It is for use with any 2.5-4.0 volt DC use condenser-type microphone with a 3.5 mm diameter plug. The use of other types of microphones may result in damage to the microphone or the VIEWCAM.

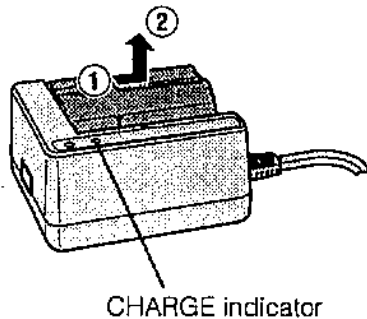
Preparation

Charging the Battery Pack

- 1 Be sure the DC output cable is disconnected from the AC adapter/battery charger, then insert the AC plug into a power outlet. The POWER indicator will light up.
- 2 Align the ▼ mark on the battery pack with the ▲ mark on the charger (①) and guide the battery into the groove. Pressing the battery (②), slide it in the direction of the arrow (③) until it locks into place. The CHARGE indicator will light up.



- 3 When the battery is charged, the CHARGE indicator will go off. Slide the battery pack in the direction of the arrow (①), and remove it (②). Then, remove the charger's AC plug from the power outlet.



Note:

- The CHARGE indicator flashes as the battery is charging. Once the battery approaches full charge, the indicator will flash slower. When the battery is fully charged, the CHARGE indicator turns off.

Charging time when using AC adapter/battery charger and maximum continuous camera recording and playback times

Battery pack	Charging time	Max. continuous recording time	Max. continuous playback time
BT-L31	approx. 2 hr. 20 min.	approx. 1 hr. 10 min.	approx. 1 hr. 15 min.

Notes:

- Using the zoom (see page 35) and other functions or turning the power on and off frequently will increase power consumption. This may result in a 50 – 60% decrease in the actual recording time per battery pack compared to the maximum continuous recording time listed above.
- The battery pack and charger become warm during charging. This is not a malfunction.
- The charging time and recording time may vary depending on the ambient temperature and the condition of the battery pack.

Extending battery pack life

- Charge the battery pack (lithium-ion type) at least once every six months.
- Do not leave the battery pack being charged for long periods of time.

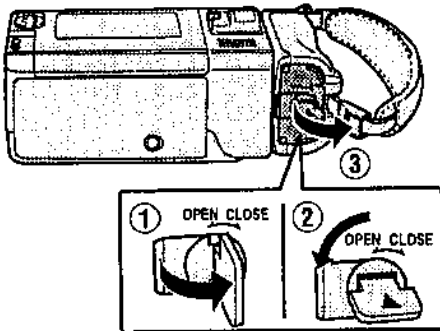
Cautions:

- Charge only SHARP model BT-L31 battery pack. Other types of batteries may burst, causing personal injury and damage.
- Do not incinerate or mutilate the battery pack. It may present the risk of a rise in surface temperature, and/or the release of flammable vapors.
- Replace battery with BT-L31 only. Use of another battery may present a risk of fire or explosion.

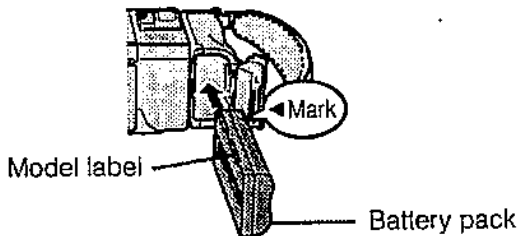
Inserting and Removing the Battery Pack

Inserting the Battery Pack

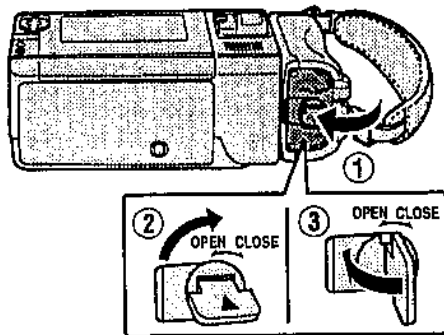
- 1 Raise the battery compartment latch on the bottom of the VIEWCAM (①), turn it counterclockwise (②) and open the compartment door (③).



- 2 Insert the battery pack into the compartment with its ▲ mark facing as shown, and push it until it is locked in place.

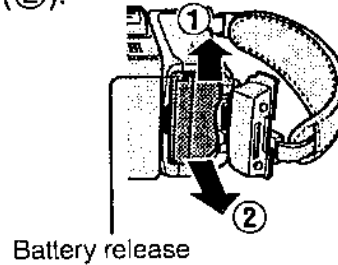


- 3 Close the door (①), turn the latch clockwise to secure it firmly (②), and then push down the latch (③).



Removing the Battery Pack

Perform step 1 above, then, with the VIEWCAM facing down, press the battery release upward (①) and remove the battery pack (②).



Cautions:

- BEFORE REMOVING THE BATTERY PACK, ALWAYS STOP THE TAPE AND TURN THE POWER OFF. If you remove the battery pack during recording or playback, the tape will remain wound around the video head drum and may be damaged. Should the power source (battery or adapter) become disconnected during operation, reconnect it again immediately.
- Do not expose the battery compartment door to strong force, as it may come off.
- Be sure to close the battery compartment door firmly, especially during operations. If you do not, the battery pack may come off or VIEWCAM operation may fail because of the poor contact pressure.
- Remove the battery pack from the VIEWCAM or disconnect the VIEWCAM from the AC adapter if the VIEWCAM will not be used for a long time.
- When removing the battery pack, do not tilt the VIEWCAM so that the battery compartment faces down. The battery pack may fall out.

Battery Pack Handling

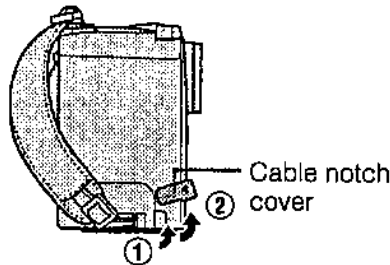
- Make sure that you take enough battery packs with you to provide two to three times your estimated recording time. See page 33.
- Recording time will be reduced in cold weather.
- The battery will drain in Recording Standby mode. Turn off the power if you will not be recording again soon.

Preparation

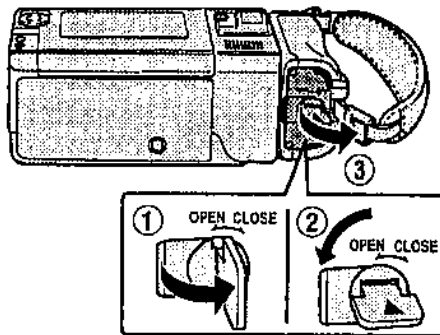
Powering the VIEWCAM from an AC Outlet

Preparation

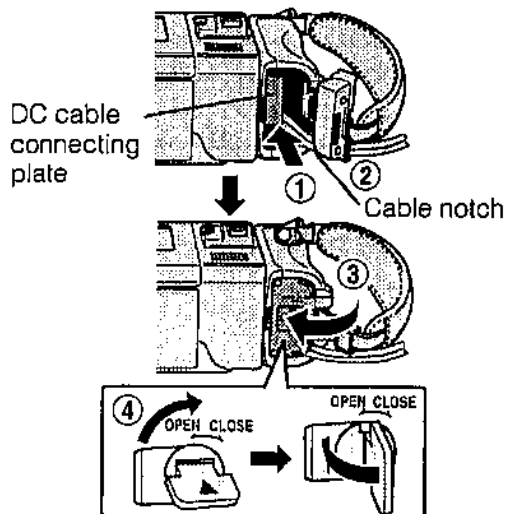
- 1 Remove the cable notch cover on the side of the VIEWCAM (①), turn it counterclockwise (②).



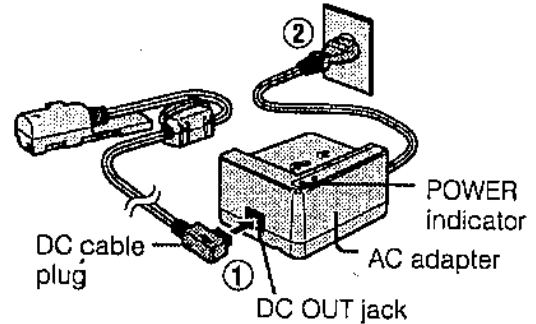
- 2 Raise the battery compartment latch on the bottom of the VIEWCAM (①), turn it counterclockwise (②) and open the compartment door (③).



- 3 Insert the DC cable connecting plate into the compartment and push it in until it clicks (①). Pass the cable through the cable notch (②), and close the door (③). Turn the latch clockwise to lock the door, and push down the latch (④).

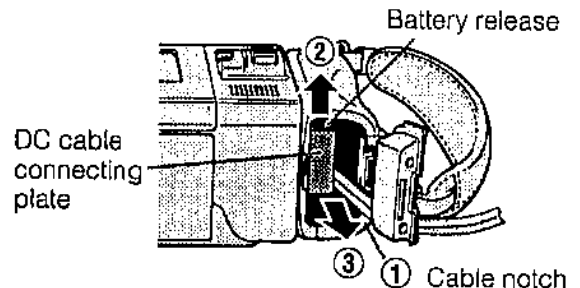


- 4 Insert the DC cable plug into the DC OUT jack on the AC adapter (①), then plug the power cord into a power outlet (②). The POWER indicator on the AC adapter will light up.



Removing the DC Cable from the VIEWCAM

- 1 Perform steps 1 and 2 above.
- 2 Remove the cable from the cable notch (①), press the battery release upward (②), and remove the connecting plate from the compartment (③).



Cautions:

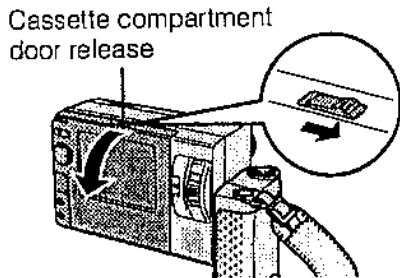
- Turn the Power switch off before removing the DC cable.
- When removing the DC cable, grasp the DC cable connecting plate, not the cable itself, and pull it out of the compartment.
- When removing the DC cable connecting plate, do not tilt the VIEWCAM so that the battery compartment faces down. The DC cable connecting plate may fall out.

Note:

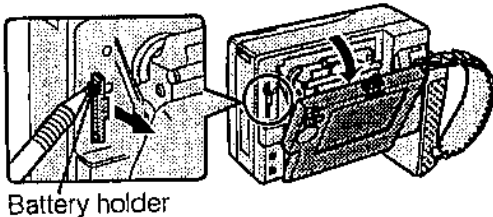
- After removing the DC cable, return the cable notch cover to its former position.

Installing the Memory Backup Battery

- 1 Insert the battery pack, or connect the VIEWCAM to the AC adapter or car battery adapter, then slide the release and open the cassette compartment door.
 - The cassette holder extends automatically.



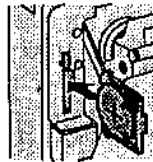
- 2 Pull out the battery holder using a pointed object such as the tip of a ball-point pen.



- 3 Insert the supplied lithium battery into the holder with the + side facing upward.

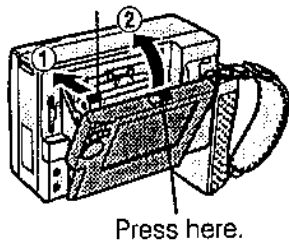


- 4 Insert the battery holder back into its compartment and push it in completely.



- 5 Press the "PUSH" mark gently until the cassette holder clicks into place (①), and then close the cassette compartment door pressing its center until it clicks into place (②).

"PUSH" mark



REPLACE BATTERY WITH SHARP TYPE CR2025 (PART NO. UBATL0006TAZZ) OR SONY ENERGYTEC TYPE CR2025 ONLY. USE OF A DIFFERENT BATTERY MAY PRESENT A RISK OF FIRE OR EXPLOSION.

WARNING KEEP THIS BATTERY AWAY FROM CHILDREN. IF SWALLOWED, CONSULT A PHYSICIAN IMMEDIATELY FOR EMERGENCY TREATMENT.

CAUTION BATTERY MAY EXPLODE IF MISUSED OR INSTALLED WITH POLARITY REVERSED. DO NOT RECHARGE, DISASSEMBLE OR DISPOSE OF IN FIRE.

Preparation

Cautions:

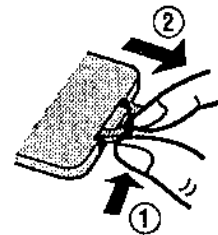
- If the lithium battery is installed with polarity reversed, the backup function will fail.
- Do not short-circuit, recharge, disassemble, or heat the battery.
- Should the battery leak, wipe the battery compartment clean, and then insert a new battery.

Notes:

- The lithium battery is used to back up the calendar and other memory functions.
- The battery will last about one year with normal usage.
- Replace the battery with a new CR2025 cell when the VIEWCAM's time indicator starts to fall behind the correct time.

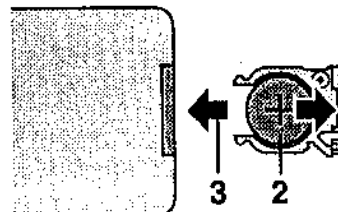
Installing the Battery in the Remote Control

- 1 Hold the remote control facing down, then pull out the battery holder while pressing the tab toward the center.



- 2 Install the supplied CR2025 lithium battery with its + side matching the ⊕ side of the battery holder.

- 3 Insert the holder in the direction of the arrow. Make sure that the ⊕ side faces the back of the remote control.



Preparation

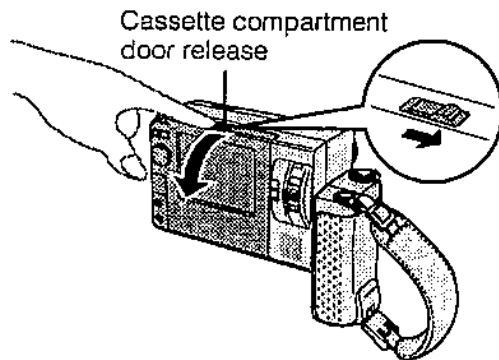
Inserting and Removing a Mini DV Cassette

Preparation

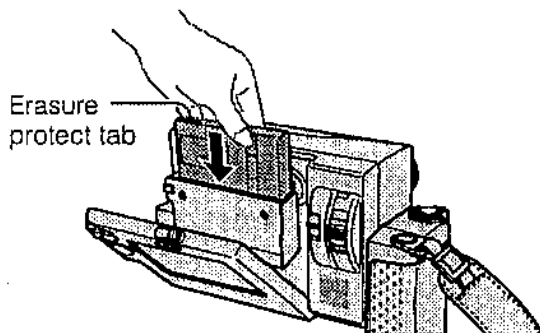
Inserting a Cassette

- 1 Insert the battery pack, or connect the VIEWCAM to the AC adapter or car battery adapter, then slide the release and open the cassette compartment door.

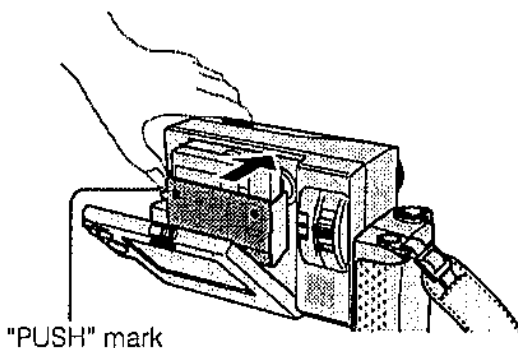
- The cassette holder extends automatically.



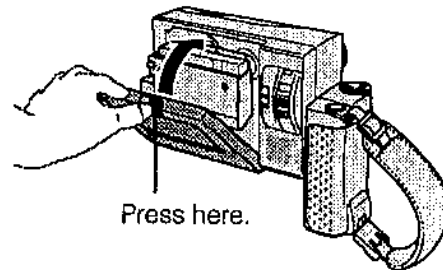
- 2 Insert the tape cassette fully with the window facing outwards, and with the erasure protect tab facing upwards.



- 3 Press the "PUSH" mark gently until the cassette holder clicks into place.



- 4 Close the compartment door pressing its center until it clicks into place.



Removing a Cassette

Perform step 1 above, then take out the cassette.

Cautions:

- Be careful not to get your fingers caught in the cassette compartment.
- Do not apply force to the cassette compartment except for pressing the "PUSH" mark to close it.
- Do not tilt the VIEWCAM or hold it upside down when you are inserting or removing a cassette. It may damage the tape.
- Remove the cassette if you will not use the VIEWCAM for a long time.
- If you do not press the cassette holder closed correctly in step 3 above, the VIEWCAM's cassette protection mechanism might eject the cassette. If this happens, repeat the insertion procedure.
- Do not attempt to pick up the VIEWCAM by the cassette compartment door.
- If the compartment door does not close when gently pressed into position, check the compartment door release. The door release may not be completely opened as shown below on the left. In this case, slide the door release in the direction of the arrow and press the compartment door closed.

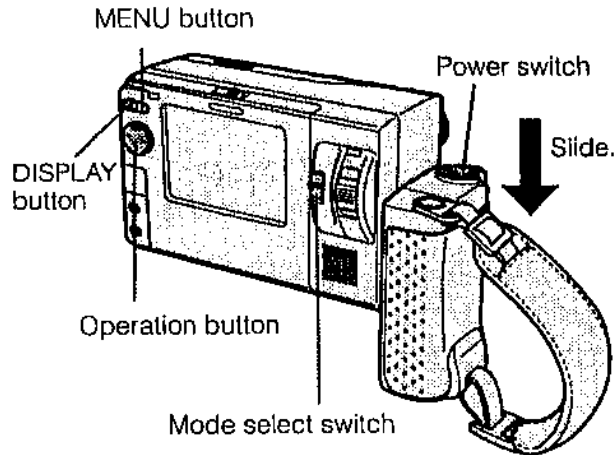


- If the battery power is too low, you may not be able to eject the cassette or operate the Power switch. Replace the battery pack with a fully charged one.

Setting Various Functions

Available modes

- Video Camera Recording Mode
 - Video Playback Mode
- Provides a camcorder function
- Still Camera Recording Mode
 - Still Image Playback Mode
- Provides a digital still camera function

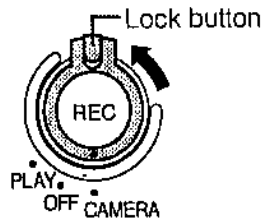


Preparation

Recording/Playback

Recording to a video cassette

- 1 Hold down the Lock button and turn the Power switch to CAMERA.



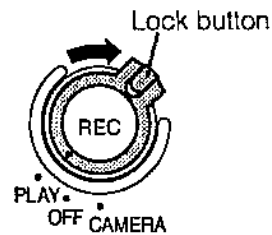
- 2 Set the Mode switch to VIDEO.



- This is called the Video Camera Recording mode. Refer to "Camera Recording" on page 33.

Playing a prerecorded video cassette

- 1 Hold down the Lock button and turn the Power switch to PLAY.



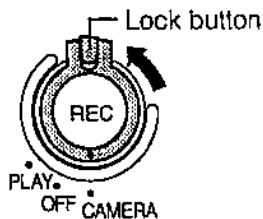
- 2 Set the Mode switch to VIDEO.



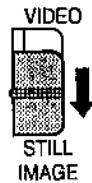
- This is called the Video Playback mode. Refer to "Playback" on page 41.

Recording a still image

- 1 Hold down the Lock button and turn the Power switch to CAMERA.



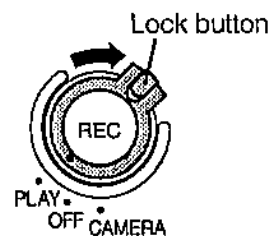
- 2 Set the Mode switch to STILL IMAGE.



- This is called the Still Camera Recording mode. Refer to "Still Image Recording" on page 56.

Playing back a still image

- 1 Hold down the Lock button and turn the Power switch to PLAY.



- 2 Set the Mode switch to STILL IMAGE.



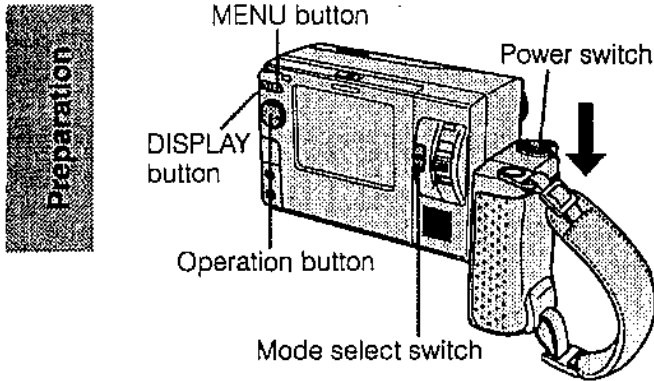
- This is called the Still Image Playback mode. Refer to "Still Image Playback" on page 57.

Notes:

- When the mode switch is changed from VIDEO to STILL IMAGE, operation does not take place immediately.
- When turning the Power switch to OFF, do so without holding down the Lock button.

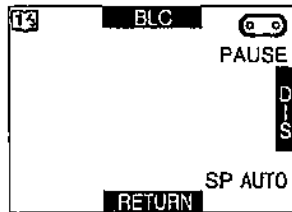
Preparation

Basic Button Controls

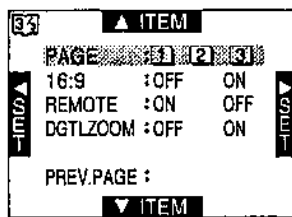


The function setting is performed on the function screen and menu display that appear when the VIEWCAM is powered.

[Function Screen]



[Menu Display]



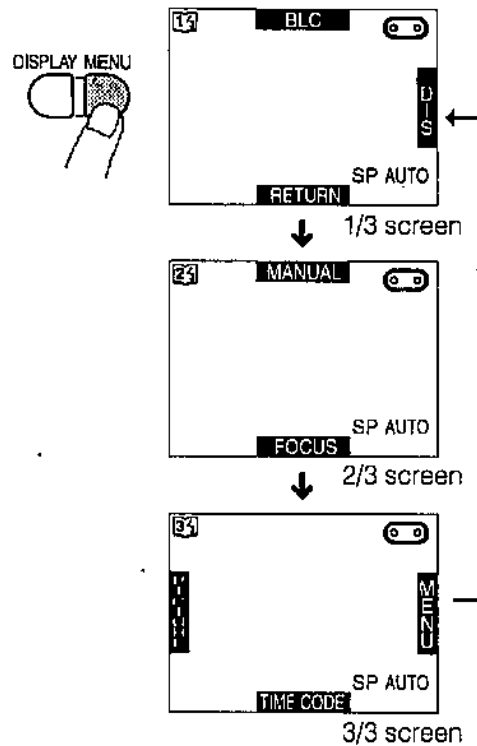
You can use various functions via the Operation and MENU buttons while viewing the monitor display.

Using the MENU Button

Press the MENU button to switch the function screen.

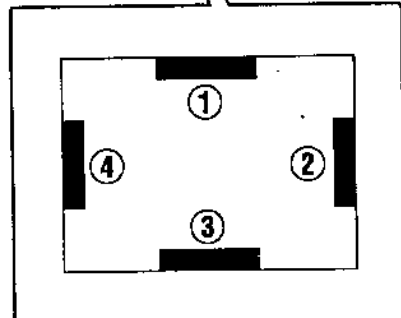
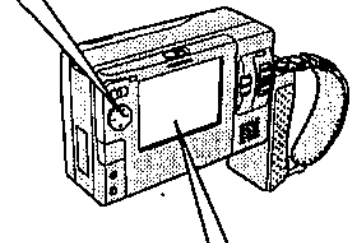
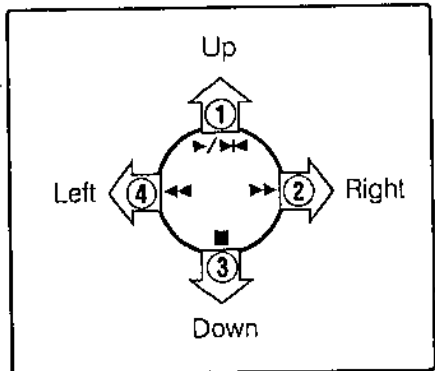
Example: Video Camera Recording Mode

Set the Power switch to CAMERA, set the Mode switch to VIDEO and press the MENU button so that the function screen is switched as shown in the illustrations shown below.



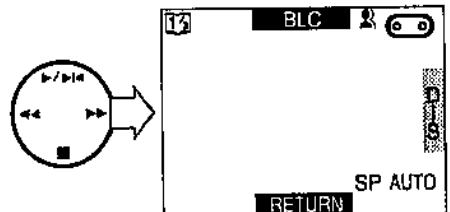
Using the Operation Button

For Function Screen



Press the MENU button to choose the function screen. Press up \blacktriangle , down \blacksquare , left \blacktriangleleft , or right \blacktriangleright on the Operation button \odot to select one of the blue function items displayed on the edge of LCD monitor.

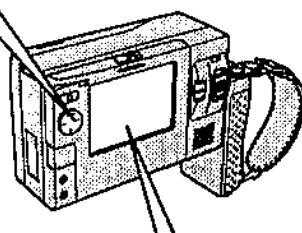
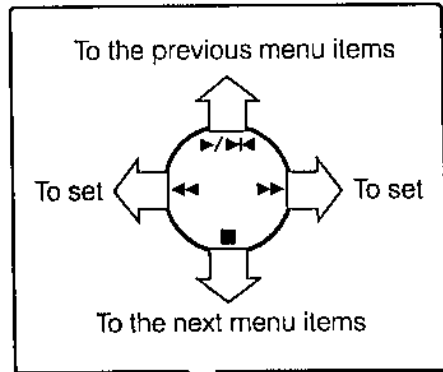
- When pressing the \odot button to select a function, the color of selected function item changes. Press it again to cancel the function and the color returns to the original one.



Note:

- The \blacktriangleright , \blacktriangleleft , \blacksquare , \blacktriangleleft , or \blacktriangleright buttons on the remote control cannot be used to move the cursor, or select or set any of the various functions on the monitor.

For On-Screen Menu



(Ex.) The menu display of the Video Camera Recording mode.

34	▲ ITEM	
PAGE: 1 2 3		
16:9	: OFF	ON
REMOTE	: ON	OFF
DGTLZOOM	: OFF	ON
PREV. PAGE :		
		▼ ITEM

Press \blacktriangleright or \blacktriangleleft on the \odot button to switch the page.

- 1 Press the MENU button until the "MENU" indicator on the function screen 33 appears. Then press \blacktriangleright on the \odot button to select "MENU" so that the on Screen Menu display appears.
- 2 Press \blacktriangle or \blacktriangledown on the \odot button so that the blue band moves upwards or downwards to choose an item.
- 3 Then press \blacktriangleleft or \blacktriangleright on the \odot button so that the yellow pointer moves right and left to set a mode.
- 4 After setting, press the MENU button to turn off the Menu display.

Preparation


Setting the Area, Date and Time

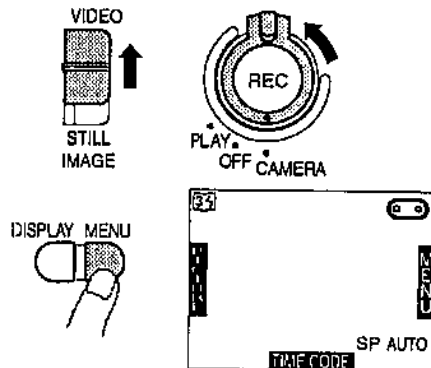
Example:




Setting the date to June 2, 1998 (JUN. 2. 1998) and the time to 10:30 am (10:30 AM) in New York.

Notes:

- Check that the memory backup lithium battery has been installed before setting the date and time.
- The date and time, once set, are stored in memory.





- 1 Set the Power switch to CAMERA, and the Mode switch to VIDEO, then press the MENU button until  appears on the monitor (Video Camera Recording mode).







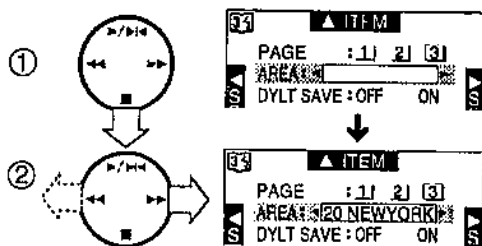
- 2 Press  on the Operation button  to select "MENU". The MENU-PAGE  appears.






Operation button

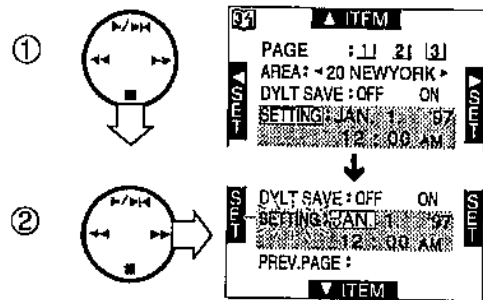
- If the date and time have been set, the MENU-PAGE  appears. Press  on the  button to select PAGE .





- 3 Press  on the  button to select "AREA" (①), then press  or  until "20 NEWYORK" appears (②).







- See the time zone chart on page 49 and the area table on page 50 for area numbers and representative cities for each time zone.

- 4 Press  on the  button to select "SETTING" (①), then press  to select "SET" (②).







- 5 Press  or  on the  button to select "JUN." (month), and press .





SETTING : JUN. 1 '97
12 : 00 AM

- 6 Press  or  on the  button to select "2." (day), and press .





SETTING : JUN. 2 '97
12 : 00 AM

- 7 Press  or  on the  button to select "98" (year), and press .

SETTING : JUN. 2 '98
12 : 00 AM

- 8 Press  or  on the  button to select "10 AM" (hour), and press .

SETTING : JUN. 2 '98
10 : 00 AM

- 9 Press  or  on the  button to select "30" (minutes), and press .



SETTING : JUN. 2 '98
10 : 30 AM

The date and time settings are now complete.

To Turn Off the Menu Display

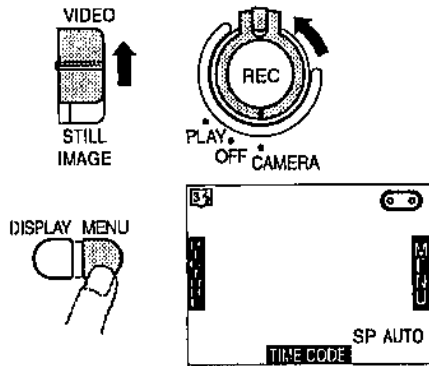
Press the MENU button.

Notes:

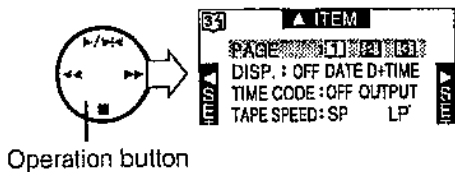
- The internal clock starts operating when  on the  button is pressed in step 9 above.
- When the tape cassette is inside, if no settings are made within 5 minutes after the menu display appears, the display is automatically canceled.
- If you set the area to the blank setting in step 3, and then reset the area after setting the date and time, the date and time will not appear on the screen even if you turn off the menu display. If you want to reset the area, perform steps 3-9 again.

To Display Area, Date and Time on the Monitor

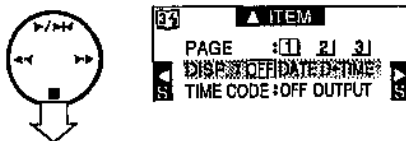
- 1 Press the MENU button until [34] appears on the monitor (Video Camera Recording mode).



- 2 Press \blacktriangleright on the Operation button \odot to select "MENU". The MENU-PAGE [1] appears.



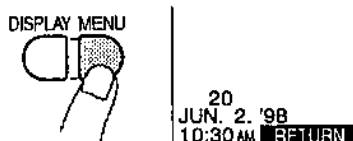
- 3 Press \blacksquare on the \odot button to select "DISP.".



- 4 Press \blacktriangleleft or \blacktriangleright on the \odot button to select "DATE" or "DATE+TIME".

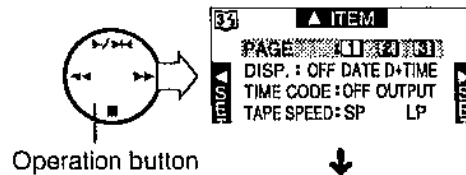


- 5 Press the MENU button to turn off the menu display. The area, date and time will be displayed on the monitor.

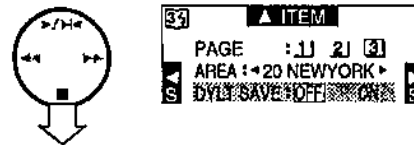


Setting Daylight Saving Time

- 1 Perform steps 1 and 2 above to display MENU-PAGE [1]. Press \blacktriangleright on the \odot button to select MENU-PAGE [3].



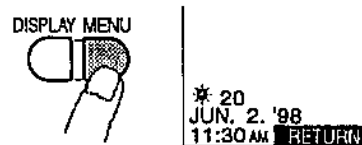
- 2 Press \blacksquare on the \odot button to select "DYLT SAVE".



- 3 Press \blacktriangleright to select "ON". The time automatically changes to daylight saving time.




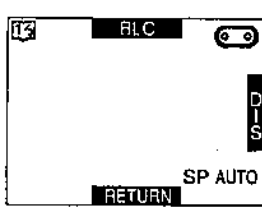
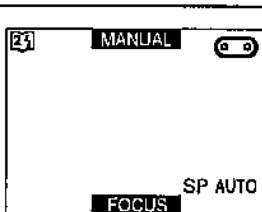
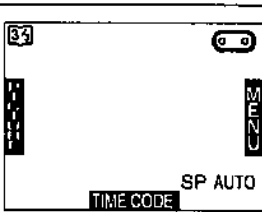

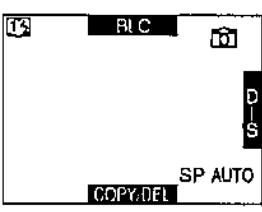
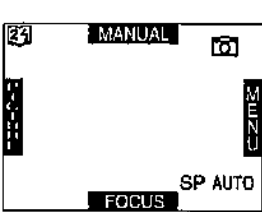

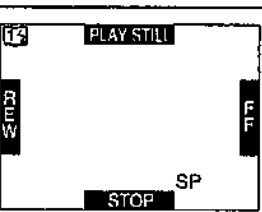
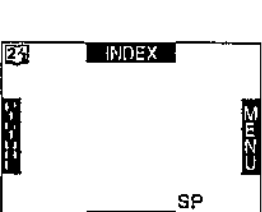
- 4 Press the MENU button to turn off the menu display. The "⌘" mark will be displayed to the left of the area indicator. To reset to standard time, set the "DYLT SAVE" menu item to "OFF".



Preparation

Controlling the Function Screen

Preparation

Mode	Image	Default text	Description	Page
Video Camera Recording mode Lock button 		BLC	Backlight compensation.	37
		DIS	Digital image stabilization.	36
		RETURN	Quick return to the end of last recorded scene.	38
		MANUAL	Scene menu selection.	46
		FOCUS	Manual focus.	44
		MENU	Controlling the On-Screen menu.	27
		TIME CODE	Tape counter for recording time.	51
	PICTURE	Picture/backlight adjustments.	47	
Still Camera Recording mode Lock button 		BLC	Backlight compensation.	37
		DIS	Digital image stabilization.	36
		COPY/DEL.	Saving a still image to video tape.	71
		MANUAL	Scene menu selection.	46
		MENU	Controlling the On-Screen menu.	28
		FOCUS	Manual focus.	44
		PICTURE	Picture/backlight adjustments.	47
Video Playback mode Lock button 		PLAY/STILL	Playback and still.	41
		FF	Fast forward and video search.	41
		STOP	Stop.	41
		REW	Rewind and reverse search.	41
		INDEX	Displaying the beginning of scenes as a Table of contents.	69
		MENU	Controlling the On-Screen menu.	28
		TIME CODE	Editing with a Time Code and tape counter.	51
		PICTURE	Picture/backlight adjustments.	47

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 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 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.

Warranty Period for this Product: 90 days Parts and Labor. The warranty period continues for a total of one year from the date of purchase for parts.

Warranty Period for Rechargeable Batteries: 30 days from the date of purchase.

Additional Items Excluded from Warranty Coverage: Non-Rechargeable Batteries.

Where to Obtain Service: 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).

What to Do to Obtain Service: Ship or carry in your Product to an Authorized Service Dealer or Station. Be sure to have Proof of Purchase available; if you ship the Product, be sure it is packaged carefully.

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Osaka, Japan

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7P05-JWK

Notes

Specifications

Signal System: NTSC standard
Recording System: 2 rotary heads, helical scanning system
Cassette: Digital VCR Mini DV video cassette
Recording/Playback Time: 90 minutes (DVM60 in LP mode)
Tape Speed: 18.81 mm/second (SP mode), 12.56mm/second (LP mode)
Pickup Device: 1/4" (6.4 mm, effective size: 4.5 mm) CCD image sensor (with approx. 410,000 pixels including optical black)
Lens: 10x power zoom lens (F1.8, $f = 4.5-45$ mm), full-range auto focus
Monitor: 3" (7.5 cm)—full-color LCD screen (TFT active matrix)
Microphone: Electret stereo microphone
Color Temperature Compensation: Auto white balance with white balance lock
Minimum Illumination: 5 lux* (with Gain-up, and digital zoom off)
Video Output Level: 1.0 Vp-p 75-ohm unbalanced
Audio Output Level: -8 dBs, impedance less than 2.2 kohms
Speaker Output: 300 mW
External Microphone Input: 3.5 mm diameter mini-plug, -66 dBs, output impedance 6.8 kohms, DC 4 V, for plug-in-power microphone use
Power Requirement: DC 3.6 V
Power Consumption: 8.0W (during camera recording in full auto mode with zoom motor off, backlight in normal mode)
Image compression system: JPEG standard
Picture element: 720 x 480 pixels
TYPE (Number of shots): FINE: 12
STD (Standard): 24
ECON. (Economy): 48
* When the "FINE", "STD" and "ECON." images are mixed, the number of shots differs.
Flash memory: 2MB
Multi-screen: 16 split-screen (4 x 4)
Photoreceptor: IrDA Ver1.0 (max115Kbps)
Operating Temperature: 0°C to +40°C (32°F to 104°F)
Operating Humidity: 30% to 80%
Storage Temperature: -20°C to +60°C (-4°F to 140°F)
Dimensions (approx.): 6 1/2" (W) x 3 1/16" (H) x 2 9/16" (D)
[164 mm (W) x 94 mm (H) x 69 mm (D)]
Weight (approx.): 1.39 lbs (630 g) (without battery pack, lithium battery, video cassette)

AC Adapter/Battery Charger

Power Requirement: AC 110-240 V, 50/60 Hz
DC Output: 4.3 V
Power Consumption: 18 W
Dimensions (approx.): 3 5/16" (W) x 1 3/16" (H) x 3 3/4" (D)
[80.0 mm (W) x 50.0 mm (H) x 95.0 mm (D)]
Weight (approx.): 0.62lbs (280 g)

Battery Pack BT-L31

DC Output: 3.6 V
Dimensions (approx.): 1 1/2" (W) x 1 3/16" (H) x 2 1/16" (D)
[39.0 mm (W) x 20.4 mm (H) x 71.2 mm (D)]
Weight (approx.): 0.21 lbs (96 g)

Specifications are subject to change without notice.

*Minimum illumination: Since there is no widely accepted testing procedure for determining minimum illumination capability, lux ratings are comparable only between models from the same manufacturer.

SERVICE INFORMATION

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).

	Symptom	Possible cause	Suggested solution
Playback	During playback, mosaic patterns appear or picture disappears.	• Dirty video heads.	• Call for service. (p. 79)
		• Old or worn tape.	• Use a new video cassette.
Recording & Playback	No power in Video Playback mode or Video Camera Recording mode.	• Depleted battery pack.	• Use fully charged battery pack. (p. 15)
		• AC adapter cord removed from power outlet.	• Plug AC adapter cord into power outlet. (p. 17)
	Cassette will not eject.	• Power source is not properly connected.	• Connect power source properly. (pp. 16-17)
		• Battery pack is not charged.	• Charge battery pack sufficiently. (p. 15)
		• VIEWCAM is recording.	• Stop tape and try again.
	No buttons operate.	• Dew in VIEWCAM.	• Wait until dew evaporates. (p. 8)
	No image on monitor.	• Backlight has been turned off.	• Press MODE DISPLAY button, or set Power switch to "OFF" and then back to Video Playback mode or Video Camera Recording mode. (p. 54)
		• Fluorescent lamp is burned out.	• Replace with new fluorescent lamp unit. (p. 12)
	Cannot delete a still image	• The image is delete-protected.	• Cancel delete-protection (p. 60).
	Image in memory. Cannot transfer to connected VCR.	• A/V or S-video cable is not properly connected.	• Connect A/V or S-video cable properly. (p. 54)
• A/V pack is not properly connected.		• Connect A/V pack properly. (p. 54)	
Lens makes rattling sound when VIEWCAM is moved in Video Playback mode or with power off.	• Does not indicate a malfunction.	—	
Remote control does not function.	• "REMOTE" menu item is set to "OFF".	• Set "REMOTE" menu item to "ON". (p. 40)	
	• Remote control lithium battery has run down.	• Replace remote control lithium battery with a new one. (p. 18)	
	• Remote control used beyond operating range.	• Use remote control within operating range. (p. 40)	
	• Intense daylight falling on VIEWCAM's photoreceptor.	• Protect photoreceptor from exposure to strong daylight. (p. 40)	
	• Obstacle between remote control and VIEWCAM's photoreceptor.	• Remove obstacle or use remote control from different angle. (p. 40)	

Notes:

- This unit 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 unit from any power sources, including lithium batteries, etc. Then reconnect the power sources (to resume operation).
- If the characters displayed on the monitor screen appear to malfunction, disconnect the power source and remove the lithium battery, then reconnect the power source, insert the lithium battery, and turn the power on again. The characters on the monitor should be normal. Set the date and time, then resume operation.




Others

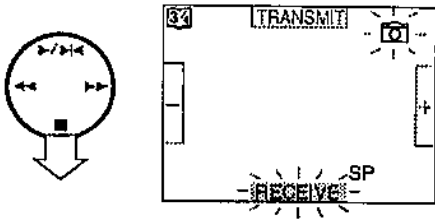
Before Requesting Service


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

	Symptom	Possible cause	Suggested solution
Power	No power.	• Power source is not properly connected.	• Connect power source properly. (pp. 16-17)
		• Battery pack is not charged.	• Charge battery pack sufficiently. (p. 15)
		• Dew in VIEWCAM.	• Wait until dew dries. (p. 8)
		• Safety function is in effect.	• Set Power switch to OFF and remove battery pack; wait for two seconds, then re-install battery pack and turn on power. (p. 16)
Recording	Does not start recording when the REC button is pressed in the Video Camera Recording mode.	• Erasure protect tab on video cassette is open.	• Close tab or use a new cassette. (p. 10)
	Cannot record images in memory when the REC button is pressed in the Still Image Recording mode	• The memory is full.	• Delete unwanted images (pp. 61-62) or transfer the image data to a tape (pp. 71-72) to provide memory.
	Power suddenly turns off.	• VIEWCAM left in Recording Standby mode for five minutes.	• Set Power switch to OFF and then back to CAMERA.
	Monitor screen is difficult to view.	• Inappropriate picture adjustments.	• Adjust picture. (p. 47)
	Auto focus does not work.	• Manual Focus mode is engaged.	• Set to Auto Focus mode. (p. 44)
		• Zoom used on close subject.	• Zoom out on subject. (p. 35)
		• Shows little contrast in brightness, or is full of horizontal or vertical stripes.	• Focus manually. (p. 44)
	Bright subject produces wide vertical lines.	• Occurs when shooting subject with strong contrast to the background. Does not indicate a malfunction.	—
	No audio from speaker when recording.	• Speaker does not work during Video Camera Recording mode. (Volume control in Video Camera Recording mode only affects earphone volume.)	—
	Automatically zooms out without operating Zoom buttons.	• VIEWCAM is unable to focus when zooming in on subject within 5 feet (1.5 m), and automatically zooms out until it focuses on subject.	• Zoom out. (p. 35)
• No subject in the field of view.		• Direct lens to some subject, or set zoom to widest angle before shooting. (p. 35)	
Playback	Tape stops midway through rewind or fast forward.	• Counter is in memory mode.	• Cancel counter memory mode. (p. 52)
	No image appears on connected TV screen.	• Video input channel on TV or TV channel is not selected properly.	• Select video input channel on TV or TV channel properly. (pp. 53-54)
		• A/V cable is not properly connected.	• Connect A/V cable properly. (pp. 53-54)
		• A/V pack is not properly connected.	• Connect A/V pack properly. (p. 53)
Cannot play back, rewind or fast forward tape.	• Tape already wound or rewound completely.	• Rewind or fast forward tape to desired point. (p. 41)	

Receiving Image Data via Infrared Beam

- 1 Press the MENU button to appear  screen in the Still Image playback mode.
- 2 Press  on the Operation button  to select "RECEIVE". The VIEWCAM can now receive data.



- The "RECEIVE" display and the "  " indicator blinks during operation.

- 3 Transmit data from the equipment in use to the VIEWCAM.
 - Reception time depends on the equipment used.
 - Once reception is completed "TRANSMIT" is displayed without blinking. It reverts to reception status.
 - Check the alignment of the photoreceptors.

If an error occurs during reception

The "ERROR" indicator appears on the monitor.

- Press  on the  button to select "RECEIVE".



The "ERROR" indicator disappears.
The "RECEIVE" display blinks and the VIEWCAM reverts to reception status.

- Check the orientation of the infrared transmitter/receiver.

Note:

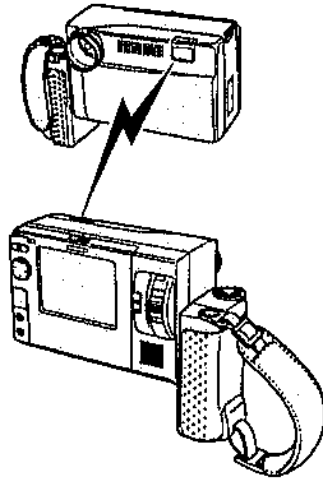
- For the operation of the other equipment, refer to its instruction manual.

Communication via infrared Beam

- Infrared data transmission will be disabled if the PC pack is attached by the personal computer connecting cable to the DIGITAL jack of the VIEWCAM.
- Infrared data transmission depletes battery power quickly.
- The effects of external light, battery depletion, distance between equipment, or misalignment of transmitting/receiving ports, may result in interrupted data transference, transfer error, or data alteration. Do not perform this function in strong sunlight.
- Do not turn off the power when "TRANSMIT" or "RECEIVE" blinks. Take care not to interrupt the data transmission, or the image data may be lost.

Transferring and Editing Data

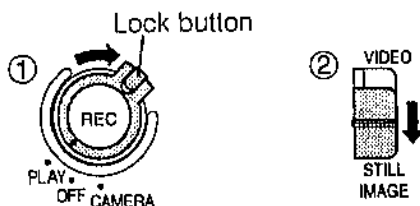
Transferring Data Via Infrared Beam (IrDA; Infrared Data Association)



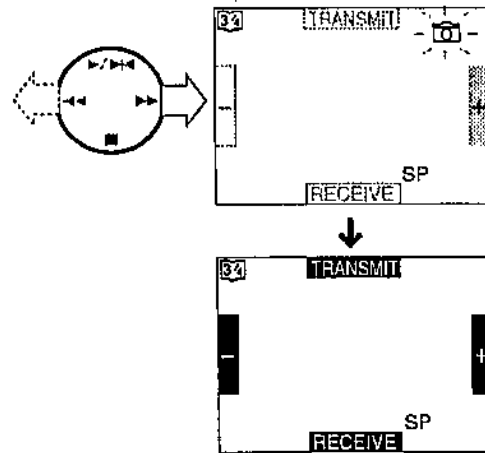
- The VIEWCAM can transfer recorded image data via infrared light waves to other equipment with IrDA ports.
- Arrange the VIEWCAM and the other equipment such a way that their infrared transmitter/receiver directly face each other (there must be a clear line of sight between the IrDA ports). Adjust the height and angle so that their optical axes will be aligned with each other. The distance between them must be 10 to 80 cm.
- To transfer data to a personal computer requires special digital still image transfer software. Please consult your local computer dealer regarding the compatibility of such software with the VIEWCAM.
- See the PIXLAB software manual (supplied) regarding software use.

Transmitting Image Data via Infrared Beam

- 1 Set the Power switch to PLAY (①), and the Mode switch to STILL IMAGE (②), then press the MENU button until 34 appears.



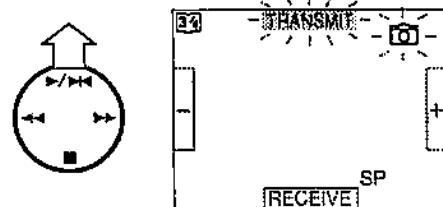
- 2 Press ►► or ◀◀ on the Operation button ⊕ to select "+" or "-" to choose a desired image.



- The " " indicator blinks during operation.

- 3 Set the device that will be receiving data to data reception status.

- 4 Press ►/◀ on the ⊕ button to select "TRANSMIT".

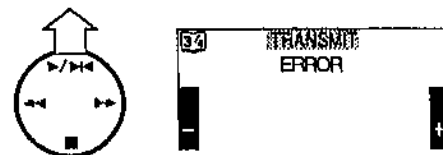


- The "TRANSMIT" display and the " " indicator blinks during operation.
- The transmission time depends on the equipment used.
- Pressing ►/◀ on the ⊕ button to select "TRANSMIT" again cancels the transmission.
- On completion of transmission, the "TRANSMIT" stops blinking and remains illuminated.

If an error occurs during transmission

The "ERROR" indicator appears on the monitor.

- Press ►/◀ on the ⊕ button to select "TRANSMIT".



The "ERROR" indicator disappears and "TRANSMIT" blinks and the VIEWCAM starts transmission again.

- Check the alignment of the infrared transmitter/receiver.

Digital Still Camera Features

Transferring Still Image Data to Other Equipment

Transferring Still Image Data to Other Equipment

- To transmit still image data from this VIEWCAM to a PC, use the supplied PC pack (Personal Computer adapter), connecting cable (including a Macintosh compatible adapter cable) and the PIXLAB digital still image transferring software.
- To transfer the still image data, refer to the PIXLAB software manual (supplied).
- To determine the compatibility of your PC with the VIEWCAM, consult your local computer dealer.
- Refer to your PC user's manual regarding PC operation.

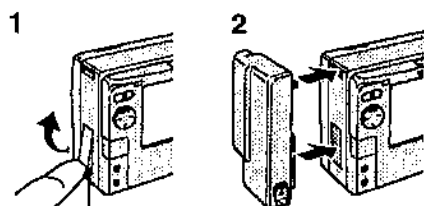
Attaching the PC Pack (Personal Computer adapter)

- 1 Remove the AV pack terminal cover of the VIEWCAM as shown below.

Note:

- Be careful not to lose the cover once it is removed.

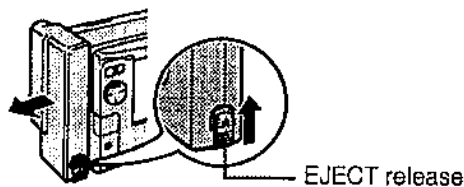
- 2 Align the projections on the PC pack with the openings on the VIEWCAM's mounting panel, insert the PC pack as shown, then push the PC pack firmly against the mounting panel until it clicks into place.



AV pack terminal cover

Detaching the PC pack

Slide the EJECT release on the PC pack in the direction of the arrow, and then pull the PC pack straight out.



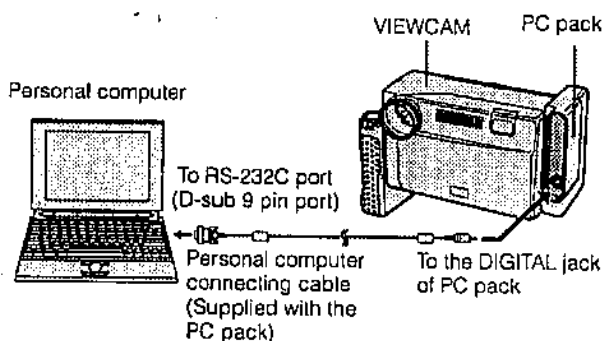
Caution:

- Do not use the PC pack as a handle, it will cause malfunctions.

Connecting to a Personal Computer

Attach the supplied PC pack to the VIEWCAM. Engage the connecting cable to the DIGITAL jack port of PC pack. Set the VIEWCAM to the Still Image Playback mode.

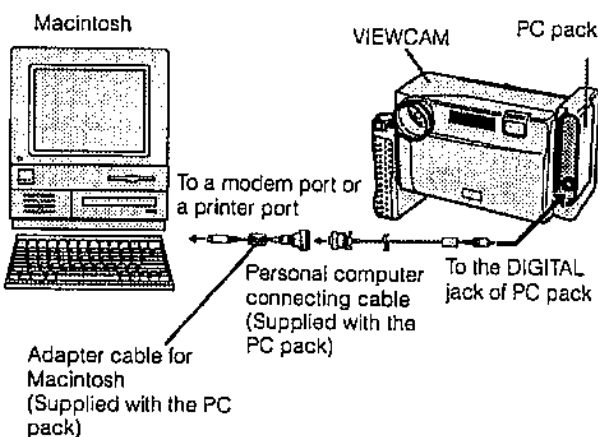
[To an IBM-compatible PC or an NEC PC-98]



Notes:

- Some NEC PC-98 series machines do not employ a D-sub 9 pin (male) port as an RS-232C. In this case, use a commercially available converting adapter to connect the cable to the port.
- Some NEC PC-98 series machines employ a D-sub 9 (male) port that is incompatible with the VIEWCAM. In this case, use a commercially available converting adapter to connect the cable to a D-sub 25 pin port.

[To Macintosh]



Digital Still Camera Features

Digital Still Camera Features

Still Image Recording / Playback

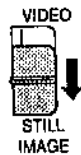
Dubbing a Stored Still Image onto a Video Tape

- This feature lets you dub still images on video or to display still images sequentially.

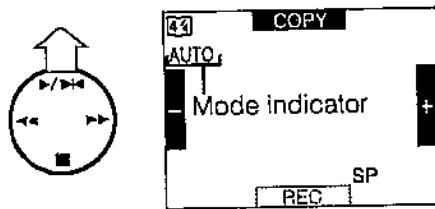
- Set the Power switch to PLAY (①), and the Mode switch to VIDEO (②). Play back the tape in advance and stop at a position where a still image is to come from the memory.



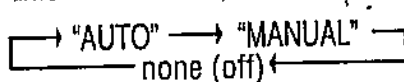
- Set the Mode switch to STILL IMAGE.



- Press the MENU button until 44 appears on the monitor. Press >>/<< on the Operation button ⊕ to the "COPY" side to select "AUTO" or "MANUAL".



- The "AUTO" or "MANUAL" indicator appears on the monitor.
- The mode changes as shown below each time the button is pressed.



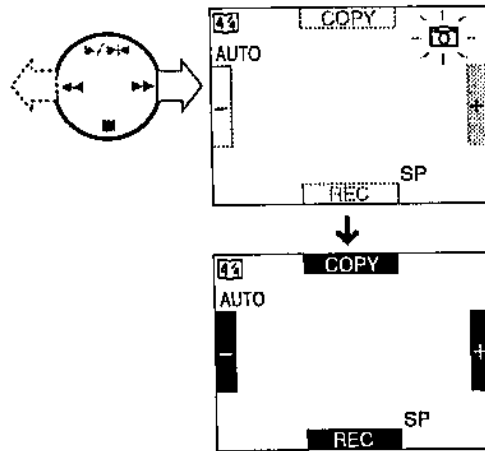
"AUTO" position:

You can select a still image on the monitor screen, and record that image as well as the following images, all stored in the VIEWCAM memory, onto a tape. This recording is automatically made every 10 seconds.

"MANUAL" position:

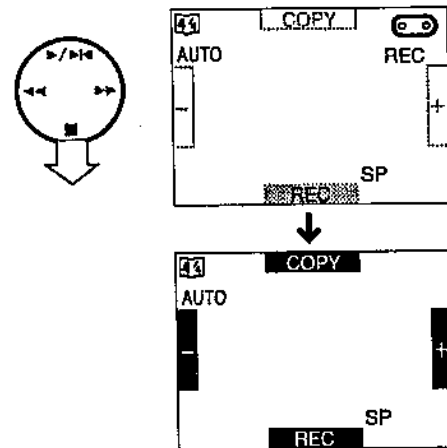
You can select a still image on the monitor screen, and record that image onto a tape.

- Press >> or << on the ⊕ button to select "+" or "-" and select images to be recorded on the video tape.



- The "⊕" indicator blinks during operation.

- Press ■ on the ⊕ button to select "REC".



- If you have selected "AUTO" mode, the video tape will stop automatically when the VIEWCAM finishes recording.
- If you have selected "MANUAL" mode, you must press ■ on the ⊕ button to select "REC" once recording is finished.

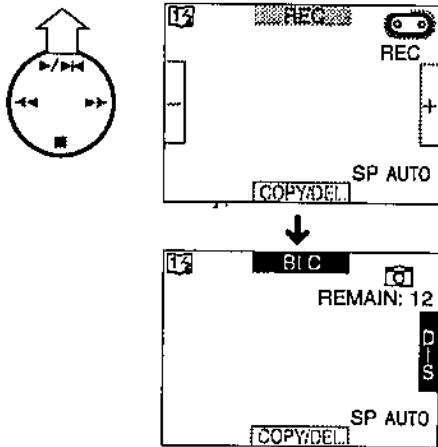
To Stop recording during dubbing

Perform step 5 above, press ■ on the ⊕ button to select "REC" again.

Notes:

- No audio is recorded.
- It is recommended that images be dubbed on a video tape to prevent memory from becoming full.
- If the dubbing operation is performed when the 16 multi-screen is displayed, the entire multi-screen will be recorded.

- 6 Press $\blacktriangleright/\blacktriangleleft$ on the Operation button \odot to select "REC".



- The still image which is currently displayed on the monitor and subsequent images are automatically recorded on the video tape sequentially for 10 seconds each.
- When recording is completed, the dubbed still images in memory are deleted automatically.
- The record-protected images are not deleted.

To stop recording

Perform step 6 above, press $\blacktriangleright/\blacktriangleleft$ on the \odot button to select "REC" again.

On completion of copying and deleting operation

- The tape stops automatically.
- You can resume Still Image Recording.

Digital Still Camera Features

Still Image Recording / Playback

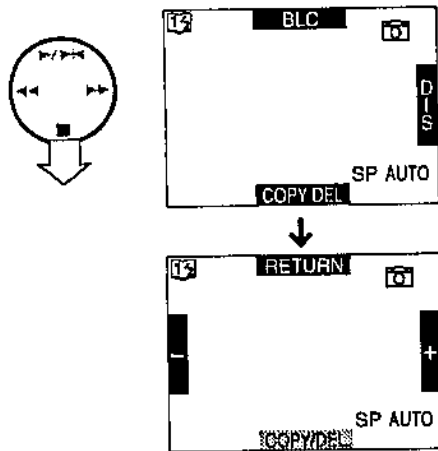
Dubbing Stored Still Images Data from Memory to Tape to Provide Memory Space

- When the VIEWCAM memory is full, you can transfer stored images to a video tape to free up memory for other images.

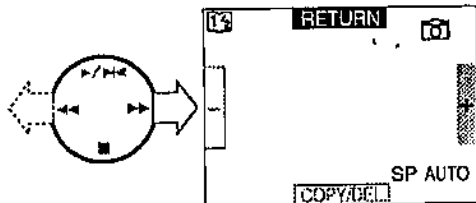
- 1 Set the Power switch to CAMERA (①), and the Mode switch to Still Image (②).



- 2 On the [1/2] screen, press ■ on the Operation button ⊕ to select "COPY/DEL."



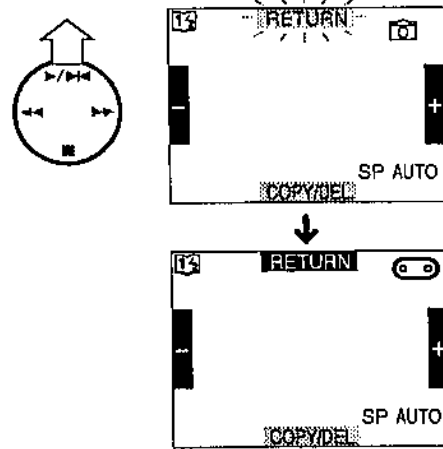
- 3 Press ►► or ◀◀ on the ⊕ button to select "+" or "-" to choose images to be recorded on video tape.



Note:

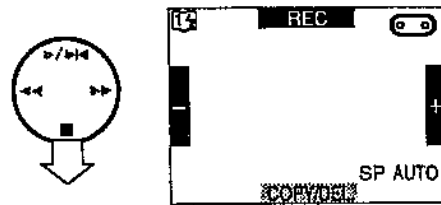
- Once the tape is ejected, the VIEWCAM cannot locate the last recorded scene.

- 4 Press ►/◀ on the ⊕ button to select "RETURN".



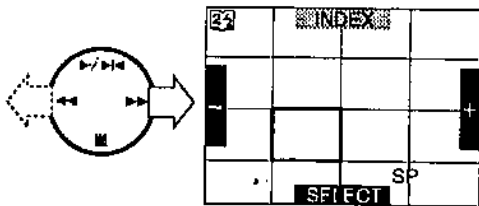
- The last recorded scene (the desired position at which the next recording will begin) is located.
- Press ►/◀ on the ⊕ button to select "RETURN" again to cancel a selected image while the "RETURN" display blinks during operation.

- 5 Press ■ on the ⊕ button to select "COPY/DEL." again.

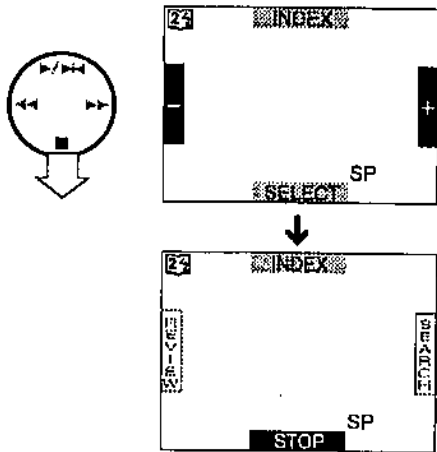


- "RETURN" changes to "REC".
- Press ■ on the ⊕ button to select "COPY/DEL." again to cancel a selected image.

- 6** Press **▶▶** or **◀◀** on the **⊖** button to select “+” or “-” and set the frame to the desired image.



- 7** Press **■** on the **⊖** button to select “SELECT”.



- The VIEWCAM locates the beginning of the selected scene and plays it back.

To stop playback

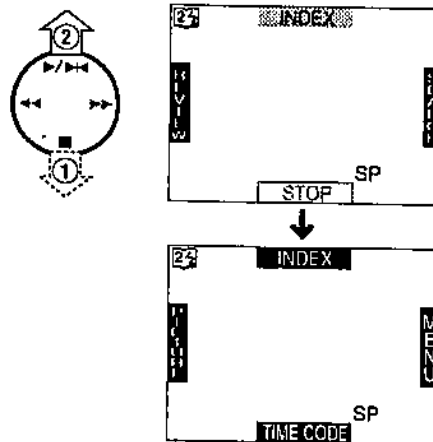
- Press **■** on the **⊖** button to select “STOP”.
- To display the index (16-multi-screen) again, press **◀◀** on the **⊖** button to select “REVIEW”.

To display the next index (16-multi-screen)

- 1** Press **■** on the **⊖** button to select “STOP”.
- 2** Press **▶▶** on the **⊖** button to select “SEARCH”.
 - When the VIEWCAM fast-forwards again, the beginnings of recorded scenes (or title-inserted portions) are sequentially recorded into memory (for up to 16 images).

To cancel the index function

Press **■** on the **⊖** button to select “STOP” (①). And press **▶▶** on the **⊖** button to select “INDEX” (②).



Notes:

Record an image for 10 seconds or more.

- If the recording time is less than 10 seconds, the VIEWCAM cannot locate the index images in order.
- When recording a scene from the beginning of a tape, pre-record the scene for approximately 15 seconds before the actual recording.
- When the tape is ejected, the VIEWCAM cannot access the index portions.
- When less than 16 images are stored in memory, the remaining subscreens will be displayed in white.

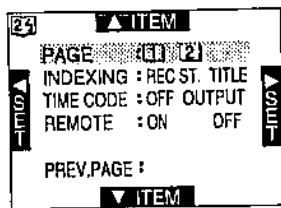
Digital Still Camera Features

Still Image Recording / Playback

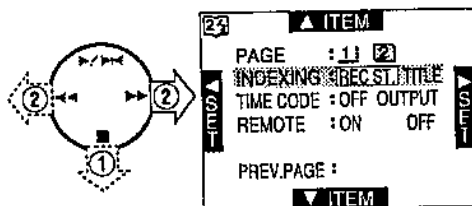
Indexing Scenes Recorded on a Tape

- You can search the beginning of a scene using a still picture like a Table of Contents and locate the scene to be played back.
- There are two types of index functions. You can use the start scenes of recorded sequences as the index and also the title-inserted scenes (see page 63) as the index.

- Press the MENU button and the Operation button to display MENU-PAGE 1 in the Video Playback mode. And then press \blacktriangleright on the \odot button to display MENU-PAGE 2.

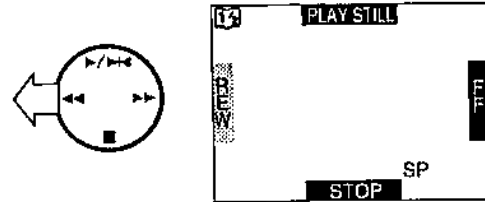


- Press \blacksquare on the Operation button \odot to select "INDEXING" (1) and then press \blacktriangleright or \blacktriangleleft on the \odot button to select "REC ST." or "TITLE" (2).

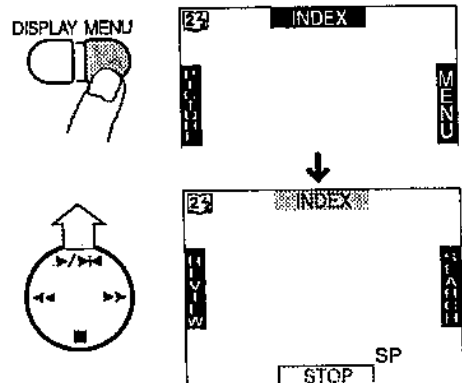


- When you want to use the beginning of recorded sequences as the index, select REC ST.
- When you want to use scenes with titles inserted in them as the index, select TITLE.

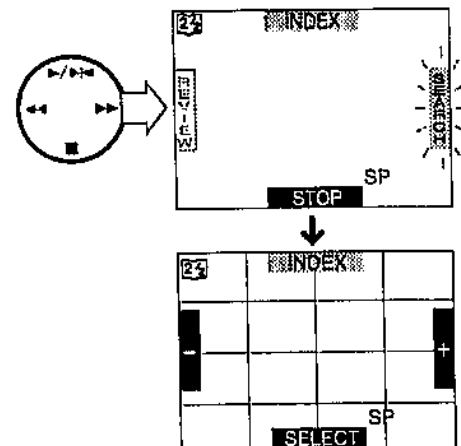
- Press the MENU button to turn off the menu and press \blacktriangleleft on the \odot button to select "REW" and rewind the video tape completely.



- Press the MENU button until 24 appears on the monitor screen and press $\blacktriangleright/\blacktriangleleft$ on the \odot button to select "INDEX".

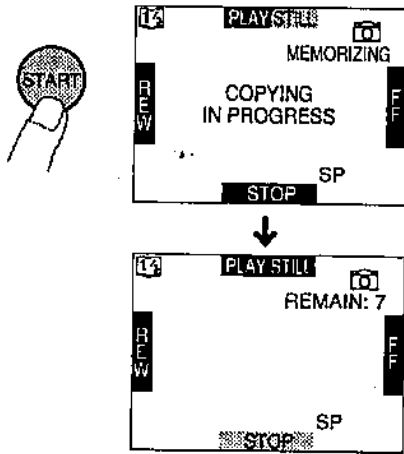


- Press \blacktriangleright on the \odot button to select "SEARCH".

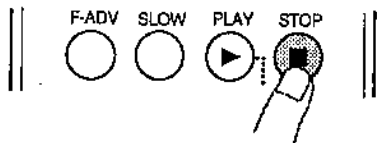


- When the VIEWCAM fast-forwards, the beginning of recorded scenes (or title-inserted sequences) are recorded into memory sequentially (for a maximum of 16 images), and the tape stops.
- To cancel, press \blacksquare on the \odot button to select "STOP".

- 6 Press the START button on the Remote Control. (The "COPYING IN PROGRESS" indicator appears on the monitor.)

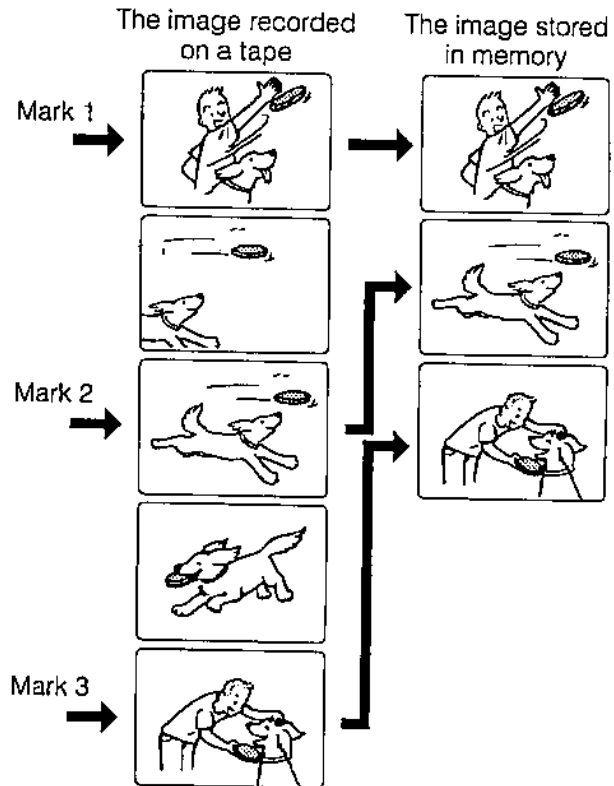


- The VIEWCAM automatically rewinds and plays back the video tape, and copies the marked images in memory sequentially.
- The tape stops running automatically and the marks are deleted.
- **When you want to cancel the memory dubbing:** Press the STOP button on the Remote Control.



- Press the START button again to start dubbing from the desired section.

Example of the auto memory dubbing



Notes:

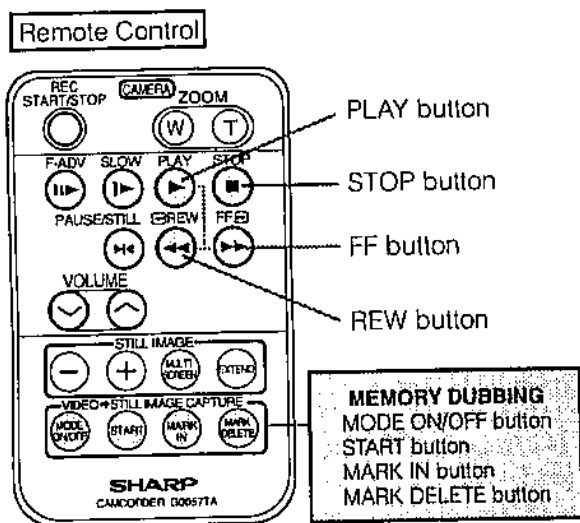
- If the image data to be dubbed exceeds the amount of memory, the dubbing operation terminates when the memory becomes full.
- If the video tape is played back in the Memory dubbing mode, the "Mark" appears on the display when a marked position is reached.
- During the video search, no "Mark" appears.
- The marks must be put at intervals of approximately 10 seconds or more. If marks are put at intervals of less than 10 seconds, the VIEWCAM may malfunction.
- If the MODE ON/OFF button on the Remote Control is pressed to set the mode to "OFF" the marks are canceled.
- **Once the power is turned off or the video tape is ejected, the auto memory dubbing function will not work.**
- When the memory dubbing is finished, set the VIEWCAM to the Video Playback mode. On the menu display, select MENU-PAGE [] and set the "VIDEO - STILL" to "OFF".

If it is set to "ON", the battery will be depleted more quickly.

Digital Still Camera Features

Still Image Recording / Playback

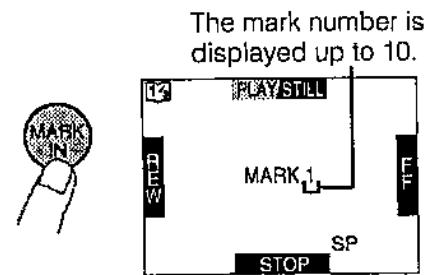
Auto Memory dubbing



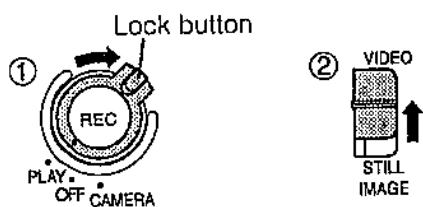
- Press the MODE ON/OFF button on the Remote Control so as to set the VIEWCAM to the memory dubbing mode. (The "VIDEO IMAGE CAPTURE" indicator appears on the monitor.)



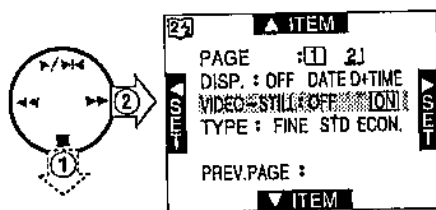
- When the VIEWCAM plays back the desired scene, press the MARK IN button on the Remote Control. (The "MARK" indicator appears on the monitor.)
 - When other desired scenes are played back, mark them in the same manner. (Up to 10 marks max.)



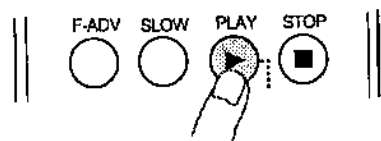
- Set the Power switch to PLAY (1), and the Mode switch to VIDEO (2). Then press the MENU button until 23 appears on the monitor.



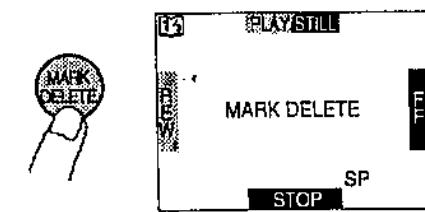
- Press ►► on the Operation button to select "MENU". The MENU-PAGE 1, appears. Press ■ on the ◂ button to select "VIDEO - STILL" and press ►► on the ◂ button to select "ON".



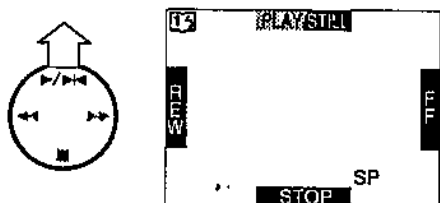
- Press the MENU button to turn off the menu display, and then press the PLAY button on the Remote Control to play back a video tape.



- When you want to change the marked position: After identifying a location in which to desired scene using the REW button on the Remote Control, press the PLAY button. At the marked position, hold down the MARK DELETE button on the Remote Control for **more than 2 seconds**. (The "MARK DELETE" indicator appears on the monitor.)

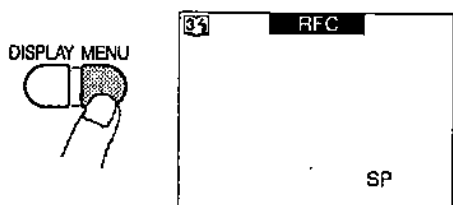


- 5 Press **▶/▶** on the Operation button **⊖** to select "PLAY".

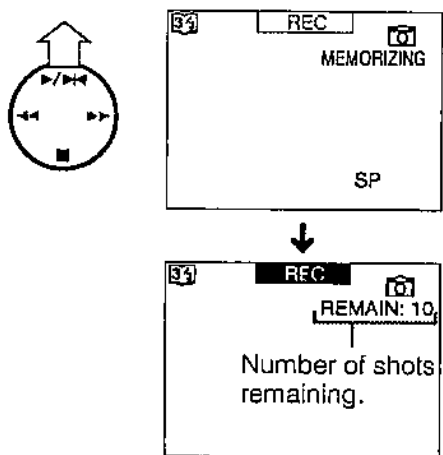


- The video tape is played back.
- To select the desired image, begin to play back from a preceding scene.

- 6 Press the MENU button until **33** appears on the monitor.

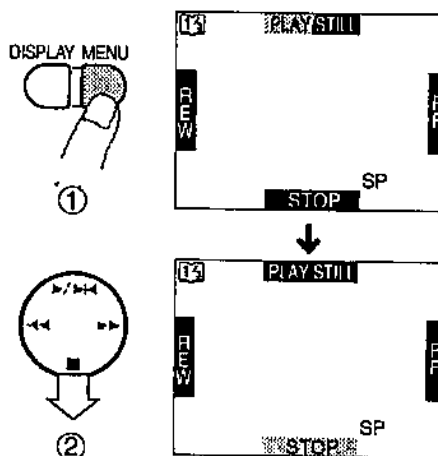


- 7 When the desired image appears, press **▶/▶** on the **⊖** button to select "REC".



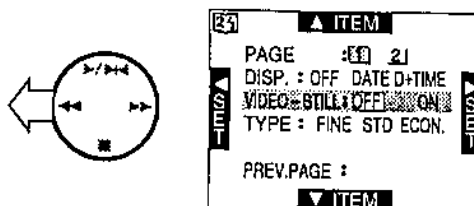
- The still image is recorded in memory.
- Then the tape is running.
- When you want to record other images, repeat the procedure above from the step 2.

- 8 Press the MENU button until **13** appears on the monitor (1). Press **■** on the **⊖** button to select "STOP" (2).



Turning off the memory dubbing function

Set the MENU-PAGE **1** on the monitor and pressing the **⊖** button to set the "VIDEO → STILL" to "OFF" on the menu display.



- If it is set to "ON", the battery will be depleted more quickly.

Digital Still Camera
Features

Digital Still Camera Features

Still Image Recording / Playback

Dubbing an Image from a Video Tape to Memory

- You can dub a picture recorded on a video tape to memory.

— Memory dubbing

- Two kinds of memory dubbing are available as follows.

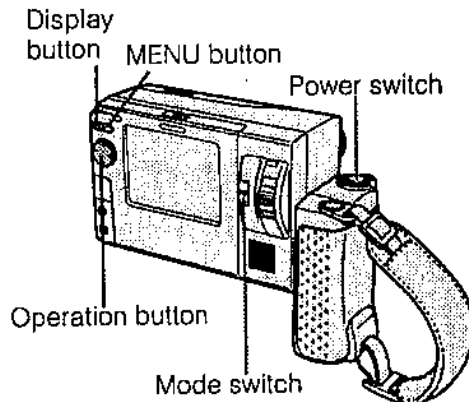
Manual memory dubbing:

Scenes recorded on a tape are stored one by one into the VIEWCAM memory to make still images.

Auto memory dubbing:

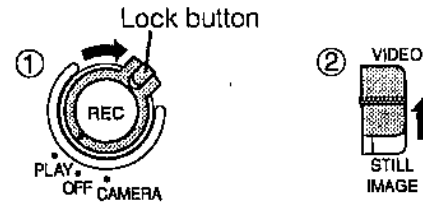
Scenes recorded on a tape are stored all at once into the VIEWCAM memory to make still images. Maximum 10 still images can be selected.

- The image recorded in memory is a still image. (Audio cannot be recorded.)

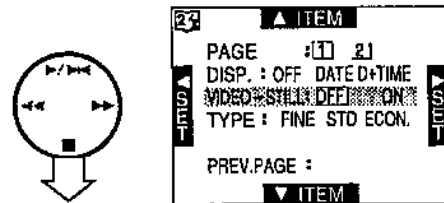


Manual memory dubbing

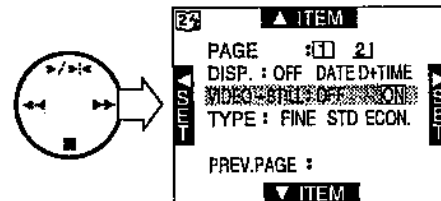
- Set the Power switch to PLAY (1), and the Mode switch to VIDEO (2). Then press the MENU button until 23 appears on the monitor.



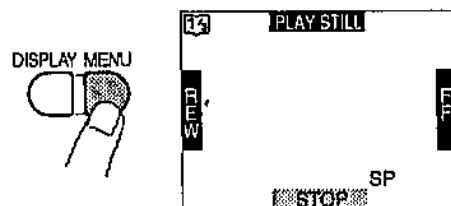
- Press >> on the Operation button to select "MENU". The MENU-PAGE 23 appears. Press ■ on the ⊕ button to select "VIDEO - STILL".




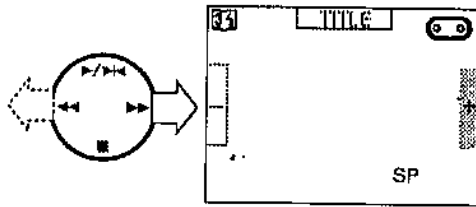
- Press >> on the ⊕ button to select "ON".



- Press the MENU button until 13 appears.

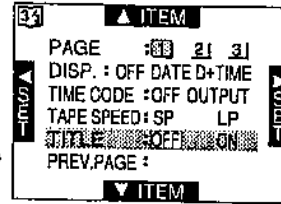


- 8** Press ►► or ◀◀ on the Operation button  to select “+” or “-” and display images in memory.

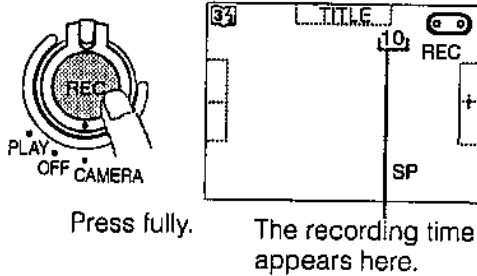


To turn off the title inserting function

Refer to page 63 to display MENU-PAGE  and set the “TITLE” to “OFF” on the menu display.




- 9** Press the REC button all the way down.



- If it is set to “ON”, the battery consumes sooner.

- The stored image displayed on the monitor is recorded on a video tape for 10 seconds.
- The audio is also recorded on the tape.
- Do not stop recording halfway because you cannot use the beginning of scenes as a table of content function (see page 69).

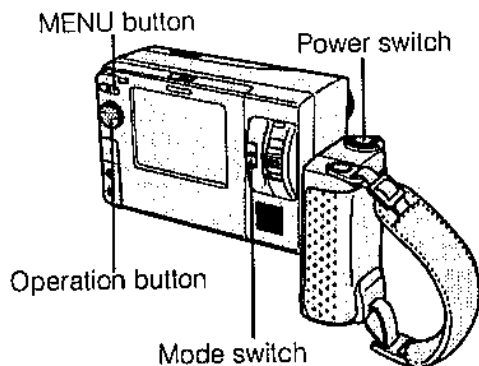
- 10** When the title inserting is finished, press ►► on the  button again to go back to the Video Tape Recording mode.

Digital Still Camera Features

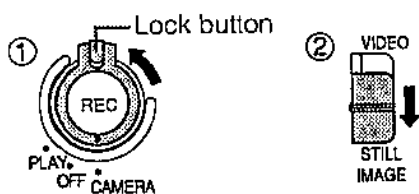
Still Image Recording / Playback

Recording an image as a title

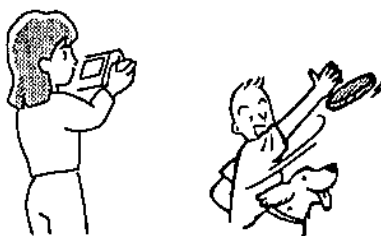
- When you are recording, you can put an image recorded in memory at the beginning of the scene as a title.
- When playing back a video tape, you can use this title image as an index of the scene.



- 1 Hold down the Lock button and turn the Power switch to CAMERA (1). Set the Mode switch to STILL IMAGE (2).



- 2 Record Still Images to be used as titles. (See page 56).

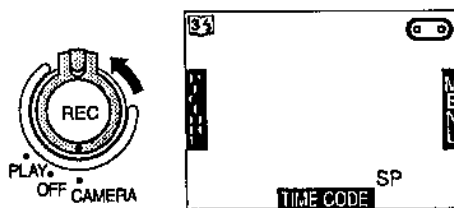


- 3 Set the Power switch to PLAY (1) and the Mode switch to VIDEO (2).

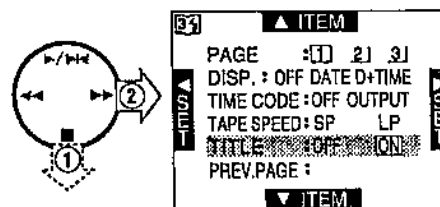


- 4 After identifying a location in which to insert a title using the Fast Forward, REW, Search, Counter or time code functions, press ■ on the ⊕ button to select "STOP" on the screen to stop the video tape running. (See pages 41-42 and 51-52)

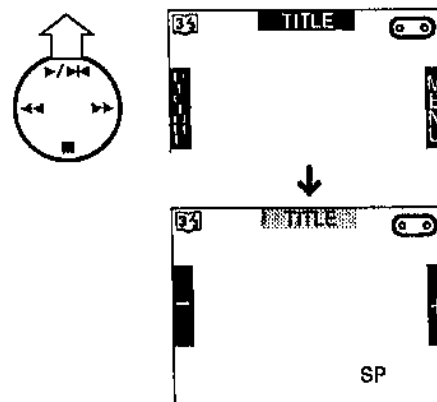
- 5 Set the Power switch to CAMERA, and then press the MENU button until 34 appears on the monitor.



- 6 Press ► on the ⊕ button to select "MENU". The MENU-PAGE 1 appears and press ■ on the ⊕ button to select "TITLE" (1), then press ► to select "ON" (2).



- 7 Press the MENU button until 34 appears and press ► on the ⊕ button to select "TITLE".

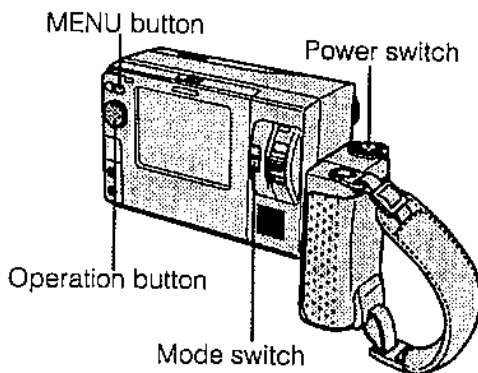


Deleting Stored All Images

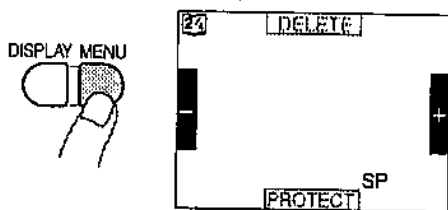
- Delete unwanted images to free up memory for new images. This will increase the number of remaining shots.
- Deleted images cannot be restored. Be sure that you do not want images to be deleted.

Delete-protect images that you do not want deleted.

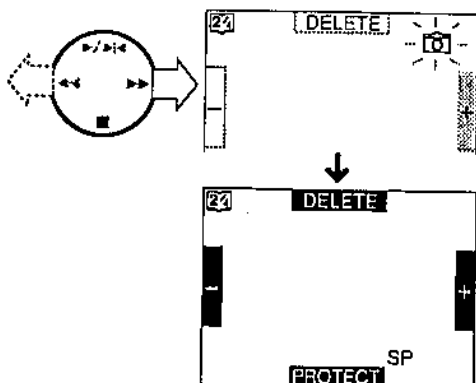
- When the delete-protected image is selected, you cannot perform the delete function. Select an image that is not delete-protected to perform the delete function.



- 1 Set the VIEWCAM to the Still Image Playback mode.
- 2 Press the MENU button until 24 appears on the monitor.

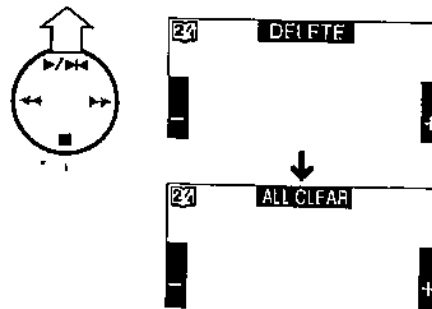


- 3 Press the >> or << on the Operation button to select "+" or "-" and choose an image for deletion.



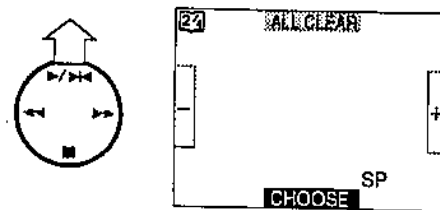
- The "📷" indicator blinks during operation.

- 4 Hold down >>> on the Operation button for approximately 2 seconds to select "DELETE" until the "DELETE" changes to "ALL CLEAR".



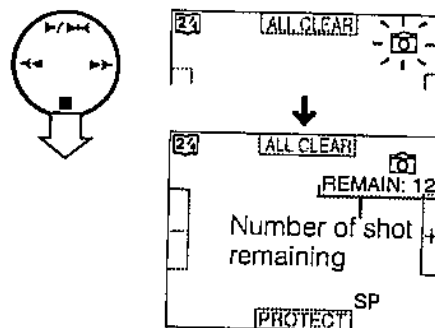
- Press >>> again to the "ALL CLEAR" side again for 2 seconds, the "DELETE" appears again.

- 5 Press >>> on the button to select "ALL CLEAR" to set the VIEWCAM to the ALL CLEAR mode.



- Press >>> again to select "ALL CLEAR" to cancel the ALL CLEAR mode.

- 6 Press ■ on the button to select "CHOOSE".



- All images are deleted.
- The clearing operation takes 5 to 10 seconds.
- The "📷" indicator blinks during operation.

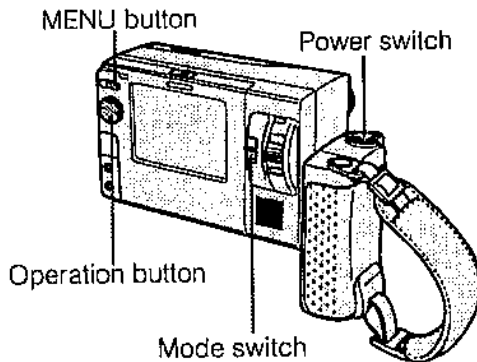
Digital Still Camera Features

Still Image Recording / Playback

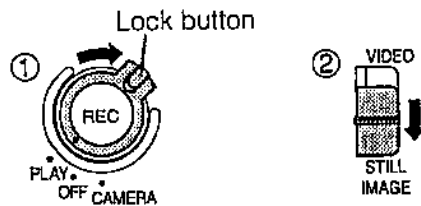
Deleting Stored Images One by One

- When the memory is full, "REMAIN: 0" appears. In such a case, new still images cannot be recorded until unwanted images are deleted.
- Deleting unwanted images frees up memory for new images. This will increase the number of remaining shots.
- Deleted images cannot be restored. Be careful when selected images for deletion.

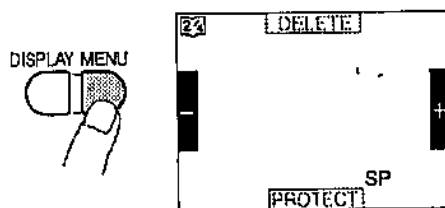
Deleting an image



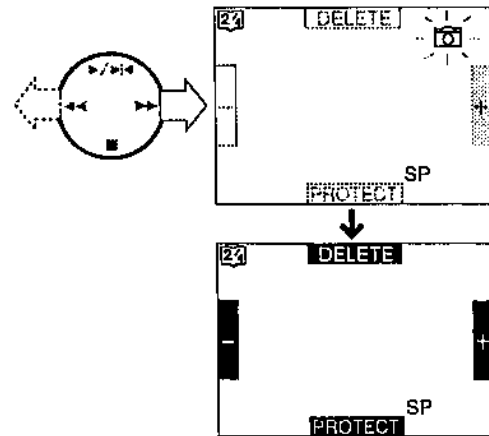
- 1 Hold down the lock button and turn the Power switch to PLAY (1). Set the Mode switch to STILL IMAGE (2).



- 2 Press the MENU button until 24 appears on the monitor.



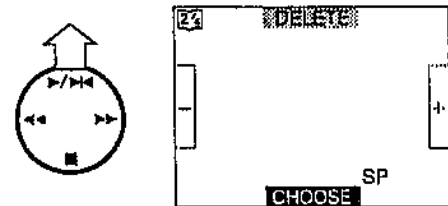
- 3 Press >> or << on the Operation button to select "+" or "-" and choose an image for deletion.



Delete-protected images cannot be deleted. You must cancel delete-protection to delete the image. (See page 60).

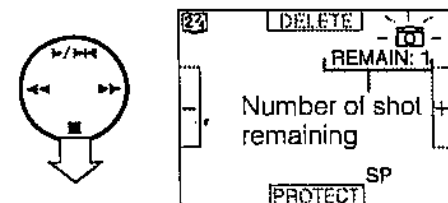
- The "📷" indicator blinks during operation.

- 4 Press >/< on the Ⓞ button to select "DELETE" and set to the Deleting mode.



- Pressing >/< to select "DELETE" again cancels the Deleting mode.

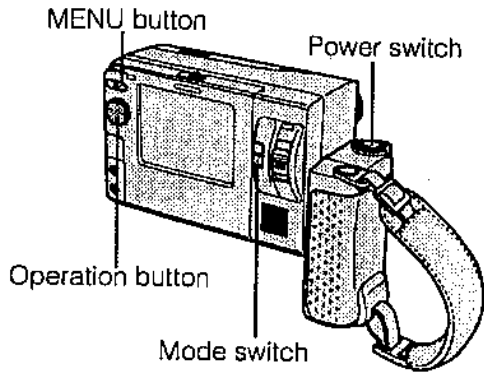
- 5 Press ■ on the Ⓞ button to select "CHOOSE" and delete the image.



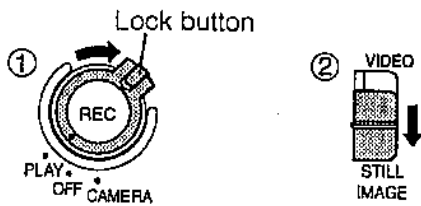
- The image on the monitor is deleted and the subsequent image appears.
- The deleting operation takes approximately 5 to 10 seconds.
- When an image is deleted, the subsequent pictures are moved forward.
- The "📷" indicator blinks during operation.
- The number of shots remaining is displayed in the upper right hand corner of the monitor screen.

Delete-Protection

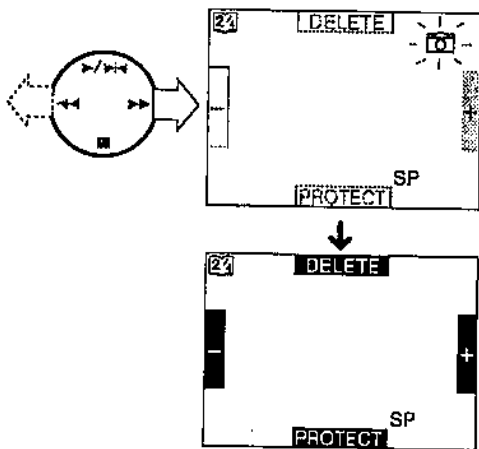
- The delete-protection function allows you to protect recorded images from being accidentally deleted.



- Hold down the Lock button and turn the Power switch to PLAY (①). Set the Mode switch to STILL IMAGE (②).

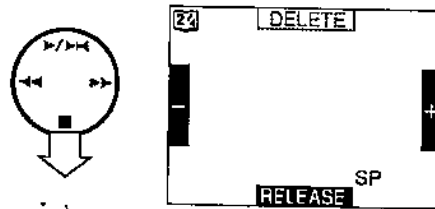


- Press the MENU button until [24] appears on the monitor and press >> or << on the Operation button to select "+" or "-" and choose the selected image.



- The " [24] " indicator blinks during operation.

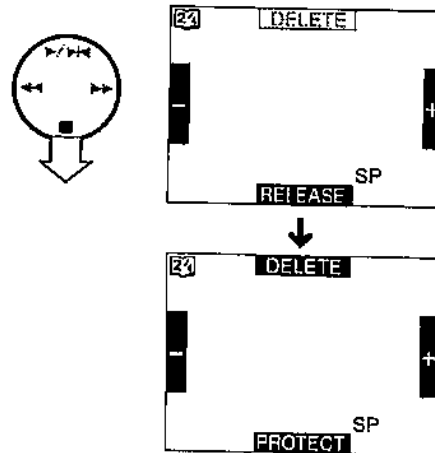
- Press ■ on the [OK] button to select "PROTECT".



- "RELEASE" is displayed to indicate a record-protected image.

To cancel the record protection

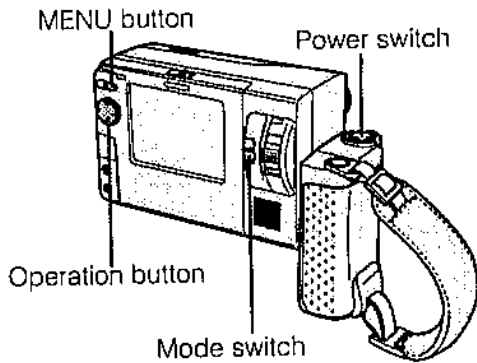
Press ■ on the Operation button to select "RELEASE".



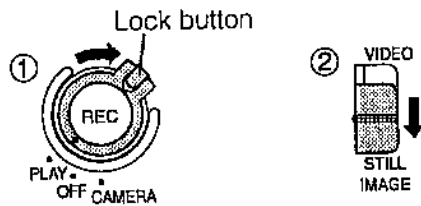
Digital Still Camera
Features

Enlarging a Still Image ("EXTEND")

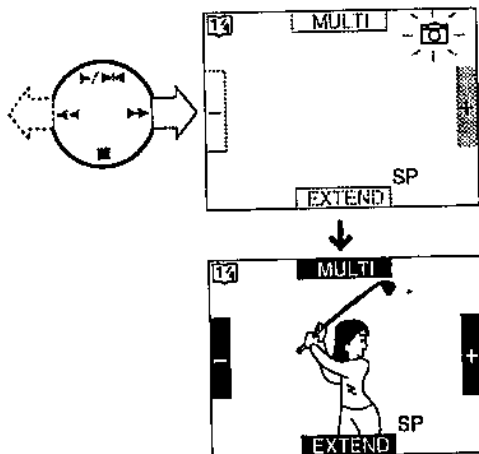
- You can enlarge a still image to twice its size.



- Hold down the Lock button and turn the Power switch to PLAY (①). Set the Mode switch to STILL IMAGE (②).

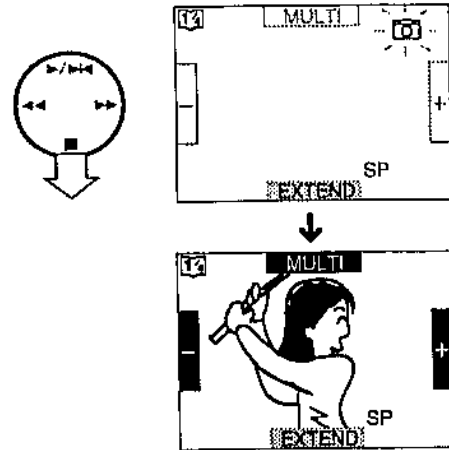


- Press the MENU button until **14** appears on the monitor and press **▶▶** or **◀◀** on the Operation button **⊕** to select "+" or "-" to choose an image.



- You can use the multi-screen function to search for the desired image.
- The " " indicator blinks during operation.

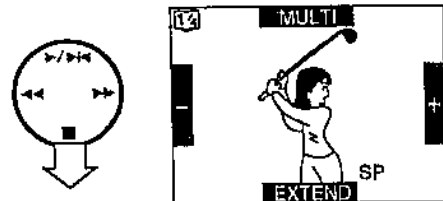
- Press **■** on the **⊕** button to select "EXTEND".



- The center of image is doubled in size.
- When the normal image is enlarged, it disappears for approximately 5 to 10 seconds and then reappears.
- The " " indicator blinks during operation.

To switch the enlarged image to a normal one.

Press **■** on the **⊕** button again to select "EXTEND".

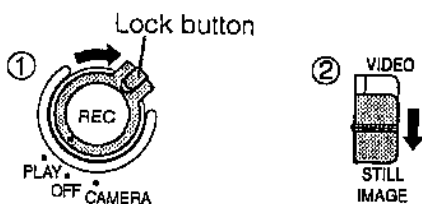


Playing Back a List of Stored Images (Multiple Image Display)

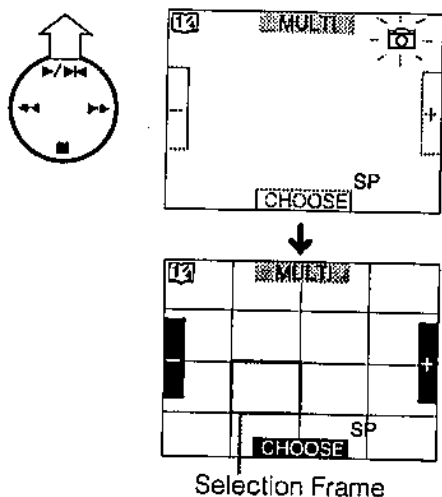
- You can view a set of 16 small-size images on the screen. This is convenient when you want to quickly select an image from those stored in memory. You can then display that image in normal size.
- It takes approximately 5 to 10 seconds for the image to be displayed after it is selected.

To show the multi-screen display

- Hold down the Lock button and turn the Power switch to PLAY (①). Set the Mode switch to STILL IMAGE (②).

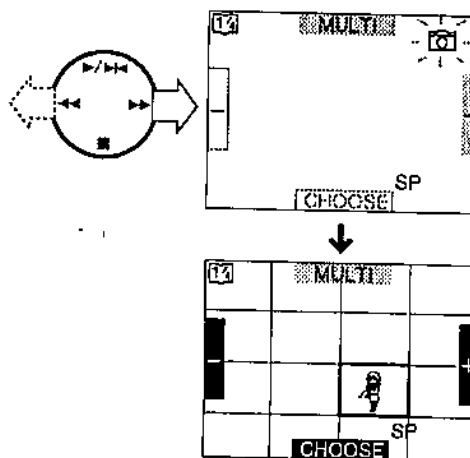


- Press the MENU button until [12] screen appears on the monitor and press $\blacktriangleright/\blacktriangleleft$ on the Operation button \odot to select "MULTI".



- The monitor screen displays 16 small-size images.
- The "📷" indicator blinks during operation.
- When an image in memory is played back, it is indicated by a frame.
- When less than 16 images are stored in memory, the remaining sub-screens will be displayed in white.
- Press $\blacktriangleright/\blacktriangleleft$ on the \odot button again to select "MULTI", the multi screen is canceled.

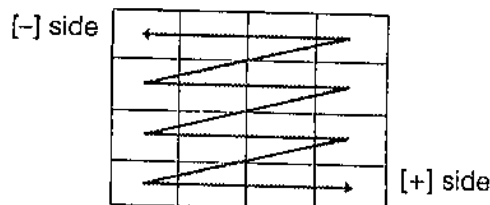
- Press \blacktriangleright or \blacktriangleleft on the \odot button to select to "+" or "-", to select the desired image.



- The "📷" indicator blinks during operation.

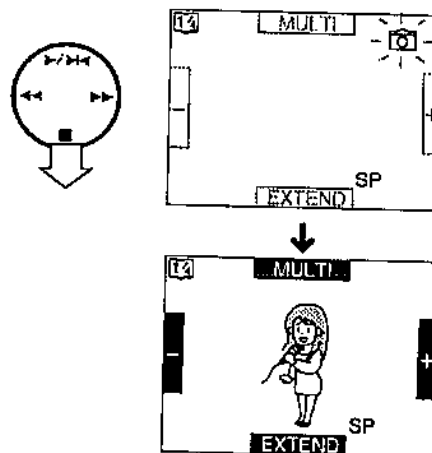
The selection frame moves as shown below.

- When the selection frame moves, the displayed images disappear momentarily.



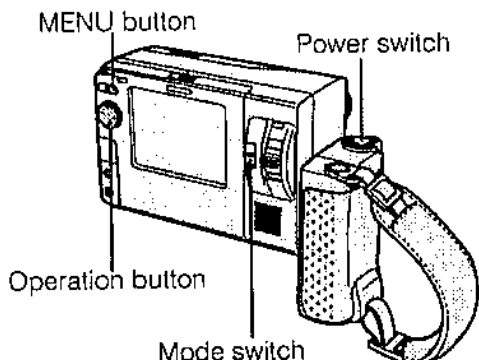
- To display the next set of 16 images, move the frame to the bottom right corner of the screen and press "+". The next set of images is then displayed.
- To display the first set of 16 images, continue pressing either \blacktriangleright or \blacktriangleleft on the \odot button to select "+" or "-" until the first set of images is displayed.

- Press \blacksquare on the \odot button to select "CHOOSE".

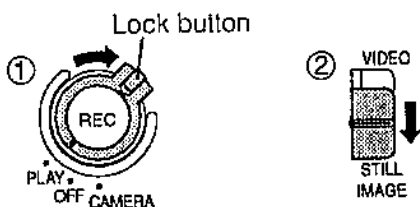


- The selected image appears in normal size.
- The "📷" indicator blinks during operation.

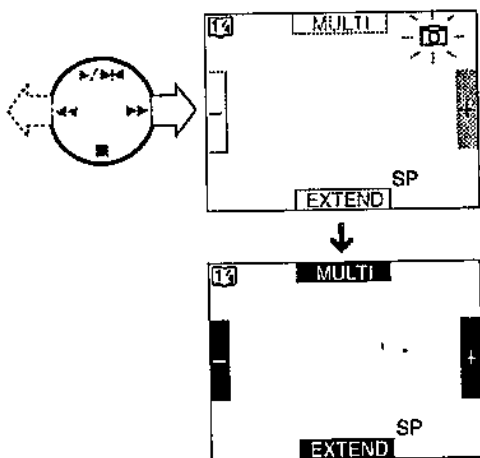
Playing Back Still Images Stored in Memory



- 1 Hold down the Lock button and turn the Power switch to PLAY (1). Set the Mode switch to Still Image (2).
 - The 14 screen will appear.



- 2 Press >> or << on the Operation button to select "+" or "-" on the 14 screen.

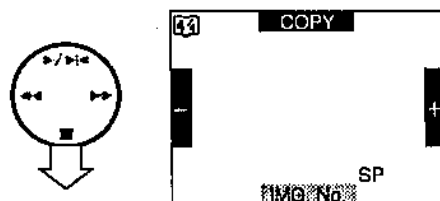


- The last recorded image appears. It takes approximately 5 to 10 seconds to appear.
- Press >> or << on the button to forward or reverse the image.
- The " " indicator blinks during operation.
- In the Still Image Playback mode, the date and time does not appear on the screen.

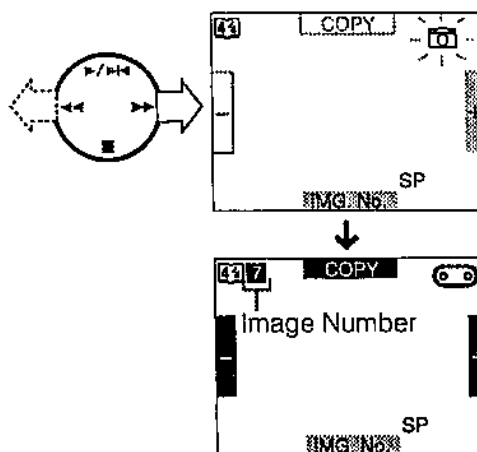
Displaying the Image Number on Stored Still Images

You can display the image number on stored still images on the screen.

- 1 Press ■ on the button to select "IMG. No." on the 44 screen (Still Image Recording mode).



- 2 Press >> or << on the button to select "+" or "-". The image number on stored still image is displayed in the upper left hand corner of the monitor screen.



- The " " indicator blinks during operation.
- The shooting mode of your choice when stored the still image, which the image number on the screen change color shown below.

Color	Shooting mode
Violet	: "FINE"
Blue	: "STD" (Standard)
Green	: "ECON." (Economy)

To turn off the Image Number.

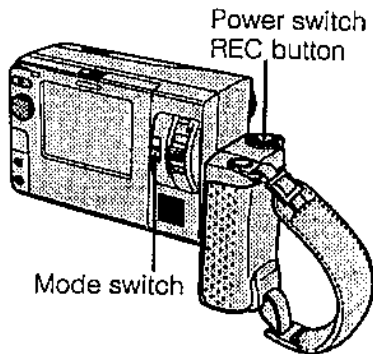
Press ■ on the button to select "IMG. No.".

Digital Still Camera Features

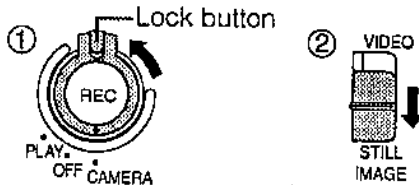
Still Image Recording / Playback

The VIEWCAM can store still images in built-in memory, and display these images.

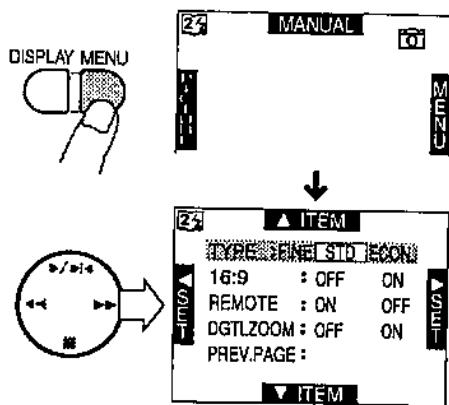
Still Image Recording



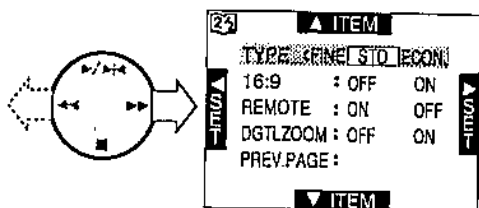
- 1 Hold down the Lock button and turn the Power switch to CAMERA (①). Set the Mode switch to STILL IMAGE (②).



- 2 Press the MENU button until the [24] screen appears on the monitor. Press ►► on the Operation button ◉ the MENU display appears on the monitor.



- 3 Press ◀◀ or ▶▶ on the ◉ button to select the "TYPE" (number of shots you want). Press the MENU button to remove the menu.

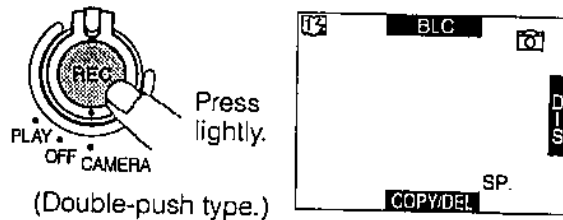


Picture quality	"TYPE" (Number of shots)
"FINE"	: 12 (High picture quality)
"STD" (Standard)	: 24 (Standard picture quality)
"ECON." (Economy)	: 48 (Allows a greater number of shots)

Notes:

- The number of remaining shots differs depending on the TYPE (number of shots) chosen.
- The number of shots may differ depending on the subject.
- If the "TYPE" mode is switched from one to another, the maximum number of shots will change.

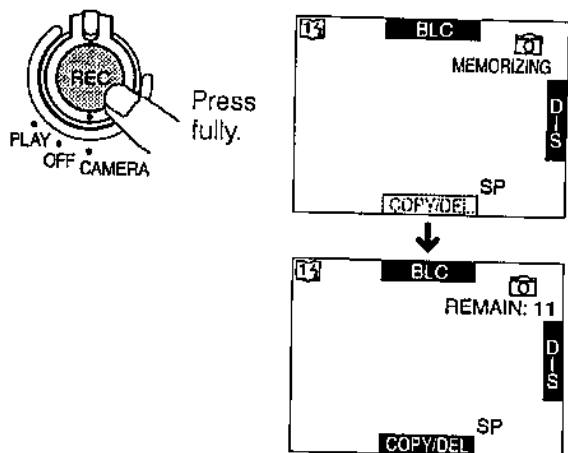
- 4 Frame the subject and press the REC button once, lightly.



Notes:

- The motion video changes to display still-frame video images. This image is not recorded. Confirm the image.
- When the REC button is released, the picture reverts to the normal video image.

- 5 Press the REC button all the way down.



Notes:

- The still image is recorded in memory.
- Pressing the REC START/STOP button on the remote control will record the still image in memory.
- For continuous shooting after the number of shots has been set in step 2 and 3, just take steps 4 and 5 only.
- In the still Image Recording mode, the date and time appears on the screen but cannot be recorded.

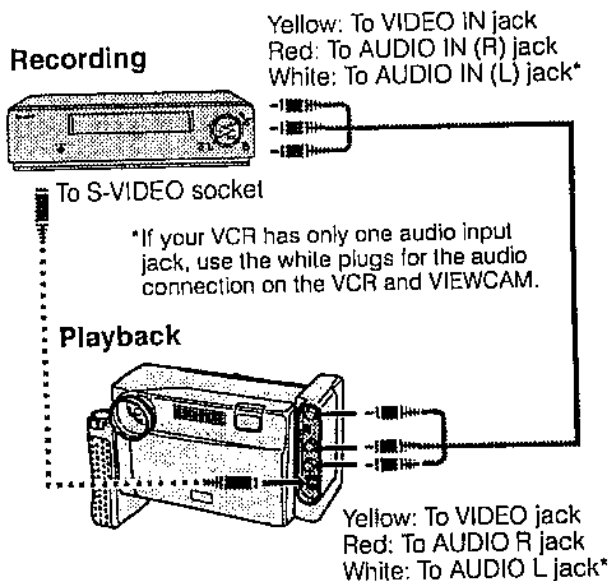
Digital Still Camera Features

Video Camera Features

Playback and Editing

Editing

Video editing lets you refine your videos by removing unwanted sequences from your tape, or transposing one sequence with another. This VIEWCAM lets you monitor the source program on the built-in LCD monitor without having to connect it to an external TV or video monitor. Connect the VIEWCAM to a VCR with the supplied A/V pack and audio/video cable.



Video Camera Features

Notes:

- If your VCR has an S-video input socket, connect it to the S-VIDEO socket on the A/V pack with the supplied S-video cable.
- When both the normal A/V cable and the S-video cable are connected to the A/V pack, video signals are output only through the S-video cable. Do not connect the S-video cable to the A/V pack if the video equipment to be connected does not have an S-video socket.

Cutting Unwanted Sequences

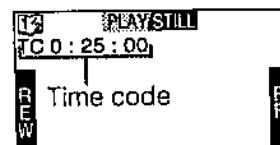
- 1 Playback the tape to be edited, and locate the beginning and end of the sequence you wish to cut. Write down the time code or the tape counter readings at the beginning and end of that sequence (see pages 51 and 52). Then rewind the tape to the beginning of the portion that you wish to keep.
- 2 Load a blank tape cassette into the recording VCR.
- 3 Press the MENU button until appears on the monitor (Video Playback mode). Press on the Operation button to select "PLAY" and press the VCR's REC (Record) button at the same time.
- 4 Press the VCR's Pause/Still button to pause recording when the source tape reaches the beginning of the sequence to be cut.
- 5 Press the VCR's Pause/Still (or Record) button to resume recording when the source tape reaches the end of the sequence to be cut.

To stop editing

Press on the button to select "STOP" on the Video Playback mode screen and press the STOP button on the VCR.

Notes:

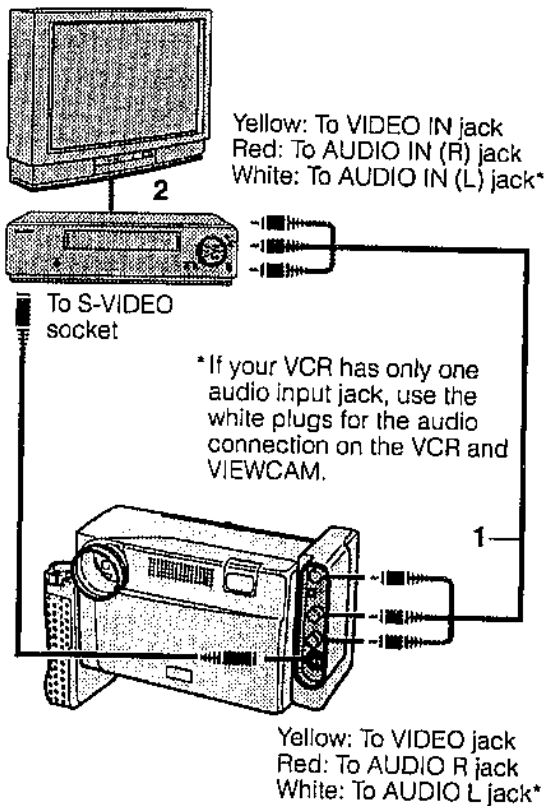
- Some of the transitions between edited sequences may be slightly off.
- The picture may be disturbed during video search or still picture playback. This does not imply a defect in the VIEWCAM.
- The time code display is convenient when cutting unwanted sequences (See page 51).



We recommend that you set the "TIME CODE" menu item to "OFF". If you set it to "OUTPUT", the time code will be recorded along with the edited sequences.

Connection to TV via VCR

- 1 Connect the AV pack to your VCR with the supplied audio/video cable.
- 2 Set the VCR to its "AV" or "LINE" input channel. Operate the TV as you normally do to see the signal from the VCR. (See the operation manuals for your TV and VCR.)
 - If your VCR has an S-video input socket, connect it to the AV pack's S-VIDEO socket with the supplied S-video cable.



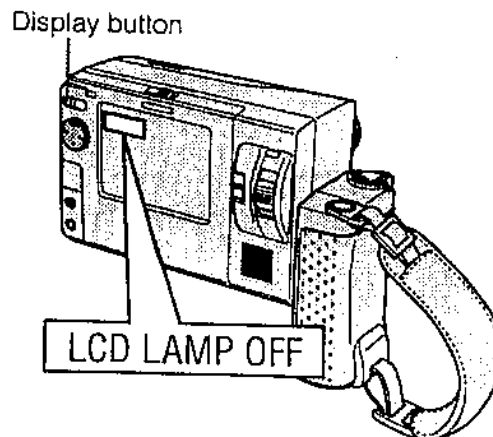
Turning Off the LCD Monitor Backlight

This VIEWCAM's LCD monitor uses a fluorescent lamp for backlighting (See page 12).

In order to reduce battery consumption, you can turn off the lamp when backlighting is not necessary (e.g. when you are watching playback on a TV screen).

While the VIEWCAM is in Video Camera Recording mode or Video Playback mode, hold down the DISPLAY button for more than 5 seconds. The backlight will turn off.

To turn it on again, press the DISPLAY button, or set the Power switch to OFF and then back to Video Camera Recording mode or Video Playback mode.



Notes:

- When the monitor is off, it resets automatically to indicate that there is a warning.
- Turning the LCD monitor on and off repeatedly may deplete battery power.

About the S-video socket

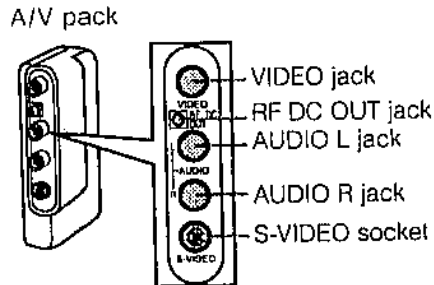
S-video sockets are used to pass the chroma (color) and luminance (brightness) components of video signals separately. They serve to improve the picture quality in both recording and playback.

Video Camera Features

Playback and Editing

Using the A/V Pack

The supplied A/V pack lets you connect the VIEWCAM to other audiovisual equipment. Small and lightweight, it comes in handy when traveling or any time you are away from home.



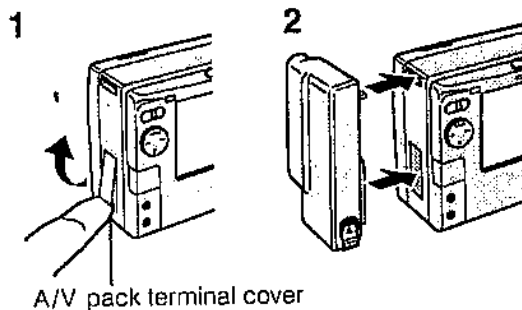
Attaching the A/V Pack

- 1 Remove the A/V pack terminal cover of the VIEWCAM as shown below.

Note:

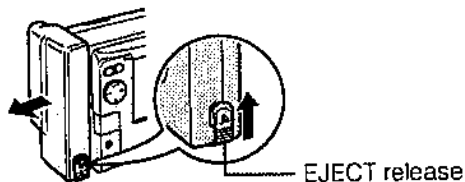
- Be careful not to lose the cover once it is removed.

- 2 Align the projections on the A/V pack with the openings on the VIEWCAM's mounting panel, insert the A/V pack as shown, then push the A/V pack firmly against the mounting panel until it clicks into place.



Detaching the A/V Pack

Slide the EJECT release on the A/V pack in the direction of the arrow, and then pull the A/V pack straight out.



Caution:

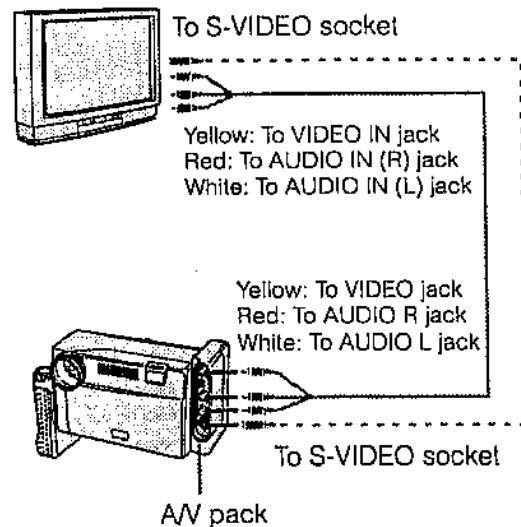
- Do not use the A/V pack as a handle; it will cause malfunctions.

Connections for Playback on a TV with Audio/Video Jacks

Although you can enjoy playback on the VIEWCAM's LCD monitor, you can also watch played-back tapes on your TV screen.

- 1 Turn on your TV and set it to its "AV" or "LINE" channel. (See the operation manual for your TV.)
- 2 Set the VIEWCAM in the VIDEO Playback mode, and begin tape playback as you normally do (See page 41).

- Connect the VIEWCAM to your TV with the supplied audio/video cable, as shown.



Caution:

- Make sure that the VIEWCAM, TV and other equipment to be connected have been turned off before you make connections. Making connections with any of the components left turned on may cause picture noise or malfunction.

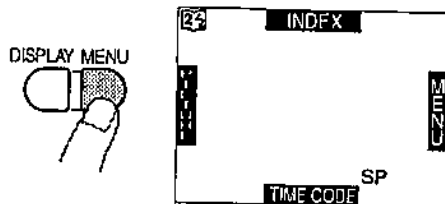
Note:

- When the VIEWCAM is connected to a TV for playback, the picture on the TV screen may flicker if the volume on the VIEWCAM is set to maximum. Should this occur, turn the volume down (See page 41).

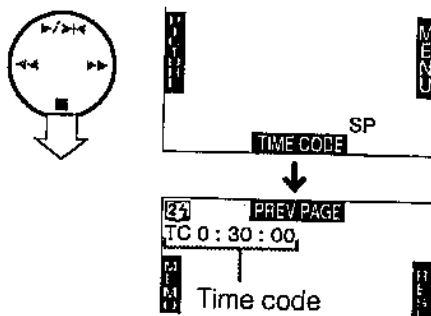
Using the Tape Counter

Use the tape counter feature when you want to know the playback or recording time.

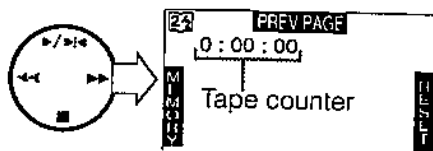
- 1 Press the MENU button until [23] (Video Playback mode) or [34] (Video Camera Recording mode) appears on the monitor.



- 2 Press [] on the Operation button [] to select "TIME CODE". The time code display appears.

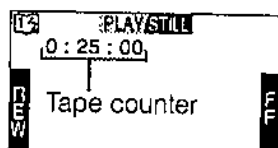


- 3 Press [] on the [] button to select "RESET". The time code display changes to the tape counter.



- Press the MENU button to switch the function screen.

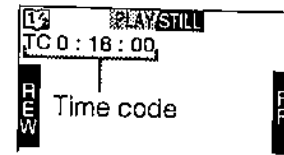
- 4 Begin playback or recording. You can check the playback or recording time on the monitor.



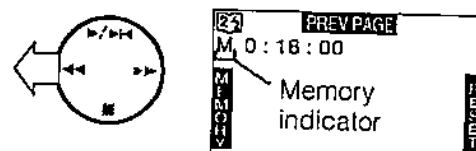
Counter Memory

Use the counter memory when you want to return to the beginning of a particular scene.

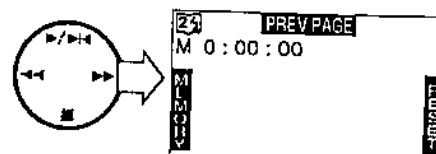
- 1 During playback or recording, display the time code on the monitor.



- 2 Press the MENU button to appear [23] and press [] on the [] button to select "TIME CODE". And then press [] on the [] button to select "MEMORY". The time code display changes to the counter memory display.



- 3 Press [] on the [] button to select "RESET" at the beginning of a scene you want to return to later. The counter is reset to "M 0:00:00".



- 4 Stop the tape after playback. If you have been recording, stop the tape and set the Power switch to PLAY.
- 5 Rewind the tape. The tape will automatically stop when the counter reaches "0:00:00".
- 6 Start playback to view the desired scene.

To cancel the Counter Memory mode

Repeat step 2 and press [] on the [] button to select "MEMORY". The counter memory display will change to the normal time code display.

Notes:

- The Fast Forward function can be used in the same way.
- This function does not work during video searches.
- In step 5 above, the tape may stop slightly ahead or behind the point where you reset the counter to "M 0:00:00".

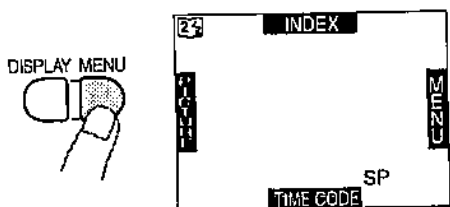
Video Camera Features

Playback and Editing

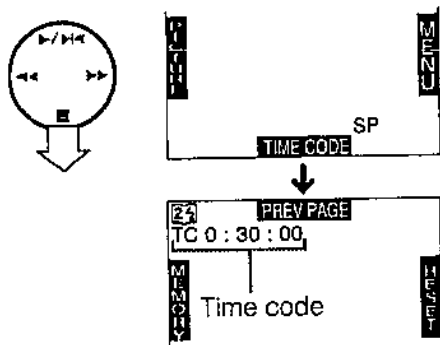
Using the Time Code

The time code allows you to record images together with the hour, minute and second of recording, and the frame number (1 frame = approx. 1/30 sec.). This can be displayed on the screen when desired, and used as an accurate counter.

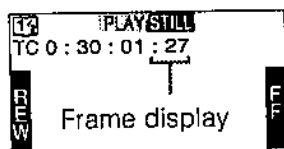
- 1 Press the MENU button until **23** appears in Video Playback mode (See page 25).



- 2 Press **■** on the Operation button **⊕** to select "TIME CODE". The time code display appears.



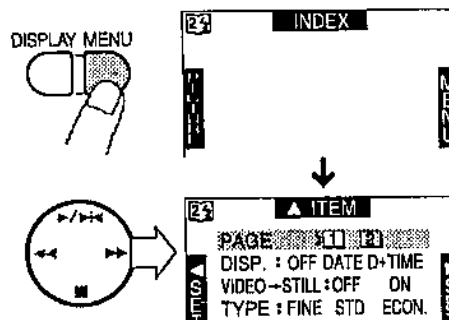
- When images are played back in Still or Frame Advance mode, the time code is displayed for each frame. (During normal playback, only the hour, minute and second are displayed.)



- To turn off the time code display, press **■** on the **⊕** button again.

Displaying the Time Code on Your TV During Playback

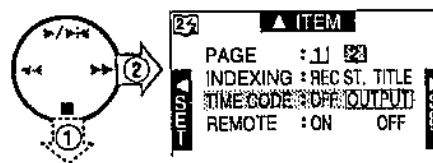
- 1 Display the **23** screen (Video Playback mode) on the monitor by selecting the MENU button and pressing **▶▶** on the **⊕** button to select "MENU".



- 2 Press the **▶▶** on the **⊕** button to select MENU-PAGE **02**.



- 3 Select "TIME CODE" (①) and set it to "OUT-PUT" (②) using the **⊕** button. (See page 22 for menu setting.)



Notes:

- When the tape reaches an unrecorded section, the time code returns to zero (TC 0:00:00). Once recorded, the time code cannot be changed.
- The time code will be displayed even if you press the DISPLAY button to turn off the On-Screen display.

Area Table

Area number	Area name	Countries or areas*
1	LONDON	England, Morocco, GMT (Greenwich Mean Time)
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, Portugal, CST (Continental Standard Time), Tunisia
3	CAIRO	Egypt, Finland, Greece, Turkey
4	MOSCOW	Ethiopia, Iraq, Kenya, Mauritius, Saudi Arabia, Seychelles, Russia (Moscow)
5	DUBAI	United Arab Emirates
6	KARACHI	Maldives, Pakistan
7	DACCA	Bangladesh, India, Myanmar
8	BANGKOK	Cambodia, Indonesia (Jakarta), Thailand, Vietnam
9	HNGKNG	Australia (Perth), China, Hong Kong, Indonesia (Borneo, Bali), Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (Sydney)
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii Is., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	Mexico, U.S.A. (Chicago), CST (Central Standard Time)
20	NEWYORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C.), EST (Eastern Standard Time)
21	CARACAS	Chile, Dominica, Venezuela
22	RIO	Argentina, Brazil, Uruguay
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

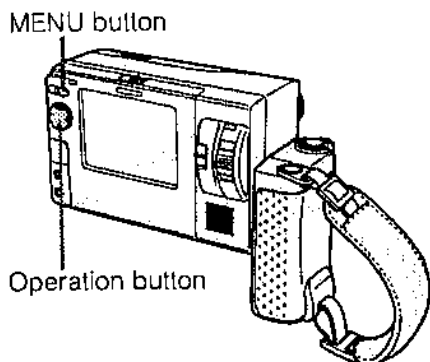
* These are commonly used names. Formal designations may be different.

Video Camera Features

Recording

World Clock

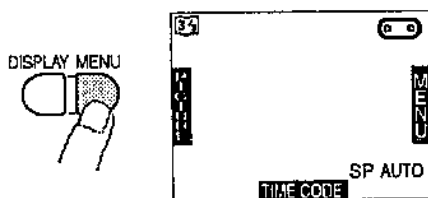
This VIEWCAM is equipped with a world clock feature. It allows you to easily adjust the time when you use the VIEWCAM while traveling anywhere in the world. Set the area, date and time if they are not already set. (See page 23).



Changing the Area of the Time Zone

Example:
Changing the area from New York to Los Angeles.

- 1 Press the MENU button until **34** appears on the monitor in Video Camera Recording mode (See page 25).



- 2 Press **▶▶** on the Operation button to select "MENU".



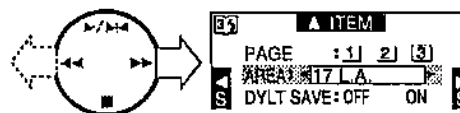
- 3 Press **▶▶** on the button to select PAGE **3**.



- 4 Press **■** to select "AREA".



- 5 Press **◀◀** or **▶▶** until "17 L.A." (Los Angeles) appears. The VIEWCAM is now set to the L.A. time.



- After setting, press the MENU button to turn off the menu.

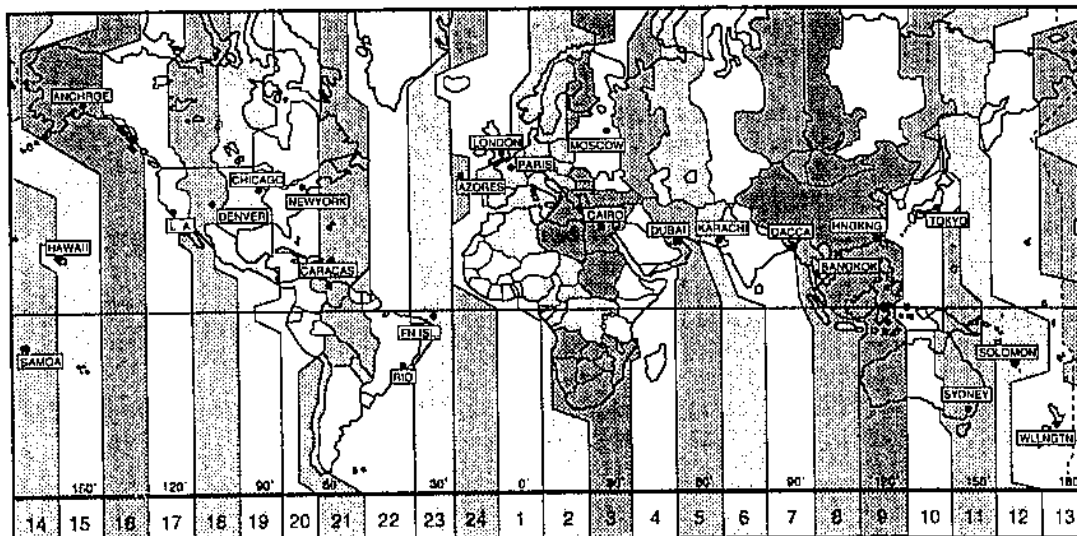
Blank Area Setting

If you do not want to set the area (time zone), you can leave the setting blank. In step 5 above, press **◀◀** or **▶▶** on the button until the area setting is blank (after "24").

To turn off the menu display

Press the MENU button.

Time Zone Chart



Lighting

For clear, good-quality recording, 500 to 100,000 lux is needed. Recording is also possible with less light, but the picture quality may suffer. Adequate lighting is also essential for correct white balance.

Brightness (Lux)	Situation (Lux)
100,000	Blue sky Clear day at noon (100,000)
10,000	Clear day at 10 am (65,000) Clear day at 3 pm (35,000) Cloudy day at noon (32,000) Cloudy day at 10 am (25,000)
1,000	Cloudy day, one hour after sunrise (2,000) Clear day, one hour before sunset (1,000) Fluorescent light near window (1,000)
100	Factory floor (700-800) Sales counter in department store (500-700) Bowling alley (500) Library (400-500) Office with fluorescent lighting (400-500) Fluorescent desk lamp (400) Flashlight at 3 ft (1 m) (250) Shop stairway (100)
10	During intermission at movie theater (15-35) Cigarette lighter at 1 ft (30 cm) (15-20) Candles on birthday cake at 8 inches (20 cm) (10-15) Candlelight

Reference

Lighting is not only one of the most important areas in producing home videos, but also one of the most overlooked. Good lighting can often mean the difference between a great picture and a poor one. Lighting is also essential for correct white balance.

In most outdoor, daytime scenes, natural lighting is adequate for home videos. Indoors, the situation becomes more complicated. Artificial lighting is required, and halogen lamps provide the most natural artificial light while maintaining a constant color temperature over a long operating life. Good lighting is difficult to achieve. There are many problems waiting to catch the unwary. Simply mounting one light or several lights on either side of the VIEWCAM will only make your subject look flat and two-dimensional. To make a subject more interesting, use the lighting to model your subject and to add or create emphasis in a scene.

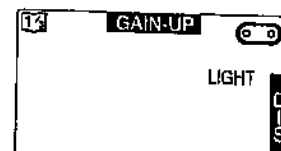
Color Temperature (degrees Kelvin)	Situation	Color	White Balance Range
10,000	Clear day	Blue	A U T O
9,000			
8,000	Cloudy day		
7,000	Rainy day		
6,500	Daylight fluorescent light		
6,000	Camera flashbulb		
5,500			
5,000	Blue photolamp	White	
4,500	White fluorescent light		
3,500	Off-white fluorescent light Tungsten photolamp		
3,200	Halogen lamp		Y E L L O
2,800	Tungsten lamp Iodine lamp	Yellow	
2,500	Acetylene lamp Kerosene lamp		
2,000	Candlelight	Red	

Notes:

- The figures in the charts are approximations.
- The auto white balance operates automatically within the range of "AUTO" shown in the chart. However, it will satisfactorily operate from 2,500 K up to 8,000 K, although the picture may take on a red or blue tint.

Lighting indicator ("LIGHT")

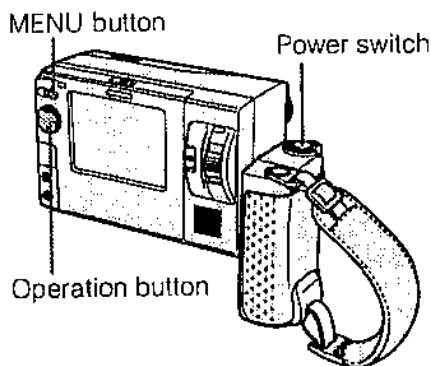
When the "LIGHT" indicator appears on the monitor, it means that there is not enough illumination for recording. Either move to a brighter location or increase the light. You can also correct the problem by manually setting the gain (see page 37).



Video Camera Features

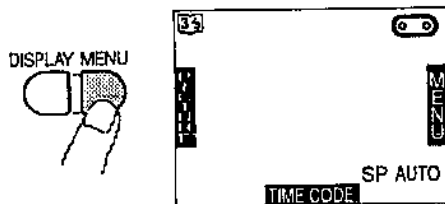
Recording

Picture/Backlight Adjustments

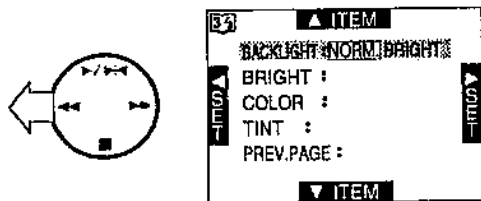


If the picture is difficult to see due to ambient lighting, etc., adjust the monitor picture.

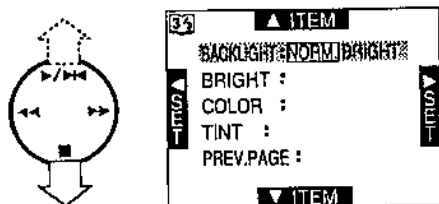
- 1 Press the MENU button until 33 appears on the monitor (Video Camera Recording mode).



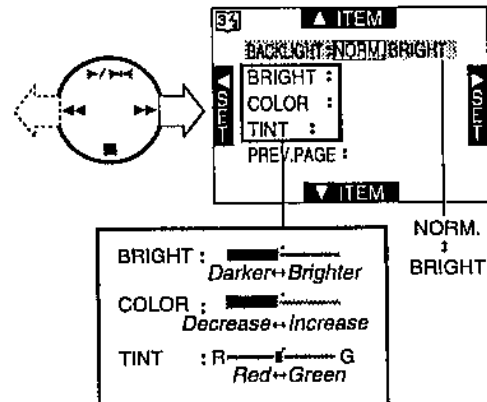
- 2 Press ◀ on the Operation button ⊕ to select "PICTURE".



- 3 Press ■ or ▶/⏪ on the ⊕ button to select the menu item you wish to adjust.



- 4 Press ◀ or ▶ to adjust the picture or backlight to your preference.



- 5 When you are finished, press the MENU button to turn off the adjustment display.

When the VIEWCAM is in Video Playback Mode

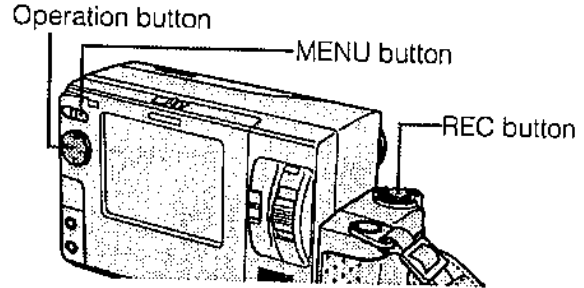
Set the Power switch to PLAY and press the MENU button until "PICTURE" appears on the monitor. Then perform steps 2 through 5 shown above.

Notes:

- In bright daylight, the monitor picture will be easier to see if you set the backlight ("BACKLIGHT") to "BRIGHT".
- The picture adjustments have been factory preset to neutral settings, and the backlight mode ("BACKLIGHT") has been factory preset to normal ("NORM.").
- When the color or tint is adjusted, the picture on the screen may differ from the picture actually recorded. Do not change the color and tint settings unless it is necessary.

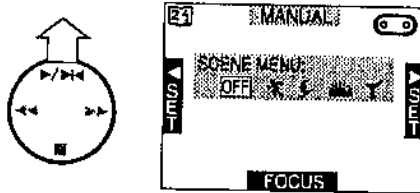
Scene Menu (Program AE)

You can set the VIEWCAM to the shooting mode that will bring the best results for a specific type of shooting situation. Just select one of the four scene settings shown below. The VIEWCAM will automatically set the exposure, white balance, and shutter speed to produce the optimum picture quality for the selected situation.

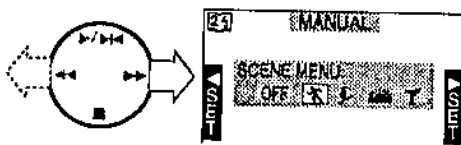


Scene	Situation	VIEWCAM Adjustment
Sport 	To record a fast-moving subject.	The shutter speed is set to 1/500 sec. for a clear, unblurred picture of fast-moving objects. The white balance is set for outdoor sunlight.
Ski or sand 	When the background is too bright.	The aperture is adjusted to maintain the appropriate brightness. The white balance is set for outdoor sunlight.
Twilight 	When you want to faithfully record the color of the setting sun, and the surrounding twilight.	The white balance is fixed to optimize the color of the sunset. Light sensitivity and contrast are reduced to reproduce the surrounding twilight.
Party 	When the illumination is from a spotlight or candles.	Brightness is adjusted to reduce white flaring (overexposure) from faces when the spotlight or candles are too bright.

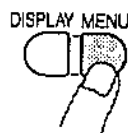
- 1 Press the MENU button until appears on the monitor (Video Camera Recording mode). Press on the Operation button to select "MANUAL".
 - The scene setting indicator "SCENE MENU" appears on the monitor.



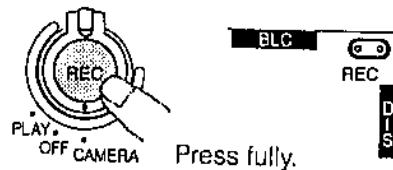
- 2 Press or on the to select the scene setting that best fits the recording situation. Each time you press or on the button, the scene indicator changes as shown.



- 3 Press the MENU button to turn off the manual setting display.



- 4 Press the REC button all the way down.



- Recording starts.

To Return to Auto Mode

Press on the to select "OFF" in step 2 above. This resets the VIEWCAM to Full Auto mode.


Notes:

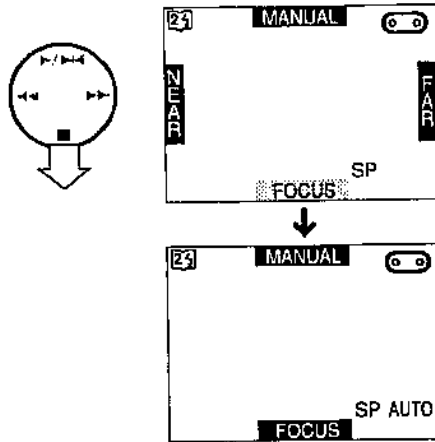
- When " " is selected, recording under the light of fluorescent lamps, mercury lamps, or sodium lamps may cause color shifts or fluctuations in picture brightness.
- When " " is selected, the picture may not be satisfactory if the lighting is very dim.
- We recommend that you use Auto mode ("SCENE MENU : OFF") to record outdoor scenes.
- If other manual items are adjusted after setting the Scene Menu, the Scene Menu will automatically return to "OFF".

Video Camera Features

Recording

To Return to Auto Focus Mode

If you want to return to Auto Focus mode, press ■ on the  button to select "FOCUS" when refer to page 44 in step 2.



Notes:

- When recording in the Manual Focus mode, you may not be able to focus correctly if the subject is within approximately 5 feet (1.5 m) of the VIEWCAM. In such a case, shift the zoom control toward wide angle, and then try focusing again.
- If you focus on a subject in wide angle and then set the zoom to maximum, the subject may go out of focus. First focus on the subject at maximum zoom setting and then shoot at the desired zoom setting.
- If the lens is dirty or fogged, you may not be able to obtain correct focus.

Auto/Manual Focus

Auto Focus



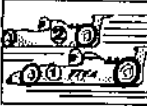



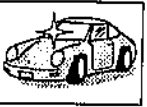



The auto focus feature is designed to focus on most types of subjects. In Auto Focus mode, the VIEWCAM automatically focuses on whatever is in the center of the scene. Always keep the subject in the center of the screen.

Notes:


- If no subject is in the center of the monitor, the focus area will expand and the subject nearest the center will be focused on.
- If no subject is displayed on the monitor, the VIEWCAM will automatically zoom out until some subject comes into the frame.

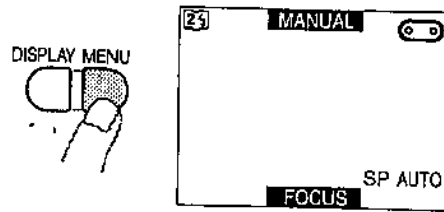
Manual Focus



The auto focus may not be able to focus on the subject in the situations shown in the following chart. In such situations, set the VIEWCAM to Manual Focus mode and focus manually.

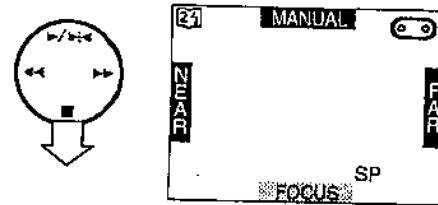
 Subject is too dark.	 Lack of contrast, e.g. snow scene.
 Fast-moving subject.	 Background is too bright.
 Subject has horizontal stripes.	 Subject is being shot through a dirty or wet window.
 Light reflects off the subject.	 Two subjects at different distances overlap in the same scene.
 Subject has fine, repeated patterns.	 Subjects at different distances appear in the center of the scene at the same time.




Setting the Manual Focus

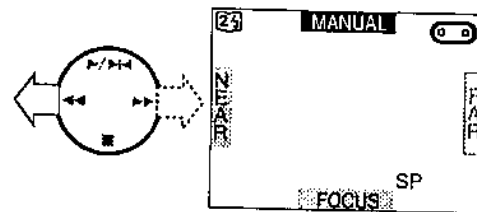
- 1 Press the MENU button until  appears on the monitor (Video Camera Recording mode).



- 2 Press  on the Operation button  to select "FOCUS". "NEAR" and "FAR" appear on the edge of the LCD monitor.



- 3 Press  or  on the  button to select "NEAR" or "FAR".



Video Camera Features

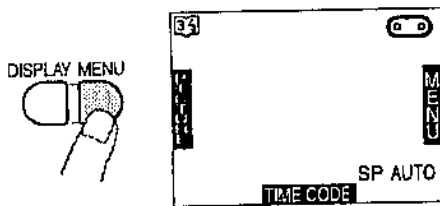
Recording

Recording with the Wide Screen (16:9)

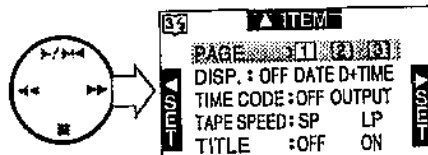
This feature lets you record scenes with the wide-screen feel of a movie shown in a theater. The top and the bottom of the picture are masked with black bands to produce an effective screen aspect ratio of 16:9.

Setting the Wide Screen Mode

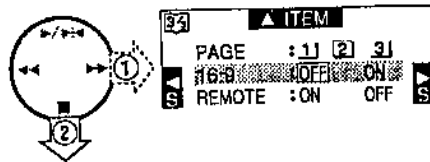
- 1 Press the MENU button until **34** appears on the monitor (Video Camera Recording mode).



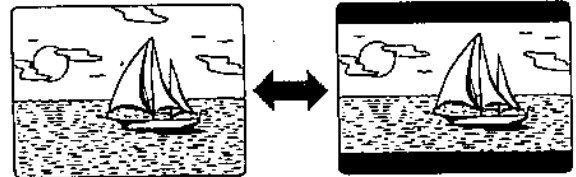
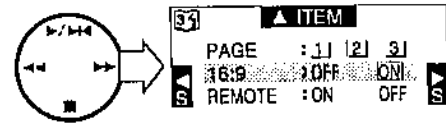
- 2 Press **▶▶** on the Operation button **⊕** to select "MENU". The MENU-PAGE **1** appears.



- 3 Press **▶▶** on the **⊕** button to select MENU-PAGE **2** (1) and then press **■** on the button to select "16:9" (2).



- 4 Press **▶▶** on the **⊕** button to select "ON". After setting, press the MENU button to turn off the Menu display.



Normal Screen mode

Wide Screen mode

- 5 To return to the normal picture, press **◀◀** on the **⊕** button to select "OFF" in step 4 above.

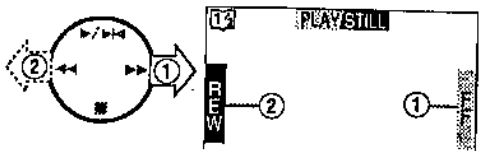
Note:

- You can only use the Wide Screen mode when the VIEWCAM is in Video Camera Recording mode.

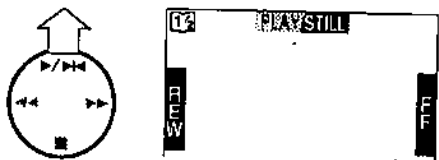
Video Search

This function makes it easy for you to search for a scene near the current tape position.

- 1 During playback, press **▶▶** on the Operation button **⊕** to select "FF" (①) (or **◀◀** to select "REW" [②]) on the **12** screen (Video Playback mode). The fast forward (or reverse) playback picture is displayed On-Screen.



- 2 When you find the desired scene, press **▶▶** on the **⊕** button to select "PLAY" to return to normal playback.

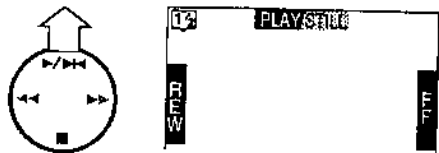


Notes:

- The sound is off during search.
- Some picture noise appears during search. This is not a malfunction.

Still

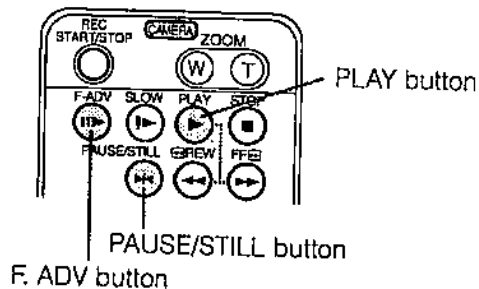
This function makes it possible to freeze the picture. During playback, press **▶▶** on the **⊕** button to select "STILL" on the **12** screen (Video Playback mode). To return to normal playback, press **▶▶** to select "STILL" once again.



Frame Advance

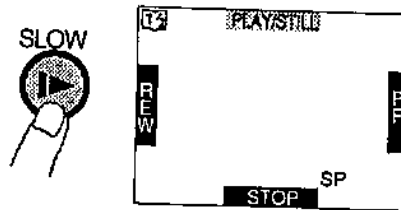
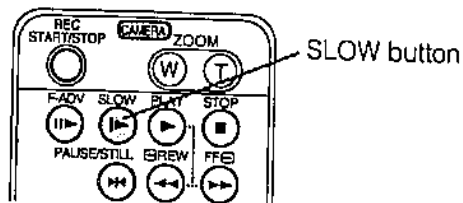
During still picture playback, press the F.ADV button on the remote control. Each time you press the button, the picture advances by one frame.

To return to normal playback, press the PLAY button (▶).



Slow

This function makes it possible to play back in slow motion. During playback, press the SLOW button on the remote control. To return to normal playback, press PLAY button on the remote control to select "PLAY".



Notes:

- The sound is off during Still and Slow modes.
- To protect the tape, the VIEWCAM automatically returns to ordinary playback if it is left in Still mode for more than 5 minutes or in Slow mode for more than about 40 seconds.
- Still image playback can also be operated with the remote control (See page 40.)
- If still or slow functions are used when connected to a TV, noise will appear and distort the image.
- Frame Advance and Slow function cannot be operated from the VIEWCAM.

Video Camera Basic Operations

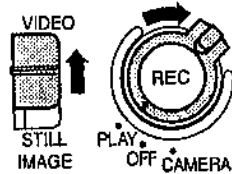
Playback

- Refer to pages 21, 22, 25 and 28 on how to operate the monitor display.

Playback

The LCD monitor makes it possible to play back and see what you have just recorded. Nothing needs to be connected, allowing instant On-Screen playback. You can hear the sound through the built-in speaker or via your own stereo earphones.

- 1 Set the Power switch to PLAY, set the Mode switch to VIDEO.

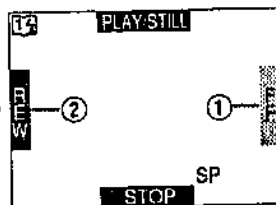
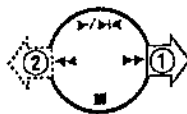


- The screen will appear on the monitor.

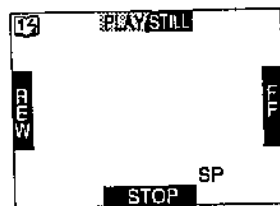
DISPLAY MENU



- 2 If the tape is not at the desired point, press or on the Operation button to select "FF" (1) or "REW" (2).



- 3 Press to select "PLAY".



To Stop Playback

Press on the button to select "STOP".

Auto Tape Rewind

The tape is automatically rewound when playback reaches the end of the tape.

Note:

- If you wish to turn off the operation indicators on the monitor (e.g. because they interfere with your view of the picture), press the DISPLAY button. The buttons will still function as indicated even after their indicators are turned off.

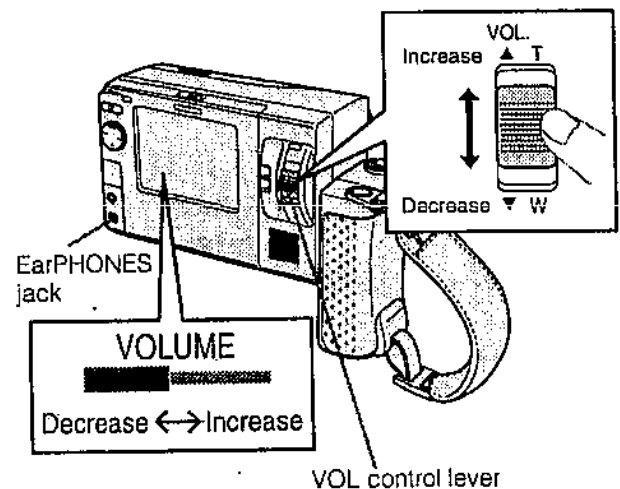
Caution:

- To use the remote control, make sure that the remote control menu item ("REMOTE") is set to "ON". The remote control cannot be used to operate the VIEWCAM when this is set to "OFF" (See page 40).

Volume Control

While the VIEWCAM is in the Video Playback mode, press the VOL. or button to increase or decrease the volume to your preference.

The volume control indicator will appear on the monitor. After adjusting the volume, if the Volume control buttons are not pressed, the indicator will disappear by itself shortly.



Notes:

- Stereo earphones with a 3.5 mm diameter plug can be plugged directly into the earPHONES jack. When you use this jack, the speaker automatically turns off.
- The volume can also be adjusted with the remote control.

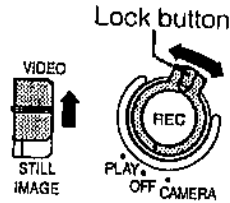
Fast Forward and Rewind

During a stop mode, press or on the button to select "FF" (Fast Forward) or "REW" (Rewind) on the screen (Video Playback mode).

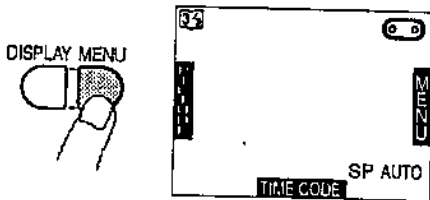
Using the Infrared Remote Control

Use the remote control to operate the VIEWCAM from a distance, such as when you want to record yourself in a scene, or when the VIEWCAM is connected to a TV for use as a VCR.

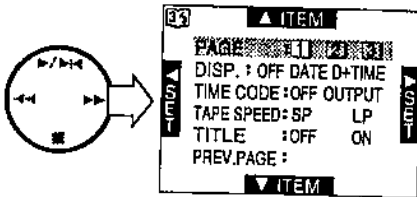
- 1 Hold down the Lock button and turn the Power switch to CAMERA or PLAY and the Mode switch to VIDEO.



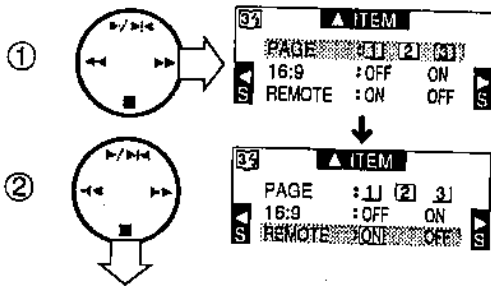
- 2 Press the MENU button until **33** (Video camera Recording mode) or **22** (Video Playback mode) appears on the monitor.



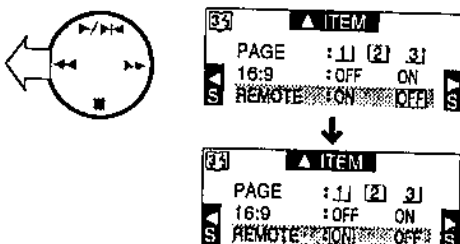
- 3 Press **▶▶** on the Operation button **⊕** to select "MENU".



- 4 Press **▶▶** on the **⊕** button to select MENU-PAGE **2** (1) and then press **■** to select "REMOTE" (2). Make sure that "REMOTE" is set to "ON".

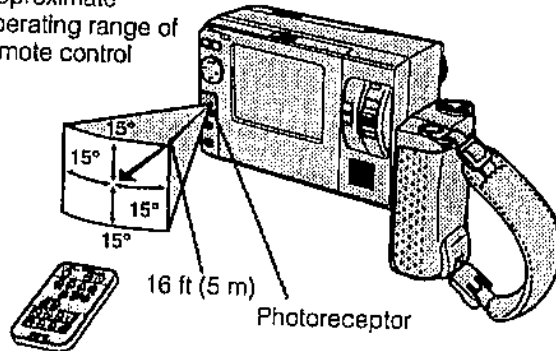


If "REMOTE" is set to "OFF", press **◀◀** to select "ON".



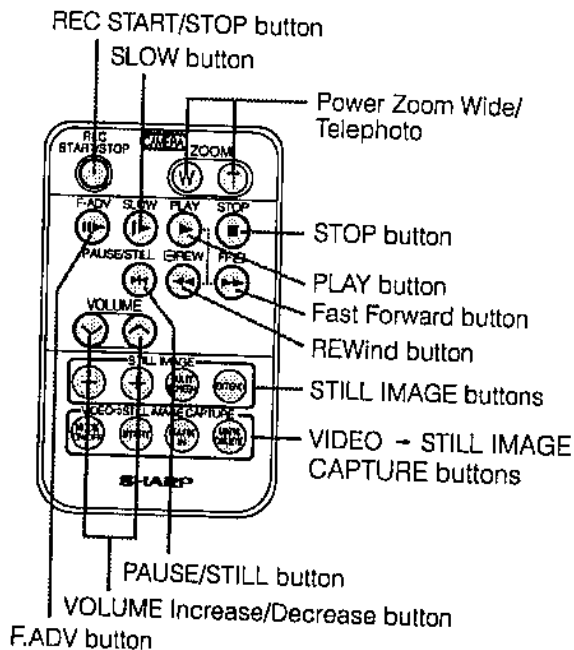
- 5 Aim the remote control at the photoreceptor of the VIEWCAM, and press the control buttons for operation.

Approximate operating range of remote control



Notes:

- Be careful not to allow direct sunlight or bright light from interior illumination to fall onto the VIEWCAM's photoreceptor, as this may prevent the remote control from operating properly.
- Be sure that there are no obstacles between the remote control and the VIEWCAM's photoreceptor.
- When the "REMOTE" setting is changed in either Video Camera Recording or Video Playback mode, the setting for the other mode is automatically set to the same.
- The lithium battery normally lasts about one year. It can be shorter under some operating conditions. When the lithium battery is dead and the remote control does not operate, replace the battery with a new one following the instructions on page 18.
- The **▶▶**, **▶**, **■**, **◀**, or **◀◀** buttons on the remote control cannot be used to move the cursor, or select or set any of the various functions on the monitor.



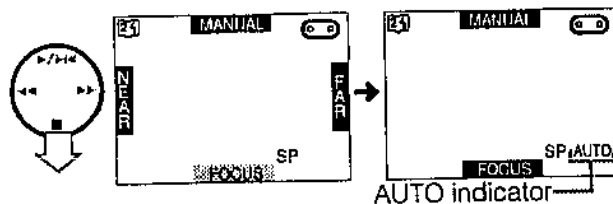
Video Camera Basic Operation

Setting the VIEWCAM to Full Auto Mode

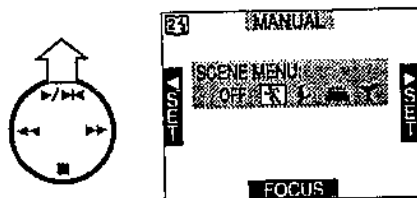
This VIEWCAM is equipped with auto focus, auto white balance, auto exposure, and auto shutter speed functions. Set the VIEWCAM to Full Auto mode and you can record high-quality pictures easily.

When "AUTO" indicator is not displayed on the monitor, the VIEWCAM is not in Full Auto mode. Perform the procedure below to set the VIEWCAM to Full Auto mode.

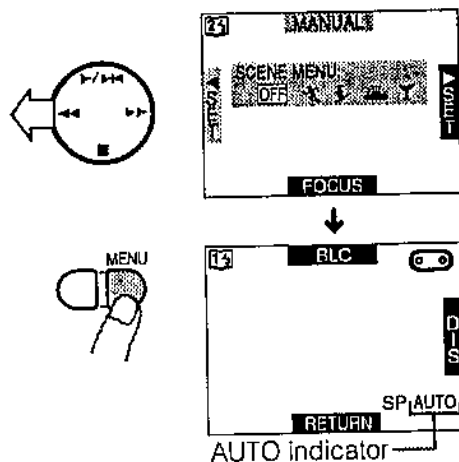
- 1 Press the MENU button until 23 appears on the monitor (Video Camera Recording mode).
- 2 If the VIEWCAM is in Manual Focus mode, press \blacksquare on the Operation button \odot to return to Auto Focus mode (See page 45).



- 3 When the "AUTO" indicator does not appear in the step 2 above, press the $\blacktriangleright/\blacktriangleleft$ on the \odot button to select "MANUAL". The "SCENE MENU" appears on the monitor.



- 4 Press \blacktriangleleft on the \odot button to set the VIEWCAM to "OFF" mode. Press the MENU button until 13 appears on the monitor. The "AUTO" indicator appears and the VIEWCAM enters Full Auto mode.

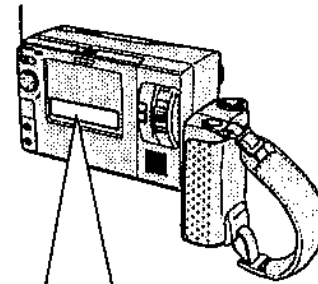


Remaining Recording Time Display

When the VIEWCAM is recording, an On-Screen indicator will begin to show how much time you have left, as shown below. You might want to get a new tape ready at this time.

To turn off the remaining recording time display, press the DISPLAY button.

DISPLAY button



Approx. remaining recording time	Monitor display
10 min.-8 min.	
8 min.-6 min.	
6 min.-4 min.	
4 min.-2 min.	
2 min.-1 min.	
1 min.-0 min.	<p>THE TAPE ENDS SOON.</p> <p>↓ (after 3 sec.)</p>
0 min. (The tape has reached its end.)	<p>CHANGE THE CASSETTE.</p> <p>↓ (after 3 sec.)</p> <p>TAPE END</p>

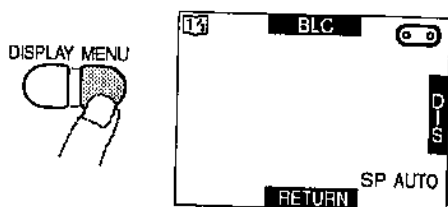
Notes:

- The time-remaining indicators only show approximate time left. Also, they vary slightly depending on the length of tape used. (This function's design is based on the DVM60 tape standard.)
- If you press the DISPLAY button to turn off the remaining recording time display, this display will reappear after a short interval to indicate the new time remaining.
- The time-remaining indicators above appear after 5 seconds from the time you press the REC button to start recording.

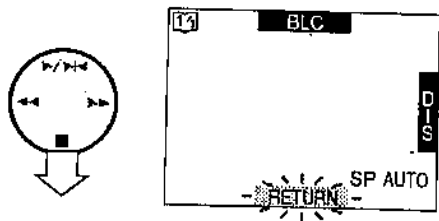
Quick Return

When you have been playing back what you have recorded, and wish to quickly return to recording again from the end of the last recorded scene, use the quick return function.

- 1 Press the MENU button until **13** appears on the monitor (Video Camera Recording mode).

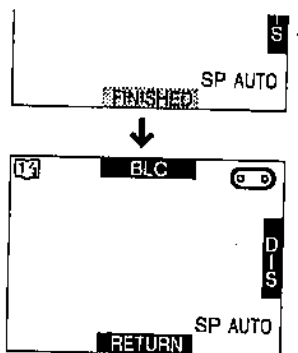


- 2 Press **■** on the Operation button **⊕** to select "RETURN". The tape will begin winding or rewinding to the end of the last recorded scene.



- To cancel, press **■** on the **⊕** button to select "RETURN" again.

- 3 When the tape reaches the end of the last recorded scene, the VIEWCAM enters Recording Standby mode.



Note:

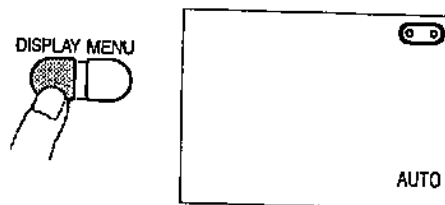
- If the cassette has been removed since the last recording, or if no recording has been made since the cassette was loaded, "RETURN" indicator will be faintly displayed and the quick return function will not operate.

Edit Search

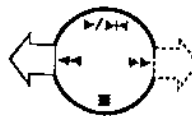
The edit search feature lets you search, without switching from Video Camera Recording mode to Video Playback mode, for the point on the tape where you wish to start recording next.

Switching to the Video Camera Recording mode

- 1 In Recording Stand by mode, press the DISPLAY button to turn off the display.



- 2 Hold down **◀** for reverse edit search or **▶** for forward edit search on the **⊕** button.




- 3 When you find the point where you want to begin recording, release **◀** or **▶** on the **⊕** button.

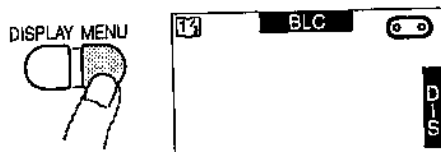
Notes:

- Some picture noise appears during reverse edit search.
- Forward edit search is performed at the same speed as normal playback, and reverse edit search is performed at five times the normal playback speed.
- The sound is off during edit search.

Backlight Compensation (BLC)




When the subject is backlit, the image will be darkened if it is recorded normally. Use the backlight compensation (BLC) feature to improve the picture.

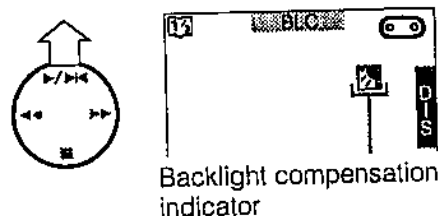
- 1 Press the MENU button until  appears on the monitor (Video Camera Recording mode).






Note:

- At locations where lighting is insufficient, "LIGHT" appears on the monitor. "GAIN-UP" instead of "BLC" appears indicating the BLC function cannot be used.


- 2 Press  on the Operation button  to select "BLC". The backlight compensation indicator  appears on the monitor, indicating that the BLC function is now working.

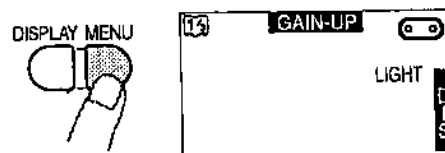


To turn off the BLC function, press  on the  button to select "BLC" again. The  indicator goes off.

Gain-up (Cat's Eye)




When you are recording in a dark or poorly illuminated location, "LIGHT" (warning of too little ambient illumination) is displayed on the monitor. Use the gain-up feature to record a brighter picture.

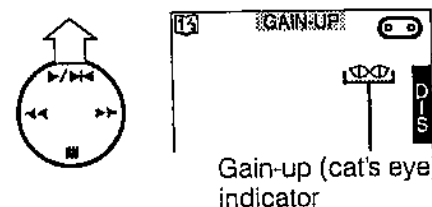
- 1 Press the MENU button until  appears on the monitor (Video Camera Recording mode).






Note:

- At locations where lighting is adequate, the "LIGHT" indicator will not appear. "BLC" instead of "GAIN-UP" appears indicating the gain-up function cannot be used.

- 2 Press  on the Operation button  to select "GAIN-UP". The "LIGHT" indicator changes to the gain-up (cat's eye)  indicator, indicating that the gain-up function is now working.




To turn off the gain-up function, press  on the  button to select "GAIN-UP" again. The  indicator changes to the "LIGHT" indicator.

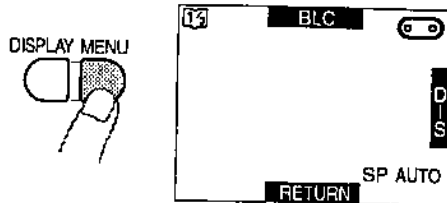
Notes:



- If the VIEWCAM is moved to a bright location after it is engaged in Gain-up mode, the Gain-up mode will disengage automatically.
- There is more picture noise in Gain-up mode.

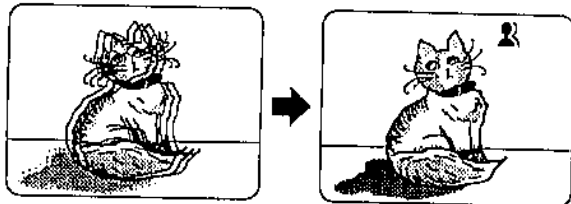
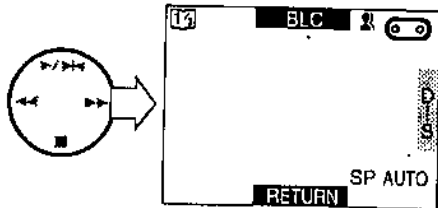
Digital Image Stabilization (DIS)



The DIS function lets you stabilize the image by electronically canceling relatively small image shakes that are often annoying in close-up shots.

- 1 Press the MENU button until  appears on the monitor (Video Camera Recording mode).



- 2 Press  on the Operation button  to select "DIS". The "⊗" indicator appears on the monitor, and the VIEWCAM enters DIS mode.



To return to normal recording mode, press  on the  button to select "DIS" again. The "⊗" indicator will disappear.

Notes:

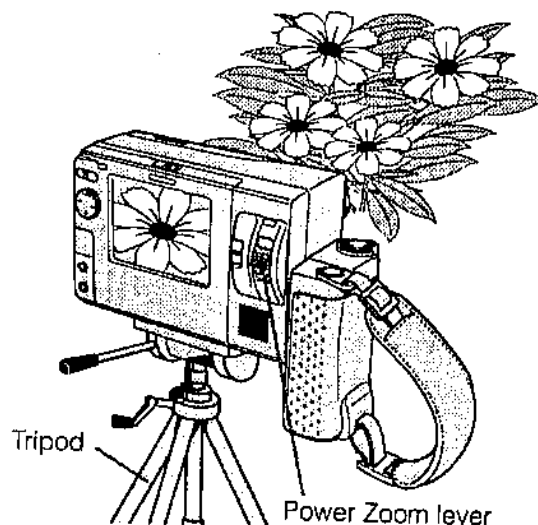
- While this function is in progress, the image on the monitor is slightly magnified, and the shutter speed is automatically switched from the standard speed (1/60 sec.) to 1/100 sec.
- Image resolution slightly decreases in DIS mode.
- Under the light of fluorescent lamps, the picture may brighten and dim.
- The DIS feature does not work during Still Camera Recording mode.
- Battery consumption is larger in DIS mode. We recommend that you not use the DIS feature when using the VIEWCAM on a tripod.

Caution:

- The DIS function cannot compensate for excessive image shake, or for the subjects or situations described below.
 - Subject with low contrast*
 - Subject with a plain background*
 - Dark or dimly lit subject*
 - Subject with vertical or horizontal stripes
 - Many moving subjects in a single frame (*The "⊗" indicator blinks during these conditions.)

Macro Shots

This VIEWCAM lets you shoot close-up images of small objects such as flowers and insects, or make title frames for your videos. When you want to record a magnified image of a subject which is within approximately 5 feet (1.5 m) of the VIEWCAM, do not zoom in on the subject. Instead, zoom out all the way by setting down the Power Zoom lever to W, and then move the VIEWCAM closer to the subject until you obtain the desired angle of view. The VIEWCAM will automatically focus on the subject when the lens is set for the widest angle.

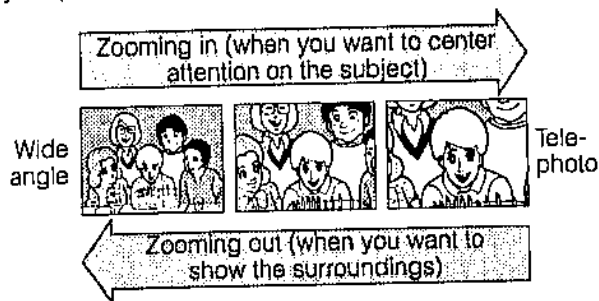


Notes:

- When you are recording a macro shot, be sure that the subject receives sufficient illumination.
- It is recommended that you use a tripod for recording macro shots, to prevent image shake.
- When you mount the VIEWCAM on a tripod, a tripod whose guide pin is not retractable can not be used (See page 13).

Zooming

Zooming allows you to move visually closer to or farther from a subject without physically changing your position.

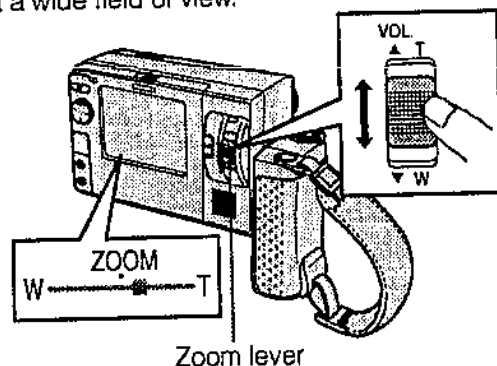


To Zoom In

Slide the Power Zoom lever to T (telephoto) to get a close-up view.

To Zoom Out

Slide the Power Zoom lever to W (wide angle) to get a wide field of view.



- You can slide the zoom lever slowly or rapidly to achieve slow or rapid zoom effects.
- The On-Screen display will show you the current zoom setting.

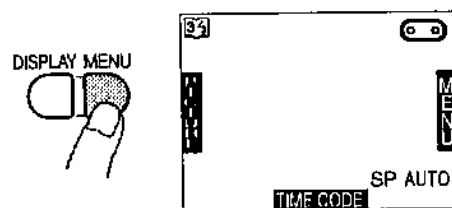
Notes:

- The VIEWCAM is unable to focus when zooming in on subjects within 5 feet (1.5 m). The VIEWCAM will automatically zoom out until it focuses on the subject.
- Frequent zooming produces unattractive pictures. It also increases battery power consumption.

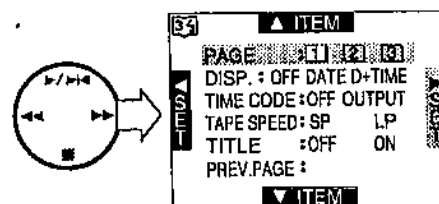
Setting the Digital Zoom

You can select between two different zoom ranges: 1-10 x optical zoom or 10-25 x digital zoom. The 10-25 x digital zoom allows you to record powerful close-up pictures with the same operation as normal zooming. The zoom range is factory preset to 1-10 x optical zoom. In the 10-25 x zoom range, the picture quality may suffer slightly.

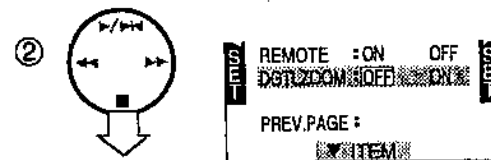
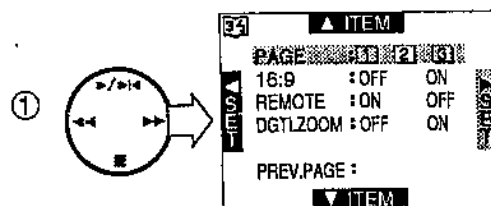
- 1 Press the MENU button until **33** appears on the monitor (Video Camera Recording mode).



- 2 Press **▶▶** on the Operation button **⊕** to select "MENU".



- 3 Press **▶▶** on the **⊕** button to select MENU-PAGE **2** (1), then press **■** to select "DGTL ZOOM" (2).



- 4 Press **▶▶** to select "ON".



- 5 The digital zoom is now on. Press the MENU button to turn off the menu.

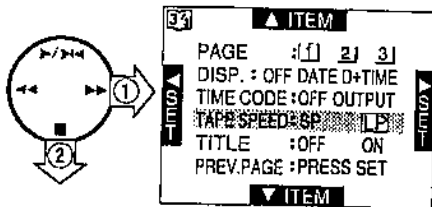
To return to normal zoom, set "DGTL ZOOM" to "OFF" in step 4 above.

Note:

- When the digital zoom is used, the picture quality may suffer. At maximum zoom, the horizontal resolution decreases by a maximum of 60% of the optical zoom.

Recording in LP mode (long time recording mode)

Refer to page 24 to display MENU-PAGE 1. Press **■** on the Operating button **⊖** to select "TAPE SPEED" (1), then press **▶▶** on the **⊖** button to select "LP" (2).



- When using the "LP" mode function in the "TAPE SPEED" mode, use a Mini DV Cassette with the "LP" mark.
- If you use non-LP mode video cassettes, it may result in image freeze, sound interruption or mosaic-type image distortion.
- The recording mode display changes from "SP" to "LP".
- The recording time in the LP mode is approximately one and half times longer than that in the normal mode (SP mode).

LP mode

- In LP mode, picture quality is the same as in SP mode. However, if you play back recorded video tapes when the ambient temperature is high, it may result in image freeze, sound interruption or mosaic-type image distortion.
- When playing back a VIEWCAM-recorded video tape on a other digital video equipment, it may experience mosaic-type image distortion.
- When video cassettes recorded in LP mode are played back with non-LP mode digital equipment, it may result in image freeze, sound interruption or mosaic-type image distortion.

Notes:

Checking the recording time

- Reset the time code (counter) before recording (See page 51).

Recording from the beginning of tape

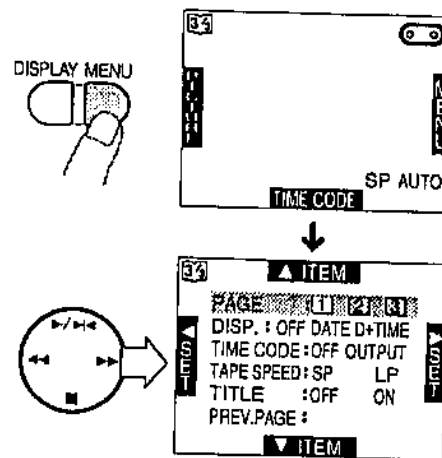
- Run the beginning of tape for approximately 15 seconds then start recording. This also allows you to play back from the very beginning of a scene, and also allows you to find the first image using the index function.

Displaying the Date and Time

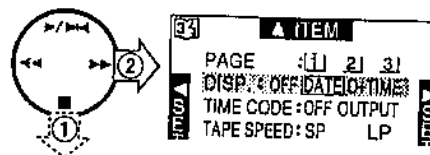
The date and time, once set, are stored in memory. You can display them on the monitor. (See page 23)

- 1 Display the MENU-PAGE 1 (Video Camera Recording mode or Video Playback mode) using the MENU button and the **⊖** button.

(Ex. Video Camera Recording mode Display)



- 2 Press **■** on the **⊖** button to select "DISP". (1) and set it to "DATE" or "D + TIME" (2) using the **⊖** button.



Notes:

- If you wish to display the date and time, make sure, before recording, that the date and time have been set correctly. If they are not set, "--:--:--" will be displayed. This will also be displayed on blank or damaged portions of the tape.

- 3 Press the MENU button to turn off the menu display. The date and time will appear on the monitor.

Video Camera Basic Operations

Recording

- Refer to pages 21, 22, 25 and 27 on how to operate the monitor display.

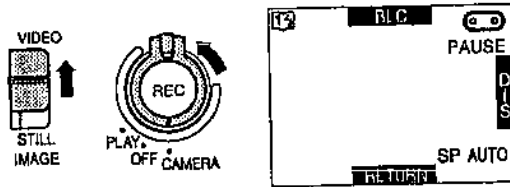
Unlike conventional camcorders, this model frees you from having to peer into a small viewfinder. You can watch the subject on the large LCD monitor screen for easier, more enjoyable video-shooting.

Easy Camera Recording with Full Auto

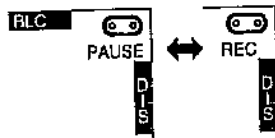
Before you start recording, perform the operations described on pages 15 through 32 to prepare your VIEWCAM for recording.

Video Camera Basic Operation

- Set the Power switch to CAMERA, and the Mode switch to VIDEO.
 - The picture from the lens is now displayed on the LCD monitor.



- The screen appears.
- The displays are not recorded on a video tape.
- "PAUSE" or "REC" is displayed for approximately 3 seconds.



- Press the REC button all the way down.



Press fully.
(Double-push type)

- Note:**
The REC button is a double-push type.
- Press the REC button all the way down to record on a video tape.

- Recording starts.

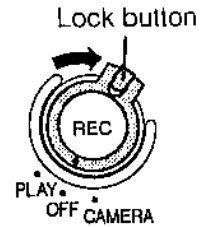
To Pause Recording

Press the REC button again. Recording pauses, and the VIEWCAM switches to Recording Standby mode.



To Turn the Power Off

Turn the Power switch to OFF without pressing the Lock button.



Notes:

- To leave Video Camera Recording mode, turn the Power switch to OFF.
- During Video Camera Recording mode, the speaker is off, and the PHONES (earphones) jack cannot be used.
- If the VIEWCAM is kept in Recording Standby mode for more than approximately 5 minutes, the power will automatically turn off to save battery power and to protect the tape from being damaged. To continue recording after this, set the Power switch to OFF, and then back to VIDEO CAMERA again.
- If you will not be recording again for a while, turn the power off. This will make the battery last longer.
- The operation indicators can be turned off or back on again with the DISPLAY button.
- The date and time, once set, will be internally recorded even if they do not appear on the screen. You can also turn them on or off on the screen. See page 24 for details.
- Record for 10 seconds or more to use the index function (See page 70).

Maximum Time for Continuous Camera Recording and Actual Recording Time

Battery pack	Max camera recording time	Actual recording time
BT-L31	Approx. 70 min.	Approx. 30 min.

Notes:

- Using the zoom (see page 35) and other functions or turning the power on and off frequently will increase power consumption which may result in a 50%-60% decrease in the actual recording time per battery pack compared to the maximum continuous recording time listed above.
- The recording times listed above are approximations.

Handling the LCD Monitor

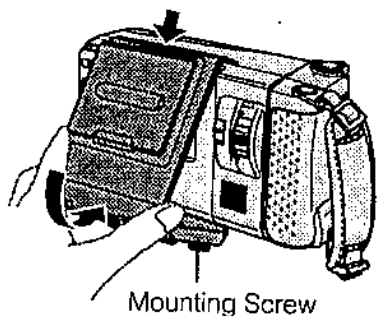
- Do not let anything press against the monitor screen, and do not expose it to shock, as it may break.
- Do not put the VIEWCAM on a table, or any other surface, with the monitor screen facing down.
- Use a soft cloth to clean the monitor screen.

Using the Sun Hood

We recommend that you use the supplied Sun Hood when recording on a sunny day.

Attaching the Sun Hood

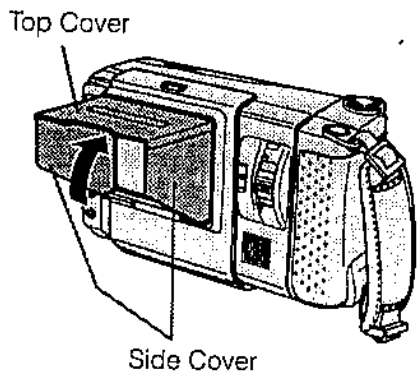
Align the tabs on the Sun Hood with the VIEWCAM and press in the direction of the arrows until the Sun Hood clicks into place, and tighten the Mounting Screw to fix the Sun Hood.



Mounting Screw

Opening the Sun Hood

Open the Sun Hood by lifting the Top Cover in the direction of the arrow. (The Side Covers will open automatically.)



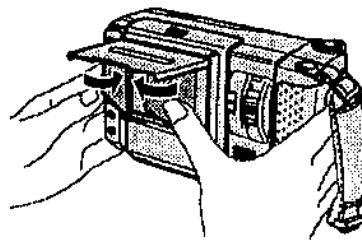
Side Cover

Note:

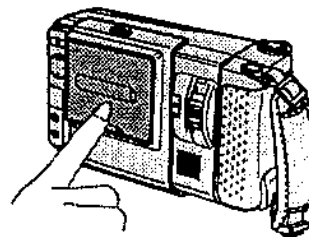
- When shooting at a low angle, hold the top cover slightly up. Screen is easier to watch.

Closing the Sun Hood

While pressing the Top Cover, fold the Side Covers.



Gently press the Top Cover until it clicks into place.

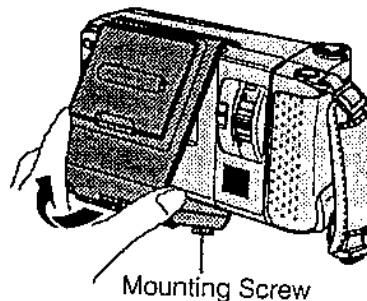


Note:

- Be sure to close the Sun Hood before transporting the VIEWCAM. (If the VIEWCAM is transported with the Sun Hood open, the Sun Hood may fall off or become damaged.)

Removing the Sun Hood

Remove the Mounting Screw, and pull the Sun Hood in the direction of the arrow to remove it from the VIEWCAM.



Mounting Screw

Note:

- To insert or remove a Mini DV cassette in or out of the VIEWCAM, first detach the Sun Hood from the VIEWCAM and then insert or remove the cassette.

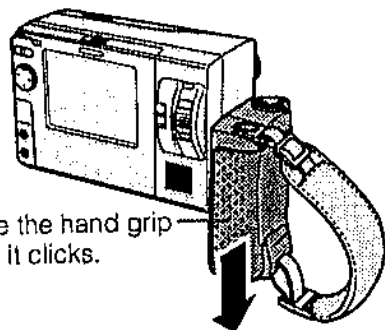
Caution:

- Do not leave the Sun Hood or VIEWCAM in an unventilated car in direct sunlight. The high temperature may cause a deformation of the casing.

Preparation

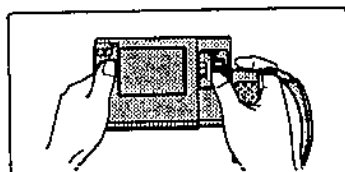
Basic Recording Positions

Preparation

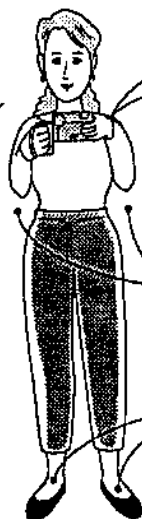


Slide the hand grip until it clicks.

*You can also handle the VIEWCAM without sliding the hand grip.



Place your right thumb beneath the zoom lever and your left thumb to the left side of the LCD monitor.



Press your elbows against your sides.

Place your feet at a 45° angle and take a firm stance.

Hints for Better Shooting

- Position the subject in the center of the screen. When you are using auto focus, whatever is in the center of the screen is kept in focus.



Position the subject in the center.



Focus manually when you need to position the subject off center (See page 44).

- Avoid backlit subjects. For the best picture, have the light source behind you. When the background is brighter than the subject, the subject often becomes too dark. If you need to record with this lighting, use the backlight compensation feature to improve the picture (See pages 37).



- Before zooming, think about how to best frame the shot. Stop zooming when the shot is well framed.
- When image shake is noticeable during Zoom-in telephoto shooting, use a tripod, or slide the Power Zoom lever to the W side to zoom out. Screw the tripod into the tripod socket on the bottom of the VIEWCAM.
- Horizontal panning (lateral movement) and tilting (vertical movement) should be done slowly to emphasize the wide expanse of a scene or the height of a building, and to make them easy to watch on playback.
- Use wide-angle settings for fast-moving subjects.

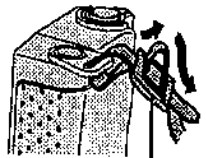
Notes:

- It may take longer to focus when zooming and panning are used frequently.
- Take care not to touch the monitor screen with your fingers, as perspiration and dirt will smudge it.
- Unless you intend to create a special effect, keep the VIEWCAM level with the horizontal plane.
- Take care not to touch the microphone with your fingers when the VIEWCAM is recording. It will cause noise on the audio track.

Adjusting the Hand Strap Length

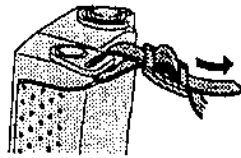
Try the above posture. If you need to adjust the hand strap length, follow the procedure shown below.

- 1 Loosen the upper side of strap to adjust the length.



Holder

- 2 When the strap reaches the proper length, pull to secure it.



- 3 Insert the end of strap as shown.

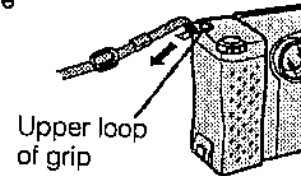


- 4 Adjust the length of lower side of strap in the same manner as the upper one.
 - Bring the holder close to the lower hand strap loop and fix it.

Attaching the Shoulder Strap

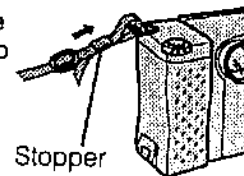
- 1 Remove the hand strap in the reverse order described above in "Adjusting the Hand Strap Length".

- 2 Hold one end of the strap and thread it through the loop.



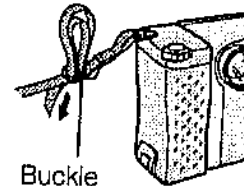
Upper loop of grip

- 3 Push the stopper in the direction of the arrow to secure.



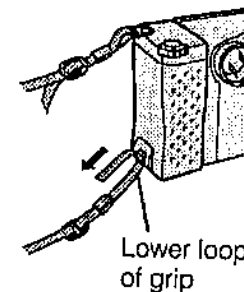
Stopper

- 4 Loosen the strap in the buckle, feed the end of the strap through the buckle, then draw it in the direction of the arrow.



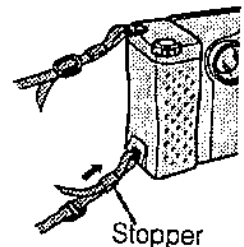
Buckle

- 5 Hold the other end of strap and thread it through the loop.



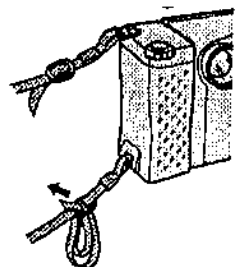
Lower loop of grip

- 6 Push the stopper in the direction of the arrow and fix it.



Stopper

- 7 Loosen the strap in the buckle, feed the end of the strap through the buckle, then draw it in the direction of the arrow.

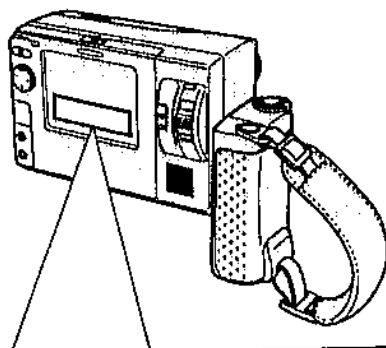


Preparation

Preparation

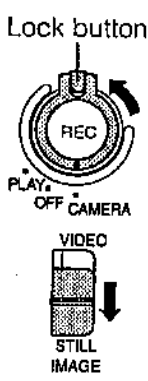
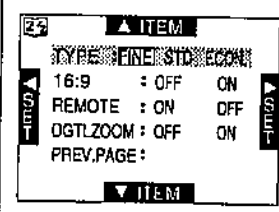
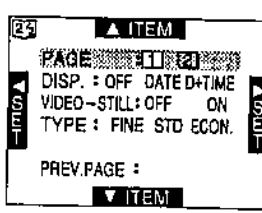
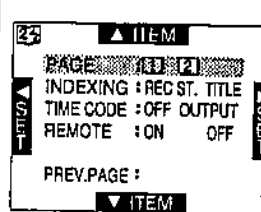
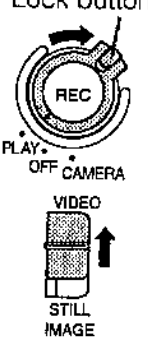
Warning Indicator

Preparation



Display for the first 3 seconds	Display after the first 3 seconds	Description of warning
EJECT THE CASSETTE.	EJECT THE CASSETTE.	The video cassette is defective and should be removed.
DEW	-DEW-	Dew has formed inside the VIEWCAM. Wait for a few hours until the dew disappears (see page 8). About 10 seconds after this warning appears, the VIEWCAM turns off, and the display goes off too.
BATTERY IS TOO LOW.		The battery is almost depleted. Note: Operation of the zoom may interrupt the VIEWCAM power. Replace the battery pack.
		The video heads are clogged and should be cleaned (see page 8).
INSERT A CASSETTE.	-CASSETTE-	There is no tape cassette in the VIEWCAM. Load a cassette.
CASSETTE NOT RECORDABLE.	-PROTECT TAB-	The red erasure protect tab on the video cassette has been slid to the record-protect position, preventing recording.
THE TAPE ENDS SOON.		The tape is about to end. Get ready to load a new cassette.
CHANGE THE CASSETTE.	TAPE END	The tape has reached its end. Load a new cassette.
LAMP	LAMP	The fluorescent lamp behind the LCD monitor is close to the end of its service life. Call your local authorized Sharp dealer to have it replaced.

Note : indicates a blinking display.

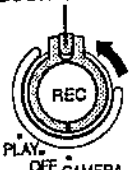
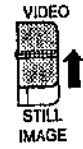
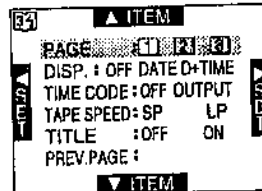
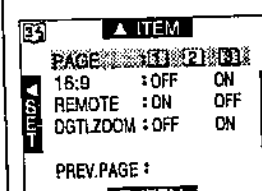
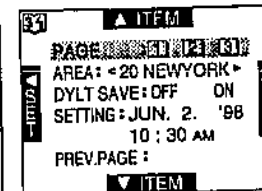
Mode		Default text		Description	Page
Still Camera Recording mode Lock button 	MENU-PAGE 	TYPE	FINE STD ECON.	High picture quality. Standard picture quality. Allows a greater number of shots.	56
		16:9	OFF ON	Normally set to "OFF" for normal screen. Recording with the Wide Screen (letter box size).	43
		REMOTE	ON OFF	Normally set to "ON" to turn on the remote control. Turn the remote control function off to prevent malfunctions when using other remote control units.	40
		DGTL ZOOM	OFF ON	Set to "OFF" when no digital zoom is needed. Set to "ON" if the optical zoom (10 x) is not enough. The digital zoom magnification in excess of 10 x produces a fuzzy image.	35
		PREV.PAGE		To the previous screen.	22
		Video Playback mode	MENU-PAGE ①  MENU-PAGE ② 	DISP.	OFF DATE D+TIME
Lock button 		VIDEO → STILL	OFF ON	Normally set to "OFF" to turn off the copying function. Copying a picture from a video tape to a memory.	65
		TYPE	FINE STD ECON.	High picture quality. Standard picture quality. Allows a greater number of shots.	56
		PREV.PAGE		To the previous screen.	22
		INDEXING	REC ST. TITLE	Placing the top scenes as the index. Placing the titled pictures as the index.	69
		TIME CODE	OFF OUTPUT	Normally set to "OFF" to turn off the time code. Time code output on the TV monitor etc.	51
		REMOTE	ON OFF	Normally set to "ON" to turn on the remote control. Turn the remote control function off to prevent malfunctions when using other remote control units.	40
	PREV.PAGE		To the previous screen.	22	

Notes:

- As to the function which is common to each mode, if the function is changed in one mode, it will also be changed automatically in the other mode. For example, if the "REMOTE" is set to "OFF" in Video Camera Recording mode, it will also be set to "OFF" automatically in the Video Playback mode.
- The menu display is not available during recording.

Controlling the On-Screen Menu

Preparation

Mode		Default text		Description	Page	
Video Camera Recording mode Lock button  	MENU-PAGE [1] 	DISP.	OFF DATE D+TIME	No date and time display. Date only display. Date and time display.	23,24	
		TIME CODE	OFF OUTPUT	Normally set to "OFF" to turn off the time code. Time code output on the TV monitor etc.	51	
		TAPE SPEED	SP LP	Normally set to "SP" for standard recording. Recording on a video tape for an extended period.	34	
		TITLE	OFF ON	Normally set to "OFF" for no title. Inserting a picture title at the beginning of a scene.	63	
		PREV.PAGE		To the previous screen.	22	
		MENU-PAGE [2] 	16:9	OFF ON	Normally set to "OFF" for normal screen. Recording with the Wide Screen (letter box size).	43
	REMOTE		ON OFF	Normally set to "ON" to turn on the remote control. Turn the remote control function off to prevent malfunctions when using other remote control units.	40	
	DGTL ZOOM		OFF ON	Set to "OFF" when no digital zoom is needed. Set to "ON" if the optical zoom (10 x) is not enough. The digital zoom magnification in excess of 10 x produces a fuzzy image.	35	
	PREV.PAGE			To the previous screen.	22	
	MENU-PAGE [3] 		AREA		World clock.	23,49
			DYLT SAVE	OFF ON	Normally set to "OFF" to turn off the daylight saving time function. Daylight saving time.	24
		SETTING		Setting the internal clock.	23	
PREV.PAGE			To the previous screen.	22		

Mode		Default text	Description	Page
Still Image Playback mode		MULTI	Multi-screen display.	58
		+	To the next stored image.	57
		EXTEND	Extending a stored image.	59
		-	To the previous stored image.	57
		DELETE	Deleting a stored image.	61
		+	To the next stored image.	57
		PROTECT	Record protection.	60
		TRANSMIT	Picture data transmission to other equipments.	75
		+	To the next stored image.	57
		RECEIVE	Picture data receiving from other equipments.	76
		RECEIVE	Picture data receiving from other equipments.	76
		-	To the previous stored image.	57
		COPY	Copying an image from memory to video tape.	73
		+	To the next stored image.	57
		IMG. NO.	To display a still image No.	57
	-	To the previous stored image.	57	



Note:
Press the DISPLAY button to turn on/off the Operation Indicator display or turn off the Menu display.

