Palmcorder®
PalmSight™

VHS C

Panasonic®

Camcorder
Operating Instructions

Model No. **PV-L750**
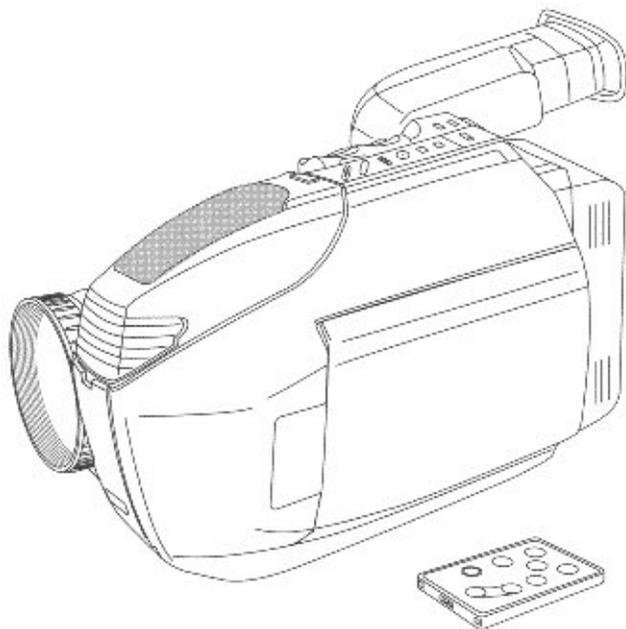
300x/26x DIGITAL HI-DEF ZOOM	4.0" COLOR LCD MONITOR	ED BUILT-IN LIGHT	DIGITAL EIS STABILIZATION	VHS C Palmcorder PHOTOSHOT	8MB MEMORY CARD

Please read these instructions carefully before attempting to operate this product.
Please save this manual.
Guía para rápida consulta en español está incluida.

LSQT0203A

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 at the right. The serial number is on the tag located on the rearside 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.

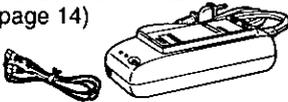Model No.

Serial No.

Unpack your Camcorder

These accessories are provided in order to set up or use your Camcorder.
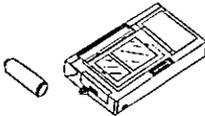
1 pc. AC Adaptor (PV-A17) with DC Power Cable (page 14)

1 pc. Battery Pack (PV-BP18) (pages 12, 13)

1 pc. Audio/VideoCable (LSJA0283/VJAW0032/ VJAW0039) (pages 31, 33)

1 pc. VHS PlayPak (PV-P1/VYMW0009) and one "AA" battery (page 32)

1 pc. Shoulder Strap (VYCW0225) (page 16)

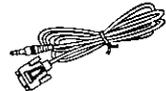1 pc. CR2025 Clock Battery (VSBW0004) (installed in Camcorder) (page 74)

1 pc. Digital PhotoShot Disk for Windows 95/98 (LSFT0193) (page 61)

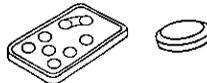1 pc. CompactFlash Card [8MB] (LSFA0009B) (page 49)

1 pc. PC Connection cable (RS232C-2.5P) (LSJA0276) (page 60)

1 pc. Remote Control Holder (VGQ6893) (pages 16, 28)

1 pc. 8-Function Remote (VSQW0038) with one CR2025 Battery. (page 28)

Remote has been loaded with battery. (page 74)

CompactFlash Card is a trademark of SanDisk Corporation.
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.

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 VHS PlayPak supplied.

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

The above markings are located on the appliance bottom cover.

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

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device and a RF Lighting device, pursuant to part 15 and Part 18 of the FCC Rules.

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

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

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.

NEC — NATIONAL ELECTRICAL CODE
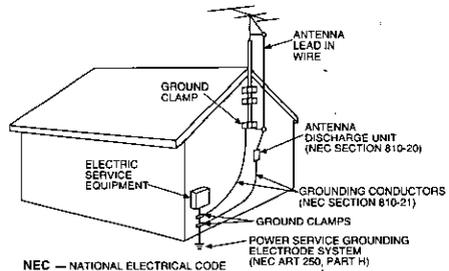
14. Lightning — For added protection of this video unit receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video unit due to lightning and power-line surges.

4

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 onto, or objects have fallen into 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.

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Getting Started

Self Demo Mode

Self Demo mode is on when the screen at the right appears. Follow the steps below to turn it off.

2, 3, 4

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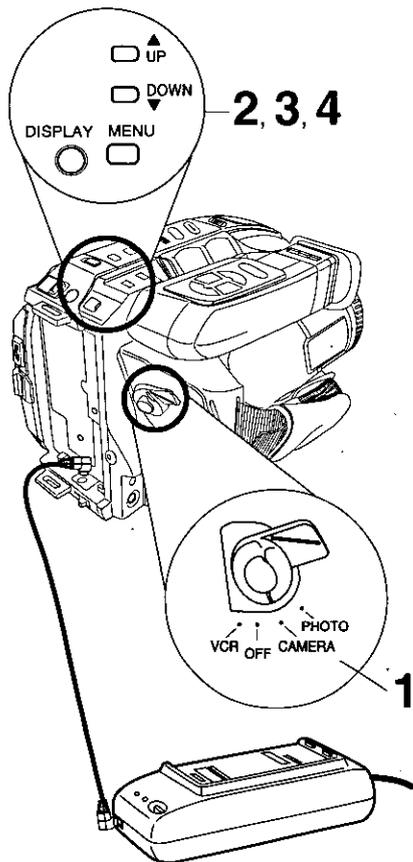
Before you begin...
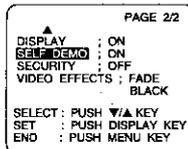• Connect Camcorder to power source.

EVF or LCD monitor

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

26× LENS / 300× D.ZOOM
DIGITAL  STABILIZATION
FULL-SIZE HEAD SYSTEM
  AUTO/PHRASE TITLER
```

1 Set POWER to CAMERA.

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

```
                      PAGE  2/2
          ▲
DISPLAY     : ON
SELF DEMO   : ON
SECURITY    : OFF
VIDEO EFFECTS : FADE
              BLACK

SELECT : PUSH ▼/▲ 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 12) **and cassette tape is inserted** (page 15).

• Inserting a tape alone (or attaching a partially charged battery) only temporarily stops Self Demo.

• Self Demo stops for 30 seconds when a function key other than Record/Pause, Tape Speed Selector, Light, Play, Rewind search, Fast forward search, Stop, and Still is pressed.
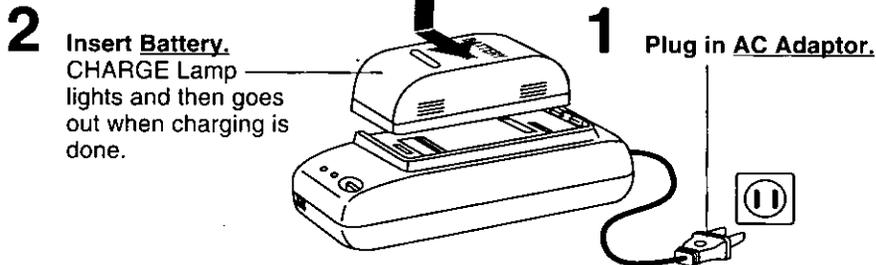
To turn Self Demo back on.

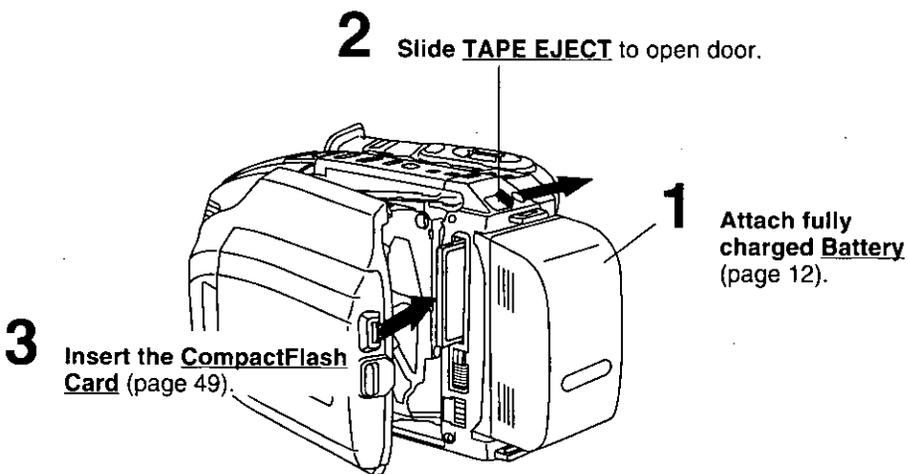• Set to SELF DEMO : ON in MENU screen.

Quick Operation Guide

Charging the Battery Pack

Charge Battery Pack fully before operation (page 12).

2 Insert <u>Battery.</u>
CHARGE Lamp
lights and then goes
out when charging is
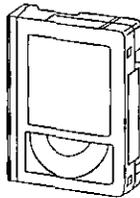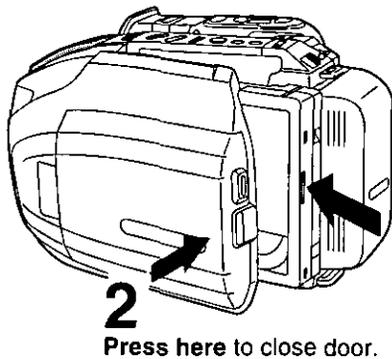done.

1 Plug in <u>AC Adaptor.</u>

Insert the CompactFlash Card

When the CompactFlash Card is not inserted in CAMERA or PHOTO mode,
"**NO CF CARD**" appears on-screen. Be sure to insert the CompactFlash Card
before using the Built-in Digital Still Camera (page 49).
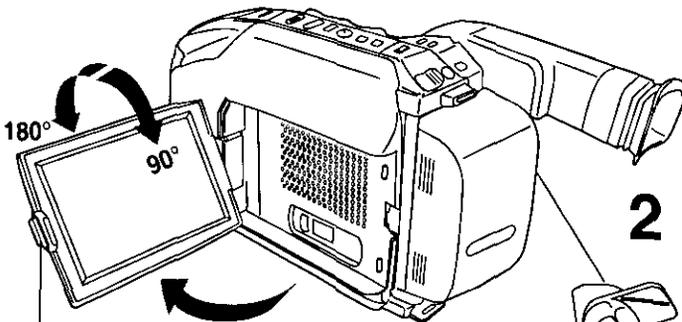CAMERA recording is possible even when the CompactFlash Card is not inserted.

2 Slide <u>TAPE EJECT</u> to open door.

1 Attach fully
charged <u>Battery</u>
(page 12).

3 Insert the <u>CompactFlash
Card</u> (page 49).

Quick Operation Guide

Insert Cassette

1 Insert **cassette** (page 15).

2 **Press here** to close door.

Camera Recording

When the LCD monitor is open, the EVF automatically turns OFF (page 24).

180°

90°

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

2 Set **POWER** to **CAMERA.**

VCR OFF CAMERA PHOTO

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

10

For assistance, call 1-800-211-PANA(7262)
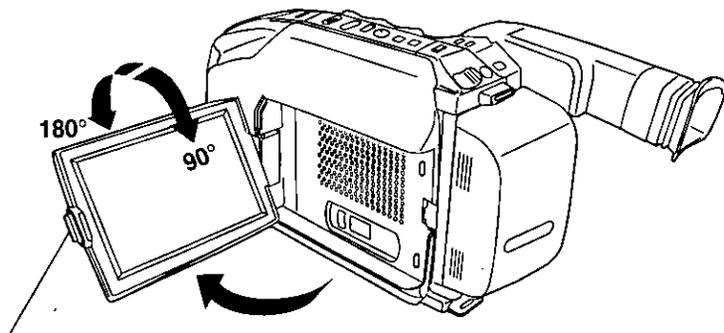
Quick Operation Guide

Playback using the LCD Monitor

When the LCD monitor is open, the EVF automatically turns OFF (page 29).

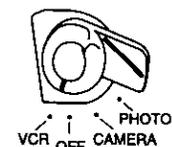## Before you begin...
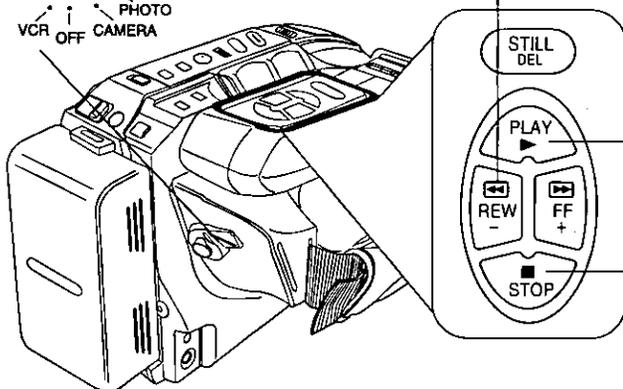
• Charge Battery Pack fully before operation (page 12).

180°
90°

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

2 Set POWER to VCR.

PHOTO
VCR OFF CAMERA

3 Press REWIND/SEARCH to rewind tape.
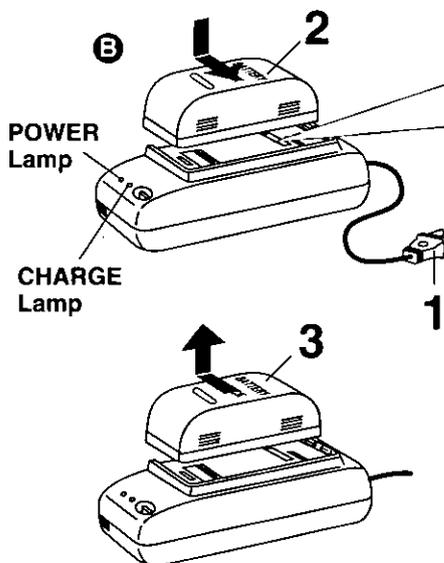
STILL
DEL

PLAY
►

REW
–

FF
+

STOP
■

4 Press PLAY to start playback.

5 Press STOP to stop playback.

Supplying Power

Charging the Battery Pack

Charge Battery Pack fully before use.

POWER
Lamp

CHARGE
Lamp

1 Plug in **AC Adaptor.**
POWER Lamp lights.

2 Insert **Battery.**
Ⓐ Align right side of Battery with line
on AC Adaptor.
Ⓑ Press Battery down and slide in
direction of arrow.
CHARGE Lamp lights and then goes
out when charging is done (approx.
1 and 1/2 hours).

3 Remove **Battery**
Slide Battery out and off.

Note:
After recharging 5 times, use BATTERY
REFRESH feature as explained on page 13.

• Battery life gradually decreases after
repeated use and recharging. If operation
time becomes very short, even after a
sufficient charge, discard Battery properly
(page 13).

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.
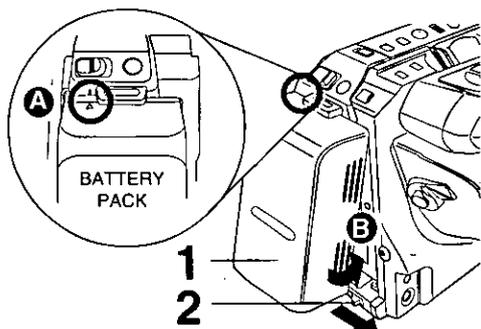
1 Attach **Battery**
Ⓐ Align Battery with top of mounting
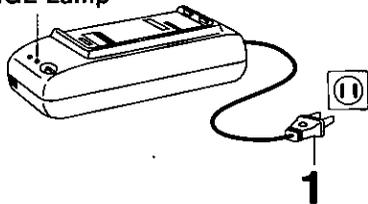surface.
Ⓑ Press and snap into place.

2 Remove Battery
While sliding **BATTERY RELEASE**,
remove Battery.

Supplying Power

Battery Refresh

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

CHARGE Lamp

3 BATTERY REFRESH

2,4

1

1 **Plug in AC Adaptor.**

• POWER Lamp stays on as long as Adaptor is plugged in.

**2** **Place Battery into Adaptor.**

3 **Press BATTERY REFRESH.**
The CHARGE Lamp flashes during discharge then stays lit until charging is complete.

If BATTERY REFRESH is pressed by mistake, remove Battery from Adaptor and reinsert it for normal charging.

4 **Remove Battery.**

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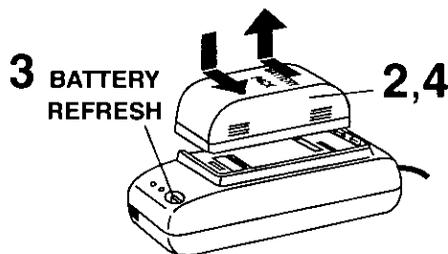
Battery Care

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.

U.S.A. CONSUMERS:

ATTENTION:
The product you have purchased is powered by a nickel cadmium battery which is recyclable. 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.

13

Supplying Power

AC Adaptor

DC Power Cable

POWER Lamp

DC IN Connector

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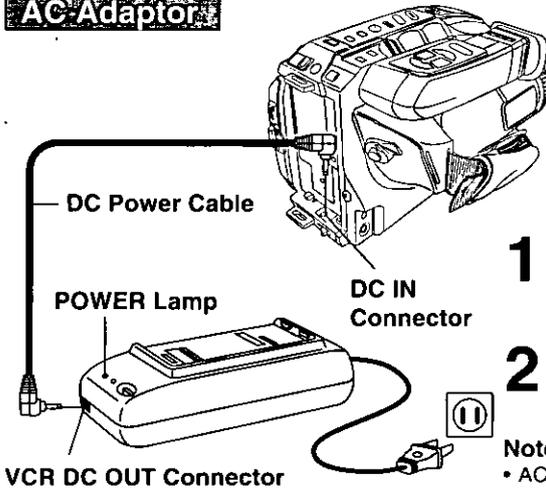
1 Connect <u>AC Adaptor VCR DC OUT</u> to <u>Camcorder DC IN</u> with supplied DC Power Cable.

2 Plug in AC Adaptor.
POWER Lamp lights.

Notes:
• AC Adaptor cannot power Camcorder while charging Battery.
• 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. 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)

DC IN Connector

Cigarette Lighter Socket (12 V)

Car Battery Cord (optional)

Cigarette Lighter Plug
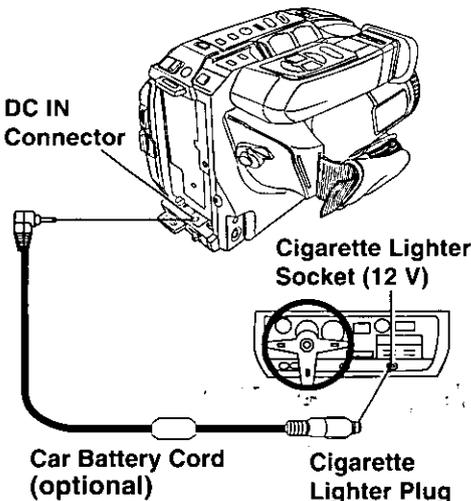
1 Connect PV-C16 <u>Car Battery Cord</u> (optional, page 76) to <u>Camcorder DC IN</u>.

2 A Start engine first.
B Plug Car Battery Cord into Cigarette lighter socket.

• If Car Battery cord fuse needs replacing, use exact current rating (in amps).

Notes:
• 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.

Cassette Information

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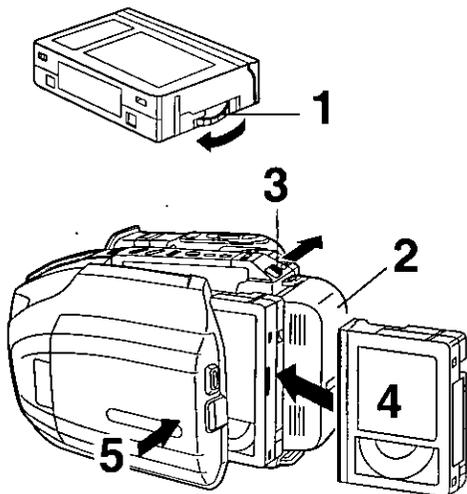
1 **Turn Tape Wheel** in direction of arrow until there is no slack.

2 **Attach Battery** (page 12).

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

4 **Insert cassette as shown.**

5 **Press here** to close door.
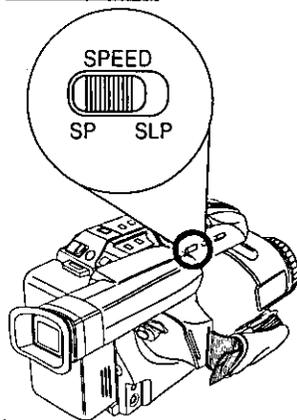
• **To remove the cassette, slide the TAPE EJECT switch.**

Record/Playback Time

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

TAPE SPEED Selector

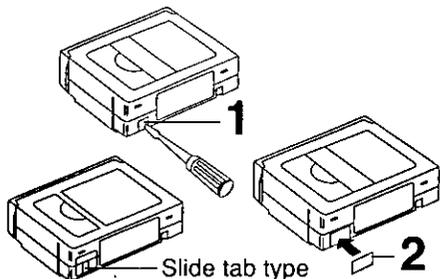| Tape Speed Selector Position	Cassette type		
	TC-20	TC-30	TC-40
SP (Standard Play)	20 minutes	30 minutes	40 minutes
SLP (Super Long Play)	1 hour	1 hour 30 minutes	2 hours

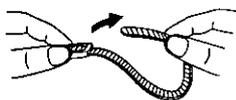• SLP playback may contain more picture noise.

Erase Protection Tab

A record tab ensures recordings are not accidentally erased.

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

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

Slide tab type

15

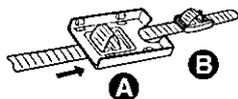# Attaching Shoulder Strap/Remote Holder

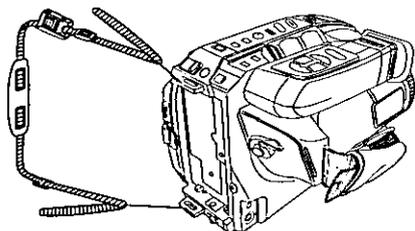Remove Battery Pack before doing steps.

1 Undo strap ends from buckles.

2 Remove one buckle.

3 **A** Thread strap (with no buckle) through Remote Holder so it faces outward.

B Replace buckle.

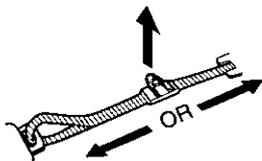**4** Thread strap ends through Strap Rings on Camcorder.

min. 25.4 mm (1 inch)

5 Re-insert the strap ends into buckles.
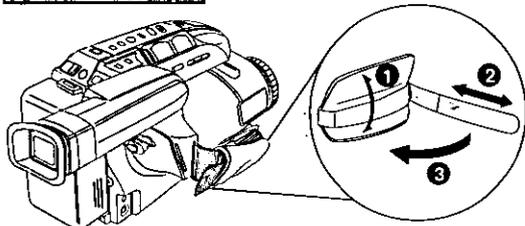
6 Insert Remote into Holder when not in use.

Adjusting the Length
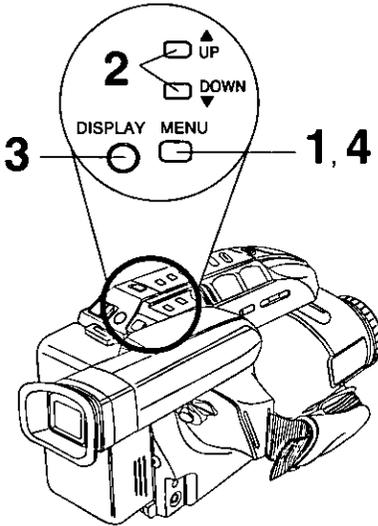
1 Pull a loop of strap from buckle.

2 Pull strap tight to shorten or lengthen.

Hand Strap

Adjust Hand Strap length to fit your hand as shown.

MENU Mode

Using MENU Mode

Before you begin...

• Connect Camcorder to power source.
• Set POWER to CAMERA or VCR.

1 Press <u>MENU</u> for MENU mode.

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
TITLE       ; AUTO/MANUAL
TALLY LAMP  ; ON
STAND-BY RELEASE ; OFF
CLOCK SET
  ▼
SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
CAMERA MODE

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

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
VCR MODE

2 Press <u>UP ▲</u> or <u>DOWN ▼</u> to
highlight a menu item.
Select a desired item.

3 Press <u>DISPLAY</u> to set selection.

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

Note:
• The Menu mode is canceled if <u>UP/
DOWN(▲/▼)</u>, <u>DISPLAY</u>, or <u>MENU</u> are not
pressed within 5 minutes when Self Demo
mode is off.
• The Menu mode is canceled if <u>UP/
DOWN(▲/▼)</u>, <u>DISPLAY</u>, or <u>MENU</u> are not
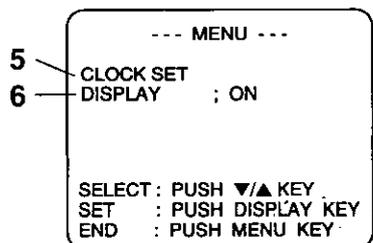pressed within 30 seconds when Self
Demo mode is on.

17

MENU Mode

```
         --- MENU ---   PAGE 1/2
1
       PROGRAMMED REC
2        TITLE       ; AUTO/MANUAL
3        TALLY LAMP          ; ON
         STAND-BY RELEASE ; OFF
4        CLOCK SET
5            ▼
         SELECT :  PUSH ▼/▲ KEY
         SET    :  PUSH DISPLAY KEY
         END    :  PUSH MENU KEY
```

```
                      PAGE 2/2
6             ▲
7        DISPLAY      ; ON
8        SELF DEMO  ; OFF
         SECURITY     ; OFF
9        VIDEO EFFECTS ; FADE
                           BLACK

         SELECT :  PUSH ▼/▲ KEY
         SET    :  PUSH DISPLAY KEY
         END    :  PUSH MENU KEY
```
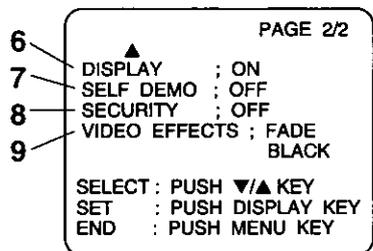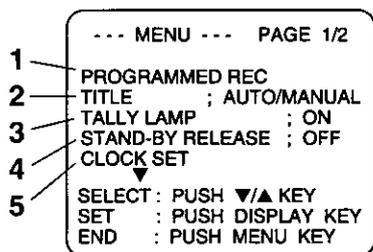
1 **PROGRAMMED REC** (page 27).
Camcorder starts and stops
recording at a preset time.

2 **TITLE** (pages 46~48).
AUTO/MANUAL : 16 items
PHRASE   : 10 items

3 **TALLY LAMP** (page 37).
ON: lamp lights during recording.

4 **STAND-BY RELEASE** (page 25).
ON: enables quick resumption of
     recording from Stand-by mode.

5 **CLOCK SET** (pages 19~21).
Select to set clock.

6 **DISPLAY** (page 68)
ON: On-screen Display (OSD) screens
     are displayed.

7 **SELF DEMO** (page 8)
ON: SELF DEMO screen is displayed.

8 **SECURITY** (pages 45).
ON: enables Motion Security recording.

9 **VIDEO EFFECTS** (pages 38~41).
AUTO FADE   : BLACK or WHITE
DIGITAL FADE : TYPE   → 7 types
                   COLOR → 8 colors
DIGITAL FILTER : COLOR → 5 colors

```
         --- MENU ---
5
       CLOCK SET
6        DISPLAY      ; ON



         SELECT :  PUSH ▼/▲ KEY
         SET    :  PUSH DISPLAY KEY
         END    :  PUSH MENU KEY
```

18

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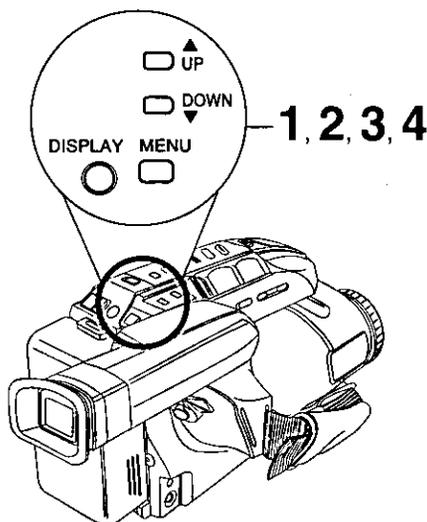
Setting the Time Zone

The Camcorder is preset to Eastern time.
To change time zone, do steps at right.

Before you begin...

• Connect Camcorder to power source.
• Set POWER to CAMERA or VCR.

Note:
• Clock may lose or gain up to 2 minutes per month. To adjust, see page 21.

1 Press MENU for MENU mode.
Press UP ▲ or DOWN ▼ to select
CLOCK SET .

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
TITLE      : AUTO/MANUAL
TALLY LAMP    : ON
STAND-BY RELEASE : OFF
CLOCK SET

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

```
--- MENU ---
CLOCK SET
DISPLAY   : ON

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

CAMERA MODE   VCR MODE

2 Press DISPLAY for CLOCK SET
menu. Press UP ▲ or DOWN ▼ to
select
TIME ZONE .

```
--- CLOCK SET ---
TIME ZONE : EASTERN
D. S. T.  : AUTO
DATE / TIME : 12 : 00 : 00AM
            JAN 1 2000

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

Time Zone chart

3 Press DISPLAY for SELECT TIME
ZONE menu. Press UP ▲ or
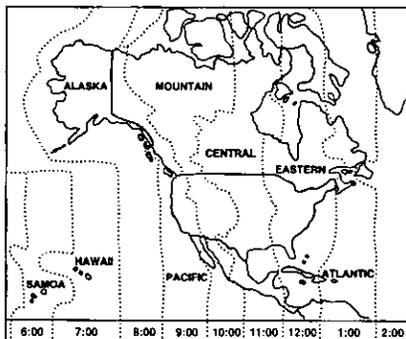DOWN ▼ to select local time zone.

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

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
```

4 Press DISPLAY to confirm entry.
Press MENU twice to exit.

• When traveling, repeat these steps
and select one of the 8 listed time
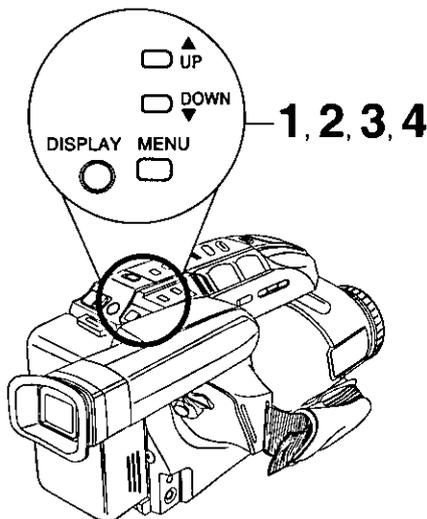zones to set the clock to local time.

Note:
When traveling outside the listed time zones,
set clock to local time manually (page 21).

Setting the Clock

Auto Daylight Saving Time

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

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

Before you begin...

• Connect Camcorder to power source.
• Set POWER to CAMERA or VCR.

Note:
• Auto DST does not function if time zone is set to Hawaii or Samoa (page 19).

DISPLAY MENU

UP
DOWN
1, 2, 3, 4

1 Press MENU for MENU mode. Press UP ▲ or DOWN ▼ to select CLOCK SET.

```
--- MENU --- PAGE 1/2

PROGRAMMED REC
TITLE      ; AUTO/MANUAL
TALLY LAMP        ; ON
STAND-BY RELEASE ; OFF
CLOCK SET

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
CAMERA MODE

```
--- MENU ---

CLOCK SET
DISPLAY    ; ON

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
VCR MODE

2 Press DISPLAY for CLOCK SET menu. Press UP ▲ or DOWN ▼ to select D.S.T .

```
--- CLOCK SET ---

TIME ZON  ; EASTERN
D.S.T    ; AUTO
DATE / TIME ; 12 : 00 : 00AM
            JAN 1  2000

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

3 Press DISPLAY for DAYLIGHT SAVING TIME menu. Press UP ▲ or DOWN ▼ to select OFF or AUTO.

```
-- DAYLIGHT SAVING TIME --

        AUTO
        OFF

SELECT : PUSH ▼/▲ KEY
SET   : PUSH DISPLAY KEY
```
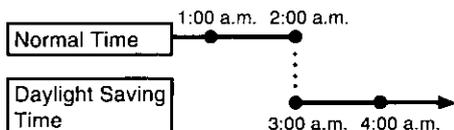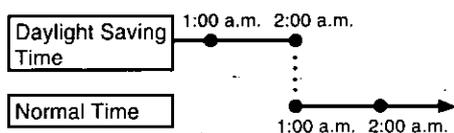
Spring (First Sunday in April):
DST: AUTO = ahead one hour.

Normal Time

Daylight Saving Time

1:00 a.m. 2:00 a.m.

3:00 a.m. 4:00 a.m.

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

Daylight Saving Time

Normal Time

1:00 a.m. 2:00 a.m.

1:00 a.m. 2:00 a.m.

4 Press DISPLAY to confirm entry. Press MENU twice to exit.

For assistance, call 1-800-211-PANA(7262)

Setting the Clock

Setting Date and Time

Date and time including leap year are calculated up to DEC 31, 2098.

1,2,3,4

DISPLAY MENU
UP
DOWN

EXAMPLE ─────────

-5:00:00PM-
JAN 1 2000

↑ UP
DOWN

↓

-6:00:00PM-
JAN 1 2000

DISPLAY

↓

6:00:00PM
JAN 1 2000

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

1 Press **MENU** for MENU mode.
Press **UP ▲** or **DOWN ▼** to select **CLOCK SET**.

```
··· MENU ··· PAGE 1/2

PROGRAMMED REC
TITLE        : AUTO/MANUAL
TALLY LAMP   : ON
STAND-BY RELEASE : OFF
CLOCK SET

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

CAMERA MODE

```
··· MENU ···

CLOCK SET
DISPLAY   : ON

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

VCR MODE
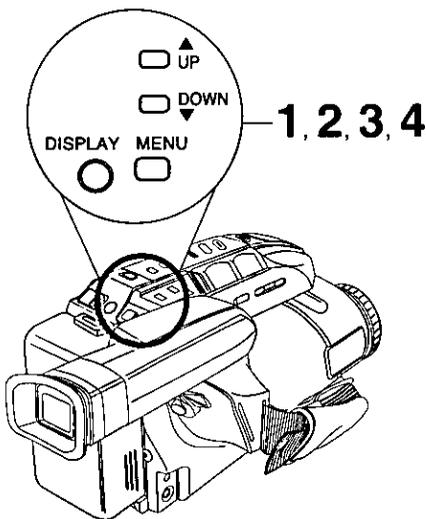
2 Press **DISPLAY** for CLOCK SET menu. Press **UP ▲** or **DOWN ▼** to select **DATE/TIME**.

```
··· CLOCK SET ···

TIME ZON : EASTERN
D. S. T. : AUTO
DATE/TIME : 12 : 00 : 00AM
           JAN 1 2000

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
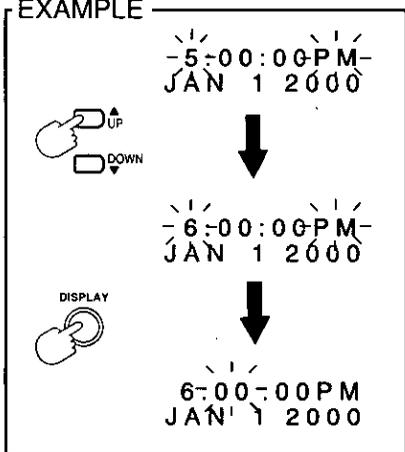
3 Press **DISPLAY** for DATE/TIME menu.

```
··· DATE/TIME SETTING ···

-12:00:00AM-
JAN 1 2000

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
```

4 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.
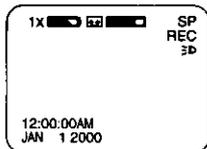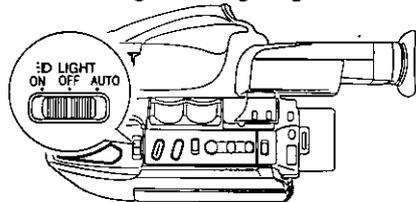
Press MENU twice to exit.

21

Built-in Auto Light

Using the Light

For recording in dim lighting.

Replacing the Bulb

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

Set <u>LIGHT to AUTO</u>.
Light turns on/off automatically according to lighting conditions.
Or, set <u>LIGHT to ON/OFF</u> manually.

ƎD appears in EVF or LCD monitor when Light is on.

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

Before you begin...
- **Order Part No. VULS0001 (VLLW0015 and cushions) for replacement bulb unit.**
- **Set POWER to OFF.**

1 Press in on both sides of lens cover and pull straight out and off.

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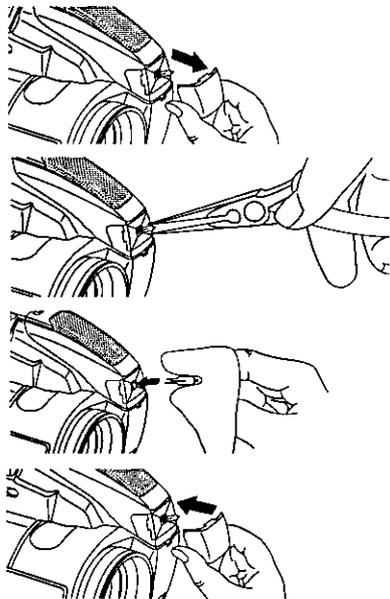- Take unit to service center if you need assistance.

3 Replace bulb using a clean cloth or tissue.

4 Replace lens cover.

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.

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.
- Handle bulb gently. Excessive force may cause bulb to crack.

Camera Recording

Before you begin...
- Connect Camcorder to power source.
- Insert cassette with record tab (page 15).
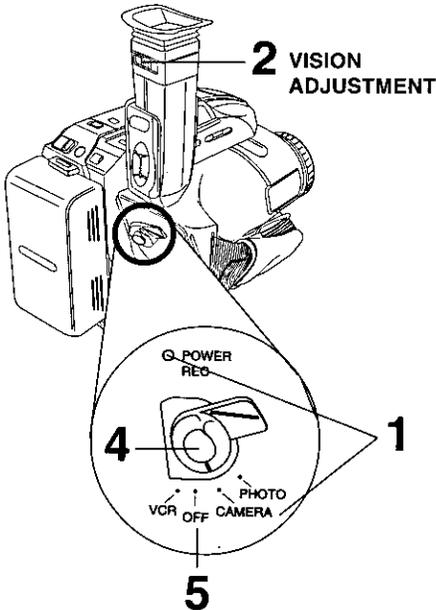
1 Set POWER to CAMERA.
Lens Cover opens.
Power lamp lights.
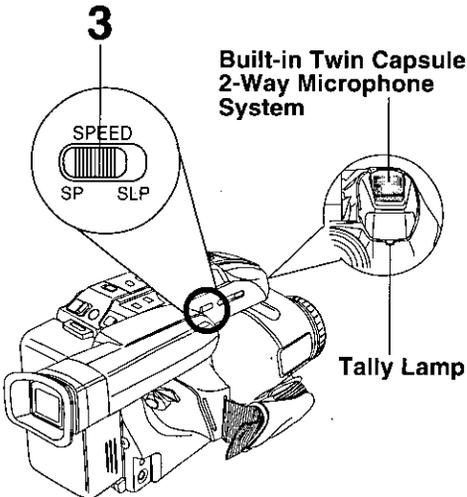- Be sure POWER is fully turned to CAMERA position.

EVF or LCD monitor
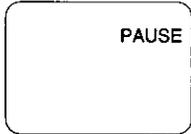
PAUSE

Record/Pause mode.

2 Look into EVF and adjust VISION ADJUSTMENT to your eyesight.

3 Slide TAPE SPEED to SP or SLP (page 15).

4 Press RECORD/PAUSE to start or pause recording.
Tally lamp lights if set to ON (page 37).

RECORD

5 Set POWER to OFF when finished.

- **To remove cassette,**
slide TAPE EJECT in Record/Pause mode. (page 15).

2 VISION ADJUSTMENT

Built-in Twin Capsule 2-Way Microphone System
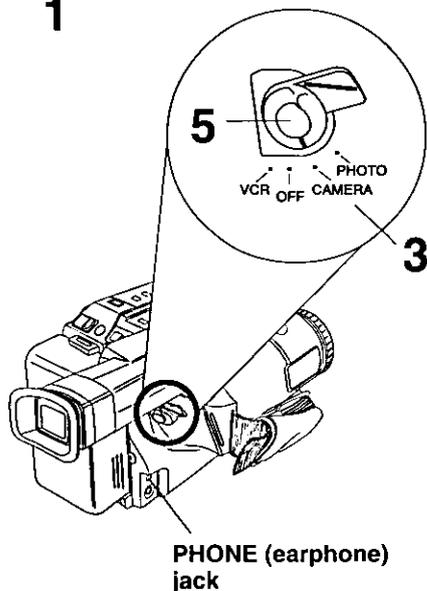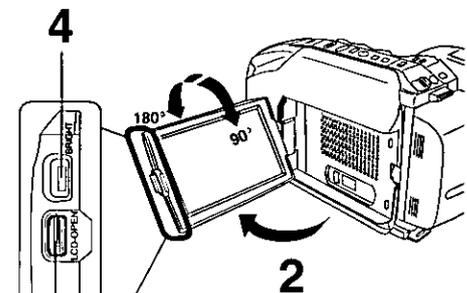
SPEED
SP   SLP

Tally Lamp

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.

23

Camera Recording

View recording scene on the LCD (Liquid Crystal Display) monitor.

Before you begin...

• Connect Camcorder to power source.
• Insert cassette with record tab (page 15).

1 Press <u>LCD-OPEN</u> to unlock LCD monitor.

2 Swing LCD monitor fully open and adjust viewing angle.
Caution:
Rotating partially open LCD monitor may block cassette door and damage Camcorder body.

3 Set <u>POWER to CAMERA</u>.
• 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 .
• 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.

4 Turn <u>BRIGHT</u> control to adjust LCD monitor brightness level.

**5** Press <u>RECORD/PAUSE</u> to start recording (page 23).

Note:
• Using LCD monitor reduces battery operation time.
• Retun LCD monitor to locked position when not in use.
• To hear sound while recording, connect earphone (M3 type: not supplied) to PHONE jack. Earphone volume cannot be changed while in CAMERA mode.

PHONE (earphone) jack

Camera Recording

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. New camcorders will default to OFF.
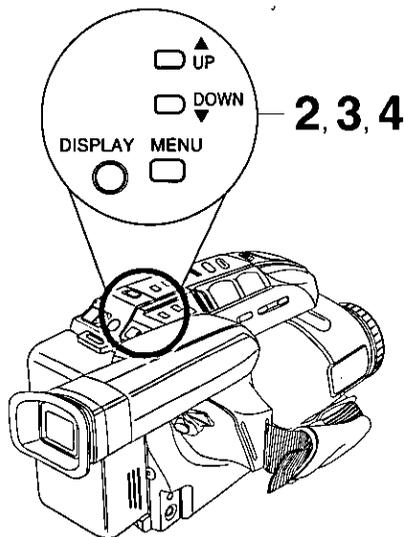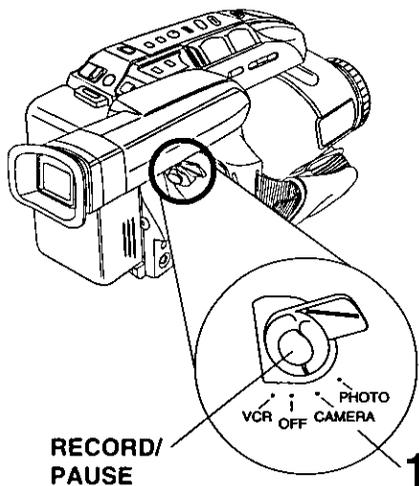
RECORD/ PAUSE

1

Before you begin...

• **Connect Camcorder to power source.**
• **Insert cassette with record tab (page 15).**

1 Set POWER to CAMERA.

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

```
··· MENU ···    PAGE 1/2
PROGRAMMED REC
TITLE      : AUTO/MANUAL
TALLY LAMP       : ON
STAND-BY RELEASE : OFF
CLOCK SET
      ▼
SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2, 3, 4

3 Press DISPLAY to select ON/OFF.

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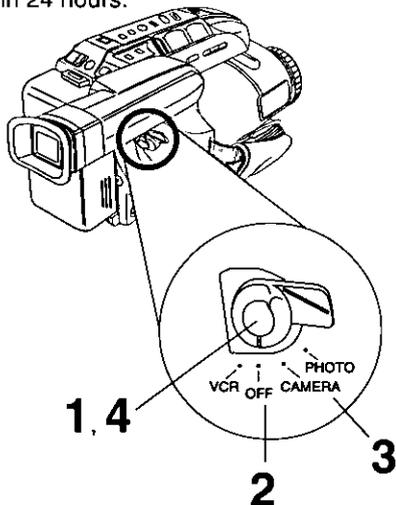   press RECORD/PAUSE two times
    to resume recording.

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

4 Press MENU to exit.

Basic Operation

25

Camera Recording

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

1,4

3

2

Before you begin...
- Connect Camcorder to power source.
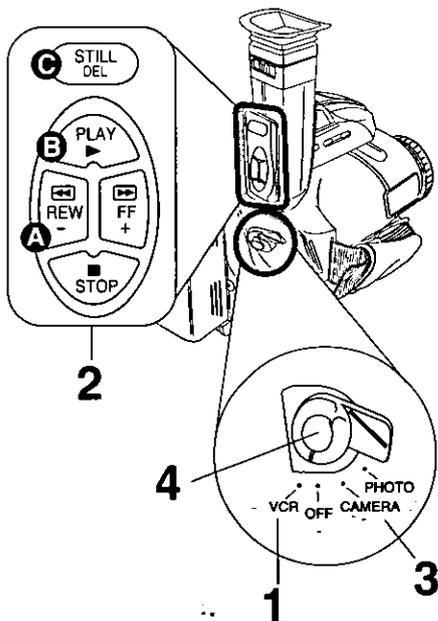- Insert cassette with record tab (page 15).

1 Press **RECORD/PAUSE** to stop recording.

2 Set **POWER to OFF** and leave cassette in Camcorder.

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

4 Press **RECORD/PAUSE** to resume recording.

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

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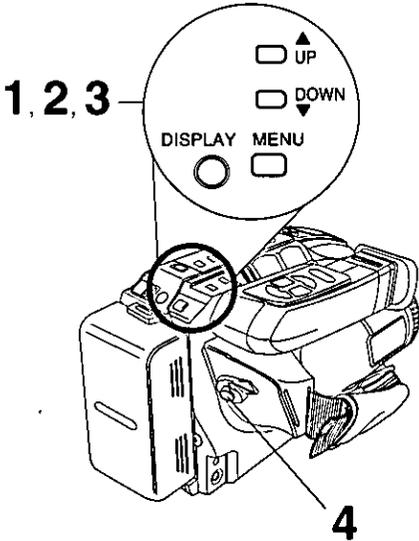

2

4

3

1

Before you begin...
- Connect Camcorder to power source.
- Insert cassette with record tab (page 15).

1 Set **POWER to VCR**.

2 **A** Press **REWIND/SEARCH** to rewind a few seconds of tape.
B Press **PLAY** to review recording.
C Press **STILL** where you want to continue recording.

3 Set **POWER to CAMERA**.

4 Press **RECORD/PAUSE** to resume recording.

26

Camera Recording

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

Before you begin...

• Connect Camcorder to power source.
  Use AC Adaptor for longer recordings.
• Insert cassette with record tab (page 15).
• Set POWER to CAMERA.

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

```
--- MENU --- PAGE 1/2
PROGRAMMED REC
TITLE         : AUTO/MANUAL
TALLY LAMP    : ON
STAND-BY RELEASE : OFF
CLOCK SET
SELECT : PUSH ▼/▲ 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 ▼/▲ 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 the left.

```
START   : 10:20PM
REC TIME : 10MIN.
SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
START  : PUSH RECORD KEY
CANCEL: PUSH MENU KEY
10:20:00PM
```

To cancel the setup, press MENU twice.

```
10MIN. → 20MIN. → 30MIN. → TO TAPE END
INTERVAL *2        INTERVAL *1
10 SEC/MIN.    ←   5 SEC/MIN.
```

*1 **Interval 5 SEC/MIN:**
Record 5 seconds each minute.

*2 **Interval 10 SEC/MIN:**
Record 10 seconds each minute.

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

```
STAND-BY
START : 10:20PM
REC TIME ; 10MIN.
10:20:00PM
JUN  1 2000
```

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.
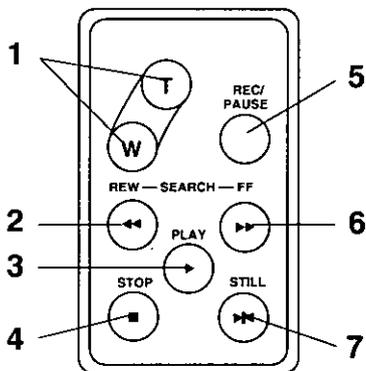• To cancel, set POWER to OFF.

27

8-Function Remote Control
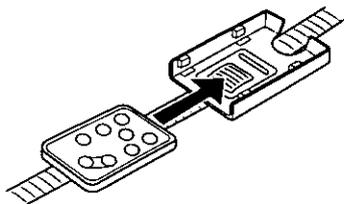
When not in use, slide remote into its holder on the shoulder strap (page 16).

Remote Control Operation

Operate Camcorder's main function up to about 5 m (16 feet) away.
Aim remote at sensor on Camcorder.

Remote Sensor

Controlled Functions

1 POWER ZOOM
page 34.

2 REWIND/SEARCH
page 29.

3 PLAY
page 29.

4 STOP
page 29.

5 RECORD/PAUSE
page 23.

6 FAST FORWARD/SEARCH
page 30.

7 STILL
page 30.

Important Note:

• After 5 minutes in Rec/Pause mode, the camcorder will shut off to conserve battery power. If recording is resumed within 30 minutes, press REC/PAUSE once.
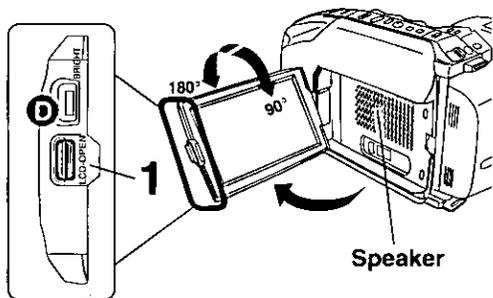If over 30 minutes, set POWER to OFF, then CAMERA, then press REC/PAUSE.
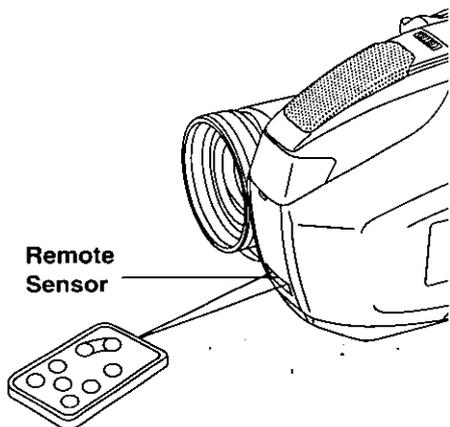
For assistance, call 1-800-211-PANA(7262)

Playing Back Recordings

Before you begin...

• Connect Camcorder to power source.
• Insert recorded tape.

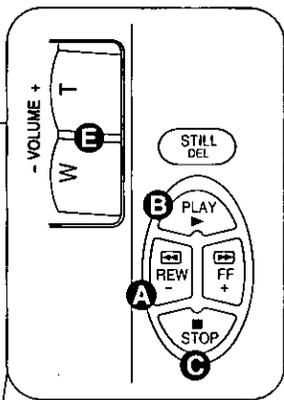**1** Press **LCD-OPEN** and swing LCD monitor fully open.
• If you want to playback on EVF, close and lock LCD monitor.

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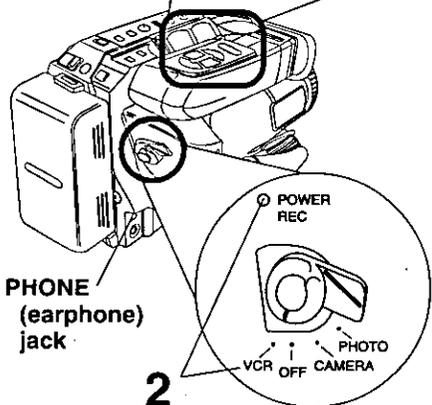• EVF shuts off when LCD monitor is opened and turns back on when LCD is closed.

Speaker

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

VOLUME [-] | | | | · · · · [+]

PHONE (earphone) jack

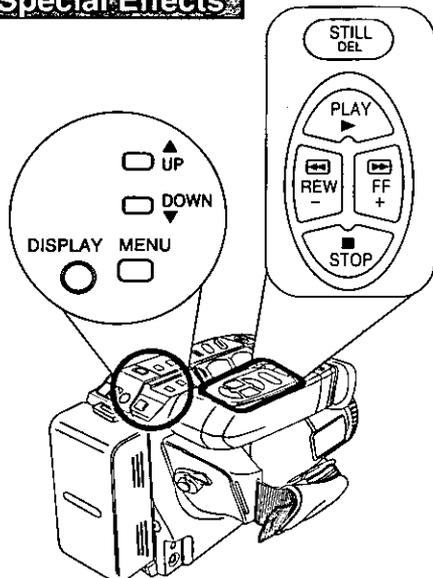### Note:

• Using LCD monitor reduces battery operating time.
• Return LCD monitor to locked position when not in use.
• When earphone (M3 type: not supplied) is connected to PHONE jack, speaker is muted.

Basic Operation

29

Playing Back Recordings

Special Effects

Before you begin...

- Connect Palmcorder to power source.
- Insert recorded tape.
- Set POWER to VCR.

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 is works best in SLP mode (page 15).

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.
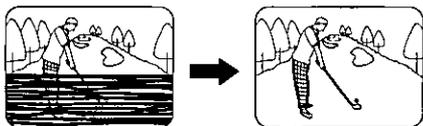
Tracking Control

Auto Tracking

Continuously analyzes each recording for optimum picture quality.

Manual Tracking

Some recordings require manual adjustment to reduce noise.

In Playback mode:
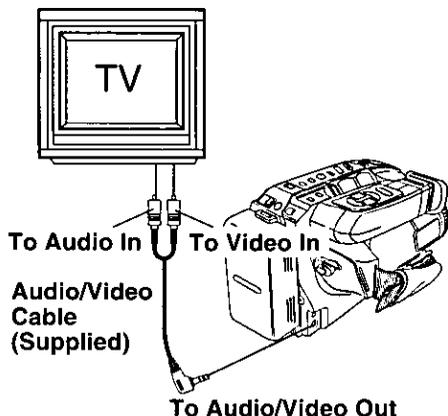Press UP ▲ or DOWN ▼ until Playback picture clears up.
Press DISPLAY to return to Auto Tracking.

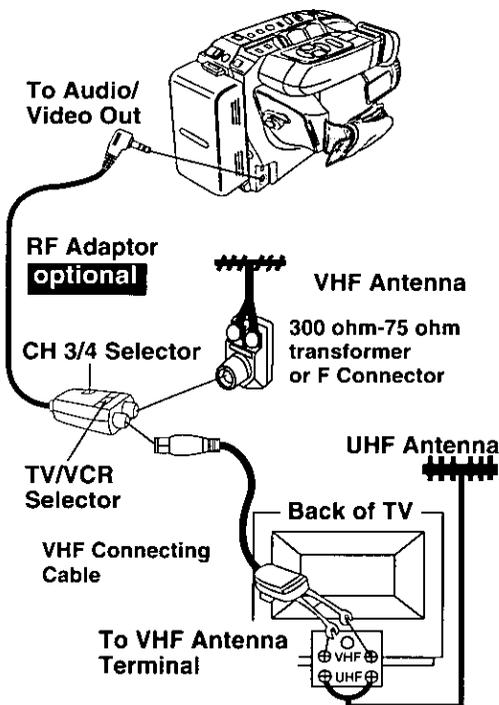For assistance, call 1-800-211-PANA(7262)

Playing Back Recordings

TV Playback or Viewing

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

TV with AUDIO/VIDEO IN Jacks.

To Audio In   To Video In

Audio/Video
Cable
(Supplied)

To Audio/Video Out

TV without AUDIO/VIDEO IN Jacks.

To Audio/
Video Out

RF Adaptor
optional

VHF Antenna

CH 3/4 Selector

300 ohm-75 ohm
transformer
or F Connector

UHF Antenna

TV/VCR
Selector

Back of TV

VHF Connecting
Cable

To VHF Antenna
Terminal

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.

If TV has no VIDEO/AUDIO IN jacks, connect PV-RF16 RF Adaptor (optional, page 76). Tune TV to CH 3 or 4 to match RF Adaptor CH 3/4 Selector. Set Adaptor's TV/VCR Selector to VCR for playback.

To watch TV only,
a Set Camcorder POWER to OFF.
b Set RF Adaptor TV/VCR Selector to TV.
c Turn TV ON and select channel.

CATV System Installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical Code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.
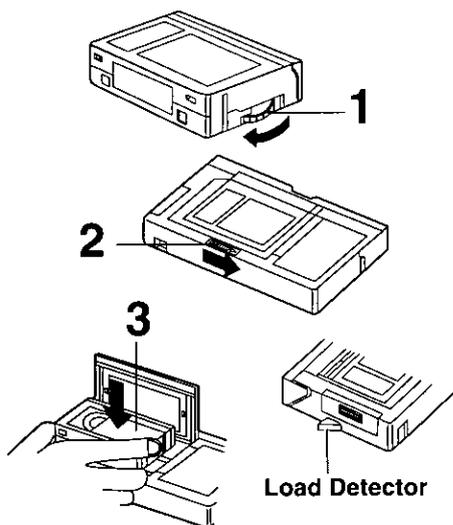
31

Playing Back Recordings in a VCR

Load Battery in PlayPak
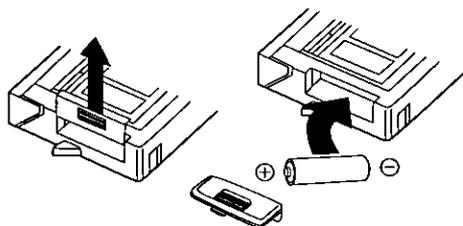
Remove Battery lid and insert AA battery.

• Do not reverse polarity.
• Replace battery when tape loading/ unloading takes longer than usual.
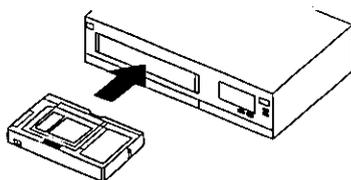
Insert VHS C Cassette in PlayPak

1 Turn VHS C cassette **Tape Wheel** in direction of arrow to take up any slack.

2 Slide **RELEASE** to open cassette lid.

3 Insert the VHS C **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
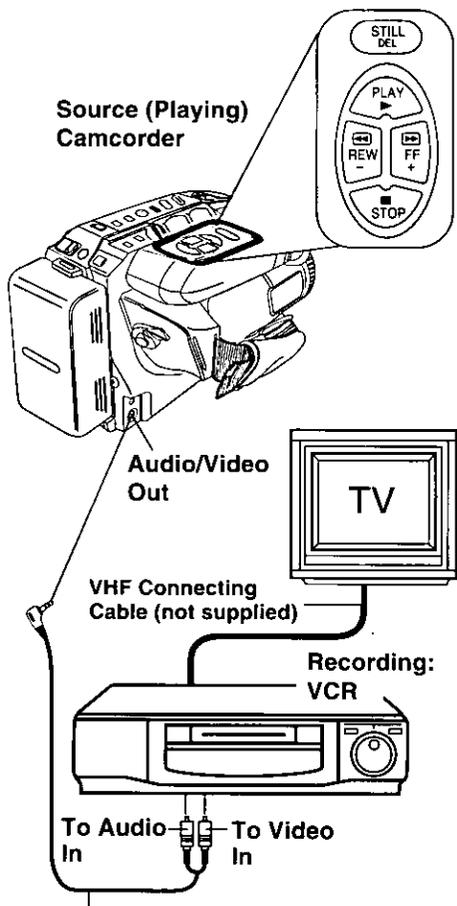
Remove VHS C Cassette
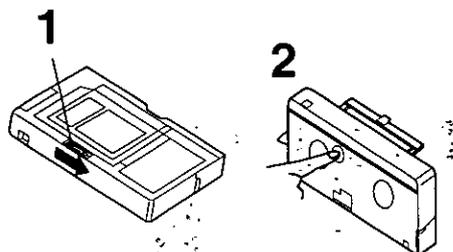
1 Slide **RELEASE** and wait for lid to open.

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

Copying your Tapes (dubbing)

Connections

Source (Playing)
Camcorder

Audio/Video
Out

TV

VHF Connecting
Cable (not supplied)

Recording:
VCR

To Audio—To Video
In   In

Audio/Video Cable
(supplied)

Monitor with your TV

• Turn TV on and tune to VCR
  channel (CH3 or CH4).

• Set TV/VCR Selector on VCR to 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 pre-recorded tape
into Camcorder and a blank tape with
record tab into VCR.

2 Press PLAY on Camcorder, then
press STILL at starting point.

3 Press REC, then STILL/PAUSE on
VCR.

4 Press STILL on Camcorder and
STILL/PAUSE on VCR again to start
copying.

5 Press STOP on both units to stop
copying.

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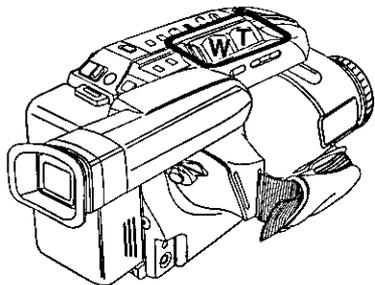• Dubbing may reduce picture quality.

CAUTION:

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

Basic Operation

33

Power Zoom / Backlight

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")
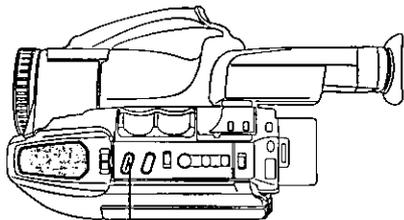

Zoom Out ("W")

Zoom slowly:
Lightly press "T" (telephoto) or "W" (wide angle) 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.
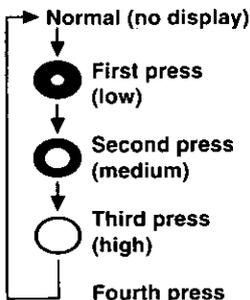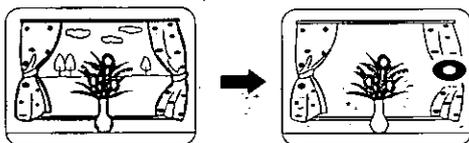
BACKLIGHT

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

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

In normal lighting, press **BACKLIGHT** repeatedly until no indicator displayed.
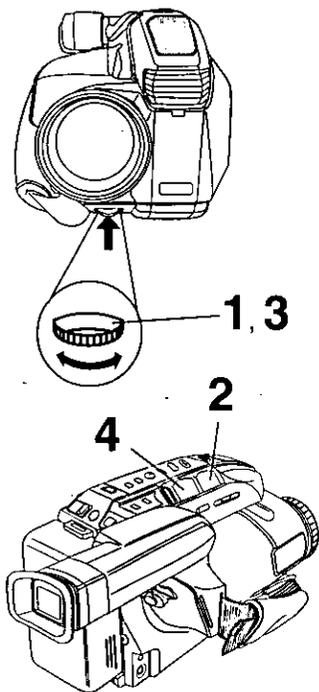
EVF or LCD monitor

Normal (no display)

First press (low)

Second press (medium)

Third press (high)

Fourth press

34

Auto Focus

MANUAL FOCUS

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.

1,3

2

4

2

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.

Before you begin...

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

Camcorder automatically focuses on subject even during zooming.

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

• subject is not centered in EVF or LCD monitor.
• subject has shiny surface.
• subject is slanted.
• subject is bright and flat, like a white wall.
• subject has fast motion, like a golf swing.

1 Push **MANUAL FOCUS** so "MF" (Manual Focus) appears in EVF or LCD monitor.

EVF or LCD monitor

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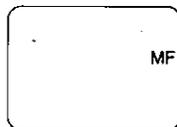
2 Hold down "T" (telephoto) on POWER ZOOM to maximum zoom in.

3 Turn **MANUAL FOCUS** 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.

Special Features

35

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.
- Set POWER to CAMERA.
- Insert cassette with record tab (page 15).

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.

H.S.SHUTTER   TITLE
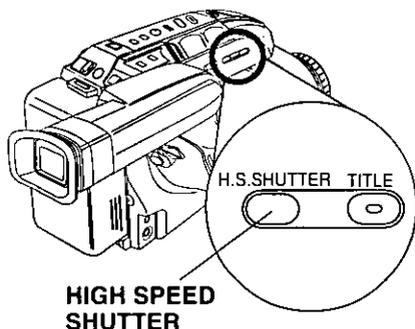
HIGH SPEED
SHUTTER

1 Press HIGH SPEED SHUTTER while recording.

2 Press repeatedly to change shutter speed. (See below, left.)

No Indication

EVF or LCD monitor

| |
|---|
| 1/60 |
| 1/100 |
| 1/250 |
| 1/500 |
| 1/1000 |
| 1/2000 |
| 1/4000 |
| 1/10000 |
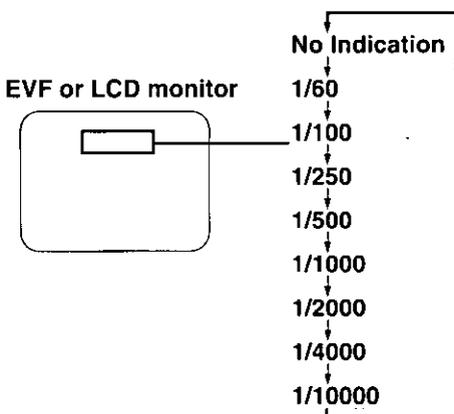
Note:

- 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.

36

Tally Lamp

The tally lamp can be set to come on or stay off during recording.
New camcorder's default setting is ON.
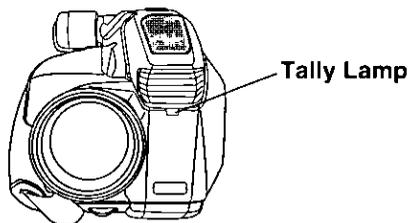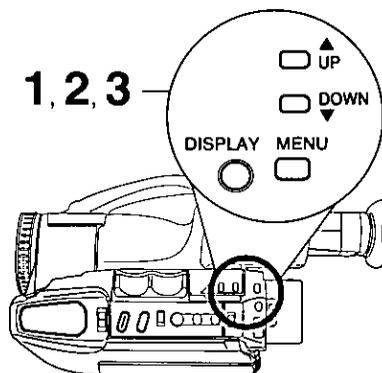
1, 2, 3

Before you begin...

- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
- **Insert cassette with record tab (page 15).**

1 Press **MENU** for MENU mode.
Press **UP ▲** or **DOWN ▼** to select
TALLY LAMP.

```
--- MENU ---     PAGE 1/2

PROGRAMMED REC
TITLE              : AUTO/MANUAL
TALLY LAMP         : ON
STAND-BY RELEASE   : OFF
CLOCK SET

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
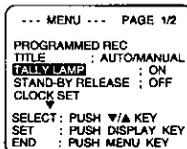
2 Press **DISPLAY** to select:
ON → Lamp lights during recording.
OFF → Lamp stays off.

Tally Lamp

3 Press **MENU** to exit.

Special Features

37

Color Digital Filter

Digital Filter adds one of 5 colors to entire picture, like a color filter.
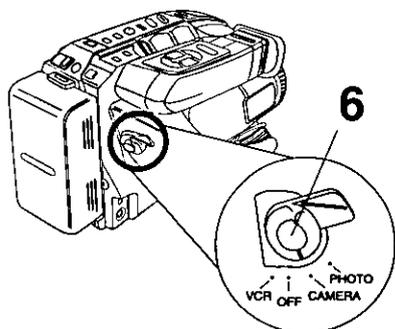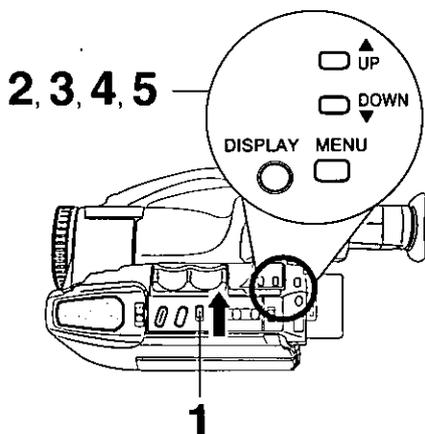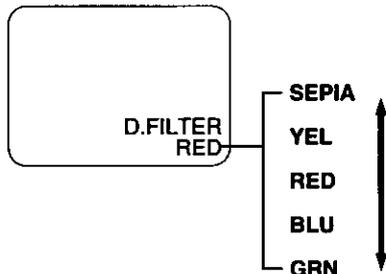
2, 3, 4, 5

1

Before you begin...

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

1 Slide DIGITAL SELECT to FADE.

2 Press MENU for MENU mode.
Press UP ▲ or
DOWN ▼ to select
VIDEO EFFECTS.

```
                    PAGE 2/2
DISPLAY      : ON
SELF DEMO    : OFF
SECURITY     : OFF
VIDEO EFFECTS : FADE
               BLACK

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

3 Press DISPLAY for VIDEO
EFFECTS menu.
Press DOWN ▼
to select
DIGITAL FILTER.

```
--- VIDEO EFFECTS ---

    AUTO FADE
    DIGITAL FADE
    DIGITAL FILTER

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

4 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 ▼/▲ KEY
SET    : PUSH DISPLAY KEY
```
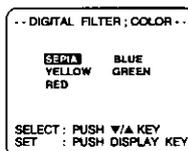
5 Press DISPLAY to confirm entry.
Press MENU to exit.

6 Start recording (page 23).

• To cancel Digital Filter, set POWER to
OFF.

Note:

• Color Digital Filter will not function during
Digital Wipe mode, Picture in Picture
Wipe Title or Still/Strobe/Wide.

• Picture returns to normal in Still mode.

EVF or LCD monitor

D.FILTER
RED

SEPIA
YEL
RED
BLU
GRN

Auto Fade

An interesting way to open and close scenes.

2, 3, 4, 5

DISPLAY   MENU

△ UP
▽ DOWN

FADE **1**

RECORD/
PAUSE

PHOTO
VCR OFF CAMERA

Fade In

WHITE   BLACK
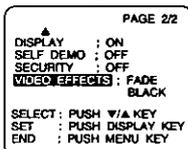
Fade In

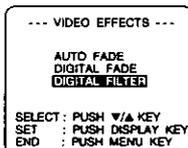Fade Out

WHITE   BLACK

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

1 Slide <u>DIGITAL SELECT</u> to FADE.

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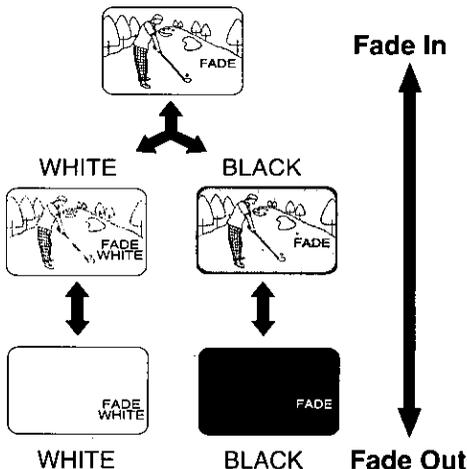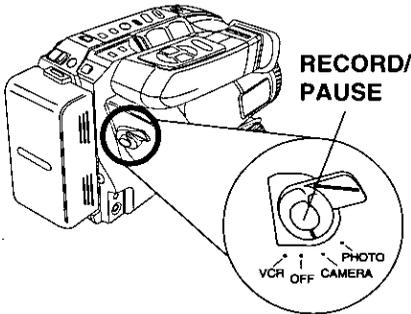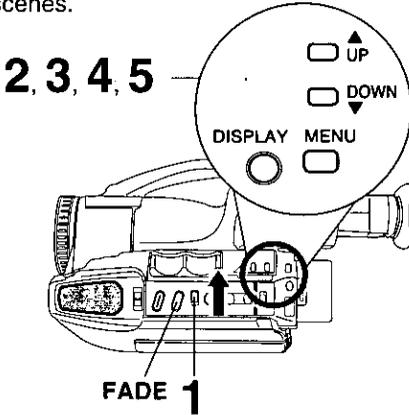Press <u>UP ▲</u> or <u>DOWN ▼</u> to select <u>VIDEO EFFECTS</u>.

```
                              PAGE 2/2
          ▲
DISPLAY        : ON
SELF DEMO  : OFF
SECURITY     : OFF
VIDEO EFFECTS : FADE
                       BLACK
SELECT : PUSH ▼/▲ KEY
SET      : PUSH DISPLAY KEY
END     : PUSH MENU KEY
```

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

```
--- VIDEO EFFECTS ---

          AUTO FADE
          DIGITAL FADE
          DIGITAL FILTER

SELECT : PUSH ▼/▲ KEY
SET      : PUSH DISPLAY KEY
END     : PUSH MENU KEY
```

4 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 ▼/▲ KEY
SET      : PUSH DISPLAY KEY
```
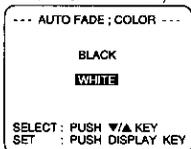
5 Press <u>DISPLAY</u> to confirm entry.
Press <u>MENU</u> to exit.

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.

Note:
• Auto Fade will not function during Digital Wipe mode or Picture in Picture Wipe Title.

Special Features

Fade

Color Digital Fade

Choose from 7 fade effects in 8 different colors.

2, 3, 4, 5

1

EVF or LCD monitor

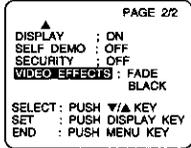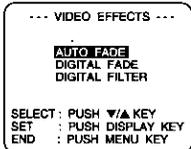| ◻ SFT | WHT |
◻ SHR	YEL
◻ MSC	RED
◻ SFT → ◻ SHR	MAG
◻ SHR → RED	BLU
◻ STR	CYN
≋ RDM	GRN
	BLK

Before you begin...

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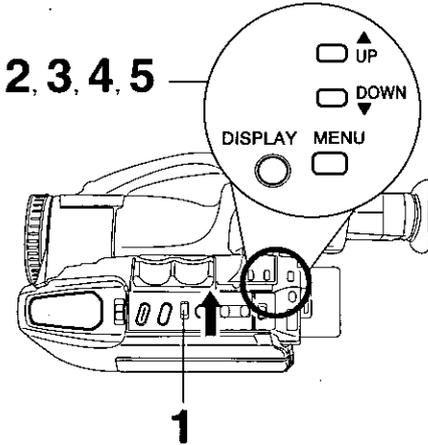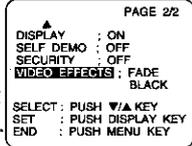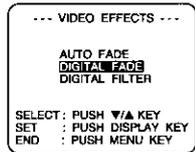• **Set POWER to CAMERA.**

1 Slide **DIGITAL SELECT** to **FADE**.

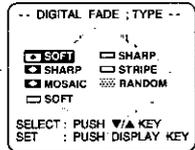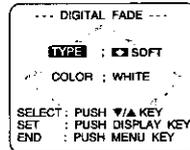**2** Press **MENU** for MENU mode. Press **UP ▲** or **DOWN ▼** to select **VIDEO EFFECTS**

```
                    ▲              PAGE 2/2
DISPLAY      : ON
SELF DEMO  : OFF
SECURITY    : OFF
VIDEO EFFECTS : FADE
                      BLACK
SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

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

```
--- VIDEO EFFECTS ---

      AUTO FADE
      DIGITAL FADE
      DIGITAL FILTER

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

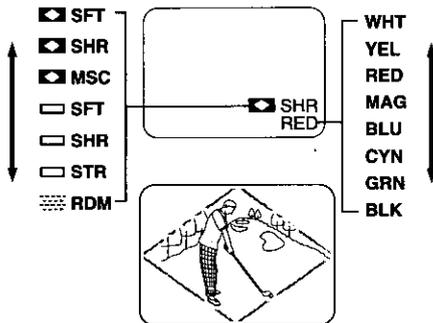**4** Press **DISPLAY** for DIGITAL FADE menu. **Press UP ▲ or DOWN ▼** to select **TYPE**. **Press DISPLAY** for TYPE menu. **Press UP ▲ or DOWN ▼** to select from 7 types.
• A preview of each fade type is displayed as it is selected.

```
--- DIGITAL FADE ---

   TYPE  : ◻ SOFT

   COLOR : WHITE

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
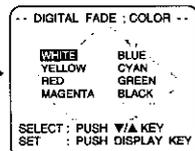```
-- DIGITAL FADE ; TYPE --

◻ SOFT   ◻ SHARP
◻ SHARP   ◻ STRIPE
◻ MOSAIC   ≋ RANDOM
◻ SOFT

SELECT : PUSH ▼/▲ KEY
SET   : PUSH DISPLAY KEY
```

**5** 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 ▼/▲ KEY
SET   : PUSH DISPLAY KEY
END   : PUSH MENU KEY
```
```
-- DIGITAL FADE ; COLOR --

WHITE   BLUE
YELLOW   CYAN
RED   GREEN
MAGENTA   BLACK

SELECT : PUSH ▼/▲ KEY
SET   : PUSH DISPLAY KEY
```
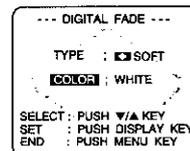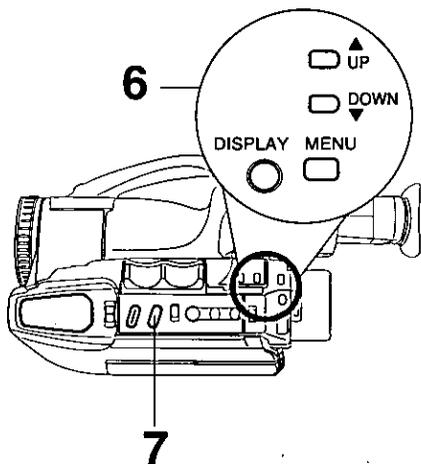
**6** Press **DISPLAY** to confirm entry.
Press **MENU** twice to exit.

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

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

## Note:
• Audio is not affected by fade.
• To cancel Digital Fade, do steps 1, 2, 3,
and 6. In step 3, select AUTO FADE.
• Color Digital Fade will not function during
Digital Wipe mode or Picture in Picture
Wipe Title.

Special Features

# Digital Zoom

Power Zoom magnification is digitally increased.

3



1  2, 4



50×
D.ZOOM1

## Before you begin...

• Connect Camcorder to power source.
• Set POWER to CAMERA.
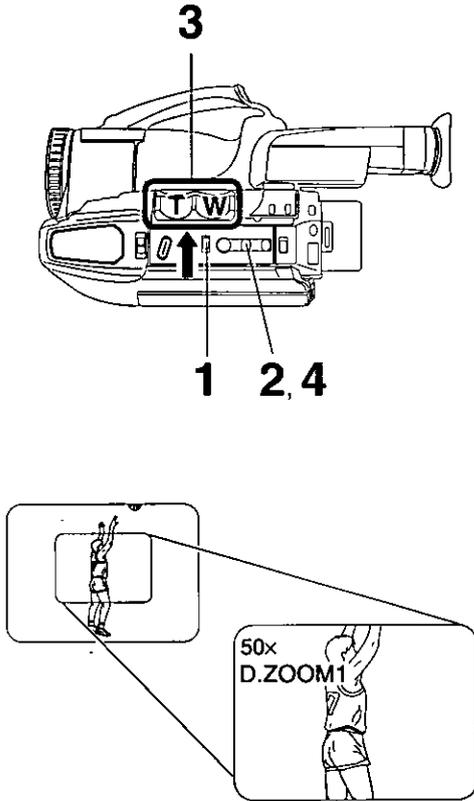
**1** Slide <u>DIGITAL SELECT to D.ZOOM</u>.

**2** Press <u>D. ZOOM</u>.
once → D.ZOOM 1 (150× maximum)
twice → D.ZOOM 2 (300× maximum)

Higher digital magnification levels
may cause picture distortion.

**3** Hold down <u>"T" on POWER ZOOM</u>.
Digital Zoom starts when normal
zoom reaches maximum (26×).

• Zoom level appears in EVF or LCD
  monitor.
• POWER ZOOM switch controls
  digital zoom level.
• Normal zoom resumes when level
  falls to 26×.

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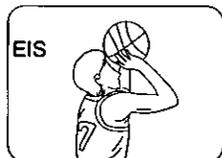Zoom so no indication appears.

## Note:
• If "NOW IN DIGITAL WIPE" is displayed
  when D. ZOOM is pressed, DIGITAL
  SELECT is currently in DIGITAL WIPE
  mode and the DIGITAL ZOOM feature is
  not available.

For assistance, call 1-800-211-PANA(7262)

# Digital E.I.S.

## Digital Electronic Image Stabilization (E.I.S.)

Helps stabilize picture when recording in
unstable situations.



1 2,3

(NORMAL)

↓
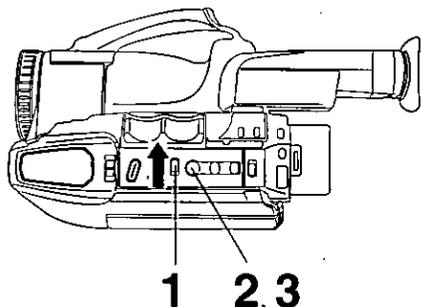
EIS (Digital EIS ON)

## Before you begin...

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

**1** Slide DIGITAL SELECT to EIS.

**2** 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 36)
if needed. Shutter speed setting
remains after EIS is canceled.

**3** Press EIS again to cancel when not
in use.

**E.I.S. may not function during...**
• extreme Camcorder movement.
• recording of subject with distinct
horizontal or vertical stripes.
• low light situations (EIS indicator
flashes).
• intense fluorescent lighting situations.
• recording of very fast motion.

**Note:**
• If "NOW IN DIGITAL WIPE" is displayed
when EIS is pressed, DIGITAL SELECT
is currently in DIGITAL WIPE mode and
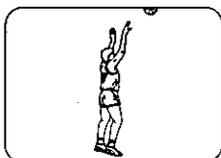the Digital E.I.S. feature is not available.

*Special Features*
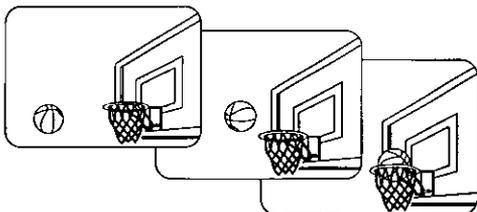
43
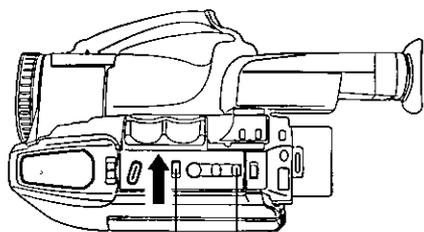
# Still/ Strobe/ Wide
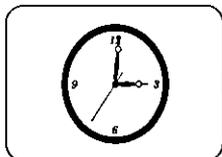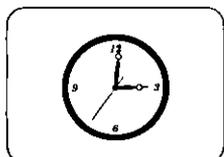


1 2

**EVF or LCD monitor**

Still



Strobe



Wide Screen



Normal ➡ Wide

## Before you begin...

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

**1** Slide <u>DIGITAL SELECT</u> to STILL/ STROBE.

**2** Press <u>STILL/STROBE</u> repeatedly for desired function as described below.

### Selection order

First Press    Second Press    Third Press Hold down for more than 3 seconds

NORMAL → STILL → STROBE → WIDE

Third Press

Fourth Press
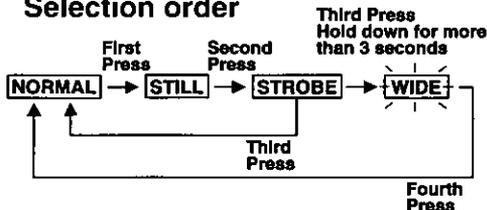
### STILL

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.

**Note:**
• If "NOW IN DIGITAL WIPE" is displayed when STILL/STROBE is pressed, DIGITAL SELECT is currently in DIGITAL WIPE mode and the STILL/STROBE/ WIDE feature is not available.
• Wide screen recordings must be played back on a wide screen TV (16×9 aspect ratio) or picture will be distorted.
• If title is added (pages 46~48) during Wide mode, it will be distorted when played back on a wide screen TV.

**44**

# Security Mode

**2, 3, 4**

UP
DOWN
DISPLAY  MENU

**1**

## Motion Security 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.

## Motion Security 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, MOTION SECURITY flashes).
• background is plain, like a white wall, or has distinct horizontal or vertical stripes.

## Note:

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

## Before you begin...

• **Connect Camcorder to power source.** Use AC Adaptor for longer recordings.
• **Insert cassette with record tab (page 15).**
• **Set POWER to CAMERA.**
• **Securely position and aim Camcorder.**
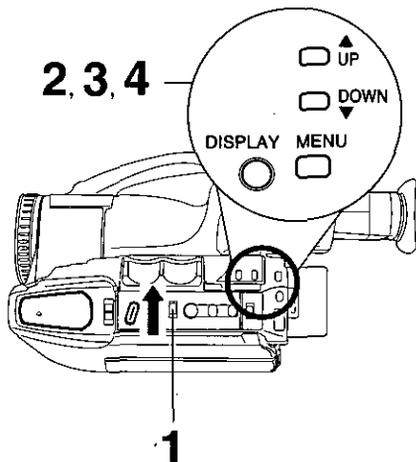
**1** Slide DIGITAL SELECT to EIS.

**2** Press MENU for MENU mode.
Press UP ▲ or
DOWN ▼ to select
**SECURITY**.

```
                          PAGE 2/2
  DISPLAY      : ON
  SELF DEMO    : OFF
  SECURITY     : OFF
  VIDEO EFFECTS ; FADE
                  BLACK

  SELECT : PUSH ▼/▲ KEY
  SET    : PUSH DISPLAY KEY
  END    : PUSH MENU KEY
```

3 Press DISPLAY to select ON.

4 Press MENU for Motion Security stand-by mode. (If cassette is not inserted, "⊡⊡" will flash.)

```
                            REC
  MOTION           MOTION
  SECURITY    ↔    SECURITY
  STAND-BY
```

• Recording will start about 3 seconds after motion is detected.
• Date and time are recorded if displayed in EVF or LCD monitor (page 21).
• Recording stops 30 seconds after motion ceases.

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

Special Features

Intelligent Titler

Camcorder auto-displays title greeting on selected holidays when power is first turned on. See title list on page 47.

Before you begin...

- **Connect Camcorder to power source.**
- **Set POWER to CAMERA.**
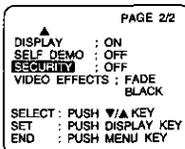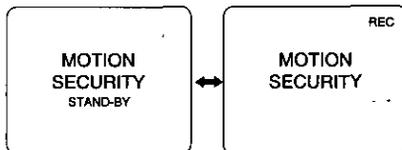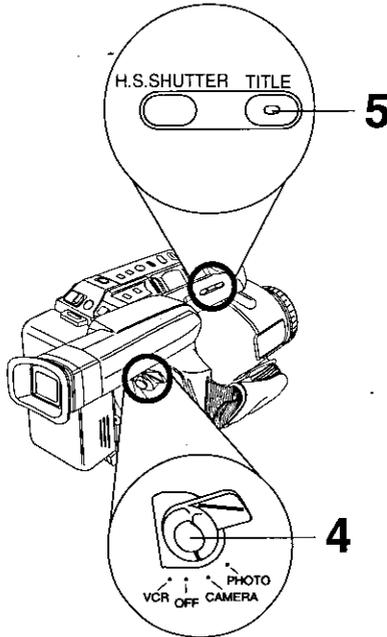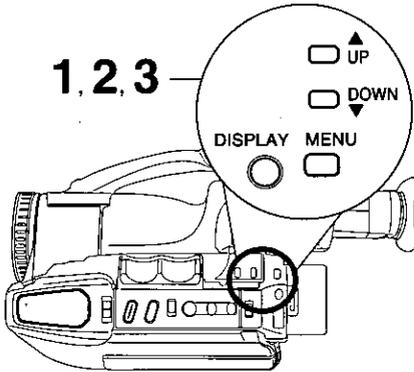- **Insert cassette with record tab (page 15).**

1,2,3

1 Press **MENU** for MENU mode.
Press **UP ▲** or **DOWN ▼** to select **TITLE**.

```
--- MENU --- PAGE 1/2

PROGRAMMED REC
TITLE        : AUTO/MANUAL
TALLY LAMP   : ON
STAND-BY RELEASE : OFF
CLOCK SET
       ▼
SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```
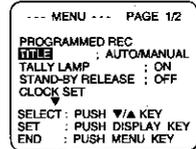
2 Press **DISPLAY** to select AUTO/ MANUAL.

3 Press **MENU** to exit.

4 To record the title, **press RECORD/ PAUSE**.

5 Press **TITLE** while recording to remove title.

Note:
- Once removed, title will not be auto-displayed. To redisplay, or select from other titles use Manual Title (page 47).

46

Intelligent Titler

Automatic/Manual Title Display List

Dec. 31–Jan. 1	HAPPY NEW YEAR! / CHEERS!
Feb. 14	VALENTINE'S DAY / BE MY VALENTINE
2nd Sunday in May	HAPPY MOTHER'S DAY / WE LOVE YOU!
Last Monday in May	MEMORIAL DAY
3rd Sunday in Jun.	HAPPY FATHER'S DAY / WE LOVE YOU!
Jul. 4	INDEPENDENCE DAY
1st Monday in Sep.	LABOR DAY
Oct. 31	HAPPY HALLOWEEN
4th Thursday in Nov.	HAPPY THANKSGIVING
Dec. 24–25	MERRY CHRISTMAS / HO! HO! HO!
These Titles must be displayed manually.	HAPPY EASTER HAPPY ANNIVERSARY HAPPY BIRTHDAY VACATION WEDDING DAY A SPECIAL DAY

Manual Title
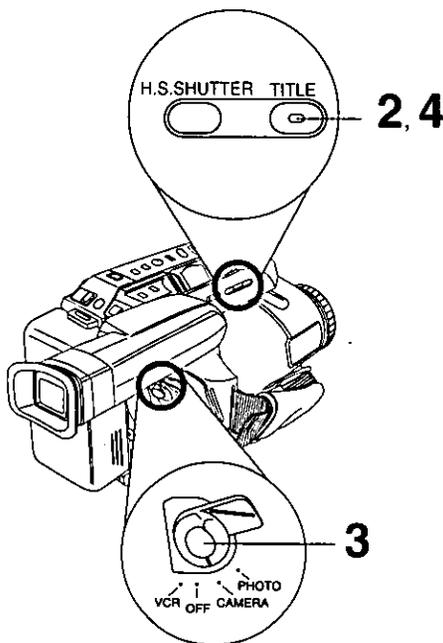
Before you begin...

• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**
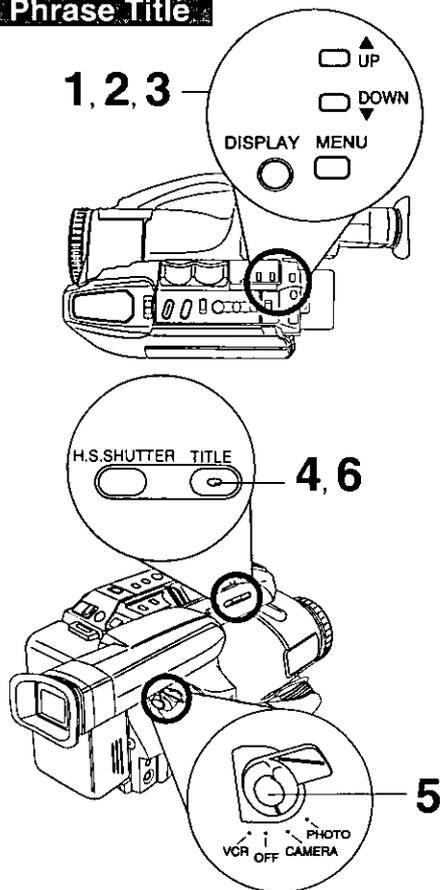• **Insert cassette with record tab (page 15).**

1 Confirm that TITLE: AUTO/MANUAL is set in Menu mode (steps 1~3, page 46).

2 In Pause (Record mode), press **TITLE** repeatedly to display titles from list above.

3 To record the title, Press **RECORD/ PAUSE**.

4 Press **TITLE** while recording to remove title.

Note:
• To redisplay title, press TITLE in Pause (Record mode).

47

Intelligent Titler

1, 2, 3

UP
DOWN
DISPLAY MENU

H.S.SHUTTER TITLE

4, 6

5

PHOTO
VCR OFF CAMERA

(no indication)
BEAUTIFUL
BRAVO!
CHEERS!
CONGRATULATIONS
GIMME A BREAK!
GOOD LUCK
I LOVE YOU
OOPS!
OUR LITTLE ANGEL
WAY TO GO

Before you begin...

• **Connect Camcorder to power source.**
• **Set POWER to CAMERA.**
• **Insert cassette with record tab (page 15).**

1 Press **MENU** for MENU mode.
Press **UP ▲** or **DOWN ▼** to select
TITLE.

```
... MENU ...    PAGE 1/2
PROGRAMMED REC
TITLE        ; PHRASE
TALLY LAMP      : ON
STAND-BY RELEASE : OFF
CLOCK SET

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
END    : PUSH MENU KEY
```

2 Press **DISPLAY** to select PHRASE.

3 Press **MENU** to exit.

4 In Pause (Record mode), **press**
TITLE repeatedly to display phrases
from list below, left.

5 To record the phrases, **Press**
RECORD/PAUSE.

6 Press **TITLE** while recording to
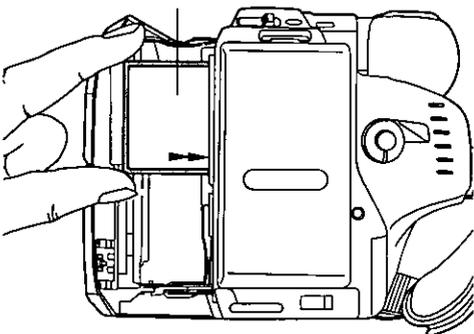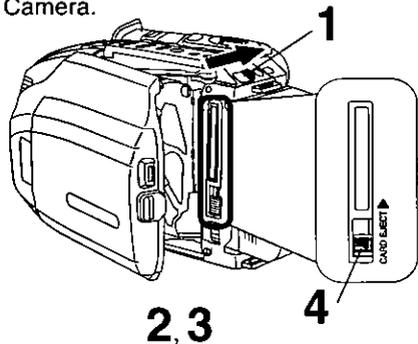remove phrase.

Note:
• To redisplay phrase, press **TITLE** in
Pause (Record mode).

Digital Still Camera

CompactFlash Card Insertion/Removal

The captured images will be stored on this CompactFlash Card.
Be sure to insert the CompactFlash Card before using the Built-in Digital Still Camera.

2,3   **4**

■ Concerning the CompactFlash Card

- Except for some special features, this card is compatible with other Panasonic brand products, like Digital Camera (PV-DC1080, PV-DC1580, PV-DC2090, PV-DC2590), LCD Projector (PT-L556U).
- Panasonic only guarantees compatibility with Panasonic brand cards and those bearing the SanDisk logo.
- This Camcorder can capture a maximum of 699 still images because of camera memory capacity. A larger CF card (optional) is required to capture 699 images.
  In order to capture 699 images, a CF Card memory with approx. 62 MB is needed for FINE mode and approx. 21 MB is needed for Normal mode.

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

1 Slide TAPE EJECT to open door.

2 Insert the **CompactFlash Card** into the CompactFlash Card Slot in the direction of the arrow. The side of the card with the arrow faces the back (battery side) of the camcorder (see the picture at the left).

3 Push the card fully into the Slot.

4 Slide CARD EJECT, to release the card.

Note:
- If CompactFlash Card is not inserted, "NO CF CARD" appears on-screen.
- Do not insert card in wrong direction.
- If card does not eject after sliding CARD EJECT, push card fully back into slot, then firmly slide the CARD EJECT again.
- To avoid dropping the card, do not slide CARD EJECT when the card slot is facing downward.
- If "CF CARD ERROR" appears on-screen, see page 80.

CAUTION:
- Do not bend, drop, apply high pressure or subject the card to strong shocks.
- Do not store it in places with high temperature, high humidity, a lot of dust, or places exposed to direct sunlight, or static electricity and strong electromagnetic waves.
- Keep the card's contacts free from dust, water or other foreign substances. Do not touch them with your fingers, etc.
- Do not disassemble or deform the card.
- Be sure to make a backup copy of important data.
- Do not affix other labels to the CompactFlash Card face or back as Card insertion/removal may become impossible.

49

Digital Still Camera

Before you begin...

- Connect Camcorder to power source.
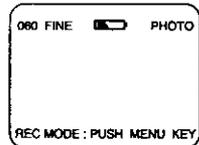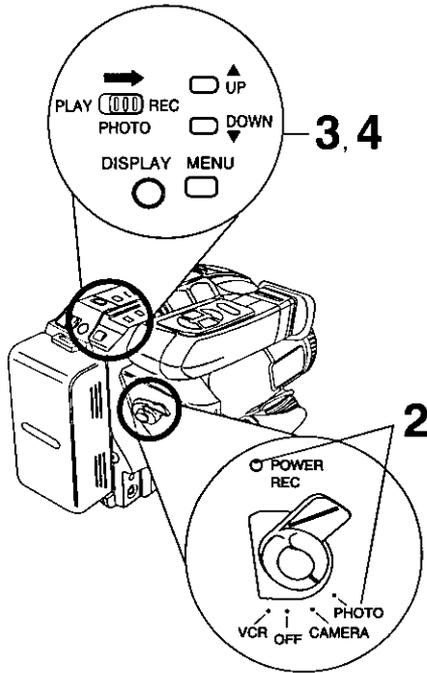- Insert the CompactFlash Card (page 49).
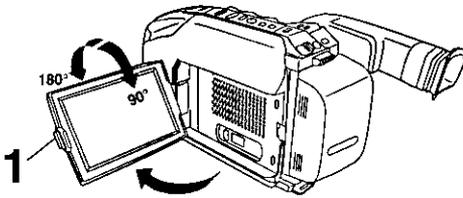
1 Press <u>LCD-OPEN</u> and swing LCD monitor fully open. Adjust viewing angle.

2 Set <u>POWER to PHOTO</u>.
Built-in Lens Cover opens and Power lamp lights.
- Be sure POWER is fully rotated to PHOTO position.

3 Slide <u>PHOTO MODE</u> to <u>REC</u>.

```
060 FINE  ▭▭  PHOTO



REC MODE : PUSH MENU KEY
```

4 Press <u>MENU</u> for REC Mode.
Press <u>UP ▲</u> or <u>DOWN ▼</u> to select NORMAL or FINE (page 71). Then, press <u>DISPLAY</u> to set.

```
--- REC MODE ---

NORMAL

FINE

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
```
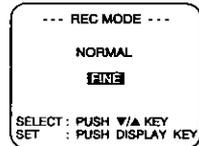
Note:
Please note that the included 8 MB CompactFlash Card already contains 12 pre-recorded titles for your use. Please see page 59 for further details.

50

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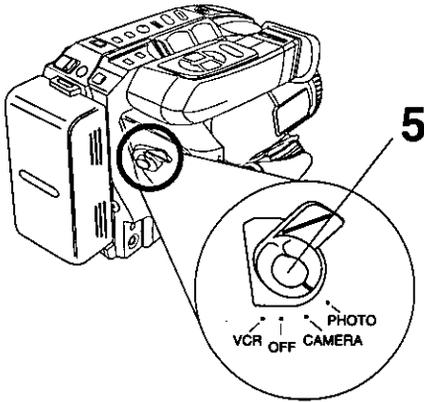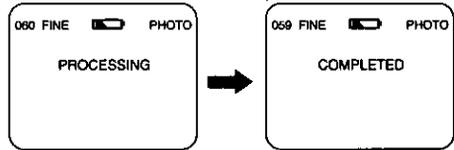
5 Press **RECORD/PAUSE** to capture image.
- As the image is processed, the status screens below appear. The next image may be captured after "COMPLETED" disappears.
- Depending on the image taken, the image page remaining indication may not change, or it may be decreased by 2 images.

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.

Note:
- If CompactFlash Card is not inserted, "NO CF CARD" appears on-screen. Set POWER to OFF, then insert the CompactFlash Card.
- If "CF CARD ERROR" appears on-screen, see page 80.
- Sound will not be recorded.
- The features below are not available while in PHOTO mode.
  - Auto Fade
  - Digital Zoom
  - Security Mode
  - Picture in Picture Wipe Title
  - Digital Fade
  - Digital E.I.S.
  - Intelligent Titler
  - Color Digital Filter
  - Still/Strobe/Wide
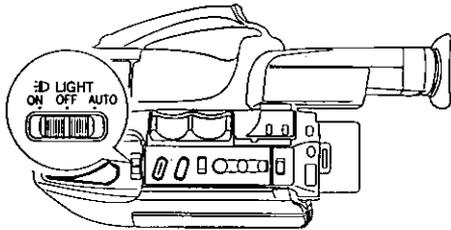 - Digital Wipe Mode

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.

51

Digital Still Camera

## Using the Light

For capture of still images in dim lighting.

Before you begin...

- **Connect Camcorder to power source.**
- **Insert the CompactFlash Card (page 49).**
- **Set POWER to PHOTO.**

RECORD/
PAUSE

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 goes out.

Or, set LIGHT to ON/OFF manually.
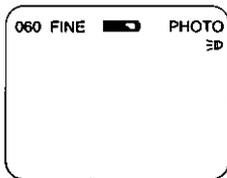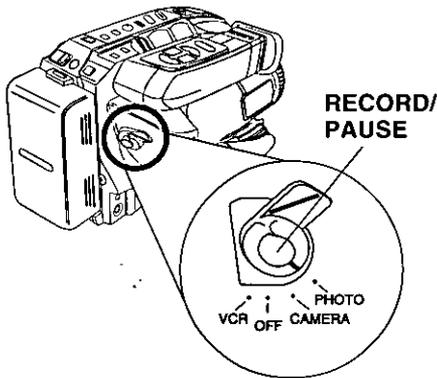
060 FINE   PHOTO
     ⨎D

⨎D appears in EVF or LCD monitor when Light is on.

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.

Digital Still Camera

Playback

1

3,4

Note:
- If CompactFlash Card is not inserted, "NO CF CARD" appears on-screen. Set Power to OFF, then insert the CompactFlash 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 "CF CARD ERROR" appears on-screen, see page 80.

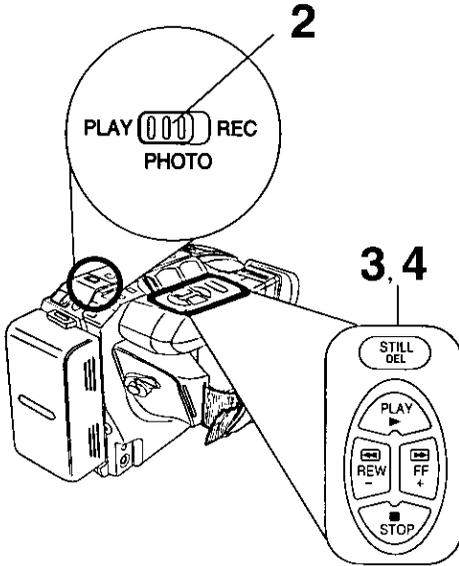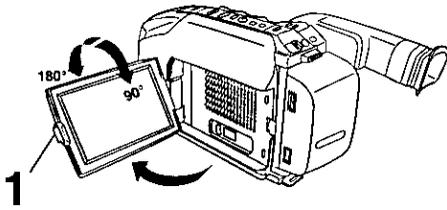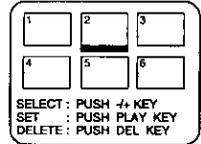## Before you begin...
- **Connect Camcorder to power source.**
- **Insert the CompactFlash Card (page 49).**
- **Set POWER to PHOTO.**

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

2 Slide **PHOTO MODE to PLAY**.
The Multi Image Playback screen appears. The last captured image screen is underlined.

SELECT : PUSH +/– KEY
SET : PUSH PLAY KEY
DELETE : PUSH DEL 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 STOP KEY
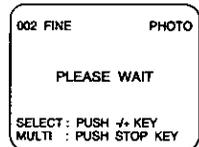
- Press **DISPLAY** to remove or redisplay this screen.
- Press **STOP** to redisplay Multi Image playback screen.

Special Features

Digital Still Camera

Before you begin...

• **Connect Camcorder to power source.**
• **Insert the CompactFlash Card (page 49).**
• **Set POWER to PHOTO.**

1,2

1 Repeat step 1 and 2 on page 53 to display Multi Image Playback screen. Select any image and press PLAY.
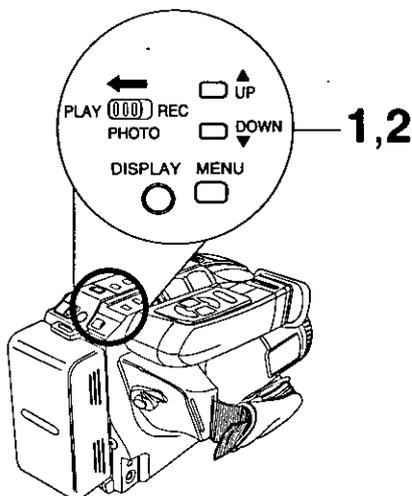
2 Press **MENU** for DCF NUMBER DISPLAY menu.
Press **UP▲** or **DOWN▼** to select ON or OFF. Then, **press DISPLAY** to set.

```
-- DCF NUMBER DISPLAY --

        ON
        OFF

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DISPLAY KEY
```
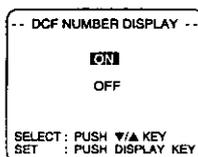
ON → Directory/Image Number is displayed.
OFF→ Directory/Image Number is not displayed.

```
060 FINE          PHOTO
000-0000

SELECT : PUSH -/+ KEY
MULTI  : PUSH STOP KEY
```

Directory/Image Number
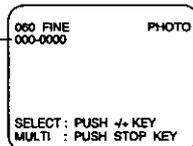
Note:
• Directory/Image Number "xxx-xxxx" (x indicates the number) is assigned automatically.
• Even if ON is set, if the Directory/Image Number dose not correspond with DCF it is not displayed.
• The Directory/Image Number becomes the folder and file name when viewed with card reader.

Deleting Specific Image Pages

Delete older images to make room for new ones.
Important :
Once deleted, images cannot be restored.

PLAY RREC PHOTO
UP
DOWN
1

1, 2, 3, 4

STILL DEL
PLAY
REW FF
- +
STOP

Note:
• Pictures captured with other brand products cannot be used with this Camcorder.
• If "CF CARD ERROR" appears on-screen, see page 80.

─ 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.

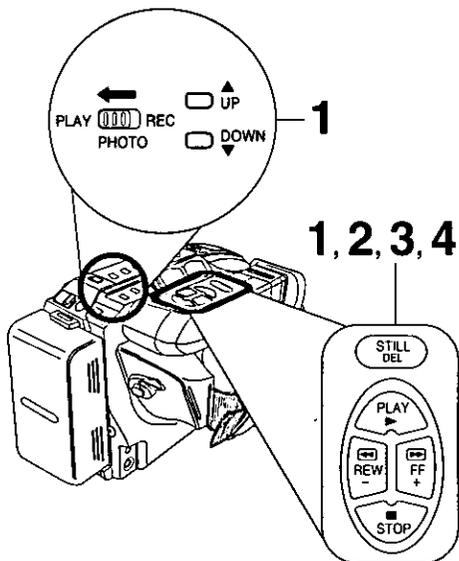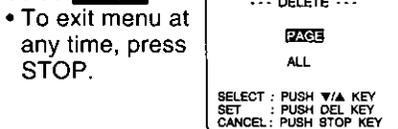## Before you begin...

• **Connect Camcorder to power source.**
• **Insert the CompactFlash Card (page 49).**
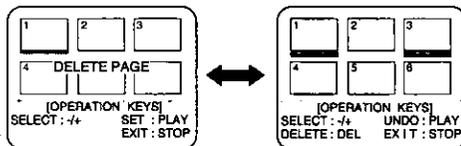• **Set POWER to PHOTO.**
  Slide PHOTO MODE to PLAY.

1 Press **DEL(STILL)** for DELETE menu. Press **UP ▲** or **DOWN ▼** to select **PAGE** .
• To exit menu at any time, press STOP.

```
--- DELETE ---
PAGE
ALL

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DEL KEY
CANCEL : PUSH STOP KEY
```

2 Press **DEL(STILL)** for Multi Image screen. Press **+ (FF)** or **- (REW)** to select image page. Press **PLAY** once to set. Or, press twice to undo.
• Press **+ (FF)** or **- (REW)** and **PLAY** repeatedly to select several pages at one time.
• The selected image will be underlined in green.
• You can delete images underlined in red.

```
1 2 3
4 DELETE PAGE
[OPERATION KEYS]
SELECT :-/+   SET : PLAY
              EXIT : STOP
```
→
```
1 2 3
4 5 6
[OPERATION KEYS]
SELECT :-/+   UNDO : PLAY
DELETE : DEL  EXIT : STOP
```

3 Press **DEL(STILL).** This message appears.

```
1 2 3
4 DELETE PAGES
  ARE YOU SURE ?

YES    : PUSH DEL KEY
CANCEL : PUSH STOP KEY
```

4 Press **DEL(STILL)** to delete the page.
• As image pages are deleted, page numbers adjust automatically.

Special Features

Digital Still Camera

Deleting All Image Pages

All image pages are deleted from memory.
Important:
Once deleted, images cannot be restored.

1 Press <u>DEL(STILL)</u> for DELETE
menu. Press <u>UP</u> ▲ or <u>DOWN</u> ▼ to
select **ALL**.
• To exit menu at
any time, press
STOP.

```
--- DELETE ---

       PAGE
       ALL

SELECT : PUSH ▼/▲ KEY
SET    : PUSH DEL KEY
CANCEL : PUSH STOP KEY
```

2 Press <u>DEL(STILL)</u>. This message
appears.

```
 1    2    3

 4    DELETE ALL
      ARE YOU SURE ?

YES    : PUSH DEL KEY
CANCEL : PUSH STOP KEY
```
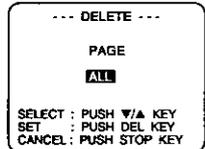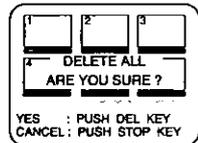
3 Press <u>DEL(STILL)</u> to delete all
pages.
• "NO PICTURE" appears on-screen
after deletion.

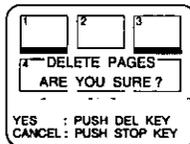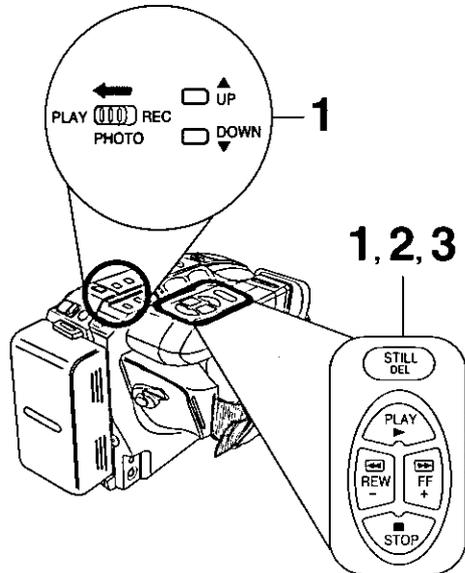**Note:**
• Pictures captured with other brand
products cannot be used with this
Camcorder.
• If "CF CARD ERROR" appears
on-screen, see page 80.

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.

Digital Still Camera

Captured still images (pages 50, 51) can be recorded along with the current picture.
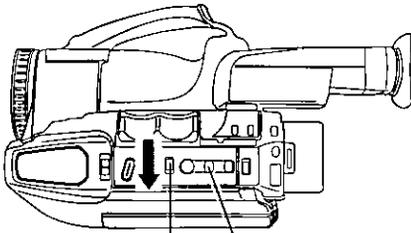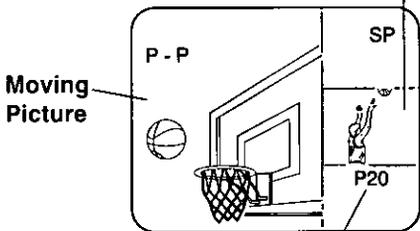
Before you begin...

- **Connect Camcorder to power source.**
- **Insert the CompactFlash Card (page 49).**
- **Set POWER to CAMERA.**

(P - P = Picture in Picture)

1 Set **DIGITAL SELECT** to **DIGITAL WIPE**.

- A still image captured on the CF 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.

1 MODE

Still image

P - P

SP

Moving Picture

P20

Multi image playback page number

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

3 Start recording (page 23).

- When recording starts, Multi image playback number disappears. Then the capture still images can be recorded along with the current picture.
- To exit from the Picture in Picture Wipe title mode, press **MODE** (page 58).

Note:

- If CompactFlash Card is not inserted, "NO CF CARD" appears on-screen. Set Power to OFF, then insert the CompactFlash 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 "CF CARD ERROR" appears on-screen, see page 80.
- If Picture in Picture Wipe Title selected, the following functions are not available: Security mode, Auto Fade, Digital Fade, Digital Filter, Digital Zoom, Digital E.I.S., Still/Strobe/Wide.

STILL DEL

PLAY

REW FF

STOP

2

3

VCR OFF CAMERA PHOTO

Special Features

Digital Still Camera

Digital Wipe Mode

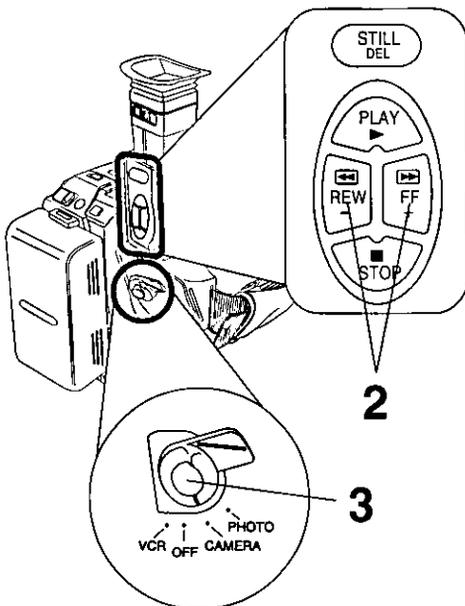Insert a Captured still image into the current recording, or vice versa, in one of three wipe effects.

Before you begin...

- Connect Camcorder to power source.
- Insert the CompactFlash Card (page 49).
- Set POWER to CAMERA.

1 Repeat step 1 and 2 on page 57 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.

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)
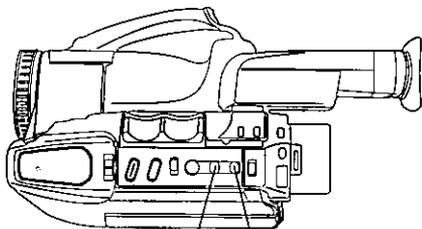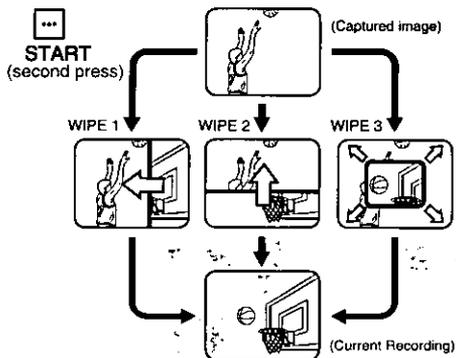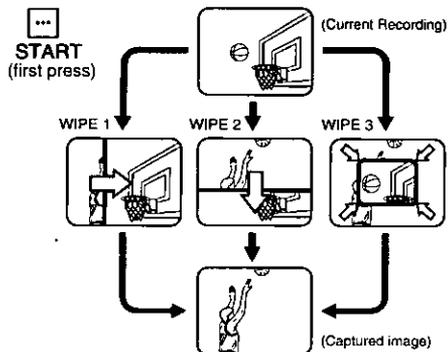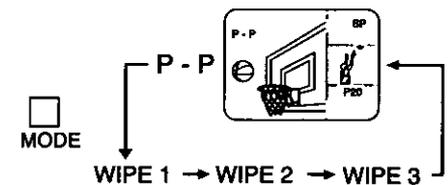
(Current Recording)

Note:

- If CompactFlash Card is not inserted, "NO CF CARD" appears on-screen. Set Power to OFF, then insert the CompactFlash 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 "CF CARD ERROR" appears on-screen, see page 80.
- If Digital Wipe mode is selected, the following functions are not available: Security mode, Auto Fade, Digital Fade, Digital Filter, Digital Zoom, Digital E.I.S., Still/Strobe/Wide.

Digital Still Camera

PhotoShot Title Library

The included 8 MB CompactFlash Card already contains 12 pre-recorded titles. You can insert any one of the 12 included pre-recorded titles into your current video recording by following the steps outlined below.

CAUTION:
If you delete the following pre-recorded titles, they will not be restored.

Before you begin...

• Connect Camcorder to power source.
• Insert the CompactFlash Card (page 49).
• Set POWER to CAMERA.

1 Set **DIGITAL SELECT to DIGITAL WIPE**.

2 Press **+ (FF)** or **- (REW)** to select still image to be used.
Please see page 57 for further details.

3 Start recording (page 23).

Panasonic

Anniversary

Happy Birthday

Bon Voyage

Congratulations

Graduation

It's a Girl!

It's a Boy!

Our Wedding

Surprise!

The Wedding

Vacation!

Special Features

59

PC Connection

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

System Requirements for Digital PhotoShot

• IBM PC/AT or compatible.
• Intel® Pentium® Processor
• Microsoft® Windows®95 or Windows®98.
• 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.

Before you begin...

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

Note:

• Be sure to turn PC off before connection for properly 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
cable
(supplied)

PC Connector

PC Connection
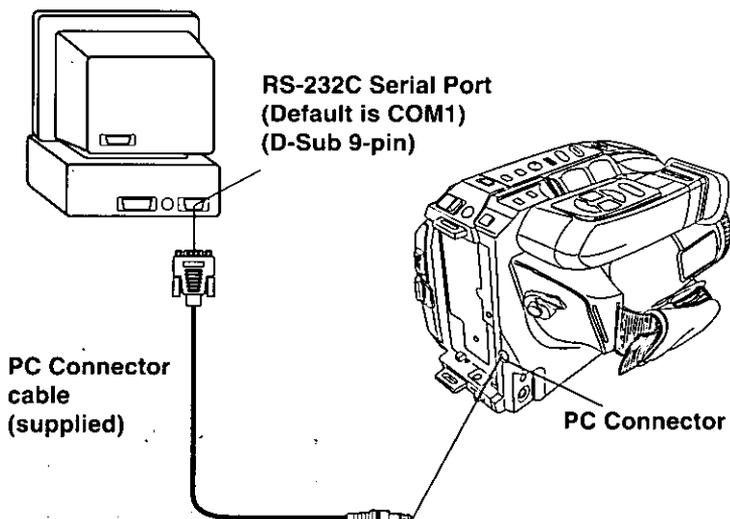
Software Installation (Windows 95/98)

Windows Update

Programs ▶

Favorites ▶

Documents ▶

Settings ▶

Find ▶

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...

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) into a floppy disk drive.

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

4 Type in a:\setup.exe and click OK.
• If your 3.5 inch floppy disk drive is not "A", use 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.
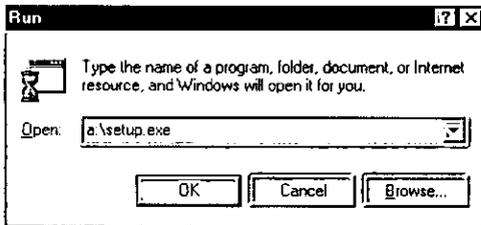
Note:
• Please look for Windows NT version of driver software on our website at **http://www.panasonic.com/video**.

Special Features

61

PC Connection

Before you begin...

- Insert the CompactFlash Card (page 49).
- Make Camcorder-PC connections (page 60).
- Turn your PC on.
- Set Camcorder POWER to PHOTO.

1 Click on Start, then "Programs," then "Digital PhotoShot."

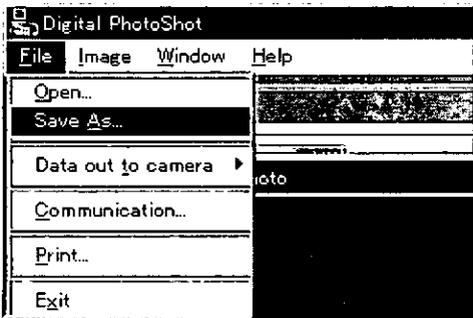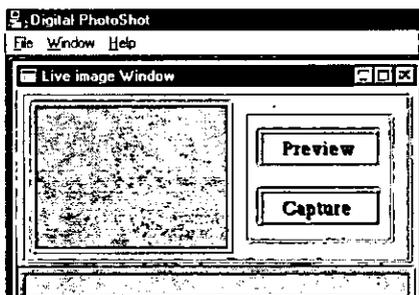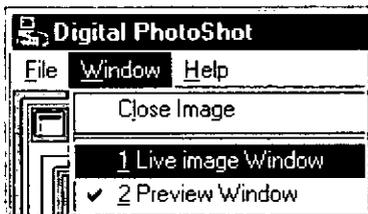**2** "Digital PhotoShot" is opened.

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.

```
🖥 Digital PhotoShot
 File  Window  Help
    ┌─────────────────────┐
    │  Close Image         │
    ├─────────────────────┤
    │ 1 Live image Window  │
    │ ✓ 2 Preview Window   │
    └─────────────────────┘
```

```
🖥 Digital PhotoShot
 File  Window  Help
 ┌─ Live image Window ──────[-][□][×]─┐
 │                         ┌──────────┐ │
 │                         │ Preview  │ │
 │                         └──────────┘ │
 │                         ┌──────────┐ │
 │                         │ Capture  │ │
 │                         └──────────┘ │
 └──────────────────────────────────────┘
```

```
🖥 Digital PhotoShot
 File  Window  Help
    ┌─────────────────────┐
    │  Close Image         │
    ├─────────────────────┤
    │  Live photo Zoom In  │
    ├─────────────────────┤
    │ ✓ 1 Live image Window│
    │   2 Preview Window   │
    └─────────────────────┘
```

```
🖥 Digital PhotoShot
 File  Image  Window  Help
 ┌──────────────────────┐
 │ Open...               │
 │ Save As...            │
 ├──────────────────────┤
 │ Data out to camera  ▶ │ oto
 ├──────────────────────┤
 │ Communication...      │
 ├──────────────────────┤
 │ Print...              │
 ├──────────────────────┤
 │ Exit                  │
 └──────────────────────┘
```

Before you begin...
• **Insert the CompactFlash Card (page 49).**
• **Make Camcorder-PC connections (page 60).**
• **Turn your PC on.**
• **Set Camcorder POWER to PHOTO.**

1 Repeat step 1 and 2 on page 62 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 "Capture" is clicked on.

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.

PC Connection

Using CF Card Image Data

Pictures captured with Camcorder can be transferred to your PC.

Before you begin...

- Insert the CompactFlash Card (page 49).
- Make Camcorder-PC connections (page 60).
- Turn your PC on.
- Set Camcorder POWER to PHOTO..

1 Repeat step 1 and 2 on page 62 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.
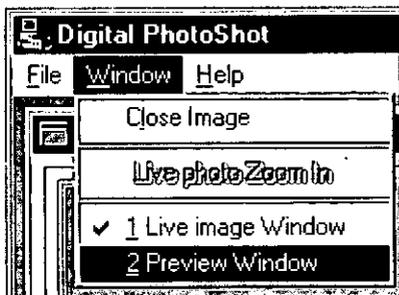
Note:
- If, while transferring the image to your PC, the displayed picture appears abnormal, restart the PC application and turn Camcorder POWER off, and then back on.

64

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.
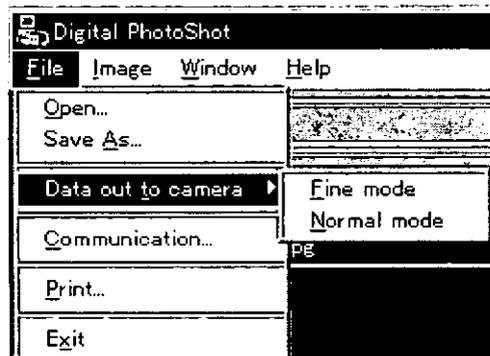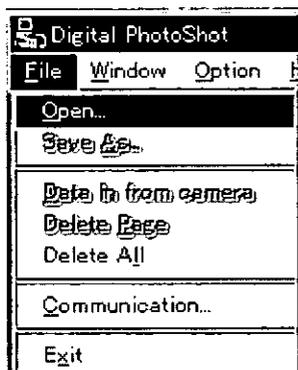
Before you begin...
• **Insert the CompactFlash Card (page 49).**
• **Make Camcorder-PC connections (page 60).**
• **Turn your PC on.**
• **Set Camcorder POWER to PHOTO.**

Digital PhotoShot

File   Window   Help

Close Image

Live photo Zoom In

✓ 1 Live image Window

2 Preview Window

1 Repeat step 1 and 2 on page 62 to run the Software.

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

Digital PhotoShot

File   Window   Option

Open...
Save As...

Data In from camera
Delete Page
Delete All

Communication...

Exit

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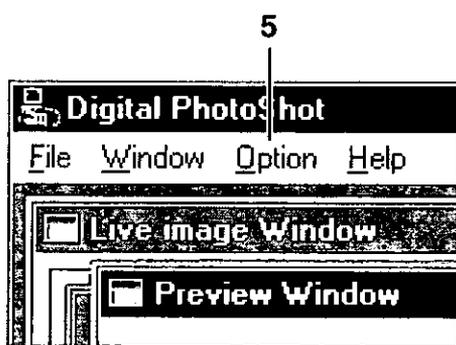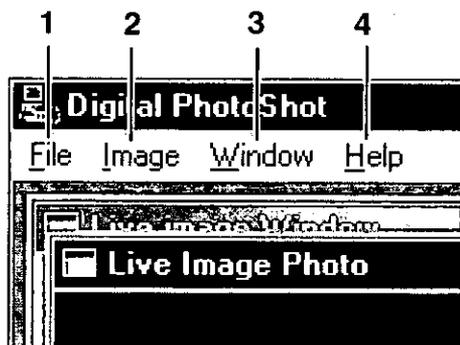• When transferring image data larger than VGA size (640x480) from the PC to the Camcorder, the perimeter of the image is cropped to VGA size.

Digital PhotoShot

File   Image   Window   Help

Open...
Save As...

Data out to camera ▶   Fine mode
                        Normal mode

Communication...

Print...

Exit

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.

65

PC Connection

1   2   3   4   5

Digital PhotoShot

File   Image   Window   Help

Live Image Photo

Digital PhotoShot

File   Window   Option   Help

Live Image Window

Preview Window

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 CF Card memory along with Preview, Transfer, Delete, etc. commands.
- **Delete Page**
  To delete the selected image from the CF Card memory.
- **Delete All**
  To delete all images from the CF 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 CF Card was changed.

Using a PCMCIA Adaptor (optional)

If your PC has a PCMCIA type II slot, you can insert the CompactFlash Card into a PCMCIA adaptor (optional, page 76) to transfer images, captured with this Camcorder only, to your PC.

Inserting a CompactFlash Card

1

2,5

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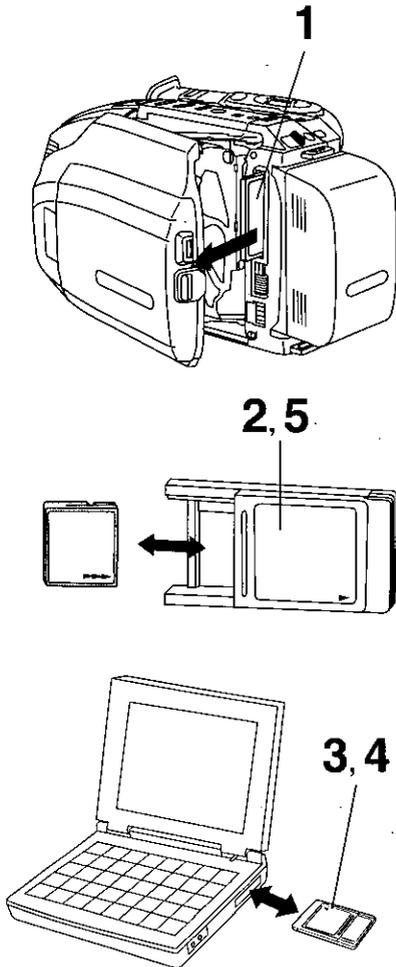
Before you begin...
• Turn your PC on.
• Set Camcorder POWER to OFF.

1 Remove the **CompactFlash Card** from the Camcorder (page 49).

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

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

  • Depending on the PC, it may be necessary to turn the 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 **PCMCIA Adaptor** out until it is no longer inserted in the **PC (Personal Computer)**.

**5** Pull the **CompactFlash Card** out of the **PCMCIA Adaptor**.

Note:
• Do not remove the PCMCIA Adaptor from the PC while the PC is working or while image data is being transferred between the CompactFlash 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 CF card, the images will be displayed properly on PHOTO mode.

Special Features

Viewfinder/LCD Monitor Indications
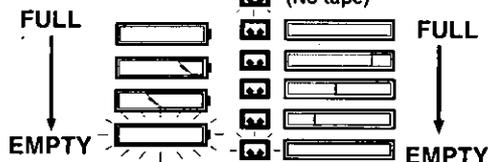
Tape remaining and battery charge level can be displayed.
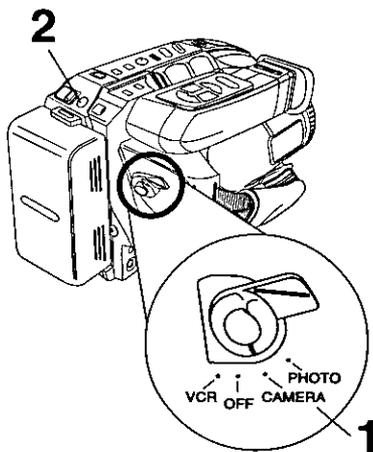
1 Set POWER to CAMERA.

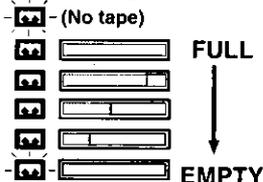**2** Press DISPLAY repeatedly to select the following displays.

Fifth press

(Initial screen)

First press

Fourth press

Second press

Third press
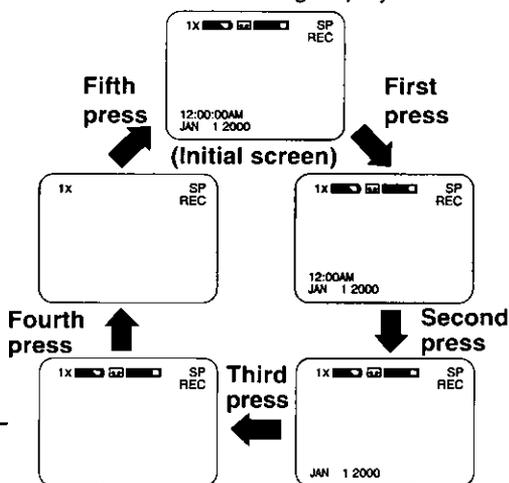
• Tape remaining indicator operates a few seconds after tape starts moving.

Battery Remaining:

Tape Remaining:

- (No tape)

FULL

FULL

EMPTY

EMPTY

Recording the Date and Time

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

2 Start a recording (page 23).
• Only the Date and/or Time are recorded.
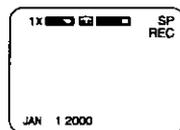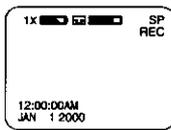
Display-Off Mode

No Indication, except Intelligent Titler (pages 46~48), will be displayed.

1 Press MENU for MENU mode.
Press UP ▲ or DOWN ▼ to select DISPLAY.

2 Press DISPLAY to select OFF.
Press MENU to exit.

3 Press DISPLAY repeatedly to remove time/date.

Indications are restored when Camcorder is turned off, and then on again.
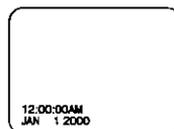
Before you begin...
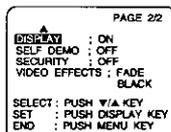
• Connect Camcorder to power source.
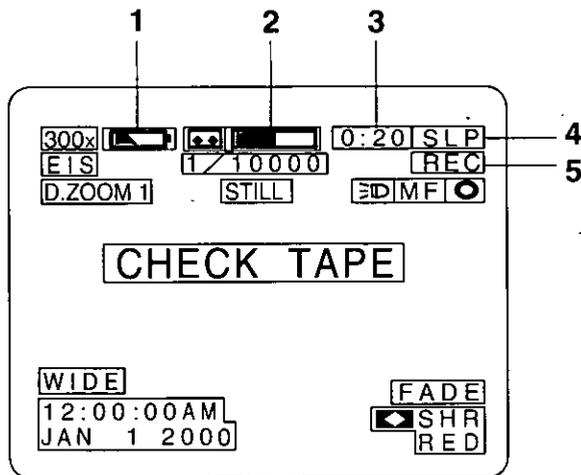• Set POWER to CAMERA or VCR.

CAMERA MODE

VCR MODE

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Viewfinder/LCD Monitor Indications
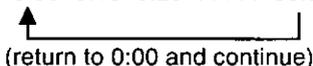
```
        1        2        3
       300x  ⬛◁█   ◆◆█▭   0:20 SLP          4
       EIS        1/10000        REC         5
       D.ZOOM 1       STILL    ⑊D MF ◯

            CHECK TAPE


       WIDE                        FADE
       12:00:00AM                ◆ SHR
       JAN  1  2000                RED
```

1 Battery Remaining ⫶▭⫶ (page 68)
"WARNING LOW BATTERY" appears
and Power Lamp starts flashing 15
seconds before Camcorder shutoff.

2 Tape Remaining
- If RECORD/PAUSE is pressed with no
  cassette, or cassette has no record tab
  in Camera (RECORD) mode, "◆◆"
  flashes 1 minute and "CHECK TAPE"
  appears 5 seconds.
- If PLAY, FF or REW is pressed with no
  cassette inserted in VCR mode, "◆◆"
  flashes 1 minute and "CHECK TAPE"
  appears 5 seconds.
- As end of tape is reached, "◆◆"
  flashes and "TAPE END" appears 5
  seconds.

3 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)

4 TAPE SPEED (pages 15, 23)
(SP=standard play, SLP=super long
play).

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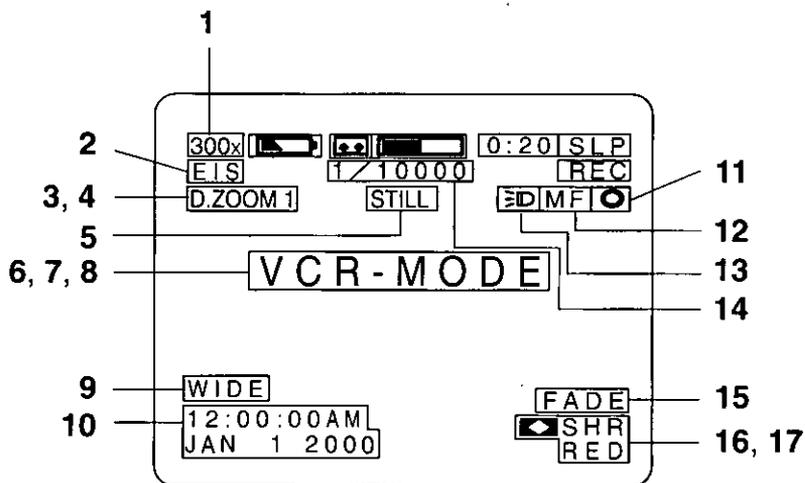**PAUSE**
FF   (fast forward)
PLAY
REW (rewind)

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Viewfinder/LCD Monitor Indications

```
        1
        |
2 ——— 300x ▭◀▶ ◀●▶ ▮▭ 0:20 SLP
3,4 ——— E.I.S   1/10000      REC       ——— 11
5 ——— D.ZOOM 1      STILL    ▭D M F ◯  ——— 12
6,7,8 ———  V C R - M O D E              ——— 13
                                        ——— 14

9 ——— WIDE                    FADE      ——— 15
10 —— 12:00:00AM              ◀▶ SHR    ——— 16, 17
       JAN  1 2000            RED
```

1	Zoom Magnification level (page 34).	**11**	Backlight (page 34).
2	Digital E.I.S. (page 43).	**12**	Manual Focus (page 35).
3	Digital Zoom (page 42).	**13**	Light ON/OFF (pages 22, 52).
4	Digital Wipe (pages 57, 58).	**14**	High Speed Shutter (page 36).
5	Still/Strobe (page 44).	**15**	Fade (page 39).
6	**VCR-MODE**	**16**	Color Digital Fade (pages 40, 41).
	Appears 1 minute when POWER is set to VCR or if <u>RECORD/PAUSE</u> is pressed in VCR mode.	**17**	Color Digital Filter (page 38).
7	**DEW**		
	If moisture condensation occurs in unit, "WARNING DEW DETECTED" appears, Power Lamp flashes, and Camcorder will shutoff in 15 seconds. Wait until lamp no longer flashes when Camcorder is turned on to use.		
8	Security Mode (pages 45).		
9	Wide Screen (page 44).		
10	Date and Time (page 21).		

Viewfinder/LCD Monitor Indications

PHOTO mode
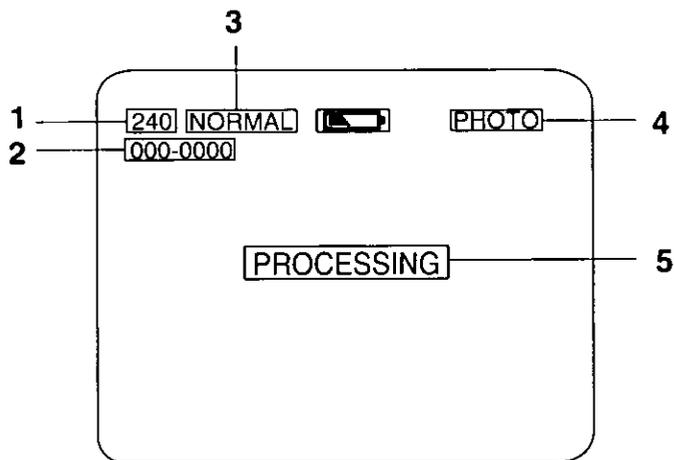
1 Image Page Remaining Indication
(pages 50, 51)
- Image pages left in selected mode. "000" flashes when memory is full.
- Memory capacity provided all pictures are taken in the same mode:
  "NORMAL" mode → Approx 240 images (Supplied 8 MB CompactFlash Card)
  "FINE" mode → Approx 60 images (Supplied 8 MB CompactFlash Card)

2 Directory/Image Number (page 54)

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

4 Recording Mode
- POWER is set to PHOTO.

5 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.

For Your Information

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Viewfinder/LCD Monitor Indications

```
 1   2   3              4
```

```
┌─────────────────────┐    ┌─────────────────────┐
│ ┌──┐  ┌──┐  ┌──┐     │    │                     │
│ │1 │  │2 │  │3 │     │    │                     │
│ └──┘  └──┘  └──┘     │    │ ┌─────────────────┐ │
│ ┌──┐ NO PICTURE      │    │ │ NO  CF  CARD    │ │
│ │4 │  ┌──┐  ┌──┐     │    │ └─────────────────┘ │
│ └──┘  └──┘  └──┘     │    │                     │
│                      │    │                     │
│ SELECT : PUSH -/+ KEY │    │                     │
│ SET    : PUSH PLAY KEY │   │                     │
│ DELETE : PUSH DEL KEY │    │                     │
└─────────────────────┘    └─────────────────────┘
```

1 **Currently selected image is underlined in green or red.**

2 **Multi Image Playback page number.**
   "NORMAL" mode → green
   "FINE" mode   → white

3 **Image Status Indication**
   NO PICTURE:
   No image is captured, all images are deleted from card.

4 **CF CARD Indication**
   When the CompactFlash Card is not inserted in CAMERA or PHOTO mode, "NO CF CARD" appears.
   If the CompactFlash Card is defective, "CF CARD ERROR" appears.

Operation Notes

Attaching Optional Filters and Lenses

When you remove the Lens Hood, pinch the Lens Hood and turn it counterclockwise as illustrated at right.

Then attach an optional filter or lens.
• Be careful not to touch the lens itself.
• Replace the Lens Hood after removing the accessory.
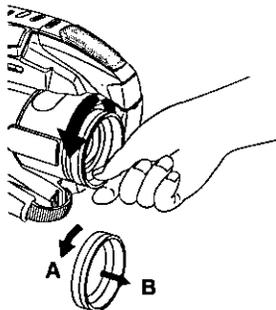
Lens Hood Area Operation Caution

With a Wide or Telephoto conversion lens (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

When attaching the lens hood, a Wide or Telephoto conversion lens (optional), etc. after a filter (optional) has been attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

With two filters (optional) attached, the four corners of the screen may darken when zoom is set to maximum wide angle.

Cleaning EVF (Electronic Viewfinder)

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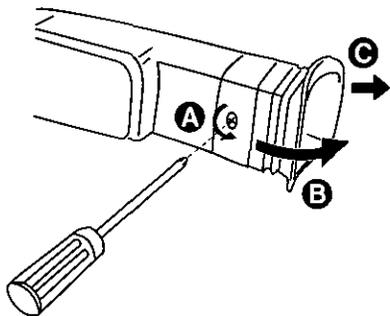
1 **A** Remove the screw with a Phillips screwdriver. Turn counterclockwise.
B Turn the EVF Eyepiece.
C Pull the EVF Eyepiece.

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.

For Your Information

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Replacing Clock/Remote Battery

The clock and remote batteries are 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
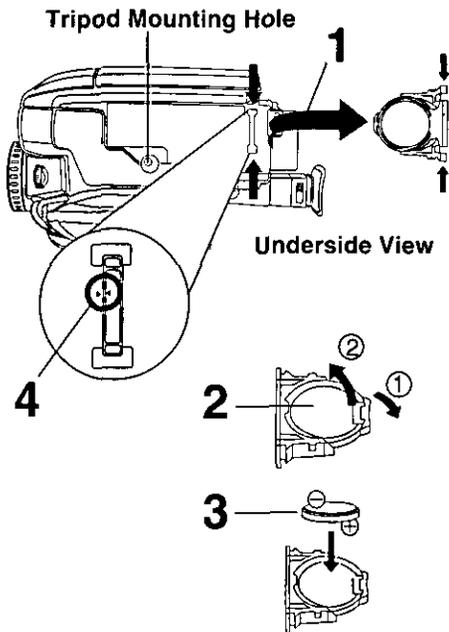
1 While pinching 2 tabs, pull Battery Tray out.

2 Bend 1 tab to remove Battery.

3 Snap new Battery (⊕ 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.
• Improperly installed, discharged, or missing battery causes "CLOCK BATTERY" to appear when DISPLAY is pressed.
• Battery life is approximately 5 years.

Remote Battery
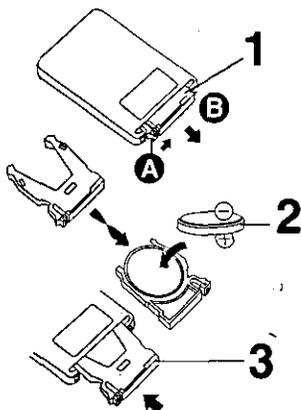
1 Ⓐ While pressing stopper tab,

Ⓑ pull Battery Tray out.

2 Insert battery into tray with ⊕ mark down.
Do not reverse polarity.

3 Replace Battery Tray.

Palmcorder Accessory System

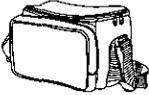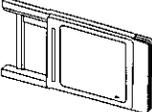For ordering instructions, see the Accessory Order Form page.

• The listed standard battery use times are based on continuous recording using this Palmcorder.

Accessory #	Figure	Description	Price
PV-A17		AC Adaptor with DC Power Cable	$130.00
HHR-V214A/K		6.0Ah / 6 hr Battery Pack with Universal Battery Charger	$200.00
P-V215A/1B		3.0Ah / 3 hr Battery Pack	$60.00
PV-BP17, P-V214A/1B		2.4Ah / 2 hr 30 min Battery Pack	$50.00
PV-BP18, P-V611A/1B		1.8Ah / 2 hr Battery Pack	$45.00
PV-BP15, P-V213A/1B		1.2Ah / 1 hr 10 min Battery Pack	$45.00
PV-AA6		"AA" Battery Case	$20.00
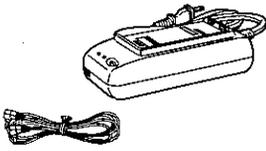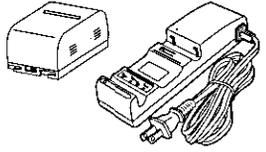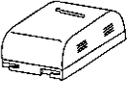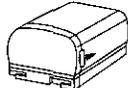
For Your Information

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Palmcorder Accessory System

For ordering instructions, see the Accessory Order Form page.

Accessory #	Figure	Description	Price
PV-C16		Car Battery Cord	$70.00
PV-RF16		RF Adaptor	$40.00
PV-P1		VHS PlayPak	$35.00
PV-H18A		Soft Sided Carrying Case	$49.00
KXL-D55		PCMCIA Adaptor	$39.00

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	5.00
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: MATSUSHITA 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

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

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

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: 6 V DC 8.5 W (Max. 11.5 W)
	AC Adaptor: 24 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:	26:1 zoom lens, F1:1.6 with auto iris control
	Focal length: 3.8 mm - 98.8 mm
	4 speed power zoom function
	Lens filter diameter: 49 mm
Viewfinder:	10.2 mm (0.4 inch) Electronic Viewfinder
LCD Monitor:	101.6 mm (4.0 inch) Liquid Crystal Display
Memory:	8 MB CompactFlash Card
Image Size:	FINE: 640 × 480 pixels
	Normal: 320 × 240 pixels
Image Storage:	FINE: Approx. 60 images
	Normal: Approx. 240 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)
Earphone Jack:	M3 Type
Operating Temperature:	0 °C~40 °C (32 °F~104 °F)
Operating Humidity:	10 %~75 %
Weight:	Compact VHS Camcorder: 1.09 kg
	2.4 lbs.
	AC Adaptor: 0.35 kg
	0.77 lbs.
Dimensions:	Compact VHS Camcorder:
	107 (W) × 118 (H) × 180 (D) mm
	4-1/4 (W) × 4-5/8 (H) × 7-1/8 (D) inch
	AC Adaptor: 70 (W) × 41 (H) × 145 (D) mm
	2-3/4 (W) × 1-5/8 (H) × 5-3/4 (D) inch

Weight and dimensions shown are approximate.

Designs and specifications are subject to change without notice.

Before Requesting Service

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. 12, 14) • Set POWER to VCR or CAMERA. (pp. 23, 29) • Check for Dew Indication. (p. 70) • Use fully charged Battery. (p. 12) • Firmly connect all needed cables. (p. 31)
The right side of the screen appears grayish...	• Be sure to slide Digital Select to Dgital Wipe. (p. 58)
Video cassette cannot be inserted ...	• Connect Power Source. (pp. 12, 14) • Insert cassette, window side facing out. (p. 15)
Video cassette cannot be removed ...	• Connect Power Source. (pp. 12, 14)
Operation buttons do not work ...	• Check for Dew Indication. (p. 70)
Recording cannot be done ...	• Make sure record tab is intact. (p. 15) • Check Battery Indicator. (p. 68) • Check for Dew Indication. (p. 70)
Auto Focus does not operate ...	• Set FOCUS to AUTO. (p. 35) • Set POWER to CAMERA. (p. 23)
Sound from microphone can't be monitored ...	• Set unit to REC or Record/Pause mode.
Camera picture is too dark ...	• Turn HIGH SPEED SHUTTER off. (p. 36)
No playback picture, or the playback picture is noisy or contains streaks ...	• Press UP ▲/DOWN ▼ button during playback (Tracking Control). (p.30)
"Panasonic ITS TAPES 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. 8)
"NO CF CARD" appears in EVF or LCD Monitor ...	• Make sure CompactFlash Card is inserted. (p. 49)
Cannot capture the image ...	• Set POWER to PHOTO. (p. 50) • No memory remaining. Delete some images before capturing more images.
Cannot playback Still image ...	• Set POWER to PHOTO. (p. 53) • Make sure CompactFlash Card is inserted. (p. 49)
"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 you TV does not have this control, or adjusting it does not help, contact your TV service center. (Some nominal service charges may be required.)

For Your Information

Before Requesting Service

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.

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 page 81. Then, take the camcorder to a service center for repair.

Error No.	Description
U11	CF Card Error
U12	CF Card Error
U13	CF Card Error
U14	CF Card/Camcorder Dialogue Error
U15	No CF 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.

In the unlikely event this product needs service.
• Please include your **proof of purchase**.
(Failure to due so will delay your repair.)

• To further speed your repair please provide an explanation of what is wrong with the unit and any symptom it is exhibiting.

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

Please write the displayed Self Diagnostic number here.
(See page 80)

Warranty

PANASONIC/QUASAR Video Products
Limited Warranty

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

PRODUCT	PARTS	LABOR
CAMCORDER	ONE (1) YEAR, EXCEPT CCD IMAGE SENSOR	NINETY (90) DAYS
	CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS
VCR	ONE (1) YEAR	NINETY (90) DAYS
A/V MIXER	ONE (1) YEAR	NINETY (90) DAYS
MONITOR-VCR	ONE (1) YEAR, EXCEPT CRT	NINETY (90) DAYS
	CRT - TWO (2) YEARS	CRT- NINETY (90) DAYS CUSTOMER PAYS ALL LABOR CHARGES AFTER 90 DAYS

Monitor-VCR In-home or carry-in Service: 22" (diagonal) CRT / LCD and Larger
Monitor-VCR Carry-in Service: 21" (diagonal) CRT / LCD and smaller

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

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

In-home, carry-in or mail-in service, as applicable, in the USA can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Service Directory. Or call toll free 1-800-211-PANA(7262), 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 required 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 TAPES) 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 Customer Satisfaction Center 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 10/20/97

Warranty

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

Product Repairs | ***Centralized Factory Servicenter***

MAIL TO :

Panasonic Services Company
1705 N. Randall Road,
Elgin, IL 60123-7847
Attention: Camcorder Repair

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

Factory Servicenters Locations

CALIFORNIA

6550 Katella Avenue
Cypress, CA 90630

800 Dubuque Avenue
S. San Francisco
CA 94080

20201 Sherman Way
Suite 102
Canoga Park, CA 91306

3878 Ruffin Road
Suite A
San Diego, CA 92123

COLORADO

1640 South Abilene
Street Suite D
Aurora, CO 80012

FLORIDA

3700 North 29th Avenue
Suite 102
Hollywood, FL 33020

GEORGIA

8655 Roswell Road
Suite 100
Atlanta, GA 30350

ILLINOIS

9060 Golf Road
Niles, IL 60714

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

MARYLAND

62 Mountain Road
Glen Burnie, MD 21061

MASSACHUSETTS

60 Glacier Drive
Suite G
Westwood, MA 02090

MICHIGAN

37048 Van Dyke Avenue
Sterling Heights,
MI 48312

MINNESOTA

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

OHIO

2236 Waycross Road
Civic Center Plaza
ForestPark, OH 45240

PENNSYLVANIA

2221 Cabot Blvd. West
Suite B
Langhorne, PA 19047

Chartiers Valley
Shopping Center
1025 Washington Pike
Bridgeville, PA 15017

TENNESSEE

3800 Ezell Road
Suite 806
Nashville, TN 37211

TEXAS

7482 Harwin Drive
Houston, TX 77036

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

For Your Information

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For assistance, call 1-800-211-PANA(7262)

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For Your Information

Spanish Quick Use Guide/Guía Para Uso Rápido
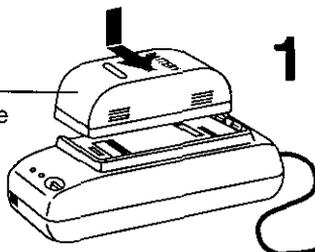
Antes de comenzar...

• Inserte un casete con lengüeta para prevención del grabado.

Cargue la batería

Cargue completamente la batería antes de usarla.

2 Inserte la batería.
La lámpara CHARGE se enciende y se apaga al terminar de cargar.
**Desmonte la batería.**

1 Enchufe el adaptador de CA.

Inserción de la Tarjeta CompactFlash

Cuando no se haya insertado la Tarjeta CompactFlash en el modo CAMERA o PHOTO , en la pantalla aparecerá **"NO CF CARD"**. Asegúrese de insertar la Tarjeta CompactFlash antes de utilizar la Cámara Fija Digital Incorporada.
La grabación CAMERA es posible incluso cuando no se ha insertado la Tarjeta CompactFlash.
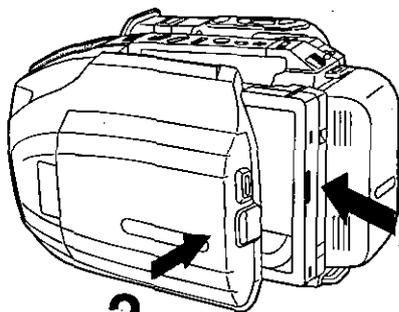
2 Deslice TAPE EJECT para abrir la compuerta.
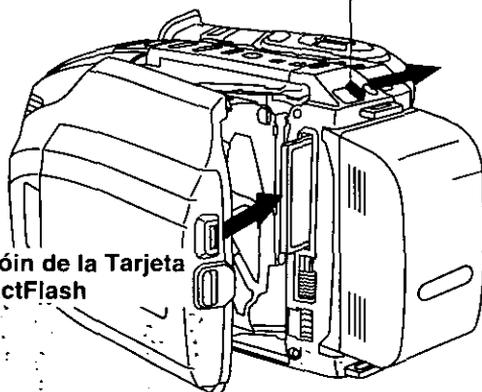
1 Coloque la batería cargada.
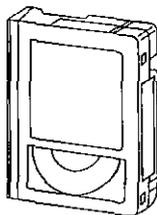
3 Inserción de la Tarjeta CompactFlash

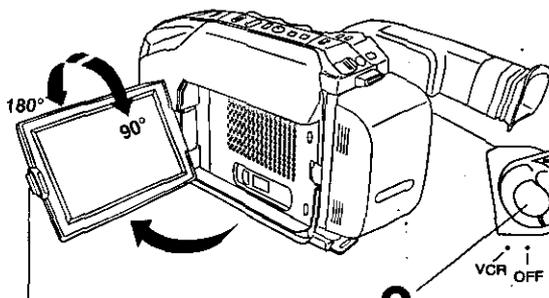# Spanish Quick Use Guide/Guía Para Uso Rápido

Inserte el casete

1 Inserte el casete.

2 **Presione aquí** para cerrar la compuerta.

Grabación con la videocámara

Cuando el monitor LCD está completamente abierto, el visor se desconecta automáticamente.

180°
90°

2 **Ajuste POWER a CAMERA.**

PHOTO
VCR OFF CAMERA

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

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

For Your Information

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# Spanish Quick Use Guide/Guía Para Uso Rápido

Antes de comenzar...

• Conecte la fuente de alimentación de la videocámara (batería o adaptador de CA)
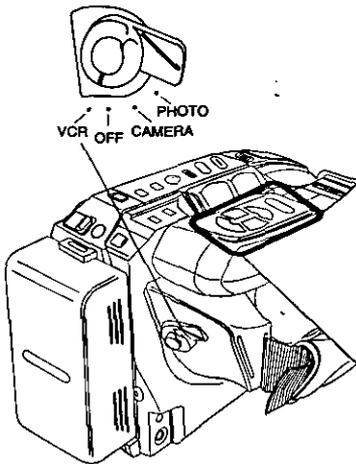• Inserte un casete con lengüeta para prevención del grabado.

Reproduzca usando el monitor LCD

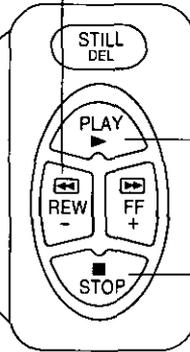Cuando el monitor LCD está completamente abierto, el visor se desconecta automáticamente.

1 **Presione LCD-OPEN** para abrir el monitor LCD. **Abralo completamente y ajuste el ángulo.**
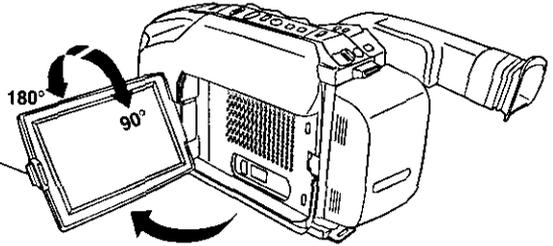
2 **Ajuste POWER a VCR.**

3 **Presione REWIND/SEARCH** para rebobinar la cinta.

4 **Presione PLAY** para comenzar la reproducción.

5 **Presione STOP** para finalizar la reproducción.

Reproducción 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.

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Printed in Japan
LSQT0203A
S0100-0