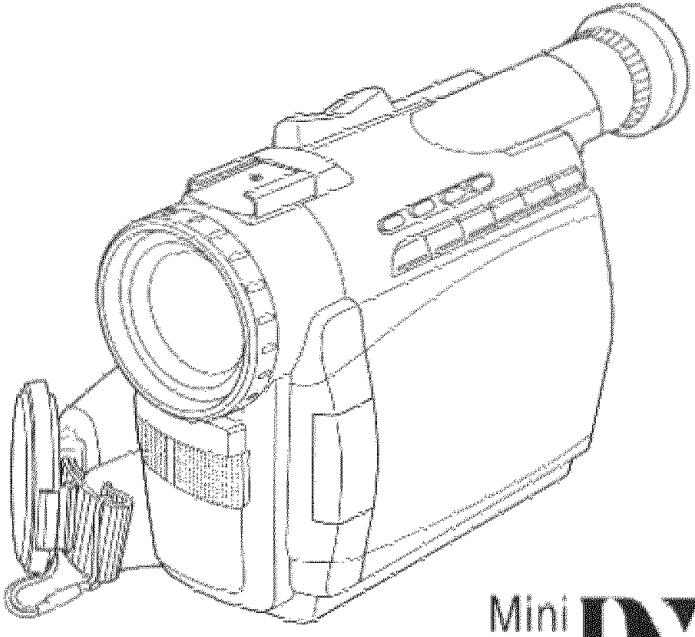
Digital Palmcorder

Panasonic

Digital Video Camcorder

Operating Instructions

Model No. **PV-DV101**



Mini DV

Before attempting to connect, operate or adjust this product, please read these instructions thoroughly.

Spanish Quick Use Guide is included.
Guía para rápida consulta en español está incluida.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

LSQT0363B

Thank you for choosing Panasonic!

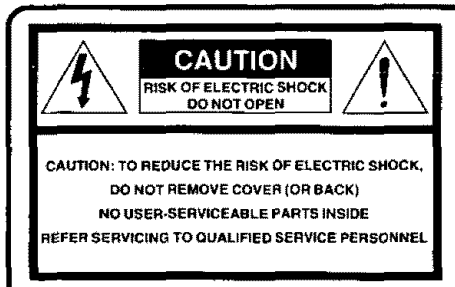
You have purchased one of the most sophisticated and reliable products on the market today. Used properly, we're sure it will bring you and your family years of enjoyment. Please take time to fill in the information below. The serial number is on the tag located on the underside of your Palmcorder. Be sure to **retain this manual** as your convenient Palmcorder information source.

Date of Purchase
Dealer Purchased From
Dealer Address
Dealer Phone No.
Model No.
Serial No.

Safety Precautions

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Your Mini DV Palmcorder is designed to record and play back in Standard Play (SP) mode and Long (LP) mode.
It is recommended that only cassette tapes that have been tested and inspected for use in VCR machines with the Mini DV mark be used.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

The above markings are located on the appliance bottom cover.

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

Note: This equipment has been tested and found to comply with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operated in a residential environment.
If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.
If necessary, consult the dealer or an experienced radio/TV technician for help. You may find the booklet, 'Something About Interference' available from FCC local regional offices helpful.

FCC Warning: To assure continued FCC compliance, use only the provided shielded interface cable when connecting digital video camera to computer in accordance with instruction herein. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate.

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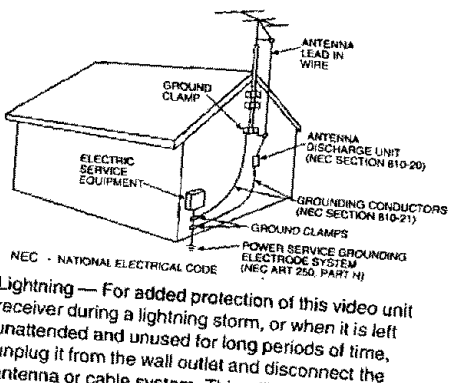
operated.

2. Retain Instructions — The safety and operating instructions should be retained for future reference.
3. Heed Warnings — All warnings on the unit and in the operating instructions should be adhered to.
4. Follow Instructions — All operating and maintenance instructions should be followed.
5. Cleaning — Unplug this video unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a dry cloth for cleaning.
6. Attachments — Do not use attachments not recommended by the video product manufacturer as they may be hazardous.
7. Water and Moisture — Do not use this video unit near water — for example near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
8. Accessories — Do not place this video unit on an unstable cart, stand, tripod, bracket, or table. The video unit may fall, causing serious injury to a child or adult, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video unit. Any mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. Ventilation — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video unit and to protect it from overheating. These openings must not be blocked or covered. Never place the video unit on a bed, sofa, rug, or other similar surface, or near or over a radiator or heat register. This video unit should not 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 adhered to.
10. Power Sources — This video unit 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 units intended to be operated from battery power, or other sources, refer to the operating instructions.
11. Grounding or Polarization — This video unit may be equipped with either a polarized 2-wire AC (Alternating Current) line plug (a plug having one blade wider than the other) or 3-wire grounding type plug, a plug having a third (grounding) pin.

    The 2-wire polarized 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.

    The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.
12. Power-Cord Protection — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords of plugs, convenience receptacles, and the point where they exit from the unit.
13. Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the video unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Part 1 of the Canadian Electrical Code, in USA Section 810 of the National Electrical Code, provides information with respect to proper grounding of the mast and supporting structure, 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.



14. Lightning — For added protection of this video unit receiver during a lightning storm, or when it is 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 unit due to lightning and power-line surges.

15. Power Lines — An outside antenna system should not be located in the vicinity of overhead 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 might be fatal.
16. Overloading — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. Objects and Liquids — Never push objects of any kind into this video unit through openings as 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 onto the video unit.
18. Servicing — Do not attempt to service this video unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. Damage Requiring Service — Unplug this video unit 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 any liquid has been spilled into, or objects have fallen onto, the video unit.
    c. If the video unit has been exposed to rain or water.
    d. If the video unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video unit to its normal operation.
    e. If the video unit has been dropped or the cabinet has been damaged.
    f. When the video unit exhibits a distinct change in performance — this indicates a need for service.
20. Replacement Parts — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
21. Safety Check— Upon completion of any service or repairs to this video unit, ask the service technician to perform safety checks to determine that the video unit is in safe operating order.

Precautions

USE & LOCATION

- **TO AVOID SHOCK HAZARD ...** Your Palmcorder and power supply should not be exposed to rain or moisture. Do not connect the power supply or operate your Palmcorder if it gets wet. Your Palmcorder has been designed for outdoor use, however it is not designed to sustain direct exposure to water, rain, sleet, snow, sand, dust, or a direct splashing from a pool or even a cup of coffee. This action could permanently damage the internal parts of your Palmcorder. Do not attempt to disassemble this unit. There are no user serviceable parts inside. Unplug your Palmcorder from the power supply before cleaning.
- **DO NOT AIM YOUR PALMCORDER AT THE SUN OR OTHER BRIGHT OBJECTS**
- **DO NOT LEAVE THE PALMCORDER WITH THE EVF AIMED DIRECTLY AT THE SUN AS THIS MAY CAUSE DAMAGE TO THE INTERNAL PARTS OF THE EVF**
- **DO NOT EXPOSE YOUR PALMCORDER TO EXTENDED HIGH TEMPERATURE ...** Such as, in direct sunlight, inside a closed car, next to a heater, etc... This action could permanently damage the internal parts of your Palmcorder.
- **AVOID SUDDEN CHANGES IN TEMPERATURE ...** If the unit is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the unit.
- **DO NOT LEAVE YOUR PALMCORDER OR THE POWER SUPPLY TURNED ON WHEN NOT IN USE.**
- **STORAGE OF YOUR PALMCORDER ...** Store and handle your Palmcorder in a manner that will not subject it to unnecessary movement (avoid shaking and striking). Your Palmcorder contains a sensitive pick-up device which could be damaged by improper handling or storage.

CARE

- **TO CLEAN YOUR PALMCORDER ...** Do not use strong or abrasive detergents when cleaning your Palmcorder body.
- **TO PROTECT THE LENS ...** Do not touch the surface of the lens with your hand. Use a commercial Palmcorder lens solution and lens paper when cleaning the lens. Improper cleaning can scratch the lens coating.
- **TO PROTECT THE FINISH OF YOUR PALMCORDER ...** Before handling your Palmcorder, make sure your hands and face are free from any chemical products, such as suntan lotion, as it may damage the finish.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

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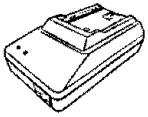
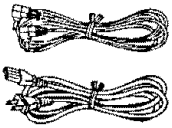
Unpack your Palmcorder

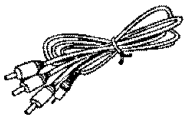
1 pc. AC Adaptor (PV-DAC11) with AC Cable and DC Cable





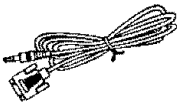
1 pc. Battery Pack (PV-DBP8A)

1 pc. A/V Cable (LSJA0280)

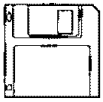


1 pc. Lens Cap (LSYF0478)

1 pc. PC Connection Cable for Windows (LSJA0276)



1 pc. PHOTOVU LINK Driver (LSFT0251)



1 pc. Shoulder Strap (LSFC0013)

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i.LINK and i.LINK are trademarks.

PHOTOVU LINK is a registered trademark.

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Record Speed/Playback Time

Use only those tapes having the Mini DV logo indicating the 6.35 mm digital standard.

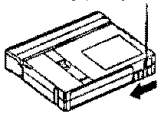
Cassette type	Record Speed/ Playback time	
	SP	LP
AY-DVM30EA	30 minutes	45 minutes
AY-DVM60EA	60 minutes	90 minutes
AY-DVM80EA	80 minutes	120 minutes

Erase Protection

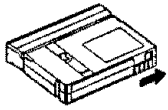
Cassettes have a sliding record tab to ensure recordings are not accidentally erased.

1 To prevent accidental erasure:
Slide the tab to the left (open).

record tab



2 To record again:
Slide the tab to the right (close).



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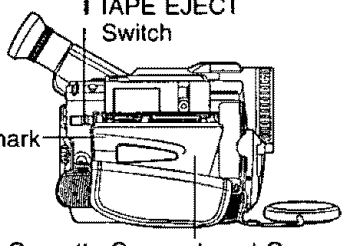
Cassette Insertion/Removal

- If the Palmcorder is connected to a power source, the cassette can be inserted and ejected without turning the Palmcorder on.



Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)

1 **Slide TAPE EJECT** to open the Cassette Compartment Cover.

2 **Insert a cassette** record tab up, window side facing out.

3 **Press PUSH TO CLOSE mark** to close the Cassette Compartment Cover.

- **To remove the cassette...**
  Slide TAPE EJECT to open the Cassette Compartment Cover and pull the cassette tape straight out.

Hint to locate recording position when inserting cassette

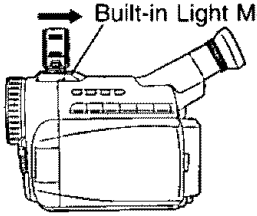
- When you insert a partially recorded cassette, use the Edit Search Function (see page 24) to visually confirm the point at which you want to start a new recording. Especially advisable when you want to add a recording to a tape that is already full.

Note

- If hand strap is tight it may prevent Cassette Compartment Cover from fully opening for tape insertion or ejection. Loosen hand strap if necessary.
- When inserting the cassette, make sure it faces in the right direction and then push in completely.

Using the Light (Optional)

To brighten the natural colors in a scene.



Note

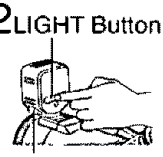
- Using the light will reduce battery operating time.
- Be sure to provide adequate ventilation if using Light in a hot environment for an extended period.
- Be sure LIGHT is set to OFF when not in use.
- Do not attempt to lift or carry the Palmcorder by holding the Enhancement Light.
- If light bulb needs to be replaced, take Light to your nearest authorized servicenter.

Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Set POWER to CAMERA.

1 **Slide Light into the Built-in Light Mount.**
Be sure it locks into place.

2 **Press LIGHT to turn ON or OFF.**



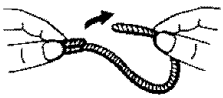
To remove the Light:
Press LIGHT RELEASE and slide the Light out of the mount.

Caution:

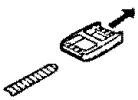
This light becomes hot during operation. Make sure nothing covers the Light during operation.

Attaching the Shoulder Strap

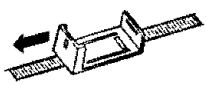
1 **Undo the two strap ends** from their buckles.



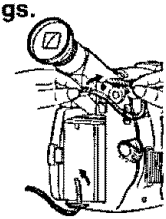
2 **Remove the buckle from one end of the strap.**



3 **Thread the strap (with no buckle) through the Light Holder** so that it faces outward. Then, reinsert the buckle.

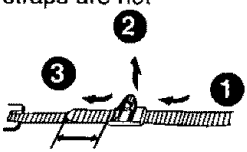


4 **Thread the strap ends through the Strap Attachment Rings.**



5 **Reinsert the strap ends through their buckles.**

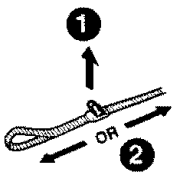
- Make sure the straps are not twisted.



Adjust the Length

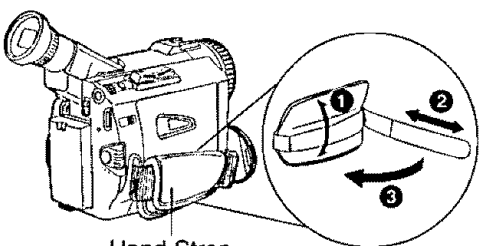
1 **Loosen the strap** from the Buckle and create a loop.

2 **Pull the strap firmly through the Buckle** to shorten or lengthen the strap.



Hand Strap

Adjust the length of the Hand Strap to the size of your hand as illustrated.



Hand Strap

Attach the Light (Optional)

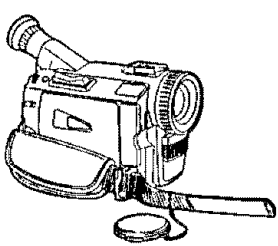
1 Insert the Light into the Light Holder for Storage.

2 **To remove the Light, press LIGHT RELEASE** and slide Light out of the holder.

Lens Cap

Attaching the Lens Cap Cord to the Hand Strap

Remove the Hand Strap from the front clasp and thread the Strap through the loop in the Lens Cap Cord.
Reattach the Hand Strap.



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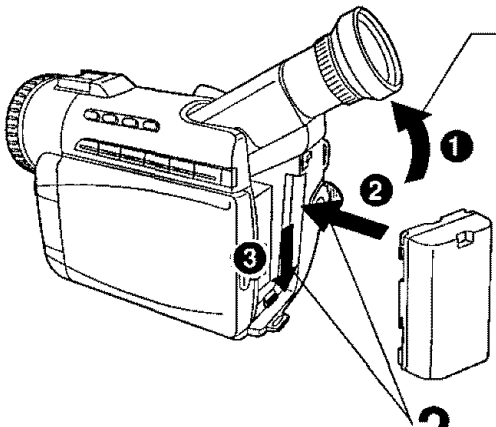
Insert the Battery Pack

Before you begin
- Charge the Battery. (See page 11.)



1 **Tilt Viewfinder upward.**

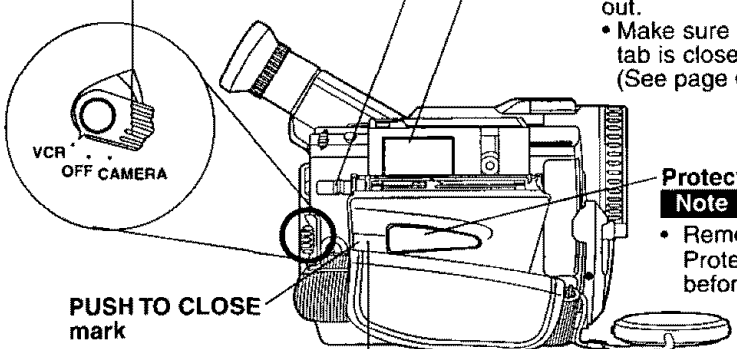
2 **Insert the Battery Pack** and slide it down until it locks with a click.

Insert Cassette

1 **Set POWER Switch to VCR or CAMERA.**

2 **Slide TAPE EJECT Switch** to open the Cassette Compartment Cover.

3 **Insert a cassette** record tab up, window side facing out.
- Make sure the record tab is closed. (See page 6.)



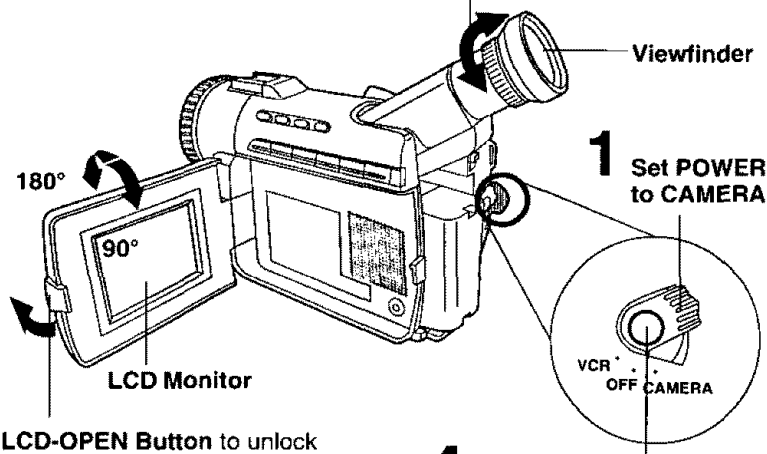
Protection Film

Note
- Remove the Protection Film before use.

4 **Press PUSH TO CLOSE mark** to close the Cassette Compartment Cover.

Camera Recording

When the LCD monitor is fully open, the Viewfinder automatically turns OFF.



3 **Press LCD-OPEN Button** to unlock the LCD monitor. **Swing it fully open and adjust the angle.**

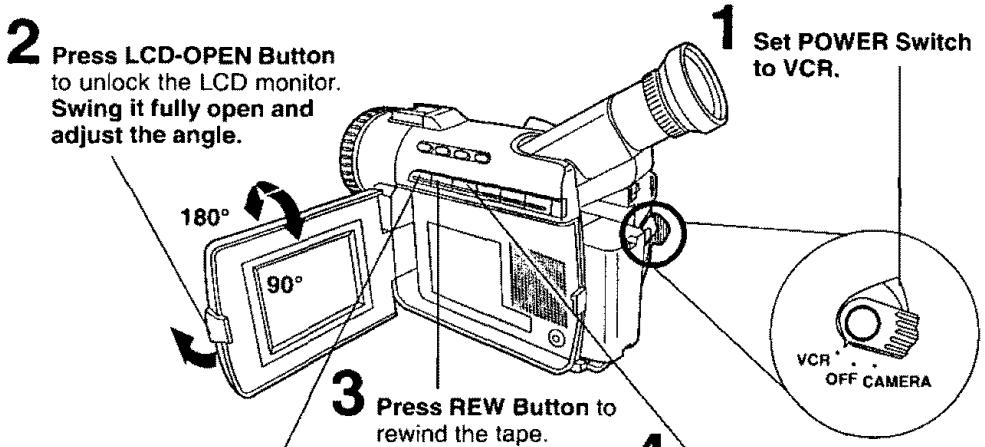
4 **Press REC/PAUSE Button** to start recording.
Press REC/PAUSE Button again to pause recording.

To Watch Playback in the LCD (Liquid Crystal Display)

When the LCD monitor is fully open, the Viewfinder automatically turns OFF.

Before you begin

- Charge the Battery. (See page 11.)



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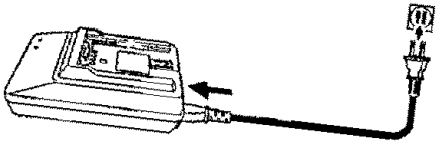
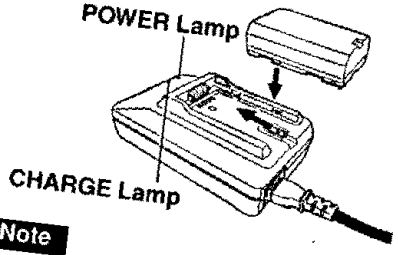
AC Adaptor



1 **Connect and plug in the Power Cord** as shown.
- POWER Lamp will light.
- Remove the DC Cable, if attached, from the adaptor.



2 **Attach the Battery as shown** to charge.
- CHARGE Lamp lights up. It goes out when charging is complete (approx. 1 hour). Expect approx. 1 hour 30 minutes of operation (EVF usage) when fully charged.

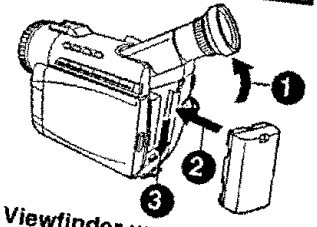
3 **Remove the Battery.**
Slide the Battery out and then lift up.

Note

About the Flashing of the CHARGE Lamp
- Charge the Battery within an ambient temperature range of 10 °C and 30 °C.
- If charging is done in extreme low or high temperatures, Battery charge time increases.

CHARGE Lamp flashes when...
- The Battery is being charged, but charging is taking longer than normal.
- Charging is not possible. Remove the Battery once, wait a short time, then re-attach it for charging.

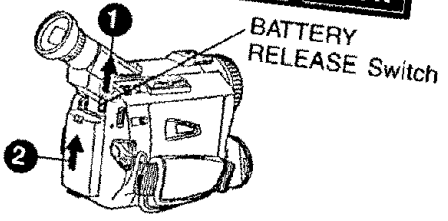
Insert the Battery Pack



1 **Tilt Viewfinder upward.**

2 **Insert the Battery Pack** and slide it down until it locks with a click.

Remove the Battery Pack



To remove the Battery Pack:
Slide the Battery upward while sliding the BATTERY RELEASE Switch.

Battery Care

Caution:

- Charge only with specified charger.
- Charge the Battery within an ambient temperature range of 32° F (0° C) and 104° F (40° C).
- The Battery may be warm after charging or just after use. This is normal.
- Do not use an insufficiently charged or worn out Battery.
- If charging is done in extreme low or high temperatures, Battery charge time increases.

Safety precautions:

- Do not get the Battery near, or dispose of in fire.
- Do not directly connect (short circuit) the positive (+) and negative (–) terminals.
- Never attempt to disassemble or reassemble the Battery.

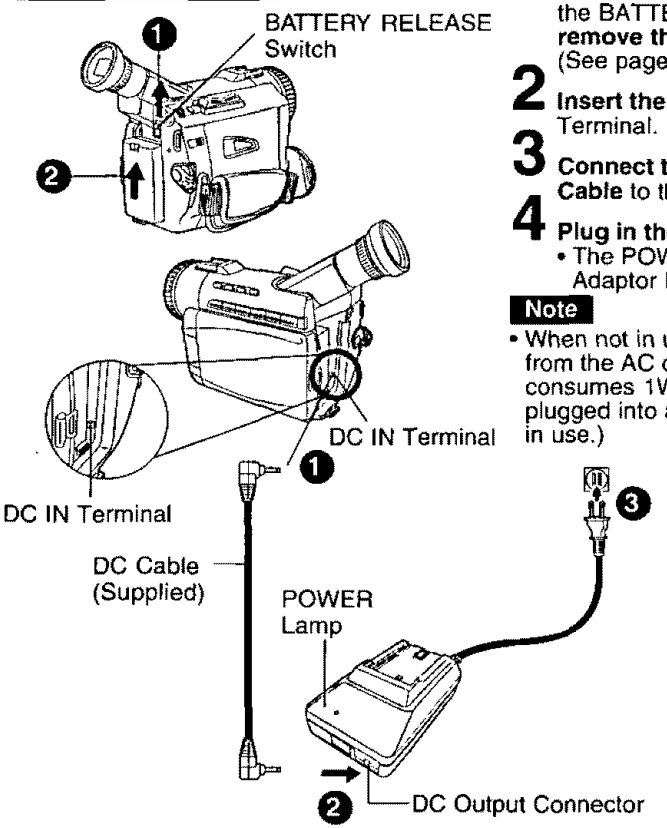
To avoid damage to the Battery:

- Do not drop or jar the Battery.
- Use the Battery with specified models only.
- If the Battery is used in extremely high temperatures, a safety device will automatically prevent operation.

To insure longer battery life:

- **While not in use, remove Battery from the Palmcorder and AC Adaptor and store in a cool, dark, dry place.** If you leave the Battery in the Palmcorder or on the AC Adaptor, the Battery will no longer be rechargeable.
- Keep the Battery terminals clean.

Use AC Adaptor



1 Slide the Battery upward while sliding the BATTERY RELEASE Switch to **remove the Battery Pack.** (See page 11.)

2 **Insert the DC Cable** into the DC IN Terminal.

3 **Connect the other end of the DC Cable** to the AC Adaptor as shown.

4 **Plug in the AC Adaptor.**
- The POWER Lamp on the AC Adaptor lights up.

Note

- When not in use, unplug the AC Adaptor from the AC outlet. (AC Adaptor consumes 1W of electric power when plugged into an AC outlet even when not in use.)

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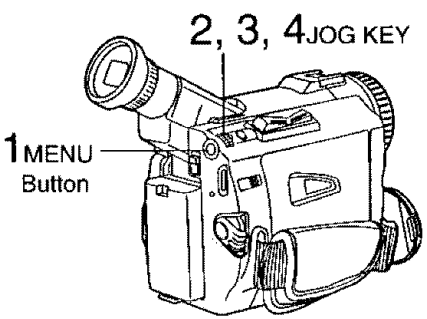
Set the Date and Time

The date and time is calculated, including leap year, up to DEC 31 2089.



EXAMPLE:

YEAR : 2001

↓ PUSH Push

MONTH : JAN

↓ PUSH Rotate

MONTH : FEB

Note

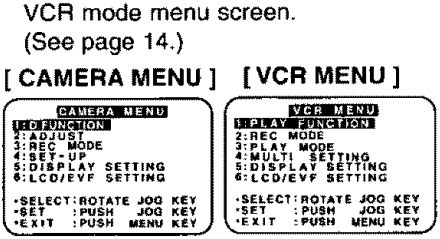
- To make corrections, Press JOG KEY repeatedly to move back to an item and correct.
- A built-in Battery maintains clock operation. If the Palmcorder is not connected to a power source for a few months, the built-in battery may discharge and "CLOCK BATTERY" indication appears. (See page 21.)

Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Set POWER to CAMERA or VCR.

1 **Press MENU** to display the Camera or VCR mode menu screen. (See page 14.)

[CAMERA MENU] **[VCR MENU]**

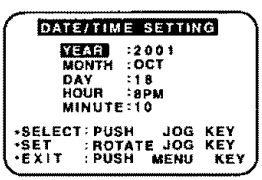


2 **Rotate JOG KEY** to select **DISPLAY SETTING**, and then **press JOG KEY** to display the DISPLAY SETTING menu screen.

3 **Rotate JOG KEY** to select **CLOCK-SET**, and then **press JOG KEY** to set to ON. (See pages 16, 18.)

- The DATE/TIME SETTING menu is displayed.

4 **Rotate JOG KEY** to select the YEAR, **then press JOG KEY** to fix and move to the next item. Likewise, set the month, day, hour, and minute.



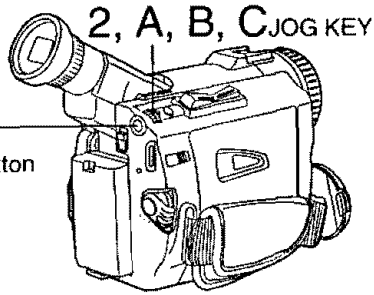
When Date/Time setting is completed, press MENU three times to start the clock and exit.

The Palmcorder features two menu displays: one for CAMERA mode (recording) and the other for VCR mode (Playback). (See pages 15~18.)

- While the Menu screen is displayed, you cannot record on or play a tape.
- While recording, the Menu screen cannot be displayed.
- During playback, the Menu screen can be displayed.

Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Set POWER to CAMERA or VCR.



Displaying the MENU

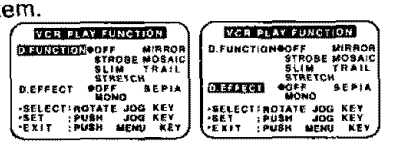
1 **Press MENU** to display the CAMERA or VCR menu (according to the POWER Switch setting).

2 **Rotate JOG KEY** to select a menu item.

Setting the MENU items (EX. VCR Mode menu)

A **Press JOG KEY** to set your selection.

B **Rotate JOG KEY** to highlight a menu item.



C **Press JOG KEY** to set your selection.
- The "●" mark indicates selection.

D **Press MENU twice** to exit the menu.

CAMERA Main menu

1 : D. FUNCTION
CAMERA FUNCTION menu is displayed. To select one of the 10 digital functions (MIRROR, STROBE, MOSAIC, SLIM, TRAIL, STRETCH, GAIN-UP, WIPE, MIX, or PinP).

2 : ADJUST
CAMERA ADJUST menu is displayed. To select PROG. AE, W. BALANCE, or H.S.S. (High Speed Shutter).

3 : REC MODE
CAMERA REC-MODE menu is displayed. To select REC-SPEED, AUDIO-REC, INDEX, SHUTTER, SELF-REC, or WIND-CUT.

4 : SET-UP
CAMERA SET-UP menu is displayed. To select REMOTE or BEEP.

5 : DISPLAY SETTING
DISPLAY SETTING menu is displayed. To select DISPLAY, C.RESET, DATE/TIME, or CLOCK-SET.

6 : LCD/EVF SETTING
LCD/EVFSETTING menu is displayed. To select LCD BRIGHTNESS, LCD COLOR or EVF BRIGHTNESS.

VCR Main menu

1 : PLAY FUNCTION
VCR PLAY FUNCTION menu is displayed. To select D. FUNCTION or D.EFFECT.

2 : REC MODE
VCR REC MODE menu is displayed. To select REC-SPEED.

3 : PLAY MODE
VCR PLAY MODE menu is displayed. To select INDEX, AUDIO, REMOTE, or B.SEARCH.

4 : MULTI SETTING
MULTI SETTING menu is displayed. To select SPEED.

5 : DISPLAY SETTING
DISPLAY SETTING menu is displayed. To select DISPLAY, C.RESET, DATE/TIME, or CLOCK-SET.

6 : LCD/EVF SETTING
LCD/EVFSETTING menu is displayed. To select LCD BRIGHTNESS, LCD COLOR or EVF BRIGHTNESS.

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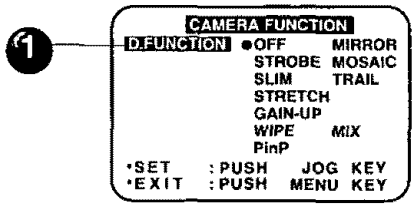
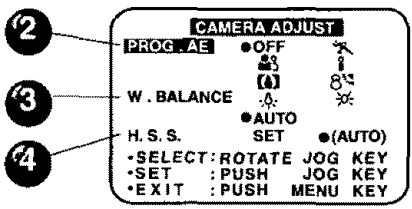
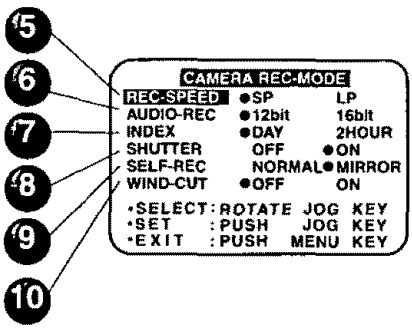
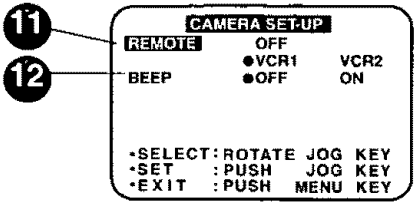
Camera Mode Menu Screen

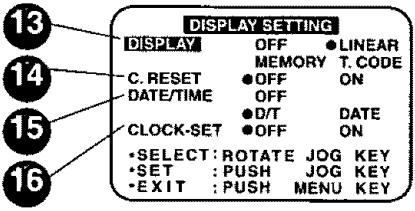


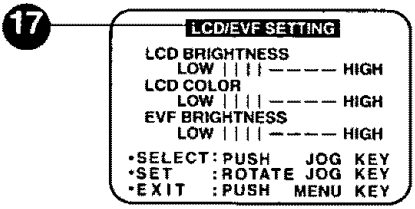




1. **DIGITAL FUNCTION** (See page 37.)
   To select one of the 10 digital functions. Setting to OFF cancels the previously selected digital function.
2. **PROG. AE** (See page 36.)
   To select one of the 5 Program AE modes. Setting to OFF cancels the previously selected Program AE mode.
3. **W.BALANCE** (See page 35.)
   To select one of the 3 White Balance modes.
4. ***H. S. S. (High Speed Shutter)*** (See page 40.)
   To select a desired shutter speed.
5. **REC-SPEED** (See page 6.)
   SP: Normal recording speed mode.
   LP: Recording time is 1.5 times as long as in the SP mode. For example, 120 minutes of recording is possible on an 80 minute tape.
6. **AUDIO-REC** (See page 41.)
   12 bit: The sound is recorded in the 12 bit/32 kHz mode.
   16 bit: The sound is recorded in the 16 bit/48 kHz high-quality mode.
7. **INDEX** (See page 30.)
   DAY: An index signal is recorded when recording is restarted after the date has changed since the last recording.
   2 HOUR: An index signal is recorded when recording is restarted after a lapse of more than 2 hours.
8. **SHUTTER** (See page 34.)
   When set to ON, still pictures taken in the PhotoShot mode are recorded with a visual shutter effect and click sound.
9. **SELF-REC** (See page 23.)
   NORMAL: During self-recording, the picture on the LCD Monitor is the same as it will be recorded.
   MIRROR: During self-recording, the picture on the LCD Monitor is horizontally reversed.
10. **WIND-CUT** (See page 22.)
    To reduce sound distortion caused by wind hitting the microphone. However, this slightly deteriorates the sound reproduction in the bass range.







11 REMOTE (See page 26.)
VCR1: To receive signals from the Remote Control, set to VCR1.
VCR2: To receive signals from the Remote Control, set to VCR2.
OFF: To prevent reception of signals from the Remote Control.

12 BEEP
Set to ON to hear beep when starting and stopping camera recording or when unusual conditions occur. To cancel the beep, set to OFF.

Palmcorder will beep:
- Once when you start recording
- Twice when you stop recording
- Repeatedly when warning of unusual conditions (See page 21.)

13 DISPLAY (See page 19.)
To select the desired type of display and counter indication displayed on the LCD Monitor or in the viewfinder.

14 C.RESET (See page 19.)
Setting to ON resets the counter to zero.

15 DATE/TIME (See page 20.)
The date and time can be set and displayed on the screen.

16 CLOCK-SET (See page 13.)
When set to ON, the date and time can be set on the screen.

17 LCD/EVF SETTING (See page 23.)
Setting to ON displays the menu for adjusting the LCD brightness, LCD color level, and EVF brightness.

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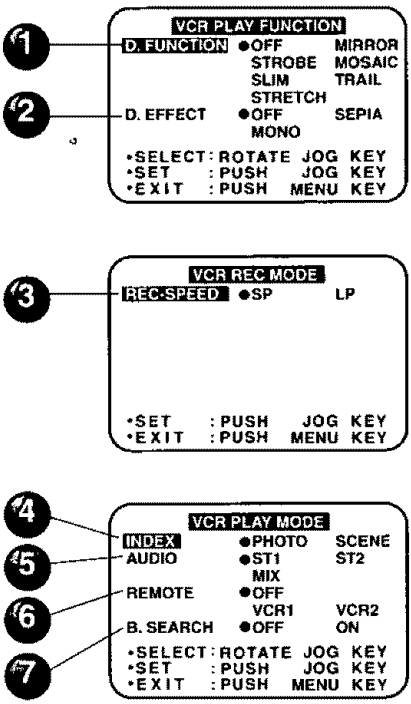
VCR Mode Menu Screen



1 DIGITAL FUNCTION (See page 37.)
To select one of the 6 digital functions. Setting to OFF cancels the previously selected digital function.

2 D. EFFECT (See page 37.)
To select one of the 2 digital picture effects for playback. Setting to OFF cancels the previously selected digital effect.

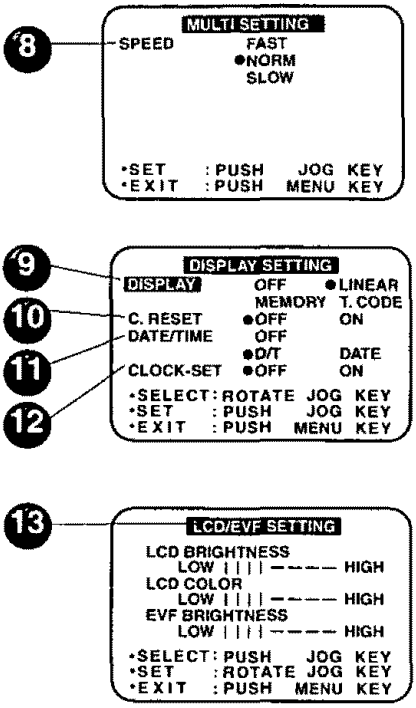
3 REC-SPEED (See page 6.)
SP: Normal recording speed mode.
LP: Recording time is 1.5 times as long as in the SP mode. For example, 120 minutes of recording is possible on an 80 minute tape.

4 INDEX (See page 30.)
To select the desired Index Search function.
PHOTO: To search for PhotoShot pictures.
SCENE: To search for scenes marked with Index signal.

5 AUDIO (See page 42.)
To select the desired audio playback mode after performing audio dubbing in the 12 bit mode (SP mode only).
ST1: The original sound alone is played back.
ST2: The dubbed sound alone is played back.
MIX: The original sound and the dubbed sound are played back together.

6 REMOTE (See page 26.)
VCR1: To receive signals from the Remote Control, set to VCR1.
VCR2: To receive signals from the Remote Control, set to VCR2.
OFF: To prevent reception of signals from the Remote Control.

7 B.SEARCH (Blank Search) (See page 25.)
Select ON to go directly to a blank portion of the tape.



8 **SPEED** (See page 35.)
In Strobe Multi mode, used to select the interval at which a succession of still screens are captured from the playback picture.
FAST : Every 0.3 seconds
NORM : Every 0.6 seconds
SLOW : Every 1.0 seconds

9 **DISPLAY** (See page 19.)
To select the desired type of display and counter indication displayed on the LCD Monitor or in the viewfinder.

10 **C.RESET** (See page 19.)
Setting to ON resets the counter to zero.

11 **DATE/TIME** (See page 20.)
The date and time can be set and displayed on the screen.

12 **CLOCK-SET** (See page 13.)
When set to ON, the date and time can be set on the screen.

13 **LCD/EVF SETTING** (See page 23.)
Setting to ON displays the menu for adjusting the LCD brightness, LCD color level, and EVF brightness.

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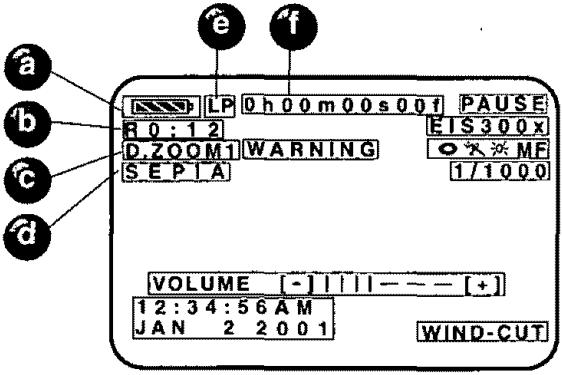
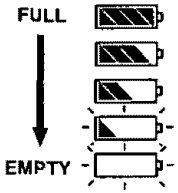
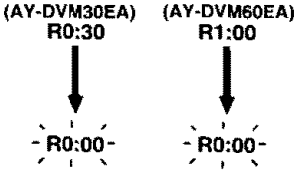
Here are some of the basic indications which will appear on the Palmcorder EVF and LCD Monitor. Only DATE/TIME indications will be recorded onto the tape.



a Battery Remaining



b Tape Remaining



- It will take several seconds for the tape remaining indicator to operate after the tape starts moving.

c Digital Zoom and other Digital Functions (See page 33.)
This display appears when the digital zoom function has been activated.

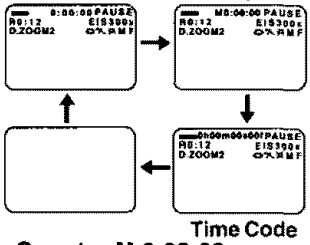
d Playback Effect (See page 37.)
This display appears when SEPIA or MONO is selected in VCR menu.

e Tape Speed Indication (See page 15.)
Indicates the tape speed (SP or LP).

f Display ON/OFF and Counter/Time Code
The indication switches as shown below when the desired "DISPLAY" mode is selected from the menu. (See pages 16, 18.)

- When OFF is selected, all displays are turned off.

Linear Time Counter Memory Counter

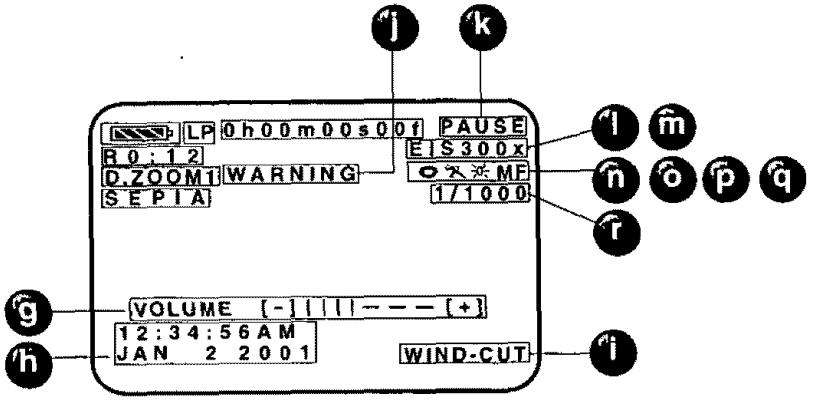


Time Code

Memory Counter M 0:00:00
The Palmcorder will stop whenever it reaches the point where the counter was previously set to M 0:00:00 during audio dub, fast forward, or rewind.

Time Code 0h00m00s00f
The Palmcorder calculates and displays exactly where you are on any tape in terms of hours, minutes, seconds, and frames (30 frames = 1 second).
- This display can not be reset.

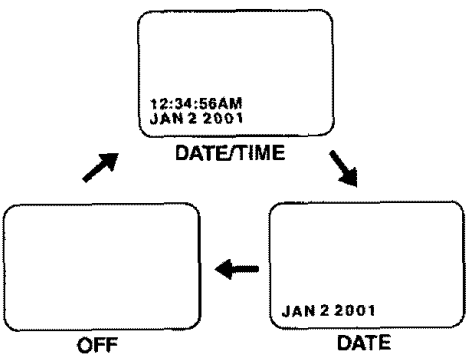
IMPORTANT NOTE:
- Display must be set to ON for MF, AE, W.BALANCE or BACK LIGHT indications to be displayed on the EVF or LCD Panel when selected.
- C.RESET does not work when DISPLAY is set to OFF and T.CODE.



g Volume Display (See page 27.)
The volume bar appears when the volume of the built-in speaker is being adjusted.

h Date and Time Indication
(See pages 16, 18.)

As shown below, the date and time indication changes each time DATE/TIME is selected from the Palmcorder's MENU (see pages 16, 18) or DATE/TIME is pressed on the remote (optional).



i WIND-CUT indication
(See page 15.)

j WARNING indication
(See page 21.)
The warning displays appear in the EVF and the LCD monitor.

k Tape Mode Indications

REC	Recording.
PHOTO	PhotoShot recording.
PAUSE	Paused during recording.
PLAY	Playback.
R ▷	Repeat Playback.
CHK	Recording Check.
FF	Fast forward.
REW	Rewind.
▷▷	FF Search.
◁◁	REW Search.
BLANK	Blank Search.
SEARCH	Index Search.

l Digital EIS Indications
(See page 32.)

m Zoom Magnification Level
(See page 33.)

n Manual Focus Indication
(See page 39.)

o White Balance Indication
(See page 35.)

p PROGRAM-AE Indication
(See page 36.)

q Backlight Indication
(See page 40.)

r Shutter Mode indication
(See page 40.)

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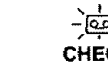
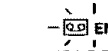
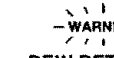
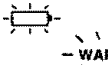
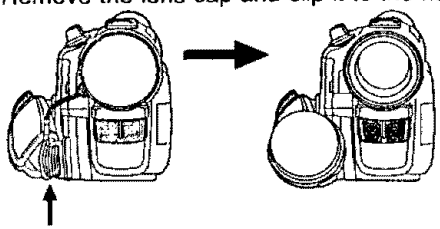
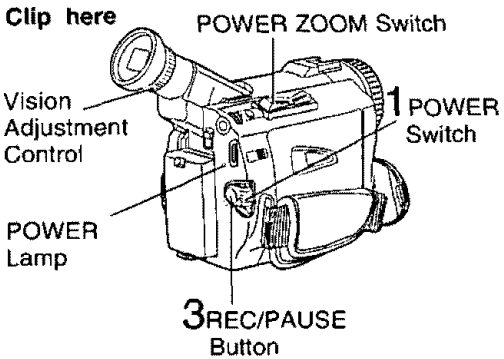
The following warning displays appear in the EVF and the LCD monitor.

Indications	Condition
TAPE NOT INSERTED	If the Palmcorder is in CAMERA mode without a cassette inserted, "📼" will flash and "TAPE NOT INSERTED" will appear for 5 seconds. Recording will not start.
 CHECK REC TAB	If the Palmcorder is in CAMERA mode with the cassette sliding record tab opened, "📼" will flash and "CHECK REC TAB" will appear for 5 seconds. Recording will not start.
CANNOT REC	When Audio dub is performed and the sliding record tab is open, or a blank portion of tape is detected, "📼" will flash and "CANNOT REC" will appear for 5 seconds.
 TAPE END	When the tape is about to end in REC mode, "📼 END" will flash and "TAPE END" will appear for 5 seconds.
INCOMPATIBLE TAPE	When an incompatible tape is detected, "INCOMPATIBLE TAPE" will appear for 5 seconds.
NEED HEAD CLEANING	If the video heads require cleaning, "NEED HEAD CLEANING" will appear for 5 seconds.
REMOTE	When the Palmcorder and remote are not set to the same mode (VCR1 or VCR2), "CHECK REMOTE MODE" appears for 5 seconds. Also appears when the Palmcorder is first turned on.
CANNOT REC LP-MODE	When an AUDIO DUB is attempted on a pre-recorded LP tape, "CANNOT REC LP-MODE" will appear for 5 seconds.
 DEW DETECTED	If excessive moisture condenses in the unit, "WARNING" will flash, "DEW DETECTED" will appear, and the Palmcorder will automatically turn OFF in 15 seconds. In this case, wait until the indicator no longer flashes when your Palmcorder is turned ON again.
 LOW BATTERY	When a battery recharge is necessary, "WARNING" will flash, "LOW BATTERY" will appear, and the Palmcorder will automatically turn OFF in 15 seconds. (See page 19.)
CLOCK BATTERY	When the built-in lithium clock battery is discharged, "CLOCK BATTERY" will appear. To re-charge the lithium clock battery, connect the AC Adaptor to the Palmcorder. Recharging takes approx. 4 hours. Reset the clock after charging.
INCOMPATIBLE DATA	If you play a tape recorded in a format other than NTSC or you try to copy a copy-protected data, "INCOMPATIBLE DATA" will appear.

Simple Recording

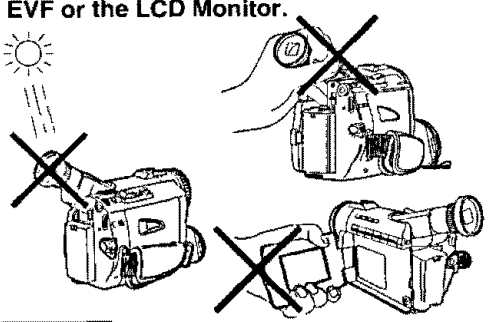
Remove the lens cap and clip it to the hook.





WARNING:

- **Do not leave the Palmcorder with the EVF aimed directly at the sun as this may cause damage to the internal parts of the EVF.**
- **Do not lift or carry the Palmcorder by the EVF or the LCD Monitor.**

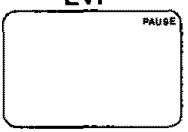


Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Insert a cassette with record tab closed. (See page 6.)

1 **Set POWER to CAMERA.**
- The POWER Lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

EVF



REC/PAUSE mode

2 **With the Viewfinder Eye Cup up to your eye, adjust the Vision Adjustment Control to your eyesight.** (See page 10.)

3 **Press REC/PAUSE** to start recording.
- "REC" is displayed on the screen.

Press REC/PAUSE again to pause recording.
- To reduce microphone wind noise, set the WIND-CUT to ON. (See WIND-CUT on page 15.)

- When the Palmcorder is aimed at excessively bright objects, or bright lights, a vertical bar may appear in the picture. This is a normal characteristic of the CCD pick-up device. Try to avoid this whenever possible.

To conserve power

After 5 minutes, the Record/Pause mode will automatically change to Standby mode. To resume recording, set POWER to OFF and then ON again.

Zoom

You can gradually zoom in for close ups or zoom out for wide angle shots.

Zoom slowly : by lightly pressing the "T" (Telephoto) or the "W" (Wide Angle) side of the POWER ZOOM Switch.

Zoom quickly : by applying more pressure.

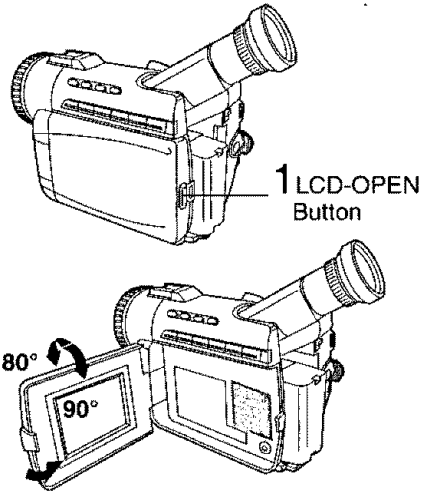
Note

- The zooming speed ranges from a slow 22 seconds to a fast 2 seconds according to the amount of pressure applied to the POWER ZOOM Switch.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Using the LCD Monitor

The LCD (Liquid Crystal Display) monitor can be used while recording.



To adjust the LCD BRIGHTNESS or LCD COLOR

A **Press MENU** to display the main menu screen.

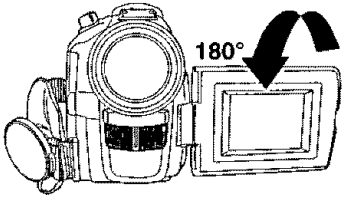
B **Rotate JOG KEY** to select **LCD/EVF SETTING** from the main menu screen. (See pages 16, 18.)

C **Press JOG KEY** to display the LCD/EVF SETTING screen.

D **Press JOG KEY** to select LCD BRIGHTNESS or LCD COLOR, then **rotate JOG KEY** to adjust.

E **Press MENU** twice to exit this mode.

Self Recording



Rotate the LCD monitor 180 degrees so it faces the same direction as the lens to record yourself (CAMERA mode).
The picture in the LCD monitor will appear reversed.
Set SELF-REC to MIRROR (see page 15) in the Camera mode menu screen to see the picture as it is actually being recorded.

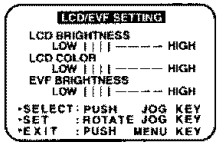
Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Insert a cassette with record tab closed. (See page 6.)

1 **Press LCD-OPEN** to unlock the LCD monitor.

2 **Swing the LCD monitor fully open and adjust the viewing angle.**

- The LCD monitor will automatically turn on.
- When the LCD monitor is completely closed, it will shut off automatically to save power.
- Adjust LCD Brightness and/or color of the LCD monitor if necessary.
- Please refer to "To adjust the LCD BRIGHTNESS or COLOR".



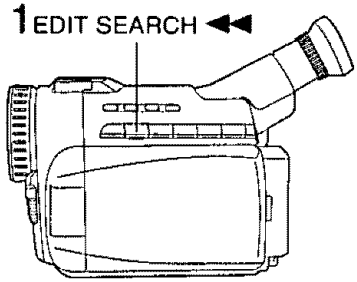
3 **Start recording.** (See page 22.)

Note

- Using the LCD monitor will reduce battery operating time.
- Close the LCD monitor completely when not in use.

Recording Check

To playback the final few seconds of the last recorded scene in the REC/PAUSE mode.



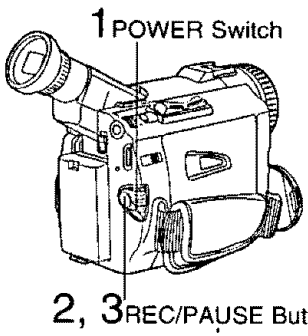
1 **Press EDIT SEARCH ◀◀** briefly in the REC/PAUSE mode.

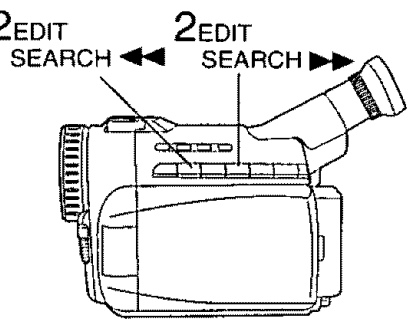
The [CHK] indication appears. After checking, the Palmcorder returns to the REC/PAUSE mode.

- For Recording Check, the Palmcorder must be in the same mode (SP or LP) as was used for recording, otherwise the playback picture is distorted.

Edit Search

You can visually search for scenes in CAMERA mode to maintain proper continuity when taping.





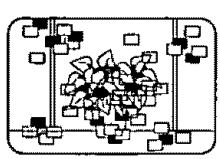
1 **Set POWER to CAMERA.**
- The POWER Lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **In REC/PAUSE mode, hold down EDIT SEARCH ▶▶** to perform a forward visual search or **EDIT SEARCH ◀◀** to perform a reverse visual search. Releasing the button stops the search.

3 **Press REC/PAUSE** to continue recording.

Note

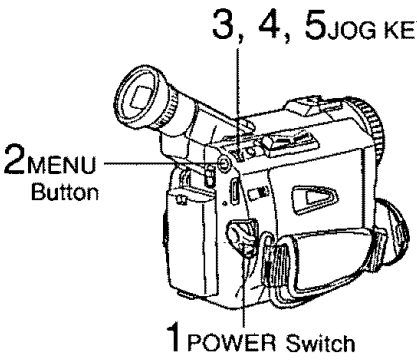
- During Edit Search, the picture will become mosaic in both ◀◀ and ▶▶ search, the sound will be muted in reverse visual search.
- Make sure the SP/LP tape speed setting is the same as the recording to eliminate distortion during edit search.



For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Blank Search

You can go directly to a blank portion of tape and start recording exactly where you left off.



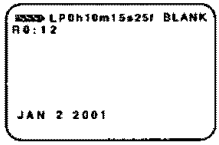
1 **Set the POWER to VCR.**
- The POWER Lamp lights red.
- Be sure POWER is fully turned to VCR position.

2 **Press MENU** to display the VCR mode menu screen.

3 **Rotate JOG KEY** to select **PLAY MODE**, then **press JOG KEY** to display the VCR PLAY MODE menu screen.

4 **Rotate JOG KEY** to select **B.SEARCH** in the VCR PLAY MODE menu. (See page 17.)

5 **Press JOG KEY** to select ON.
- "BLANK" will appear on the screen.

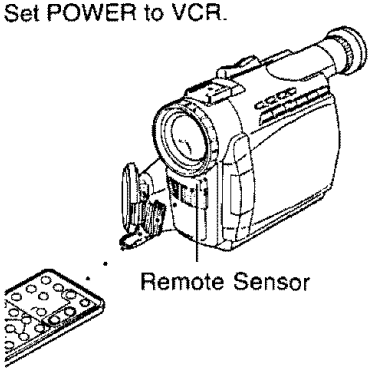


Remote Control (Optional, page 49)

You can operate the major functions of your Palmcorder from up to approximately 16 feet (5 m) away (indoors). Aim the IR Remote Control toward the front of the Palmcorder and press the desired buttons (Remote Sensor is located under the lens).

To operate Camera functions:
Set POWER to CAMERA.

To operate VCR functions:
Set POWER to VCR.



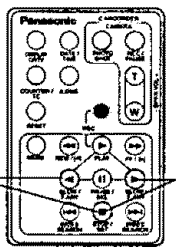
Controlled Functions

Rec/Pause (See page 22.)
Tele (Zoom) (See page 22.)
Wide (Zoom) (See page 22.)
Date/Time (See page 20.)
Reset (See page 42.)
PhotoShot (See page 34.)
Display On TV (See page 31.)
Counter/Time Code (See pages 19.)
Audio Dubbing (See page 41.)
Record (See page 44.)
Menu (See page 14.)
Play (See page 27.)
FF/Search (See page 28.)
REW/Search (See page 28.)
Pause/Select (See pages 14, 28.)
Stop/Set (See pages 14, 27.)
Slow/Frame Advance (Forward) (See pages 28, 29.)
Slow/Frame Advance (Backward) (See pages 28, 29.)
Index Search (Forward) (See page 30.)
Index Search (Backward) (See page 30.)
Speaker Volume (See page 27.)

Remote Controlling Two Palmcorders

You can control any two Panasonic Palmcorders with one Remote control (Optional, page 49). In order for the remote to distinguish between the two units, it is necessary to set one of the Palmcorders to VCR 2. On the remote, press VCR 1 or VCR 2 to control the desired Palmcorder.

Optional



For VCR 2: Press these buttons at the same time.

For VCR 1: Press these buttons at the same time.

Note

- When the Palmcorder and remote are not set to the same mode (VCR1 or VCR2), "CHECK REMOTE MODE (REMOTE)" will appear.

1 **Set the POWER to VCR or CAMERA.**
- The POWER Lamp lights red.
- Be sure POWER is fully turned to VCR or CAMERA position.

2 **Press MENU** to display the VCR or CAMERA mode menu screen.

3 **Rotate JOG KEY** to select **CAMERA SET-UP** in the CAMERA mode menu screen or **VCR PLAY MODE** in the VCR mode menu screen, then **press JOG KEY** to display the CAMERA SET-UP or VCR PLAY MODE menu screen.

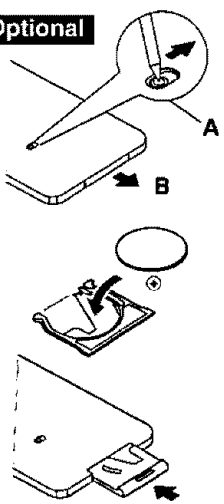
4 **Rotate JOG KEY** to select **REMOTE**, and then press JOG KEY to select VCR 2. (See pages 16, 17.) Leave the other Palmcorder set to VCR1.

5 **Set the Remote Control** (Optional, page 49) to **VCR 1 or VCR 2** to correspond with the Palmcorder you wish to control. (See above left.)

- After replacing the Remote Control Battery, the remote will default to VCR 1.

Replace the Battery

Optional



1 Insert a slender pointed object, such as the tip of a ball-point pen into the slot so that it fits into the hole (as shown **A**). Then, while sliding to the right, pull the Battery Tray out with your fingernail.

2 **Insert the battery** into the Battery Tray with the ⊕ mark facing down.
Do not reverse the polarity.

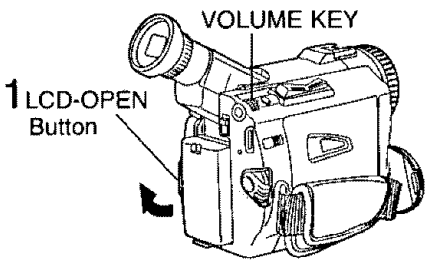
3 **Insert the Battery Tray.**

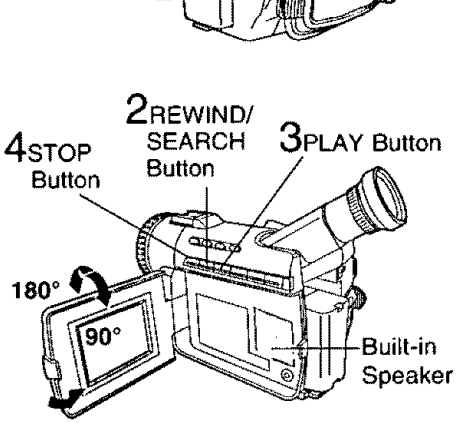
Replace battery with Panasonic PART NO. VSBW0004 (CR2025) only. Use of another battery may present a risk of fire or explosion. Caution: battery may explode if mistreated. Dispose of used battery properly. Keep away from children. Do not recharge, disassemble or dispose of in fire.

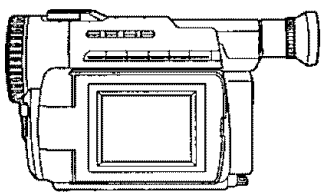
For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Playback using the LCD Monitor

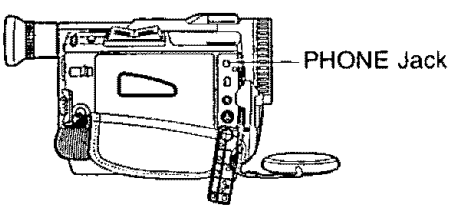
You can also use the LCD monitor to playback your recording.







You can place the Palmcorder on a table, etc. for viewing. Rotate the LCD Monitor 180° and swing it up against the Palmcorder body as shown.



Before you begin

- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Insert a recorded cassette.
- Set POWER to VCR.

1 **Press LCD-OPEN** to unlock the LCD monitor and swing open.

2 **Press REWIND/SEARCH** to rewind the tape.

3 **Press PLAY** to start playback.

To adjust the volume:

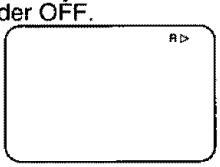
A **Hold down VOLUME KEY** until the volume setting screen appears. (See page 20).

B **Rotate VOLUME KEY** to adjust the volume of the built-in speaker. To remove the volume setting screen, **hold down VOLUME KEY** again.

- Adjust the picture on the LCD monitor if needed. (See page 23.)

4 **Press STOP** to stop playback.

- When the tape reaches its beginning during rewind or rewind search, it will stop automatically.
- If you press PLAY for more than 5 seconds, the Palmcorder will go into Repeat Playback mode when the tape reaches its end. The letter "R ▷" will appear in the EVF and LCD monitor.
  To exit the Repeat Playback mode, turn the Palmcorder OFF.



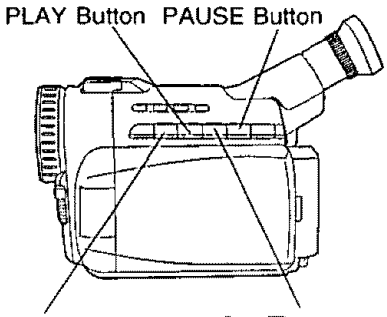
Note

- When a tape recorded in LP mode on another digital video camera is played back on this unit, the picture may appear mosaic.
- Using the LCD monitor reduces battery operating time.
- You can connect earphones (not supplied) to the PHONE Jack.

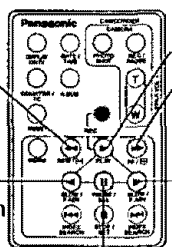
Special Effect Features During Playback

Note

- Sound is muted during all special effects.



Optional



Rapid Visual Search

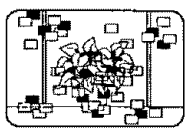
A During playback, **hold down FAST FORWARD/SEARCH** or **REWIND/ SEARCH.**
The search will continue for as long as the button is held down.

OR

B **Press FAST FORWARD/SEARCH or REWIND/SEARCH** once for a continuous rapid visual search.
Press PLAY to release.

Note

- When executing a rapid visual search, the picture may become bluish for an instant or mosaic. This is normal during this mode.



STILL Picture

Press PAUSE during playback.
Press PLAY or PAUSE to release.

Note

- To protect the tape and video heads, your Palmcorder's operating modes will revert as follows:
STILL ⟶ STOP (after 3 minutes.)

Fast Forward/Rewind Check

Monitor normal picture playback during fast forward or rewind.

- **Hold down FAST FORWARD/SEARCH** during fast forward.
- **Hold down REWIND/SEARCH** during rewind.
- The picture will appear for as long as the button is held down.

Slow Motion Playback

Optional Remote Control Only
(See page 49)

Forward Slow = **Press |▶ SLOW/F.ADV** during play.
Reverse Slow = **Press ◀| SLOW/F.ADV** during play.
Press PLAY to release. (During reverse slow motion playback, time code indication may not change regularly.)

Note

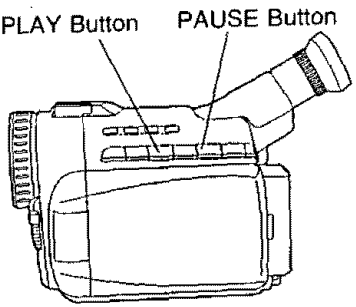
- Palmcorder will automatically STOP when in slow motion for more than 10 minutes.
- During slow motion playback, picture may move up and down. This is normal.
- When you start or stop slow motion playback, the picture may become bluish for an instant.

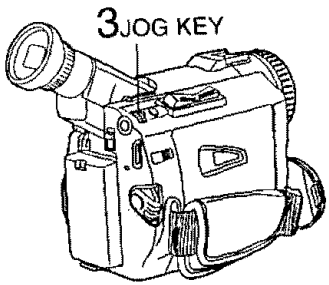
For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Special Effect Features During Playback (Continued)

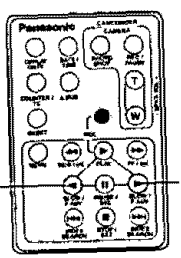
Note

- Sound is muted during all special effects.





Optional



Variable Speed Search

1 **Press PLAY** to start playback.

2 **Press PLAY again.**

3 **Rotate JOG KEY** to adjust the playback speed.

- Rotate JOG KEY downward for forward playback.
- Rotate JOG KEY upward for reverse playback.

To return to normal playback:
Press PLAY. Playback will continue at normal speed.

Note

- The Variable Speed Search function offers a choice of six playback speeds (1/5X, 1X, 2X, 5X, 10X, 20X) both in forward and reverse directions.
- The review playback at the 1X speed is playback in reverse direction.
- During the Variable Speed Search (at a speed other than 1X), mosaic-like patterns will appear in the picture.
- During the Variable Speed Search, sound is muted.

Jog Frame by Frame Search

(Palmcorder only)
During Still mode, **rotate JOG KEY** to advance or reverse the picture one frame at a time.

Frame by Frame Advance

Optional Remote Control Only
(See page 49)

Press PAUSE during playback.

Press |▶ SLOW/F.ADV to do a frame by frame advance.
Press ◀| SLOW/F.ADV to do a frame by frame reverse.

Press PLAY to release.

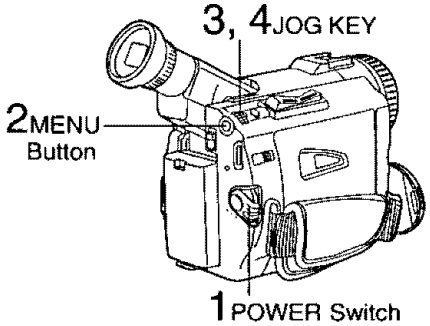
Note

- If you hold down SLOW/F.ADV, you can see a continuous series of still images at a slower speed than normal slow mode.
- During frame by frame advance, a few frames may move automatically, and the picture may become bluish for an instant.

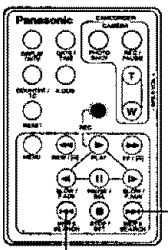
Special Effect Features During Playback (Continued)

Note

- Sound is muted during all special effects.



Optional



Top Scan

If you hold down INDEX SEARCH more than 2 seconds, the Palmcorder will scan for scenes (or PhotoShots) and playback the first few seconds of each.

To cancel this function, press PLAY or STOP.

Note

- Search will not work if there is a succession of PhotoShots.

Index Forward/Reverse Search

Optional Remote Control Only
(See page 49)

Search for a particular scene by using the electronic index marks placed at the beginning of each recording.

1 **Set the POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.

2 **Press MENU** to display the VCR mode menu screen.

3 **Rotate JOG KEY** to select **PLAY MODE**, then **press JOG KEY** to display the VCR PLAY MODE menu screen.

4 **Rotate JOG KEY** to select **INDEX**, and then **press JOG KEY** to select PHOTO or SCENE. (See page 17.)

A **Place the Palmcorder in the VCR STOP mode.**

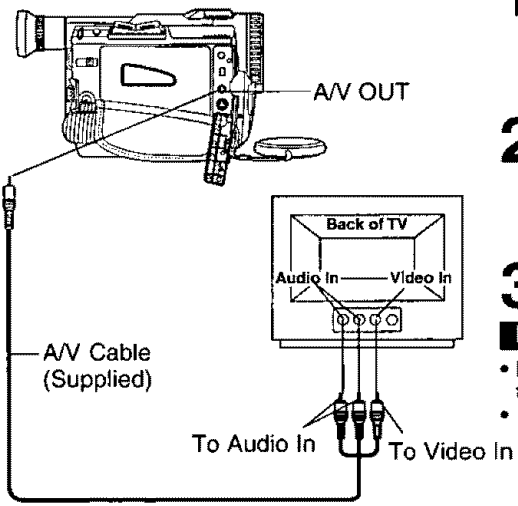
B **Press INDEX SEARCH fast forward or rewind** the number of recordings (indexes) forward or back you want to view. The Palmcorder will advance or rewind to the desired recording and automatically start playback.

- The number of times you pressed the button is displayed in the EVF and the LCD monitor if you set INDEX on the VCR menu to SCENE. (See page 17.)
  (Ex., if you press the button three times, "S3" will appear.)
- If the interval between scenes is less than 1 minute, index search may not operate properly.
- Response time from pressing the button and change in the scene number is quite slow. Do not press INDEX SEARCH rapidly and continuously.
- During Reverse Index Search mode, playback will not begin when a tape rewinds all the way to the beginning.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

View Recording/Playback on your TV

[TV with AUDIO/VIDEO IN Jacks]



1 Set POWER to CAMERA or VCR.
To view what the Palmcorder is recording or to playback a tape on your TV.

2 Turn your TV ON and set it to LINE INPUT or S-VIDEO.
Check your TV operating instructions for further information.

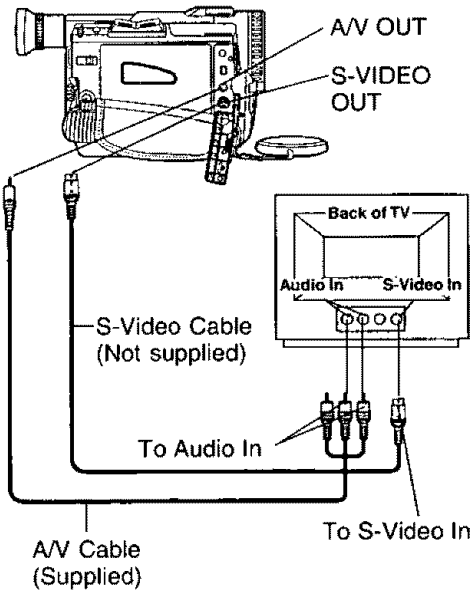
3 Start playback or begin a recording.

Note

- Make sure the Palmcorder and TV are turned off while connecting.
- Please connect the A/V cable securely.

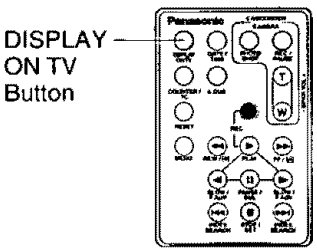
[TV with S-VIDEO IN Jacks]

For best Chrominance and Luminance, use the S-Video connection if available on your TV.



Optional Remote Control Only (See page 49)

You can display the various EVF and LCD indications on your TV by pressing DISPLAY ON TV on remote control. Press again to remove the indications.



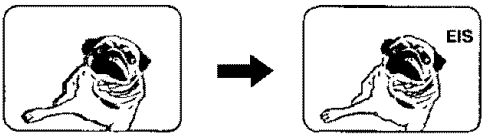
Optional

CATV System Installer

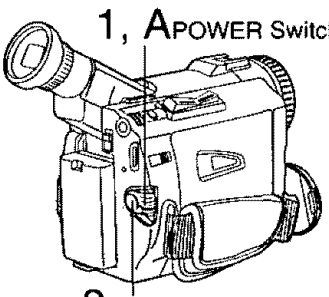
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

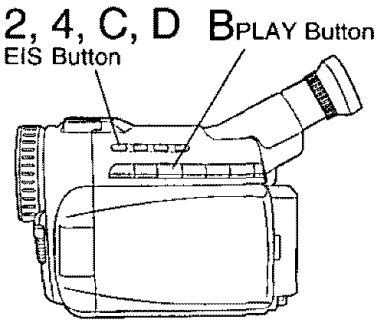
Dual Digital Electronic Image Stabilization System (D.E.I.S)

This feature helps compensate for any unintentional hand or body movement. It can be used in both the Recording and Playback (VCR) modes.



NORMAL EIS ON





Note

- Other Digital Functions are turned off automatically when the EIS and Digital Zoom are selected.

CAMERA mode

1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press EIS** to stabilize the picture.
- Picture flicker may be observed when taping under fluorescent lighting conditions.
- The EIS indicator flashes when the light level is inadequate.
- Turn D.E.I.S. OFF during recording when using a tripod.

3 **Press REC/PAUSE** to start recording.

4 **Press EIS** again to cancel.
- Be sure that D.E.I.S. is turned off when not needed.

D.E.I.S. may not function when...

- Palmcorder movement is too extreme.
- Recording a subject with distinct horizontal or vertical stripes.
- Recording in low light situations.
- Recording a subject under a great amount of fluorescent light.
- Recording a scene with very fast motions.

VCR mode

A **Set POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.

B **Press PLAY** to start playback.

C **Press EIS** to stabilize the picture.

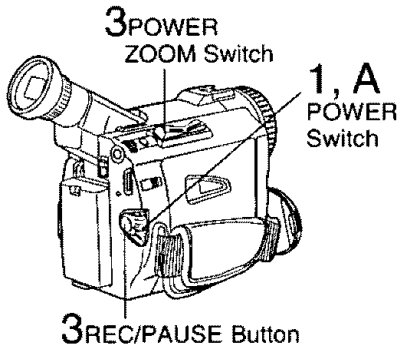
D **Press EIS** again to cancel.
- Be sure that D.E.I.S. is turned off when not needed.

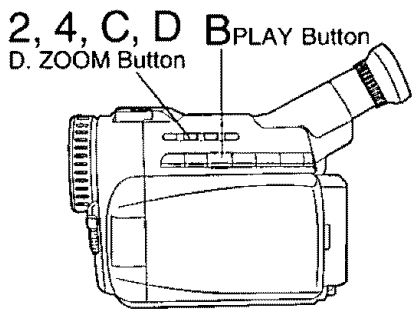
Note

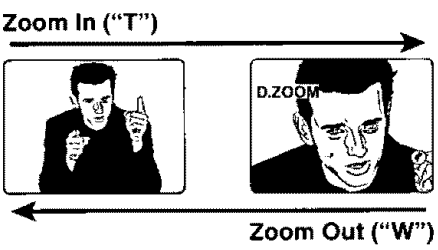
- When using D.E.I.S in VCR mode, the image size is slightly larger.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Digital Zoom







Note

- Other Digital Functions are turned off automatically when the EIS and Digital Zoom are selected.

CAMERA mode

1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press D. ZOOM** to select D.ZOOM1 or D.ZOOM2.
once : D.ZOOM1 (from 20X to 40X)
twice : D.ZOOM2 (from 20X to 300X)
three times : Turn off D.ZOOM

3 **Press REC/PAUSE** to start recording and press **POWER ZOOM** to zoom in or zoom out.
- The magnification level is always displayed in the EVF or the LCD monitor when DISPLAY is set to ON. (See pages 16, 18.)

4 **Press D.ZOOM** to turn off Digital Zoom so that no indication appears.

Note

- The normal optical zoom functions from 1X to 20X.
- Because the image is enlarged digitally, the picture may become distorted when higher magnification levels are used.
- When the level falls below 20X, the normal zooming function will resume.
- Focus distance becomes 4 feet (1.2 m) if the lens is in full telephoto.

VCR mode

A **Set POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.

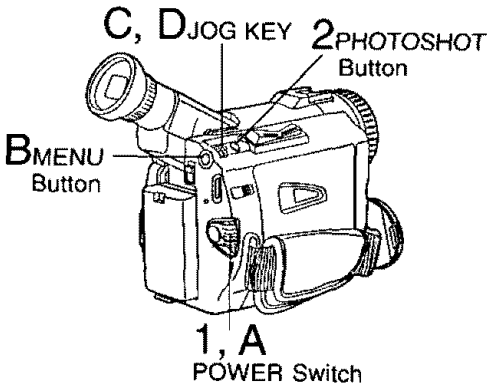
B **Press PLAY** to start playback.

C **Press D.ZOOM.**
- The center portion of the image doubles in size.

D **Press D.ZOOM** again for normal image size.

Digital PhotoShot

Use this feature to record a seven second (approx.) still image from the current camera picture. Audio is also recorded for on-the-spot narration. Or, you can add narration later with the Audio Dubbing *feature to make an interesting slide show,* etc. (See page 41.)



1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

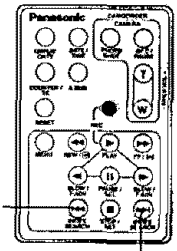
2 **Press PHOTOSHOT** in Record/Pause mode. "PHOTO" will appear in the EVF or the LCD monitor.

- If SHUTTER on the menu screen is set to ON, a sound effect similar to the shutter of a film camera will be heard when PHOTOSHOT is pressed.
- When PHOTOSHOT is pressed, the playback image takes approx. 7 seconds to process. After that, the Camera mode screen will be displayed.

Index Search (Photo/Scene)

Optional Remote Control Only
(See page 49)

Optional



Note
- The picture quality will deteriorate slightly.
- The tape remaining indicator will not appear while the PHOTOSHOT feature is used.
- In the Photo/Scene Index Search mode, the shutter sound effect may not be able to be heard even when SHUTTER is set to ON.
- Photo Index Search may fail to detect a recorded PhotoShot image if the image is 3 seconds or less.

A **Set POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.

B **Press MENU** to display the VCR mode menu screen.

C **Rotate JOG KEY** to select **PLAY MODE**, and **press JOG KEY** to display the VCR PLAY MODE menu screen.

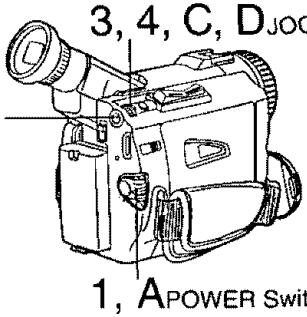
D **Rotate JOG KEY** to select **INDEX**, and **press JOG KEY** to select PHOTO or SCENE.
- Press MENU twice to exit.

E **Press INDEX SEARCH fast forward or rewind** on the remote control (Optional, see page 49) to advance or rewind the tape to playback a PhotoShot scene. To view the next PhotoShot, INDEX SEARCH must be pressed again.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

White Balance

Auto White Balance automatically maintains optimum color balance in most lighting conditions. However, when using Digital Functions, etc., you may get better results using the manual adjustment.



1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press MENU** to display the menu screen.

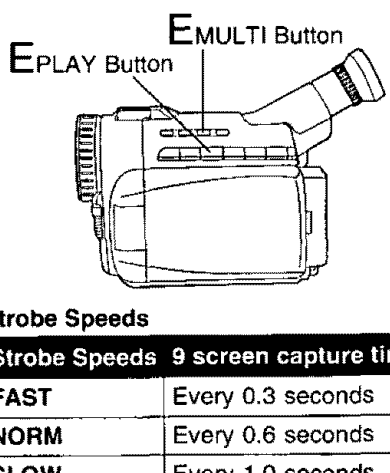
3 **Rotate JOG KEY** to select **ADJUST**, and then **press JOG KEY** to display the CAMERA ADJUST menu screen.

4 **Rotate JOG KEY** to select **W.BALANCE**, and then **press JOG KEY repeatedly** to select AUTO, Indoor halogen lamp "☼", or Outdoors "☼".

☼ : When the source illumination is a halogen lamp.
☼ : When shooting outdoors on a sunny day.
AUTO : Automatically maintains optimum color balance in most lighting conditions.

Strobe Multi Mode

In Strobe Multi Mode, you can select the rate at which a succession of still screens are captured from the playback picture.



Strobe Speeds

Strobe Speeds	9 screen capture time
FAST	Every 0.3 seconds
NORM	Every 0.6 seconds
SLOW	Every 1.0 seconds

Note

- A Multi Image Playback screen cannot be output from the DV terminal or Digital Still Image terminal.
- A Multi screen will have slightly lower image quality.

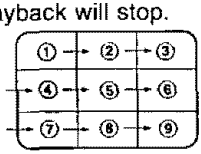
A **Set POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.

B **Press MENU** to display the menu screen.

C **Rotate and press JOG KEY** to select and set **MULTI SETTING**.

D **Press JOG KEY** to select **SPEED**, then press repeatedly to set desired speed.
- **Press MENU twice** to exit.

E **Press PLAY** to start playback. **Press MULTI** at the point you want to start capturing.
- A succession of 9 screens will be captured, and playback will stop.

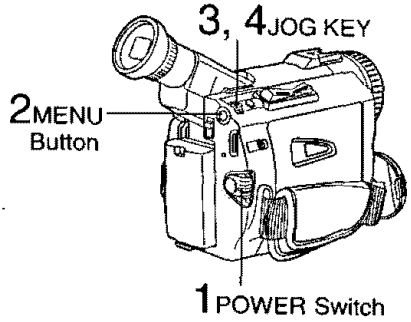


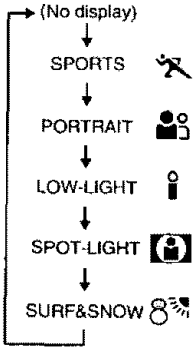
- **Press MULTI** to return to the normal STILL screen.
  Press PLAY to start playback.
  Press STOP to stop playback.

Special Features

Program AE

The Auto Exposure feature can be used to make quality recordings in a variety of scene situations.





1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press MENU** to display the menu screen.

3 **Rotate JOG KEY** to select **ADJUST**, and then **press JOG KEY** to display the CAMERA ADJUST menu screen.

4 **Rotate JOG KEY** to select **PROG.AE**, then **press JOG KEY repeatedly** to select one of the five modes shown below.

5 **Repeat steps 2–4** to select OFF to cancel this feature.

Mode	Indication
	For recording fast action scenes.
	For recording only subjects in the foreground, while ignoring subjects in the background.
	For recording in extreme low light conditions.
	Recording in situations where subjects are under a spotlight(s).
	For recording in locations with a high degree of "Dazzle," such as snow slopes and the seashore.

Note

SPORTS mode
- The recorded images will not be so blurred when they are viewed later using slow or still picture playback.
- When playing back a sports mode recording, the movement may appear slightly jerky.
- Do not use this mode when recording under fluorescent, mercury, or sodium lighting. These types of lights will affect the color and brightness of the images.
- A vertical band of light might appear when recording objects that are brightly illuminated or which are highly reflective.
- If the amount of light is insufficient, the SPORTS "" indicator will flash in the EVF or the LCD monitor.
- The image may flicker if this mode is used indoors.

PORTRAIT mode
- The image may flicker if this mode is used indoors.

LOW-LIGHT mode
- Scenes recorded in extremely low light levels may not come out properly.

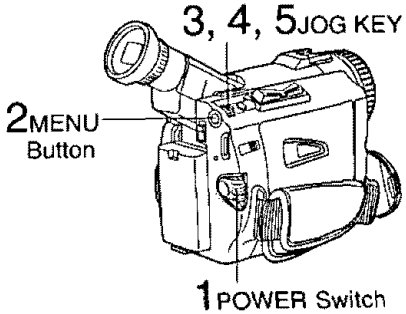
SPOT-LIGHT mode
- If the recorded subject is extremely bright, the picture may appear whitish.

SURF&SNOW mode
- If the recorded subject is extremely bright, the picture may appear whitish.
- It is not possible to select the SPORTS mode or PORTRAIT mode together with the GAIN UP in the Digital function camera menu.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Other Digital Functions

Use the following features to add interest and professionalism to your recordings or playback. Select from twelve special effects.



Types of Digital Functions

- **MIRROR**
  Symmetrical image from the current camera picture.
- **STROBE**
  The recording appears as a sequence of still frames.
- **MOSAIC**
  The picture appears in a mosaic pattern.
- **SLIM**
  The picture is expanded vertically.
- **TRAIL**
  The subject being recorded creates a trail when in motion.
- **STRETCH**
  The picture is expanded horizontally.
- **GAIN UP** (Not available during playback)
  Picture sensitivity is increased.
  • Only Manual Focus is available.
- **WIPE**
  Successive scenes are separated in a way which simulates the drawing of a curtain.
- **MIX**
  The current scene is mixed in with the following scene during scene changes.
- **PinP**
  PinP (Still image) is displayed on the Main Picture.
- **SEPIA** (Only available during playback)
  The picture is played back in sepia, a brownish color, giving it an antique look.
- **MONO (Monotone)** (Only available during playback)
  The picture is played back in black-and-white.

1 **Set POWER to CAMERA or VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA or VCR position.

2 **Press MENU** to display the menu screen.

3 **Rotate JOG KEY** to select **D.FUNCTION** in the CAMERA mode menu screen or **PLAY FUNCTION** in the VCR mode menu screen, then press **JOG KEY** to display the CAMERA FUNCTION or VCR PLAY FUNCTION menu screen.

4 **Rotate JOG KEY** to select **D.FUNCTION**, and then **press JOG KEY repeatedly** to select one of the Digital Functions listed on the left.

5 To cancel the Digital Function, **press JOG KEY repeatedly** to select OFF.

Note

- **The EIS and Digital Zoom features are turned off automatically when one of the Digital Functions listed at left is selected.**

To use the WIPE function

a. In Camera mode, set the "D.FUNCTION" item in the main menu screen to "WIPE". (See page 15.)
b. Press REC/PAUSE to start recording.
c. Press REC/PAUSE to pause recording. The last scene will be memorized.
d. Press REC/PAUSE to start recording again. The new scene will take the place of the memorized scene.

To use the MIX function

a. In Camera mode, set the "D.FUNCTION" item in the main menu screen to "MIX". (See page 15.) Then, perform steps b-d above.

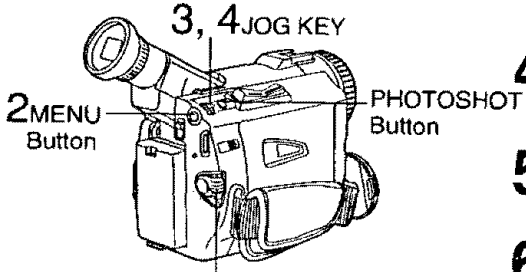
The memorized scene and the new scene will appear mixed as the scene changes from one to the other.

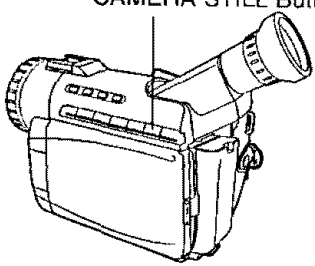
Picture in Picture (PinP)

You can display a PinP (still image) screen on the Main Picture.

Note

- *PinP* position is fixed at the bottom right of the screen.





Before you begin

- *Connect the Palmcorder to a power source. (See pages 11, 12.)*

1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press MENU** to display the menu screen.

3 **Rotate JOG KEY** to select **D.FUNCTION**, then **press JOG KEY** to display the CAMERA FUNCTION menu screen.

4 **Press JOG KEY repeatedly** to select **PinP**.
- **Press MENU twice** to exit this menu.

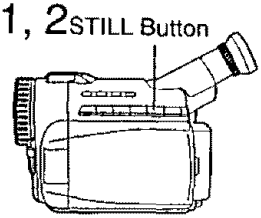
5 Aim at the scene you wish to place as PinP, then **press CAMERA STILL** to freeze the image.

6 **Press CAMERA STILL again** to place the frozen image as PinP.

7 **Press REC/PAUSE** to record a scene with PinP image.
- **Press PHOTOSHOT** to record a scene with PinP image in PhotoShot mode.
- **Press CAMERA STILL again** to remove PinP image.

Recording Still Pictures

You can record still pictures of any desired duration together with sound.



1 While in RECORD mode, **press STILL and hold for 2 seconds** to capture a still picture. The captured still picture will be recorded together with sound.

2 **Press STILL once again** to release the still picture. The camera will resume recording real-time pictures.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

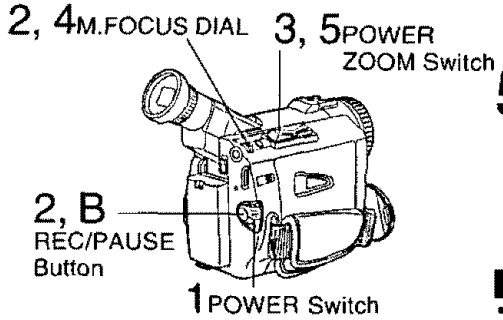
Auto Focus

The Palmcorder automatically adjusts the focus over the entire zoom range.

Manual Focus

Use Manual Focus (MF) when recording ...

- a subject through glass.
- a scene where the subject is far from the Palmcorder and there are objects in the foreground.
- a subject with distinct horizontal stripes.
- a subject not centered in the Viewfinder.
- subjects with shiny surfaces.
- an obliquely angled subject.
- a bright, flat subject such as a white wall.
- in low light situations.
- a scene with fast motions, like a golf swing. **Re-focusing may be required**
- when your Palmcorder is aimed at a new scene.



1 **Set POWER to CAMERA.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to CAMERA position.

2 **Press M.FOCUS DIAL** so that "MF" (Manual Focus) appears in the EVF or the LCD monitor.

3 **Press and hold POWER ZOOM "T" side (Telephoto)** until the lens is at maximum zoom in.

4 **Turn M.FOCUS DIAL** until the picture is in focus.
- *It may be necessary to back away from the subject to focus the image properly.*

5 **Press POWER ZOOM to "W" or "T" as desired.**
- The subject will remain in focus over the entire zooming range.
- It may be necessary to back away from the subject to focus the image properly.

Note

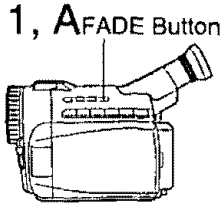
- DISPLAY must be set to ON for MF, AE, W.BALANCE, or BACK LIGHT to be displayed on the LCD or EVF.

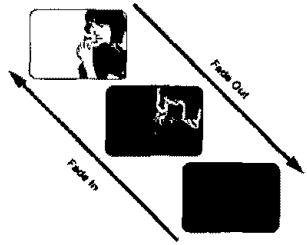
Macro Focus (for close-ups)

Press the "W" side of POWER ZOOM to the maximum wide angle position.
Auto Focus will function with the subject as close as 1 inch (25 mm) in front of the lens.

Audio/Video Fade In/Out

You can make smoother scene transitions for a more professional look.





Fade In

Starting the first scene with " fade in" is very effective.

1 **In REC/PAUSE mode, hold down FADE** until the picture fades out.

2 **Press REC/PAUSE** to start recording.

3 **Release FADE** and the picture will gradually fade in.

Fade Out

Use to create a soft ending or (together with fade in) for a soft transition from one scene to the next.

A **During recording, hold down FADE** until the picture fades out.

B **Press REC/PAUSE** to pause the recording.

High Speed Shutter

To record high speed motion (e.g. tennis stroke) for improved STILL or SLOW MOTION playback when watching the tape on this Camcorder.

Before you begin

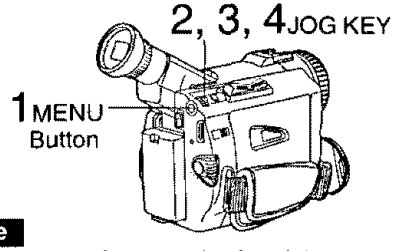
- Connect the Palmcorder to a power source. (See pages 11, 12.)
- Set POWER Switch to CAMERA.
- Insert a cassette with record tab. (See page 6.)

Auto Shutter

In the AUTO mode (no indication in the EVF and LCD monitor), the Palmcorder will automatically adjust the shutter speed (up to 1/350).

- AUTO mode is automatically selected whenever the POWER Switch is set to CAMERA.

Manual Selection



Note

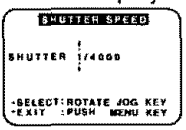
- For proper color reproduction, it is recommended that you use this feature outdoors. For indoor High Speed Shutter recording, additional halogen or tungsten light should be provided. Fluorescent light will degrade the picture quality.
- This feature requires ample light. More light is required for the fastest shutter speeds.
- The Auto Focus system may not operate properly in insufficient light when using the High Speed Shutter.
- When PROG.AE is ON, you cannot manually select the shutter speed.

1 **Press MENU** to display the Camera mode menu in the EVF or the LCD monitor.

2 **Rotate and press JOG KEY** to select **ADJUST**, **then rotate and press JOG KEY** to select **H.S.S.**.

3 **Press JOG KEY** to select **SET**.

- SHUTTER SPEED menu is displayed.



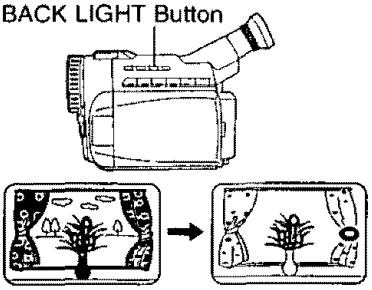
4 **Rotate JOG KEY** to choose one of the following shutter speeds.

1/100 ⟷ 1/60 ⟷ AUTO ⟷ 1/8000 ⟷ 1/4000
1/250 ⟷ 1/500 ⟷ 1/1000 ⟷ 1/2000

- Press MENU three times to exit.

Backlight

Use when recording a subject that is darker than the surrounding scene, in a shadowed area, or when the light source is in back of your subject.



EVF or LCD monitor indication

Press BACK LIGHT in Record mode to activate the Backlight feature. The Indicator "○" will appear in the EVF or LCD monitor.

Press BACK LIGHT again to cancel the Backlight feature.

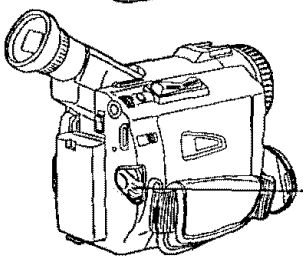
Note

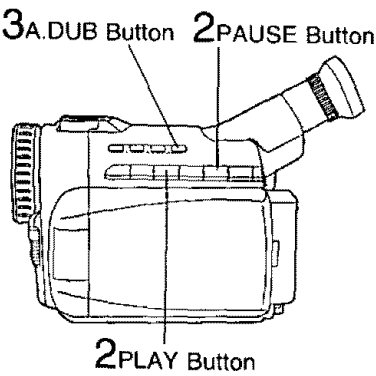
- The Indicator "○" will not appear in the EVF or LCD monitor when OFF is selected in the DISPLAY menu.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

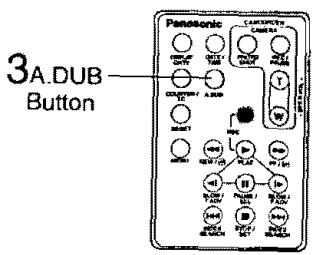
Audio Dubbing using the Built-in Microphone

The original sound can be replaced with new sound using the built-in Palmcorder microphone.





Optional



Before you begin

- Turn on the Palmcorder.
- Insert a pre-recorded tape to be dubbed.

The AUDIO-REC setting in CAMERA MENU mode should be as follows:

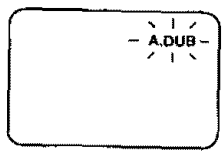
12 bit	The original sound is recorded on ST (Stereo) 1, and the new sound will be recorded on ST (Stereo) 2.
16 bit	The original sound is replaced with the new sound.

- Select 12 bit if you do not want the original sound to be completely replaced during an audio dub.
- If you dub over a tape which has both 12 bit and 16 bit audio recordings on it, keep in mind that the original 16 bit audio portion will be completely replaced.

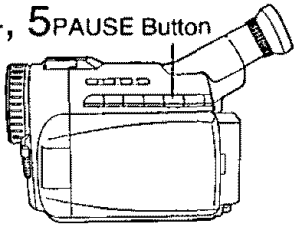
1 **Set POWER to VCR.**
- The POWER lamp lights red.
- Be sure POWER is fully turned to VCR position.
- If you have the Optional Remote Control, you can set the Palmcorder to stop automatically at a specified point on the tape. See "Memory-Stop Editing" on page 42.

2 **Press PLAY.**
Then press PAUSE where you want dubbing to begin.

3 **Press A.DUB** on this unit (for three seconds) or on the remote control (optional, see page 49) to put the Palmcorder in the Audio Dub mode.
- "A.DUB" flashes in the EVF or the LCD monitor.



EVF/LCD Indication



To listen to the desired audio sound, set the AUDIO setting of the VCR mode MENU (see page 17) as follows:

AUDIO: The following selections are available for 12 bit AUDIO dubbed recordings only (sound recorded in SP mode only).

ST 1	Set this position to listen to the original sound.
ST 2	Set this position to listen to the audio dubbed sound.
MIX	Set this position to listen to both the original sound and the audio dubbed sound.

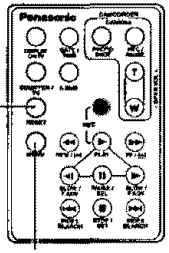
Note

- 16 bit dubbed sound completely erases the original 16 bit recorded sound.
- If you dubbed using 12 bit AUDIO recording and then selected AUDIO-MIX in the menu for playback, the sound will be stereo regardless of the AUDIO-OUT setting.
- If you recorded in LP mode, you cannot use the A.DUB feature.

Memory-Stop Editing (Optional Remote Control Only, see page 49)

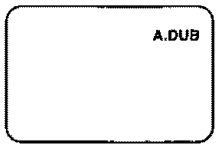
You can set an automatic Dubbing stop point.

Optional



4 **Press PAUSE** to start Audio Dubbing.

- Connect the Palmcorder to the TV in order to monitor the sound. (See page 31.)



Only NTSC (National Television Standards Committee) recorded tapes can be audio dubbed. The following screen appears if the tape was not recorded in NTSC format.

5 **Press PAUSE** to stop Audio Dubbing.

- If the microphone used for dubbing gets too near the speaker of your TV, a howling noise (feedback) may occur.
- If the tape position is in or was started in a blank section, you cannot use the A.DUB feature.

A **Press MENU** to display the VCR menu screen.

B **Rotate JOG KEY** to select **DISPLAY SETTING**, and then **press JOG KEY** to display the DISPLAY SETTING menu.

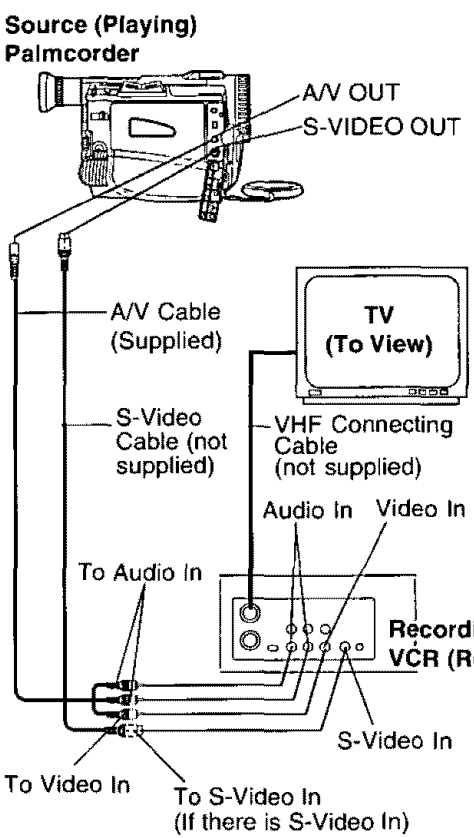
C **Rotate JOG KEY** to select **DISPLAY**, and then **press JOG KEY** to set to MEMORY.

D **Press MENU two times** to exit MENU mode. Then, **press RESET on the remote control** to reset the Counter Memory to M 0:00:00.

Now, rewind to the editing start point, and continue with steps 2-5. The tape will now stop automatically at "M 0:00:00".

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Copying your Tapes to S-VHS or VHS Cassette



Monitor with your TV

- Turn the TV ON and select its VCR channel (either CH3 or CH4).
- Set the VCR/TV Selector on the recording VCR to VCR.

Before you begin

- Connect both Palmcorder and VCR to their power sources.
- Connect the Palmcorder to a VCR as illustrated left.
- Turn ON both units.
- **Set the recording VCR's Input Signal Selector to LINE.**
- Set the Palmcorder POWER Switch to VCR.

1 **Insert a pre-recorded tape** into the source (playing) Palmcorder and a blank tape, with record tab in place, into the target VCR (Recorder).

2 **Press PLAY** on the Palmcorder. When the tape reaches the point you want to start dubbing, **press PAUSE**.

3 **Place the VCR into REC/PAUSE mode.** (See VCR manual.)

4 **Simultaneously, press PAUSE** on both units to begin copying.

5 **Press STOP on both units** when copying is completed.

Note

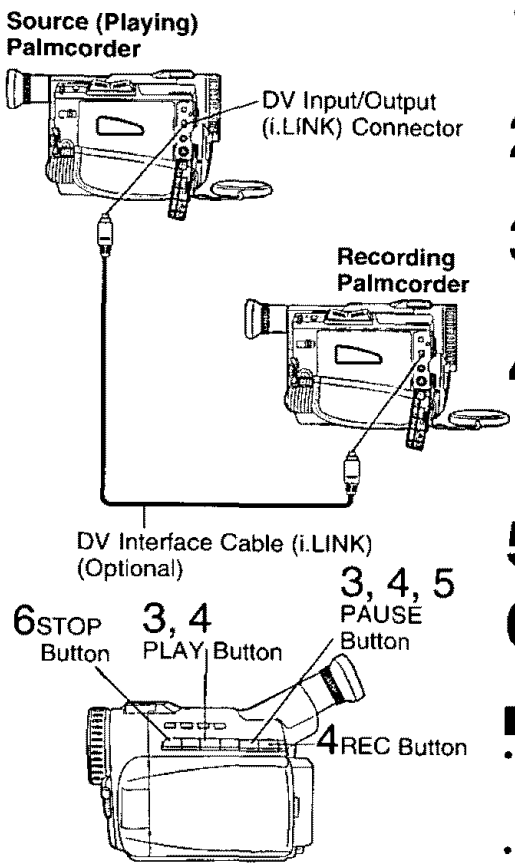
- For technical reasons, dubbing a tape may reduce its quality.
- Press DISPLAY ON TV on the Palmcorder remote control (optional, page 49) to eliminate EVF/LCD Monitor indications.
- If the Time Code is displayed in the EVF or LCD monitor, it cannot be reset.
- Only the DATE/TIME, when displayed, wil be recorded on the tape.

CAUTION:

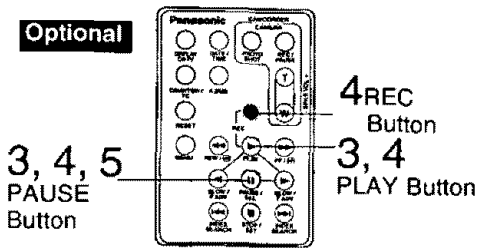
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

Copying from Digital Equipment (dubbing)

High quality digital-to-digital copying can be accomplished if both Palmcorders *incorporate the DV Input/Output* (i.LINK) Connector (DV interface cable (i.LINK) is not supplied).



Optional



Before you begin

- Connect both Palmcorders to their power sources.
- Connect the two Palmcorders using the DV interface cable (i.LINK) (4-pin to 4-pin).
- Turn both Palmcorders ON.

1 **Insert a pre-recorded tape** into the source (playing) Palmcorder, **and set POWER to VCR.**

2 **Insert a blank tape with the record tab** closed into the target (recording) Palmcorder **and set POWER to VCR.**

3 **Press PLAY** on the source Palmcorder. When the tape reaches the point you want to start dubbing, **press PAUSE.**

4 **Hold down REC and press PLAY** on the target (recording) Palmcorder or on the remote control (optional, see page 49).
Press PAUSE to pause the tape at the starting point of the dub.

5 **Simultaneously, press PAUSE** on both units to begin dubbing.

6 **Press STOP** on the recording unit, and then **press STOP** on the playing unit to end dubbing.

Note

- When two Palmcorders are used for dubbing, it is recommended that the remote control VCR1 or VCR2 setting be used to avoid improper operation.
- When two Palmcorders are connected using the DV interface cable (i.LINK) (not supplied), a Video Editing Controller cannot be used.
- Do not connect both an S-Video Cable or A/V Cable and a DV Interface Cable (i.LINK).

CAUTION:
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

PC Connection with DV Interface Cable (i.LINK)

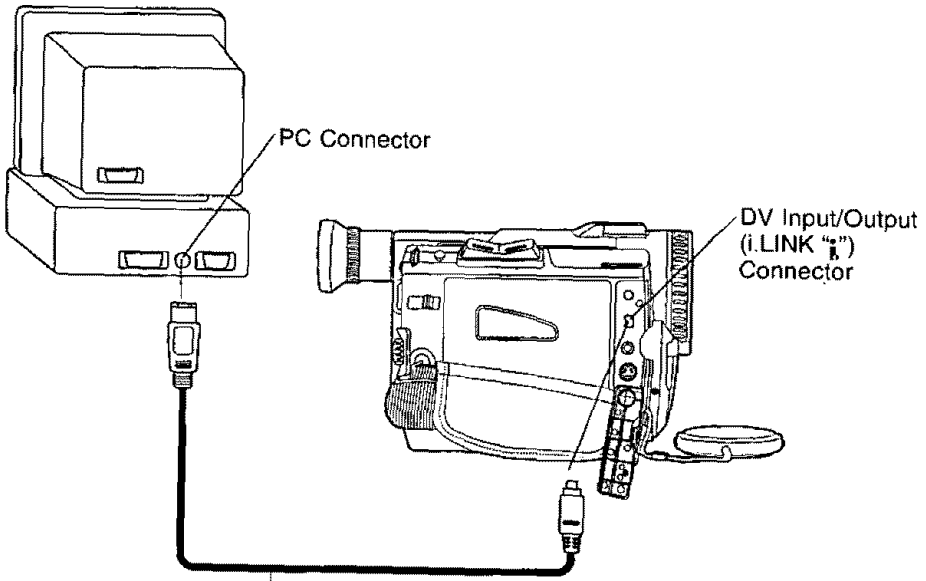
A live image can be transferred directly to your PC (Personal Computer) via a DV Interface Cable (i.LINK) (not supplied) using products and software from a number of editing software companies including Digital Origin, Canopus, and Pinnacle.

Using Products form these companies allows you to capture and edit live images onto your PC using the DV interface (i.LINK).

Note:

For more detailed information regarding editing software products from these companies, please visit their websites at:

www.digitalorigin.com
www.justedit.com
www.pinnaclesys.com



Note

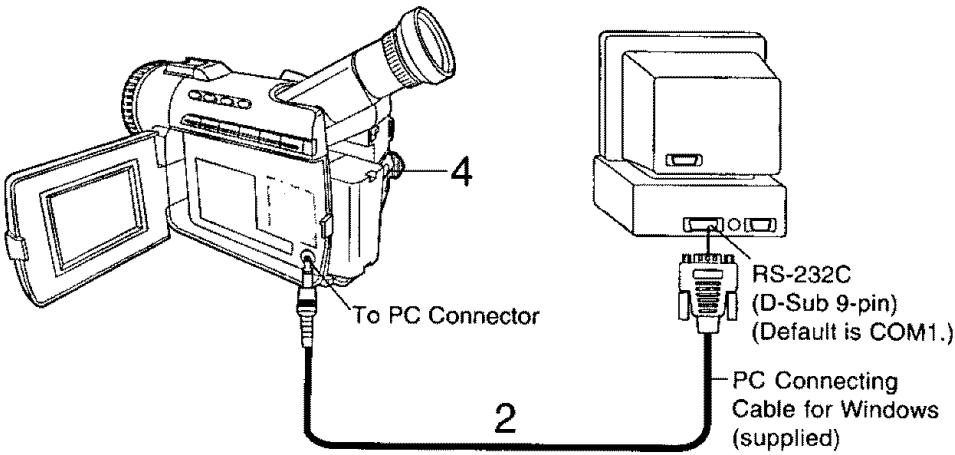
- During Palmcorder playback, do not disconnect the DV Interface Cable (i.LINK) or turn the Palmcorder off as this may cause PC hang-up error to occur.

PHOTOVU Link Driver

An image recorded on the DV Tape can be transferred to your PC (Personal Computer).

System Requirements for PHOTOVU LINK Driver

- IBM PC/AT or compatible
- Intel® Pentium® Processor
- Microsoft Windows® 95/98/Me/2000
- RAM: 16 MB or more
- 2 MB minimum available hard disk space
- 256 color monitor (full color recommended)
- 3.5 inch 1.44 MB floppy disk drive (for installation)
- RS-232C serial port (D-Sub 9-pin) An adaptor (D-Sub 9-pin male to a D-Sub female) is required for a D-Sub 25-pin
- Mouse or other pointing device



Connection

1 **Turn off your PC.**

2 **Connect the Palmcorder to your PC (Windows)** using the RS-232C PC connecting cable (supplied).
- Before connecting the Palmcorder to the PC, make sure the PC power is off to insure that images are transferred properly.

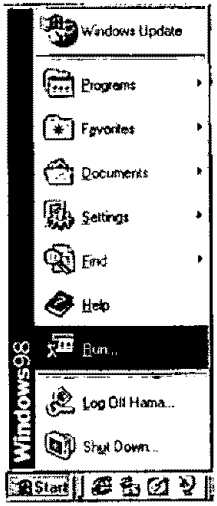
3 **Turn on your PC.**

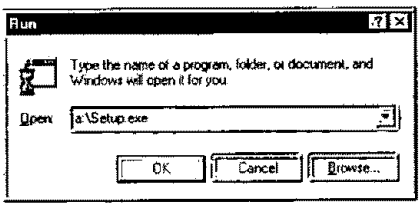
4 **Set the Palmcorder POWER to VCR.**

Note

- For extended periods of use, it is recommended to use the AC Adaptor as a power source.
- Refer to PC or Windows manual to identify which COM port is to be used for connection.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com





1 Turn your PC (Personal Computer) on and start up Windows.

2 **Insert PHOTOVU LINK DRIVER Disk** into a floppy disk drive.

3 **Click on Start, then "Run..."**

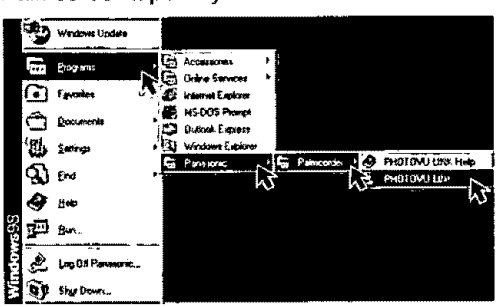
4 **Type in "a:\setup.exe" and click OK.**
- If your 3.5 inch floppy disk drive is not "A", use the appropriate letter.

5 Follow the instructions as they appear on the PC screen until the installation is complete.
- Setup window will disappear when the installation is complete.

Running the Software

PHOTOVU LINK:

You can transfer images from your Palmcorder tape to your PC.



Before you begin

- Insert the Tape. (See page 9.)
- Make Palmcorder-PC connections. (See page 46.)
- Turn your PC on.
- Set Palmcorder POWER to VCR.

1 **Click on Start, "Programs," "Panasonic," "Palmcorder," then "PHOTOVU LINK."**

2 **"PHOTOVU LINK" is opened.**

Note

- COM Port and Baudrate are automatically selected.

Refer to Help for information about application operations and other Error messages.

Using Tape Image Data

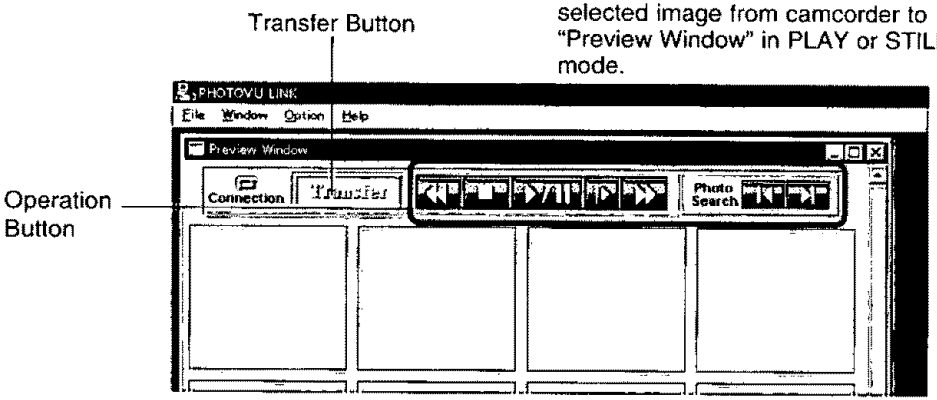
Pictures captured with the Palmcorder can be transferred to your PC.

Before you begin
- Insert a recorded tape. (See page 9.)
- Make Palmcorder-PC connections. (See page 46.)
- Turn your PC on.
- Set Palmcorder POWER to VCR.

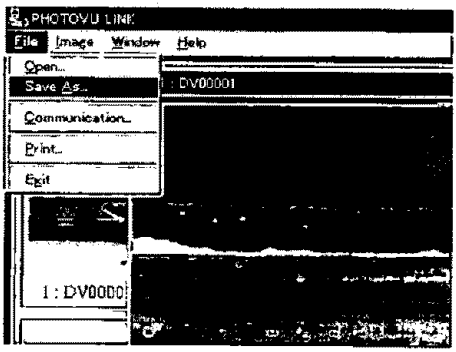
1 Repeat steps 1 and 2 on page 47 to run the Software.

2 **"Preview Window"** screen appears.

3 **Search and Select** video footage or a Still scene you want to transfer to your PC using VCR Operation Buttons on the "Preview window" screen. Then click on **"Transfer"** to transfer selected image from camcorder to "Preview Window" in PLAY or STILL mode.

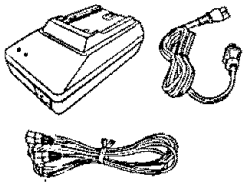
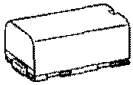
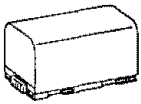
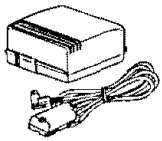
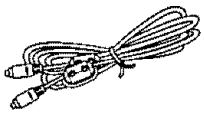
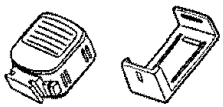


4 **Click on "File" then "Save As". Save transferred image to PC.**



Note
- If, while transferring the image to your PC, the displayed picture appears abnormal, close PHOTOVU LINK and turn Camcorder POWER off. Run PHOTOVU LINK again and turn Palmcorder Power back on. Now transfer again.
- Photo Search may fail to detect a recorded PhotoShot image if the image is 3 seconds or less.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Accessory #	Figure	Description	Price
PV-DAC11		AC Adaptor with AC Cable and DC Cable	$120.00
CGR-D08A/1B (Replaces CGR-D120A/1B)		800mAH / 1 h 30 min, Battery Pack	$69.95
CGR-D16A/1B (Replaces CGR-D220A/1B)		1600mAH / 3 h Battery Pack	$99.95
CGP-D28A/1B		2800mAH / 5h Battery Pack	$129.95
CGR-D53A/1K (Replaces CGR-D815A/1B)		5300mAH / 9 h Battery Pack	$229.95
PV-DDC9		DV Interface Cable (i.LINK) (4-pin to 4-pin)	$55.00
PV-DLT9		Color Enhancement Light	$39.95
PV-DRC9		IR Remote Control	$29.95

Palmcorder Accessory Order Form

Please photocopy this form when placing an order.

1. Palmcorder Model # _____

2. Items Ordered

Accessory #	Description	Price Each	Quantity	Total Price
			Subtotal	
			Your State & Local Sales Tax	
			Shipping & Handling	6.95
			Total Enclosed	

3. Method of payment (check one)

- ☐ Check of Money Order enclosed (NO C.O.D.SHIPMENTS)
- ☐ VISA — Credit Card # _____
- ☐ MasterCard — Expiration Date _____
- ☐ Discover — Customer Signature _____

Make Check or Money Order to: PANASONIC ACCESSORIES

(Please do not send cash)

4. Shipping information (UPS delivery requires complete street address)

Ship To:
Mr.
Mrs.
Ms. _____
First Last

_____
Street Address

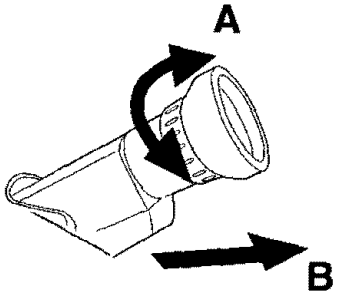
_____ _____ _____
City State Zip

Phone #:
Day ( ) _____
Night ( ) _____

TO OBTAIN ANY OF OUR PALMCORDER ACCESSORIES YOU CAN DO ANY OF THE FOLLOWING:

VISIT YOUR LOCAL PANASONIC DEALER
OR
CALL PANASONIC'S ACCESSORY ORDER LINE AT 1-800-332-5368
[6 AM-5 PM M-F, 6 AM-10:30 AM SAT, PACIFIC TIME]
OR
MAIL THIS ORDER TO: PANASONIC SERVICES COMPANY ACCESSORY ORDER OFFICE
20421 84th Avenue South Kent, WA. 98032

Cleaning EVF (Electronic Viewfinder)



1 Turn the Eyepiece counterclockwise 1/8 of a turn.

2 Pull the Eyepiece free. Remove any lint or dust particles with a soft, clean cloth being careful not to scratch the glass surfaces.

3 **To re-install the Eyepiece**
Line up the marks on the Eyepiece with the grooves inside the EVF shaft and attach. Turn it clockwise 1/8 of a turn to lock in place.

Rough Values of Brightness

Your Palmcorder has been designed for normal scene illumination of 150 footcandles (1500 lx). However, the Palmcorder may be used at F1:1.6, if illumination is more than 0.5 footcandles (5 lx).
The table below shows the color temperature for reference.

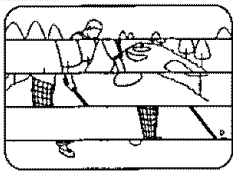
PALMCORDER SETTINGS	NATURAL LIGHT CONDITIONS	KELVIN COLOR TEMPERATURE	ARTIFICIAL LIGHT SOURCE	COLOR TINT MIXTURE
(Amber Filter Range)	• Fair weather, blue sky	10,000	• Color television	Bluish
	• Slightly cloudy sky	8,000		
	• Cloudy or rainy sky	7,000		
		6,500	• Fluorescent lamp (Daylight)	
	• Sunlight in clear weather at midday	6,000	• Camera flash bulb	
		5,500		
"OUTDOOR"	• Average sunlight in clear weather	5,000	• Blue lamp for photography	
	• Sunlight 2 hours after sunrise			
"AUTO"	and before sunset	4,500	• Fluorescent lamp (White)	Whitish
		4,000	• Normal flash bulb	
		3,500	• Fluorescent lamp (Off-white)	
	• Sunlight 40 min. after sunrise		• Tungsten lamp for	
"INDOOR"	and before sunset	3,200	photography	
	• Sunlight 30 min. after sunrise		• Halogen lamp	
	and before sunset	2,800	• Iodine lamp	
(Blue Filter Range)	• Sunlight 20 min. after sunrise and before sunset		• Tungsten lamp	Yellowish
			• Acetylene lamp	
			• Kerosene lamp	
		2,000	• Candlelight	Reddish

Power Source:	Palmcorder : 7.2 V DC (Battery) 7.8 V DC (AC Adaptor) AC Adaptor: 110/120/220/240 V AC, 50/60 Hz Battery: Lithium-Ion Type DC 7.2 V
Power Consumption:	Palmcorder: 7.2 V DC 6.5 W (Max. 9.5 W) AC Adaptor: 18 W 1 W (when not in use.)
Video Signal:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	2 rotary heads. helical scanning system
Audio:	12 bit (32 kHz) 4 tracks 16 bit (48 kHz) 2 tracks
Pick-Up System and Device:	One integral color filter Charge Coupled Device (CCD)
Lens:	20:1 zoom lens, F1:1.6 with auto iris control Focal length: 3.6 mm - 72 mm Power zoom function Lens filter diameter: 43 mm
Viewfinder:	0.4 inch (10.2 mm) Electronic Viewfinder
LCD Monitor:	2.5 inch (63.5 mm) Liquid Crystal Display
Minimum Illumination Required:	5 lx (F1:1.6) 0.5 footcandles
Digital Interface	RS-232C serial port (D-Sub 9-pin)
Operating Temperature:	32 °F~104 °F (0°C~40°C)
Operating Humidity:	10 %~75 %
Weight:	Palmcorder: 1.47 lbs. 0.67 kg AC Adaptor: 0.35 lbs. 0.16 kg
Dimensions:	Palmcorder: 3-3/8 (W) x 4-1/4 (H) x 7-1/2 (D) inch 85 (W) x 107.5 (H) x 191 (D) mm AC Adaptor: 2-3/4 (W) x 1-3/4 (H) x 4-1/2 (D) inch 70 (W) x 45 (H) x 115 (D) mm

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

For assistance, please call : 1-800-211-PANA(7262) or
send e-mail to : consumerproducts@panasonic.com

Cleaning Care for Video Heads



Clogged Video Head

(a) Video Head Cleaning: Normally, your Palmcorder will not require head cleaning. However, it is possible that the heads may become clogged due to dust in the air, playing damaged tapes, long term use, etc. If "NEED HEAD CLEANING" appears for 5 seconds in the EVF or LCD monitor, the heads may require cleaning.

(b) Cleaning the Heads: It is recommended that head cleaning be performed by a qualified service technician. Please contact your nearest Panasonic Servicenter. An alternate solution is to obtain a head cleaning cassette. Please use Panasonic cleaning cassette (AY-DVMCL). Be sure to follow the cleaning instructions carefully. Excessive use of the head cleaning cassette could shorten video head life.
Use this cassette only when a head clogging symptoms occur.

Refer servicing to qualified service personnel.

Tape Operations Caution

- When you go from function to function (PLAY, FF, REW etc.), please note that the unit will not accept a new function operation until the previous operation is complete.
- The POWER Button and all function buttons, (PLAY, FF, REW, etc.) are only operational after the tape has been completely loaded.

Lens Hood Area Operation Caution

When the following accessories are attached and the zoom is set to maximum wide angle, the four corners of the sceen may appear darker:
- Wide or Telephoto conversion lens (optional).
- A filter (optional), etc. and then the lens hood.
- Two filters (optional).

Self Diagnostic System

If any of the following numbers appear on-screen, the Palmcorder may need service.
• F01 •F02 •F03 •F04 •F05 •F31 •F51 •F52 •U10 •U11

Do not remove the battery (if attached) and write down the displayed number on page 55. Then, take the Palmcorder to a servicenter for repair.

Before Requesting Service

If you have a problem with your Palmcorder, it may be something you can correct yourself.
Check the list below for symptoms and corrections.

Symptom	Correction
No picture in the EVF or LCD Monitor...	• Make sure the Power Source is connected. (pp. 11, 12) • Make sure the POWER switch is set to VCR or CAMERA. (pp. 22, 27) • Check the Dew Indicator. (p. 21) • Make sure the Battery is fully charged. (p. 11) • Make sure all necessary cables are connected correctly and firmly. (p. 12) • Make sure the Lens Cap is removed. (p. 22)
Video cassette cannot be inserted...	• Make sure the Power Source is connected. (pp. 11, 12) • Insert the cassette record tab up, window side facing out. (p. 9)
Video cassette cannot be removed...	• Make sure the Power source is connected. (pp. 11, 12)
No operation starts when operation buttons are pressed...	• Check the Dew Indicator. (p. 21)
Recording cannot be done...	• Make sure the record tab is closed. (p. 6) • Check the Battery Indication. (p. 19)
Auto Focus does not operate...	• Make sure FOCUS is set to AUTO. (p. 39) • Make sure the unit is ON and set to CAMERA mode. (p. 22)
Sound from microphone cannot be monitored...	• Make sure the unit is set to REC or REC/PAUSE mode.
Sound cannot be heard...	• Make sure the Audio in the VCR MENU is set to ST1. (pp. 17, 42)

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Please photocopy this form when making a request for service notice.

Request for Service Notice:

In the unlikely event this product needs service.

- Please include your **proof of purchase**. (Failure to due so will delay your repair.)
- To further speed your repair, please provide an explanation of what is wrong with the unit and any symptom it is exhibiting.

Mail this completed form and your Proof of Purchase along with your unit to:
Panasonic Services Company
1705 N. Randall Road
Elgin, IL. 60123-7847
Attn: Camcorder Repair

Please write the displayed Self Diagnostic number here. (See page 53.)

Front View

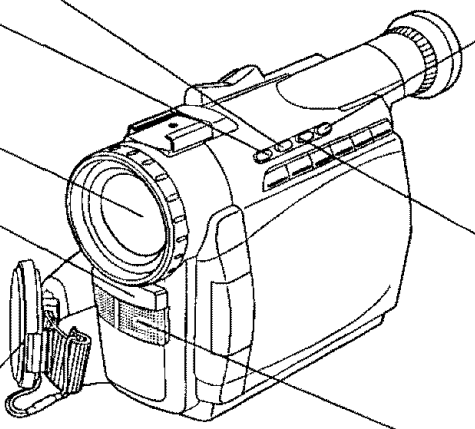
D.ZOOM Button
See page 33.

EIS Button
See page 32.

Lens

Remote Sensor
See page 25.

Lens Cap
See pages 8, 22.



FADE Button
See page 39.
A.DUB Button
See page 41.

BACK LIGHT Button
See page 40.
MULTI Button
See page 35.

Built-in Twin Capsule 2-Way Microphone System

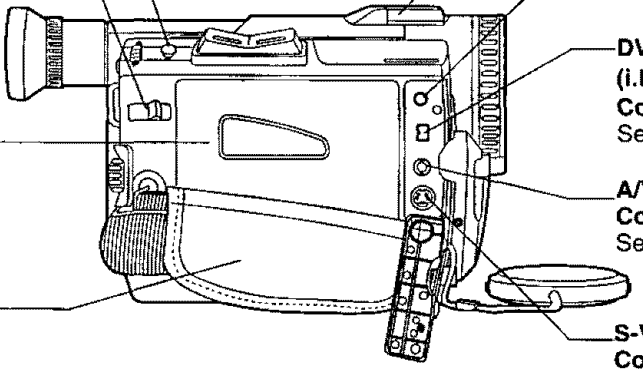
Side View

PHOTOSHOT Button
See page 34.

TAPE EJECT Switch
See pages 7, 9.

Cassette Compartment Cover
See page 7.

Hand Strap
See page 8.



Built-in Light Mount
See page 7.

PHONE Jack
See page 27.

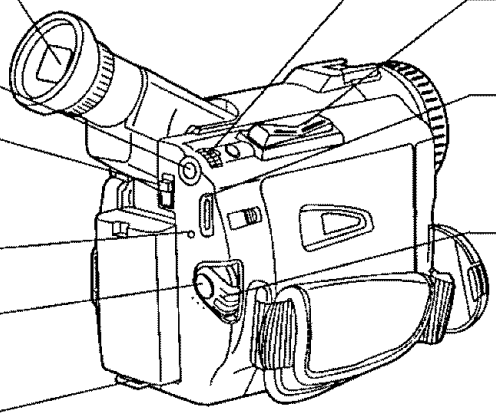
DV Input/Output (i.LINK "")
Connector
See pages 44, 45.

A/V Output Connector
See pages 31, 43.

S-VIDEO Output Connector
See page 43.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Rear View



Electronic Viewfinder (EVF)
See pages 10, 22.

Menu Button
See pages 13, 14.

Battery Release Button
See pages 11, 12.

POWER Lamp
See page 22.

REC/PAUSE Button
See pages 10, 22.

Shoulder Strap Attachment Ring
See page 8.

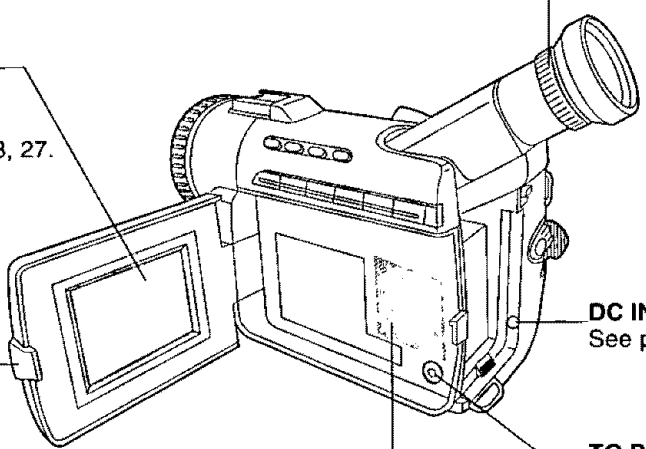
JOG KEY
See pages 13, 14.
VOLUME KEY
See page 27.
M.FOCUS DIAL
See page 39.

POWER ZOOM Button
See page 22.

Shoulder Strap Attachment Ring
See page 8.

POWER Switch
See pages 9, 10.

Rear View



Vision Adjustment Control
See page 10.

LCD (Liquid Crystal Display) Monitor
See pages 10, 23, 27.

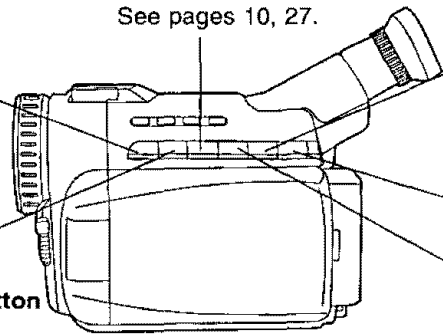
LCD-OPEN Button
See pages 10, 23, 27.

DC IN Terminal
See page 12.

TO PC Connector
See page 46.

Built-in Speaker
See page 27.

Side View



PLAY Button
See pages 10, 27.

STOP Button
See pages 10, 27.

REW Button
See pages 10, 27.

◄◄ EDIT SEARCH Button
See page 24.

PAUSE Button
See pages 41, 42, 43.

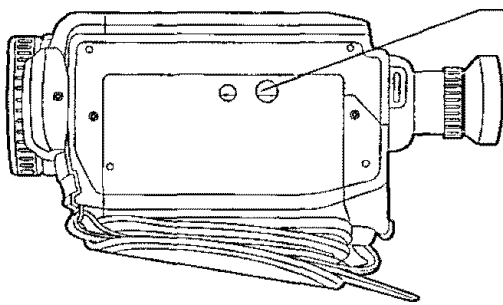
CAMERA STILL Button
See page 38.

REC Button
See pages 50, 51.

FF Button
See page 28.

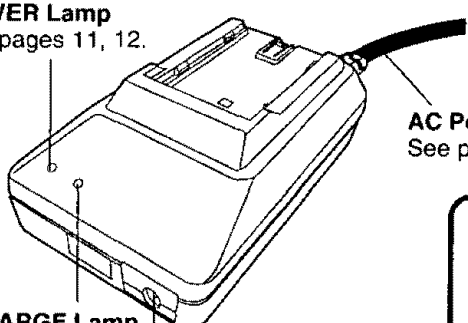
►► EDIT SEARCH Button
See page 24.

Underside View



Tripod Receptacle

AC Adaptor



POWER Lamp
See pages 11, 12.

AC Power Cable
See pages 11, 12.

CHARGE Lamp
See page 11.

DC Output Connector
See page 12.

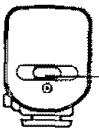
CAUTION:

This unit will operate on 110/120/220/240V AC. An AC plug adaptor may be required for voltages other than 120V AC. Please contact either a local or foreign electrical parts distributor for assistance in selecting an alternate AC plug.
We recommend using the accessory power plug adaptor (VJSS0070) in an area which has special AC outlets.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Color Enhancement Light (Optional)

LIGHT RELEASE Button
See page 7.



LIGHT Button
See page 7.

Remote Control (Optional)

DATE/TIME Button
See pages 20, 25.

DISPLAY ON TV Button
See pages 25, 31.

A.DUB Button
See pages 25, 41.

COUNTER/TC Button
See pages 19, 25.

RESET Button
See pages 25, 42.

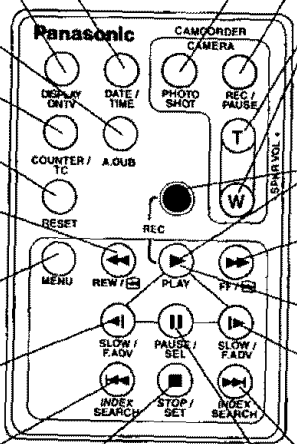
REWIND/SEARCH Button
See pages 25, 28.

MENU Button
See pages 13, 14, 42.

REVERSE SLOW/ F. ADV Button
See pages 25, 28, 29.

REVERSE INDEX SEARCH Button
See pages 25, 30, 34.

STOP Button
See pages 25, 27.
SET Button
See pages 13, 14, 25.



PHOTOSHOT Button
See pages 25, 34.

REC/PAUSE Button
See pages 22, 25.

POWER ZOOM Switch
See pages 22, 25.
SPKR VOL +/–
See pages 25, 27.

VIDEO REC Button
See pages 25, 44.

FAST FORWARD/ SEARCH Button
See pages 25, 28.

PLAY Button
See pages 25, 27, 44.

FORWARD SLOW/ F. ADV Button
See pages 25, 28, 29.

FORWARD INDEX SEARCH Button
See pages 25, 30, 34.

PAUSE Button
See pages 25, 28, 44.
SEL Button
See pages 13, 14, 25.

Panasonic Consumer Electronics Company,
Division of Matsushita Electric Corporation
of America, One Panasonic Way
Secaucus, New Jersey 07094

Panasonic Sales Company,
Division of Matsushita Electric of Puerto Rico, Inc.
AVE. 65 de Infantería, Km. 9.5 San Gabriel
Industrial Park Carolina, Puerto Rico 00985

PANASONIC Video Products

Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair this product with new or refurbished parts, free of charge, in the USA or Puerto Rico, in the event of a defect in materials or workmanship as follows (all time periods commence from the date of the original purchase):

PRODUCT	PARTS	LABOR	SERVICE	CONTACT NUMBER
CAMCORDER	ONE (1) YEAR, EXCEPT CCD IMAGE SENSOR CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
VCR	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
A/V MIXER	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
MONITOR-VCR Combination	ONE (1) YEAR, EXCEPT CRT CRT - TWO (2) YEARS	NINETY (90) DAYS CRT - NINETY (90) DAYS	Carry-In: 21" CRT and Smaller In-home or carry-in: 22" CRT and Larger	1-800-211-PANA(7262)

Batteries (if included) - New rechargeable batteries in exchange for defective rechargeable batteries for ten (10) days. Non-rechargeable batteries are not warranted.

Tape (if included) - New video cassette tape in exchange for a defective video cassette tape for five (5) days.

In-home, carry-in or mail-in service, as applicable, in the USA can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Service Directory. Or call toll free contact number listed above, to locate an authorized PASC Servicenter. Carry-in or mail-in service in Puerto Rico can be obtained during the warranty period by calling the Panasonic Sales Company telephone number listed in the Servicenter Directory.

This warranty is extended only to the original purchaser. A purchase receipt or other proof of the date of the original purchase is requires before warranty service is rendered.

This warranty only covers failures due to defects in materials and workmanship which occur during normal use and does not cover normal maintenance, including, but not limited to, video and audio head cleaning. The warranty does not cover damage which occurs in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, set-up adjustments, improper antenna, inadequate signal pickup, maladjustment of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, commercial use such as hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a PASC Factory Servicenter or a PASC authorized Servicenter, or damage that is attributable to acts of God.

LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

THE WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGE TO RECORDING MEDIA) RESULTING FROM THE USE OF THIS PRODUCTS, OR ARISING OUT OF ANY BREACH OF THE WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Consumer Affairs Department at the Panasonic Consumer Electronics Company address above.

SERVICE CALLS WHICH DO NOT INVOLVE DEFECTIVE MATERIALS OR WORKMANSHIP AS DETERMINED BY THE WARRANTOR, IN ITS SOLE DISCRETION, ARE NOT COVERED. COSTS OF SUCH SERVICE CALLS ARE THE RESPONSIBILITY OF THE PURCHASER.

warvid 8/8/2000

For assistance, please call : 1-800-211-PANA(7262) or
send e-mail to : consumerproducts@panasonic.com

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:
1-800-211-PANA(7262), Monday-Friday 9am-9pm Saturday-Sunday 9am-7am, EST.
or send e-mail : consumerproducts@panasonic.com

Web Site: http://www.panasonic.com
You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)
Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032
(6 am to 5 pm Monday - Friday; 6 am to 10:30 am Saturday; PST)
(Visa, Master Card, Discover Card, American Express, Check)

Product Repairs

Centralized Factory Servicenter

MAIL TO : Panasonic Services Company
1705 N. Randall Road,
Elgin, IL 60123-7847
Attention: Digital Camera Repair

Please carefully pack and ship, prepaid and insured, to the Elgin centralized repair Factory Servicenter. While there will be added handling delays, you may bring your unit to one of the following locations who will then forward the unit to Elgin for repair.
Customer's in Puerto Rico, please ship or carry in to location below ("Service in Puerto Rico").

Factory Servicenters Locations

CALIFORNIA
6550 Katella Avenue
Cypress, CA 90630

800 Dubuque Avenue
S. San Francisco,
CA 94080

3878 Ruffin Road
Suite A
San Diego, CA 92123

COLORADO
1640 South Abilene
Street Suite D
Aurora, CO 80012

FLORIDA
3700 North 29th Avenue
Suite 102
Hollywood, FL 33020

GEORGIA
8655 Roswell Road
Suite 100
Atlanta, GA 30350

ILLINOIS
9060 Golf Road
Niles, IL 60714

1703 North Randall Road
Elgin, IL 60123
(Pick-up / Drop-off only)

MARYLAND
62 Mountain Road
Glen Burnie MD 21061

MASSACHUSETTS
60 Glacier Drive,
Suite G
Westwood, MA 02090

MINNESOTA
7850-12th Avenue South
Airport Business Center
Bloomington, MN 55425

OHIO
2236 Waycross Road
Civic Center Plaza
Forest Park, OH 45240

PENNSYLVANIA
2221 Cabot Blvd. West
Suite B
Langhorne, PA 19047

TEXAS
13615 Welch Road
Suite 101
Farmers Branch,
TX 75244

WASHINGTON
20425-84th Avenue
South
Kent, WA 98032

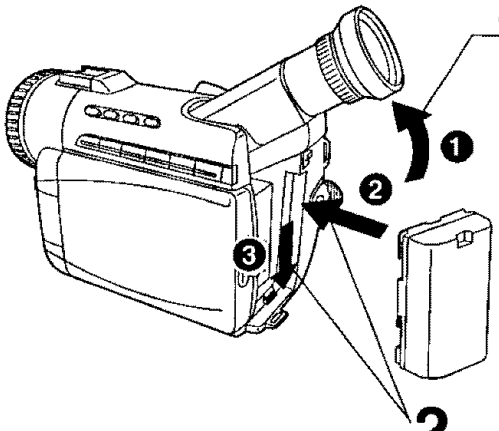
HAWAII
99-859 Iwaiwa Street
Aiea, Hawaii 96701
Phone (808) 488-1996
Fax (808) 486-4369

Service in Puerto Rico
Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/ Factory Servicenter: Ave. 65 de Infanteria. Km. 9.5 San Gabriel Industrial Park Carolina, Puerto Rico 00985
Phone (787) 750-4300 Fax (787) 768-2910

As of January 2001

Inserte de la batería

Antes de comenzar
- Cargue la batería. (Pàgina 11.)



1 **Incline el visor hacia arriba.**

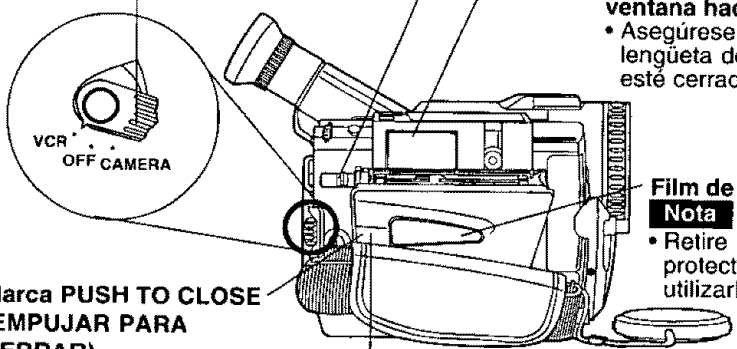
2 **Coloque la batería** y deslicela hacia abajo hasta que quede bloqueada con un clic.

Inserte el Cassette

1 **Ajuste el interruptor de alimentación (POWER) a la posición CAMERA o VCR.**

2 **Deslice el interruptor de expulsión de cinta (TAPE EJECT)** para abrir la tapa del compartimento del cassette.

3 **Introduzca un cassette con la parte de la ventana hacia arriba.**
- Asegúrese de que la lengüeta de grabación esté cerrada. (Página 6.)



Film de protección

Nota
- Retire la película protectora antes de utilizarlo.

Marca PUSH TO CLOSE (EMPUJAR PARA CERRAR)

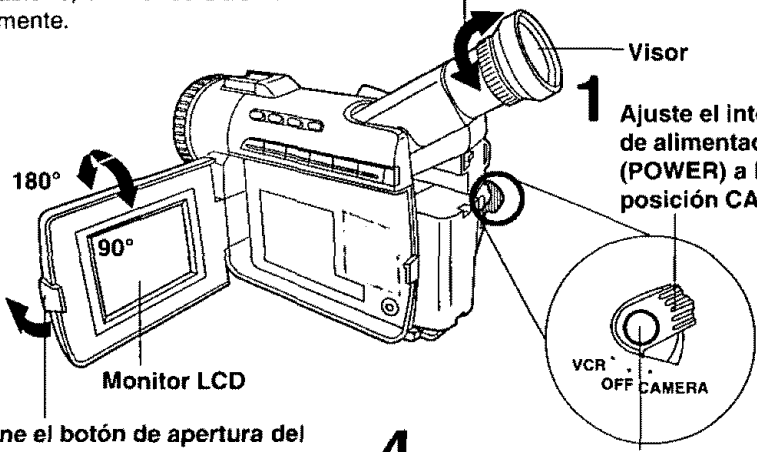
4 **Presione la marca PUSH TO CLOSE (EMPUJAR PARA CERRAR)** para cerrar la tapa del compartimiento del cassette.

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Grabación con la cámara

Cuando el monitor LCD se enchuentra totalmente abierto, el visor se DESACTIVA automáticamente.

2 **Ajuste el control de ajuste de visión según lo desee.**



1 **Ajuste el interruptor de alimentación (POWER) a la posición CAMERA.**

3 ***Presione el botón de apertura del*** **LCD (LCD-OPEN)** para des bloquear el monitor LCD. **Balancée abriéndolo completamente y ajuste el ángulo.**

4 **Presione el botón de grabación/ pausa (REC/PAUSE)** para iniciar la grabación.
Vuelva a pulsar el botón de grabación/pausa (REC/PAUSE) para hacer una pausa en la grabación.

Para ver la reproducción en el LCD (pantalla de visualización de cristal líquido)

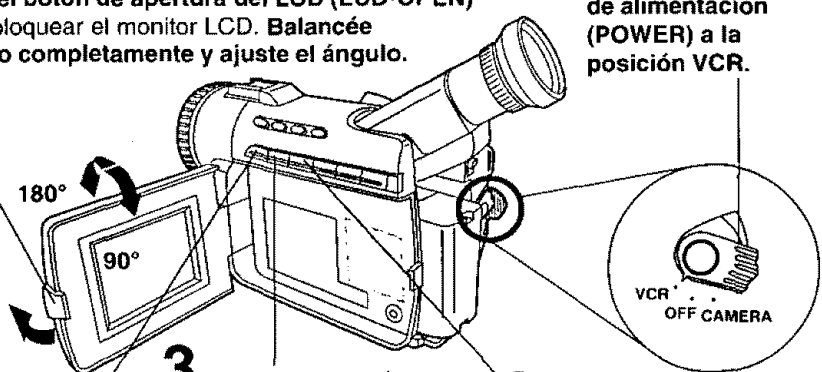
Cuando el monitor LCD se enchuentra totalmente abierto, el visor se DESACTIVA automáticamente.

Antes de comenzar

- Cargue la battería. (Pàgina 11.)

2 **Presione el botón de apertura del LCD (LCD-OPEN)** para des bloquear el monitor LCD. **Balancée abriéndolo completamente y ajuste el ángulo.**

1 **Ajuste el interruptor de alimentación (POWER) a la posición VCR.**



5 **Presione el botón de parada (STOP)** para detener la reproducción.

3 **Presione el botón de rebobinado (REW)** para rebobinar la cinta.

4 **Presione el botón de reproducción (PLAY)** para reproducir la cinta.

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