Palmcorder®
MultiCam™ Camcorder

VHS**C**

Panasonic®

Camcorder
Operating Instructions

Models No. **PV-L452**
PV-L652
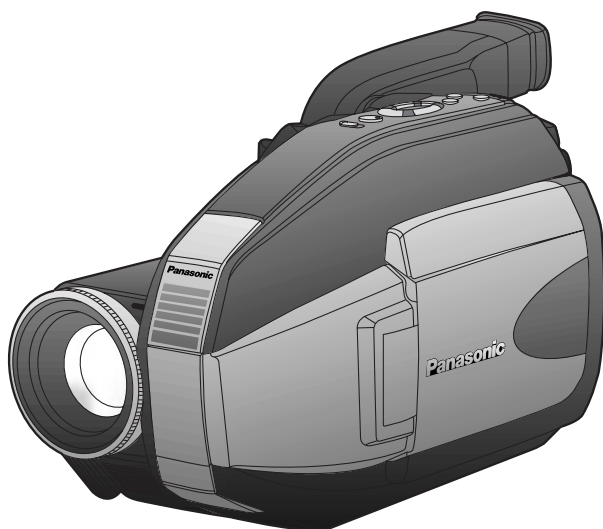
(PV-L652 shown)

MultiMediaCard™ **SD**™

Please read these instructions carefully before attempting to operate this product.
Please save this manual.
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

LSQT0529C

Things You Should Know

Thank you for choosing Panasonic!

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

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

Unpack your Camcorder

These accessories are provided in order to set up or use your Camcorder.

1 pc. AC Adaptor (PV-A19/PV-A20) with DC Power Cable (page 10)

1 pc. Audio/Video Cable (LSJA0390) (pages 21, 22)
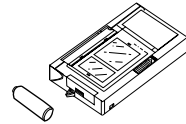
1 pc. Battery Pack (PV-BP18) (pages 9, 10)

1 pc. Shoulder Strap (LSFC0012) (page 12)

1 pc. CR2025 Clock Battery (VSBW0004) (installed in Camcorder) (page 50)

1 pc. VHS PlayPak (PV-P1/VYMW0009) and one "AA" battery (page 21)

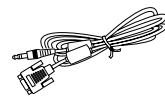1 pc. Lens Cap (LSYK0817) with Lens Cap Strap (LSGQ0049) (page 12)

1 pc. Digital PhotoShot Disk for Windows 95/98/Me/2000 (LSFT0490) (page 41)

1 pc. Memory Card [8 MB] (LSFT0262) (page 34)

1 pc. PC Connection Cable (RS232C-2.5P) (LSJA0276) (page 41)

SD is a trademark of the SD Card Association.
MultiMediaCard is a registered trademark of the MultiMediaCard Association.
Microsoft and Windows are registered trademarks of Microsoft in the United States and other countries.
All product/brand names are trademarks or registered trademarks of the respective holders.

This operating instruction book is designed for use with models **PV-L452** and **PV-L652**.
Illustrations in this manual show the **PV-L652**. Features may vary, so please read carefully.

Differences between models

Model Number	LCD Monitor	Digital Zoom maximum	Viewfinder	Security Tag
PV-L452	63.5 mm (2.5 inch) Liquid Crystal Display	750x	10.2 mm (0.4 inch) Electronic Viewfinder	YES
PV-L652	76.2 mm (3.0 inch) Liquid Crystal Display	800x	14 mm (0.55 inch) Liquid Crystal Color Electronic Viewfinder	NO

Getting Started

Safety Precautions

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

Your Compact VHS Camcorder is designed to record and play back in Standard Play (SP) and Super Long Play (SLP) modes. You can also play a Compact VHS Camcorder recording on your VHS VCR using the supplied VHS PlayPak.

This Camcorder is equipped with the **HQ** System to provide excellent video pictures, and is compatible with standard VHS equipment.
It is recommended that only cassette tapes that have been tested and inspected for use in VCR machines with the VHSC and/or VHS mark be used.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

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

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's bottom cover.

Declaration of Conformity

Model Number   : **PV-L452/PV-L652**
Trade Name   : Panasonic
Responsibility Party : Matsushita Electric Corporation of America
Address   : One Panasonic Way Secaucus New Jersey 07094
Telephone Number : 1-800-211-PANA(7262)

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.

FCC Warning : To assure continued FCC compliance, the user must use only provided shielded interfacing cable with ferrite cores when connecting to computer. Also, any unauthorized changes or modifications to this equipment would void the users authority to operate.

Note: This equipment has been tested and found to comply with Part 15 and part 18 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.

This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45-30 MHz.

Important Safeguards

1. **Read Instructions** – All the safety and operating instructions should be read before the unit is 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.
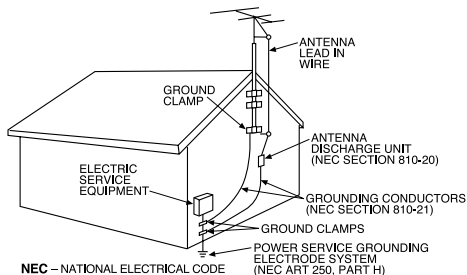
14. **Lightning** – For added protection of this video unit receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video unit due to lightning and power-line surges.

Important Safeguards

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 Camcorder and power supply should not be exposed to rain or moisture. Do not connect the power supply or operate your Camcorder if it gets wet. Your Camcorder 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 Camcorder. Do not attempt to disassemble this unit. There are no user serviceable parts inside. Unplug your Camcorder from the power supply before cleaning.

- **DO NOT AIM YOUR CAMCORDER AT THE SUN OR OTHER BRIGHT OBJECTS.**

- **DO NOT LEAVE THE CAMCORDER WITH THE EVF AIMED DIRECTLY AT THE SUN AS THIS MAY CAUSE DAMAGE TO THE INTERNAL PARTS OF THE EVF.**

- **DO NOT EXPOSE YOUR CAMCORDER 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 Camcorder.

- **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 CAMCORDER OR THE POWER SUPPLY TURNED ON WHEN NOT IN USE.**

- **STORAGE OF YOUR CAMCORDER ...** Store and handle your Camcorder in a manner that will not subject it to unnecessary movement (avoid shaking and striking). Your Camcorder contains a sensitive pick-up device which could be damaged by improper handling or storage.

CARE

- **TO CLEAN YOUR CAMCORDER ...** Do not use strong or abrasive detergents when cleaning your Camcorder body.

- **TO PROTECT THE LENS ...** Do not touch the surface of the lens with your hand. Use a commercial camcorder lens solution and lens paper when cleaning the lens. Improper cleaning can scratch the lens coating.

- **TO PROTECT THE FINISH OF YOUR CAMCORDER ...** Before handling your Camcorder, make sure your hands and face are free from any chemical products, such as suntan lotion, as it may damage the finish.

Table of Contents

Getting Started

Self Demo mode is on when the screen below appears. To turn it off, follow steps 1-4 below.

EVF or LCD Monitor

```
Panasonic

ITS TAPES CAN PLAY
    IN YOUR VCR
   YES, IT'S VHS!

20x LENS / 800x D.ZOOM
DIGITAL STABILIZATION
FULL-SIZE HEAD SYSTEM
   DIGITAL PHOTOSHOT
```
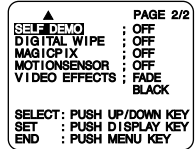
2, 3, 4

1
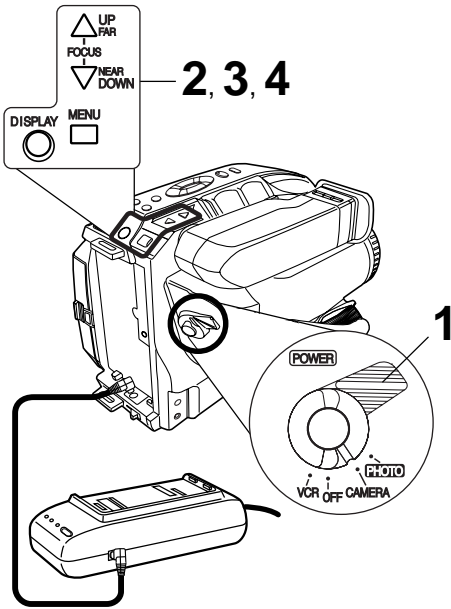
Before you begin...
• **Connect Camcorder to power source.**

1 Set **POWER to CAMERA.**

2 Press **MENU** for MENU mode.
Press **UP or DOWN** to select **SELF DEMO**.

```
                    ▲        PAGE 2/2
SELF DEMO        ;  OFF
DIGITAL WIPE     ;  OFF
MAGICPIX         ;  OFF
MOTIONSENSOR     ;  OFF
VIDEO EFFECTS    ;  FADE
                    BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

3 Press **DISPLAY** to select OFF.

4 Press **MENU** to exit.

Note:
• **Self Demo stops automatically if battery is attached** (page 9) **and cassette tape is inserted** (page 11).
• Inserting a tape alone (or attaching a partially charged battery) only temporarily stops Self Demo.
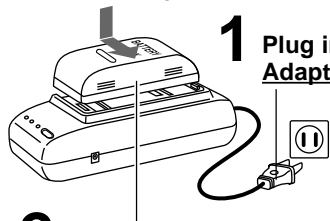• Self Demo stops for 30 seconds when the Light is pressed.

To turn Self Demo back on:
• Set to SELF DEMO : ON in MENU screen.
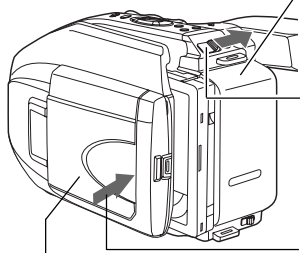
Quick Operation Guide

Charging the Battery Pack

Charge Battery Pack fully before operation (page 9).

1 **Plug in AC Adaptor.**

2 **Insert Battery.** CHARGE Lamp flashes, then stays lit when charging is complete.

Insert Cassette

1 **Attach fully charged Battery** (page 9).

2 **Slide TAPE EJECT** to open door.

3 **Insert cassette** (page 11).
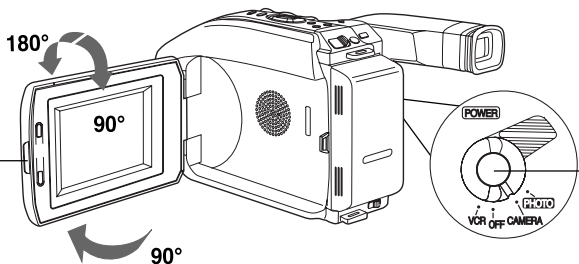
4 **Press here** to close door.

Protection Film
Note:
• Remove the Protection Film before use.

Camera Recording

When the LCD monitor is open, the EVF automatically turns OFF (Color EVF model only) (page 17).

1 **Press LCD-OPEN to unlock the LCD monitor.**
Swing it fully open and adjust the angle.
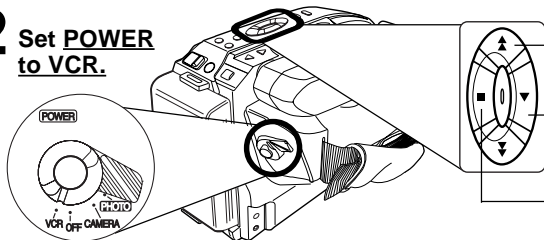
180°

90°

90°

2 **Set POWER to CAMERA.**

3 **Press RECORD/PAUSE to start** recording. **Press RECORD/PAUSE** again to pause recording.

Playback using the LCD Monitor

When the LCD monitor is open, the EVF automatically turns OFF (Color EVF model only) (page 20).

1 **Press LCD-OPEN to unlock the LCD monitor.**
Swing it fully open and adjust the angle (see above).

2 **Set POWER to VCR.**
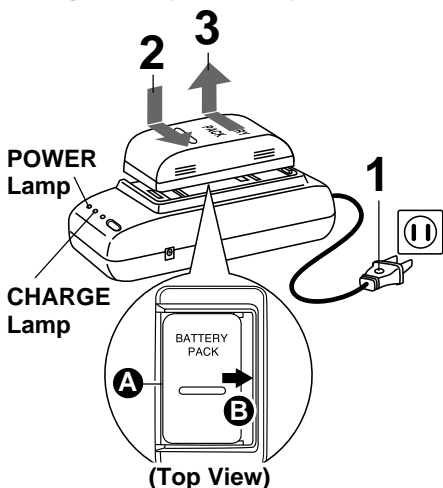
3 **Press REWIND/SEARCH** to rewind tape.

4 **Press PLAY** to start playback.

5 **Press STOP** to stop playback.

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

Charging the Battery Pack

Charge Battery Pack fully before use.

1 **Plug in <u>AC Adaptor.</u>**
POWER Lamp lights.

2 **Insert <u>Battery.</u>**
A Align left side of Battery with left edge of AC Adaptor.
B Press Battery down and slide in direction of arrow.

The CHARGE Lamp flashes, then stays lit when charging is complete.
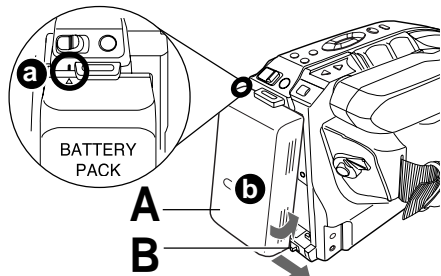
3 **Remove <u>Battery.</u>**
Slide Battery to the left and lift off.

(Top View)

Note:
• Charging takes about 1 and 1/2 hours.
• While the DC Power Cable (supplied) is connected to the AC Adaptor, the Battery cannot be charged.
• After charging 5 times, use Battery Refresh feature as explained below.
• Battery life gradually decreases after repeated use and recharging. If operation time becomes very short even after a sufficient charge, discard Battery properly (page 10).

Using the Battery Pack

A fully charged Battery provides a maximum of about 2 hours of continuous use (LCD monitor off) or about 1.5 hours (LCD monitor on). Actual time may vary due to operating conditions. Using the Built-in Light decreases operating time.

A **Attach <u>Battery.</u>**
a Insert top of Battery into top of mounting surface.
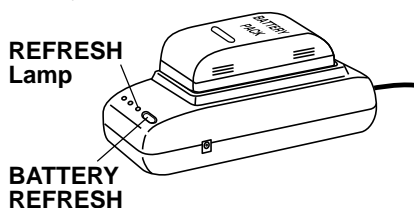**b** Press and snap into place.

B **Remove Battery.**
Slide **<u>BATTERY RELEASE</u>** and remove Battery.

Battery Refresh

This feature completely discharges Battery before recharging begins. Use after every 5 charges for optimum Battery performance.

REFRESH Lamp

BATTERY REFRESH

To use battery refresh, insert Battery on AC Adaptor (see steps 1~2 above), then press <u>BATTERY REFRESH.</u>

The REFRESH Lamp lights, then goes out when discharge is complete. Battery charging will then start automatically.

If <u>BATTERY REFRESH</u> is pressed by mistake, remove Battery from AC Adaptor and reinsert it for normal charging.

Note:
• Charging takes about 7 and 1/2 hours when Battery Refresh is used.
• Battery will not operate in extremely high temperatures.

9

Supplying Power

Battery Care

Caution:
- Charge only with specified charger.
- Battery can be charged within a temperature range of 10 °C (50 °F) and 35 °C (95 °F).
- Battery is normally warm after charging or just after use.
- Do not use an insufficiently charged or worn-out Battery.

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

To avoid Battery damage:
- Do not drop or jar Battery.
- Use Battery with specified units only.
- If Battery is used in extremely high temperatures, a safety device will automatically prevent operation.

To prolong Battery life:
- While not in use, remove Battery from the Camcorder and AC Adaptor, and store in a cool, dark, dry place.
- Keep Battery terminals clean.

AC Adaptor

DC Power Cable

POWER Lamp

DC OUT Connector

DC IN Connector
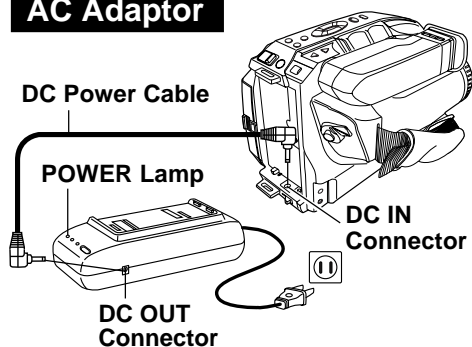
1 Connect <u>AC Adaptor DC OUT</u> to <u>Camcorder DC IN</u> with supplied DC Power Cable.

2 Plug in AC Adaptor.
POWER Lamp lights.

Note:
- While the DC Power Cable (supplied) is connected to the AC Adaptor, the Battery cannot be charged.
- When not in use, unplug AC Adaptor from AC outlet. (Adaptor uses 1.2 W of electricity while plugged in.)

CAUTION:
This unit will operate on 110/120/220/240 V AC 50/60 Hz. An AC plug adaptor may be required for voltages other than 120 V 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.

Car Battery Cord (Optional)

Cigarette Lighter Socket (12 V)

DC IN Connector

Car Battery Cord (optional)

Cigarette Lighter Plug
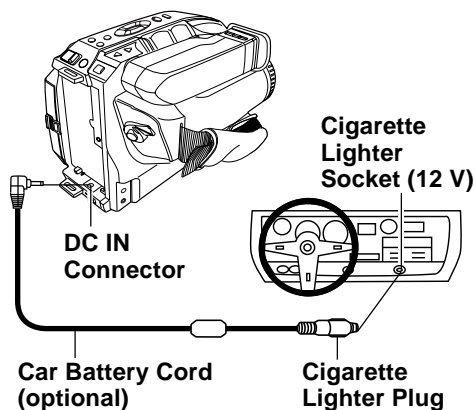
**1** Connect PV-C16 <u>Car Battery Cord</u> (optional) to <u>Camcorder DC IN</u>.

2 Ⓐ **Start engine first.**
Ⓑ **Plug Car Battery Cord into Cigarette lighter socket.**
- If Car Battery cord fuse needs replacing, use exact current rating (in amps).

Note:
- This cord only works in vehicles equipped with **DC 12 V (negative ground)** battery. Check with your car/truck dealer. Use only specified car battery cord.
- To avoid blowing the car battery cord fuse, do step 2 in the proper order.
- Running vehicles must be well ventilated.
- When not in use, disconnect cigarette lighter plug.
- For personal safety the driver of the vehicle should not attempt to operate the camcorder while driving.

Cassette Information

Cassette Insertion/Removal
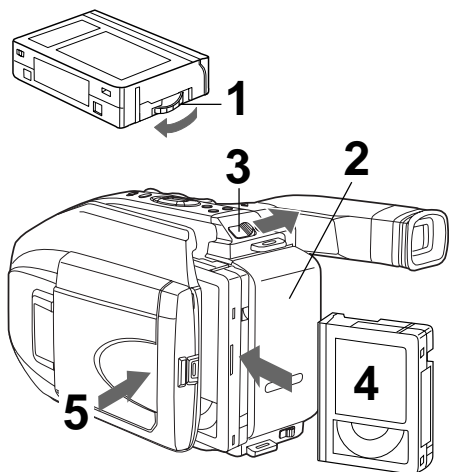
1 Turn **Tape Wheel** in direction of arrow until there is no slack.

2 Attach **Battery** (page 9).

3 Slide **TAPE EJECT** to open door.

4 Insert **cassette** as shown.

5 **Press here** to close door.

• To remove the cassette, slide the **TAPE EJECT** switch.
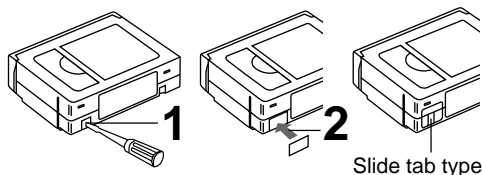
Record/Playback Time

Use tapes with the **VHSC** mark in this unit.

Tape Speed Selector Position	Cassette type		
	TC-20	TC-30	TC-40
SP (Standard Play)	20 minutes	30 minutes	40 minutes
SLP (Super Long Play)	1 hour	1 hour 30 minutes	2 hours

• SLP playback may contain more picture noise.
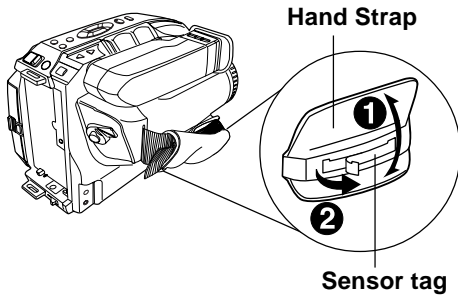
Erase Protection Tab

Protects tapes from being accidentally erased.

Slide tab type

1 **To prevent accidental erasing,** break off tab with screwdriver. (Or, slide tab open.)

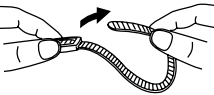**2** **To record again,** cover hole with adhesive tape. (Or, slide tab closed.)

11

Before Using

How to remove the Sensor tag (PV-L452 only)
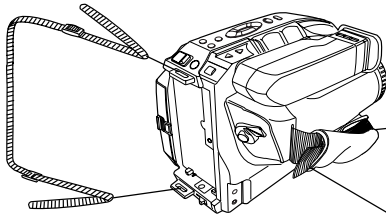
Hand Strap

Sensor tag

❶ **Open the Hand Strap** as illustrated at left.

❷ **Remove the Sensor tag.**
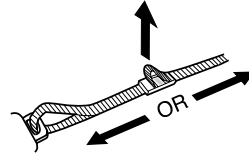Then, replace the Hand Strap.

Attaching Shoulder Strap

Remove Battery Pack before doing steps.

1 **Undo strap ends** from buckles.

2 **Thread strap ends through Strap Rings on Camcorder.**

3 **Re-insert the strap ends into buckles.**

③ ② ①

min. 25.4 mm (1 inch)

Adjust the Length of the Shoulder Strap

OR

Pull a loop of strap from buckle, then pull strap tight to shorten or lengthen.

Hand Strap

❶ ❷ ❸
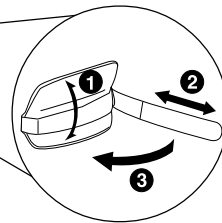
Adjust Hand Strap length to fit your hand as shown.

Lens Cap
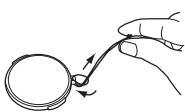
Attaching the Lens Cap Strap:
Thread the Strap through the Lens Cap attachment ring as illustrated at left.

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.

Getting Started

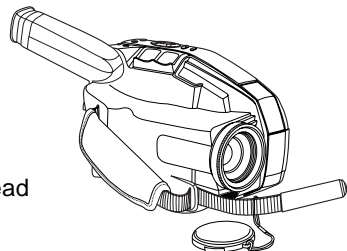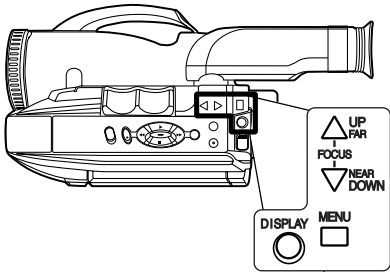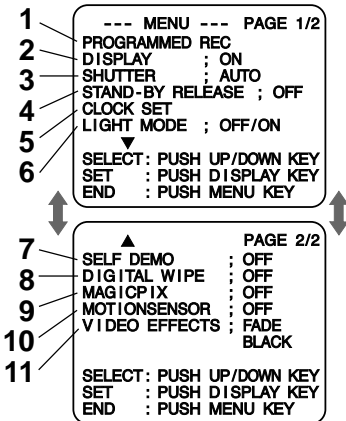## Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA or VCR.**

1 **Press MENU for MENU mode.**
The CAMERA or VCR MENU screen (see below left) appears when Menu mode is entered.

2 **Press UP or DOWN to highlight** the desired menu item.

3 **Press DISPLAY to set selection.**

4 **Press MENU to exit.**

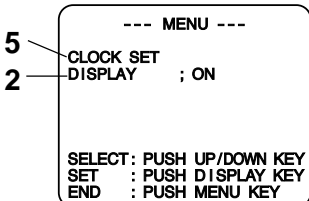**Note:**
• The Menu mode is canceled if UP/DOWN, DISPLAY, or MENU are not pressed within 5 minutes when Self Demo mode is off.
• The Menu mode is canceled if UP/DOWN, DISPLAY, or MENU are not pressed within 30 seconds when Self Demo mode is on.

MENU Mode (CAMERA) Screen

```
        --- MENU --- PAGE 1/2
1 ──── PROGRAMMED REC
2 ──── DISPLAY        ; ON
3 ──── SHUTTER        ; AUTO
4 ──── STAND-BY RELEASE ; OFF
5 ──── CLOCK SET
       LIGHT MODE    ; OFF/ON
6 ────         ▼
       SELECT: PUSH UP/DOWN KEY
       SET   : PUSH DISPLAY KEY
       END   : PUSH MENU KEY
```

```
              ▲        PAGE 2/2
7 ──── SELF DEMO     ; OFF
8 ──── DIGITAL WIPE  ; OFF
9 ──── MAGICPIX      ; OFF
10 ─── MOTIONSENSOR  ; OFF
11 ─── VIDEO EFFECTS ; FADE
                       BLACK
       SELECT: PUSH UP/DOWN KEY
       SET   : PUSH DISPLAY KEY
       END   : PUSH MENU KEY
```

MENU Mode (VCR) Screen

```
        --- MENU ---
5 ──── CLOCK SET
2 ──── DISPLAY      ; ON


       SELECT: PUSH UP/DOWN KEY
       SET   : PUSH DISPLAY KEY
       END   : PUSH MENU KEY
```

1 **PROGRAMMED REC** (page 19).
Camcorder starts and stops recording at a preset time.

2 **DISPLAY** (page 46).
ON : On-screen Display (OSD) screens are displayed.

3 **SHUTTER** (page 26).
Select desired shutter speed.

4 **STAND-BY RELEASE** (page 18).
ON : Enables quick resumption of recording from Stand-by mode.

5 **CLOCK SET** (pages 14, 15).
Select to set clock.

6 **LIGHT MODE** (page 16).
ON/OFF   : Light can be set ON or OFF.
ON/OFF/AUTO : Light can be set ON, OFF, or AUTO.

7 **SELF DEMO** (page 7).
ON : SELF DEMO screen is displayed.

8 **DIGITAL WIPE** (pages 39, 40).
ON : Digital wipe mode can be used.

9 **MAGICPIX** (page 24).
ON : Picture sensitivity is increased.

10 **MOTIONSENSOR** (page 33).
ON : Enables MotionSensor recording.

11 **VIDEO EFFECTS** (pages 27~29).
AUTO FADE   : BLACK or WHITE
DIGITAL FADE   : TYPE → 7 types
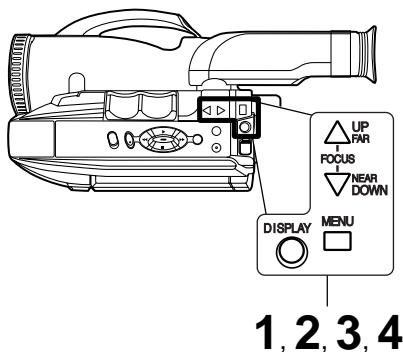   COLOR → 8 colors
DIGITAL FILTER : COLOR → 5 colors

13

Setting the Clock

Set the following items in order: Time Zone, Daylight Saving Time, Date, and Time.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA or VCR.**

1 Press <u>MENU</u> for MENU mode.
Press <u>UP</u> or <u>DOWN</u> to select CLOCK SET .

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
DISPLAY        ; ON
SHUTTER        ; AUTO
STAND-BY RELEASE  ; OFF
CLOCK SET
LIGHT MODE   ; OFF/ON
     ▼
SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

```
--- MENU ---
CLOCK SET
DISPLAY      ; ON




SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

[CAMERA MODE] [VCR MODE]

1, **2**, **3**, **4**

2 Press <u>DISPLAY</u> for CLOCK SET menu.
Press <u>UP</u> or <u>DOWN</u> to select **TIME ZONE, DST, or DATE/TIME.**

```
--- CLOCK SET ---
TIME ZONE ; EASTERN
D. S. T.      ; AUTO
DATE / TIME ; 12 : 00 : 00AM
              JAN  1  2002

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

3 Press <u>DISPLAY</u> for menu of item selected in step 2.

To change the setting:

TIME ZONE → Go to step **3a** on page 15.
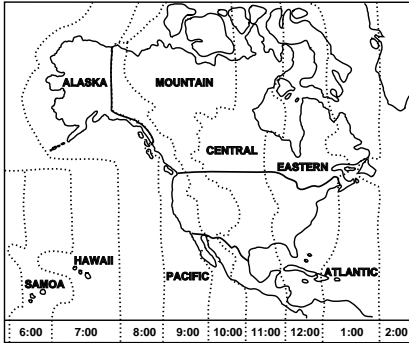
D.S.T.   → Go to step **3b** on page 15.

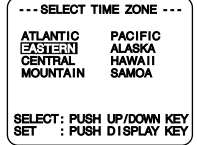DATE/TIME → Go to step **3c** on page 15.

4 Press <u>MENU</u> twice to exit.

3a Setting the Time Zone

The Camcorder is preset to Eastern time.

[Time Zone chart]

| 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 1:00 | 2:00 |

Press UP or DOWN to select local time zone.
Press DISPLAY to confirm entry.

```
- - - SELECT TIME ZONE - - -
ATLANTIC      PACIFIC
EASTERN       ALASKA
CENTRAL       HAWAII
MOUNTAIN      SAMOA

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

• When traveling, repeat this operation and select one of the 8 listed time zones to set the clock to local time.
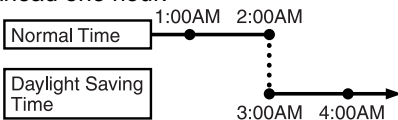
Note :
• Clock may lose or gain up to 2 minutes per month.
• When traveling outside the listed time zones, set clock to local time manually.
• To adjust or set clock, see "Setting Date and Time" bottom of page.
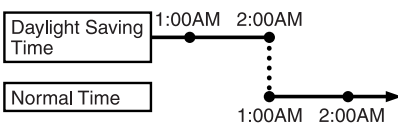
3b Auto Daylight Saving Time

Clock will auto-adjust to daylight saving time (DST).

DST: AUTO

Spring (First Sunday in April) : ahead one hour.

1:00AM 2:00AM

Normal Time

Daylight Saving Time

3:00AM 4:00AM

Autumn (Last Sunday in October) : back one hour.

Daylight Saving Time

1:00AM 2:00AM

Normal Time

1:00AM 2:00AM

The Camcorder is preset to DST: AUTO. If DST is not observed in your area, set to OFF by doing the following.

Press UP or DOWN to select OFF or AUTO.
Press DISPLAY to confirm entry.

```
- - DAYLIGHT SAVING TIME - -

        AUTO
        OFF

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```
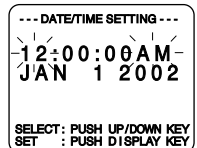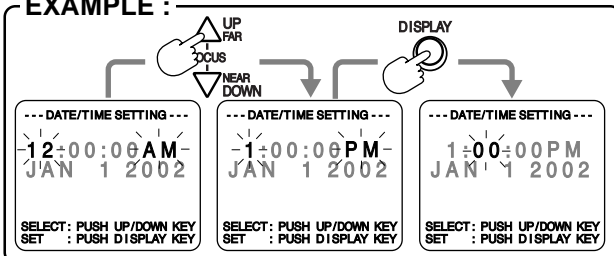
Note:
• Auto DST does not function if time zone is set to Hawaii or Samoa (see "Setting the Time Zone" above).

3c Setting Date and Time

Date and time including leap year are calculated up to DEC 31, 2099.

EXAMPLE :


```
- - - DATE/TIME SETTING - - -
12:00:00AM
JAN  1 2002

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

```
- - - DATE/TIME SETTING - - -
1:00:00PM
JAN  1 2002

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

```
- - - DATE/TIME SETTING - - -
1:00:00PM
JAN  1 2002

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

```
- - - DATE/TIME SETTING - - -
12:00:00AM
JAN  1 2002

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

Press or hold down UP or DOWN to select hour, **then press DISPLAY** to fix.
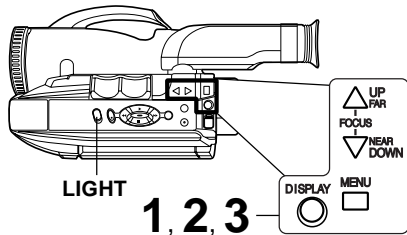
Repeat for minute, month, day, and year.

Clock starts when year is entered and **DISPLAY** is pressed.

15

Built-in Auto Light

Using the Light

For recording in dim lighting.

LIGHT

1, **2**, **3**

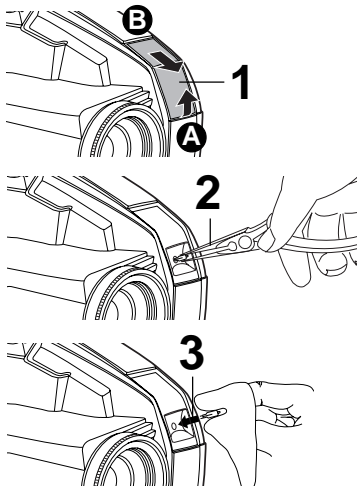**DISPLAY** **MENU**

CAUTION:
Light becomes hot.
Never cover Light while on.

Note:
• Using Light reduces battery operating time.
• Provide proper ventilation when using Light extensively in a hot environment.
• Using Light when the Camcorder is powered by a car battery may shorten bulb life.
• Set Light to OFF when not in use.

Replacing the Bulb

B

1

A

2

3

DANGER:

Use only replacement bulb (PART NO. VLLW0015) supplied by Panasonic to reduce risk of fire.
Handle new bulb with cloth or tissue as skin oils will decrease bulb life.
Remove lens cover and allow bulb to cool before replacing to avoid possible burn hazard.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
DISPLAY      ; ON
SHUTTER      ; AUTO
STAND-BY RELEASE  ; OFF
CLOCK SET
LIGHT MODE   ; OFF/ON
         ▼
SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```

1 Press <u>MENU</u> for MENU mode. **Press <u>UP</u> or <u>DOWN</u> to** select **LIGHT MODE**.

2 Press <u>DISPLAY</u> to set OFF/ON or OFF/ON/AUTO. **Press <u>MENU</u> to exit.**

3 Press <u>LIGHT</u> repeatedly for Light ON, OFF, or AUTO.
   • In AUTO, light turns itself on/off according to lighting conditions.

EVF or LCD Monitor
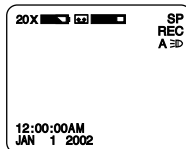
ЭD : Light is on.

A ЭD : Light mode is auto.

Before you begin...
• **Order Part No. VLLW0015 for replacement bulb.**
• **Set POWER to OFF.**

1 Slightly raise portion **A** of lens cover to unhook, and slide portion **B** forward to remove.

2 Using Tweezers or needle-nose pliers, carefully remove bulb.
   • Take unit to service center if you need assistance.

3 Replace bulb using a clean cloth or tissue. (Do not touch with fingers.)
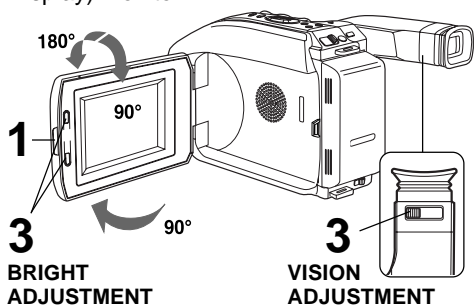
4 Replace lens cover.

Note:
• Handle bulb gently. Excessive force may cause bulb to crack.

Recording via EVF or LCD Monitor

View recording scene on EVF (Electronic Viewer Finder) or LCD (Liquid Crystal Display) monitor.

180°

90°

1

3 **90°** **3**

BRIGHT
ADJUSTMENT

VISION
ADJUSTMENT

CAUTION :
Rotating partially open LCD monitor may block cassette door and damage Camcorder body.

SPEED
SP/SLP **4**

Built-in Microphone

POWER

2, **6**

5

PHOTO
VCR OFF CAMERA
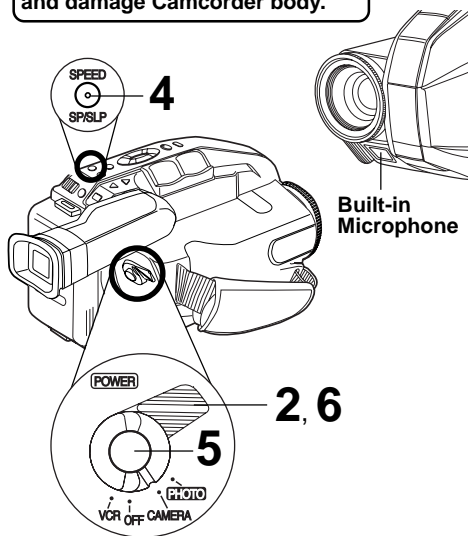
WARNING (PV-L652 only) :
• **Do not leave the camcorder with the EVF aimed directly at the sun. This may cause damage to the internal parts of the EVF.**

Note:
• When Camcorder is aimed at excessively bright objects, or bright lights, a vertical bar may appear in the picture. This is normal for the CCD pick-up. Try to avoid this when possible.
• Using LCD monitor reduces battery operation time. Return LCD monitor to locked position when not in use.

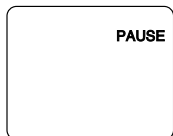**Basic Operation**

Before you begin...
• **Connect Camcorder to power source.**
• **Insert cassette with record tab (page 11).**

1 Press **LCD-OPEN** to unlock the LCD monitor. **Swing LCD monitor fully open and adjust viewing angle**.
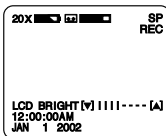   • If you want to record using EVF, close and lock LCD monitor.

2 Set **POWER to CAMERA.**
   • Be sure POWER is fully turned to CAMERA position.
   • EVF or LCD monitor turns on/off by the POWER switch.
   • EVF shuts off when LCD monitor is opened and turns back on when LCD is closed (Color EVF model only).
   • Both EVF and LCD monitor turn on when LCD is at 180° (see above left). This allows both you and the subject to view the recording.

PAUSE

EVF or LCD Monitor (Record/Pause mode)

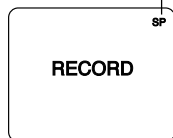**3** **LCD : Press BRIGHT ADJUSTMENT** to adjust LCD monitor brightness level.
   EVF : Look into EVF and adjust VISION ADJUSTMENT to your eyesight.

20X ▰▰ 🗆 ▰▰   SP REC
LCD BRIGHT [▼] |||| ---- [▲]
12:00:00AM
JAN 1 2002

4 Hold down **TAPE SPEED** for about 1 second to change tape speed to SP/SLP (page 11).

Tape speed

5 Press **RECORD/PAUSE** to start or pause recording.

SP
RECORD

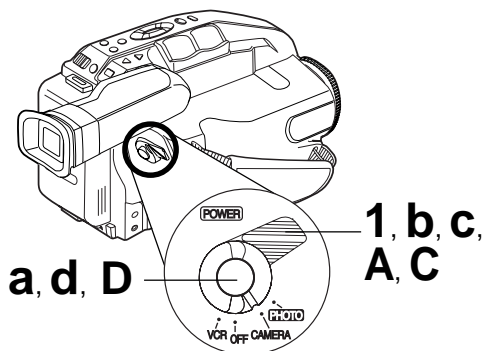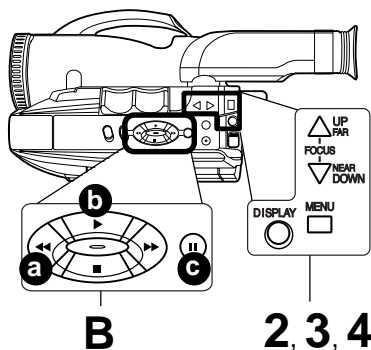**6** Set **POWER to OFF** when finished.

EVF or LCD Monitor (Record mode)

• **To remove the cassette,** slide the TAPE EJECT switch (page 11).

17

Camera Recording

Before you begin...
• **Connect Camcorder to power source.**
• **Insert cassette with record tab (page 11).**

B   **2, 3, 4**

a, d, D   **1, b, c, A, C**

Stand-by Quick Release

If left in RECORD/PAUSE mode for 5 minutes, Camcorder switches to Stand-by mode to conserve battery. When set to ON, Stand-by Quick Release lets you resume recording by pressing RECORD/PAUSE two times. Stand-by Quick Release is set to OFF at the factory.

1 Set POWER to CAMERA.

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
DISPLAY      ; ON
SHUTTER      ; AUTO
STAND-BY RELEASE ; OFF
CLOCK SET
LIGHT MODE   ; OFF/ON
        ▼
SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```

2 Press MENU for MENU mode.
Press UP or DOWN to select STAND-BY RELEASE.

3 Press DISPLAY to select ON/OFF.

  ON : From Stand-by mode, press RECORD/PAUSE two times to resume recording.

  OFF : From Stand-by mode, set POWER to OFF, then to CAMERA. Press RECORD/PAUSE to record.

4 Press MENU to exit.

Manual Easy Editing

For proper continuity when taping from Stop mode or after attaching a new Battery.

A Set POWER to VCR.

B **ⓐ** Press REWIND/SEARCH to rewind a few seconds of tape.

  ⓑ Press PLAY to review recording.

  ⓒ Press STILL where you want to continue recording.

C Set POWER to CAMERA.

D Press RECORD/PAUSE to resume recording.

Easy Edit Stand-by

For a smooth transition between scenes if recording is stopped, and then started within 24 hours.

a Press RECORD/PAUSE to stop recording.

b Set POWER to OFF and leave cassette in Camcorder.

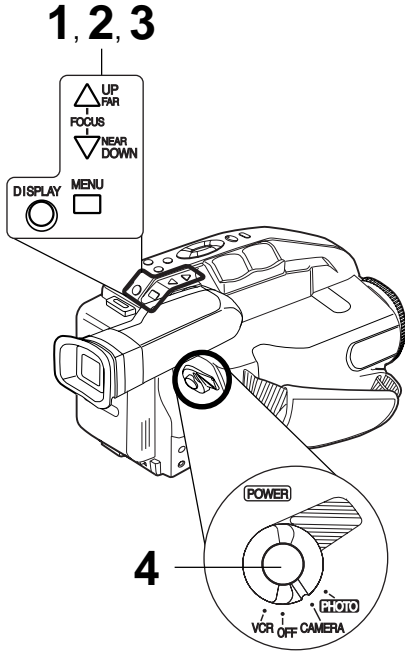**c** To resume recording, set POWER to CAMERA.

d Press RECORD/PAUSE to resume recording.

Note:
• Use Manual Easy Edit (left) if more than 24 hours before recording is resumed.

Programmed Recording

Set a recording start and stop time. Or, set a 5 or 10 second interval recording to be done each minute.

1, **2**, **3**

4

REC TIME :

10MIN. → 20MIN. → 30MIN.

INTERVAL*2 ← INTERVAL*1 ← TO TAPE
10SEC/MIN.   5SEC/MIN.   END

*1 Record 5 seconds each minute.
*2 Record 10 seconds each minute.

Before you begin...

• **Connect Camcorder to power source.
  Use AC Adaptor for longer recordings.**
• **Insert cassette with record tab (page 11).**
• **Set POWER to CAMERA.**

1 **Press MENU** for MENU mode. **Press UP or DOWN** to select **PROGRAMMED REC**.

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
DISPLAY        ; ON
SHUTTER        ; AUTO
STAND-BY RELEASE ; OFF
CLOCK SET
LIGHT MODE     ; OFF/ON
        ▼
SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 **Press DISPLAY.** (Current time is displayed.) **Each additional press of DISPLAY** increases start time by 30 minutes.

```
START ; 10:20PM
REC TIME ; 10MIN.

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
START  : PUSH RECORD KEY
CANCEL: PUSH MENU KEY
      10:20:00PM
```

3 **Press DOWN** to select **REC TIME**. **Press DISPLAY** repeatedly to select one of the options shown at left.

```
START ; 10:20PM
REC TIME ; 10MIN.

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
START  : PUSH RECORD KEY
CANCEL: PUSH MENU KEY
      10:20:00PM
```

To cancel the setup, **press MENU twice**.

4 **Press RECORD/PAUSE** to place Camcorder in stand-by mode.

```
STAND-BY
START ; 10:20PM
REC TIME ; 10MIN.

10:20:00PM
JUN  1 2002
```
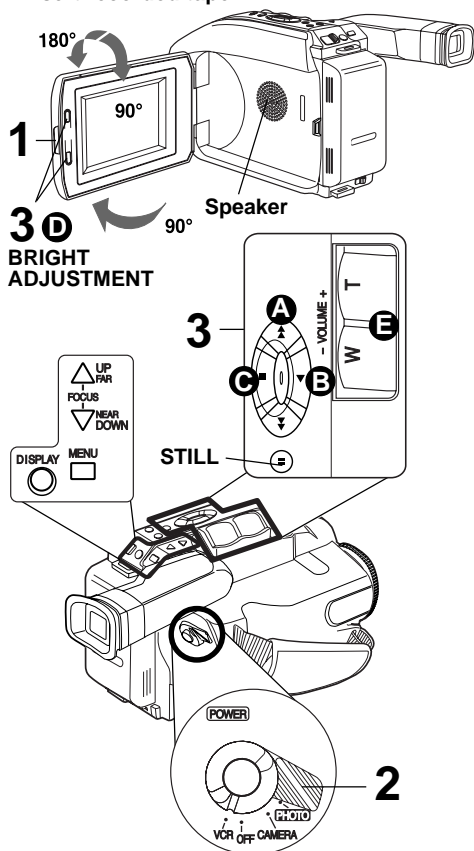
Recording will be done as scheduled.

Note:
• Start time may not be set over 24 hours from current time.
• Camcorder shuts off at tape end, or 12 hours after Interval Recording starts.
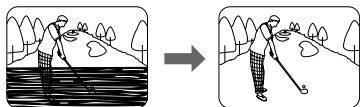• To cancel, set POWER to OFF.

Basic Operation

19

Playing Back Recordings

Before you begin...
• **Connect Camcorder to power source.**
• **Insert recorded tape.**

180°

90°

1

3 D
**BRIGHT
ADJUSTMENT**

90°

Speaker

3

A

C

B

E

– VOLUME +

T

W

UP
FAR

FOCUS

NEAR
DOWN

DISPLAY **MENU**

STILL

2

POWER

VCR **OFF** **CAMERA**

PHOTO

Tracking Control

Auto Tracking
Continuously analyzes each recording for optimum picture quality.

Manual Tracking
Some recordings require manual adjustment to reduce noise.
Press UP or DOWN until Playback picture clears up.
Press DISPLAY to return to Auto Tracking.

Playback on EVF or LCD Monitor

1 **Press LCD-OPEN** and swing LCD monitor fully open.
   • If you want to playback on EVF, close and lock LCD monitor.

2 **Set POWER to VCR.**
   • If tape has no record tab, auto playback begins.
   • EVF or LCD monitor turns on/off by the POWER switch.
   • EVF shuts off when LCD monitor is opened and turns back on when LCD is closed (Color EVF model only).

3 **Playback function buttons.**
   A REW : Rewind tape.
   B PLAY : Play tape.
   C STOP : Stop tape.
   D BRIGHT : Adjust LCD monitor brightness.
   E VOLUME: During playback, adjust volume of speaker.
   Press "T" : Volume up (+).
   Press "W" : Volume down (-).

   VOLUME [–] | | | | - - - - [+]

Note:
• Using LCD monitor reduces battery operating time. Return LCD monitor to locked position when not in use.

Special Effects

Quick Visual Search
Search Speed
• SP (Standard Play)   : 3 times normal.
• SLP (Super Long Play) : 9 times normal.

During playback, press:
• **FF** : fast forward search
• **REW** : rewind search
  Press again or press PLAY for normal play.

Still Picture
Press STILL to freeze picture.
Press again for normal play.
This feature works best in SLP mode (page 11).

Note:
• During search, horizontal noise bars will appear. Audio is muted.
• To protect video heads and tape, operating modes will revert as follows after 5 minutes:
  Still ⟶ Stand-by
  Stand-by ⟶ Power off (when Battery Pack is used).
• Tape auto-rewinds if played or fast forwarded to end.

TV Playback or Viewing

Connect Camcorder to a TV to view playback or recordings in progress.

Connections

T V

To Audio In   To Video In

Audio/ Video Out

Audio/Video Cable (Supplied)
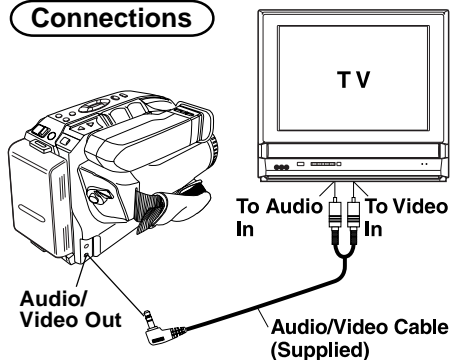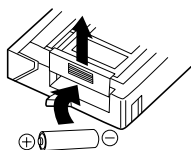
Before you begin...
• **Connect Camcorder to power source.**
• **Make all TV-Camcorder connections.**

1 Set POWER to:
   VCR → view playback.
   CAMERA → view picture as it is recorded.

2 Turn TV ON and set to LINE INPUT.
   See TV owner's manual.

3 Begin playback or recording.

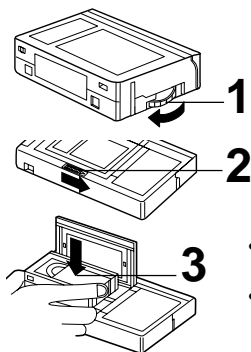**Basic Operation**

VCR Playback using PlayPak

Load Battery in PlayPak

Remove Battery lid and insert AA battery.
• Do not reverse polarity.
• Replace battery when tape loading/unloading takes longer than usual.
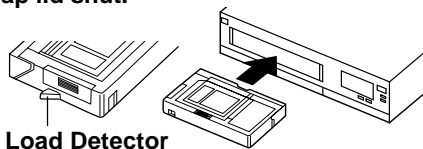
Insert VHSC Cassette in PlayPak

1 Turn VHSC cassette <u>Tape Wheel</u> in direction of arrow to take up any slack.
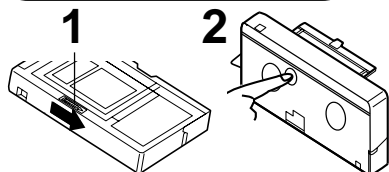
2 Slide <u>RELEASE</u> to open cassette lid.

3 Insert the VHSC cassette with the window up and on the left, **then snap lid shut.**

• Do not obstruct cassette reel while loading.
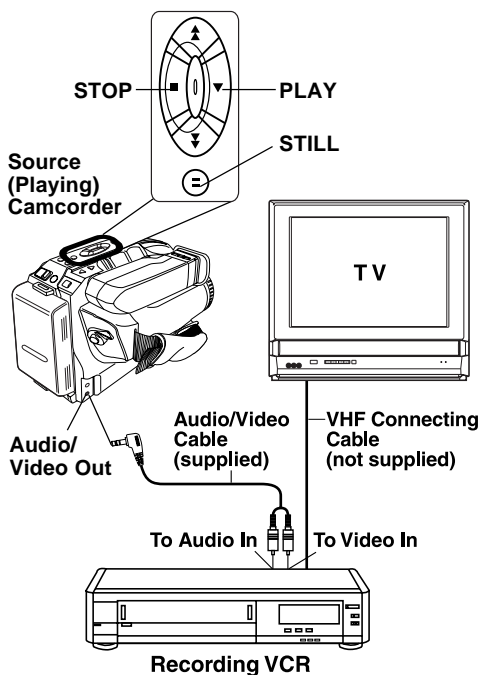• Allow PlayPak Load Detector to fully retract before using in VHS VCR.   **Load Detector**

Remove VHSC Cassette

1 Slide <u>RELEASE</u> and wait for lid to open.

2 **Push cassette out through** hole in bottom of PlayPak with your finger.

Copying your Tapes (dubbing)

Connections

STOP — PLAY

STILL

Source (Playing) Camcorder

Audio/ Video Out

T V

Audio/Video Cable (supplied)

VHF Connecting Cable (not supplied)

To Audio In   To Video In

Recording VCR

Before you begin...
• **Make Camcorder-VCR connections (see left).**
• **Turn both units on.**
• **Set VCR input signal to LINE.**
  Please see VCR owner's manual.
• **Set Camcorder POWER to VCR.**

1 Insert a <u>pre-recorded tape</u> into Camcorder and a blank tape with record tab into VCR.

2 Press <u>PLAY</u> on Camcorder, then **press STILL** at starting point.

3 Press <u>REC</u>, then <u>STILL/PAUSE</u> on VCR.

4 Press <u>STILL</u> on Camcorder and <u>STILL/ PAUSE</u> on VCR to start copying.

5 Press <u>STOP</u> on both units to stop copying.

Note:
• Camcorder will only playback tapes recorded in SP or SLP mode.
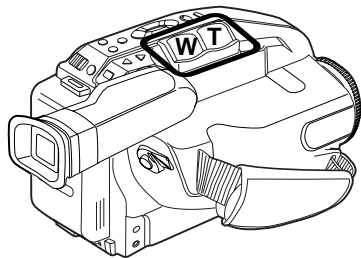• Dubbing may reduce picture quality.

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

Monitor with your TV

• Turn TV on and tune to VCR channel (CH3 or CH4).
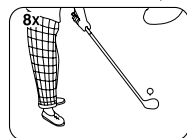• Set TV/VCR Selector on VCR to VCR.
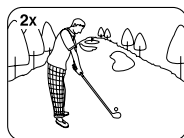
Four-Speed Power Zoom

Zoom in (close up) and out (wide angle) in one of four speeds ranging from slow (16 seconds) to fast (2 seconds).

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

Zoom In ("T")

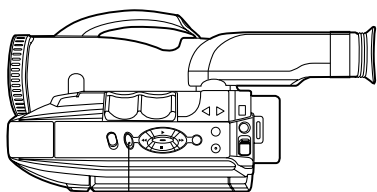**Zoom Out ("W")**

• **Zoom slowly:**
Lightly press <u>"T" (telephoto)</u> or <u>"W" (wide angle)</u> POWER ZOOM button.
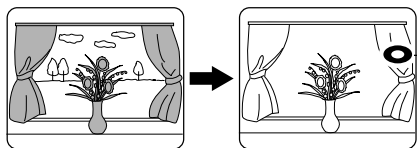
• **Zoom quickly:**
Apply more pressure to the button.

Backlight

Use when subject is darker than surroundings, in shadowed area, or in front of the light source.
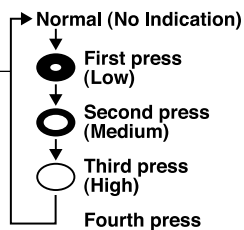
Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

Press **B.LIGHT** while recording to select the level of backlight compensation.

In normal lighting, **press B.LIGHT** repeatedly until no indicator is displayed.

B.LIGHT

Press B.LIGHT.

EVF or LCD Monitor

Normal (No Indication)

First press (Low)

Second press (Medium)

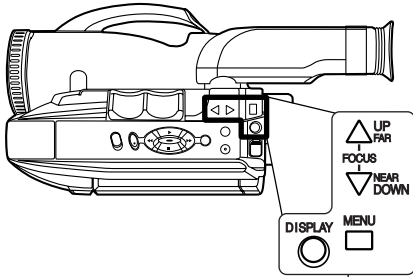Third press (High)

Fourth press

23

MagicPix™ Images

Color recording of video onto a tape in low lighting.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

1 Press **MENU** for MENU mode. **Press UP or DOWN** to select **MAGICPIX**.

```
               ▲            PAGE 2/2
SELF DEMO        ;  OFF
DIGITAL WIPE     ;  OFF
MAGICPIX         ;  OFF
MOTIONSENSOR     ;  OFF
VIDEO EFFECTS    ;  FADE
                    BLACK

SELECT: PUSH UP/DOWN KEY
SET     : PUSH DISPLAY KEY
END     : PUSH MENU KEY
```

2 Press **DISPLAY** to select ON.

3 Press **MENU** to exit.

1, **2**, **3**

Note:
• If MagicPix is turned on, Shutter feature is disabled.
• MagicPix cannot be used with capture images on the Memory Card (page 35).
• Only Manual Focus is available.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

Auto Focus

Camcorder automatically focuses on subject even during zooming.

Auto Focus is on when "MF" is not displayed in EVF or LCD monitor.
Press M.FOCUS to remove "MF" in EVF or LCD monitor if necessary.

Manual Focus

Use Manual Focus (MF) when :
• recording through glass.
• lighting is poor.
• subject is far away with objects in foreground.
• subject has distinct horizontal lines.
• subject is not centered in EVF or LCD monitor.
• subject has a shiny surface.
• subject is slanted.
• subject is bright and flat, like a white wall.
• subject has fast motion, like a golf swing.

EVF or LCD Monitor

MF

2 4

3

1

Special Features
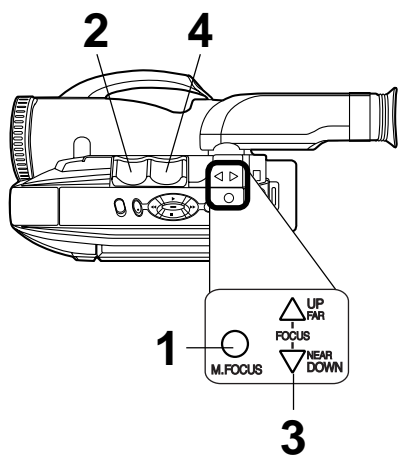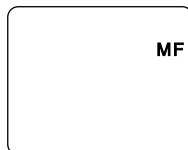
1 **Press M.FOCUS** so "MF" (Manual Focus) appears in EVF or LCD monitor.

2 **Hold down "T" (telephoto) on POWER ZOOM** to maximum zoom in.

3 **Press UP (FAR) or DOWN (NEAR)** until subject is in focus.
   • Back away from subject if necessary.

4 **Hold down "W" (wide angle) on POWER ZOOM** as desired.

• **Refocus as needed**
   when aiming at new scenes.

Macro Focus (close-ups)

Auto Focus functions up to 12.7 mm (1/2 inch) from subject.

Hold down "W" on POWER ZOOM to maximum wide angle.
Bring Camcorder up close to the subject.

25

High Speed Shutter

Improves Still or Slow Motion playback picture of high speed subjects (e.g. a tennis stroke), when viewed on Camcorder or 3 or 4 head VCR.

Before you begin...
• **Connect Camcorder to power source.**
• **Insert cassette with record tab (page 11).**
• **Set POWER to CAMERA.**

Auto Shutter

In AUTO mode (no indication in EVF or LCD Monitor), shutter speed is auto-adjusted from 1/60 to 1/350 according to subject brightness.

• AUTO mode is selected each time POWER is set to CAMERA.

Manual Selection

The faster the shutter speed, the more light is needed for proper picture and color quality. High Speed Shutter indication flashes if light is inadequate. Provide additional light.
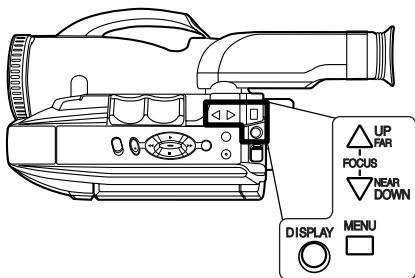
1 Press **MENU** for MENU mode.
Press **UP or DOWN** to select **SHUTTER** .

2 Press **DISPLAY repeatedly** to select shutter speed.

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
DISPLAY      ; ON
SHUTTER      ; AUTO
STAND-BY RELEASE ; OFF
CLOCK SET
LIGHT MODE   ; OFF/ON
           ▼
SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```

AUTO → 1/60 → 1/100 → 1/250 → 1/500
1/10000 ← 1/4000 ← 1/2000 ← 1/1000

**1**, **2**, **3**

3 Press **MENU** to exit.

Note:
• Shutter speed cannot be set to 1/60 if Digital E.I.S. feature is set to ON.
• Provide additional halogen or tungsten light for use indoors or in poor light. Fluorescent light degrades picture.
• Auto Focus may not function properly if high speed shutter is used in inadequate light.
• Setting reverts to AUTO each time POWER is set to CAMERA.
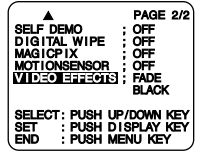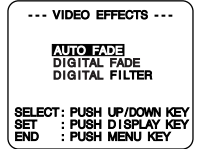
An interesting way to open and close scenes.
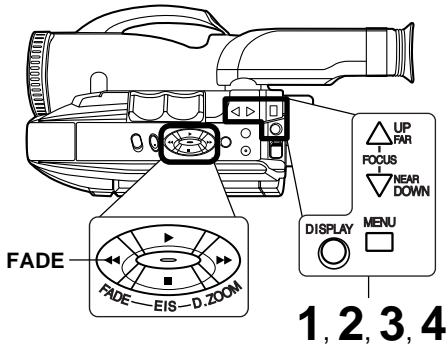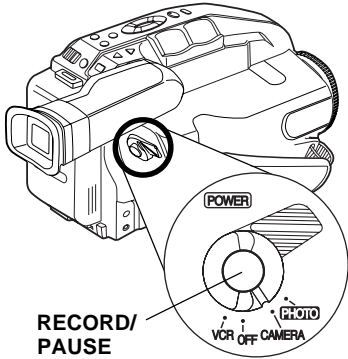
FADE

RECORD/PAUSE

1, **2**, **3**, **4**

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

1 Press <u>MENU</u> for MENU mode. Press <u>UP</u> or <u>DOWN</u> to select VIDEO EFFECTS .

```
                    PAGE 2/2
SELF DEMO      ;   OFF
DIGITAL WIPE   ;   OFF
MAGICPIX       ;   OFF
MOTIONSENSOR   ;   OFF
VIDEO EFFECTS  ;   FADE
                   BLACK

SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```

2 Press <u>DISPLAY</u> for VIDEO EFFECTS menu. Press <u>UP</u> or <u>DOWN</u> to select AUTO FADE .

```
--- VIDEO EFFECTS ---

      AUTO FADE
      DIGITAL FADE
      DIGITAL FILTER

SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```

3 Press <u>DISPLAY</u> for AUTO FADE ; COLOR menu. Press <u>UP</u> or <u>DOWN</u> to select BLACK or WHITE.

```
--- AUTO FADE ; COLOR ---

         BLACK

         WHITE

SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
```

4 Press <u>DISPLAY</u> to confirm entry. Press <u>MENU</u> to exit.

Fade In

WHITE   BLACK   **Fade Out**

| Fade In: |

In RECORD/PAUSE mode, press <u>FADE</u> so "FADE" flashes in EVF or LCD monitor.

Press <u>RECORD/PAUSE</u>.
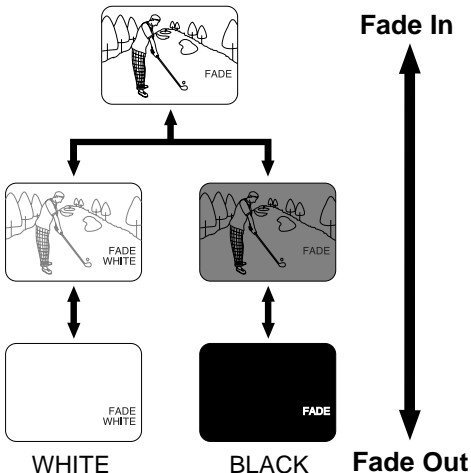Recording starts as picture and sound gradually fade in.

| Fade Out: |

While recording, press <u>FADE</u> so "FADE" flashes in EVF or LCD monitor.

Press <u>RECORD/PAUSE</u>.
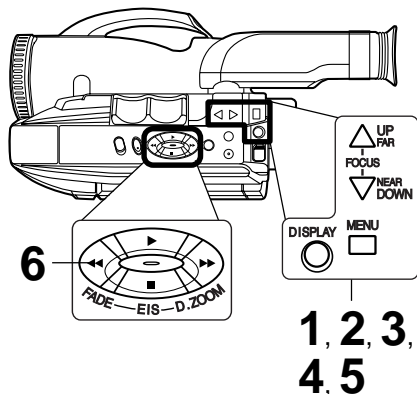Picture and sound gradually fade out, and recording is paused.

If <u>FADE</u> is pressed accidentally, press again so "FADE" disappears in EVF or LCD monitor.
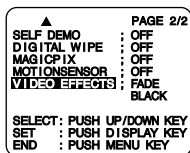
Special Features

27

Color Digital Fade
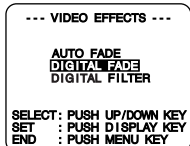
Choose from 7 fade effects in 8 different colors.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

1 Press **MENU** for MENU mode.
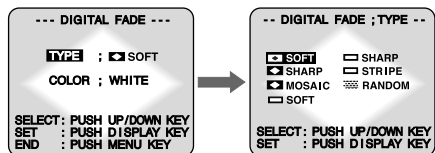Press **UP or DOWN** to select VIDEO EFFECTS .

```
                        PAGE 2/2
SELF DEMO      ;  OFF
DIGITAL WIPE   ;  OFF
MAGICPIX       ;  OFF
MOTIONSENSOR   ;  OFF
VIDEO EFFECTS  ;  FADE
                  BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 Press **DISPLAY** for VIDEO EFFECTS menu.
Press **DOWN** to select DIGITAL FADE .

```
--- VIDEO EFFECTS ---

     AUTO FADE
     DIGITAL FADE
     DIGITAL FILTER

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
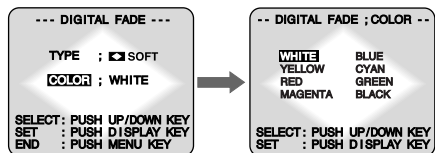
3 Press **DISPLAY** for DIGITAL FADE menu.
Press **UP or DOWN** to select TYPE .
Press **DISPLAY** for TYPE menu.
Press **UP or DOWN** to select from 7 different types of fades.
• A preview of each fade type is displayed as it is selected.

```
--- DIGITAL FADE ---

  TYPE  ;  SOFT

  COLOR ; WHITE

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

```
-- DIGITAL FADE ; TYPE --

  SOFT        SHARP
  SHARP       STRIPE
  MOSAIC      RANDOM
  SOFT

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

EVF or LCD monitor

- SFT   WHT
- SHR   YEL
- MSC   RED
- SFT   MAG
- SHR   SHR   BLU
- STR   RED   CYN
- RDM   GRN
               BLK

4 Press **DISPLAY** for DIGITAL FADE menu.
Press **DOWN** to select COLOR .
Press **DISPLAY** for COLOR menu.
Press **UP or DOWN** to select from 8 colors.
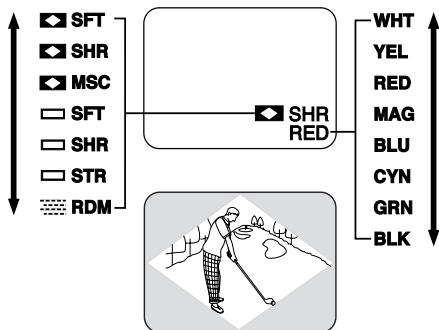• A preview of each color is displayed as it is selected.

```
--- DIGITAL FADE ---

  TYPE  ;  SOFT

  COLOR ; WHITE

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

```
-- DIGITAL FADE ; COLOR --

  WHITE       BLUE
  YELLOW      CYAN
  RED         GREEN
  MAGENTA     BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

■ For more effects, stop fade in or fade out at any time (except RANDOM mode) by pressing FADE.
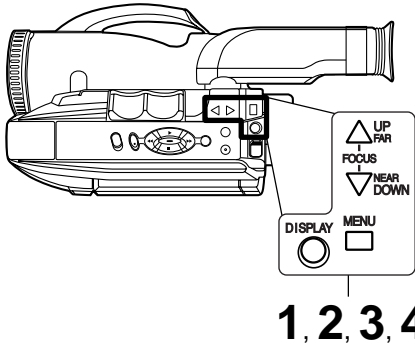Then, press FADE to resume fade.

5 Press **DISPLAY** to confirm entry.
Press **MENU twice** to exit.

6 Press **FADE** for about 2 seconds to fade out during recording (selected fade type flashes). Press **FADE again** to fade in.

Note:
• Audio is not affected by fade.
• To cancel Digital Fade, do steps 1, 2, and 5. In step 2, select AUTO FADE.

Digital Filter adds one of 5 colors to entire picture, like a color filter.

1, **2**, **3**, **4**

5

EVF or LCD monitor

D.FILTER
RED

SEPIA
YEL
RED
BLU
GRN

Before you begin...

• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

1 **Press MENU** for MENU mode.
Press UP or DOWN to select
VIDEO EFFECTS .

```
                    PAGE 2/2
SELF DEMO        ; OFF
DIGITAL WIPE     ; OFF
MAGICPIX         ; OFF
MOTIONSENSOR     ; OFF
VIDEO EFFECTS    ; FADE
                   BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 **Press DISPLAY** for VIDEO EFFECTS menu. **Press DOWN** to select
DIGITAL FILTER .

```
--- VIDEO EFFECTS ---

      AUTO FADE
      DIGITAL FADE
      DIGITAL FILTER

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

3 **Press DISPLAY** for DIGITAL FILTER menu. **Press UP or DOWN** to select from 5 colors.
• A preview of each color is displayed as it is selected.

```
-- DIGITAL FILTER ; COLOR --

   SEPIA      BLUE
   YELLOW     GREEN
   RED

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```
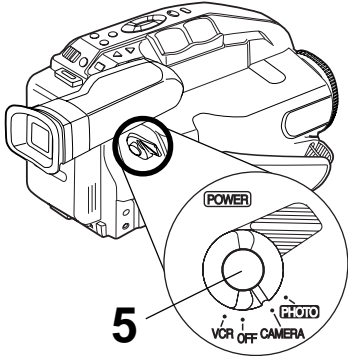
4 **Press DISPLAY** to confirm entry.
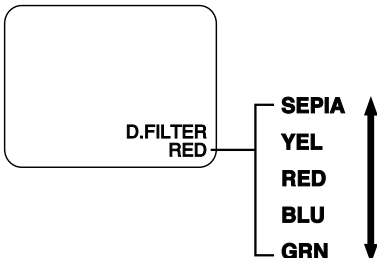**Press MENU** to exit.

5 Start recording (page 17).

• To cancel Digital Filter, **set POWER to OFF.**

Note:
• Color Digital Filter will not function during Still/Strobe/Wide.
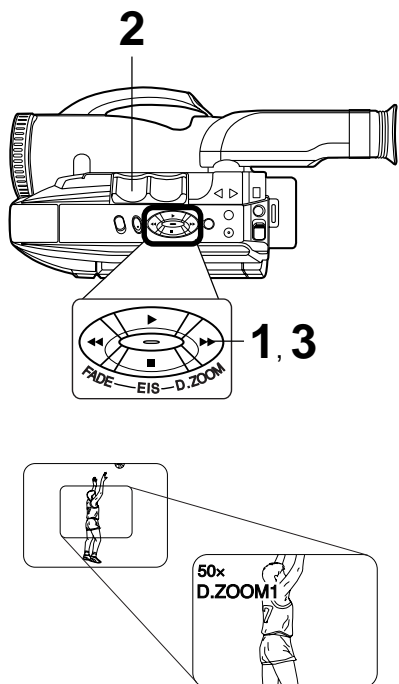• Picture returns to normal in Still mode.

Special Features

29

Digital Zoom

Power Zoom magnification is digitally increased.

2

1, 3

50×
D.ZOOM1

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**
• **Set DIGITAL WIPE to OFF in menu.**

1 **Press <u>D. ZOOM</u>.**
   once →D.ZOOM 1
      (PV-L452/PV-L652: 150× maximum)
   twice →D.ZOOM 2
      (PV-L452: 750x maximum)
      (PV-L652: 800x maximum)

   The Higher digital magnification levels may cause picture distortion.

2 **Hold down <u>"T" on POWER ZOOM</u>.**
   Digital Zoom starts when normal zoom reaches maximum (20×).
   • Zoom level appears in EVF or LCD monitor.
   • POWER ZOOM switch controls digital zoom level.
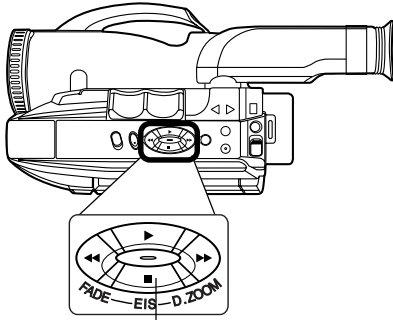   • Normal zoom resumes when level falls to 20×.

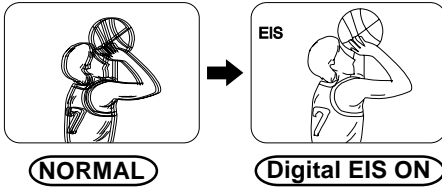**3** **Press <u>D. ZOOM</u>** to turn off Digital Zoom so no indication appears.

Helps stabilize picture when recording in unstable situations.

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**

1, **2**

(NORMAL)   (Digital EIS ON)

1 **Press EIS** to display "EIS" in the EVF or LCD monitor.
   • Image becomes slightly enlarged and shutter speed auto-adjusts from 1/80 to 1/350 according to brightness.
   • Use High Speed Shutter (page 26) if needed. Shutter speed setting remains after EIS is canceled.

2 **Press EIS again** to cancel when not in use.
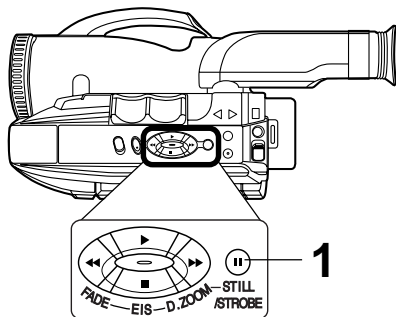
E.I.S. may not function during...
• extreme Camcorder movement.
• recording of subjects with distinct horizontal or vertical stripes.
• low light situations (EIS indicator flashes).
• intense fluorescent lighting situations.
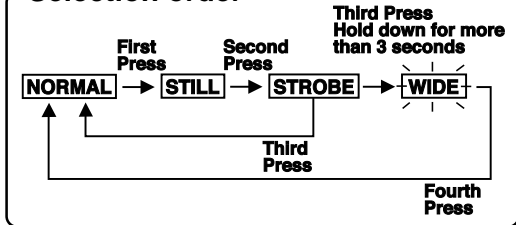• recording of very fast motion.

Special Features

31

Still/ Strobe/ Wide

Before you begin...
- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Set DIGITAL WIPE to OFF in menu.**

1 **Press STILL/STROBE repeatedly** for desired function as described below.

Selection order

Third Press
Hold down for more than 3 seconds

First Press → Second Press
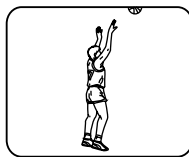
NORMAL → STILL → STROBE → WIDE
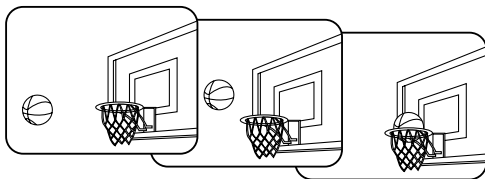
Third Press

Fourth Press

STILL
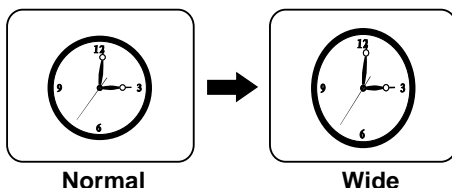Records a still image from the current picture.

STROBE
Records a progression of still images in 1/6 of a sec. intervals.

WIDE SCREEN
Records a picture that will fill entire screen of a wide screen (16×9 aspect ratio) TV.
- Picture appears distorted in EVF or LCD monitor.

Normal   **Wide**

Note:
- Pressing STILL/STROBE with DIGITAL WIPE set to ON will display "NOW IN DIGITAL WIPE" and Still/Strobe/Wide feature cannot be used.
- Wide screen recordings must be played back on a wide screen TV (16×9 aspect ratio) or picture will be distorted.

MotionSensor

Recording starts automatically if motion is detected.
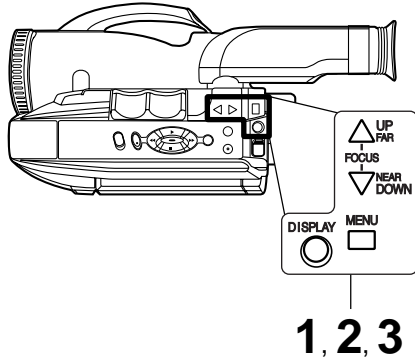
Before you begin...
- **Connect Camcorder to power source. Use AC Adaptor for longer recordings.**
- **Insert cassette with record tab (page 11).**
- **Set POWER to CAMERA.**
- **Securely position and aim Camcorder.**

1 **Press MENU** for MENU mode. **Press UP or DOWN** to select **MOTIONSENSOR**.

```
                    ▲           PAGE 2/2
SELF DEMO        ; OFF
DIGITAL WIPE     ; OFF
MAGICPIX         ; OFF
MOTIONSENSOR     ; OFF
VIDEO EFFECTS    ; FADE
                             BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 **Press DISPLAY** to select ON.

3 **Press MENU** for MotionSensor stand-by mode. (If cassette is not inserted, "⟳⟳" will flash.)

```
  MOTION              MOTION
  SENSOR     ◄──►     SENSOR
  STAND-BY                    REC
```
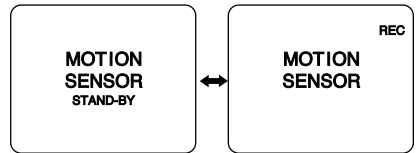
- Recording will start about 3 seconds after motion is detected.
- Date and time are recorded if displayed in EVF or LCD monitor (page 15).
- Recording stops about 30 seconds after motion ceases.

To cancel MotionSensor Mode, **set POWER to OFF.**

MotionSensor may mistakenly start when:
- background is plain, like a white wall, or has distinct vertical, horizontal, or slanted stripes, like a venetian blind.
- brightness suddenly changes.

MotionSensor may not start when:
- motion is very slow or fast.
- moving object is very small.
- motion occurs only in 1 corner of viewing area.
- in poor lighting (in this case, MOTIONSENSOR flashes).
- background is plain, like a white wall, or has distinct horizontal or vertical stripes.

Note:
- MotionSensor recording starts if Camcorder is bumped or repositioned.
- This feature is not available during normal recording.
- While in MotionSensor stand-by, the following functions are not available: Record/Pause, Stand-by mode, Digital E.I.S., Video Effects (Auto/Digital Fade, Digital Filter).

Special Features

33

Digital Still Camera

Memory Card* Insertion/ Removal

Before you begin...
• **Connect Camcorder to power source.**
• **Set POWER to OFF.**

*Memory Card: MultiMediaCard or SD Memory Card.
Captured images will be stored on the Memory Card.
Be sure to insert the Memory Card before using the Built-in Digital Still Camera.
Listed below are the Memory Cards which can be used with this Camcorder.

Memory Card	Capacity
Memory Card (LSFT0262) (supplied)	8 MB
MultiMediaCard (SanDisk brand)	8 MB, 16 MB
SD Memory Card (optional) (See page 51.)	16 MB, 32 MB, 64 MB

SD Memory Card write protection switch

A write protection switch is located on the SD Memory Card. Sliding the switch to the "LOCK" position prevents writing on or formatting the card.
— Write protection switch
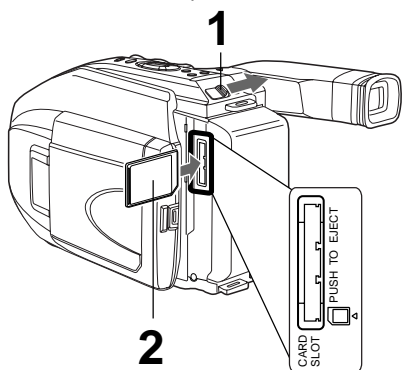
1 **Slide TAPE EJECT** to open door.

2 **Fully insert the Memory Card,** with the sloped corner down, into the Card Slot in the direction of the arrow. (See diagram.)

3 **Push in on the inserted Card** to eject.

Note:
• If Memory Card is not inserted, "NO CARD" appears on-screen.
• Do not insert card in wrong direction. (This would become the basis for trouble.)
• If "CARD ERROR" appears on-screen, see page 56.

■ Concerning the Memory Card

• Except for some special features, this card is compatible with other Panasonic brand products, like Digital Camera (DMC-LC5, DMC-F7).
• Panasonic only guarantees compatibility with Panasonic brand cards and those bearing the SanDisk logo.
• This Camcorder can capture a maximum of 697 still images because of camera memory capacity.
  In order to capture 697 images, a larger Memory Card (optional) with approx. 62 MB of memory is needed for FINE mode and approx. 21 MB is needed for Normal mode.
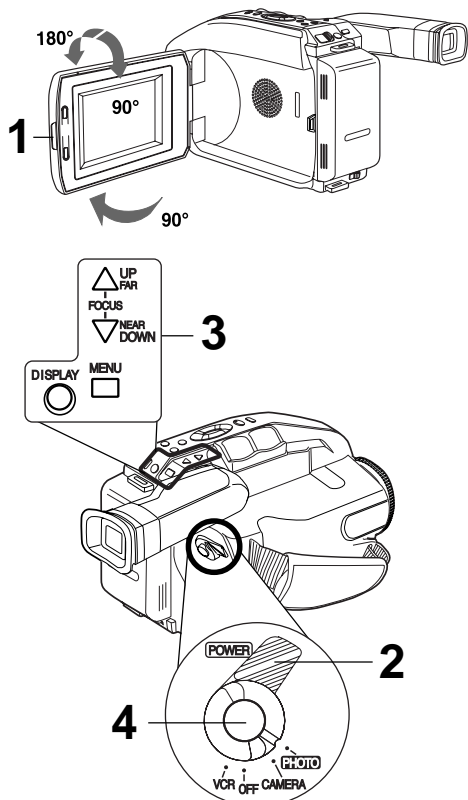
Cautions for the Memory Card :

• While Memory Card data is being read, do not remove it, turn off the power, or subject unit to vibrations and shocks.
• Do not leave the Memory Card in a place with high temperature, exposed to direct sunlight, or where electromagnetic waves and static electricity can be generated.
• Electromagnetic waves, static electricity, malfunction of the Camcorder or of the Memory Card itself could erase the data recorded on it. To prevent the loss of picture data, we recommend that you make a backup copy on the computer.
• Do not bend or drop the Memory Card as this could damage it or the captured contents.
• Do not touch the connector on the rear edge of the Memory Card with your fingers, and take care that no dirt, dust or water enters it.
• Do not affix other labels to the Memory Card face or back as Card insertion/removal may become impossible.

Recording

Note:
• Please note that the included 8 MB Memory Card already contains 12 pre-recorded titles for your use. Please see page 52 for further details.
• If Memory Card is not inserted, "NO CARD" appears on-screen.
  Set POWER to OFF, then insert the Memory Card.
• If "CARD ERROR" appears on-screen, see page 56.
• Sound will not be recorded.
• The features below are not available while in PHOTO mode.
  • Auto Fade   • Digital Fade
  • Color Digital Filter • Digital Zoom
  • Digital E.I.S.   • Still/Strobe/Wide
  • MotionSensor
  • Digital Wipe Mode
  • Picture in Picture Wipe Title

Before you begin...
• **Connect Camcorder to power source.**
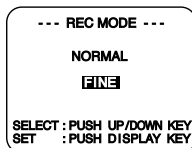• **Insert the Memory Card (page 34).**

1 Press **LCD-OPEN** and swing LCD monitor fully open. Adjust viewing angle.

2 Set **POWER to PHOTO.**
 • Be sure POWER is fully rotated to PHOTO position.

```
060 FINE    [====]    PHOTO




REC MODE : PUSH  MENU  KEY
```
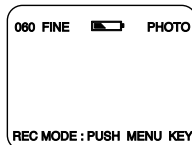
3 Press **MENU** for REC MODE menu. **Press UP or DOWN** to select **NORMAL** or **FINE** (page 48). Then, **press DISPLAY** to set.

```
- - -  REC MODE  - - -

       NORMAL
       FINE

SELECT : PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

4 Press **RECORD/PAUSE** to capture image.
  • As the image is processed, the status screens below appear.
    The next image may be captured after "COMPLETED" disappears.
  • Depending on the image taken, the image page remaining indication may not change, or it may be decreased by 2 images.

```
060 FINE   [===]   PHOTO         059 FINE   [===]   PHOTO


   PROCESSING           →           COMPLETED
```
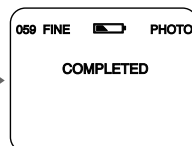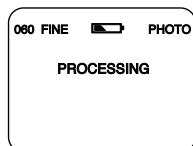
  • For sharper images, set electronic shutter to higher speed when shooting in bright conditions, such as outdoors.

WARNING:
Do not, under any circumstances, remove the card immediately after pressing the RECORD/PAUSE (during recording of an image) or while deleting. This could damage the format of the card and make it unusable.
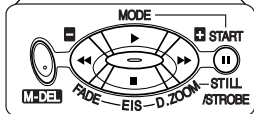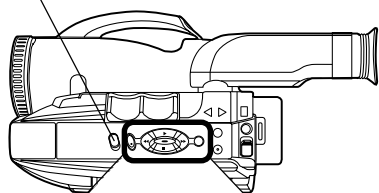
Special Features

35

Digital Still Camera

Before you begin...
• **Connect Camcorder to power source.**
• **Insert the Memory Card (page 34).**
• **Set POWER to PHOTO.**

1

180°

90°

90°

LIGHT

2, **3**, **4**

MODE

START

STILL
/STROBE

FADE — EIS — D.ZOOM

M-DEL
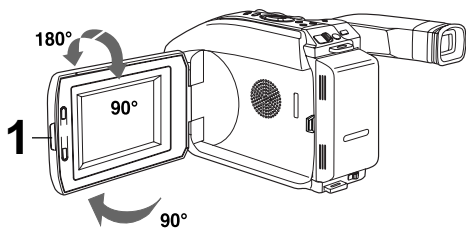
Note:
• If Memory Card is not inserted, "NO CARD" appears on-screen. Set Power to OFF, then insert the Memory Card.
• Pictures captured with other brand products cannot be used with this Camcorder.
• If "INCOMPATIBLE IMAGE" appears on-screen, the size of the captured image cannot be played back on this Camcorder.
• Do not change POWER setting to CAMERA or change recording mode while "PLEASE WAIT" is displayed.
• If "CARD ERROR" appears on-screen, see page 56.

Using the Light

For capture of still images in dim lighting.

Set LIGHT to AUTO.
When **RECORD/PAUSE** is pressed to capture an image in dim lighting, the Light comes on for about 2 seconds, the image is captured, then the light goes out.

Or, set LIGHT to ON/OFF manually.
(See page 16 for further details.)

Playback

1 **Press LCD-OPEN** and swing LCD monitor fully open. Adjust viewing angle.

2 **Press ▶ (PLAY)** to play mode. The Multi Image Playback screen appears. The last captured image screen is underlined.

1	2	3
4	5	6

SELECT : PUSH –/+ KEY
SET : PUSH ▶ KEY
DELETE : M-DEL EXIT : ■ KEY
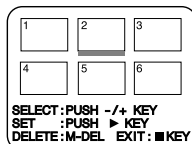
• If there are no recordings on the card, "NO PICTURE" appears on-screen.
• In NORMAL or FINE mode, the color of the Multi Image page number is as follows:

NORMAL mode → green
FINE mode → white

**3** **Press + (FF) → next.**
Press – (REW) → previous.
• The selected image will be underlined in green.
• Continue pressing + (FF) or – (REW) for next or previous page.

4 **Press ▶ (PLAY)** to display image. This screen appears followed by image.

002 FINE   PHOTO

PLEASE WAIT

SELECT : PUSH –/+ KEY
MULTI : PUSH ■ KEY
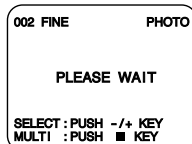
• Press DISPLAY to remove or redisplay this screen.
• Press ■ (STOP) to redisplay Multi Image playback screen.
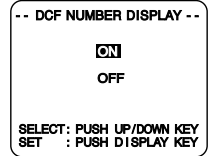
Displayed Directory/Image Number
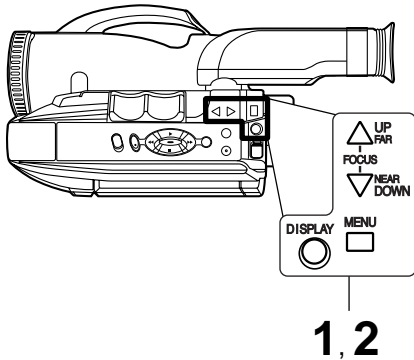
Before you begin...
• **Connect Camcorder to power source.**
• **Insert the Memory Card (page 34).**
• **Set POWER to PHOTO.**

1 Repeat steps 1 and 2 on page 36 to display Multi Image Playback screen. Select any image and press ▶ (PLAY).

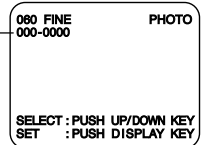**2** **Press MENU** for DCF NUMBER DISPLAY menu.
Press UP or DOWN to select ON or OFF. Then, **press DISPLAY** to set.

```
- - DCF NUMBER DISPLAY - -

            ON
           OFF


SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
```

ON → Directory/Image Number is displayed.
OFF→ Directory/Image Number is not displayed.

Directory/Image Number
```
080 FINE          PHOTO
000-0000




SELECT : PUSH UP/DOWN KEY
SET     : PUSH DISPLAY KEY
```

1, **2**

Note:
• Directory/Image Number "xxx-xxxx" (x indicates the number) is assigned automatically.
• Even if ON is set, if the Directory/Image Number does not correspond with DCF it is not displayed.
• The Directory/Image Number becomes the folder and file name when viewed with card reader.
• This product is compliant with DCF (Design rule for Camera File System). Images saved on the Memory Card using other Digital Still Cameras that are compliant with DCF can be viewed on this product.

Special Features

37

Digital Still Camera

Delete Specific Images

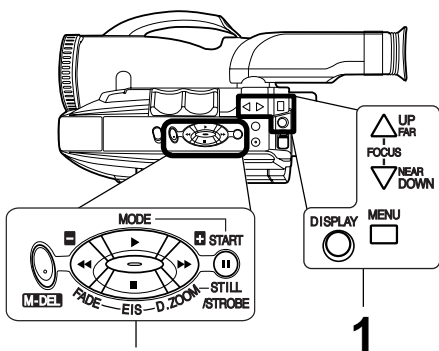You can delete unwanted images and increase the remaining image memory.

Important :
Once deleted, images cannot be restored.

DELETE PAGE : Deleting Specific Image Pages.
DELETE ALL : Deleting All Image Pages.
FORMAT : Format the Memory Card.

1, **2**, **3**

Note:
- Pictures captured with other brand products cannot be used with this Camcorder.
- If "CARD ERROR" appears on-screen, see page 56.

WARNING :
Do not, under any circumstances, remove the card immediately after pressing the RECORD/PAUSE (during recording of an image) or while deleting. This could damage the format of the card and make it unusable.
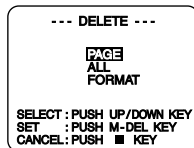
Before you begin...

- **Connect Camcorder to power source.**
- **Insert the Memory Card (page 34).**
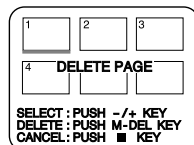- **Set POWER to PHOTO.**
  Press ▶ (PLAY) to play mode.

Deleting Specific Image Pages

1 **Press M-DEL** for DELETE menu. **Press UP or DOWN** to select **PAGE**.
• To exit menu at any time, press STOP.

```
- - - DELETE - - -

      PAGE
      ALL
      FORMAT

SELECT : PUSH UP/DOWN KEY
SET    : PUSH M-DEL KEY
CANCEL : PUSH ■ KEY
```

2 **Press M-DEL** for Multi Image screen. **Press + (FF) or - (REW)** to select image page. **Press M-DEL** to set.

```
 1      2      3

 4     DELETE PAGE

SELECT : PUSH -/+ KEY
DELETE : PUSH M-DEL KEY
CANCEL : PUSH ■ KEY
```

3 **Press M-DEL** to delete the page.
• As image pages are deleted, page numbers adjust automatically.

```
 1      2      3

      DELETE PAGES
 4    ARE YOU SURE?

YES    : PUSH M-DEL KEY
CANCEL : PUSH ■ KEY
```
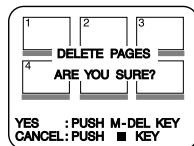
Deleting All Image Pages

1 Do step 1 above, and select **ALL**.

2 **Press M-DEL.** The screen right is displayed.

```
 1      2      3

      DELETE ALL
 4    ARE YOU SURE?

YES    : PUSH M-DEL KEY
CANCEL : PUSH ■ KEY
```
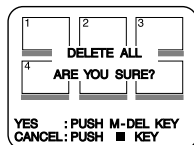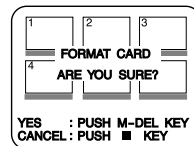
3 **Press M-DEL** to delete all pages.
• "NO PICTURE" appears on-screen after deletion.

Format the Memory Card

1 Do step 1 above, and select **FORMAT**.

2 **Press M-DEL.** The screen right is displayed.

```
 1      2      3

      FORMAT CARD
 4    ARE YOU SURE?

YES    : PUSH M-DEL KEY
CANCEL : PUSH ■ KEY
```
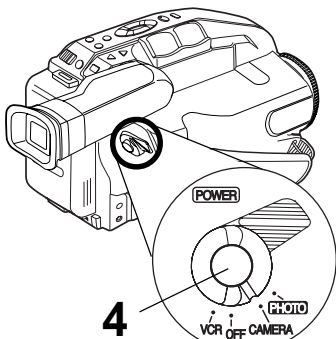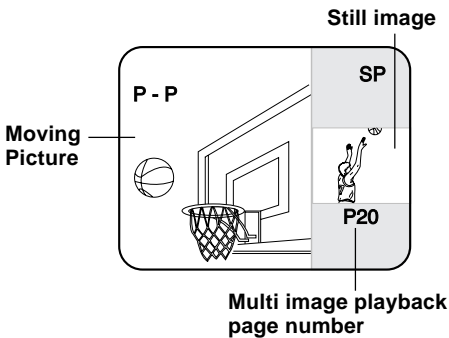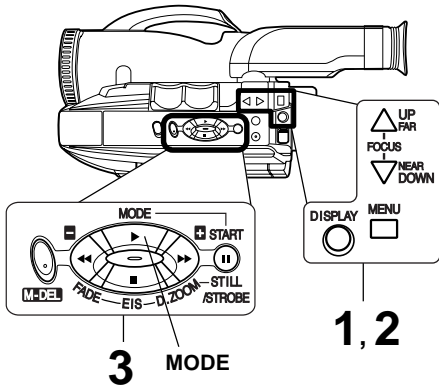
3 **Press M-DEL** and all image data is deleted from the Memory Card.
• "NO PICTURE" appears on-screen after deletion.

Picture in Picture Wipe Title

Captured still images (page 35) can be recorded along with the current picture.

Still image

```
         SP
P - P
Moving
Picture
         P20
```

Multi image playback page number

3   MODE

1, 2

4

Before you begin...
• **Connect Camcorder to power source.**
• **Insert the Memory Card (page 34).**
• **Set POWER to CAMERA.**

(P - P = Picture in Picture)

1 Press **MENU** for MENU mode.
Press UP or DOWN to select **DIGITAL WIPE**.

```
                        PAGE 2/2
SELF DEMO          :  OFF
DIGITAL WIPE       :  OFF
MAGICPIX           :  OFF
MOTIONSENSOR       :  OFF
VIDEO EFFECTS      :  FADE
                      BLACK

SELECT: PUSH UP/DOWN KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 Press **DISPLAY** to select ON.
Press MENU to exit.
   • A still image captured on the Memory Card and the Multi image playback page number is displayed on the right side of the screen.
   • If there are no recordings on the card, "NO PICTURE" appears on-screen.

3 Press **+ (FF) or - (REW)** to select still image to be used.

4 Start recording (page 17).
   • When recording starts, Multi image playback number disappears. Then the captured still images can be recorded along with the current picture.
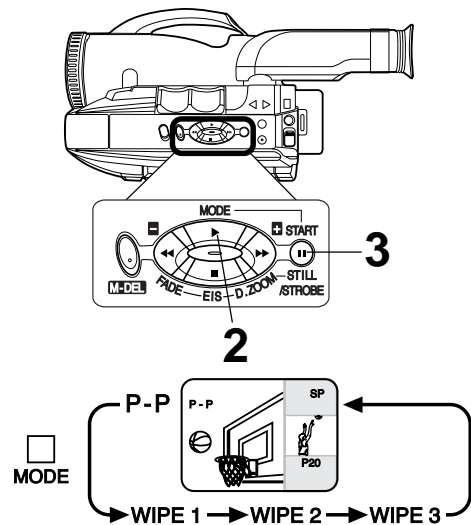   • To exit from the Picture in Picture Wipe title mode, **press MODE** (page 40).

Note:
• If Memory Card is not inserted, "NO CARD" appears on-screen. Set Power to OFF, then insert the Memory Card.
• Pictures captured with other brand products cannot be used with this Camcorder.
• If "INCOMPATIBLE IMAGE" appears on-screen, the size of the captured image cannot be played back on this Camcorder.
• If "CARD ERROR" appears on-screen, see page 56.
• If Picture in Picture Wipe Title is selected, the following functions are not available: MotionSensor, Auto Fade, Digital Fade, Color Digital Filter, Digital Zoom, Digital E.I.S., Still/Strobe/Wide.

Special Features

39

Digital Still Camera

Digital Wipe Mode

Insert a captured still image into the current recording, or vice versa, in one of three wipe effects.

MODE

P-P → WIPE 1 → WIPE 2 → WIPE 3

START (first press)

WIPE 1   WIPE 2   WIPE 3

(Current Recording)

(Captured image)

START (second press)

WIPE 1   WIPE 2   WIPE 3

(Captured image)

(Current Recording)

Before you begin...
• **Connect Camcorder to power source.**
• **Insert the Memory Card (page 34).**
• **Set POWER to CAMERA.**

1 Repeat steps 1-3 on page 39 to set Picture in Picture Wipe title.

2 **Press MODE repeatedly** for Wipe effect 1, 2, or 3 (See left).
   • WIPE 1 will flash for a while to store the image for the wipe.

3 **Press START:**

   once → inserts captured image.

   twice → inserts current recording picture.

   • You can freeze the wipe in progress by pressing START. Press START again to resume wipe.

Note:
• If Memory Card is not inserted, "NO CARD" appears on-screen. Set Power to OFF, then insert the Memory Card.
• Pictures captured with other brand products cannot be used with this Camcorder.
• If "INCOMPATIBLE IMAGE" appears on-screen, the size of the captured image cannot be played back on this Camcorder.
• If "CARD ERROR" appears on-screen, see page 56.
• If Digital Wipe mode is selected, the following functions are not available: MotionSensor, Auto Fade, Digital Fade, Color Digital Filter, Digital Zoom, Digital E.I.S., Still/Strobe/Wide.
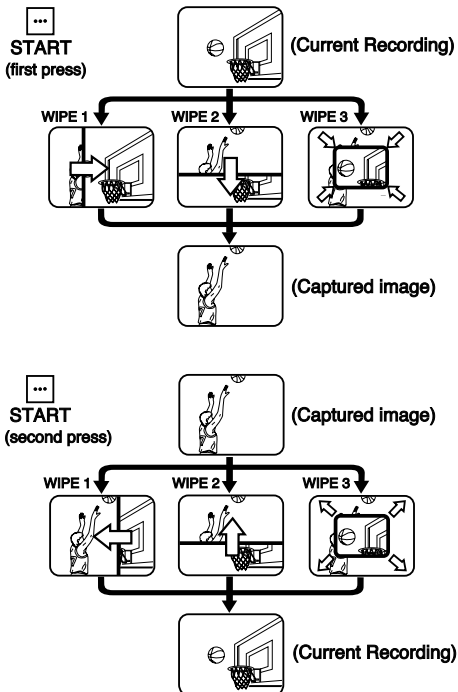
Digital PhotoShot Software

A live or captured image can be transferred to your PC (Personal Computer).

Before you begin...
• **Turn your PC off.**
• **Set Camcorder POWER to OFF.**

System Requirements for Digital PhotoShot

• IBM PC/AT or compatible.
• Intel® Pentium® Processor.
• Microsoft® Windows®95 or Windows®98 or Windows®Me or Windows®2000.
• RAM: 16 MB or more.
• 2 MB of 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.

PC-Camcorder Connection

Connect Camcorder PC jack to the serial port on your PC (Personal Computer) using the supplied PC connector cable.
Refer to PC or Windows manual to identify which COM port to be used for connection.

Note:
• Be sure to turn PC off before connection for proper image transfer.
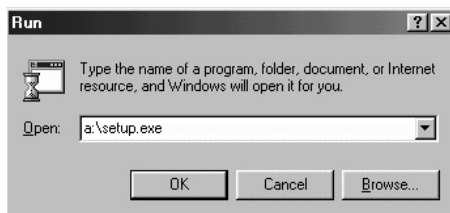• After Camcorder and PC are connected by starting up the software included, video recording is not possible.

RS-232C Serial Port (Default is COM1) (D-Sub 9-pin)

PC Connector

PC Connector cable (supplied)
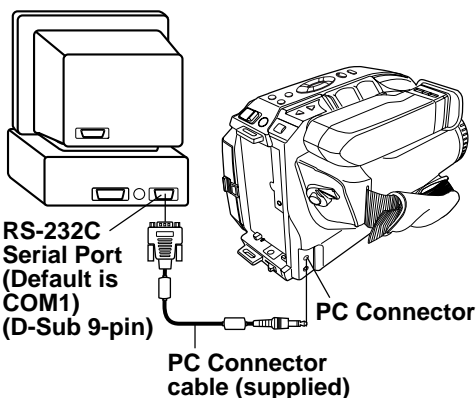
Software Installation (Windows 95/98/Me/2000)

Before you begin...
• **Your PC is in the power on mode.**

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

2 **Insert Digital PhotoShot disk (Windows 95/98/Me/2000)** into a floppy disk drive.

3 Click on Start, then "**R**un..."

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

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

Programs
Documents
Settings
Search
Help
Run...
Log Off Hama...
Shut Down...

Start

Run

Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

Open: a:\setup.exe

OK   Cancel   Browse...

Special Features

41

PC Connection

Before you begin...
• **Insert the Memory Card (page 34).**
• **Make Camcorder-PC connections (page 41).**
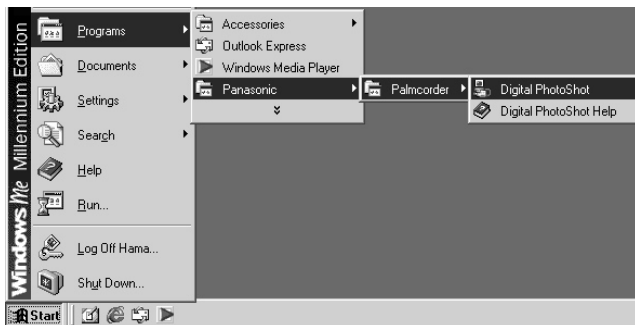• **Turn your PC on.**
• **Set Camcorder POWER to PHOTO.**

Running the Software (Windows 95/98/Me/2000)

1 **Select Programs/ Panasonic/Palmcorder/ Digital PhotoShot from the Start menu.**

2 **"Digital PhotoShot" is opened.**

Note:
• COM Port and Baudrate are automatically selected.

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

Using Live Image Data

You can capture the current Camcorder picture to your PC.

1 Repeat steps 1 and 2 on above to run the Software.

2 **Click on "Window," then select "1 Live image Window."**

3 **Click on "Preview," then Click on "Capture."**
• Repeat this step to decide on an image.
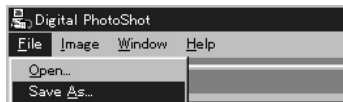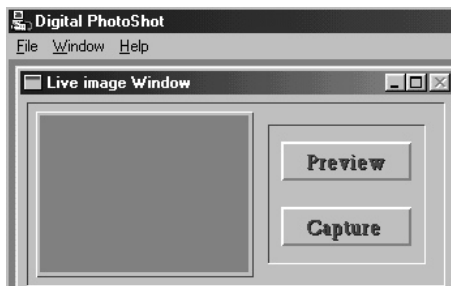• Captured image is transferred to your PC when you click on "Capture".

4 **Click on "Window," then select "Live photo Zoom In."**

5 **Click on "File," then select "Save As."**
• Captured image is stored to your PC.

Note:
• If, while transferring the image to your PC, the displayed picture appears abnormal, restart the PC application and turn Camcorder POWER off, and then back on.

Before you begin...
• **Insert the Memory Card (page 34).**
• **Make Camcorder-PC connections (page 41).**
• **Turn your PC on.**
• **Set Camcorder POWER to PHOTO.**

Using Memory Card Image Data

Pictures captured with your Camcorder can be transferred to your PC.

1 Repeat steps 1 and 2 on page 42 to run the Software.

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

3 Select the image data you want to transfer to your PC.
• The selected image will be underlined in green.

4 **Click on:**

Transfer
• The picture image is transferred to your PC and displayed.
Delete
• The picture image is deleted.
Save...
• The picture image is transferred to your PC and displayed. Save window appears.

Note:
• If, while transferring the image to your PC, the displayed picture appears abnormal, restart the PC application and turn Camcorder POWER off, and then back on.

Using PC Image Data

You can use JPEG or Bitmap files from your PC for Picture in Picture Wipe Title and Digital Wipe by transferring them to the Camcorder using the Digital PhotoShot Software.

**1** Repeat steps 1 and 2 on page 42 to run the Software.

2 **Click on "Window," then select " 2 Preview Window."**

3 **Click on "File," then Click on "Open."**
• At your PC, please select and open the data you want to transfer to the Camcorder.

Note:
• When transferring image data larger than VGA size (640x480) from the PC to the Camcorder, the perimeter of the image is cropped to VGA size.

4 **Click on "File," then select "Data out to camera," then select Fine or Normal mode.**
• Your PC image data is transferred to the Camcorder.

Special Features
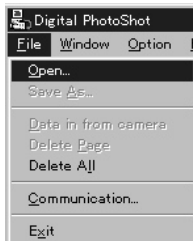
PC Connection

Driver Quick Reference

1 2 3 4   5

---
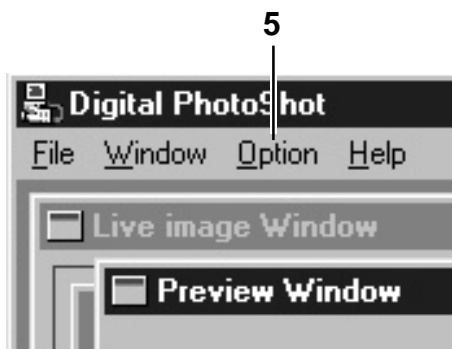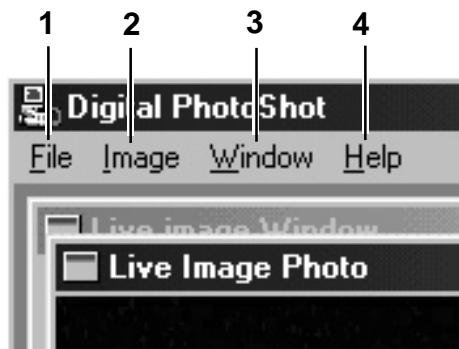
1 File
  • **Open...**
    To open an existing image (Bitmap or JPEG).
  • **Save As**
    To save the active image file under a new file name while preserving the original file.
  • **Data in from CAMERA**
    To display a dialog box listing all images in the Card memory along with Preview, Transfer, Delete, etc. commands.
  • **Delete Page**
    To delete the selected image from the Card memory.
  • **Delete All**
    To delete all images from the Card memory.
  • **Communication**
    To specify the port to which the Camcorder is connected.
  • **Print...**
    To print the currently active image.
  • **Exit**
    To quit the "Digital PhotoShot" application.

2 Image
  • **Image Adjustment**
    To modify the captured image as desired.
  • **Copy to Clipboad**
    To copy a view image to clipboad.
3 Window
  • **Close Image**
    Select "Close image" to close all view windows.
  • **Live Photo Zoom In**
    To open a view window.
4 Help
  • **Help**
    To display the Help screen.
  • **About**
   To display software version information.
5 Option
  • **Reload**
    To load the picture from the Camcorder to your PC again when Camcorder Memory Card was changed.

Using a SD PCMCIA Adaptor (optional)

If your PC has a PCMCIA type II slot, you can insert the Memory Card into a SD PCMCIA adaptor (optional, page 51) to transfer images, captured with this Camcorder only, to your PC.

Inserting a Memory Card

1

2, 5

3, 4
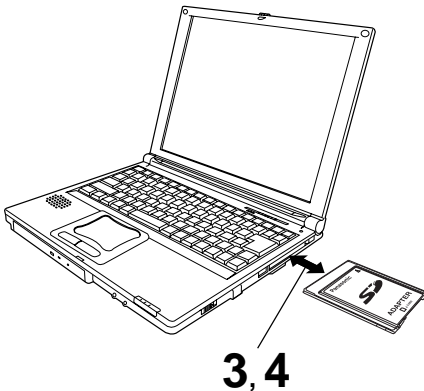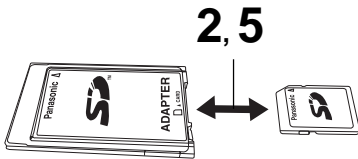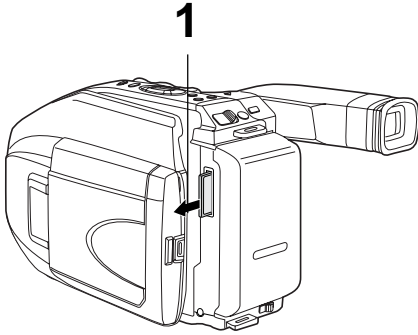
Before you begin...
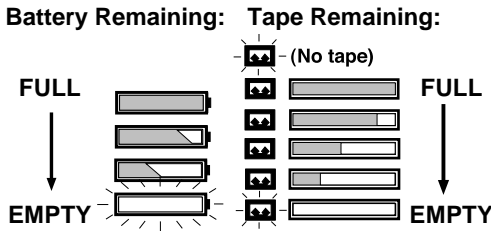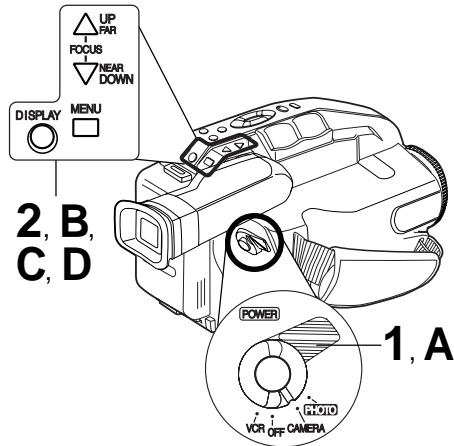• **Turn your PC on.**
• **Set Camcorder POWER to OFF.**

1 Remove the **Memory Card** from the Camcorder (page 34).

2 Hold the **Memory Card** so that the arrow side faces up and points toward the **SD PCMCIA Adaptor**. Securely insert the card into the SD PCMCIA Adaptor slot as far as it will go.

3 Hold the **SD PCMCIA Adaptor** so that the arrow side points toward the PCMCIA type II slot of **your PC (Personal Computer)**. Securely insert the SD PCMCIA Adaptor as far as it will go.

• Depending on the PC, it may be necessary to turn the SD PCMCIA Adaptor upside down in order to insert the card.

4 To remove, push the eject button on your PC (may vary by machine) and pull the **SD PCMCIA Adaptor** out until it is no longer inserted in the **PC (Personal Computer)**.

5 Pull the **Memory Card** out of the **SD PCMCIA Adaptor**.

Note:
• Do not remove the SD PCMCIA Adaptor from the PC while the PC is working or while image data is being transferred between the Memory Card and the PC (including operation such as opening and storing images), this will cause irreversible damage to the memory.
• If you change file name or folder in the memory card, the images will be displayed properly on PHOTO mode.
• If your PC does not have a PCMCIA type II slot but has a USB port, you can use the optional SD USB Reader/Writer (optional, see page 51).
Please carefully read the Operating Instructions that come with the SD USB Reader/Writer before using.
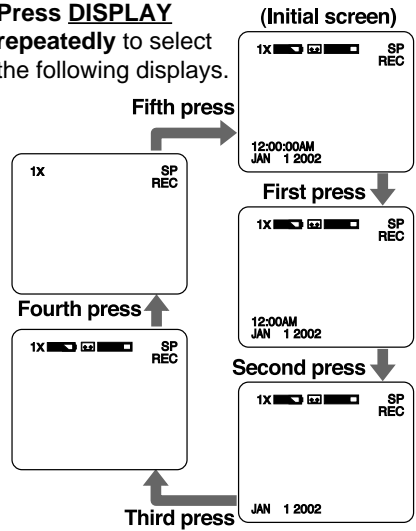
Special Features

45

Viewfinder/LCD Monitor Indications

Tape remaining and battery charge level can be displayed.

UP
FAR
FOCUS
NEAR
DOWN

DISPLAY   MENU

2, **B**,
C, **D**

POWER

1, **A**

PHOTO
VCR OFF CAMERA

Battery Remaining: **Tape Remaining:**

(No tape)

FULL   FULL

EMPTY   EMPTY

Before you begin...
• **Connect Camcorder to power source.**

1 Set <u>POWER to CAMERA</u>.

2 Press <u>DISPLAY</u> **repeatedly** to select the following displays.

(Initial screen)

1X   SP
            REC

12:00:00AM
JAN 1 2002

Fifth press

1X   SP
            REC

First press

1X   SP
            REC

12:00AM
JAN 1 2002

Fourth press

1X   SP
            REC

Second press

1X   SP
            REC

Third press

JAN 1 2002

• Tape remaining indicator operates a few seconds after tape starts moving.
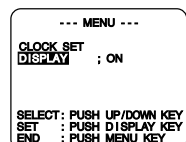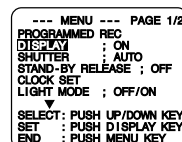
Recording the Date and Time

a Do steps 1 and 2 above to select time/date, date only, or no display.

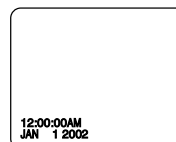**b** Start a recording (page 17).
• Only the Date and/or Time are recorded.
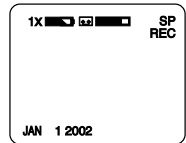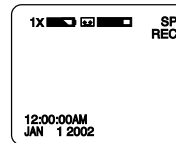
1X   SP
            REC

12:00:00AM
JAN 1 2002

1X   SP
            REC

JAN 1 2002

Display-Off Mode

A Set <u>POWER to CAMERA or VCR</u>.

B Press <u>MENU</u> for MENU mode.
Press <u>UP</u> or <u>DOWN</u> to select DISPLAY .

C Press <u>DISPLAY</u> to select OFF.
Press <u>MENU</u> to exit.

D Press <u>DISPLAY</u> repeatedly to remove time/date.
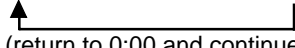
Indications are restored the next time Camcorder is turned on.

```
--- MENU ---  PAGE 1/2
PROGRAMMED REC
DISPLAY      ; ON
SHUTTER      ; AUTO
STAND-BY RELEASE ; OFF
CLOCK SET
LIGHT MODE   ; OFF/ON
       ▼
SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```
[CAMERA MODE]

```
--- MENU ---

CLOCK SET
DISPLAY      ; ON



SELECT: PUSH UP/DOWN KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```
[VCR MODE]

12:00:00AM
JAN 1 2002

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

Viewfinder/LCD Monitor Indications

CAMERA/VCR mode

```
        1    2        3        4    5
6  ─── 300x ▣▣ ▣▣▣  0:20 SLP
7, 8 ── EIS   1/10000    ▣REC ─── 15
9  ─── D.ZOOM 1   STILL   ∃DMF ● ── 16
                                   ─── 17
10, 11, 12 ──  CHECK TAPE      ─── 18
                               ─── 19

13 ─── WIDE
14 ─── 12:00:00AM         FADE ── 20
       JAN 1 2002      ◆SHR
                        RED  ── 21, 22
```
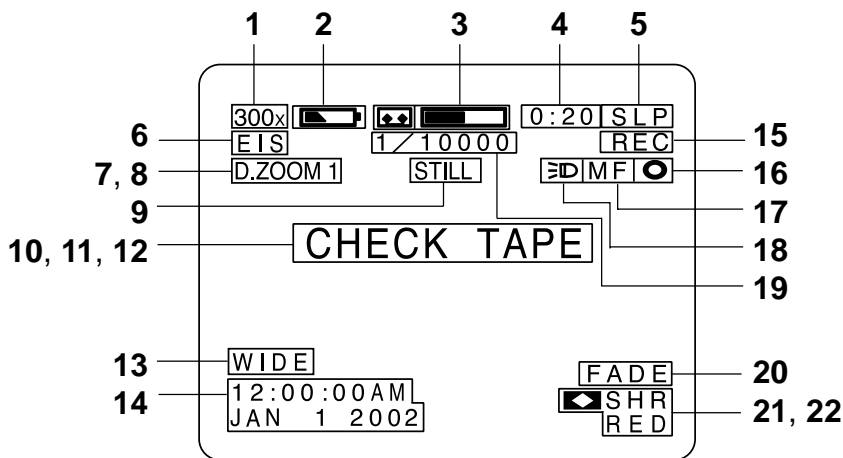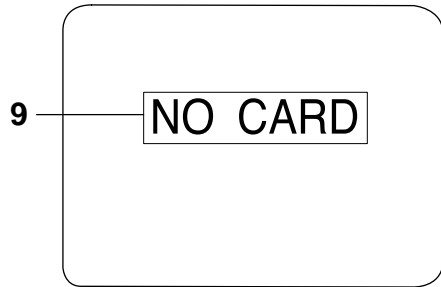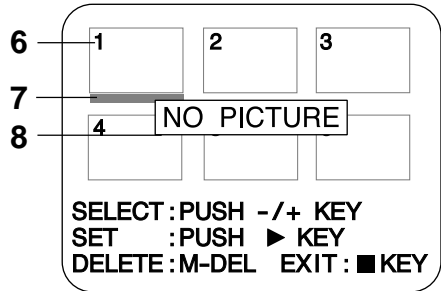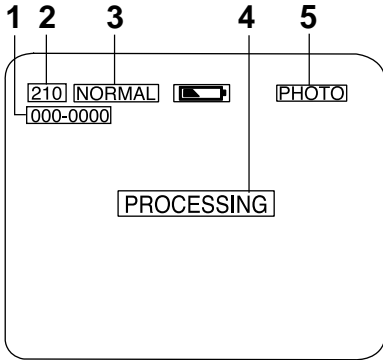
1 **Zoom Magnification level** (pages 23, 30).

2 **Battery Remaining** ⸺ (page 46).
"WARNING LOW BATTERY" appears and Camcorder shuts off after 15 seconds.

3 **Tape Remaining** (page 46).
"▣▣" flashes and "TAPE END" appears for 5 seconds when:
• End of tape is reached.

"▣▣" flashes 1 minute and "CHECK TAPE" appears for 5 seconds when:
• RECORD/PAUSE is pressed with no cassette, or cassette has no record tab in Camera (RECORD) mode.
• PLAY, FF or REW is pressed with no cassette inserted in VCR mode.

4 **10-Second Reminder**
Each time a recording is started, a 10 second incremental display (up to 59:50) lets you monitor how long one scene is recorded.

0:00 0:10 0:20 . . . . . 59:50
▲
(return to 0:00 and continue)

5 **TAPE SPEED** (pages 11, 17).
(SP=standard play,
 SLP=super long play).

6 **Digital E.I.S.** (page 31).

7 **Digital Zoom** (page 30).

8 **Digital Wipe** (pages 39, 40).

9 **Still/Strobe** (page 32).

10 **VCR-MODE**
"VCR-MODE" appears 1 minute when POWER is set to VCR or if RECORD/PAUSE is pressed in VCR mode.

11 **DEW**
If moisture condensation occurs in unit, "WARNING DEW DETECTED" appears, and Camcorder will shut off in 15 seconds. Wait until "WARNING" no longer indicates when Camcorder is turned on to use.

12 **MotionSensor** (page 33).

13 **Wide Screen** (page 32).

14 **Date and Time** (pages 14, 15).

15 **Operating Mode**
• **REC** (record)   • **PAUSE**
• **FF** (fast forward)   • **PLAY**
• **REW** (rewind)

16 **Backlight** (page 23).

17 **Manual Focus** (page 25).

18 **Light ON/OFF/AUTO** (page 16).

19 **High Speed Shutter** (page 26).

20 **Fade** (page 27).

21 **Color Digital Fade** (page 28).

22 **Color Digital Filter** (page 29).

For Your Information

47

PHOTO mode

1 2   3   4   5

210 NORMAL [battery]   PHOTO
000-0000

PROCESSING

6 1   2   3

7

8 4   NO PICTURE

SELECT : PUSH -/+ KEY
SET   : PUSH ▶ KEY
DELETE : M-DEL   EXIT : ■ KEY

9   NO CARD

---

1 Directory/Image Number (page 37)

2 Image Page Remaining Indication
(page 35)
• Image pages left in selected mode.
  "000" flashes when memory is full.
• Memory capacity provided all pictures
  are taken in the same mode:
  "NORMAL" mode→Approx 210 images
  (Supplied 8 MB Memory Card)
  "FINE" mode   →Approx 60 images
  (Supplied 8 MB Memory Card)

3 REC MODE
• NORMAL or FINE mode.
• Image Size :
  "NORMAL" mode→ 320 x 240 pixels.
  "FINE" mode   → 640 x 480 pixels.

4 Image Status Indication
Image status is displayed when captured.

PROCESSING:
Image is being processed.
Note: Do not change setting to CAMERA
or change recording mode while
"PROCESSING" is displayed.

COMPLETED:
Image processing is completed.
The next image may be captured when
"COMPLETED" disappears.

PLEASE WAIT:
Displayed when image is selected from
Multi Image Playback screen.
Note: Do not change POWER setting to
CAMERA or change recording mode
while "PLEASE WAIT" is displayed.

5 Recording Mode
• POWER is set to PHOTO.

6 Multi Image Playback page number.

**7 Currently selected image is
underlined in green or white.**
"NORMAL" mode → green
"FINE" mode   → white

8 Image Status Indication

NO PICTURE:
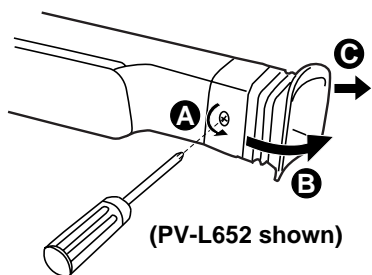No image is captured, all images are
deleted from card.

9 MEMORY CARD Indication
When the Memory Card is not inserted
in CAMERA or PHOTO mode, "NO
CARD" appears.
If the Memory Card is defective,
"CARD ERROR" appears.

Cleaning EVF (Electronic Viewer Finder)

To Remove

(PV-L652 shown)

1
Ⓐ Remove the screw with a Phillips screwdriver.
Turn counterclockwise.
Ⓑ Turn the EVF Eyepiece.
Ⓒ Pull the EVF Eyepiece.

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

3
Replace the EVF Eyepiece and the screw.

Notice

For model PV-L452

This product utilizes both a Cathode Ray Tube (CRT) and other components that contain lead. It also has a fluorescent lamp containing a small amount of mercury. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <http://www.eiae.org.>

For model PV-L652

This product has a fluorescent lamp that contains a small amount of mercury. It also contains lead in some components. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <http://www.eiae.org.>

ATTENTION :

A nickel cadmium battery that is recyclable powers the product you have purchased. At the end of its useful life, under various state and local laws, it is illegal to dispose of this battery into your municipal waste stream. Please call 1-800-8-BATTERY for information on how to recycle this battery.

For Your Information

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Replacing Clock Battery

The clock battery is pre-installed. Follow the steps below if replacement becomes necessary.

WARNING:

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 promptly. Keep away from children. Do not recharge, disassemble or dispose of in fire.

Clock Battery

Tripod Mounting Hole

Underside View
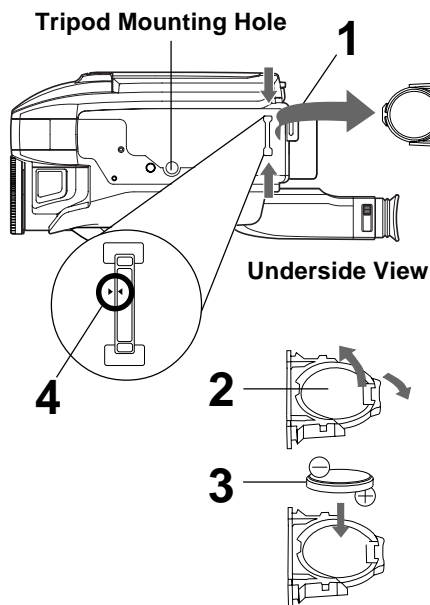
1 While pinching the 2 tabs, pull Battery Tray out.

2 Bend middle tab out and remove Battery.

3 Snap new Battery ($\oplus$ mark down) into Battery Tray.
• Do not reverse the polarity.

4 Insert Battery Tray so the triangle marks meet.

Note:
• Keep Battery out of children's reach. Swallowing it may be harmful.
• Improper installation, discharge, or missing battery causes "CLOCK BATTERY" to appear when DISPLAY is pressed.
• Battery life is approximately 5 years.

Palmcorder Accessory System

To order instructions, see the Accessory Order Form page.
• The listed standard battery use times are based on continuous recording using this Palmcorder.

Accessory #	Figure	Description	Price
PV-A19		**AC Adaptor with DC Power Cable** (Charging of the Nickel Cadmium Battery or Nickel Metal Hydride Battery)	**Call For Pricing**
PV-A20		**AC Adaptor with DC Power Cable** (Charging of the Nickel Cadmium Battery or Nickel Metal Hydride Battery)	**Call For Pricing**
HHR-V60A/1B		**Up to 6 hr Battery Pack** (Rechargeable Nickel Metal Hydride Battery)	**$119.95**
HHR-V40A/1B		**Up to 4 hr Battery Pack** (Rechargeable Nickel Metal Hydride Battery)	**$69.95**
HHR-V20A/1B		**Up to 2 hr Battery Pack** (Rechargeable Nickel Metal Hydride Battery)	**$59.95**
PV-AA6		**"AA" Battery Case**	**$20.00**
PV-C16		**Car Battery Cord**	**$70.00**
PV-P1		**VHS PlayPak**	**$39.95**
PV-H18A		**Soft Sided**	**$49.95**
RP-SD064BPPA RP-SD032BPPA RP-SD016BPPA		**64 MB SD Memory Card 32 MB SD Memory Card 16 MB SD Memory Card**	**Call For Pricing**
BN-SDCAPE/1B		**USB Reader/Writer for SD Memory Card** (compatible with MultiMediaCard)	**$79.95**
BN-SDABPE/1B		**SD PCMCIA Adaptor** (compatible with MultiMediaCard)	**$79.95**

Note:
• Prices subject to change without notice.

Palmcorder Accessory System

Concerning the Memory Card (MultiMediaCard and SD Memory Card)

- Model PV-L452/PV-L652 can be used with either a MultiMediaCard or a SD Memory Card.
- Both of these exterior Memory Cards (MultiMediaCard and SD Memory Card) are lightweight and removable.
- Both Memory Cards (MultiMediaCard and SD Memory Card) are offered in a variety of memory sizes, so you can purchase a higher capacity Memory Card if desired.

Pre-recorded Titles

The supplied Memory Card is prerecorded with the following titles which can be inserted into a recording.

1	2	3
Palmcorder	**Anniversary**	**Happy Birthday**
4	5	6
Bon Voyage	**Congratulations**	**Graduation**
7	8	9
It's a Girl!	**It's a Boy!**	**Our Wedding**
10	11	12
Surprise!	**The Wedding**	**Vacation!**

Warning

- Titles can be permanently erased from the Memory Card, e.g. formatting the card or using the delete all images feature (page 38).
- If a title is erased, the remaining title numbers will change.

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 or 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 ( )   _____

For Your Information

Specifications

Power Source:	Compact VHS Camcorder: DC 6 V AC Adaptor: 110/120/220/240 V AC, 50/60 Hz Battery: Nickel-Cadmium Type DC 6 V
Power Consumption:	Compact VHS Camcorder: 6V DC 8.5 W (Max. 11.5 W) AC Adaptor: 19 W 1.2 W (when not in use.)
Video Signal:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	2 rotary heads plus flying erase head. Helical scanning system
Audio:	1 track
Pick-Up System:	Sequential color difference field reverse system
Pick-Up Device:	One integral color filter Charge Coupled Device (CCD)
Lens:	20:1 zoom lens, F1:1.7 with auto iris control Focal length: 3.8 mm - 76.0 mm 4 speed power zoom function
Viewfinder:	10.2 mm (0.4 inch) Electronic Viewfinder **(PV-L452)** 14 mm (0.55 inch) Liquid Crystal Color Electronic Viewfinder **(PV-L652)**
LCD Monitor:	63.5 mm (2.5 inch) Liquid Crystal Display **(PV-L452)** 76.2 mm (3.0 inch) Liquid Crystal Display **(PV-L652)**
Memory:	8 MB SD Memory Card
Image Size:	FINE: 640 × 480 pixels Normal: 320 × 240 pixels
Image Storage:	FINE: Approx. 60 images Normal: Approx. 210 images
Image Format:	JPEG
Minimum Illumination Required:	0.8 lx (F1:1.6) 0.08 footcandles 7 lx (F1:1.6) 0.7 footcandles (EIA Standard)
Operating Temperature:	0 °C~40 °C (32 °F~104 °F)
Operating Humidity:	10 %~75 %
Weight:	Compact VHS Camcorder: 1.00 kg **(PV-L452)** 2.20 lbs. 0.98 kg **(PV-L652)** 2.16 lbs. AC Adaptor: 0.3 kg 0.66 lbs.
Dimensions:	Compact VHS Camcorder: 106 (W) × 125 (H) × 190.5 (D) mm **(PV-L452)** 4-3/16 (W) × 4-15/16 (H) × 7-1/2 (D) inch 109.5 (W) × 122.5 (H) × 190.5 (D) mm **(PV-L652)** 4-5/16 (W) × 4-13/16 (H) × 7-1/2 (D) inch AC Adaptor: 68 (W) × 41 (H) × 140 (D) mm 2-11/16 (W) × 1-5/8 (H) × 5-1/2 (D) inch

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

If a problem arises, you may be able to correct it yourself.
See Symptom and Correction list below.

Symptom	Correction
No picture in EVF or LCD monitor ...	• Connect Power Source. (pp. 9, 10) • Set POWER to VCR or CAMERA. (pp. 17, 20) • Check for Dew Indication. (p. 47) • Use fully charged Battery. (p. 9) • Firmly connect all needed cables. (p. 10)
The right side of the screen appears grayish...	• Be sure DIGITAL WIPE is set to ON. (p. 39)
Video cassette cannot be inserted ...	• Connect Power Source. (pp. 9, 10) • Insert cassette, window side facing out. (p. 11)
Video cassette cannot be removed ...	• Connect Power Source. (pp. 9, 10)
Operation buttons do not work ...	• Check for Dew Indication. (p. 47)
Recording cannot be done ...	• Make sure record tab is intact. (p. 11) • Check Battery Indicator. (p. 46) • Check for Dew Indication. (p. 47)
Auto Focus does not operate ...	• Set FOCUS to AUTO. (p. 25) • Set POWER to CAMERA. (p. 17)
Sound from microphone can't be monitored ...	• Set unit to REC or Record/Pause mode.
Camera picture is too dark ...	• Set HIGH SPEED SHUTTER to AUTO. (p. 26)
No playback picture, or the playback picture is noisy or contains streaks ...	• Press UP/DOWN button during playback (Tracking Control). (p.20)
"Panasonic ITS TAPES CAN PLAY IN YOUR VCR ..." appears in EVF or LCD Monitor ...	• Set POWER to CAMERA, then set SELF DEMO : OFF in MENU screen to cancel Demo mode. (p. 7)
"NO CARD" appears in EVF or LCD Monitor ...	• Make sure Memory Card is inserted. (p. 34)
Cannot capture the image ...	• Set POWER to PHOTO. (p. 35) • No memory remaining. Delete some images before capturing more images.
Cannot playback Still image ...	• Set POWER to PHOTO. (p. 36) • Make sure Memory Card is inserted. (p. 34)
"NO PICTURE" appears in EVF or LCD Monitor ...	• There are no images in memory.
Top of playback picture waves back and forth excessively ...	• A playback signal is not as stable as an off the air TV signal, so the top of your TV screen may appear bent or unstable during playback. This is called, "Horizontal AFC time constant change." To correct, slowly turn the TV horizontal hold control. If your TV does not have this control, or adjusting it does not help, contact your TV service center. (Some nominal service charges may be required.)

Video Head Cleaning

Clogged Video Head

While head cleaning is normally not needed, playing old or damaged tapes may clog the heads. When playback picture resembles example at the left, head cleaning is required.

Ideally, head cleaning should be performed by a qualified service technician. When this is not possible, purchase a head cleaning cassette. Be sure to follow cleaning cassette instructions exactly and only use when symptoms occur.

For Your Information

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Before Requesting Service

Self Diagnostic System

If any of the following numbers appear on-screen, the camcorder may have a problem.
Do not remove the battery (if attached) and write down the displayed number on below.
Then, take the camcorder to a service center for repair.

Error No.	Description
U11	Card Error
U12	Card Error
U13	Card Error
U14	Card/Camcorder Dialogue Error
U15	No Card Memory
U16	Captured image limit exceeded
U17	Captured image limit exceeded
U30	Error other than above

Request for Service Notice

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 above)

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/QUASAR Video Products
Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair or replace this product with new or refurbished parts or equivalent product, 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)
DVD/VCR DECK	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail-In	1-800-211-PANA(7262)
DIGITAL STILL CAMERA	ONE (1) YEAR, EXCEPT CCD IMAGE SENSOR CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS NINETY (90) DAYS	Carry-In or Mail-In	1-800-272-7033
A/V MIXER	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail-In	1-800-211-PANA(7262)
TV/VCR, TV/DVD TV/DVD/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)
TV/HDR COMBINATION	ONE (1) YEAR, EXCEPT CRT CRT - TWO (2) YEARS	NINETY (90) DAYS CRT - NINETY (90) DAYS	In-Home or Carry-In	1-888-843-9788

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

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

<u>Memory cards</u> (if included) - Exchange defective item for new one for ninety (90) 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 Servicenter 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 02/ 12/ 2001

For Your Information

Servicenter List

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

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

GEORGIA
8655 Roswell Road
Suite 100
Atlanta, GA 30350

ILLINOIS
1709 North Randall Road
Elgin, IL 60123

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 Infantería. Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985
Phone (787) 750-4300   Fax (787) 768-2910

As of Sep. 2001

Antes de comenzar...
• Inserte un casete con lengüeta para prevención del grabado.

Cargue la batería

Cargue completamente la batería antes de usarla.
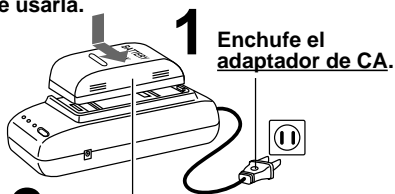
1 Enchufe el adaptador de CA.

2 Instale la batería. El indicador de carga (CHARGE) parpadea, luego queda encendido si ha terminado la carga. **Desmonte la batería.**

Inserte el casete
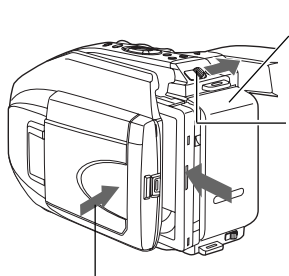
1 Coloque la batería cargada.

2 Deslice TAPE EJECT para abrir la compuerta.

3 Inserte el casete.

4 Presione aquí para cerrar la compuerta.

Grabación con la videocámara

Cuando el monitor LCD está completamente abierto, el visor se desconecta automáticamente (PV-L652).

1 Presione LCD-OPEN para abrir el monitor LCD. **Abralo completamente y ajuste el ángulo.**

180°
90°
90°
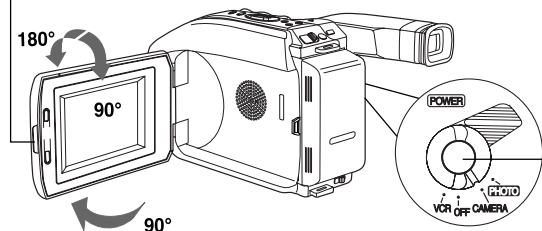
2 Ajuste POWER a CAMERA.

3 Presione RECORD/PAUSE para comenzar la grabación. **Presione RECORD/PAUSE** otra vez para hacer una pausa en la grabación.

Reproduzca usando el monitor LCD

Cuando el monitor LCD está completamente abierto, el visor se desconecta automáticamente (PV-L652).

1 Presione LCD-OPEN para abrir el monitor LCD. **Abralo completamente y ajuste el ángulo (vea arriba).**

2 Ajuste POWER a VCR.
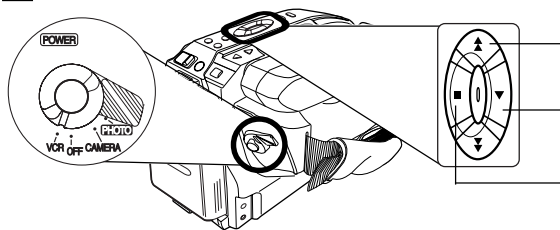
3 Presione REWIND/SEARCH para rebobinar la cinta.

4 Presione PLAY para comenzar la reproducción.

5 Presione STOP para finalizar la reproducción.

Reproduccion con efectos especiales

Para localizar rapidamente una escena especifica
• Oprimir el botón de localización (SEARCH).
Para congelar una imagen
• Oprimir el botón de pausa/imagen fija (PAUSE/STILL).
• Oprimir nuevamente el botón cuando se desea continuar reproduciendo.

For Your Information

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